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OFFICIAL GAZETTE
UNITED STATES
PATENT OFFICE
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MICRO PHOTO DIVISION



BELL & HOWELL

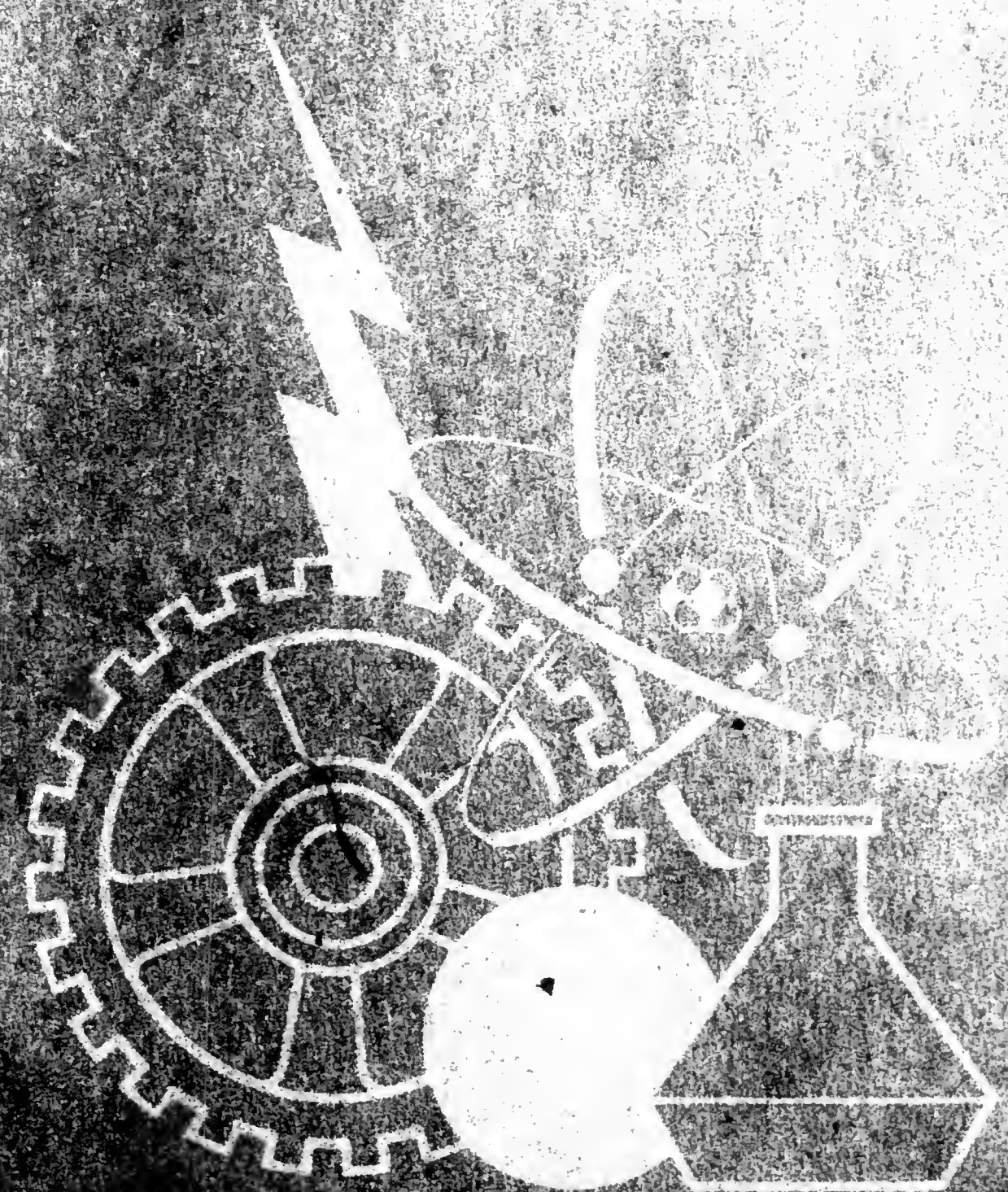
OFFICIAL GAZETTE

UNITED STATES PATENT



U.S.
DEPARTMENT
OF COMMERCE

Patent
and
Trademark
Office



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The following are mailed under direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed:

THE OFFICIAL GAZETTE (PATENT SECTION), issued weekly.

THE OFFICIAL GAZETTE (TRADEMARK SECTION), issued weekly.

GENERAL INFORMATION concerning PATENTS.

GENERAL INFORMATION concerning TRADEMARKS.

PRINTED COPIES OF PATENTS are furnished by the Patent and Trademark Office at \$1.00 each; PLANT PATENTS in color, \$8.00 each; copies of TRADEMARKS at \$1.00 each. Address orders to the Commissioner of Patents and Trademarks, Washington, D.C., 20231.

Printing authorized by Section 11(a)3 of Title 35, U.S. Code P.T.O.

PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries and the most recent PCT rule changes, see the notices appearing in the Official Gazette at 1001 O.G. 14 on Dec. 9, 1980 and at 1012 O.G. 20 on Nov. 17, 1981. For use of the European Patent Office as a searching authority for PCT applications filed in the United States, see the notice in the Official Gazette of Sept. 28, 1982 at 1022 O.G. 52.

Note that the international fees have been increased as of Jan. 1, 1982 and that the domestic PCT fees have been increased as of Oct. 1, 1982. Domestic PCT fees were increased by a rule change which was published at 1021 O.G. 11 on Aug. 10, 1982. The current schedule of fees is as follows:

Transmittal fee	\$ 125.00
Search fee	
U.S. Patent and Trademark Office as Searching Authority	
• No corresponding prior U.S. national application filed	500.00
• Corresponding prior U.S. national application filed	250.00
European Patent Office as Searching Authority	
• All cases	710.00
International Fees	
Basic Fees (first 30 pages)	270.00
Basic Supplemental Fee (for each sheet over 30)	6.00
Designation fee (for each national or regional office)	65.00

Sept. 10, 1982. DONALD J. QUIGG,
Deputy Commissioner
of Patents & Trademarks.

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,268,351, Re. S.N. 393,979, Filed June 30, 1982, Cl. 430/99, XEROGRAPHIC FIXING METHOD AND APPARATUS, Warren G. Van Dorn, Owner of Record: Xerox Corp., Rochester, N.Y., Attorney or Agent: Benjamin B. Sklar, Ex. Gp.: 166

3,698,271, Re. S.N. 415,452, Filed Sept. 7, 1982, Cl. 83/99, ADJUSTABLE AIR EJECT DIE-CUTTING SYSTEM, Martin Kesten, et al., Owner of Record: Preston Engravers, Inc., Windsor, Conn., Attorney or Agent: Peter L. Costas, Ex. Gp.: 324

3,870,515, Re. S.N. 392,407, Filed June 25, 1982, Cl. 430/126, METHOD FOR ELECTROSTATIC PAPER STRIPPING BY NEUTRALIZATION OF TRANSFER CHARGE, Norbert H. Kaupp, Owner of Record: Xerox Corp., Rochester, N.Y., Attorney or Agent: Paul F. Morgan, Ex. Gp.: 166

4,223,372, Re. S.N. 418,678, Filed Sept. 16, 1982, Cl. 362/8, ELECTRIC FLASH DEVICE, Yoskiyuki Takematsu, Owner of Record: Assignor of 50% to Fuji Koei Corp., Tokyo, Japan, Attorney or Agent: Martin Fleit, Ex. Gp.: 223

4,260,902, Re. S.N. 428,780, Filed Sept. 30, 1982, Cl. 290/43, FLUID-DRIVEN ROTARY ENGINE, Wil-

liam A. Crider, Owner of Record: Inventor, Attorney or Agent: Henry Shur, et al., Ex. Gp.: 217

4,231,719, Re. S.N. 429,956, Filed Sept. 30, 1982, Cl. 417/366, PROCEDURE AND APPARATUS FOR DEGASSING FUEL SUPPLY PUMP, Peter Ringwald, et al., Owner of Record: Robert Bosch G.m.b.H., Stuttgart, West Germany, Attorney or Agent: Edwin E. Greigg, Ex. Gp.: 343

4,242,109, Re. S.N. 415,114, Filed Sept. 7, 1982, Cl. 55/230, AIR CLEANER AND HUMIDIFIER, John W. Edwards, Owner of Record: Inventor, Attorney or Agent: Henry C. Bunson, et al., Ex. Gp.: 177

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

3,837,501, Reexam. No. 90/000,283, Requested: Nov. 4, 1982, Cl. 210/522, SEPARATION DEVICE, Jacob Pielkenrood, Owner of Record: Requester, Attorney or Agent: Fulbright & Jaworski, Ex. Gp.: 176 Requester: Pielkenrood-Vinitex B.V., Assendelft, Holland

4,266,236, Reexam. No. 90/000,285, Requested: Nov. 8, 1982, Cl. 357/34, TRANSISTOR HAVING EMITTER RESISTORS FOR STABILIZATION AT HIGH POWER OPERATION, Kazuyoshi Ueda, Owner of Record: Nippon Electric Co., Ltd., Tokyo, Japan, Attorney or Agent: Sughrue, Rothwell, et al., Ex. Gp.: 253, Requester: Fujitsu Ltd., Kawasaki, Japan

Registration to Practice

The following list contains the names of persons applying for registration to practice before the United States Patent and Trademark Office. Information tending to affect the eligibility of said applicants on moral, ethical, or other grounds, should be furnished the Commissioner of Patents and Trademarks on or before Jan. 7, 1983.

Nov. 10, 1982. DONALD J. QUIGG,
Chairman, Committee
on Enrollment.
Carrier, Robert, 255 Quinn Blvd., Longueuil, Que., Canada J4H 2M9
Goldman, Michael L., 2727 S. Buchanan St., Arlington, Va. 22206

Removal from Register

Pursuant to the provisions of 37 C.F.R. 1.347, a letter was directed on Sept. 15, 1982, to Mr. Melvin K. Silverman at Silverman & Jackson, 999 Clifton Ave., Clifton, N.J. 07013, the last known post office address of record with the Committee on Enrollment. No reply was received within the period of thirty days therein set. Accordingly, his name is being removed from the Register of Attorneys.

DECEMBER 7, 1982

U.S. PATENT AND TRADEMARK OFFICE

1025 OG 3

Pursuant to the provisions of 37 C.F.R. 1.347, a letter was directed on Sept. 29, 1982, to Mr. John M. O'Neill at 9334 Ellen, Highland, Ind. 46322 the last post office address furnished by him to the Committee on Enrollment. No reply was received within the period of thirty days therein set. Accordingly, his name is being removed from the Register of Attorneys.

Nov. 10, 1982. DONALD J. QUIGG,
Chairman, Committee
on Enrollment.

Department of Commerce Patent and Trademark Office 37 CFR Parts 1 and 2 [Docket No. 21001-200]

Court Review of Patent and Trademark Office Decisions; Correction
AGENCY: Patent and Trademark Office, Commerce.
ACTION: Final rule: Correction.

SUMMARY: Patent and Trademark Office corrects an inadvertent error in a final rule published in the Federal Register on Oct. 26, 1982 (47 FR 47380) which amended its rules of practice relating to court review of its decisions.

FOR FURTHER INFORMATION CONTACT: Joseph F. Nakamura by telephone at (703) 557-3525 or by mail marked to his attention and addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231

SUPPLEMENTARY INFORMATION: On Oct. 26, 1982, the Patent and Trademark Office published a final rulemaking action revising paragraphs (a) and (c) of § 1.304 in Title 37, Code of Federal Regulations, to correct a reference in these paragraphs to the U.S. Court of Customs and Patent Appeals. The correction substitutes the name of the successor court, the U.S. Court of Appeals for the Federal Circuit. Through inadvertence, the text of paragraph (a) which was published on Oct. 26, 1982, was the text which had been superseded on Oct. 1, 1982, pursuant to an earlier final rulemaking action published in the Federal Register on July 30, 1982 (47 FR 33086). In the earlier final rulemaking action, paragraph (a) but not (c), of § 1.304 had been revised to correct the name of the court. Accordingly, the revision of paragraph (a) of § 1.304 in the later rulemaking action published on Oct. 26, 1982, in the Federal Register (47 FR 47380) is being deleted.

Oct. 29, 1982. DONALD J. QUIGG,
Acting Commissioner of
Patents and Trademarks.

The following correction is made in the Federal Register notice of final rulemaking published Oct. 26, 1982 (47 FR 47380):

In paragraph No. 6 on page 47381, the language "paragraphs (a) and" in the introductory sentence is changed to read "paragraph" and the text of paragraph (a) of § 1.304 on pages 47381-47382 is removed.

[FR Doc. 82-30401 Filed 11-4-82; 8:45 am]

BILLING CODE 35 10-16-M

Change in Location of December 16, 1982 Rule Hearing

The public hearing scheduled for Dec. 16, 1982 concerning proposed rules on "Revision of Patent Procedure" published on Oct. 27, 1982 at 47 FR 47744-47756 and on Nov. 2, 1982 at 1024 O.G. 5-38 will be held in Salon H, Marriott Crystal Gateway, 1700 Jefferson Davis Hwy., Arlington, Va. instead of in Room 11C24 of Bldg. 3, Crystal Plz., as previously indicated. The hearing will begin at 9:30 A.M. Requests to present oral testimony at the hearing should be received on or before Dec. 9, 1982.

Nov. 15, 1982. GERALD J. MOSSINGHOFF,
Commissioner of Patents
and Trademarks.

National Technical Information Service

U.S. GOVERNMENT-OWNED INVENTIONS

Notice of Availability for Licensing

The inventions listed below are owned by agencies of the U.S. Government and are available for licensing in the U.S. in accordance with 35 U.S.C. 207 to achieve expeditious commercialization of results of federally funded research and development. Foreign patents are filed on selected inventions to extend market coverage for U.S. companies and may also be available for licensing.

Technical and licensing information on specific inventions may be obtained by writing to:

Office of Government Inventions and Patents
U.S. Department of Commerce
P.O. Box 1423
Springfield, Va. 22151

Please cite the number and title of inventions of interest.

DOUGLAS J. CAMPION,

Program Coordinator,

Office of Government Inventions and Patents
National Technical Information Service
U.S. Department of Commerce.

SN 6-398,001. PROPAGATION OF HEMORRHAGIC ENTERITIS VIRUS IN A TURKEY CELL LINE. Department of Agriculture.

SN 6-367,638. A NOVEL SYNTHESIS OF ARYL ESTERS AND ARYL THIOESTERS OF INDOLE-3-ACETIC AND INDOLE-3-BUTYRIC ACIDS AND THEIR USE AS AUXIN GROWTH REGULATORS. Department of Agriculture.

SN 6-367,639. SYNTHESIS OF N-PHENYL AND N-SUBSTITUTED PHENYL INDOLYL-3-ACETAMIDE AND INDOLYL-3-BUTYRAMIDE AND RELATED ESTERS AND THIOESTERS AND THEIR USE AS AUXIN GROWTH REGULATORS. Department of Agriculture.

SN 6-391,064. ERYTHRO-9, 10-DIHYDROXYOCTADECAN-1-OL ACETATE A BOLL WEEVIL ANTI-FEEDANT. Department of Agriculture.

SN 6-326,996. CONTROL OF PARASITIC TICKS. Department of Agriculture.

SN 6-326,995. CONTROL OF PARASITIC TICKS. Department of Agriculture.

SN 6-345,455. EXTENDING PLATE EARTH ANCHOR AND METHOD. Department of Agriculture.

SN 6-322,332. ROD PRESS FRUIT HARVESTER. Department of Agriculture.

SN 6-347,129. RECIRCULATING WIPER FOR AGRICULTURAL CHEMICALS. Department of Agriculture.

SN 6-337,045. RADIATION-RESISTANT FLUOROAROMATIC ETHERS. Department of Agriculture.

SN 6-337,044. SEGMENTED FIBER SAMPLER. Department of Agriculture.

SN 6-332,906. PROCESS AND APPARATUS FOR ENCAPSULATING ADDITIVES IN RESEALED ERYTHROCYTES FOR DISSEMINATING CHEMICALS VIA THE CIRCULATORY SYSTEM. Department of Agriculture.

SN 6-332,905. PROCESS AND APPARATUS FOR ENCAPSULATING ADDITIVES IN RESEALED ERYTHROCYTES FOR DISSEMINATING CHEMICALS VIA THE CIRCULATORY SYSTEM. Department of Agriculture.

SN 6-364,517. EXPRESSION OF RETROVIRAL MYC GENES IN HUMAN NEOPLASTIC CELLS. Department of Health & Human Services.

SN 6-304,571. A SIMIAN VIRUS RECOMBINANT THAT DIRECTS THE SYNTHESIS OF HEPATITIS B SURFACE ANTIGEN. Department of Health & Human Services.

SN 6-414,904. BLOOD PRESSURE CUFF CALIBRATION SYSTEM. Department of Health & Human Services.

SN 6-423,203. REPAIR OF TISSUE IN ANIMALS. Department of Health and Human Services.

SN 6-100,843 (4,308,145). RELATIVELY THICK POLYCARBONATE MEMBRANES FOR USE IN HEMODIALYSIS. Department of Health & Human Services.

SN 6-208,029 (4,349,538). NUCLEASE-RESISTANT HYDROPHILIC COMPLEX OF POLYRIBOINOSINIC-POLYRIBOCYTIDYLIC ACID. Department of Health & Human Services.

SN 6-831,279 (4,350,984). METHOD OF POSITION FIXING ACTIVE SOURCES UTILIZING DIFFERENTIAL DOPPLER. National Security Agency.

SN 6-274,087 (4,351,130). RECESSIVE TALL-A FOURTH GENETIC ELEMENT TO FACILITATE HYBRID CEREAL PRODUCTION. Department of Agriculture.

SN 6-294,095 (4,351,857). NEW SURFACE IN CELLULOSIC FIBERS BY USE OF RADIOFREQUENCY PLASMA OF AMMONIA. Department of Agriculture.

SN 6-314,323 (4,352,827). ALTERED BRINING PROPERTIES OF PRODUCE BY A METHOD OF PRE-BRINING EXPOSURE OF THE FRESH PRODUCE TO OXYGEN OR CARBON DIOXIDE. Department of Agriculture.

SN 6-276,768 (4,352,930). BROMINE-CONTAINING 2,4-DIAMINOTRIAZINES. Department of Agriculture.

SN 6-790,988 (4,353,375). ACTIVITY MONITOR FOR AMBULATORY SUBJECTS. Department of Health & Human Services.

SN 6-302,007 (4,353,707). TEXTILE FINISHING AGENTS FROM REACTION PRODUCTS OF CARBAMATES AND GLUTARALDEHYDE. Department of Agriculture.

SN 6-254,318 (4,354,352). CATALYTIC COATING TO DIRECTLY GENERATE HEAT UPON THE SURFACE OF A HEAT DOME. Department of the Interior.

SN 6-153,074 (4,354,821). MULTIPLE STAGE CATALYTIC COMBUSTION PROCESS AND SYSTEM. Department of the Environmental Protection Agency.

SN 6-187,382 (4,355,051). DIRECT EXTRACTION PROCESS FOR THE PRODUCTION OF A WHITE DEFATTED FOOD-GRADE PEANUT FLOUR. Department of Agriculture.

SN 6-115,538 (4,355,727). INTERMEDIATE SUPPORT FOR A SKYLINE LOGGING SYSTEM. Department of Agriculture.

SN 6-199,781 (4,356,117). CHEMICAL MODIFICATIONS OF PROTEINS WHICH INDUCE NEW RECEPTOR SPECIFICITIES AND THEREFORE ELICIT NEW EFFECTS IN CELLS. Department of Health & Human Services.

SN 6-040,921 (4,356,164). DETECTION OF NON-A, NON-B HEPATITIS ASSOCIATED ANTIGEN. Department of Health & Human Services.

SN 6-245,463 (4,356,180). INSECT REPELLANTS. Department of Agriculture.

SN 6-098,460 (4,353,926). SODA CRACKERS. Department of Agriculture.

Reorganization of the Trademark Examining Operation

Introduction

The Trademark Examining Operation has reorganized its staff by adding two additional law offices (divisions)—namely, Law Office VII and Law Office VIII. A large number of examining attorneys and trademark classes have been transferred between law offices.

All clerical operations are still being handled by Law Offices I to VI for the time being. Instructions regarding access to trademark applications being examined in Law Offices VII and VIII may be obtained from clerical personnel in Law Offices I to VI.

A directory of examining attorneys is set forth below. The classes of goods and services assigned to each law office are also listed. All correspondence and inquiries pertaining to a trademark application should identify the current law office and the examining attorney handling the application.

The Trademark Examining Operation will obtain additional office space on the fourth floor of Crystal Plaza Building 2 in early 1983. At that time Law Offices VII and VIII will be relocated and will have their own clerical support.

DIRECTORY—TRADEMARK EXAMINING ATTORNEYS

(Separate telephone numbers are shown for Examining Attorneys who cannot be reached through their central Law Office number)

Tel. 557-3273
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Catalano, Steven
Conde, Anthony

Conn, William
Coyle, Mary
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Mack, Mary
Matthews, Amos
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Neilson, Roy
Ricciuti, Janet

Seeherman, Ellen
Washington, Bushrod (557-5380)
Wendel, Helen (557-5380)
White, Cynthia

LAW OFFICE CLASS ASSIGNMENTS

Law Office 1—International Class

Law Office 2—International Class

Law Office 3—International Class

Law Office 4—International Class

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Soroka, David
Tassan, Bruce

557-2937
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Myrtle Robinson,
Secretary

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Hebert, Nancy
Herman, Russ
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Kolakoski, Richard
Marks, Martin
Sidoti, Christopher
Sparrow, Mary
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Flom, Richard
Hamilton, Michael (557-3273)
Hebert, Thomas (557-5380)

Hooks, Arnold (557-3277)
Land, Ernest (557-5380)
Quinn, Jeff
Sachs, Abram

16—Paper goods and printed matter
28—Toys and sporting goods
21—Housewares and glass
29—Meats and processed foods
30—Staple foods
31—Natural agricultural products
32—Light beverages
33—Wines and spirits
9—Electrical and scientific apparatus
12—Vehicles
15—Musical instruments

(SERVICES)
35—Advertising and business

Law Office 5—International Class

Law Office 6—International Class

Law Office 7—International Class

Law Office 8—International Class

Nov. 5, 1982.

36—Insurance and financial
37—Construction and repair
38—Communication
39—Transportation and storage
40—Material treatment
41—Education and entertainment
42—Miscellaneous
(CERTIFICATION MARKS)
A. Goods
B. Services
200 COLLECTIVE MEMBERSHIP MARKS

14—Jewelry
18—Leather goods
22—Cordage and fibers
23—Yarns and threads
24—Fabrics
25—Clothing
26—Fancy goods
27—Floor coverings
34—Smokers articles

20—Furniture and Miscellaneous
(SERVICES)
35—Advertising and business

36—Insurance and financial
37—Construction and repair
38—Communication
39—Transportation and storage
40—Material treatment
41—Education and entertainment
42—Miscellaneous
(CERTIFICATION MARKS)
A. Goods
B. Services
200 COLLECTIVE MEMBERSHIP MARKS

1—Chemicals
2—Paints
3—Cosmetics and cleaning preparations
4—Lubricants and fuels
5—Pharmaceuticals
6—Metal goods
7—Machinery
8—Hand tools
10—Medical apparatus
11—Environmental control apparatus
13—Firearms
17—Rubber goods
19—Non-metallic building materials

MARGARET M. LAURENCE,
Assistant Commissioner
for Trademarks.

XEROX LICENSE OFFER

This notice is published pursuant to a CONSENT ORDER TO CEASE AND DESIST dated July 29, 1975, as modified Sept. 10, 1982, between Xerox Corp. and the Federal Trade Commission.

TERMS contained in this notice are defined in the Consent Order. All interested parties should refer to that document for the definitions and additional details of Xerox' patent and know-how licensing obligations thereunder. A copy of the Consent Order and a list of PATENTS licensed to Xerox which are subject to the provisions of paragraphs II and IV (C) (9) of the Order, if any, are available from Xerox upon written request. All such requests and any request relating to the licensing of PATENTS pursuant to the Consent Order should be made in writing and addressed to:

The Manager of Patent Licensing
Xerox Corp.
P.O. Box 1600
Stamford, Conn. 06904

CLASS: 1J1A

4,306,803.—MICROPROCESSOR AND CONTROL APPARATUS IN A PHOTOCOPIER. Dec. 22, 1981. CAN. 1121062, GRB. 1604762.

CLASS: 2A2

4,282,298.—LAYERED IMAGING MEMBER AND METHOD. Aug. 4, 1981. AUS. 452652, BEL. 763540, BRA. P17100874, CAN. 960073, CHL. 26781, EGR. 94761, FIN. 56906, FRA. 7107558, GRB. 1337228, GUA. 2431, ITL. 919107, MEX. 135819, NZL. 162882, PLP. 10503, PNM. 2442, SAF. 1218, SPN. 388583, STZ. 567286, SWD. 7102340, USR. 497783.

CLASS: 2B

4,304,829.—IMAGING SYSTEM WITH AMINO SUBSTITUTED PHENYL METHANE CHARGE TRANSPORT LAYER. Dec. 8, 1981.

CLASS: 5F

4,331,754.—SELF-SPACING TOUCHDOWN DEVELOPMENT METHOD. May 25, 1982.

CLASS: 5N4

4,297,427.—POLYBLEND COATED CARRIER MATERIALS. Oct. 27, 1981. SPN. 477166.

Xerox shall, in accordance with the terms of the Consent Order, grant licenses under

(a) its ORDER PATENTS to make, have made, use ad vend OFFICE COPIER PRODUCTS under the terms of the Consent Order; and

(b) patents which are required to be licensed pursuant to the terms of paragraph X of the Consent Order, if any.

The following is a list of patents which is believed to include all of the PATENTS available for licensing in accordance with the terms of the Consent Order issued since the publication of the last notice by Xerox (1012 OG-55). Fuji Xerox, Ltd. patents which also make up part of the list are grouped separately. A copy of the classification index for the listed patents also appears at 1012 OG-55. Since the classification system is not restricted solely to OFFICE COPIER PRODUCTS, there are several patents included in the list to which the Consent Order is not applicable.

CLASS: 8A1A

4,309,957.—WICK FOR DISPENSING FUSER OIL. Jan. 12, 1982. CAN. 1114885, GRB. 1544319.

CLASS: 17H3

4,302,782.—REPRODUCTION SCANNING SYSTEM HAVING INTERMEDIATE STORAGE SYSTEM HAVING INTERMEDIATE STORAGE BETWEEN INPUT AND OUTPUT SCANNING STATIONS. Nov. 24, 1981. BEL. 864706, CAN. 1119240, GRB. 1601325.

CLASS: 18C2A

4,298,672.—TONERS CONTAINING ALKYL PYRIDINIUM COMPOUNDS AND THEIR HYDRATES. Nov. 3, 1981. SPN. 493002.

CLASS: 18C6B

4,293,632.—ATTRITION PROCESS FOR ALTERATION OF TONER PARTICLES CONTAINING CONDUCTIVE MATERIALS. Oct. 6, 1981.

CLASS: 32B

4,306,803.—MICROPROCESSOR AND CONTROL APPARATUS IN A PHOTOCOPIER. Dec. 22, 1981. CAN. 1121062, GRB. 1604762.

PATENT NOTICES

Certificates of Correction for the Week of Dec. 7, 1982.

Re. 30,962	4,302,574	4,335,549	4,347,333
D. 263,081	4,302,629	4,335,620	4,348,021
3,973,434	4,302,754	4,336,559	4,348,305
4,013,516	4,304,472	4,336,989	4,348,797
4,112,090	4,304,775	4,337,134	4,348,832
4,195,178	4,311,550	4,337,853	4,348,893
4,225,415	4,311,661	4,338,035	4,349,380
4,225,720	4,312,323	4,338,127	4,349,443
4,241,494	4,313,005	4,338,145	4,349,587
4,245,234	4,317,717	4,338,169	4,349,663
4,247,357	4,318,823	4,338,969	4,350,027
4,265,903	4,320,347	4,339,209	4,350,106
4,270,597	4,321,200	4,339,268	4,350,138
4,271,400	4,324,690	4,340,902	4,350,220
4,274,032	4,324,738	4,340,973	4,350,325
4,274,072	4,325,038	4,341,582	4,350,574
4,275,213	4,325,174	4,341,877	4,350,640
4,276,947	4,328,375	4,341,981	4,351,252
4,279,905	4,328,468	4,343,980	4,351,636
4,282,084	4,328,993	4,344,067	4,352,640
4,283,236	4,329,986	4,344,576	4,353,295
4,284,509	4,330,393	4,345,328	4,353,409
4,293,370	4,330,482	4,346,360	4,353,414
4,293,873	4,330,483	4,346,491	4,353,759
4,296,474	4,331,613	4,346,583	4,353,812
4,298,916	4,331,722	4,346,949	4,353,993
4,298,953	4,332,982	4,347,197	
4,301,019	4,335,174	4,347,322	

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

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Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	Name of Library	Telephone Contact
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Arizona	Tempe: Science Library, Arizona State University	(602) 965-7607
California	Los Angeles Public Library	(213) 626-7555 Ext. 273
	Sacramento: California State Library	(916) 322-4572
	Sunnyvale: Patent Information Clearinghouse*	(408) 738-5580
Colorado	Denver Public Library	(303) 571-2122
Delaware	Newark: University of Delaware	(302) 738-2238
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4508
Illinois	Chicago Public Library	(312) 269-2865
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library & Information Center	(612) 372-6552
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214, Ext. 215
Nebraska	Lincoln: University of Nebraska-Lincoln, Engineering Library	(402) 472-3411
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7814
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 255-7055 Ext. 212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1321**
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
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Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 748-9071
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

*Collection organized by subject matter.

**Call only between the hours of 10:00 a.m. and 5:00 p.m.

PATENT EXAMINING CORPS RENE D. TEGTMEYER, Assistant Commissioner WILLIAM FELDMAN, Deputy Assistant Commissioner CONDITION OF PATENT APPLICATIONS AS OF October 16, 1982

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director	11-12-80
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director	7-20-81
Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director	5-13-81
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthodontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director	4-27-81
Coating; Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director	1-18-81
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director	9-08-80
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director	3-02-81
Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—EARL LEVY, Director	11-24-80
Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240—G. M. FORLENZA, Director	2-02-80
Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director	11-26-79
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
DESIGN, GROUP 290—KENNETH L. CAGE, Director	10-20-80
Industrial Arts; Household, Personal and Fine Arts.	
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director	5-01-81
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director	2-06-81
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director	2-13-80
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director	11-17-80
Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—A. L. SMITH, Director	8-22-80
Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	

Expiration of patents: The patents within the range of numbers indicated below expire during October 1982, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents Numbers 3,209,369 to 3,214,766, inclusive
Plant Patents Numbers 2,558 to 2,565 inclusive

DEFENSIVE PUBLICATIONS

PUBLISHED DECEMBER 7, 1982

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent and Trademark Office makes no assertion as to the novelty of the disclosed subject matter.

T102,501

PROCESS OF PREPARING A POTASSIUM STANNATE-STANNIC OXIDE SOL TIN ELECTROPLATING SOLUTION

Richard Croft, Lakewood, Ohio

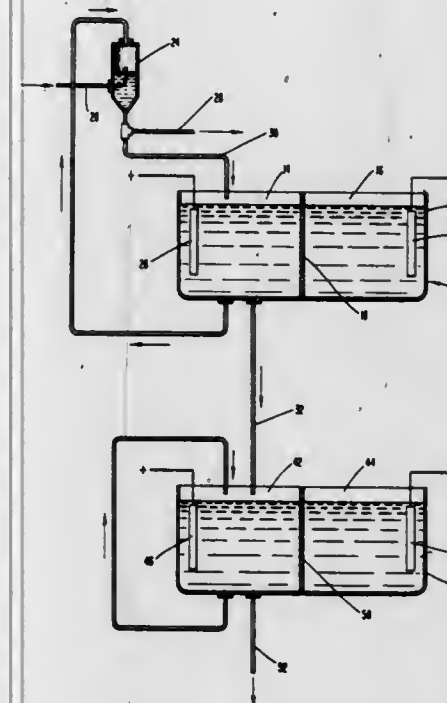
Continuation of Ser. No. 198,620, Oct. 20, 1980, abandoned.

This application Nov. 17, 1981, Ser. No. 322,378.

Int. Cl.³ C25B 1/00

U.S. Cl. 204-96

1 Sheets Drawing. 22 Pages Specification



A process for the production of a stannic oxide sol-potassium stannate tin plating solution is disclosed comprising the steps of:

- anodically dissolving stannous tin in a potassium electrolyte such as potassium hydroxide to form potassium stannite in a first electrolytic cell including an anode compartment and a cathode compartment;
- simultaneously preventing the potassium stannite from migrating from the anode compartment to the cathode compartment by interposing therebetween a permselective ion exchange membrane (e.g., an anionic permselective membrane);
- oxidizing said potassium stannite to form a potassium stannate-containing solution by suitable means such as by contacting an oxygen-containing gas with the potassium stannite in a scrubbing tower;
- electrodialytically transferring potassium cations of said potassium stannate-containing solution from an anode compartment of a second electrolytic cell to a cathode compartment of said second electrolytic cell while simultaneously preventing migration of tin anions from said anode compartment to the cathode compartment by maintaining a cation permselective dialytic membrane between the anode and the cathode; and
- recovering a stannic oxide sol-potassium stannate solution from the anode compartment of said second electrolytic cell.

T102,502

GAP ELIMINATION IN MEMORY DATA ACCESSION

Clifton D. Cullum, Jr., Lincoln Rd., Putnam Valley, N.Y. 10579

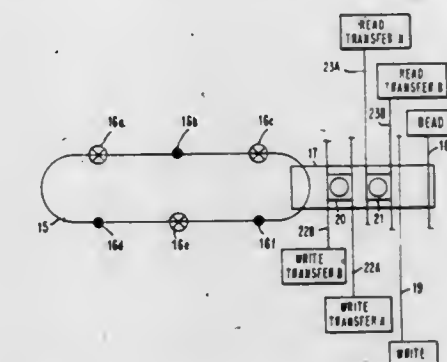
Continuation of Ser. No. 44,894, Jun. 4, 1979, abandoned, which is a continuation of Ser. No. 877,646, Feb. 14, 1978, abandoned,

which is a continuation of Ser. No. 707,394, Jul. 21, 1976, abandoned. This application May 5, 1981, Ser. No. 260,620

Int. Cl.³ G11C 19/08

U.S. Cl. 365-16

2 Sheets Drawing. 16 Pages Specification



This invention relates to the reduction of gaps in the flow of data accessed in a synchronous serial storage serial communicating data processing memory by the provision of access storage capability at each storage location. The problem to which the invention is directed is the fact that in a synchronously driven array of the type having a number of data storage locations that are accessed by a communicating channel linking all the storage locations in series, the information flow in the communication channel will be limited by the time required for the proper point to be moved around each storage location and the resulting gaps in the data will effect the speed of response. The invention takes the bits to be transferred as they are synchronously propagated around one loop and holds them as the data is synchronously propagated around the other loop until the insertion point arrives. The invention provides a specific size buffer or intermediate storage loop that can hold the amount of data being transferred until the timing is accommodated. The intermediate loop buffer must be big enough for the transferring data but it should not be much larger or there will still be a gap in the data in the communicating loop in proportion to the amount the intermediate loop is oversize.

T102,503

ORGANO-TITANATE GELLATION OF EPOXY RESIN COATED ARTICLES

Leonard B. Simmonds, 125 Kelvington Dr., Monroeville, Pa. 15146; James D. B. Smith, 104 Briaridge Dr., Turtle Creek, Pa. 15145, and Richard L. Oblich, 108 Timber La., Trafford, Pa. 15085

Continuation of Ser. No. 967,808, Dec. 8, 1978, abandoned. This application Dec. 16, 1981, Ser. No. 331,429

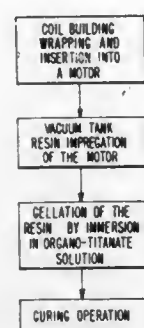
Int. Cl.³ B05D 5/12

U.S. Cl. 427-116

1 Sheets Drawing. 24 Pages Specification

An article, such as a mica wrapped coil, a dynamo-electric machine component containing mica wrapped coils, or a metal substrate, is insulated by: (A) applying wet epoxy resin to the article, (B) contacting the wet epoxy resin with a titanate solution, for a time effective to form a resin impervious, gelled

epoxy skin on the surface of the epoxy resin, where the titanate solution consists essentially of organo-titanate and an organic,



non-polar solvent, where the weight ratio of organo-titanate:organic non-polar solvent is from 1:2.5 to 1:99, and (C) curing the epoxy resin.

REISSUES

DECEMBER 7, 1982

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 31,095

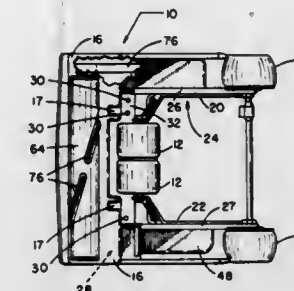
AGITATOR CHAMBER

Donald B. Tschudy, Stark County, Ohio, assignor to The Hoover Company, North Canton, Ohio
Original No. 4,178,653, dated Dec. 18, 1979, Ser. No. 872,646, Jan. 26, 1978. Application for reissue Mar. 23, 1981, Ser. No. 246,285

Int. Cl.³ A47L 5/30

U.S. Cl. 15—383

8 Claims



5. An agitator housing for a floor care appliance including:
(a) an agitator chamber of generally partially cylindrical internal periphery,
(b) a ledge formed along and in said partially cylindrical internal periphery and extending longitudinally therealong,
(c) a rotatable agitator in said agitator chamber,
(d) a suction opening in said agitator chamber,
(e) said agitator rotating against said ledge for moving air and entrained dirt towards said suction opening.

Re. 31,096

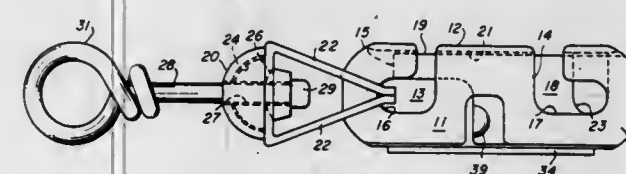
COUPLING DEVICE

James R. Johnston, 6665 Brooklyn Ave., San Diego, Calif. 92114
Original No. 3,427,691, dated Feb. 18, 1969, Ser. No. 485,736, Sep. 8, 1965. Application for reissue Feb. 17, 1981, Ser. No. 235,024

Int. Cl.³ A44B 13/00

U.S. Cl. 24—374

4 Claims



1. A coupling device comprising:
a flat elongated integral metallic holder member, [said flat elongated holder member having first and second parallel sides joined at one edge thereof,] consisting of substantially flat metallic material folded on itself along a fold line so as to define first and second parallel sides joined to each other only at the folded edge defined by said fold line, said first and second sides defining an elongated slot;
at least one opening extending through said [one] folded edge adjacent one end of said [flat elongated] holder member, [adjacent one end thereof,] at least one aperture extending through said first and second parallel sides [of said flat elongated holder member adjacent another end thereof,] adjacent the other end of said holder member; and
a flat elongated integral inner metallic member consisting of substantially flat metallic material folded on itself along a fold line so as to define parallel first and second sides [joined at one edge thereof, said first and second sides

being] spring-loaded outwardly with respect to each other [from moving apart when held in parallel relationship] when said inner member is positioned within said holder member, with the spring loaded sides of the former for effecting a resilient frictional engagement with [said flat elongated holder member, said inner member being slidably mounted within said flat elongated holder member, said flat elongated inner member having an extension on one end thereof for opening and closing said one opening,] the inner surfaces of the parallel sides of the latter, said inner member being slidably within the confines of said holder member and having an extension at one end thereof for opening and closing said one opening.

Re. 31,097

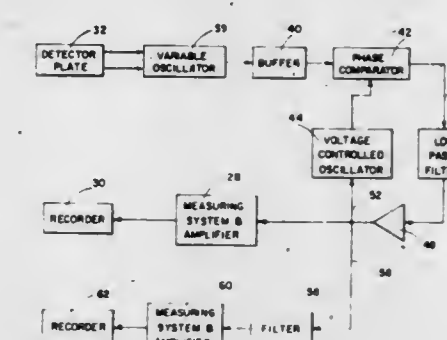
APPARATUS AND METHOD FOR DETECTION OF BODY TISSUE MOVEMENT

Ran Vas, Encino; James S. Forrester, Malibu, and George A. Diamond, Los Angeles, all of Calif., assignors to Cardiokinetics, Inc., Seattle, Wash.
Original No. 4,182,315, dated Jan. 8, 1980, Ser. No. 817,708, Jul. 21, 1977. Application for reissue Jun. 17, 1980, Ser. No. 160,384

Int. Cl.³ A61B 5/02

U.S. Cl. 128—687

82 Claims



34. A method of detecting and diagnosing abnormalities in body tissue utilizing cardiokymographic techniques, said method comprising:

- (a) positioning a detector close to the tissue of a person being tested and over a selected segment of said tissue,
(b) passing current through said detector to generate an electric field such that the generated electric field will be close to and may extend to the surface of the person being tested,
(c) sensing a change in capacitance of the detector which results from tissue movement, and providing a low frequency signal at least partially representative of said tissue movement,
(d) processing the signal representative of said tissue movement and depicting a portion of said signal to represent tissue movement,
(e) generating a signal representative of the timing of a cycle of the tissue which is moving and which is independent of the signal representative of the tissue movement,
(f) depicting the signal representative of timing to thereby provide timing with respect to the tissue movement, and
(g) analyzing said depicted portion of said signals to determine any abnormality in the tissue movement.

Re. 31,098

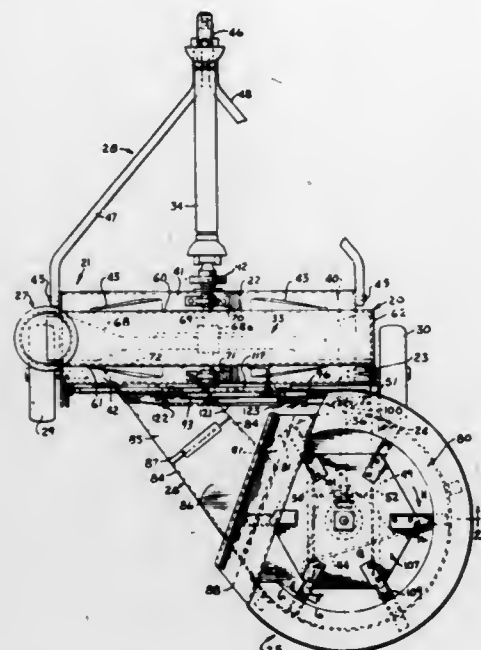
FEED MATERIAL HANDLING APPARATUS

Aquila D. Mast, and J. Paul Lyet, II, both of Lancaster, Pa., assignors to Sperry Corporation, New Holland, Pa.
Original No. 3,968,997, dated Jul. 13, 1976, Ser. No. 2,017, Jan. 12, 1970. Continuation of Ser. No. 877,196, Feb. 13, 1978, abandoned. Application for reissue Jul. 21, 1980, Ser. No. 170,433

Int. Cl.³ B65G 53/40

U.S. Cl. 406—71

6 Claims



13. Forage blower apparatus adapted to initially break up clumps of crop material, then throw the disintegrated crop material into a blower, and then blow the crop material upwardly through a pipe to a silo or the like, said apparatus comprising, in combination:

- a. a support frame,
- b. a blower housing mounted on said frame and including spaced apart generally vertically extending side walls interconnected by a band and transition outlet member,
- c. a fan within said blower housing journaled thereon for rotation about a generally horizontal axis and having crop engaging fan elements,
- d. a drive for rotating said fan,
- e. said blower housing having an infeed opening in one of said side walls and below the axis of said fan through which crop material may be admitted to the housing in the path of movement of said fan elements, said infeed openings and said transition outlet member being angularly spaced from each other relative to said horizontal axis,
- f. a hopper comprising a bottom wall and crop confining wall means extending upwardly from said bottom wall to define an initial feed opening for receiving crop material dropped in the hopper, said hopper being in operative communication with said infeed opening,
- g. crop breaking and metering means comprising a rotor mounted adjacent said bottom wall of said hopper and journaled on a generally vertically extending axis,
- h. said rotor having a plurality of angularly spaced blades thereon extending in a radial direction, each blade having a height substantially less than said crop confining wall means whereby each blade engages and impels a bottom layer of crop material in said hopper and each blade traveling in a horizontal plane that generally passes through said housing infeed opening,
- i. said initial feed opening being open upwardly to permit crop material to be dumped directly onto a substantial portion of said rotor blades under conditions where said rotor is rotated about said vertically extending axis,
- j. drive means operable to rotate said rotor at sufficient speed to cause clumps of crop material engaged by said rotor blades to

be broken up and then thrown horizontally and radially in an air-borne state by said blades, and

k. feed material wall transfer means cooperative with said rotor to guide the crop material broken up and thrown by said rotor blades from said hopper and into said blower housing through said infeed opening in said side wall of said blower housing, said wall transfer means extending at an acute angle to said blower housing side wall when viewed from above and in the direction of rotation of said fan elements at said infeed opening.

l. the velocity imparted to the crop material by said rotor blades facilitating the subsequent engagement of the material by said fan elements for discharge upwardly to the silo.

Re. 31,099

CATALYSTS AND CATALYST COMPONENTS FOR POLYMERIZING OLEFINS

Umberto Scata, Luciano Luciani, and Pier C. Barbe, all of Ferrara, Italy, assignors to Montedison S.p.A., Milan, Italy
Original No. 4,115,319, dated Sep. 19, 1978, Ser. No. 724,361, Sep. 17, 1976. Application for reissue Sep. 16, 1980, Ser. No. 187,734

Claims priority, application Italy, Sep. 19, 1975, 27438 A/75
Int. Cl.³ C08F 4/64

U.S. Cl. 252—429 B

12 Claims

1. Solid catalyst-forming components for use in preparing a catalyst for polymerizing ethylene and/or α -olefins, comprising compounds containing Ti, Mg and halogens, in which the halogen/Mg atomic ratio is at least 1, said component being prepared by reacting [a tetravalent Ti compound selected from the group consisting of Ti tetrahalides, Ti tetraalcoholates, Ti haloalcoholates, and Ti tetraamides,] $TiCl_4$ with the solid halogenation product containing halogen atoms bonded to Mg atoms obtained by reaction of a halogenating agent, different from the halogenated Ti compounds, with a Mg compound selected from the group consisting of

(a) organic oxygenated Mg compounds of the formula



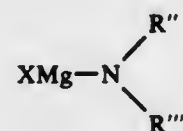
in which R is an alkyl, aryl, cycloalkyl or acyl radical containing from 1 to 20 carbon atoms or —OR forms an enolate radical containing from 1 to 20 carbon atoms, and X is OR, halogen (SO_4)₂, —OH, (CO_3)₂, (PO_4)₂, carboxylate or an alkyl, aryl, or cycloalkyl radical containing from 1 to 20 carbon atoms;

(b) organometallic compounds of the formula

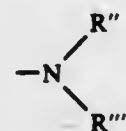


in which R' is an alkyl, aryl, or cycloalkyl radical containing from 1 to 20 carbon atoms, and Y is halogen or R'; and

(c) Mg organic compounds of the formula



in which R'' and R''' are hydrogen or alkyl or aryl radicals containing from 1 to 20 carbon atoms; and X is



or has the same significance as in (a); said catalyst component being further characterized in that said reaction between the $TiCl_4$ and the solid halogenation product of the Mg compounds (a), (b) or (c) is carried out in liquid

$TiCl_4$ in a quantity corresponding to an atomic ratio Ti/Mg higher than 1, at a temperature comprised between 20° C. and 150° C., in the presence of an electron-donor as such, or of an electron-donor compound pre reacted with the solid halogenation product, and then separating the

solid product from the unreacted $TiCl_4$, and in that it contains an electron-donor in a quantity greater than 0.1 but not greater than 1.0 mole per g-atom of Mg.

PLANT PATENTS

GRANTED DECEMBER 7, 1982

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,961

MINIATURE ROSE PLANT—MEIJIDIRO VARIETY
Marie L. Meilland, Antibes, France, assignor to The Conard-Pyle Company, West Grove, Pa.

Filed Jun. 2, 1981, Ser. No. 269,761

Claims priority, application France, Jun. 5, 1980, 80 2673

Int. Cl.³ A01H 5/00

U.S. Cl. Plt.—9

1 Claim

U.S. Cl. Plt.—68

1. A new and distinct variety of streptocarpus substantially as herein shown and described.

1. A new and distinct variety of miniature rose plant which

originated as a bud mutation of the Meijikatar variety, substan-

tially as shown and described, having azalea pink double flow-

ers instead of the vermillion red double flowers exhibited by

the Meijikatar variety.

4,962

DISTINCT VARIETY OF STREPTOCARPUS NAMED AURORA

Gerhard Fleischle, Vaihingen, Fed. Rep. of Germany, assignor to Oglevee Associates, Inc., Connellsville, Pa.

Filed Nov. 5, 1980, Ser. No. 204,351

Int. Cl.³ A01H 5/00

1 Claim

1. A new and distinct variety of streptocarpus substantially as herein shown and described.

4,963

AFRICAN VIOLET NAMED PATRICIA

Arnold W. Fischer, Hanover, Fed. Rep. of Germany, assignor to Pan-American Plant Company, Parrish, Fla.

Filed Apr. 9, 1981, Ser. No. 252,616

Int. Cl.³ A01H 5/00

U.S. Cl. Plt.—69

1 Claim

1. A new African Violet cultivar, substantially as herein shown and described, characterized by its profuse production of large, dark blue flowers of single and semi-double form borne on upright stems to cluster as a bouquet above the plant foliage.

PATENTS

GRANTED DEC. 7, 1982

ERRATA

For CLASS	See PATENT NO.
374-004	4,362,057
604-165	4,362,156
604-280	4,362,163
114-353	4,362,519
419-005	4,362,563
422-183	4,362,632
548-557	4,362,667
525-426	4,362,827
564-479	4,362,886
378-048	4,362,935
378-150	4,362,947

PATENTS

GRANTED DECEMBER 7, 1982

GENERAL AND MECHANICAL

4,361,912 KARATE PROTECTIVE EQUIPMENT

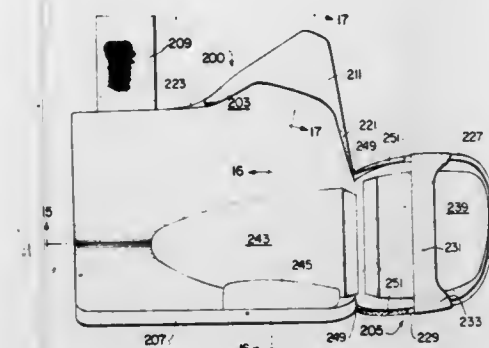
Lawrence E. Arthur, 114 Middleboro Pl., Lynchburg, Va. 24502

Filed Sep. 19, 1980, Ser. No. 189,102

Int. Cl.³ A41D 13/08

U.S. Cl. 2-18

26 Claims



1. Protective equipment for use in karate and the like comprising:

- (a) a first, outer, relatively large formed, foam material formed in the shape of a glove having inner and outer surfaces for conforming to and protecting the hand of the wearer, said first foam material being relatively soft; and
- (b) a second inner relatively harder formed foam material secured to the inner surface at areas of impact.

4,361,913

INTRAOCULAR LENS

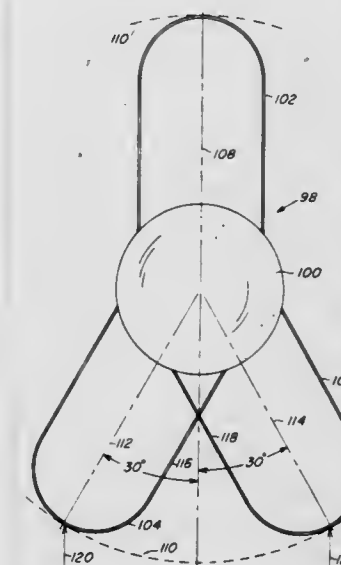
Donald A. Streck, 1725 Promenade, #701, Santa Monica, Calif. 90401

Filed Apr. 3, 1981, Ser. No. 250,612

Int. Cl.³ A61F 1/16; 1/24

U.S. Cl. 3-13

7 Claims



1. An intraocular lens adapted to compress in width for insertion through an incision opening of minimal width and having a degree of longitudinal compressibility for safety and size adaptation, said lens comprising:

- (a) a lens body portion;
- (b) at least three support members connected to said body portion and extending radially outward therefrom with no two of said members having a common longitudinal axis, at least one of said support members being disposed adjacent one other of said support members in a position of angular relationship thereto of between 40° and 90°, the adjacent edges of said one member and said one other

member overlapping one another at an angle of between 40° and 90° adjacent said lens body portion, said one member being biased to said angular position and further being deformable towards said one other member to a position wherein the combined width of said one member and said one other member is substantially no greater than the width of said lens body portion.

4,361,914

SHOWER CURTAIN HOLDER

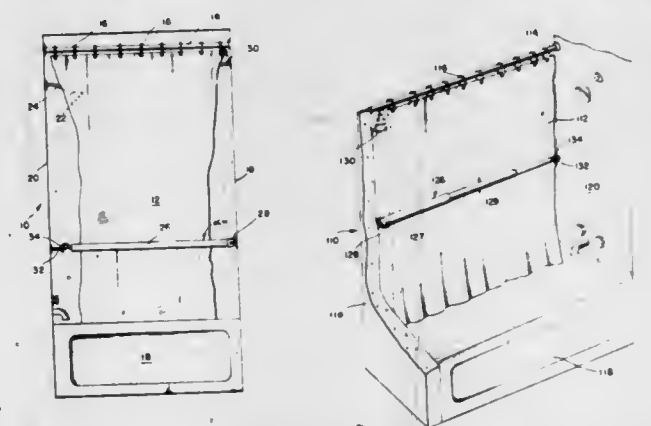
Earl P. Oliver, R.R. #1, Box 15, Scottsville, Ky. 42164

Continuation of Ser. No. 118,970, Feb. 5, 1980, abandoned. This application Feb. 10, 1982, Ser. No. 347,538

Int. Cl.³ A47K 3/22

U.S. Cl. 4-605

16 Claims



1. An apparatus for inhibiting movement of a shower curtain and for use as a grab bar for a bather in a shower bathing facility which comprises:

- (a) an uppermost elongated rigid bar for maintaining said curtain in an erect position;
- (b) a flexible shower curtain having a top and a bottom portion possessing more than one eyelet attached thereto at said bottom of said curtain, wherein said eyelets are in interconnection with said uppermost rod;
- (c) a second elongated rigid bar means adapted to be disposed substantially parallel to said uppermost elongated rigid bar and intermediate said top and bottom of said curtain, wherein said second elongated rigid bar means is secured to said shower bathing facility by a pivot means permanently secured to said shower bathing facility at at least one extreme of said rigid bar means when said second elongated bar means is in position where it traverses the entire width of said curtain and of said shower bathing facility; and
- (d) a holding means permanently secured to said shower bathing facility disposed above and substantially in a vertical plane with said pivot means to hold said second elongated rigid bar in a substantially vertical position when said second elongated rigid bar is not in use in position where it traverses the entire width of said curtain and of said shower bathing facility.

4,361,915

SHOWER CURTAIN ASSEMBLY

Barry L. Siewert, 6411 Waltonway, Tampa, Fla. 33610

Filed Jan. 5, 1981, Ser. No. 222,295

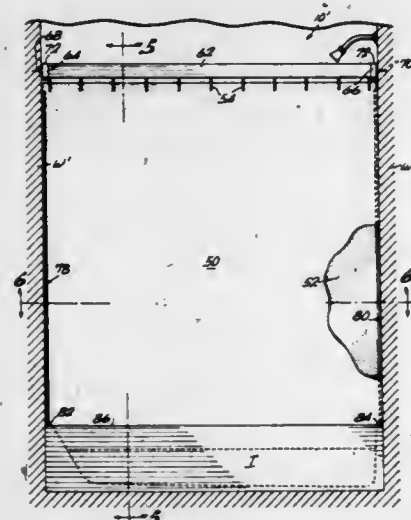
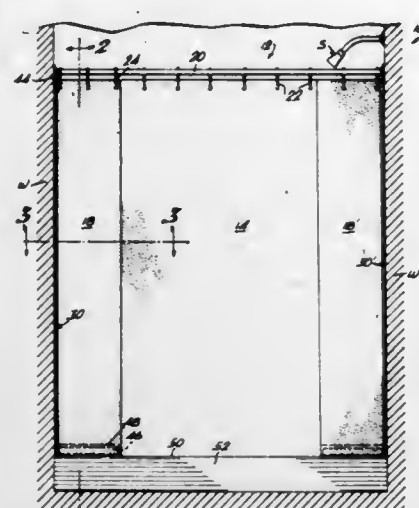
Int. Cl.³ A47K 3/22; 3/08; 3/14

U.S. Cl. 4-608

4 Claims

1. An improved shower curtain assembly for use as an enclosure for shower stalls and bath tub and shower combinations comprising, a pair of spaced apart parallel horizontally disposed shower rods installed in an upper spanning relation to an entrance opening into the shower stall or tub and shower

combination, an outer shower curtain suspended from an outer rod of said pair and an inner shower curtain slidably suspended from an inner rod of said pair, means to secure a thickened vertical edge of said outer curtain formed on a side thereof in an opposed relation to the location of a conventional shower head installation to an existing wall of the entrance opening in a water tight relation thereto, and wherein said means to secure



comprises a vertical strip fixed to the existing wall and defining an interior vertical recess along its vertical length to slidably receive said thickened vertical edge, and a slot reduced in width relative to said thickened edge, opening into said recess to permit sliding passage of said thickened end into said recess, and weight means secured in a hem in a bottom edge of said outer curtain for engagement with a top edge of an existing outer rim of the stall or bath tub.

4,361,916

PEDIATRIC TABLE-CHAIR

William L. McDaniel, 6711 SW. 26th Ct., Miramar, Fla. 33023

Filed Apr. 18, 1980, Ser. No. 141,308

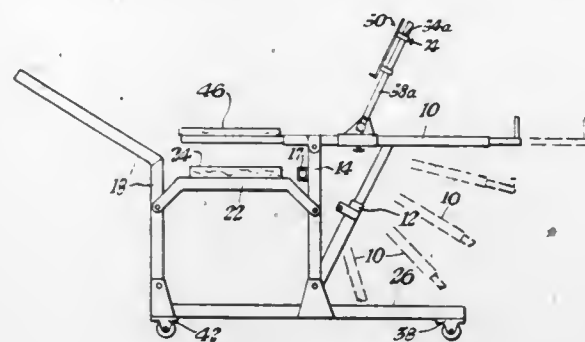
Int. Cl.³ A61G 7/00, 7/06

U.S. Cl. 5-62

8 Claims

1. A pediatric table-chair comprised of:
 - a base;
 - at least one rigid support member each said rigid support member with a lower end connected to said base;
 - a body support platform including an upper portion and a bottom portion, said body support platform pivotally connected to said rigid support member to move said body support platform between a horizontal position and a substantially vertical position;
 - an adjustable support means, the lower end of said support means connected to said base, said support means for supporting said body platform in various positions;

a utility tray connected to said rigid support member; removable headrest support means connected to said body support platform, said headrest support means removable to provide functional access to said utility tray when a patient is supported facing said body support platform



while the patient's head and hands are free to use said utility tray; support means connected to said body support platform, said support means for preventing downward movement of the trunk of the user when said body support platform is in a downwardly sloping position.

4,361,917

PORTABLE ORTHOPEDIC BED

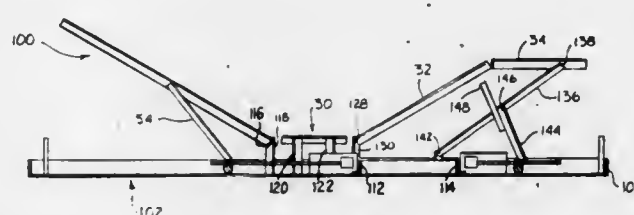
Harold L. Wilson, Rte. 2, Box 78C, Pevely, Mo. 63070

Filed Apr. 3, 1980, Ser. No. 136,803

Int. Cl.³ A61G 7/00, 7/06

U.S. Cl. 5-68

5 Claims



1. A portable orthopedic bed comprising a flat base, a frame-like back rest, an intermediate body rest and a leg rest, said back rest being pivotally supported at one end above said base toward said body rest and said leg rest being pivotally supported at one end toward said body rest, said aforementioned rests being supported upon said flat base and separate motor means supported upon said flat base for pivoting said back rest and leg rest to inclined positions of adjustment, said flat base being of rigid construction and supporting the remaining portion of the bed in super-imposed position in order that said flat base may rest on a flat support, said leg rest being comprised of upper and lower leg rest members pivotally connected together and said lower leg rest member having means connecting it to roller elements by axle means and motor means provided for moving said axle means longitudinally of said base to raise and lower said back rest and a lower end of said lower leg rest being directly connected to said roller elements.

4,361,918

DEVICES AND METHOD FOR HANDLING A PERSON ON A BASE

Kjell Roisaeth, Fossekollen, 5250 Lonevåg, Norway

Filed Jun. 22, 1979, Ser. No. 51,180

Claims priority, application Norway, Jun. 22, 1978, 782170

Int. Cl.³ A61G 7/08, 7/06, 7/10

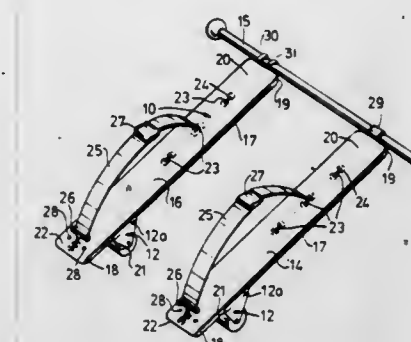
U.S. Cl. 5-81 R

7 Claims

1. A device for handling a person on a body-supporting base comprising a flat, board-shaped support means adapted for endwise manual insertion between said base and said person transversely of said person, said support means embodying

structure engageable with means for fastening said person to said support means,

said device further comprising elongate connecting means mounted at an end of said support means opposite that designed for manual insertion and permitting displacement of said support means thereon, the device being such that lifting of said elongate connecting means causes pivoting of said support means about a first pivotal axis at its manually inserted end, said support means being made up of two separate arms capable of being displaced towards and away from each other on said elongate connecting means and of being pivoted simultaneously on lifting the latter about their respective manually inserted ends,



said elongate connecting means comprising a rod and fastening means for detachably interconnecting said arms and said rod after having individually arranged said arms at predetermined locations between said base and said person, the device being in the form of a substantially rigid and U-shaped lifting means upon such interconnection, said fastening means comprising a sleeve-shaped guide means for axially displaceable reception of said rod and a pair of oppositely directed and spaced apart hook means for receiving said rod in a slopingly sideways and subsequent axially displaceable manner, said guide means and said hook means being mounted on respective ones of the non-manually insertable ends of said arms.

4,361,919

CONVERTIBLE CHILD'S BED

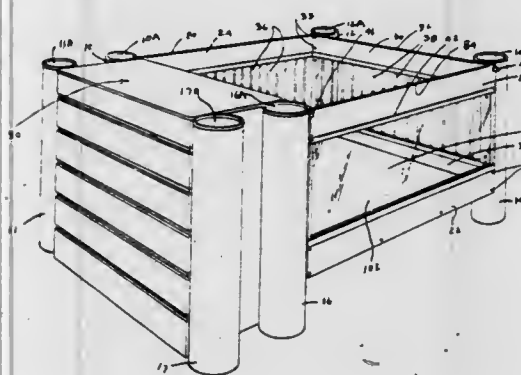
James R. Hull, 148 S. Westgate Ave., Los Angeles, Calif. 90049

Filed Nov. 10, 1980, Ser. No. 205,103

Int. Cl.³ A47D 7/01

U.S. Cl. 5-93 B

8 Claims



1. A convertible child's bed comprising: four upright corner posts; means including a first pair of elongated rectangular rails removably secured in vertical uniplanar relationship to a first two of the upright corner posts in vertical spaced relationship to form one side of the bed; means including a second pair of elongated rectangular rails removably secured in vertical uniplanar relationship to the other two of the upright corner posts in vertical spaced relationship to form the other side of the bed; first and second elongated mattress support members of essentially the same length as said elongated rectangular rails re-

movably attached to the respective lower elongated rectangular rails of the first and second pairs; and said child's bed being convertible into a youth bed in which the upper elongated rectangular rails of each pair are secured to the corresponding upright corner posts in respective end-to-end abutting relationship with the corresponding lower elongated rectangular rails to permit the bed to be expanded to essentially twice its original length, and said elongated mattress supporting members being attached to the respective abutting rails in bridging relationship therewith to secure the abutting rails to one another, and also to serve as a mattress supporting means.

4,361,920

COMBINED GAS LIGHTER-BOTTLE OPENER

Paolo Zanni, Florence, Italy, assignor to FIAP S.r.l., Bologna, Italy

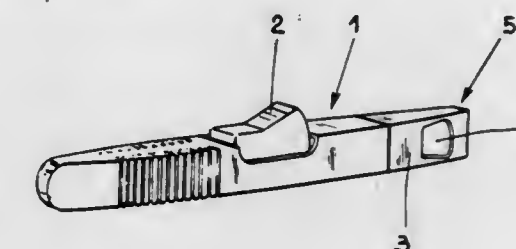
Filed Sep. 19, 1980, Ser. No. 188,901

Claims priority, application Italy, Sep. 28, 1979, 4937/79[U]

Int. Cl.³ B25F 1/00

U.S. Cl. 7-151

6 Claims



1. In combination, a gas lighter comprising gas lighter means mounted on an elongated body, bottle opener means mounted on said elongated body, and said gas lighter elongated body comprising handle means for said bottle opener means affording substantial leverage to a user using said bottle opener means.

4,361,921

METHOD FOR STIFFENING SHOE INSOLES

Leo F. Stanton, Newburyport, Mass., assignor to Bush Universal Inc., Woburn, Mass.

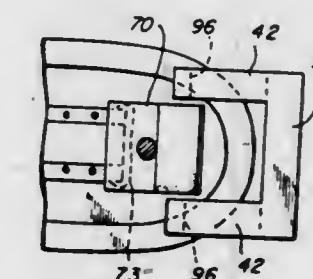
Division of Ser. No. 968,830, Dec. 12, 1978, Pat. No. 4,287,628.

This application Oct. 6, 1980, Ser. No. 194,376

Int. Cl.³ A43D 21/00, 31/00; A43B 13/42

U.S. Cl. 12-146 S

3 Claims

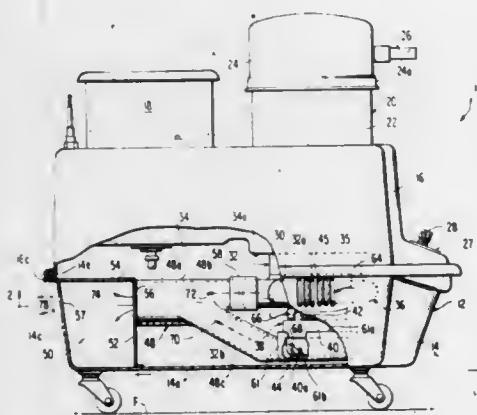


1. A method for applying a strip of activatable, curable material to a surface of a shoe assembly to form a stiffener in situ on the surface, the strip being flexible and deformable prior to curing thereof, said method comprising:
 - placing said strip of material on the surface of the shoe assembly and urging the strip into engagement with the surface of the shoe assembly;
 - applying a presser member to a selected portion of the strip in a manner which overlaps said portion of the strip and an adjacent region of said shoe assembly surface to press the edge portion of the strip into a tapered, feathered configuration while the strip is retained in said position on said surface; and

diameter with respect to the cross-sectional diameter of said scroll casing portion,
said vacuum pump assembly including an electrical motor beneath said plenum chamber and said scroll and including a cylindrical motor casing,
said electric motor operatively coupled to said suction fan for driving said fan in rotation and producing a vacuum pressure within said plenum chamber,
means for sealably transmitting said vacuum pressure to said dump tank,
cooling air inlet openings within said cylindrical motor casing adjacent said scroll pump casing section,
cooling air outlet openings within said motor casing at the end of said motor casing remote from said plenum chamber,

the improvement comprising:

means including horizontal and vertical baffle plates, defining an elongated enlarged sound muffling and air expansion chamber within said machine casing, and
a unitary tubular exhaust duct comprising a bifurcated member including a main duct section having a large diameter portion remote from said tangential exhaust pipe leading from said scroll portion of said pump housing, and



a smaller diameter portion proximate thereto, sized to the diameter of said exhaust pipe and being sealably connected thereto to form a venturi in the area of intersection of the exhaust pipe and the small diameter portion of said exhaust duct, and
an exhaust duct branch having one end opening to the large diameter portion of said exhaust duct main branch, downstream of said venturi,
said exhaust duct branch at the other end terminating in a cylindrical shroud surrounding said motor housing and being spaced radially thereof to form an annular passage for leading cooling air passing through said motor into said branch duct for aspiration into the main stream of air emanating from the exhaust pipe of the vacuum pump casing and passing through said exhaust duct, and wherein the large diameter end of said exhaust duct opens to the interior of the sound muffling and air expansion chamber,
and openings within said machine casing to the interior of the air muffling and expansion chamber;
whereinby, noise reduction is accomplished by mixing the exhaust air with motor cooling air and letting it expand into the sound muffling and air expansion chamber prior to exhausting out of said casing through said casing openings.

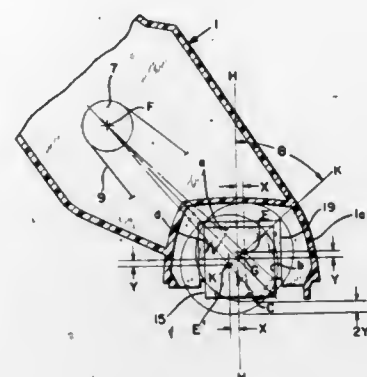
4,361,929 VACUUM CLEANER TOOL HAVING A TWO-POSITION ROTARY BRUSH

Danny R. Jinkins, Bel Air, Md., assignor to Black & Decker Inc., Newark, Del.

Filed Mar. 26, 1981, Ser. No. 247,827
Int. Cl.³ A47L 5/34

U.S. Cl. 15—355

5 Claims



1. A rotary brush for use in a vacuum cleaner tool, said apparatus comprising:

- a dowel having a diameter of less than 22.3 millimeter;
- a first axial bore extending along the axis of said dowel;
- an axle positioned in said first axial bore and extending therefrom;
- a second axial bore in said dowel;
- a third axial bore in said dowel;
- bearing means fixed to the periphery of said second axial bore for rotatably mounting said dowel on said axle, wherein said bearing means includes a flange extending radially from said one end thereof in said third bore; and
- end cap means mounted on the portion of said axle which extends from said first bore.

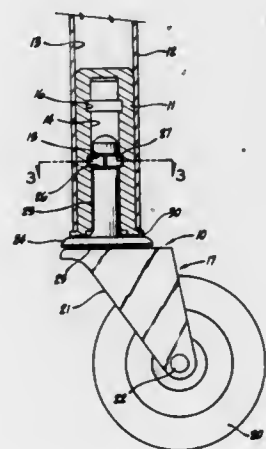
4,361,930 CASTER SOCKET ASSEMBLY

Robert E. Seesengood, Conway, Ark., assignor to Tiffany Industries, Inc., St. Louis, Mo.

Filed Nov. 16, 1979, Ser. No. 94,709
Int. Cl.³ B60B 33/00

U.S. Cl. 16—38

2 Claims



1. A caster socket assembly for attachment of a caster to a furniture leg having an opening, comprising:

- a plastic housing having a cylindrical socket provided with an annular groove, the housing being insertable in the opening of the furniture leg,
- a caster including a cylindrical pintle having an annular groove, the pintle being insertable in the socket,
- a retaining means attached to the caster at the pintle groove, and selectively engaging the housing at the socket groove to retain the pintle in the housing,

- the retaining means including a split C-ring attached to the caster at the pintle groove, the C-ring having an outside diameter greater than the pintle, the C-ring being resiliently compressible for sliding the pintle into and out of the housing socket, and being resiliently expandable within the housing socket groove to retain the pintle within the housing socket in a mounted position,
- the C-ring remaining expanded into the housing socket groove under the normal weight of the caster, and is resiliently compressible within the pintle groove and out of the housing socket for removal of the pintle from the housing socket when a sufficient axial force is applied to the pintle,
- the cylindrical housing socket having a vertically spaced, second annular groove,
- a caster is provided including a cylindrical pintle of different length than the first said pintle and having an annular groove,
- a split C-ring is attached to the caster at the last said pintle groove and is selectively received in the said second housing socket groove for accommodating pintles of different lengths,
- the housing includes a closed top end of the socket, the closed end providing a rotative bearing surface for engaging the top of the pintle of one of said casters and transferring weight applied to the furniture leg to said caster when the caster is in the mounted position, and
- the housing includes a lower bearing surface engageable with the other of said casters for carrying weight applied to the furniture leg when said other caster is in the mounted position.

4,361,931 FURNITURE FITTING

Manfred Schnelle, Hiddenhausen; Manfred von Reden, Bad Oeynhausen; Willi Pittasch, Herford, and Peter Busse, Vlotho, all of Fed. Rep. of Germany, assignors to Firma Richard Heinze GmbH & Co., KG, Fed. Rep. of Germany

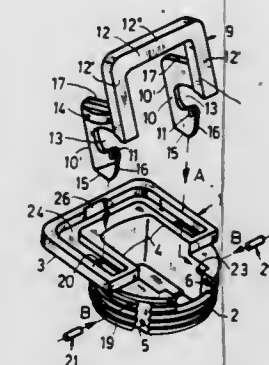
Filed Jul. 9, 1979, Ser. No. 56,144

Claims priority, application Fed. Rep. of Germany, Jul. 28, 1978, 2833120; Feb. 13, 1979, 2905378

Int. Cl.³ E05D 5/02

U.S. Cl. 16—252

21 Claims



1. A furniture fitting comprising:

- a housing including a portion having a circumferential wall having a circumferential outline for fitting within a corresponding bore of a furniture component;
- locking means including at least one locking element pivotally mounted on said housing for pivoting about a pivoting axis thereon, said pivoting axis extending through the circumferential wall of said portion;
- said portion having an opening therein for receiving said locking element;
- said locking element being pivotable from a position at least partially outside of said opening into a second position within said opening; and
- means on the locking element for increasing the circumferential outline of said portion when the locking element is pivoted into said opening whereby said fitting is an-

chored in said bore when said portion is fitted into said bore and said locking element is pivoted into its second position within said opening.

4,361,932 APPARATUS FOR ELECTRICALLY STUNNING SLAUGHTER CATTLE

Johan W. Nijhuis, Winterswijk, Netherlands, assignor to Machinefabriek G.J. Nijhuis B.V., Winterswijk, Netherlands

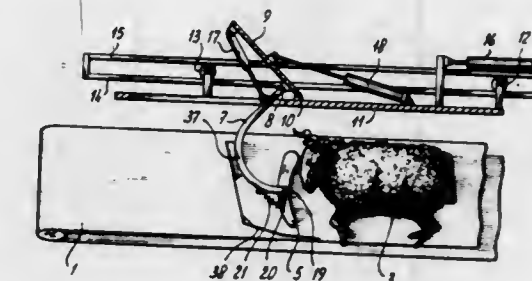
Filed Aug. 18, 1981, Ser. No. 293,882

Claims priority, application Netherlands, Aug. 19, 1980, 8004688

Int. Cl.³ A22B 3/06

U.S. Cl. 17—1 E

13 Claims



1. Apparatus for the electrical stunning of slaughter cattle, comprising:

a pair of endless conveyor means placed next and parallel to each other such that between them a V-shaped passage is formed defined by the opposite parts of the conveyor means, which parts can move with the same speed in the same direction and may carry the body of an animal;
a set of electrodes located next to each other, the electrodes being adapted to extend into the passage, the electrodes being adapted to move with the conveyor device, the electrodes being swingable out of the path of the animal, the electrodes being mounted upon levers, the levers having an initial portion that extends forwardly and inwardly within the passage, and the levers having a subsequent portion that curves and extends against the direction of movement, the levers being connected to a device by means of which the levers with the electrodes can be swung out of the passage and out of the path of the animal.

4,361,933 METHOD OF SHUCKING SCALLOPS AND AN APPARATUS THEREFOR

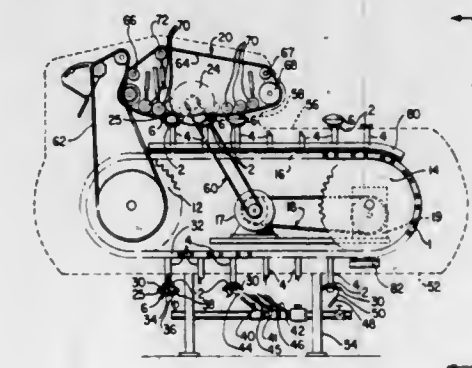
William K. Rodman, Bedford, and Peter de St. Denys Prevost, Waverley, both of Canada, assignors to Canadian Patents & Development Limited, Ottawa, Canada

Filed May 11, 1981, Ser. No. 262,628

Int. Cl.³ A22C 29/04

U.S. Cl. 17—48

10 Claims



1. A method of shucking scallops, comprising:

- placing unshucked scallops on scallop cradles distributed

along the length of, and attached to a moving, endless flexible member, with the hinged portion of the shell of each of the scallops overhanging one side of the cradle on which it is placed and an edge portion of the shell, opposing the hinged portion, overhanging the other side of that cradle,

(b) clamping a central portion of each unshucked scallop while that scallop passes a saw cutting position,

(c) making two parallel saw cuts to each of the clamped, unshucked scallops to cut and remove the overhanging portion thereof from the remainder and expose the shell interior, then

(d) clamping, by fingers entering the exposed shell interior, only the bottom, sawn shell of each scallop to the cradle it is on prior to and while that scallop is inverted, with muscle thereon, on a second side of the loop of the endless flexible member, then

(e) directing a high pressure, pencil, water jet into the shell interior, and towards what was the hinged side of the scallop, to sever muscle of that scallop from the unclamped, scallop top shell and allow the unclamped, scallop top shell thus detached to fall away and expose the viscera and roe, then

(f) directing a series of low pressure fan jets of water at the viscera and roe to detach and remove the viscera and roe and expose the muscle, then

(g) directing a high pressure fan jet of water which substantially conforms to the interior curvature of the shell, to sever and remove the exposed muscle from the shell, then

(h) unclamping the bottom, sawn shell of the scallop from the cradle to which it was clamped to allow that bottom, sawn shell to fall away from that cradle.

6. A scallop shucking apparatus, comprising:

(a) an endless flexible member,

(b) scallop cradles distributed along the length of the endless flexible member, and attached thereto, for each receiving an unshucked scallop thereon with a hinged portion of the shell thereof overhanging one side of the cradle on which it is placed and an edge portion of the shell, opposing the hinged portion, overhanging the other side of that cradle,

(c) mounting means around which the endless flexible member is looped so that each of the cradles on a first side of the loop faces upwardly for receiving the scallop thereon,

(d) driving means for driving the endless flexible member around the mounting means,

(e) clamping means for clamping a central portion of each unshucked scallop to the cradle therefor only while that scallop passes a saw cutting position,

(f) two drivable parallel, saw blades at the scallop cutting position for cutting and removing the overhanging portions of each scallop shell from the remainder and exposing the shell interior,

(g) clamping fingers for entering opposite sides of the scallop and clamping only the bottom, sawn shell of each scallop to the cradle it is on prior to and while that scallop is inverted on a second side of the loop of the endless flexible member, and, in the direction for movement of the endless flexible member,

(h) a water jet nozzle for connection to a source of high pressure water for directing a pencil jet of high pressure water into the shell interior, and towards what was the hinged side of the scallop, to sever muscle of that scallop from the unclamped, scallop top shell and allow the unclamped, scallop top shell thus detached to fall away and expose the viscera and roe, followed by

(i) a series of low pressure fan jet nozzles for connection to a source of low pressure water for directing a series of low pressure fan jets for detaching and removing the viscera and roe and exposing the muscle and then

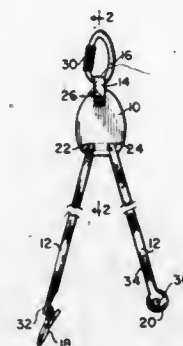
(j) a high pressure fan jet nozzle for connection to a high pressure water source for directing a high pressure fan jet which substantially conforms to the interior curvature of the shell for severing and removing the exposed muscle from the shell.

4,361,934
GOLF SCORE CARD AND PENCIL HOLDER
Randolph G. Darnell, 32390 Hampton Ct., Union City, Calif. 94587

Filed Aug. 11, 1980, Ser. No. 176,927
Int. Cl.³ A44B 21/00

U.S. Cl. 24—3 M

10 Claims

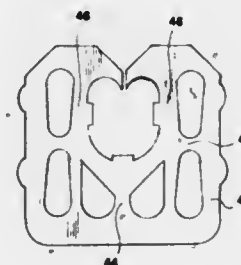


1. A golf score card and pencil holder comprising a main body portion including a plate section; a thin, elongated extension section; and fastener means attaching the distal end of said elongated extension section to said plate to form said extension into a loop, means engaged with said loop for removably attaching said main body portion to a golf bag, first cord means extending from said plate section, clip means attached to an end of said first cord means, second cord means extending from said plate section, and writing instrument holder means attached to an end of said second cord means.

4,361,935
BAG CLOSURE
Jerre H. Paxton, P.O. Box 9548, Yakima, Wash. 98909
Filed Jun. 9, 1980, Ser. No. 157,450
Int. Cl.³ B65D 77/10; A44B 21/00

U.S. Cl. 24—30.5 R

8 Claims



1. A side opening closure for closing the neck of a flexible bag or the like, comprising:

a body of flat, generally rigid material having a bag-neck confining aperture and a bag-access opening to said aperture through a side edge of the body, said access opening dividing the body on opposite sides thereof into a pair of jaws;

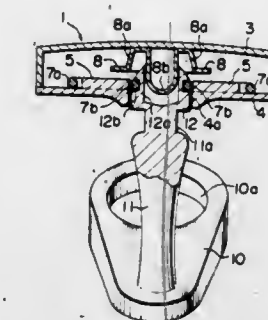
said bag-neck confining aperture having a peripheral outline defined by a plurality of peripherally spaced, inwardly extending appendages each having a generally straight, blunted inner edge and a generally straight, blunted side edge defining at least one bag-gripping, pointed corner, and wherein the spaces between and around said appendages define recesses to receive the neck of the bag with the pointed corners of adjacent appendages confronting one another for holding the flexible bag against rotational, endwise movement through the closure.

4,361,936
DECORATIVE CUFFLINK
Hideo Kurashima, 2-5-6 Negishi, Taito-ku, Tokyo, Japan
Filed Jul. 13, 1981, Ser. No. 282,929
Claims priority, application Japan, May 19, 1981, 56-72231[U]

U.S. Cl. 24—41

Int. Cl.³ A44B 5/00

7 Claims



1. In a cufflink which is disassemblably assembled of two sub-assembly elements comprising a decorative head element and a link shank element, the improvement wherein:

(a) the decorative head element includes:

(i) a casing shell having a rear cover plate centrally provided with a through hole and an inside face presented towards the interior of the casing shell;

(ii) a spectacles frame-shaped spring clip having a pair of laterally spaced, generally U-shaped legs having respective free end portions nearest one another and having respective opposite ends joined by a rim; said rim, in the vicinity of said free end portions having an arcuate bridge portion; all of said spring clip but for said bridge portion lying generally in a common plane, and said bridge portion extending at an acute angle which intersects said common plane where said bridge portion meets the remainder of said rim;

(iii) said rear cover plate including limited gap bracket means mounting said spring clip by the jamming of said bridge portion into a limited gap provided by said bracket means, this limited gap being able to receive said bridge portion only when said rim is resiliently torsionally stressed by an amount sufficient to cause said bridge portion to lie substantially in said common plane, whereby said spring clip is resiliently loaded against said inside face of said rear cover plate;

(iv) said spring clip free end portions being juxtaposed with said hole for normally blanking-off two diametrically-opposed perimetrical segments of the hole; and

(b) the link shank element includes:

(i) a shank having a head end and a keeper end;

(ii) a keeper secured to the keeper end of the shank;

(iii) the head end having a convexly curved head provided with a diametrically opposed pair of grooves which extend angularly of the shank,

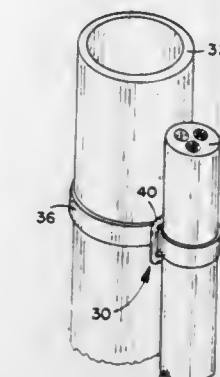
so that when the head of the link shank element is thrust into the hole in the rear cover plate of the decorative head element, the head first deflects the spring clip legs away from the rear cover plate and their free end portions laterally away from one another, until the free end portions snap into the respective grooves as the torsional stresses in said rim force the spring clip legs back against said inside face of said rear cover plate.

4,361,937
CABLE BANDING LOCK RING
C. Arthur Davis, Rte. 6, Box 137, Ada, Okla. 74820
Filed Nov. 28, 1980, Ser. No. 211,317
Int. Cl.³ A43C 11/00

U.S. Cl. 24—68 PP

1. A cable banding lock ring for embracing and retaining a

banding strap which engages around two members which are banded together, said cable banding lock ring comprising: a substantially rectangular metallic open-centered lock ring having first and second sides which are attached together and which are sufficiently long to embrace around the banding strap, said sides being spaced apart a distance

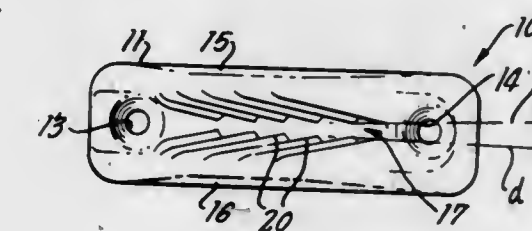


smaller than the distance across one of the members so that, when said lock ring engages on the banding strap between the members strapped together with the banding strap, said lock ring pulls the banding strap into greater circumferential engagement with the members banded together.

4,361,938
JAMMING CLEAT
Howard Emery, 17 Hems La., Welwyn Garden City, England
Filed Mar. 20, 1980, Ser. No. 132,341
Int. Cl.³ F16G 11/04

U.S. Cl. 24—130

14 Claims



1. A jamming cleat having a stationary groove to receive and grip a rope, at least a part of the depth of the groove having correspondingly stationary facing side walls each of which is formed with a plurality of ridges which are inclined upwardly from the base of the groove towards one end of the groove, the crests of the ridges on each side of the groove lying generally in one common correspondingly stationary ridge crest plane, which corresponding stationary ridge crest planes converge downwardly towards the bottom of the groove, wherein the said stationary ridge crest planes diverge at a fixed angle lengthwise of the groove away from the said one end of the groove to thereby more uniformly grip a rope extending lengthwise within the groove and downwardly from the said one end of the groove.

4,361,939
COUPLING SYSTEM
Jerome D. Gelula, 535 E. 86th St., New York, N.Y. 10028; Bertram Stanhoff, Scarsdale, and Isidore Kalichman, Elmhurst, both of N.Y., assignors to Jerome D. Gelula, New York, N.Y.

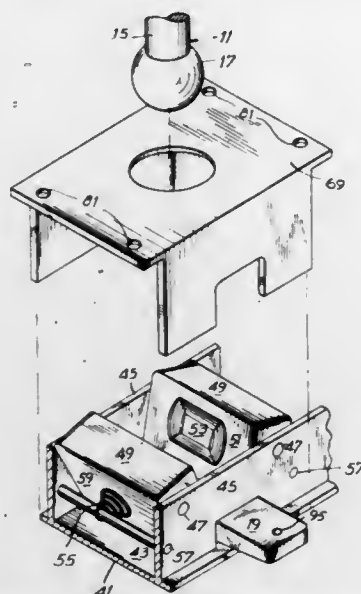
Filed Feb. 21, 1980, Ser. No. 123,413
Int. Cl.³ A44B 17/00

U.S. Cl. 24—211 M

1 Claim

1. A latching system, comprising, in combination: a supporting structure, at least one capture member supported for movement between capturing and releasing positions by said sup-

porting structure, a locking member for the captive member supported for movement between interfering and non-interfering positions by said supporting structure, first spring means carried by said supporting structure normally biasing said capture member toward said releasing position, second spring means carried by said supporting structure normally biasing said locking member toward said interfering position, unlocking means integral with said locking member for enabling movement of the locking member toward said non-interfering position, ball means adapted to be releasably captured by said capture member, said ball means being formed with an internal



cavity, cable means with portions thereof disposed within said cavity for influencing said unlocking means from a location remote from said locking member, pin means disposed within said cavity for guiding portions of said cable means and spring-biased protruding means extending from said ball means and moveable in response to movement of said cable means, said locking member being movable in response to movement of said protruding means, said latching system being capable of releasably capturing at least one said ball means desired to be retained and wherein actuation of said unlocking means with a first force results in forcible ejection of said retained member with a second force.

4,361,940

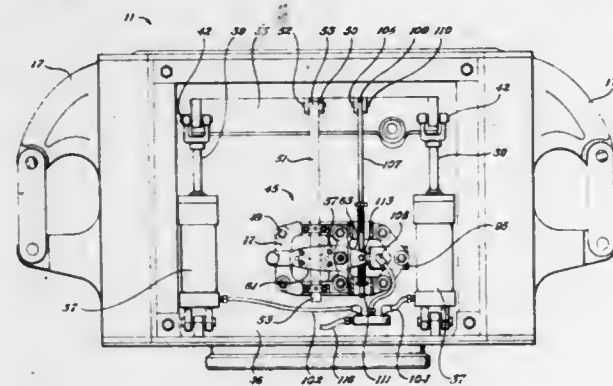
SLIP-TYPE ELEVATOR LOCKING MECHANISM
Edward J. McFadden, Houston, Tex., assignor to BJ-Hughes Inc., Houston, Tex.

Filed Aug. 4, 1981, Ser. No. 289,945

Int. Cl.³ F16L 33/10

U.S. Cl. 24—263 DA

17 Claims



8. An automatic locking mechanism for a slip-type elevator of the type having a series of fluid pressure operated slips in a tapered bowl and a slip-setting yoke for pivotally setting said slips, comprising:

- a housing for mounting on said elevator;
- a lock rod having one end adapted to be connected to said

slip-setting yoke and having a free end extending in a direction generally parallel with the direction of movement of said slips in said bowl and in the plane of said housing;

- a cam arm mounted on said housing at a central pivot point, said cam arm having a cam throat on one end adapted to receive said lock rod free end and having an opposite end, and wherein said cam arm is pivotable about said central pivot point between upper and lower lock rod engaging positions and a neutral, unlocked position; and
- a fluid cylinder having a cylindrical base end and an output shaft, said fluid cylinder being pivotally mounted at said base end to said housing and pivotally attached at said output shaft to said cam arm opposite end for urging said cam arm to said neutral, unlocked position;
- a yoke rod having one end connected to said slip-setting yoke and having a free end extending in a direction generally parallel to said lock rod in a plane which intersects the plane of said cam arm opposite end; and
- tension means on said yoke rod for urging said cam arm toward a select one of said upper and lower lock rod engaging positions when fluid pressure is lost in said fluid cylinder.

4,361,941

VALVE AND WIRE CUTTING, SKINNING AND WRAPPING TOOL EMPLOYING THE VALVE

Frans P. J. Bolssens, Heide Kalmthout; Guy C. J. L. G. G. M. Franck, Borsbeek, and Henri Dehertefelt, Niel, all of Belgium, assignors to International Standard Electric Corporation, New York, N.Y.

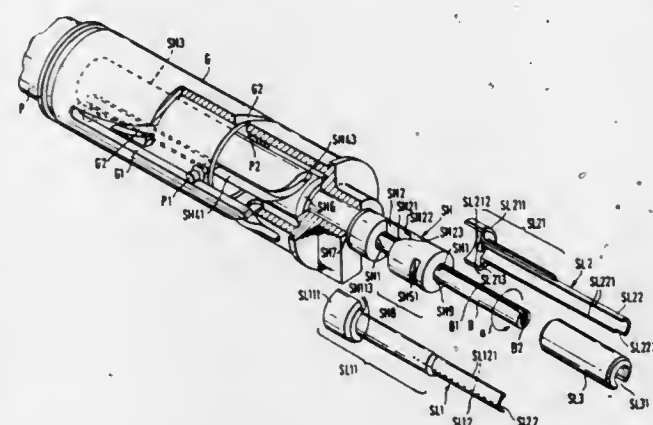
Division of Ser. No. 892,573, Apr. 3, 1978. This application Jun. 25, 1980, Ser. No. 162,844

Claims priority, application Netherlands, Apr. 29, 1977, 7704709

Int. Cl.³ H01R 43/04

U.S. Cl. 29—33 M

5 Claims



1. A wire cutting, skinning and wrapping tool capable of performing two successive skinning and wrapping operations in order to interconnect two terminals with an insulated wire comprising:

- a hollow sleeve;
- a knife carried by said sleeve; and
- a bit provided with a longitudinal groove which is able to slide in a forward and backward direction in said sleeve, said bit and said knife skinning said wire over a predetermined length;
- means associated with said bit to move said bit from a backward position to a forward position during said skinning operation, the skinned wire portion being situated in said longitudinal groove during said two skinning operations; said sleeve being provided by normally closed sleeve halves, said insulated wire opening said sleeve halves longitudinally during said skinning operations and that said sleeve halves close again when said bit is in its forward position after each skinning operation, said predetermined skinned

wire length being captured in said groove between said bit and said closed sleeve halves.

4,361,942

TERMINAL APPLYING MACHINE

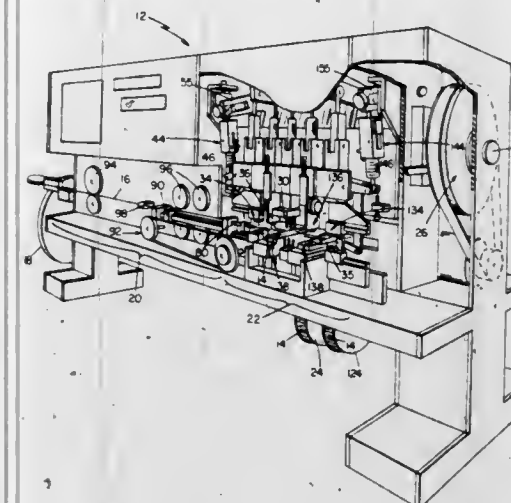
Ralph Mazzola, Brighton, and Harry V. Leaf, Marshfield, both of Mass., assignors to Ark-Les Corporation, Watertown, Mass.

Filed Sep. 23, 1980, Ser. No. 190,046

Int. Cl.³ H01R 43/04

U.S. Cl. 29—33 M

4 Claims



1. An automatic wire terminal applying machine for attaching a terminal to at least one end of a length of wire, said terminal having a metal body including a terminal-receiving portion and a wire-receiving portion of generally cylindrical shape, said machine having a plurality of longitudinally arranged operating means, including

- wire feed means for feeding said length of wire,
- guide tube means for guiding said length of wire,
- longitudinally movable wire clamping means,
- wire stripping means for stripping said wire end,
- terminal strip feed means for feeding a terminal,
- transversely movable terminal applicator means,
- longitudinally spaced between said wire clamping and stripping means and operable to apply a terminal to a stripped wire end positioned in overlapping relationship with said terminal, and

- wire end position control means for longitudinally moving said wire clamping means to position said stripped wire end in overlapping relationship with said terminal for transverse application of said terminal thereto,
- said wire end position control means including
- wire retraction means for retracting said stripped wire end prior to operation of said terminal applicator means to a non-overlapping position longitudinally spaced from said terminal
- wire insertion means for advancing said stripped wire end prior to operation of said terminal applicator means from said non-overlapping position for longitudinal insertion thereof into said overlapping terminal position, said wire insertion means having depth of insertion means adapted to terminate the advance of said stripped wire end in said wire-receiving portion of said terminal
- said wire retraction means having trip means adapted to terminate the further retraction of said stripped wire end and to actuate said wire insertion means, and
- reset means adapted to reset said wire end position control means

- whereby said terminal applying machine is adapted to attach a closed barrel terminal to a length of wire, and
- said guide tube means includes an outer guide tube adapted to center and to guide said attached terminal through said machine
- said outer guide tube having a spring-biased inner guide tube

concentric with said outer tube adjacent a forward end of said outer tube adapted to receive said wire whereby said outer tube is adapted to receive said attached terminal within said forward end of said outer tube when guiding said attached terminal through said machine.

4,361,943

DEVICE FOR INSTALLING THREADED BUSHES

Klaus Kobusch, Bielefeld, Fed. Rep. of Germany, assignor to Böllhoff & Co., Bielefeld, Fed. Rep. of Germany

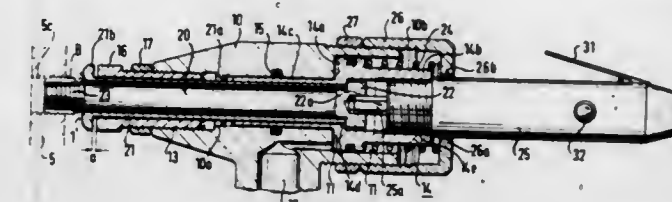
Division of Ser. No. 931,408, Aug. 7, 1978, abandoned. This application May 23, 1980, Ser. No. 152,591

Claims priority, application Fed. Rep. of Germany, Dec. 8, 1977, 7725059[U]; Mar. 17, 1978, 2811747

Int. Cl.³ B23P 19/04

U.S. Cl. 29—240

6 Claims



1. A device for rotatably inserting an axially deformable threaded bush into a workpiece, said device comprising:

- a housing;
- a rod rotatably located in said housing, said rod having means for engaging the bush to insert the bush in the workpiece by rotation of the rod;
- means coupled to said rod for rotating same;
- a fluid pressure responsive piston located in said housing and movable relative thereto, said piston being coupled to said rod for obtaining relative movement between said housing and rod; and
- abutment sleeve surrounding said rod and rotatable with respect to said housing, said sleeve having a surface abuttable with a bush engaged on said rod, said sleeve being restrained against axial movement in a first direction with respect to said rod and having a portion coacting with said housing upon the relative movement between said housing and rod for effecting axial movement between said rod and sleeve in a second direction to axially deform the bush engaged on said rod.

4,361,944

BARREL LOCK FERRULE EXTRACTOR

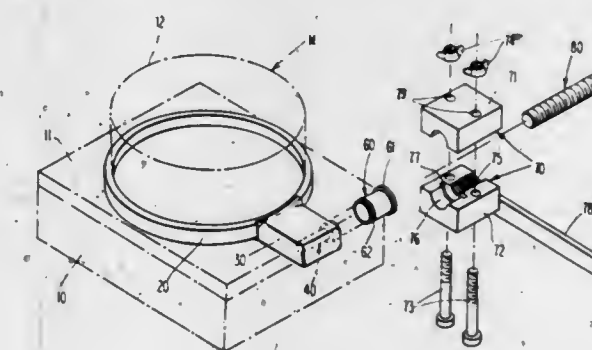
Earle B. Hamilton, P.O. Box 943, Buckingham, Pa. 18912

Filed Jun. 4, 1981, Ser. No. 270,384

Int. Cl.³ B23P 19/04

U.S. Cl. 29—256

3 Claims



1. A ferrule extractor tool for extracting a tubular ferrule from the cover housing of a kilowatt-hour meter which has a split locking ring having outwardly extending end extensions at the location of the split which are screwed together and covered by said cover housing, said cover housing being pro-

vided with a barrel lock for preventing removal of said cover housing, said barrel lock having a cylindrical head portion which is covered by said ferrule, said ferrule having an annular rib at its inward end located within said cover housing, said ferrule having an annular flange at its outer end located outside said cover housing, said ferrule extractor tool comprising:

- a two-piece clamp comprised of two halves adapted to be mated together;
- each half being provided with a semi-circular threaded portion at one end, a first semi-circular recess portion at the other end, and a second semi-circular flange-receiving recess between said first recess and said threaded portion;
- said clamp halves being adapted to be bolted together to form a clamp, said clamp having a threaded hole of circular cross section at said one end, a circular first recess having a diameter corresponding to the outside diameter of said tubular ferrule at said other end, and an enlarged circular second recess between said first recess and threaded portion, said second recess having a diameter corresponding to said flange of said ferrule; and
- an elongated actuating screw of circular cross section adapted to be threaded into said threaded hole of said clamp, said screw being adapted to be rotated inwardly through said threaded hole of said clamp and into the hollow center bore of said tubular ferrule, the inner end of said screw coming into abutting position against the head of said barrel lock, continued rotation of said screw in the tightening direction causing said clamp to move outwardly on the threads of said screw thereby pulling said ferrule outwardly, thereby to remove said ferrule from said cover housing of said meter.

4,361,945

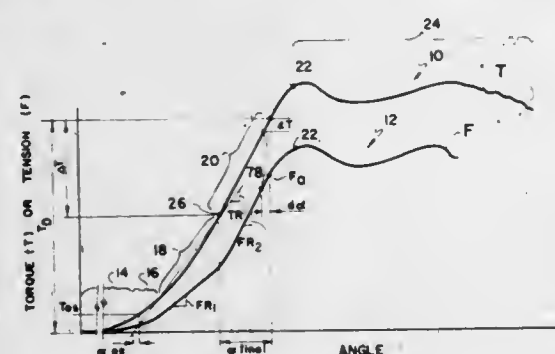
TENSION CONTROL OF FASTENERS

Siavash Eshghy, Pittsburgh, Pa., assignor to Rockwell International Corporation, Pittsburgh, Pa.
Division of Ser. No. 912,151, Jun. 2, 1978, Pat. No. 4,179,786, which is a continuation-in-part of Ser. No. 712,554, Aug. 9, 1976, abandoned, and a continuation-in-part of Ser. No. 766,429, Feb. 7, 1977, Pat. No. 4,106,570. This application Apr. 19, 1979, Ser. No. 31,344

Int. Cl.³ B23P 19/06

U.S. Cl. 29—407

21 Claims



- Method of pretensioning a screw joint to a predetermined axial load (F_D), the tension/rotation relationship FR of the screw joint being known, comprising the steps of determining the torque/rotation relationship TR during the linear, elastic deformation sequence of the tightening process, calculating by extrapolation of said torque/rotation relationship TR a theoretical, tensionless angular position α_{origin} of the screw joint, applying a tightening torque to the screw joint, sensing when the screw joint has been rotated with relation to said theoretical, tensionless angular position α_{origin} an angular interval which according to said known tension/rotation relationship FR corresponds to said predetermined axial load F_D , and then discontinuing said tightening torque application responsive

to said sensing when the screw joint has been rotated through said angular interval.

4,361,946

METHOD OF AND APPARATUS FOR ATTACHING SLIDERS AND TOP END STOPS FOR SLIDE FASTENERS

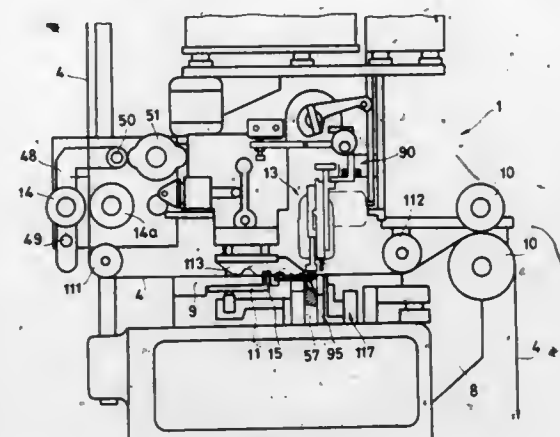
Tadahiro Takamatsu, Uozu, Japan, assignor to Yoshida Kogyo K.K., Japan

Filed Dec. 5, 1980, Ser. No. 213,737

Claims priority, application Japan, Dec. 14, 1979, 54-162289 Int. Cl.³ B23P 11/00, 19/04; B21D 53/52

U.S. Cl. 29—408

28 Claims



- A method of attaching a slider and a pair of top end stops to a pair of continuous stringers for slide fasteners, each stringer having successive spaced groups of coupling elements mounted on a continuous stringer tape and interengaged with opposed complementary groups of coupling elements on the other stringer tape, there being successive pairs of opposed blank tape portions between the successive spaced pairs of coupling element groups, said method comprising the steps of:
 - moving the pair of continuous stringers longitudinally along a path in a predetermined direction;
 - sensing the arrival of one of the successive spaced pairs of coupling element groups;
 - in response to said arrival, spreading one of the successive pairs of opposed blank tape portions;
 - setting and retaining the slider at a first fixed point between such spread one pair of opposed blank tape portions;
 - in response to said setting of the slider, releasing said spreading to allow said one pair of opposed blank tape portions to come into engagement with shoulders of a Y-shaped guide channel of the slider;
 - then, moving the pair of continuous stringers along the path in a direction opposite to said predetermined direction to such an extent that said one pair of opposed blank tape portions are threaded through the guide channel of the slider;
 - then, further moving the pair of continuous stringers along the path in said predetermined direction until end portions of said one of the successive spaced pairs of coupling element groups are introduced into the guide channel of the slider;
 - then, further spreading said one pair of opposed blank tape portions;
 - setting and retaining the pair of top end stops at a pair of transversely spaced second fixed points so as to thread said further spread one pair of opposed blank tape portions through the pair of top end stops, respectively, said second fixed portions being spaced from said first fixed point along the path;
 - then, further moving the pair of continuous stringers along the path in said predetermined direction, to disengage said end portions of said one of the successive spaced

- pairs of coupling element groups, until endmost disengaged coupling elements reach the top end stops retained at said second fixed points; and
- then, clinching the top end stops retained at said second fixed points, the top end stops being thereby secured to one end of said further spread one pair of opposed blank tape portions which end is adjacent to said endmost disengaged coupling elements.

4,361,947

STORAGE CONTAINER AND METHOD OF MAKING SAME

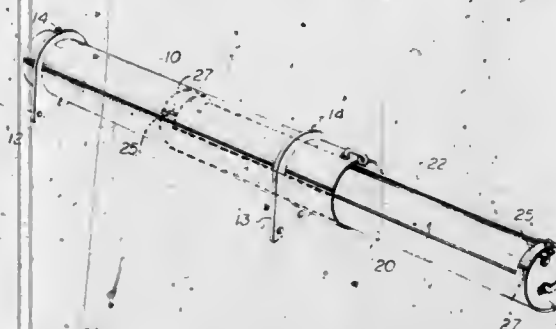
Ronald L. Arnaud, 121 Culligan Ct., Boulder Creek, Calif. 95006

Filed Feb. 19, 1981, Ser. No. 236,028

Int. Cl.³ B23P 17/00

U.S. Cl. 29—416

4 Claims



- A method of making a storage container from a cylindrical member of predetermined length comprising the steps of cutting the member in half to provide two tubular sections of substantially equal length, making cuts in one section extending generally longitudinally of said one section to remove a longitudinal portion of the section and permit it to be formed into a new tubular section having a diameter less than the inner diameter of the other section, forming said one section into the new tubular configuration and securing it in said new tubular configuration, and closing the ends of said new tubular section.

4,361,948

METHOD OF MANUFACTURING CYTODIAGNOSTIC BRUSH ASSEMBLY

Katumi Omata, Sagamihara, Japan, assignor to Olympus Optical Company Ltd., Japan

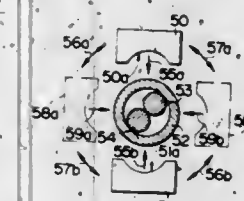
Filed Jun. 6, 1980, Ser. No. 157,096

Claims priority, application Japan, Jul. 20, 1979, 54/92363

Int. Cl.³ B21D 39/00; B23P 11/00

U.S. Cl. 29—517

6 Claims



- A method of manufacturing a cytodiagnostic brush having two wound strands which form the brush, said method comprising the steps of:
 - providing a cylindrical sleeve having a circular outer diameter and a circular inner diameter and a wall of uniform thickness; said circular inner diameter being sufficiently large so that end portions of said two wound strands may be simultaneously inserted therein;
 - inserting said end portions of said strands into said sleeve;
 - securing said sleeve to said strand end portions by deforming said sleeve so as to reduce its said inner and outer diameters, maintain the circular shape of its said outer diameter and provide direct contact between the end portions of

both of said strand portions around substantially the entire circumference of each of said strands which lie within said sleeve and said inner diameter of said sleeve along the entire length of said strand portions which lie within said inner diameter of said sleeve.

4,361,949

PROCESS FOR MAKING A MEMORY DEVICE

Ryoichi Hori, Tokyo; Masaharu Kubo, Hachioji; Norikazu Hashimoto, Tokorozawa; Shigeru Nishimatsu, Kokubunji, and Kiyoo Itoh, Higashi-Kurume, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

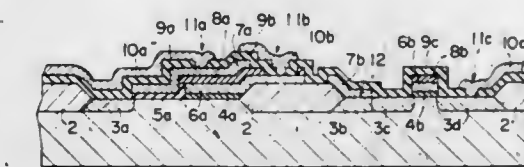
Filed Jun. 1, 1981, Ser. No. 269,507

Claims priority, application Japan, Mar. 4, 1977, 52-22681

Int. Cl.³ H01L 21/22

U.S. Cl. 29—571

25 Claims



- A process for making a multi-level electrode structure for a semiconductor device formed in a surface region of a single semiconductor substrate, comprising steps of:
 - forming a first conductive layer above a first part of the surface region of said substrate;
 - forming a first insulating layer on said first conductive layer;
 - forming a first opening in a first part of said first insulating layer;
 - forming a second conductive layer so that a first part of said second conductive layer overlies a second part of the surface region of said substrate and a second part of said first insulating layer, and so that a second part of said second conductive layer overlies a third part of said first insulating layer which is between said first and second parts of said first insulating layer, and so that a third part of said second conductive layer is connected with said first conductive layer;
 - removing said second part of said second conductive layer so that said third part of said second conductive layer is isolated from said first part of said second conductive layer;
 - forming a second insulating layer so that first and second parts of said second insulating layer respectively overlie said first and third parts of said second conductive layer;
 - forming second and third openings simultaneously in said first and second parts of said second insulating layer; and
 - filling said second and third openings simultaneously, respectively, with first and second conductors so that said first and second conductors are connected with said first and third parts of said second conductive layer, respectively.

4,361,950

METHOD OF MAKING SOLAR CELL WITH WRAP-AROUND ELECTRODE

James A. Amick, Princeton, N.J., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Division of Ser. No. 133,028, Mar. 24, 1980, abandoned. This application Mar. 10, 1981, Ser. No. 242,284

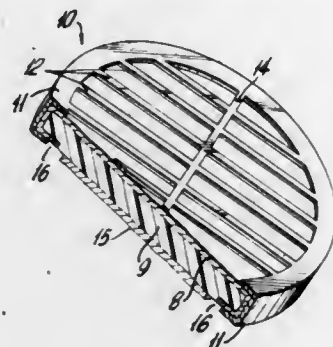
Int. Cl.³ H01L 31/18

U.S. Cl. 29—572

4 Claims

- A method of making a solar cell with a wrap-around electrode whereby said cell has electrodes on the back surface thereof comprising:
 - providing a back-to-back assembly of two semiconductor bodies of one conductivity type separated by a chemically

inert spacer having substantially the same geometry, but of smaller dimensions as said semiconductor body; treating said assembly with a dopant material whereby a surface layer of opposite conductivity type is deposited over the entire surface of said semiconductor bodies, around the edges thereof and in a strip around the perimeter of the back surface of said semiconductor body; abrading the back surface of said semiconductor body to define a junction between the bulk portion of said semiconductor body and said surface layer;



forming a grid and first electrode pattern on said surface layer, said first electrode pattern extending in a strip along at least a portion of the perimeter of the top surface of said semiconductor, around the edge thereof and in a strip along at least a portion of the perimeter of the back surface of said cell;

forming a second electrode pattern on the back of said semiconductor body and in contact with the bulk portion thereof, said second electrode pattern separated by an area having at the surface thereof said junction between said surface layer and said bulk portion; and metallizing said patterns.

4,361,951

METHOD OF FABRICATING A TITANIUM DIOXIDE RECTIFIER

Allen H. Meitzler, Ann Arbor; William T. Donlon, Jr., Detroit, and Samuel S. Shinozaki, Livonia, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Apr. 22, 1981, Ser. No. 256,412

Int. Cl.³ H01L 21/20

U.S. Cl. 29—585

4 Claims

1. A method for making a rectifier circuit element comprising the steps of:

- forming a structure with a porous, fine-grain, polycrystalline ceramic oxid main body with a pair of spaced faces and a platinum contact electrode on each of the spaced faces;
- applying a dc voltage across the structure;
- heating the structure to a temperature of about 750° to 850° C.;
- applying an oxidizing atmosphere;
- applying a reducing atmosphere;
- cycling between oxidizing and reducing atmospheres to form planar microstructures; and
- cooling the structure.

4,361,952

METHOD OF ADJUSTING AIR GAP OF AN ELECTRIC HORN

James A. Neese, Flora, Ill., assignor to Sparton Corporation, Jackson, Mich.

Filed Feb. 23, 1981, Ser. No. 236,662

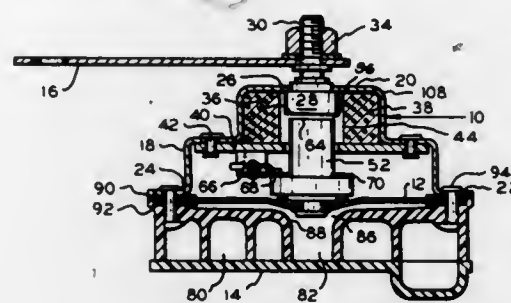
Int. Cl.³ H04R 31/00

U.S. Cl. 29—594

3 Claims

1. The method of adjusting the air gap between the pole piece and plunger of an electric horn wherein the horn includes a sheet metal housing of cup configuration having a sidewall and a bottom wall, an electromagnetic coil within the housing adjacent the walls thereof, a pole piece fixed relative

to the bottom wall within the coil, a diaphragm mounted upon the housing having a ferromagnetic plunger affixed thereto extending into the coil toward the pole piece, the housing including a diaphragm mounting surface engagable by a mounting surface defined on the diaphragm adjacent its periphery, the pole piece and plunger each including opposed spaced gap surfaces defining an air gap whose dimension determines the horn audible characteristics and electric switch means operated by the plunger to cyclic energize the coil, comprising the steps of measuring the distance from the hous-



ing diaphragm mounting surface to the pole piece gap defining surface to obtain a first dimension, measuring the distance from the diaphragm mounting surface to the plunger gap defining surface to obtain a second dimension, determining the difference between said first and second dimensions, deforming the housing to vary said first dimension in accord with the difference between said first and second dimensions whereby upon assembly of the housing and diaphragm a predetermined air gap dimension will result, and assembling the housing and diaphragm.

4,361,953

METHOD OF SECURING END SHIELDS TO THE STATOR ASSEMBLY OF A DYNAMOELECTRIC MACHINE

C. Theodore Peachee, County of St. Louis, Mo., assignor to Emerson Electric Co., St. Louis, Mo.

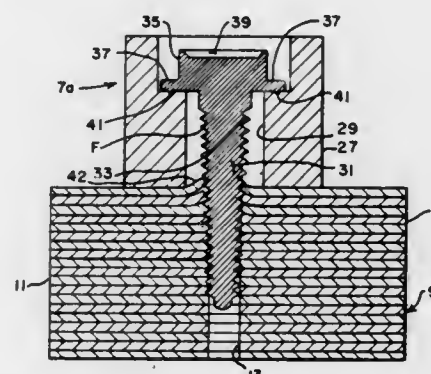
Division of Ser. No. 956,355, Oct. 31, 1978, Pat. No. 4,306,168.

This application Aug. 31, 1981, Ser. No. 298,080

Int. Cl.³ H02K 15/14

U.S. Cl. 29—596

3 Claims



1. A method of assembling a dynamoelectric machine, such as a fractional horsepower motor or the like, said motor having a stator assembly including a core made up of a stack of laminations of suitable magnetic material, said core having a central bore extending therethrough, a rotor assembly including a rotor body adapted to be rotatably received in said bore and a rotor shaft extending endwise from said rotor body, and at least one end shield, the latter having a bearing adapted to receive and to journal said rotor shaft, said method comprising the steps of:

- inserting said rotor assembly into said stator assembly with said rotor being received in said bore;
- centering said rotor body within said bore so that said motor

has an air gap between said rotor body and said core of substantially uniform thickness therearound;

installing said end shield on said stator assembly and on said rotor assembly so that said rotor shaft is journaled in said bearing and so that said portions of said end shield bear against an adjacent portion of said core, said end shield portions having holes therethrough and said adjacent portion of said core having holes therein in substantial alignment with said holes in said end shield portions when said end shield is fitted on said stator assembly; and inserting threaded fasteners into said end shield holes and into said holes in said core and tightening said fasteners so as to draw said end shield into firm gripping engagement with said core and so as to bend outwardly at least the outermost lamination adjacent said holes in said core with the outwardly bent portion protruding at least partially into a mating opening in said end shield thereby to securely hold said end shield in place with respect to said core and to journal said rotor shaft relative to said core so that said uniform air gap is maintained.

4,361,954

METHOD OF AND APPARATUS FOR THE PRODUCTION OF A TOASTER HEATING ELEMENT

Helmut Ohnmacht, Kandel, and Edwin Höfer, Bellheim, both of Fed. Rep. of Germany, assignors to Firma Fritz Eichenauer, Kandel, Fed. Rep. of Germany

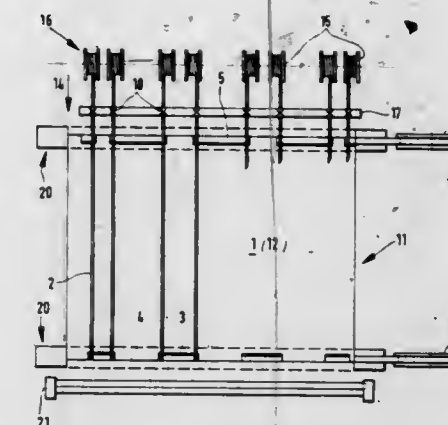
Filed May 2, 1980, Ser. No. 146,162

Claims priority, application Fed. Rep. of Germany, May 3, 1979, 2917808

Int. Cl.³ H05B 3/00

U.S. Cl. 29—611

18 Claims



1. Method for the production of a toaster heating element comprising a heating conductor wire and a support plate provided with edge recesses at opposite edges, the heating conductor wire being disposed substantially over a front, heating side of the support plate, comprising the steps of arranging connecting strips of electrically conductive material at a rear side of the support plate (1), which is opposite the heating side, so that each strip extends fully across a dimension of the support plate in the region of the edge recesses (3) of a respective one of said opposite edges, arranging a plurality of heating conductor wires (2) substantially parallel to one another each of the conductor wires crossing the connecting strips (5) in the region of an oppositely located pair of the edge recesses (3) at the heating side, electrically connecting said conductor wires to the connecting strips (5), and then cutting said conducting wires to form discrete conductive lengths.

4,361,955

ELECTRICAL JACK AND METHOD OF MAKING SAME

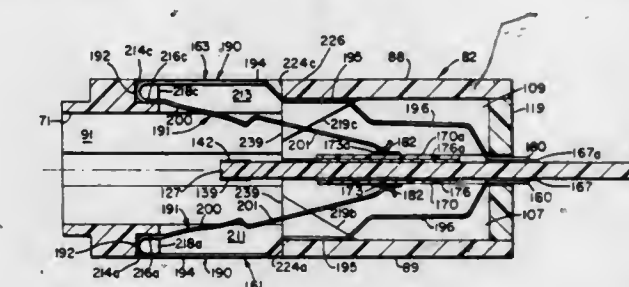
Jesse F. Lancaster, Great Falls, Va., assignor to Dynatech Laboratories, Incorporated, Alexandria, Va.

Division of Ser. No. 955,233, Oct. 27, 1978, Pat. No. 4,256,936, which is a continuation-in-part of Ser. No. 650,019, Jan. 19, 1976, Pat. No. 4,140,918, which is a continuation-in-part of Ser. No. 420,584, Nov. 30, 1973, abandoned. This application Dec. 5, 1980, Ser. No. 213,629

Int. Cl.³ H01R 43/00

U.S. Cl. 29—884

3 Claims



1. A method of manufacturing an electrical jack having a housing which is provided with at least one socket for slidably receiving a printed circuit board connector, a printed circuit board having an end portion extending into said socket for reception in said connector upon insertion of the connector into said socket, and switching means comprising a set of contact spring members normally conditioned to cooperate with a printed circuit on said board for electrically interconnecting two sets of the jack's terminals and actuatable in response to the reception of the connector in said socket to electrically disconnect the two sets of terminals from each other, said method comprising the steps of forming said housing with said socket and with an aperture which extends through a side wall of said housing to open into the interior of said housing, inserting said board into said housing to position said end portion in said socket, securing said circuit board to said housing after it is inserted into said housing and inserting said spring members through said aperture to positions in said housing where they engage and are removably trapped in place between surfaces on said housing and said board.

4,361,956

OSCILLATING SAW ACCESSORY

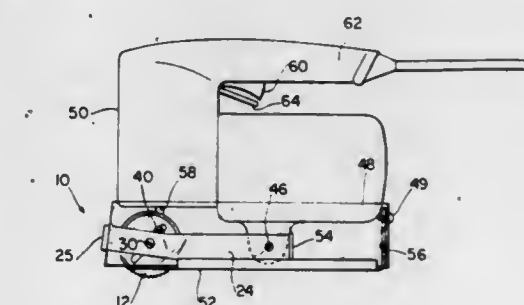
Norbert A. Kirk, c/o ABC Toy Designers, 43 E. Ohio St., Rm. 930, Chicago, Ill. 60611

Filed Jan. 14, 1981, Ser. No. 225,050

Int. Cl.³ B27B 9/00

U.S. Cl. 30—122

10 Claims



1. An oscillating saw accessory for attachment to a tool having a reciprocating member comprising:

- a circular saw blade;
- a housing for said saw blade;
- means to mount said saw blade to said housing for rotary movement;
- means to attach said housing to the tool such that said saw blade is disposed adjacent to the reciprocating member and the plane of rotation of said saw blade is substantially parallel to the axis of reciprocation of the reciprocating member; and

means to connect said saw blade to the reciprocating member whereby the reciprocating movement of the reciprocating member produces an oscillating movement of said saw blade which may be used for cutting.

4,361,957

PNEUMATIC HAND TOOL WITH VACUUM DEBRIS REMOVAL

Hermann Krötz, Murrhardt-Steinberg, and Robert Klenk, Grosserlach-Schönbrunn, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

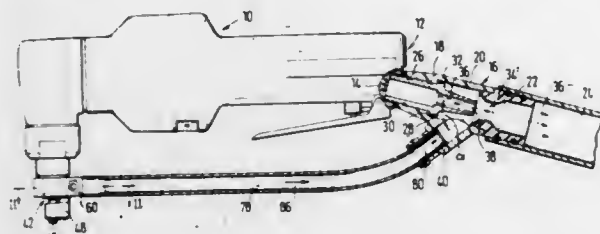
Filed Jan. 22, 1981, Ser. No. 227,533

Claims priority, application Fed. Rep. of Germany, Feb. 16, 1980, 3005860

Int. Cl.³ B26B 15/00

U.S. Cl. 30—124

20 Claims



18. For combination with a compressed air, reciprocating hand tool having a tool housing: a reciprocating cutting head (42) mounted on the tool housing, and an air exhaust port (14) formed on the tool housing from which, in operation of the tool, a stream of air emanates, a vacuum debris removal apparatus comprising, in accordance with the invention, a vacuum ejection nozzle (18); means (20, 22, 34, 40) defining a Venturi and suction or underpressure chamber for cooperation with said vacuum ejection nozzle; a suction duct (78) connectable to the suction or underpressure chamber to have suction applied thereto in operation of the tool; and a suction nozzle (60) positionable to surround a portion of the reciprocating cutting head (42) of said tool and connectable with said suction duct (78), said vacuum injection nozzle having means (26) for attachment of the nozzle to a tool to place the nozzle into air flow communication therewith, the suction nozzle (60) comprising a nozzle body having means (62, 64, 66) for attachment of said suction nozzle to a tool and surrounding the cutting head thereof.

4,361,958

RETRACTABLE BLADE KNIFE

Richard Gilbert, Sheffield, England, assignor to Stanley Tools Limited, Sheffield, England

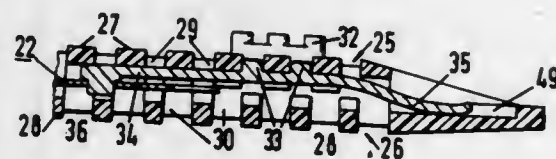
Filed Nov. 3, 1980, Ser. No. 203,337

Claims priority, application United Kingdom, Nov. 19, 1979, 7939977

Int. Cl.³ B26B 1/08

U.S. Cl. 30—162

3 Claims



1. A retractable blade knife comprising a handle, a blade and a blade-slider, the handle being in one elongate piece of molded material adapted for the slider to be detained in selectively different positions along the handle for extending and retract-

ing the blade, which is adapted for successive portions thereof to be broken off and discarded when worn, characterised in that the handle is formed on each of the two opposite sides with wall portions alternating with apertures, the wall portions on each side being directly opposite the apertures on the opposite side, the wall portions on one of said sides of the handle having gaps therein for the passage along the handle of a manually operable part of the slider, the wall portions on one of said sides of the handle forming detents for holding the slider in its selected position along the handle.

4,361,959

BRUSH CUTTER

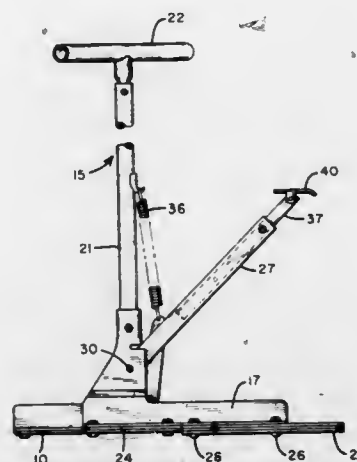
John R. Akerson, Box 115, Grandy, Minn. 55029

Filed Apr. 15, 1981, Ser. No. 254,400

Int. Cl.³ A01G 3/00

U.S. Cl. 30—231

8 Claims



1. A brush cutter for enabling a user to cut brush at the ground level while remaining erect, comprising, in combination: a first normally horizontal blade having a first transverse edge; support means, including an elongated handle generally orthogonal to said blade, to enable positioning of said edge against a stalk to be cut; a second blade having a second transverse edge; means guiding said second blade for sliding with respect to said first blade, to bring said transverse edges together and thus sever a stalk positioned therebetween; and a pedal connected to said second blade to cause sliding thereof.

4,361,960

CHAIN SAW BAR WITH AUTOMATIC TENSIONING

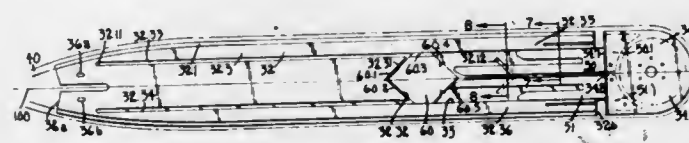
James E. Halverson, Rte. One, Box 40, Hillsdale, Wis. 54744

Filed Nov. 24, 1980, Ser. No. 209,754

Int. Cl.³ B27B 17/12, 17/14

U.S. Cl. 30—385

32 Claims



1. A chain saw guide bar assembly for use with a chain saw of the type of having an endless toothed chain, a frame, a drive sprocket rotatably mounted on said frame and supporting said chain, means for mounting said guide bar assembly to said frame such that said chain is guided by and moves along the periphery of said guide bar assembly in response to rotation of said drive sprocket; said guide bar assembly comprising:

- (a) a bifurcated guide bar, comprising:
 - (i) an elongate primary guide member having a proximal

end configured for mounting to the frame adjacent the drive sprocket and an oppositely disposed distal end, whereby said primary guide member when mounted to said frame extends from said frame in cantilevered manner toward said distal end;

- (b) means for movably connecting said nose guide member to said primary guide member at said distal end thereof for movement with respect thereto substantially only in the axial direction of said primary guide member; whereby the chain will operatively move along the outer peripheries of the primary and the nose guide member;
- (c) biasing means enclosed within said bifurcated guide bar for automatically applying uniform predetermined tensioning forces to the cutting chain by controllably urging said nose guide member primarily in the axial direction away from the distal end of said primary guide member, wherein said biasing means is shielded from the external environment of said bifurcated guide bar during operation thereof; and
- (d) means for preventing accumulation of sawdust and foreign matter during operation of said bar assembly that would impede the relative operative movement of said primary and nose guide members and the operation of said biasing means, whereby said uniform predetermined tensioning forces to the cutting chain are maintained.

4,361,961

DEVICE FOR MEASURING THE ANGULAR ORIENTATION OF HORIZONTAL BORES

Heinz Fuchs, Recklinghausen, Fed. Rep. of Germany, assignor to Ruhrkohle AG, Essen, Fed. Rep. of Germany

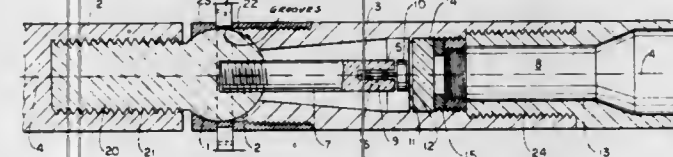
Continuation of Ser. No. 92,948, Nov. 9, 1979, abandoned. This application Apr. 24, 1981, Ser. No. 257,405

Claims priority, application Fed. Rep. of Germany, Nov. 13, 1978, 2849147

Int. Cl.³ E21B 47/02

U.S. Cl. 33—1 H

7 Claims



1. Device for measuring the angular orientation of horizontal bores, comprising two discrete tubular elements having respective ends axially adjacent one another, a ball-and-socket joint in one of said adjacent ends for connecting said tubular elements with freedom of relative angular displacement and having one rigid extension projecting from said one end into and being anchored in the other of said ends, and a second rigid extension located on the longitudinal center axis of one of said tubular elements and projecting from said joint into the other of said tubular elements, said second rigid extension having a free end portion spaced from said joint, a support member adjacent said free end portion; an angle-measuring device carried by one of said support member and said free end portion; said device being operative for detecting the occurrence and magnitude of successive relative angular inclinations of the longitudinal center axes of said tubular elements and including a center of gravity oriented pendulum, and optical discrete means operative for optically detecting a continuing record of information provided by said measuring device.

4,361,962

ARRANGEMENT TO BE USED IN A CONTINUOUS CASTING PLANT

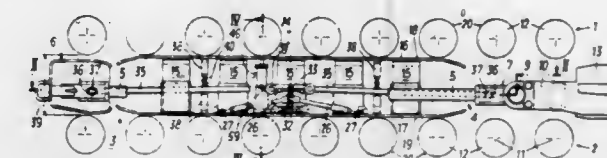
Werner Scheurecker, Linz; Josef Wirth, Leonding, and Alois Scheinecker, Linz, all of Austria, assignors to Voest-Alpine Aktiengesellschaft, Linz, Austria

Filed Oct. 2, 1980, Ser. No. 193,368

Claims priority, application Austria, Oct. 22, 1979, 6872/79 Int. Cl.³ G01B 5/00

U.S. Cl. 33—143 L

19 Claims



1. In an arrangement to be used in a continuous casting plant of the type including two oppositely arranged roller ways forming a section between them and each roller way being formed by a plurality of rollers, a measuring body for measuring the distance between the two oppositely arranged roller ways being provided, which measuring body is adapted to be moved between the section formed by the two oppositely arranged roller ways and includes a distance-measuring device fastened within said measuring body and oppositely arranged contact surfaces, said rollers having surface areas to be contacted by said contact surfaces, the improvement which is characterized in that said oppositely arranged contact surfaces of said measuring body are formed by elastically deformable spring steel strips having a longitudinal extension that is longer than the axial distance of three neighbouring rollers in one roller way, and in that pressure units are provided between said spring steel strips for pressing said spring steel strips against said surface areas of said rollers, said distance-measuring device contacting the inner side of a spring steel strip.

4,361,963

DIFFERENTIAL NONMETALS THICKNESS GAUGE

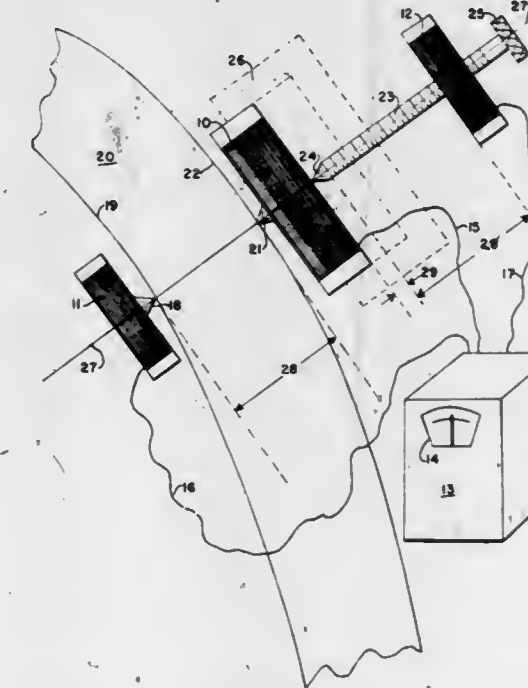
Leroy R. Hause, Seattle, and Dean Y. Tsuchida, Renton, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Nov. 6, 1980, Ser. No. 204,493

Int. Cl.³ G01B 7/06

U.S. Cl. 33—143 L

7 Claims



1. A gauge for determining the thickness of a nonmetallic article comprising: an AC signal generator;

a transmitting coil connected to said generator;
 a first receiving coil and a duplicate receiving coil, each axially aligned with said transmitter coil on opposite sides thereof and each adapted to receive AC signals therefrom; means for delivering AC signals from said first receiving coil and from said duplicate receiving coil to a comparison means;
 a first means extending from said first receiving coil for engaging one surface of an article whose thickness is to be determined;
 a second means extending from said transmitting coil for engaging the opposed surface of the said article;
 linearly adjustable mounting means between said duplicate receiving coil and said transmitting coil;
 means for measuring the length of said adjustable mounting means.

4,361,964

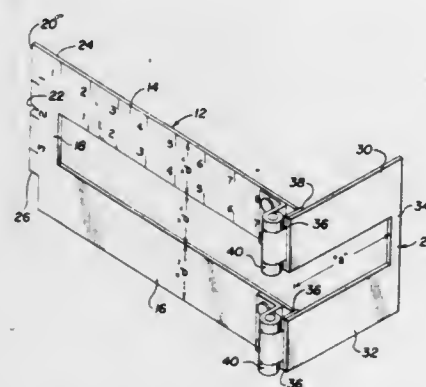
LAY OUT SQUARE

John W. Hennessey, 919 S. 8th, Lawton, Okla. 73501
 Filed Mar. 3, 1981, Ser. No. 240,101

Int. Cl.³ B43L 7/06

U.S. Cl. 33—478

4 Claims



1. A lay out square for use in constructing wall sections comprising:
 first and second leg members having a width equal to that of the edge width of the construction members being used; an end member joining said first and second legs to form a U-shaped member, the first and second legs being spaced apart a distance equal to the width of one leg;
 third and fourth legs being equal in width to the first and second legs and being spaced to align with said first and second legs;
 a connector member joining said third and fourth legs at one end; and
 means pivotally joining said first and third legs and said second and fourth legs to permit movement of the third and fourth legs from a position substantially aligned and overlapping said first and second legs to a position wherein the third and fourth legs are locked substantially perpendicular to the first and second legs.

4,361,965

DEVICE FOR ATOMIZING A REACTION MIXTURE

Jean P. Goumondy, Vitry sur Seine, and Alain Hanssens, Bag-nols sur Ceze, both of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Dec. 30, 1980, Ser. No. 221,441

Claims priority, application France, Jan. 9, 1980, 80 00392

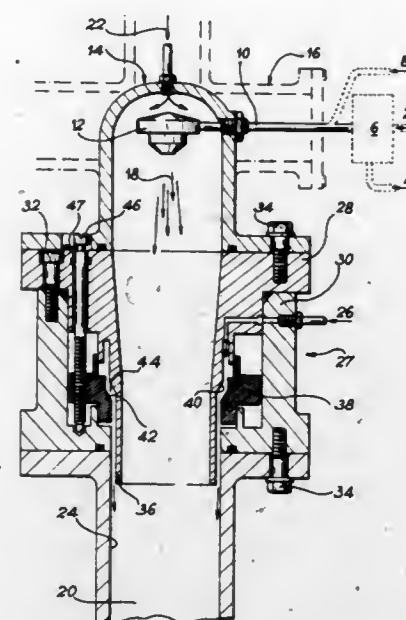
Int. Cl.³ F26B 17/10

U.S. Cl. 34—57 R

10 Claims

1. A device for atomizing a reaction mixture said device being a reactor having an inner wall symmetrical around an axis of revolution and including means for enabling said mixture to be atomized in said reactor with the aid of at least a first gas acting in conjunction with an atomizing nozzle, and comprising a supply of a second hot gas introduced at the top of the atomizing device, above said nozzle, serving to dry the atom-

ized mixture said first and second gases being directed generally downwardly toward the bottom of said reactor, further comprising a supply of a third gas and means for introducing and distributing this third gas into said reactor at a point downstream of said nozzle in the direction of



flow of said first and second gases comprising an annular passage of adjustable width in the form of a ring along the inner wall of the reactor for distributing said third gas in the reactor so that the flow of said third gas prevents any contact between the atomized mixture and said wall at said point and downstream therefrom.

4,361,966

PORTABLE HAIR DRYER

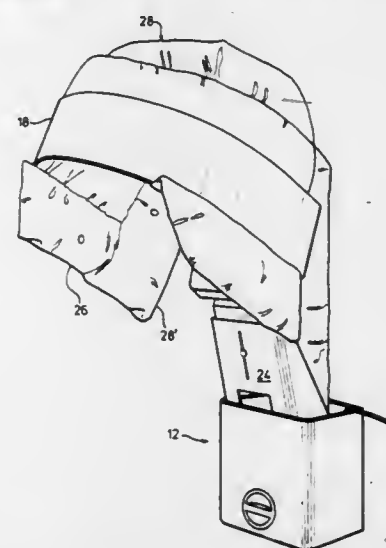
John H. Downey, 5 Loftly Hillway, Willowdale, Ontario, Canada

Filed Dec. 29, 1980, Ser. No. 220,316

Int. Cl.³ A45D 20/18

U.S. Cl. 34—99

7 Claims



1. In a portable hair dryer, hood structure comprising; air inflatable shaped bag means arranged to receive the head of a user in partially enclosed relation therein when in use; air blowing apertures perforating selected inner wall portions of the bag means, to direct air therefrom, when in use in blowing relation against the hair of a user; a flexible cantilever support band attached to the bag means in supporting relation forming an integral part of the hood structure and having sufficient width to provide arcuate cantilevered support to the bag means; first portions of said bag means secured to the band extending in downward depending supported relation therefrom as a profiled skirt and second portions of said bag means extending upwardly from the band in supported relation therefrom to provide an air supported structure of sufficient depth

to at least partially enclose the top portion of said users head, releasable fastening means for securing the band in adjustable forwardly extending relation from a hood support structure to permit tilt adjustment of the hood relative to said rearwardly located support structure; to an air supply connection connected to the bag means for the passage of heated air into the bag means at a pressure sufficient to support said second bag portions.

4,361,967

DEVICE FOR COOLING FRESHLY-SOLDERED CIRCUIT BOARDS

Heiner Bahnsen, Augsburg, and Dietrich Rumpf, Munich, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

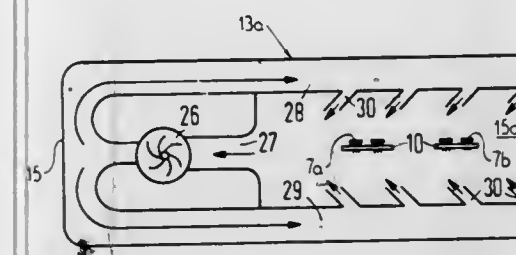
Filed Jul. 22, 1980, Ser. No. 171,196

Claims priority, application Fed. Rep. of Germany, Aug. 9, 1979, 2932398

Int. Cl.³ F26B 15/10

U.S. Cl. 34—151

5 Claims



1. In a device for cooling printed circuit boards after mechanical soldering of heat-sensitive electrical components into such boards with the aid of a cooling air stream which is circulated in a substantially closed circuit with the aid of a fan means and a means for transporting such board past the air stream, wherein the improvement comprises:

a somewhat C-shaped housing defining said closed circuit and positioned approximately perpendicular relative to a transport direction of said boards and embracing said means for transporting such boards at a distance with a pair of horizontally extending legs, each of said legs having air-outlet openings on surfaces thereof facing said boards, said air-outlet openings being disposed at least at outer ends of said legs and being directed against opposite sides of said boards at an obtuse angle, said housing having a central opening therein allowing cooling air to be sucked-in via said opening and expelled through said legs to said air-outlet openings to establish an air current about said circuit boards; and said means for transporting such boards past the air stream comprising a transport means supporting freshly-soldered circuit boards only at their respective side edges in such a manner that opposite major surfaces of such boards are uncovered.

4,361,968

APPARATUS FOR POLYMERIZATION OF ADHESIVE RESIN APPLIED TO THE JUNCTIONS OF TENNIS RACKET NETTING

Aldo M. Robaldo, Corso Francia 33, Turin, Italy

Filed Nov. 13, 1980, Ser. No. 206,671

Claims priority, application Italy, Jan. 11, 1980, 52826/80[U]

Int. Cl.³ F26B 9/06

U.S. Cl. 34—196

11 Claims

1. For use with tennis rackets an apparatus for polymerization of adhesive resin applied to the junctions of tennis racket netting, the improvement comprising a parallelepipedic container having a plurality of superimposed compartments communicating with one another and each arranged to receive at least a portion of a racket, a source of heat arranged substantially below said compartments, means for circulation of air



4,361,969

SHOE WITH PNEUMATIC CUSHIONING CHAMBER

Christian Vermonet, Cholet, France, assignor to Societe a Responsabilite Limitee Technisynthese, Saint Pierre Mont-limart, France

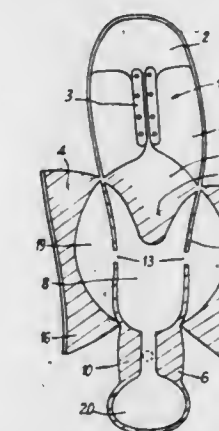
Filed Dec. 16, 1980, Ser. No. 217,177

Claims priority, application France, Dec. 28, 1979, 79 31937

Int. Cl.³ A43B 7/14, 13/20, 21/26, 19/00

U.S. Cl. 36—88

4 Claims



1. A shoe comprising an upper and a sole, and in that portion of the sole on which the heel of the wearer bears, a chamber which is bounded on the interior of the shoe by a flexible wall, there being chambers in those portions of the upper that encase the rear of the foot of the wearer, these latter chambers also being bounded by flexible walls on the interior of the shoe, passageways of reduced cross section through which said chamber in the sole communicates with said chambers in the upper, and means to inflate said chambers.

4,361,970

KARATE FOOT PROTECTOR

Fred H. Wren, Jr., and Frank H. Babcock, III, both of St. Louis, Mo., assignors to Pro-Tect, Inc., St. Louis, Mo.

Filed Sep. 25, 1980, Ser. No. 190,880

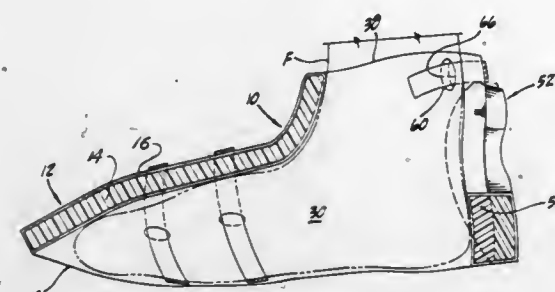
Int. Cl.³ A43B 5/00, 19/00

U.S. Cl. 36—106

3 Claims

1. A foot protector, for karate combat comprising:

- (a) a unitary body formed from a resilient foam core having a flexible outer casing, the body including:
1. a front portion adapted to cover the upper portion of the foot and the front sides thereof,
 2. an open bottom portion defined by a lower margin,
 3. a rear portion adapted to cover the ankle of one foot, including opposed side portions and an upper margin,



4. said side portions including opposed heel side margins extending downwardly from the upper margin and terminating upwardly of the lower margin to define separable upper side flap portions, outwardly bendable to permit entry of the foot, and a continuous connecting lower portion disposed about the lower heel, and
5. a strap connector element releasably connecting the upper side flap portions.

4,361,971

TRACK SHOE HAVING METATARSAL CUSHION ON SPIKE PLATE

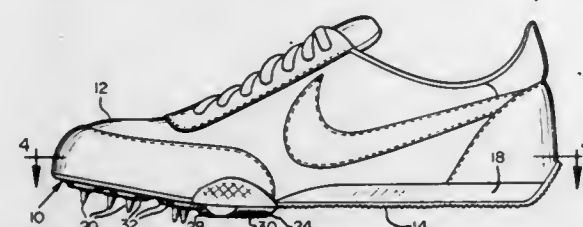
William J. Bowerman, Eugene, Oreg., assignor to BRS, Inc., Beaverton, Oreg.

Filed Apr. 28, 1980, Ser. No. 144,197

Int. Cl.³ A43B 5/00, 13/18, 23/28

U.S. Cl. 36—129

18 Claims



1. A running shoe in which the improvement comprises: a spike plate having a plurality of spike fastening means for attaching spikes to the plate; and a cushioning member of resilient material different than the material of the spike plate secured to the lower surface of said plate, said cushioning member being positioned behind and separate from the rearmost spike fastening means and extending below the lower surface of the spike plate including surface portions surrounding said spike fastening means, said cushioning member being tapered in width longitudinally of the shoe with a greater width at the lateral side of the shoe than at the medial side of the shoe.

4,361,972

RIDER'S SHOE

Lawrence Miller, 299 NE. 28th St., Boca Raton, Fla. 33431

Filed Jul. 31, 1981, Ser. No. 289,053

Int. Cl.³ A43B 5/00

U.S. Cl. 36—131

9 Claims

1. A cyclist's shoe comprising a relatively thick, lightweight, lower sole of high strength material provided with a

transverse bore, said bore being tapered on the side nearest to the arch of the rider and said bore having such interior dimensions as to accommodate the pedal shaft which is connected to the crank gear.



tion as to accommodate the pedal shaft which is connected to the crank gear.

4,361,973

BULK MATERIAL CONVEYING FOR A PNEUMATIC DREDGER

Lothar Imhoff, Kerpen-Buir; Walter Hoppe, Duren, and Wilhelm Bay, Kerpen-Buir, all of Fed. Rep. of Germany, assignors to Zimmermann & Jansen Gesellschaft mit Beschränkter Haftung, Duren, Fed. Rep. of Germany

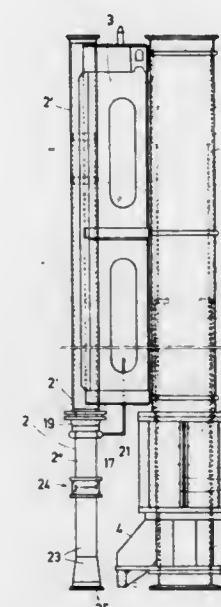
Filed Aug. 22, 1980, Ser. No. 181,084

Claims priority, application Fed. Rep. of Germany, Aug. 23, 1979, 2934119

Int. Cl.³ E02F 3/88

U.S. Cl. 37—58

7 Claims



1. In a pneumatic dredger bulk conveyor of the type wherein a conveyor line is formed by a first circular outer tube and a first inner tube telescopically slidable therein and a pressure line is formed by a second outer tube fixed to said first outer tube and a second inner tube telescopically slidable in said second outer tube in coordinated movement with said first inner tube, the improvement which comprises an upper circular guide member formed at the upper end of said first inner tube and closely spaced from said first outer tube defining a first circular interspace therewith, said first inner tube having below said upper guide member a polygonal profile forming a second interspace with said first outer tube having a greater cross sectional area than said first interspace and constituted by a plurality of first segmented passages of greater width than said first interspace and each of which is bounded by an arc of said first outer tube and a plane of said polygonal profile.

4,361,974

UNIVERSAL DENTAL RADIOGRAPHIC FILM HOLDER

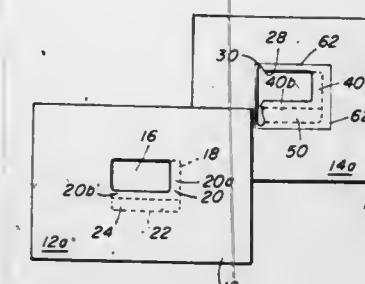
Nelson Wood, 1819 Beacon St., Brookline, Mass. 02146

Filed May 22, 1981, Ser. No. 266,204

Int. Cl.³ G09F 1/10

U.S. Cl. 40—158 B

5 Claims



1. A dental radiographic film holder, comprising a substantially planar means, said planar means defining a first substantially rectangular opening for viewing an inserted radiographic film, said first substantially rectangular opening including a widened edge entrance opening, said planar means comprising a first front sheet portion bordering at least a portion of said first opening, a first back sheet portion bordering at least a portion of said first opening, said first front and back sheet portions being substantially parallel, and spaced apart in a direction perpendicular to said planar means, sections of said first front and back sheet portions remote from said widened edge entrance opening being detachably connected to said planar means to form a second, larger, opening when said first front and first back sections are detached, a second front sheet portion bordering at least a portion of said second opening, and a second back sheet portion bordering at least a portion of said second opening, said second front and back sheet portions being substantially parallel, and spaced apart in a direction perpendicular to said planar means.

4,361,975

SEMI-AUTOMATIC HAND GUN

Gary Wilhelm, Hamden, Conn., assignor to Llama Gabilondo Y. CIA. S.A., Spain

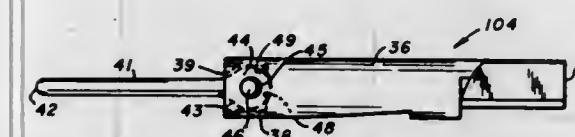
Division of Ser. No. 951,967, Oct. 20, 1978, Pat. No. 4,275,640.

This application Jul. 31, 1980, Ser. No. 174,018

Int. Cl.³ F41C 19/00

U.S. Cl. 42—69 R

4 Claims



1. A articulated firing pin comprising: an elongated body portion, said body portion having a hammer impact surface at a first end thereof, said body portion having a cavity extending inwardly from a second end thereof which is oppositely disposed with respect to said first end, the base of said cavity being defined by an arcuate seating surface; an elongated detonation pin, said detonation pin having an axis and having its first end shaped to define a cartridge strike surface, the second end of said detonation pin being

disposed along said axis and oppositely with respect to said strike surface, said second end of said detonation pin having an arcuate surface which is generally complementary in shape to said body portion seating surface, said detonation pin second end being received in said body portion cavity with said arcuate surface in contact with said seating surface, said detonation pin further being provided with a bore which is generally transverse to said axis; and

a retaining pin for securing said detonation pin to said body portion, said retaining pin extending through said detonation pin bore and being engaged by the cavity defining wall of said body portion, the cross-sectional area of said retaining pin being smaller than the cross-sectional area of said detonation pin bore, said retaining pin being specially displaced from at least the side of said bore which is most closely spaced from said seating surface.

4,361,976

FISHING LINE SINKER AND MOLD FOR MAKING SAME

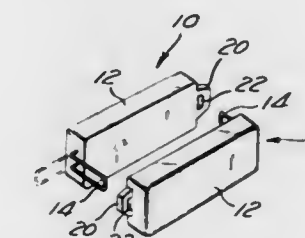
Joseph H. Svoma, 175 Kinman Ave., Apt. 7, Goleta, Calif. 93010

Filed Jun. 11, 1980, Ser. No. 158,371

Int. Cl.³ A01K 95/00

U.S. Cl. 43—43.1

2 Claims



1. A fishing line sinker comprising: a first block of metal having a first fore end and a first aft end and a first inner side and a first outer side, a first wire member attached to and extending from said first fore end, a first opening formed within said first aft end, a first extension integrally attached to said first block, said first extension having a first inner sidewall and a first outer sidewall, said first inner sidewall of said first extension being flush with said first inner side, said first outer sidewall being spaced from said first outer side; and a second block of metal having a second fore end and a second aft end and a second inner side and a second outer side, a second wire member attached to and extending from said second fore end, a second opening formed within said second aft end, a second extension integrally attached to said second block, said second extension having a second inner sidewall and a second outer sidewall, said second inner sidewall of said second extension being flush with said second inner side, said second outer sidewall being spaced from said second outer side; and with said first block in a reversed side-by-side relationship with said second block with said first inner side abutting said second inner side, the said first wire member is located within said second opening and said second wire member is located within said first opening, both said first and said second wire members are then bent securing together said first block and said second block forming a single unit.

4,361,977

ATTACHMENT APPARATUS

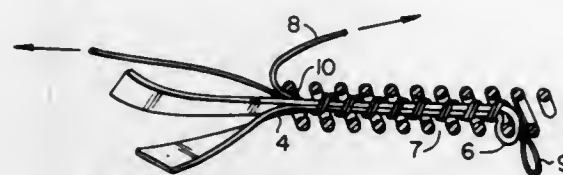
Michael J. Lawler, 72 Larabee Crescent, Don Mills, Ontario, Canada (M3A 3E7)

Filed Jul. 28, 1980, Ser. No. 173,025

Int. Cl.³ A01K 91/04, 93/00, 95/00

U.S. Cl. 43—44.83

31 Claims



1. Attachment apparatus comprising, in combination:
 - a helical member having an axial aperture therethrough adapted to receive external connecting means, said member defined by a continuum of uniformly spaced, adjacent coaxial helices disposed in longitudinally extended relation; and
 - a folded elastic strip disposed within said aperture in frictional engagement with at least one of the helices to releasably affix said connecting means thereat, said strip having one end secured to the member and a grippable free end extending outwardly therefrom which, when stretched, releases said frictional engagement by reducing the cross-sectional dimensions of said strip, said dimensions being selected to permit said strip to pass transversely between the spaced helices and to be wound coincidentally with the spaces therebetween to one end of the helical member, whereby said strip is caused to be disposed in said aperture.

4,361,978

FISHING BOBBER

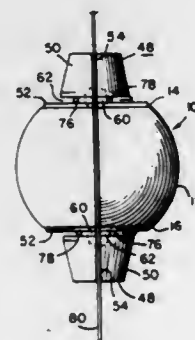
Hugh Kane, 4950 Lander Rd., Chagrin, Ohio 44022

Filed Dec. 12, 1980, Ser. No. 215,820

Int. Cl.³ A01K 91/00

U.S. Cl. 43—44.87

4 Claims



1. A fishing bobber which may be readily and adjustably secured to a fishing line without injury to the line, said bobber comprising

- (1) a buoyant body having top and bottom ends with a central vertical axis extending therebetween said body having a slot extending from its outer surface inwardly toward and in alignment with the central vertical axis thereof and connecting the top and bottom ends,
- (2) a bearing extending outwardly from one end of the body,
- (3) line keeper means rotatably carried on the bearing, said line keeper means having a slot alignable with that in the body and line engaging means fixed on the line keeper means for rotation therewith,
- (4) a resilient member carried by the bearing and being positioned thereon in alignment with the body slot and adjacent the line engaging means whereby when the line is positioned in the aligned body and line keeper means slots rotation of the line keeper means will cause the line engaging means to engage and force the line into frictional

contact with the resilient member to retain the bobber in fixed position on the line, and
(5) means on the other end of the body for maintaining the line in the body slot.

4,361,979

CONNECTION ELEMENT FOR MAKING ASSEMBLIES OF TOY UNITS

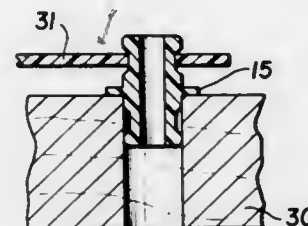
Nils A. I. Petersson, Killeberg, Sweden, assignor to Brio Toy AB, Osby, Sweden

Filed Apr. 7, 1981, Ser. No. 251,885

Int. Cl.³ A63H 33/10; F16B 7/00

U.S. Cl. 46—26

1 Claim



1. A connection element for connecting together toy units to make assemblies of a plurality of toy units, each provided with holes of substantially equal diameter, said connection element comprising in combination, parts of elastically deformable material having generally cylindrical shape and of a diameter to cause a tight fit when mounted in said holes, a flange of substantially larger diameter than the cylindrical diameter provided between two portions of generally cylindrical shape being arranged coaxially, said flange extending outwardly in directions perpendicular to the common axis of said generally cylindrically shaped portions and adapted to abut and support opposed surfaces of two toy units to be held together by the connection element, each of said two generally cylindrically shaped portions having a reduced outer diameter cylindrical axial section between its end and a spaced distance from the flange adapted to retain mount and bear thereon plate members to freely pivot without interference with adjacent toy units and to mate with apertures in the plate members of thickness less than the reduced outer diameter axial length, said portions and flange defining a continuous hole therethrough coaxial with the cylindrical portions and a slot through the axial length of the portions and flange to provide greater resiliency for positioning in the toy unit holes, said element is further provided with a single axially extending reduced thickness wall part located opposite said slot at each of the two said portions of generally cylindrical shape, but not the flange.

4,361,980

ROLLING TOY AND AXLE ARRANGEMENT

Yasushi Chatani, Tokorozawa, Japan, assignor to Kawada Co., Ltd., Tokyo, Japan

Filed Mar. 25, 1982, Ser. No. 361,503

Claims priority, application Japan, Mar. 26, 1981, 56-41508[U]

Int. Cl.³ A63H 17/26, 5/00; B60B 5/00, 35/14

U.S. Cl. 46—111

51 Claims

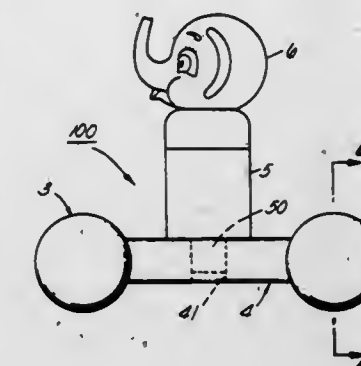
1. A male axle member, having a predetermined male axis and comprising, in combination:
 - a male shoulder portion having a preselected outer diameter;
 - a bearing portion coupled to said male shoulder portion and extending axially therefrom a first predetermined axial distance and having a predetermined outer diameter defining an outer surface and smaller than said preselected outer diameter of said male shoulder portion;
 - a coupling portion coupled to said bearing portion and extending axially therefrom a second predetermined axial distance and having a predetermined outer diameter defin-

ing an outer surface and smaller than said preselected outer diameter of said bearing portion; and
a headed engagement portion coupled to said coupling portion and extending axially therefrom a third predetermined axial distance, and said headed engagement portion having:

- a shank section having a first end adjacent said coupling portion and a second end spaced axially from said first end, and said shank section having a predetermined outer diameter at said first end smaller than said predetermined outer diameter of said coupling portion, and having an outer surface extending between said first end and said second end; and
- a head section coupled to said second end of said shank section and said head section having at least an engagement part thereof having an outer diameter larger than the outer diameter of said shank section at said second end thereof and smaller than said predetermined outer diameter of said coupling portion; and
- said head section radially resiliently deformable between an engagement condition and an insertion condition.

18. A female axle member, having a predetermined female axis, and comprising, in combination:

- a female shoulder portion having a preselected outer diameter;
- a bearing portion coupled to said female shoulder portion, and extending axially therefrom a fourth predetermined axial distance, and having a predetermined outer diameter smaller than said preselected outer diameter of said female shoulder portion;



- a compression portion coupled to said bearing portion and extending axially therefrom a fifth preselected axial distance, and having an outer diameter substantially the same as said outer diameter of said bearing portion;
- a coupling portion, coupled to said compression portion, and extending axially therefrom a sixth predetermined distance and having an outer diameter substantially the same as said outer diameter of said bearing portions;

and

- said female axle member having internal walls defining an internal aperture therethrough from said female shoulder portion to said coupling portion thereof, and said internal walls defining
 - a first internal surface in said shoulder portion and said bearing portion extending a preselected axial distance to define a boss receiving aperture having a first predetermined internal diameter;
 - a second internal surface in said compression portion having a second internal diameter adjacent said bearing portion and said second internal diameter smaller than said first internal diameter, and a third internal diameter in said compression portion adjacent said coupling portion;
 - said second internal surface defining a first shoulder at said bearing portion and a second shoulder at said coupling portion;
 - a third internal surface in said coupling portion having a fourth internal diameter adjacent said compression portion greater than said third internal diameter.

36. An improved roll toy vehicle comprising, in combination:

- a body member having a pair of axle means receiving apertures therethrough;
- an axle means positioned within each of said pair of axle receiving apertures of said body member and each of said axle means comprising:
 - a female axle member having a predetermined female axis, and said female axle member comprising:
 - a female shoulder portion having a preselected outer diameter;
 - a bearing portion coupled to said female shoulder portion, and extending axially therefrom a fourth predetermined axial distance, and having a predetermined outer diameter smaller than said preselected outer diameter of said female shoulder portion;
 - a compression portion coupled to said bearing portion and extending axially therefrom a fifth preselected axial distance, and having an outer diameter substantially the same as said outer diameter of said bearing portion;
 - a coupling portion, coupled to said compression portion, and extending axially therefrom a sixth predetermined distance and having an outer diameter substantially the same as said outer diameter of said bearing portion;

and

- said female axle member having internal walls defining an internal aperture therethrough from said female shoulder portion to said coupling portion thereof, and said internal walls defining
 - a first internal surface in said shoulder portion and said bearing portion extending a preselected axial distance to define a boss receiving aperture having a first predetermined internal diameter;
 - a second internal surface in said compression portion having a second internal diameter adjacent said bearing portion and said second internal diameter smaller than said first internal diameter, and a third internal diameter in said compression portion adjacent said coupling portion;
 - said second internal surface defining a first shoulder at said bearing portion and a second shoulder at said coupling portion;
 - a third internal surface in said coupling portion having a fourth internal diameter adjacent said compression portion greater than said third internal diameter;
- a male axle member having a predetermined male axis and positioned within said aperture of said female axle member and said male axis and said female axis colinear, and said male axle member comprising:
 - a male shoulder portion having a preselected outer diameter;
 - a bearing portion coupled to said male shoulder portion and extending axially therefrom a first predetermined axial distance and having a predetermined outer diameter defining an outer surface and smaller than said preselected outer diameter of said male shoulder portion;
 - a coupling portion coupled to said bearing portion and extending axially therefrom a second predetermined axial distance and having a predetermined outer diameter defining an outer surface and smaller than said predetermined outer diameter of said bearing portion; and
 - a headed engagement portion coupled to said coupling portion and extending axially therefrom a third predetermined axial distance, and said headed engagement portion having:
 - a shank section having a first end adjacent said coupling portion and a second end spaced axially from said first end, and said shank section having a predetermined outer diameter at said first end smaller than said predetermined outer diameter of said coupling portion, and having an outer surface extending between said first end and said second end; and
 - a head section coupled to said second end of said shank section and said head section having at least an engagement part thereof having an outer diameter larger than

the outer diameter of said shank section at said second end thereof and smaller than said predetermined outer diameter of said coupling portion; and
 said head section radially resiliently deformable between an engagement condition and an insertion condition, and said head section of said headed engagement portion of said male axle member positioned within said internal surface of said bearing portion of said female axle member, and said outer dimension of said engagement part of said head section of said headed engagement portion of said male axle member larger than said second internal diameter of said compression portion of said female axle member in said engagement condition thereof;
 said internal surface of said compression portion of said female axle member engaging said outer surface of said shank section of the headed engagement portion of said male axle member;
 said internal surface of said coupling portion of said female axle member engaging said outer surface of said coupling portion of said male axle member;
 said male shoulder portions and said male bearing portion have internal walls defining an axially extending boss receiving aperture therein, and said boss receiving aperture having a predetermined axial extent and a diameter smaller than said predetermined diameter of said male should portion and said bearing portion; and
 a pair of wheel means mounted in each of said pair of axle means and each of said wheel means having a body portion, a shoulder portion coupled to the body portion, and having a predetermined outer diameter larger than said axle receiving apertures in said body member, and a boss extending outwardly from said shoulder portion and said boss having an outer diameter for a predetermined frictional engagement with said boss receiving apertures of said male axle member and said female axle member.

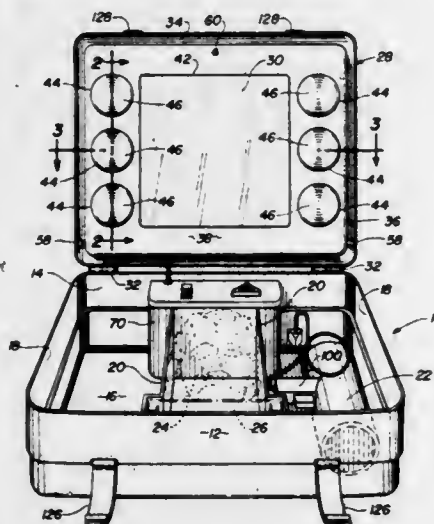
4,361,981

TOY MAKE-UP CENTER

Walter S. Reiling, Livingston, N.J.; Kwok W. Tsui, and Johnny S. C. Yuen, both of Hong Kong, Hong Kong, assignors to Arco Industries Ltd., Hong Kong, Hong Kong
 Filed Jun. 1, 1981, Ser. No. 268,777
 Int. Cl.³ A63H 33/26

U.S. Cl. 46—228

12 Claims



1. A toy make-up center comprising a box-like case having a front and back, a flat shell-like top of limited depth hingedly connected at one edge to the back edge of said box, a limited number of compartments in said case adapted to contain beautician accouterments, a second flat shell interfitted in inverted manner within said top shell with the bottom thereof outermost, a mirror supported centrally upon the outer surface of said second shell, said top being adapted to be moved to vertical position perpendicular to the plane of the top of said case to expose one of said compartments which is along the back of

said case to support batteries therein, a row of at least three transparent bulbous globe members in said second shell along each side edge of said mirror, a single electric light bulb mounted in said second shell rearwardly of each row of globes and adjacent the center globe of each row thereof, an elongated reflector behind each row of said globes and said electric light bulb therefor, each reflector having interconnected reflecting surfaces respectively behind each globe and said bulb thereby being adapted to reflect light from said single bulb into the surface behind each globe and simultaneously through all of said globes to give the appearance of a separate bulb behind each globe in said rows to illuminate said mirror, and an electric circuit rearwardly of said mirror connecting said batteries and bulbs and including a switch to control lighting of said bulbs to illuminate said mirror from the opposite side edges.

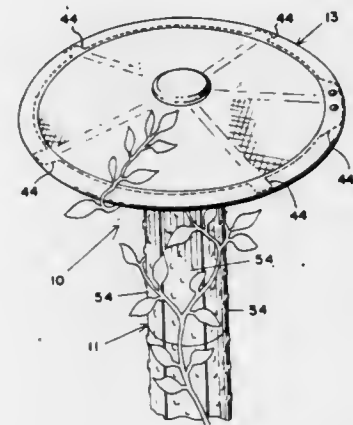
4,361,982

UMBRELLA TOPIARY FRAMEWORK

Alvin E. Horowitz, 2320 SW. 23rd Ave., Miami, Fla. 33145
 Filed Jan. 30, 1981, Ser. No. 229,895
 Int. Cl.³ A01G 17/06

U.S. Cl. 47—45

3 Claims



1. An umbrella topiary framework comprising, in combination, a support post, an umbrella head assembly, means for interconnecting one end of said support post with said umbrella head assembly, said umbrella head assembly comprising a plurality of umbrella arm members extending radially outwardly of said interconnecting means, a circular umbrella pad supported from underneath upon said umbrella arm members, means for securing outer peripheral edge portions of said umbrella pad with respect to the outer ends of said radially-outwardly-extending umbrella arm members, said umbrella pad being fabricated of porous material for reception there-within of the tendrils or the like of vine-like plants climbing over surface portions thereof, said umbrella pad comprising a pair of face-to-face layers of foranamous material sandwiching thereinbetween a layer of sphagnum moss, said support post being fabricated of a synthetic plastic material the outer surface of which simulates tree bark providing protuberances and crevices for the support of the tendrils or the like of climbing vines, said interconnecting means comprising a cylindrical union, a radially-extending flange at one end of said union, and a plurality of radially-extending, peripherally-spaced slots at the other end thereof, means for removably securing said one end of said support post with respect to said radially-extending flange, the inner ends of said umbrella arm members being removably receivable in one each of said radially-extending slots, means for releasably locking said umbrella arm members with respect to said cylindrical union, said means for releasably locking said umbrella arm members comprising a central opening at the other end of said union, a circular locking cap having a concentric tubular locking pin extending outwardly thereof and receivable in said central opening, and a plurality of flexible catch members extending partially inwardly of said central opening and operative to press into peripheral wall portions of said tubular locking pin to frictionally retain said locking cap in

place, said locking cap further comprising a circular skirt portion surrounding said tubular locking pin and operative to fit into vertically-extending recesses provided at inner end portions of said umbrella arm members.

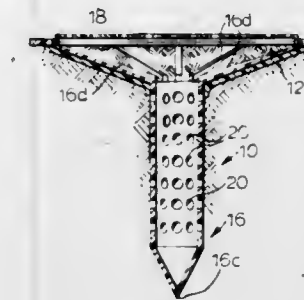
4,361,983

WATER AND FERTILIZER DISPENSER FOR PLANTS

Gary M. Wilson, 1028 Shaddelee La., Ft. Myers, Fla. 33907
 Filed Nov. 12, 1980, Ser. No. 205,923
 Int. Cl.³ A01G 9/10

U.S. Cl. 47—48.5

2 Claims



1. A device that is useful in landscaping to provide a visually hidden subterranean dispenser for water and fertilizer comprising:

an elongated, hollow, chamber, said chamber having a plurality of apertures disposed through its surface, said chamber having a pointed, end tip disposed at one end, and an opening at the opposite end;
 a frusto-conically shaped compartment centrally connected at one end to said chamber opening; and
 a top mountable over said frusto-conical compartment, said top having a plurality of holes disposed therethrough, whereby said device may be used for watering and fertilizing subterranean areas, and
 a plurality of raised ribs, disposed within said frusto-conical compartment, for supporting a fertilizer, spaced above the interior surface of the compartment.

4,361,984

MICROPROPAGATION OF PLANT MATERIAL

David I. Dunstan, Winfield; Keith E. Turner, Kelowna, and David W. Lane, Summerland, all of Canada, assignors to Kelowna Nurseries Ltd., Kelowna, Canada
 Filed Aug. 6, 1981, Ser. No. 290,544
 Int. Cl.³ A01G 1/00

U.S. Cl. 47—58

14 Claims

1. A process for the micropropagation of plant material comprising:

excising a shoot tip having a length in the range 0.6 to 3 millimeters from a bud of the plant;
 placing the excised tip in a first nutrient medium containing benzyl adenine to induce shoot elongation;
 decapitating the elongated shoot;
 placing the decapitated shoot in a nutrient medium to stimulate lateral shoot induction and elongation;
 excising shoots one centimeter or more; and
 implanting the excised shoots in a rooting nutrient medium for root production.

4,361,985

HYDRAULIC DOOR OPENING/CLOSING AND LOCKING/UNLOCKING APPARATUS

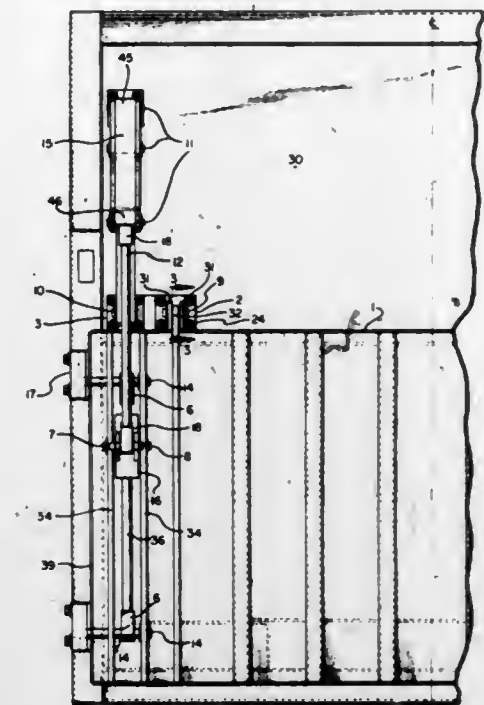
Thomas M. DeMarco, Chicago, Ill., assignor to NFE International Ltd., Chicago, Ill.
 Filed Dec. 8, 1980, Ser. No. 213,928
 Int. Cl.³ E05F 15/00

U.S. Cl. 49—280

10 Claims

1. In hydraulically operated door apparatus for opening and closing a hinged door on a door frame, including at least one hydraulic piston/cylinder operatively connected between the

door and the frame, the improvement comprising door locking/unlocking means actuated by said hydraulic piston/cylinder for locking the door upon closing thereof and unlocking



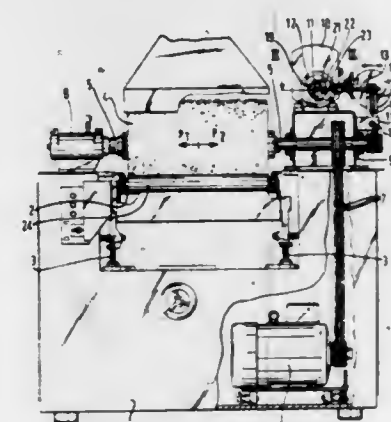
4,361,986

DEVICE FOR SURFACE MACHINING

Jacob A. van der Linden, Goes, Netherlands, assignor to Machinefabriek A. van der Linden B.V., Goes, Netherlands
 Filed May 28, 1980, Ser. No. 153,909
 Claims priority, application Netherlands, Jun. 5, 1979, 7904403

Int. Cl.³ B24B 7/12; A47L 25/00
 U.S. Cl. 51—34 R

2 Claims



1. A device for surface-machining a workpiece, which comprises a supporting framework including means supporting a workpiece for movement along a rectilinear path; a rotatable machining member having significant mass and means for rotating such machining member about an axis extending crosswise of said path but in spaced parallelism thereto so that said machining element engages an exposed surface of the workpiece as the workpiece moves along said path; means for reciprocating said machining member back and forth along said axis whereby the combined rotary and reciprocatory motion of the machining member effects surface-machining of said exposed surface of the workpiece; said means for reciprocating including a rocker arm pivotally connected to said machining member, bearing means pivotally mounting said rocker arm on said frame, and drive means for oscillating said

rocker arm whereby said bearing means and consequently said supporting framework tends to be subjected to forces which cyclically reverse directions and vary in amplitude due to reciprocation of said significant mass of the machining member; and counterweight means attached to said rocker arm for counterbalancing said forces whereby the supporting framework is substantially free of vibration-inducing forces imposed through said bearing means due to reciprocation of the significant mass of said machining member, said drive means comprising a motor having a drive shaft, an eccentric on said drive shaft and a connecting rod journaled on said eccentric, there being a trunnion member having a journal pivotally carried by one end of said rocker arm, said trunnion being connected to said connecting rod and said counterweight means comprising at least one weight secured on said journal, a second trunnion pivotally carried by the other end of said rocker arm, said machining member being connected to said second trunnion and said bearing means being pivotally connected to said rocker arm between said trunnions.

4,361,987

APPARATUS FOR HIGH TOLERANCE POLISHING OF A WORK-PIECE SURFACE

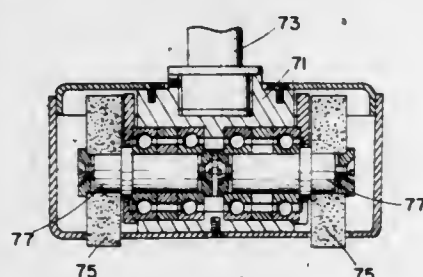
Itzhak Lapsker, Givatayim, Israel, assignor to GAL International Industries Inc., Forest Hills, N.Y.

Continuation-in-part of Ser. No. 832,623, Sep. 12, 1977, abandoned. This application Jan. 22, 1980, Ser. No. 114,297 Claims priority, application Israel, Oct. 29, 1976, 50794

Int. Cl.³ B24B 5/00

U.S. Cl. 51-90

15 Claims



1. Apparatus for effecting high tolerance finishing of a work-piece surface comprising:

a mounting member including attachment means suitable for attachment to rotary drive apparatus for rotation of the mounting member about a first axis;

at least one resilient abrasive finishing element rotatably mounted on said mounting member for motion relative to said workpiece surface in a plane perpendicular to said first axis;

bearing means supporting said at least one finishing element on said mounting member for free rotation of said at least one finishing element relative to said mounting member; and

means for collecting particulate matter generated during a finishing operation from wear of said finishing element mounted on said mounting member;

said at least one resilient abrasive finishing element comprising an annular body of uniformly intermixed resilient and abrasive substances.

4,361,988

BRAKE DISC GRINDING METHOD AND APPARATUS

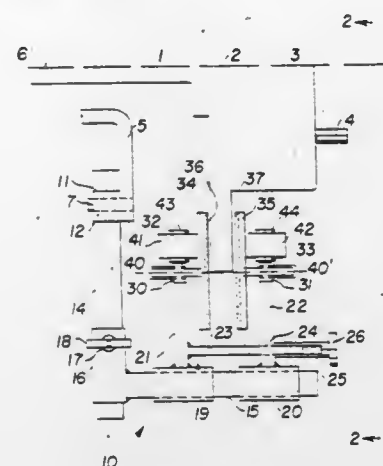
Hans Gramlich, 4 Melanie Dr., Unit 15, Mississauga, Ontario, Canada (L5S 1H2)

Continuation-in-part of Ser. No. 163,012, Jun. 25, 1980, abandoned, which is a continuation of Ser. No. 940,975, Sep. 11, 1978, abandoned. This application Dec. 8, 1980, Ser. No. 214,467 Claims priority, application Canada, Jun. 29, 1978, 306470

Int. Cl.³ B24B 23/02

U.S. Cl. 51-118

22 Claims



1. Apparatus for regrinding a vehicle brake disc mounted on a vehicle which apparatus comprises:

a rotatably abrading disc having an abrading face and being fixedly mounted for rotation about an axis at right angles to said face;

means for mounting such abrading disc from a portion of a vehicle which is fixed relative to the axis of the brake disc, such that said abrading face is positioned for rotation on a side of such brake disc in face-to-face frictional contact with such brake disc.

4,361,989

POLISHING APPARATUS

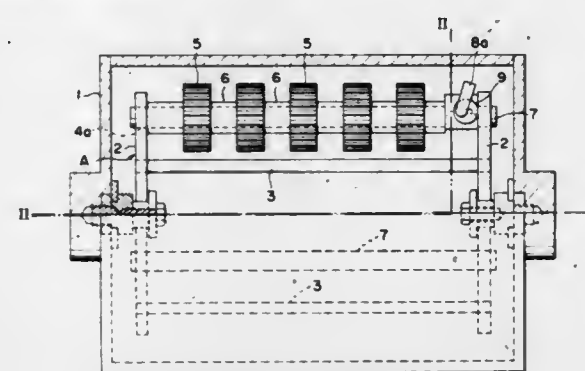
Tetatsu Ohno, 1-2, 1-chome, Kasuya, Setagaya-ku Tokyo, Japan Filed Sep. 5, 1980, Ser. No. 184,214

Claims priority, application Japan, Sep. 13, 1979, 54-117650

Int. Cl.³ B24B 31/04

U.S. Cl. 51-164.1

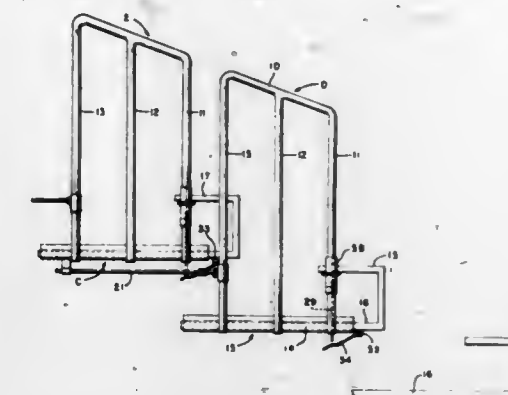
1 Claim



1. An improvement in rotatable barrel polishing apparatus containing a polishing bath for circulating about workpieces to polish them as the barrel rotates about an axis, comprising in combination, workpiece support means disposed axially within the barrel holding separated side plates positioned at opposite ends of the barrel in the polishing bath to rotate inside the barrel in response to rotation of the barrel, fixtures in said side plates adapted to removably hold a plurality of longitudinally disposed workpiece retaining members in place between said side plates, rod shaped workpiece retaining members supporting workpieces thereon held in place in said fixtures for rotation within said barrel with said workpiece support means wherein said side plates include notches formed therein for

receiving said rod shaped members, and the fixtures comprise an L-shaped shaft equipped with an eccentric ring, a groove in said rod like members near one end, supporting plates formed with through holes at the both sides of one of the notches mounted on at least one side plate for disposing the L-shaped shaft perpendicular to the axis, wherein the L-shaped shaft is inserted into said through holes and engages said groove to retain the shaft in one of said notches with the eccentric ring disposed for forced contact with the side plate thereby to removably retain the rod shaped member for removal by rotation of the eccentric ring by means of the L-shaped shaft.

seating section to a position in which said guard rail unit is slanted outwardly toward the upper portion of the unit when



4,361,990

SANDPAPER HOLDER

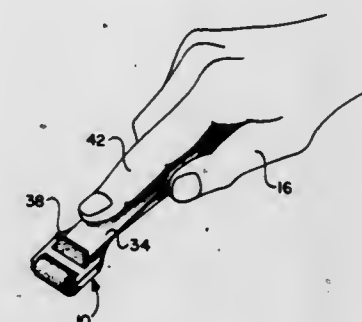
Reinhold G. Link, Dayton, Ohio, assignor to Linkspiel, Inc., Dayton, Ohio

Filed Nov. 28, 1980, Ser. No. 210,980

Int. Cl.³ B24D 15/04

U.S. Cl. 51-392

3 Claims



1. A sanding tool comprising:

a holder having a handle portion and a spatulate portion extending from said handle portion and having an end opposite said handle portion, said spatulate portion having a firm backing surface, a first transverse slot therethrough adjacent said end, and a second transverse slot therethrough between said first slot and said handle portion; and

a flexible strip of material, at least one side thereof coated with an abrasive, said strip extending along said handle portion, through said second slot, over said backing surface and said end, through said first slot, and back through said second slot, such that said strip is held in position on said holder during use, yet may be adjusted to bring a different portion over said backing surface and end.

4,361,991

SEATING AND GUARD RAIL STRUCTURE FOR BLEACHERS

Harold Wiese, North Highland, Box 236, Madison, S. Dak. 57042

Filed Mar. 24, 1980, Ser. No. 132,974

Int. Cl.³ E04H 3/12

U.S. Cl. 52-9

9 Claims

1. A seating and guard rail structure comprising a first seating section and a second seating section, said first seating section being movable rearwardly into said second seating section to compact said structure for storage, a guard rail unit attached to said first seating section, and means automatically operable to move said guard rail unit outwardly to one side of said first

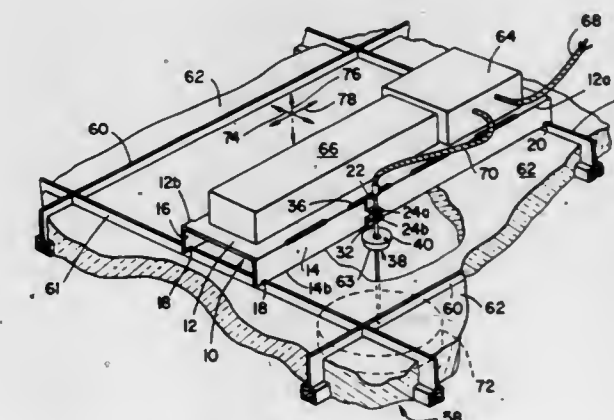
4,361,992
LUMINAIRE SUPPORT APPARATUS
William J. Rapp, Hayward, Calif., assignor to Gardco Manufacturing, Inc., San Leandro, Calif.

Filed Jan. 12, 1981, Ser. No. 223,984

Int. Cl.³ E04B 5/52; H02G 3/26

U.S. Cl. 52-28

6 Claims



1. In a suspended ceiling construction having a plurality of intersecting support members defining a lattice structure in a horizontal plane and a plurality of ceiling tiles adapted to be received within the openings of the lattice structure, a support apparatus for suspending and selectively positioning a pendant luminaire having a mounting stem projecting upwardly from the luminaire, said support apparatus comprising:

a base including means for demountably supporting said base in linear slidable engagement on said lattice structure, the linear slidable engagement being along a first selected axis parallel to the plane of the lattice structure;

a generally cylindrical stem defining a second selected axis, said stem including a first end portion, a second end portion and a body portion disposed between said first and second portions, said body portion being axially dimensioned commensurate with the thickness of said ceiling tiles;

means for mounting said first end portion to said base, said mounting means being operative to align said second axis substantially perpendicular to said first axis, said base further including means for selectively receiving said mounting means along a third selected axis orthogonal to said first and said second axis; and

bracket means for attaching the mounting stem to said second end portion, and operative to axially align or offset the mounting stem to said second end portion.

4,361,993

FRAMELESS ENCLOSURE ASSEMBLY

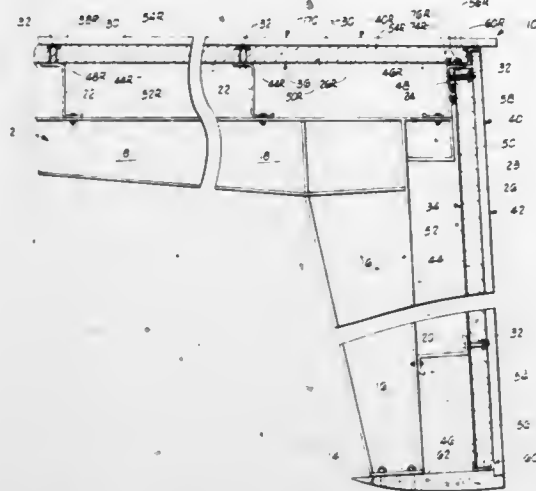
Harold G. Simpson, Oklahoma City, Okla., assignor to Encon Products, Inc., Oklahoma City, Okla.

Continuation-in-part of Ser. No. 93,173, Nov. 13, 1979. This application Feb. 15, 1980, Ser. No. 121,920

Int. Cl.³ E04B 1/00

U.S. Cl. 52—222

91 Claims



1. A frameless enclosure assembly supported by the structural assembly of a pre-engineered building having a first support member and a second support member, the enclosure assembly comprising:

- a flexible facing membrane having a first end, a second end and an insulation support side;
- membrane attaching means for attaching the facing membrane to the first support member and for attaching the facing membrane to the second support member so that the facing membrane extends substantially taut therebetween;
- an insulation layer of compressible insulation material supported by the insulation support side of the facing membrane, the insulation layer having a first layer end and a second layer end, the insulation layer extending such that the first layer end is disposed near the first end of the facing membrane and the second layer end is disposed near the second end of the facing membrane;
- a panel member positioned substantially parallel to the insulation layer so that the insulation layer is disposed between the panel member and the structural assembly; and
- panel securing means for securing the panel to the structural assembly, the panel securing means transferring load from the panel member to the structural assembly while the insulation layer substantially uniformly retains its resistance to heat transfer, and remains unpenetrated by the membrane attaching means in that section of the layer overlying the taut section of the facing membrane.

4,361,994

STRUCTURAL SUPPORT FOR INTERIOR WALL PARTITION ASSEMBLY

Tommy L. Carver, 8724 Wilkinson Blvd., Charlotte, N.C. 28208
Filed Aug. 11, 1980, Ser. No. 177,254

Int. Cl.³ E04H 1/00

U.S. Cl. 52—238.1

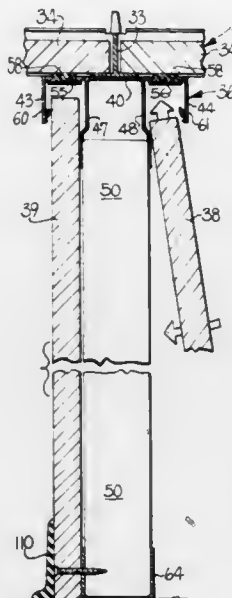
11 Claims

1. A structural support adapted for extending along and supporting the edges of two parallel, spaced apart panels of wallboard or the like to form a hollow wall in an interior wall partitioning system, and characterized by the further ability to interconnect with other structural members of different configurations to form a variety of structural components, said structural support comprising

- an elongate backwall having opposite side edges extending longitudinally along the length thereof,
- a pair of elongate parallel integral outer flanges extending along the length of respective ones of said edges and

defining parallel spaced apart planes which are generally perpendicular to said backwall, said outer flanges each including a free edge, and with said free edges collectively lying in a common plane which is perpendicular to the planes defined by said outer flanges,

a pair of elongate parallel integral inner flanges extending along said back wall and positioned between and parallel to said pair of outer flanges, said inner flanges being spaced from each other in the widthwise direction, and each inner flange being spaced from a corresponding outer flange a distance adapted for receiving the edge of a wallboard panel or the like therebetween,



elongate first interconnection means formed in and extending along the length of each of said outer flanges adjacent said free edge thereof adapted for interconnecting a cooperating structural component to said outer flanges, said first interconnection means comprising a laterally facing channel formed in each of said outer flanges, with said channels facing outwardly away from each other, and

elongate second interconnection means formed in and extending along the length of said backwall adapted for interconnecting a cooperating second structural component on the side of said backwall opposite said outer and inner flanges.

4,361,995

U-SHAPED PLASTERBOARD

Yves Buck, Clermont en Beauvaisis, and Adrien Delcoigne, Chantilly, both of France, assignors to Isover Saint-Gobain, Neuilly, France

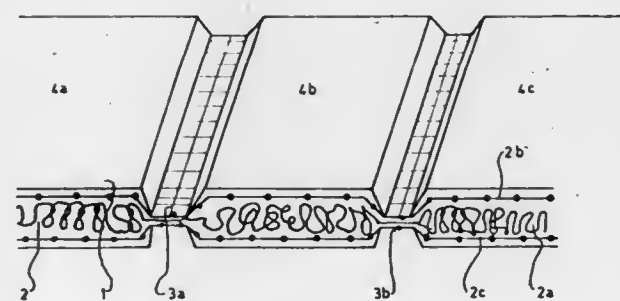
Filed Feb. 4, 1980, Ser. No. 118,099

Claims priority, application France, Feb. 5, 1979, 79 02922

Int. Cl.³ E04C 1/00

U.S. Cl. 52—309.17

29 Claims



1. A construction element of plaster comprising: a plate having opposed faces, reinforcements distributed throughout the greater part of the thickness of the plate, and folding lines parallel to the faces of the plate comprised of the reinforce-

ments concentrated by compression to a reduced thickness separating the plate into a plurality of articulated panels.

4,361,996

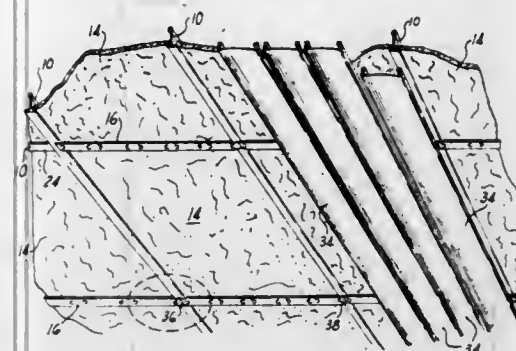
CEILING RENOVATION SYSTEM

Robert L. Smith, Samsonville, N.Y., assignor to Levolor Lorentzen, Inc., Hoboken, N.J.

Filed Dec. 20, 1979, Ser. No. 105,609

Int. Cl.³ E04B 5/52

U.S. Cl. 52—484



1. In combination with a suspended ceiling: a grid of interconnected T-bars including parallel rows of T-bars extending in a first direction, and parallel rows of T-bars extending in a second direction substantially perpendicular to said first direction and intersecting said first row of T-bars, said rows of T-bars having exposed head surfaces, and a plurality of covers affixed to and covering the exposed head surfaces of one of said parallel rows of T-bars, each of said covers being a metallic body substantially of U-shaped cross-section with a main body portion engaging with an exposed head surface of a T-bar of said one parallel row of T-bars, and with first and second parallel leg portions, respectively extending at an acute and a right angle with respect to said main body portion and engaging with opposite edges of said exposed head surface, portions of said second leg portions being depressed into clamping engagement with said T-bar, a plurality of sets of spaced tabs at each of said main body portions, and a plurality of ceiling panels, respectively suspended from said covers by respective ones of said sets of tabs.

4,361,997

FASTENER PLATE AND ASSEMBLY

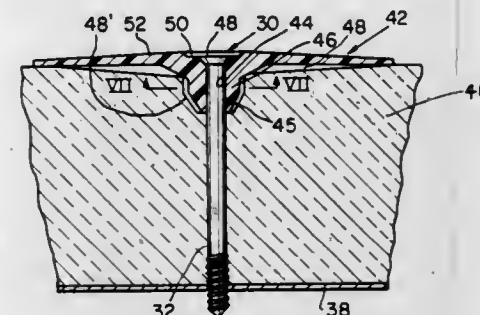
Charles J. DeCaro, Pittsburgh, Pa., assignor to Textron Inc., Providence, R.I.

Filed Feb. 25, 1980, Ser. No. 124,233

Int. Cl.³ E04B 1/62; E04D 3/36

U.S. Cl. 52—512

15 Claims



1. A plastic plate suitable for use with a fastener to secure insulation to a metal roof deck, said plate comprising:

- A. a substantially planar portion having top and bottom surfaces;
- B. a hub portion for receiving said fastener in force-fit relationship and depending from said bottom surface of said planar portion in a central part thereof and shaped to penetrate into said insulation and permit surface contact with the insulation about said hub and bottom surface;
- C. an opening in at least the upper surface of said planar

portion coaxial with the hub portion for aligning said fastener as it is being driven through said hub portion in force-fit relationship; and

D. anti-rotational means depending from said bottom surface for engagement with said insulation during driving of said fastener.

4,361,998

STANDING SEAM ROOF SYSTEM

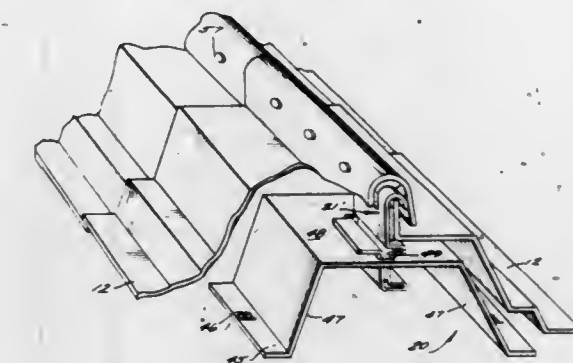
Burlan E. Ellison, Duluth; Harry P. Spranca, Dunwoody, and Christopher C. Hooper, Decatur, all of Ga., assignors to Atlantic Building Systems, Inc., Atlanta, Ga.

Filed Jul. 12, 1979, Ser. No. 56,943

Int. Cl.³ E04D 1/34

U.S. Cl. 52—520

12 Claims



1. A standing seam roof system adapted for installation on the framing of a building including purlins for supporting the roof system, said system comprising:

- a plurality of panels, each panel having first and second raised edges extending generally longitudinally thereof, said first and second edges being substantially parallel to each other;
- a plurality of clip means disposed at spaced points along the purlins and operatively rigidly attached thereto and for supporting adjacent first and second raised edges of a pair of adjacent panels; each said clip means including a tab member dimensioned to fit between said first and second raised edges of said pair of adjacent panels; a base member rigidly attached to a purlin; means for mounting said tab member to said base member so that relative movement therebetween is allowed parallel to said panel edges; and means for fastening said first and second raised edges of said adjacent panels together along the length thereof, with said tab members of said clip means disposed therebetween at said spaced points along said purlins; wherein the improvement comprises:

each said clip means base member including a pair of bottom portions parallel to the purlin with which they are associated, a pair of middle portions slanting upwardly from said bottom portions, and a top portion parallel to said purlin and interconnecting said middle portions and for engaging said adjacent panels adjacent said first and second edges thereof and having a longitudinally elongated opening formed therein for receipt of said tab member; and wherein each said tab member includes: a first end portion adapted to be disposed between said first and second raised edges of adjacent panels; an upstanding body portion extending perpendicularly to said base member top portion; a second end portion extending perpendicularly to said body portion from one face thereof, and parallel to said base member top portion; and an intermediate flange extending parallel to said second end portion from both faces from said body portion and disposed above said second end portion along said body portion a distance slightly greater than the thickness of said base member top portion; said body portion having a width, where it ex-

tends through said longitudinally elongated opening, less than the length of said longitudinally elongated opening.

4,361,999

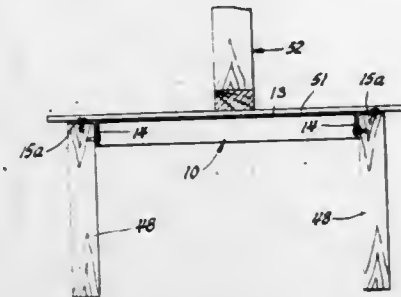
SELF-SUPPORTING TRANSVERSE PARTITION WALL SUPPORT

Albert W. Sidney, 18433 Westbrook Dr., Livonia, Mich. 48152
Filed Sep. 19, 1980, Ser. No. 188,983

Int. Cl.³ E04C 3/00, 5/18

U.S. Cl. 52—696

7 Claims



1. A self-supporting, transverse support member for mounting between two adjacent, parallel floor joists to support a weight bearing partition wall concentrated load which is disposed between the two floor joists, characterized in that said support member includes:

- (a) an elongated trough shaped body;
- (b) said trough shaped body having a horizontal flat upper end provided with floor engaging means along the entire length thereof for supporting a building floor which carries a weight bearing partition wall concentrated load;
- (c) integral attachment means on each end of said trough shaped body; and,
- (d) means for securing the attachment means on each end of said trough shaped body to an adjacent floor joist.

4,362,000

PROCESS AND PLATFORM APPARATUS FOR PRODUCING PACKAGING ELEMENT

Albert C. G. Poore, New Malden, England, assignor to Sterling Drug Inc., New York, N.Y.

Division of Ser. No. 43,095, May 29, 1979, Pat. No. 4,254,871.

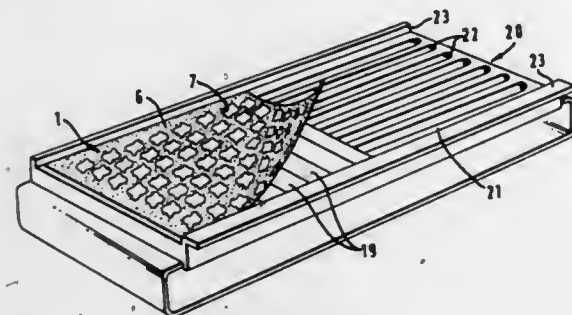
This application Oct. 8, 1980, Ser. No. 195,111

Claims priority, application United Kingdom, May 30, 1978, 24381/78

Int. Cl.³ B65B 67/02, 25/00

U.S. Cl. 53—411

3 Claims



1. A process for preparing a package for containing and dispensing a multi-day course of medication on a daily basis comprising a plurality of prepackaged blister strips mounted on a supporting lamina member so that the blisters form a matrix with the medication for one day of the course contained within the blisters of one row of the matrix, said supporting lamina member being foldably joined to a backing lamina member, said supporting and backing members being further characterized in that the inner face of each said supporting and backing members bears a compatible pressure-sensitive adhesive capable of securing said blister strips of the two members and of bonding together the two members at the said inner

faces thereof; said pressure-sensitive adhesive bearing inner faces being covered, prior to assembly of said package, by release sheets, which comprises removing the release sheets from said supporting and backing members, mounting a plurality of prepackaged blister strips containing a course of medication on the inner face of said supporting member so that the blisters form a matrix in which each row contains the medication for one day arranged in chronological order of the time of administration, folding the backing member so as to bond its inner face to the inner face of the supporting member and the mounted blister strips, and applying directions for administration of the medication to the outer face of the supporting member so that each row is identified with a day of administration and each column is identified with a time of administration.

4,362,001

APPARATUS AND METHOD FOR WRAPPING AND SEALING CYLINDRICAL PACKAGES WITH A STRETCH FILM MATERIAL

C. C. Cockerham, Jr., 4620-A Mercury Dr., and John P. Nelson, 5306 W. Friendly Ave., both of Greensboro, N.C. 27410

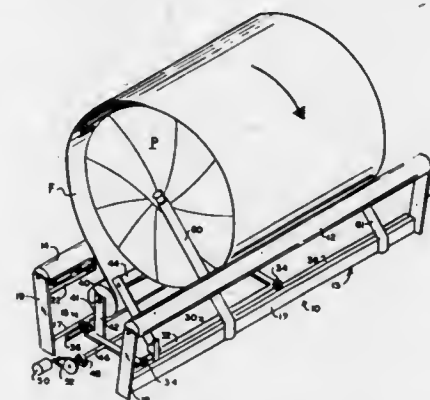
Continuation-in-part of Ser. No. 18,746, Mar. 8, 1979,

abandoned. This application Nov. 14, 1980, Ser. No. 206,823

Int. Cl.³ B65B 11/04

U.S. Cl. 53—441

15 Claims



1. A method of wrapping the periphery and sealing the ends of cylindrical packages with stretch film comprising the steps of:

- (a) supporting the cylindrical package with the longitudinal axis horizontally oriented;
- (b) rotating said package by applying a driving force against the side surface thereof;
- (c) applying the free end of a sheet of stretch film material delivered from a supply means of such material to the side surface of said package as said package is turning;
- (d) as rotation of said package continues, moving said supply means of film material back and forth in a horizontal path parallel to the axis of rotation of said package from a first position in which said film overlaps one end of said package a distance greater than the radius of said package and a second position in which said film overlaps the other end of said package a distance greater than the radius of said package, while applying tension to said film to stretch it as it is wrapped on the package, and automatically applying varied tension to said film such that a prescribed tension is applied at the ends of the path to turn said film toward said longitudinal axis of the article to thereby cover the ends of the article, and automatically applying a different tension during the wrapping of the package in the intermediate portion of the path.

4,362,002

METHOD AND APPARATUS FOR CLOSING A THIN-WALLED CONTAINER BODY

William G. Rowland, Faringdon; Arthur E. W. Morgan, South Oxhey, and Kenneth R. Clark, Standlake, Near Witney, all of England, assignors to Metal Box Limited, Reading, England

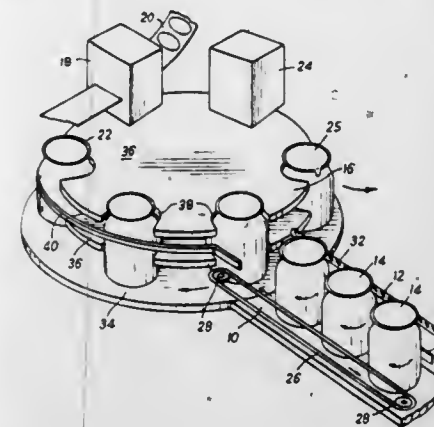
Filed Jul. 1, 1980, Ser. No. 165,141

Claims priority, application United Kingdom, Jul. 5, 1979, 7923397

Int. Cl.³ B67B 5/02; B65B 7/28

U.S. Cl. 53—478

5 Claims



1. In a method of applying, over an open end of a thin-walled, hollow container body, having a terminal curled rim about said open end, a diaphragm having an adhesive coating on its underside, the steps of: (a) gripping a planar web of material in a region surrounding a web portion to be cut therefrom to form said diaphragm, (b) whilst said web is so gripped, applying a forming tool to stretch said web portion to form it into a dish configuration comprising a central panel portion, a peripheral flange surrounding said central panel portion, and an upturned portion surrounding said central panel portion and joining the latter to the peripheral flange, whereby said upturned portion is unwrinkled, (c) after said step of stretching the web portion, further applying said forming tool so as to cut said web portion from said web and place it upon the open end of the container body so as to constitute said diaphragm, with said upturned portion with the open end of the container body and said peripheral flange and upturned portion in contact with said rim, steps (a) to (c) being performed in a single movement of said forming tool (d) transferring said container body with said diaphragm thereon to a position in alignment with a presser tool having a resiliently-deformable pad, and (e) applying said presser tool axially against the diaphragm with said pad in direct contact therewith, and exerting predetermined, substantially even pressure upon said flange and upturned portion whereby to cause them to adhere to, and conform with the underlying contours of said rim.

4,362,003

CANTLE SADDLE

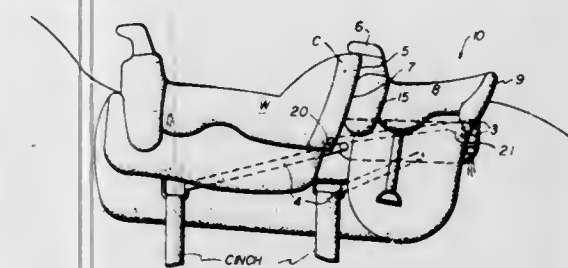
Michael A. Robinson, Glenburn Star Rte., Fall River Mills, Calif. 96028

Filed Jun. 20, 1980, Ser. No. 161,323

Int. Cl.³ B68C 1/02

U.S. Cl. 54—44

17 Claims



1. A cantle equestrian saddle attached solely to rear of a

main saddle in which the main saddle is cinched with a girth to the body of a horse comprising in combination:

means on a front face of said cantle saddle to conform to a rear contour, girth area of the main saddle, and means for attaching said cantle saddle exclusively to the main saddle and operatively connected only to the main saddle.

4,362,004

BRAKE AND CLUTCH MECHANISM

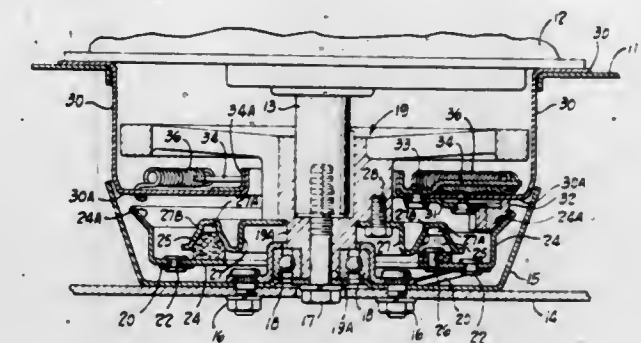
Robert W. Rush, Jr., Elyria, and Paul R. Fortlage, Medina, both of Ohio, assignors to MTD Products Inc., Cleveland, Ohio

Filed Nov. 24, 1980, Ser. No. 209,378

Int. Cl.³ A01D 69/08; B60K 41/24

U.S. Cl. 56—11.3

8 Claims



rence of the engagement of the second friction element with said braking surface and the occurrence of the engagement of the first friction element and the said clutch cone member.

4,362,005

TENSIONING MECHANISM FOR FEEDER CONVEYOR POSITIONED WITHIN FEEDER HOUSING

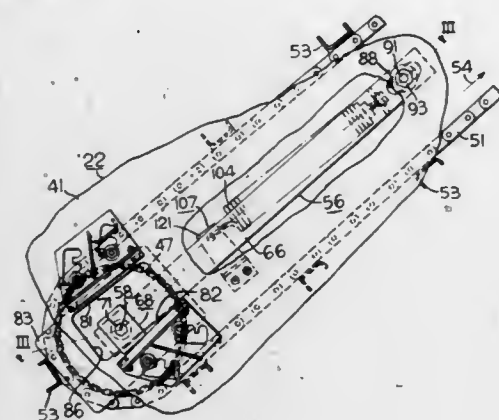
Roger D. Hanaway, Blue Springs, Mo.; Larry R. James, Olathe, Kans., and Garry W. Busboom, Independence, Mo., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Jul. 16, 1981, Ser. No. 283,974

Int. Cl.³ A01D 41/06; B65G 23/44; A01D 57/20

U.S. Cl. 56-14.6

5 Claims



1. A harvester having an elongated endless belt conveyor disposed between a pair of vertical side walls of a housing characterized by

- an idler drum carrying one end of said conveyor,
- a shaft rotatably carrying said drum on a first horizontal axis transverse to said side walls;
- a pair of arms within said housing adjacent laterally inner sides of said side walls and extending toward the opposite end of said conveyor, said arms having first corresponding ends connected to laterally opposite end portions of said shaft within said housing,
- a pair of pivot connections between second corresponding ends of said arms and said side walls permitting vertical swinging movement of said arms about a second transverse horizontal pivot axis, said pivot connections including cooperating pivot parts on said arms and side walls permitting relative movement between said arms and side walls in the longitudinal direction of said conveyor, and
- a pair of tension springs within said housing having first corresponding ends connected to said arms and second corresponding ends connected to said side walls, said springs acting in tension to bias said arms in the longitudinal direction toward said idler drum to operatively tension said conveyor.

4,362,006

HORIZONTALLY ROTATING BLADE-TYPE CONDITIONING DEVICE FOR SWATHERS

Warren Denzin, R.R. #1, Regina, Saskatchewan, Canada

Filed Jun. 9, 1981, Ser. No. 271,939

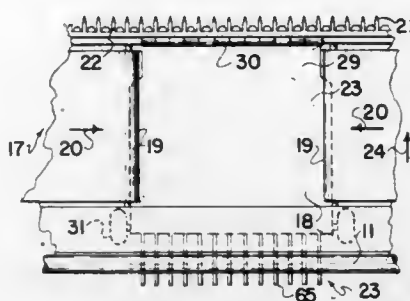
Int. Cl.³ A01D 43/00, 57/20

U.S. Cl. 56-192

30 Claims

1. In a swather which includes a frame, a transverse cutter bar assembly for cutting a swath, including a cutter bar support member, a conveyor system, and a swath discharge area at one end of the conveyor system; the improvecomprising a stubble conditioning assembly below said swath discharge area for conditioning the tops of the stubble over which the swath is to be deposited, said stubble conditioning assembly including a substantially rectangular frame pivotally supported by the front side thereof to the swather frame and depending rearwardly and downwardly through the swath discharge area, gauge means on said rectangular frame for supporting the rear side thereof a predetermined distance from the ground, stubble conditioning means mounted in said rectangular frame upon

the underside thereof, operatively connectable to a source of power, to operate same, means overlying said rectangular



frame to guide the swath rearwardly from said swath discharge area and deposits the swath upon the conditioned stubble therebehind.

4,362,007

CUTTING HEAD ASSEMBLY FOR A ROTARY MOTOR

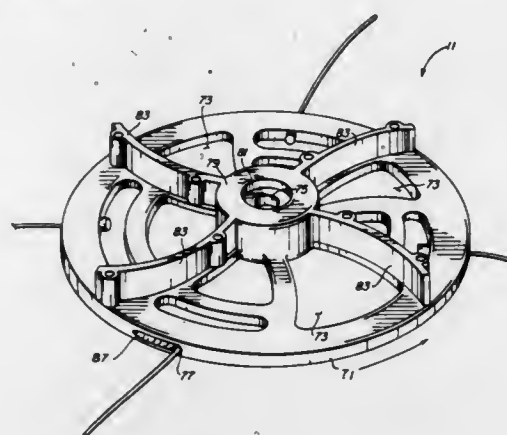
Merrill V. Kennedy, 6560 N. Harbor City Blvd., Melbourne, Fla. 32935, and Howard E. Richards, 1347 S. Patrick Dr., Satellite Beach, Fla. 32937

Filed Jun. 24, 1981, Ser. No. 276,893

Int. Cl.³ A01D 55/18

U.S. Cl. 56-295

4 Claims



1. A rotary mower cutting head assembly comprising:
 - a disc having a smooth closed periphery, a plurality of longitudinally extending openings, and a plurality of radially extending openings;
 - a plurality of monofilament elements having an elongated portion and a wider head portion, said monofilament elements adapted to be inserted into the radial openings on said disc;
 - a smooth contour channel disposed on the periphery of the disc at the radial openings;
 - a plurality of retaining members disposed in between the radially extending openings and the center of the disc whereby inward travel of the monofilament element will be restricted; and
 - a plurality of curved vanes disposed on said disc in a substantially radial position, whereby the vanes create an upward flow of air through the longitudinally extending openings.

4,362,008

METHOD AND APPARATUS FOR FORMING COMPOSITE YARN

Alan Parker, 7 Darvel Close, Breightmet, Bolton, and Peter J. Dickinson, 30 Narcissus Ave., Helmshore, Rossendale, both of England

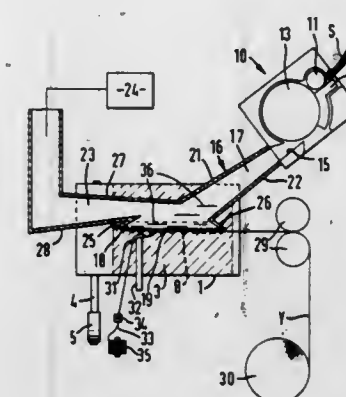
Filed Dec. 19, 1980, Ser. No. 218,313

Claims priority, application United Kingdom, Dec. 22, 1979, 7944318

Int. Cl.³ D01H 1/12; D02G 3/38; D01H 1/135

U.S. Cl. 57-5

10 Claims



1. In a method of forming a yarn including a component of staple fibres and a component formed by a continuous strand, comprising feeding discrete fibres from the staple fibre component to form a staple fibre strand with one end open, twisting the strand adjacent the open end so that along a portion of its length the strand is in the process of twisting to form a yarn, withdrawing the twisted yarn, and combining the continuous strand with the staple fibre strand to form the yarn, the improvement wherein the continuous strand is introduced to the staple strand at a position intermediate the ends of the portion and the fibres are fed such that some fibres become joined with the strand on the downstream side of the position and some on the upstream side thereof.

4,362,009

YARN ACTUATED STOP MOTION DEVICE

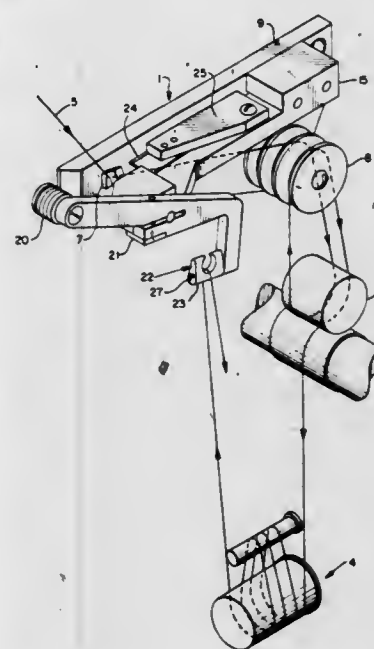
Charles M. Rice, Candler, N.C., assignor to Akzona Incorporated, Asheville, N.C.

Filed Aug. 29, 1980, Ser. No. 182,826

Int. Cl.³ D01H 13/14, 13/15

U.S. Cl. 57-86

12 Claims



1. A yarn stop-motion device for use with a yarn-processing apparatus, which comprises: yarn break-detector means for detecting a yarn break in the yarn processing apparatus; a

cutting means for cutting the yarn being supplied to the yarn processing apparatus, and yarn guide means for guiding the yarn along a substantially linear path through said stop-motion device during normal operation of said yarn-processing apparatus, the yarn break-detector means, the cutting means and the yarn guide being positioned close to each other on one side of said yarn-processing apparatus and said yarn guide means releasing the yarn into said cutting means upon detection of a yarn break by said yarn break-detector means.

4,362,010

FALSE TWIST MACHINE

Henri Crouzet, Renaison, France, assignor to ASA S.A., France

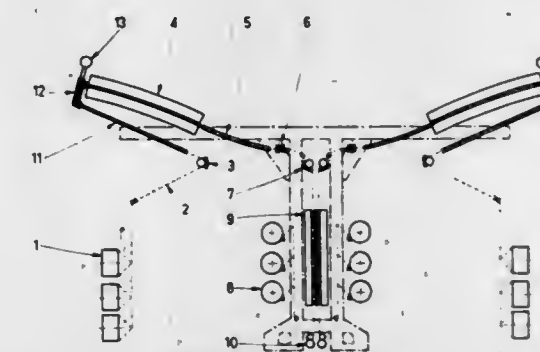
Filed Sep. 5, 1980, Ser. No. 184,278

Claims priority, application France, Nov. 16, 1979, 79 28861

Int. Cl.³ D01H 13/04, 13/28

U.S. Cl. 57-279

3 Claims



1. A false twisting machine including a number of working positions, each position presenting, in operational sequence: one supply for the yarn to be processed; a first delivery device, eventually associated with a yarn drawing attachment; a heating device comprising a closed heater; a cooling zone for the heated yarn; a false twist spindle; a second delivery device; a take-up; the machine having a central frame on either side of which are symmetrically arranged the working positions, each working position further having a guide tube for the yarn arranged between the first delivery device and the heater entry; and each working position having a connecting element connecting the guide tube to the heater entry; each connecting element having a supply pipe for connection to a blowing source for delivering a fluid current to the inside of the heater to flow in the same direction as yarn during use to remove fumes from the heater, each supply pipe having a cavity of greater dimension than the fluid flow passage of the supply pipe, and each supply pipe having obturating means comprising a ball which is positioned in the cavity and is supported on a calibrated spring for allowing the delivery of fluid current during normal operation but for obturating the fluid flow passage of the supply pipe when the heater exit is aspirated for a yarn launching operation.

4,362,011

FALSE-TWISTING EQUIPMENT

Syuichi Kikuchi, Kyoto, Japan, assignor to Murata Kikai Kabushiki Kaisha, Japan

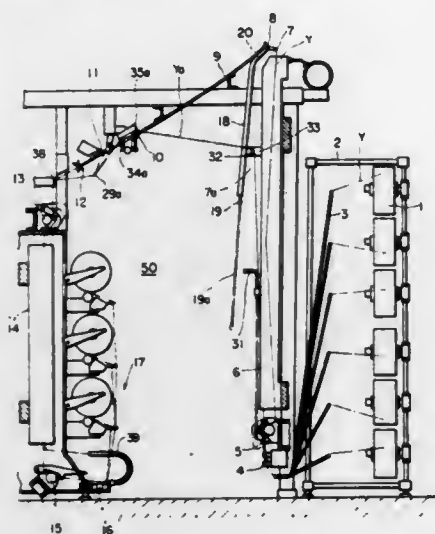
PCT No. PCT/JP79/00322, § 371 Date Aug. 25, 1980, § 102(e) Date Aug. 22, 1980, PCT Pub. No. WO80/01289, PCT Pub. Date Jun. 26, 1980

PCT Filed Dec. 22, 1979, Ser. No. 206,552

Claims priority, application Japan, Dec. 25, 1978, 53-165009 Int. Cl.³ D02G 1/02

U.S. Cl. 57—291

3 Claims



1. False-twisting equipment comprising a first heater vertically disposed on one side of an operation space including a guide pin located in the upper portion thereof, a yarn feed bobbin also located on the one side of the operation space, a second heater vertically disposed on the other side of the operation space, a winding device also located on the one side of the operation space, and a balloon control device and false-twisting spindle disposed in the upper portion of the operation space, wherein a yarn coming from the first heater may be bent by the guide pin located in the upper portion of the first heater and fed to the false-twisting spindle and then passed through the second heater and wound on the winding device, said balloon control device and false-twisting spindle being arranged in a straight line whereby yarn passing through said balloon control device and false-twisting spindle travels substantially in a straight line in the upper portion of the operation space and said first heater being located close to the floor whereby the yarn passing through the upper portion of the operation space has an angle as large as possible with respect to the first heater.

4,362,012

ANTI-BALLOON DEVICES OF SPINNING FRAMES
Jacques Le Chatelier, Riedisheim, France, assignor to Societe Alsacienne de Constructions Mecaniques de Mulhouse, France

Filed Aug. 20, 1980, Ser. No. 179,740

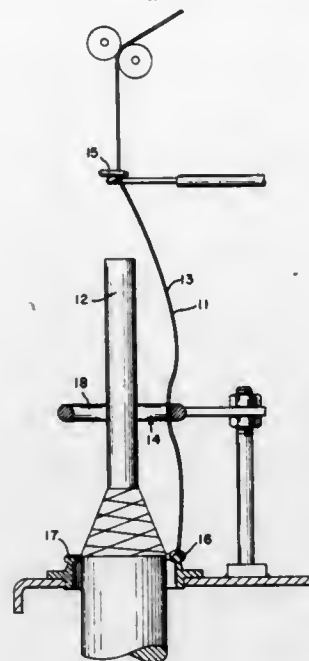
Claims priority, application France, Aug. 24, 1979, 79 21330 Int. Cl.³ D01H 13/04

U.S. Cl. 57—355

2 Claims

1. An anti-balloon device for a spinning or twisting machine comprising a ring adapted to be positioned around the bobbin spindle of the machine for controlling ballooning of textile strands, said ring having a roughened surface created by a fine sand-blasting operation, said roughened surface being covered with a first metallic coating for reducing the rough ex-

cences without removal thereof of the roughened surface produced by the operation of said fine sand-blasting and said



surface further being covered with a second metallic coating having enhanced heat conductivity properties.

4,362,013

METHOD FOR OPERATING A COMBINED PLANT

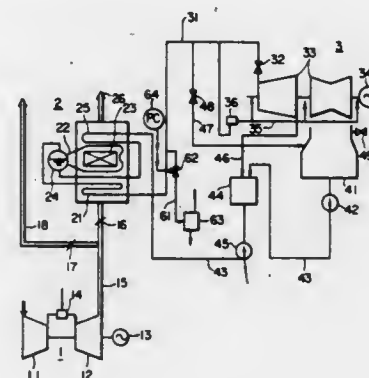
Tetsuzo Kuribayashi, Ibaraki, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 4, 1980, Ser. No. 137,491

Int. Cl.³ F02C 6/18

U.S. Cl. 60—39.02

8 Claims



1. In a combined steam and gas turbine plant consisting of a gas turbine plant, a heat recovery boiler generating steam by the exhaust gas from the gas turbine plant and incorporating a denitrating means for reducing the amount of nitrogen oxide (NO_x) discharged into the atmosphere, and a steam turbine plant driven by the steam generated by the heat recovery boiler; a method of operating the combined plant comprising the steps of: starting the gas turbine plant and running it at a low constant load; introducing the exhaust gas from the gas turbine to the heat recovery boiler to generate steam during the low load operation of the gas turbine plant; sealing the glands of the steam turbine by supplying the steam from the heat recovery boiler to the glands; and starting the steam turbine.

4,362,014

ROTARY MACHINES AND POWER SYSTEMS USING SAID MACHINES

Ronald W. Driver, 9 Rydal Pl., Clitheroe, Lancashire, and Edwin J. Hardaker, 36 Devonshire St., Skipton, North Yorkshire, both of England

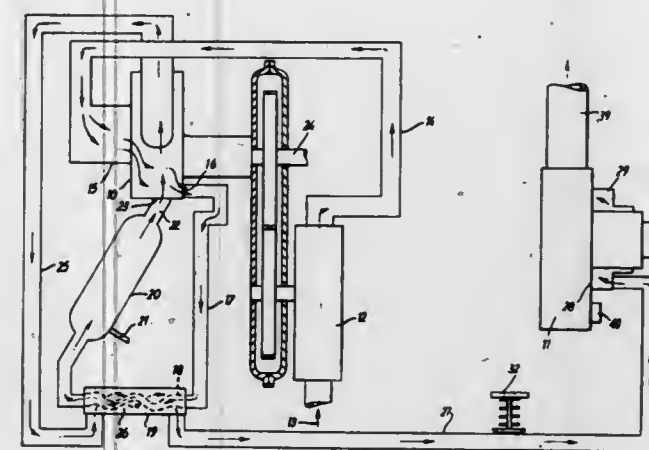
Filed Dec. 26, 1979, Ser. No. 107,341

Claims priority, application United Kingdom, Jan. 2, 1979, 7900040; Jan. 2, 1979, 7900076

Int. Cl.³ F02C 3/04

U.S. Cl. 60—39.43

4 Claims



1. A power system comprising a rotary device (10) (conveniently called a "gas generator") of the kind having a rotor eccentrically disposed in a casing to establish an eccentric annulus divided into separate compartments each of which defines a confined void whose volume changes cyclically as the rotor rotates relative to the casing, means (12) for feeding compressed ambient cold air to said device (10) to compress the air further over a part of the eccentric annulus of the device, means (20) including a flame combustor for adding heat to said further compressed air, means allowing the heated further compressed air to expand partially in another part of the eccentric annulus of the rotary device (10) to generate power, means (24) auxiliary to the system utilizing said power, at least one further rotary device (11) (conveniently called a "drive engine") of the kind having a rotor eccentrically disposed in a casing to establish an eccentric annulus divided into separate compartments each of which defines a confined void whose volume changes cyclically as the rotor rotates relative to the casing, means (27) for conducting the partially expanded heated further compressed air to said further rotary device (11) to allow further expansion and generation of further power, valve means (29) for controlling the mass flow through the conducting means (27) and thereby change the back pressure at the rotary device (10) to change the speed of the rotary device (10), in which the rotary device (10) and said further rotary device (11) are devoid of mechanical drive coupling to each other; and control means (61, 69) to maintain the flame temperature of said combustor substantially constant at all loaded speeds of said further rotary device (11).

4,362,015

DOUBLE JET GAS TURBINE ENGINE EQUIPPED WITH A THRUST REVERSER

Etienne Fage, Jouy en Josas, France, assignor to Astech, Meudon La Foret, France

Filed Apr. 28, 1980, Ser. No. 144,675

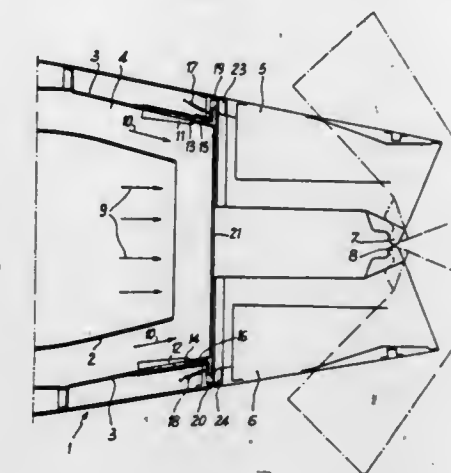
Claims priority, application France, May 11, 1979, 79 11999 Int. Cl.³ F02K 3/06

U.S. Cl. 60—226 A

11 Claims

1. In a by-pass gas turbine engine comprising a central generator including a central jet exhaust pipe having an exit end adapted to emit a first jet of relatively hot gas; an annular by-pass conduit surrounding said central jet exhaust pipe, said by-pass conduit having an exit end

adapted to emit a second annular jet of relatively cold gas enveloping said jet of relatively hot gas, a thrust reverser located downstream of the exit ends of said jet exhaust pipe and said by-pass conduit, said thrust reverser comprising doors movable between a folded position in which said doors are clear of said jets and an unfolded position in which said doors are disposed transversely in the path of said jets,



the improvement comprising: restricting means for selectively obstructing a portion of the discharge outlet area of said exit end of said by-pass conduit through which said second jet is emitted, said restricting means and said reverser being coupled in operation such that said by-pass conduit is obstructed when said doors are unfolded.

4,362,016

POLLUTION CONTROL DEVICE FOR AUTOMOBILE EXHAUST

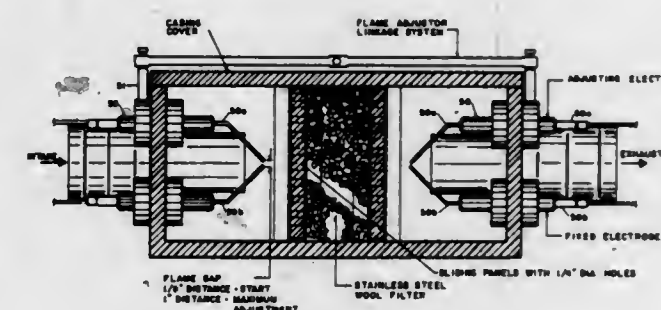
Stephen C. Papadopoulos, 114 38th St., Union City, N.J. 07087

Continuation-in-part of Ser. No. 84,741, Oct. 15, 1979, abandoned, and a continuation-in-part of Ser. No. 969,661, Dec. 15, 1978, abandoned, and a continuation-in-part of Ser. No. 881,015, Feb. 24, 1978, abandoned. This application Mar. 9, 1981, Ser. No. 241,528

Int. Cl.³ F01N 3/26, 3/28, 3/38

U.S. Cl. 60—297

18 Claims



1. An emission control device for reducing pollution of the atmosphere by automobile engine exhaust gases, comprising in combination,

a housing having walls defining a chamber, an inlet for exhaust gases into said chamber, and an outlet for exhaust gases spaced from said inlet to cause exhaust gases to flow through said chamber from said inlet to said outlet, said housing having an opening and a wall portion comprising a cover for said opening movable between open and closed positions, a plurality of pairs of electrode units mounted in said housing and spaced from one another, each of said pairs comprising a first casing mounted in a wall of said housing, a first tubular insulator extending through said casing, a first electrode wire extending through said first insulator and

having an inner end portion exposed in said chamber and an outer end portion outside said housing, means providing a pressure-tight seal between said first electrode wire, said first insulator and said first casing, a second casing mounted in the same wall of said housing beside and near said first casing, a second tubular insulator extending through said second casing, a second electrode wire extending through said second insulator and having an inner end portion inside said chamber near the inner end portion of said first electrode wire and an outer end portion outside said housing, means providing a pressure-tight seal between said second electrode wire, said second insulator and said second casing, said first and second tubular insulators and electrode wires being parallel with one another and spaced laterally apart, said inner end portion of at least said second electrode wire being bent at an angle to the axis of said second insulator and said second insulator being rotatable about its axis together with said second electrode wire to move the inner end portion of said second electrode wire toward and away from the inner end portion of said first electrode wire and thereby vary the distance between inner tip portions of said electrode wires,

means connected to the outer end portions of said electrode wires for supplying high voltage electric current continuously to said electrode wires of each pair of electrode units to produce a continuous electric discharge between said inner tip portions of the electrode wires of each pair while the engine of said automobile is running,

an arm fixed on an outer end portion of said second tubular insulator of each pair of electrode units and extending radially of said second insulator, linkage interconnecting said arms of all of said pairs of electrode units and control means connected with said linkage and operable to rotate all of said second insulators and said second electrode wires to a first position to bring inner tips of said first and second electrode wires of each pair close together to provide a gap of about one eighth inch to initiate discharge between them when the engine is started and thereafter move said tip portions further apart to increase the length of the electric discharge path between them to provide a gap of about one inch and maintain them continuously in said further spaced condition to provide a continuous flame for consuming combustibles in the exhaust gases.

4,362,017

HYDRAULIC TORQUE CONVERTER

Franz Boss, Kressbronn; Gerold Bieber, Langenargen, and Karlheinz Schachmann, Friedrichshafen, all of Fed. Rep. of Germany, assignors to Zahnradfabrik Friedrichshafen AG, Friedrichshafen, Fed. Rep. of Germany

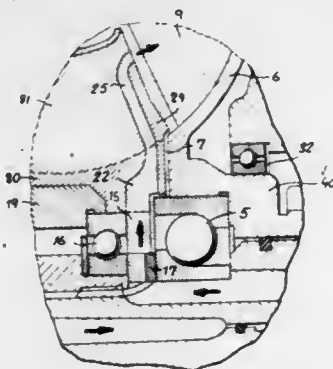
Filed Mar. 7, 1980, Ser. No. 128,081

Claims priority, application Fed. Rep. of Germany, Mar. 14, 1979, 2909968

Int. Cl.³ F16H 41/30

U.S. Cl. 60—337

3 Claims



1. In a hydraulic torque converter wherein a pump member, a turbine member and a stator member have coaxial hubs independently rotatable inside a housing and have blade-sup-

porting peripheral walls defining a toroidal space filled with transmission fluid, said stator member and said pump member being separated from each other by a gap, the hub of said turbine member being mounted on an output shaft journaled in a trunnion of said housing, said trunnion forming an inlet for fresh fluid and an outlet for spent fluid, the hubs of said pump member and of said stator member being respectively supported on said trunnion by first and second bearing means axially spaced from each other,

the improvement wherein said inlet passes inwardly of said first bearing means and terminates at a passage which extends between said first and second bearing means and communicates with at least one generally radial channel in the body of said stator member which passes through a blade of said stator member and opens into said toroidal space at a location radially outward from the hub of said pump member, said passage also communicating with said gap for letting a minor portion of the incoming fluid enter said toroidal space outside said channel.

4,362,018

HYDRAULIC ROTATION CONTROL CIRCUIT

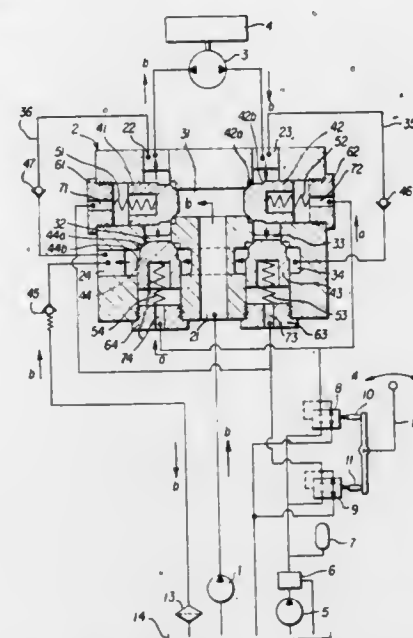
Satoru Torii, Akashi, Japan, assignor to Kobe Steel, Ltd., Kobe, Japan

Filed Jun. 12, 1980, Ser. No. 158,877

Int. Cl.³ F15B 13/042

U.S. Cl. 60—468

1 Claim



1. A hydraulic rotation control circuit operating below a maximum pressure for rotating a rotary body under a driving pressure, comprising

- a control valve assembly including a first, second, third and fourth port and first, second, third and fourth passages formed in said assembly wherein the cross sectional areas of said first and second passages are equal;
- a first pump connected to said first port communicating with said first passage and producing a maximum pressure;
- a first check valve communicating the second port with the second passage and allowing fluid flow from the first passage to the second port and passage;
- a second check valve communicating the third port with the third passage and allowing fluid flow from the first passage to the third port and passage;
- a third check valve allowing fluid flow from the third passage to the fourth passage;
- a fourth check valve communicating the fourth port with the fourth passage and allowing fluid flow from the second passage to the fourth port and passage wherein said fourth check valve is substantially the same structurally and dimensionally as said second check valve such that

said driving pressure may be maintained at a substantially constant predetermined level;

- a first variable reducing valve communicating with said second and fourth check valves and including means for producing a variable pressure less than said maximum pressure by controlling blocking force of said second and fourth check valves against said first and second passages, respectively;
- a second variable reducing valve communicating with said first and third check valves and including means for producing a variable pressure less than said maximum pressure by controlling a blocking force of said first and third check valves against said first and third passages, respectively; and
- a second pump for delivering a pressurized fluid to said first and second variable reducing valves;
- a rotary actuator connected to said second and third ports and operable to rotate said rotary body;
- a fifth passage formed in said control valve assembly, said control circuit further comprising a fluid storage tank and a fifth check valve, said fifth check valve being disposed in said fifth passage communicating with said fourth port, biased closed by means, and having an opening facing said fourth port such that said fluid flows from said fourth port through said fifth check valve and into said tank; and
- a first auxiliary passage connecting said third port with said fourth passage, a check valve provided in said first auxiliary passage and having an opening facing said fourth passage, a second auxiliary passage means connecting said fourth port with said second port, and a check valve provided in said second auxiliary passage and having an opening facing said fourth port.

4,362,019

MOTOR VEHICLE HYDRAULIC SYSTEM

Antonino Bertone, Saluggia, and Paolo Vannini, Cambiano, both of Italy, assignors to Centro Ricerche Fiat S.p.A., Turin, Italy

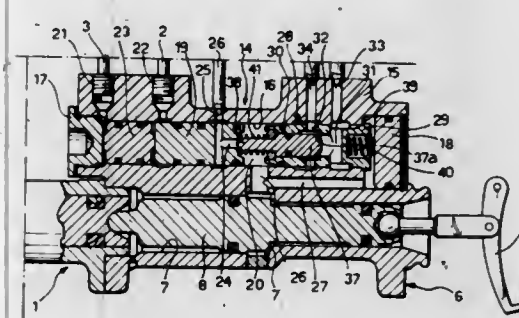
Filed Nov. 26, 1980, Ser. No. 211,534

Claims priority, application Italy, Dec. 11, 1979, 69373 A/79

Int. Cl.³ B60T 13/00

U.S. Cl. 60—547 A

2 Claims



1. An hydraulic system for a motor vehicle provided with servo assisted controls for the brakes and the steering, the said system comprising:

- a reservoir,
- a volumetric pump the input of which is connected to the said reservoir,
- a master cylinder having a main piston operable by means of the brake pedal to generate pressure in the motor vehicle's wheel braking circuits,
- an hydraulic actuator for the control of the steering,
- a first distributor device associated with the said hydraulic actuator and controlled by the steering wheel of the motor vehicle to transmit the pressure generated by the volumetric pump to the said actuator,
- a second distributor device associated with the brake master cylinder and controlled by the pressure existing in the said braking circuit to transmit the pressure generated by the volumetric pump to the said main piston of the master cylinder, whereby to assist the force applied to the brake

pedal when an increase in pressure occurs in the said braking circuit following

operation of the brake pedal, the said second distributor device comprising:

- a body forming part of the body of the master cylinder and provided internally with a cylindrical cavity,
- a control piston, slidably and sealingly mounted within the cylindrical cavity and defining within this cavity a first chamber communicating with the wheel braking circuit of the motor vehicle, and a second chamber which communicates with the said reservoir by means of a passage formed in the control piston and with an input aperture formed in the body of the second distributor device, the said input aperture being connected with the output of the volumetric pump by means of a delivery duct, and with a cavity of the master cylinder in which there is slidably mounted the main piston of the master cylinder, and
- a valve shutter member cooperating with the mouth of the passage formed in the control piston to interrupt communication between the second chamber and the reservoir, said second distributor device further comprising:

- a distributor piston slidably and sealingly mounted in the said second chamber and having a tubular body closed at its end opposite the control piston whereby to divide the second chamber into two parts which both communicate with the interior of the master cylinder
- a control member slidably and sealingly mounted within the tubular body of the distributor piston, whereby to define within the said tubular body a third chamber which communicates by means of radial passages formed in the tubular body both with the said input aperture and with an output aperture formed in the body of the second distributor device, the said output aperture being connected with the said reservoir by means of a return duct in which the said first distributor device is inserted; the end of the said control member which faces the interior of the tubular body being formed as a valve shutter and being cooperable with an annular valve seat formed in the internal surface of the tubular body to interrupt communication between the said input and output apertures; the said opposite end of the control member being disposed outside the tubular body and constituting the said shutter member; the tubular body of the distributor piston having its closed end formed as a valve shutter displaceable from a cooperating annular valve seat formed in the wall of the said cylindrical cavity to place the said third chamber in communication with the part of the second chamber which lies between the distributor piston and an end wall of the cylindrical cavity,

first resilient means interposed between the distributor piston and the end wall of the said cylindrical cavity in order to urge that end of the distributor piston which is formed as a valve shutter against its valve seat, and

second resilient means interposed between the control piston and the distributor piston.

4,362,020

HERMETIC TURBINE GENERATOR

John S. Meacher, Ballston Lake, and David E. Ruscitto, Ballston Spa, both of N.Y., assignors to Mechanical Technology Incorporated, Latham, N.Y.

Filed Feb. 11, 1981, Ser. No. 233,436

Int. Cl.³ F01K 11/04

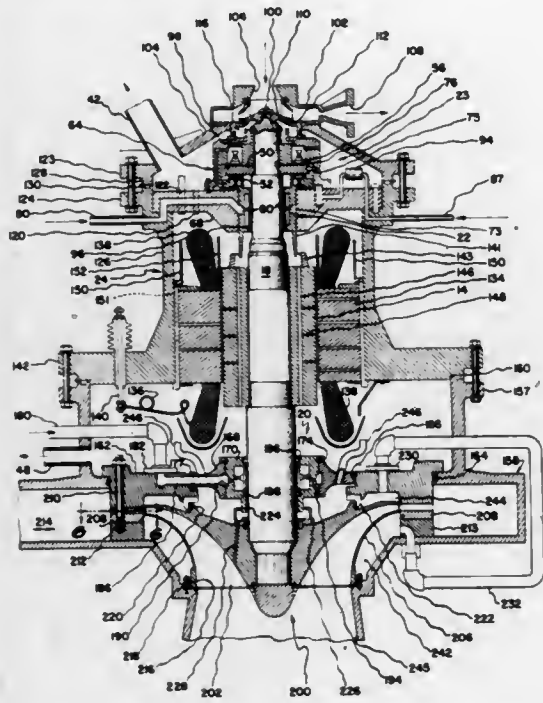
U.S. Cl. 60—657

17 Claims

1. A power generating system for recovering energy from a low temperature heat source that includes

- a heat exchanger for transferring energy from a low temperature source to a low boiling point refrigerant to vaporize said refrigerant,
- a sealed housing for supporting a rotor shaft vertically therein,
- a feed pump secured to the upper end of the shaft for pumping vapor from the heat exchanger to the inlet of a turbine

secured to the lower end of the shaft to drive an electrical generator operatively connected to the shaft intermediate said feed pump and said turbine whereby the turbine supports at least a portion of the rotor when it reaches operational speed,
 a condenser connected to the housing directly beneath the turbine for reducing refrigerant vapors discharged from the turbine to a liquid,
 an upper bearing means connected to said shaft between said vapor pump and said generator,



a lower bearing means connected to said shaft between said turbine and said generator;
 a boost pump for moving refrigerant from the condenser to the feed pump and into both said bearing means whereby said refrigerant is permitted to gravity flow through said bearing means to cool and lubricate said bearing means, and
 flow directing means for gravity feeding liquid refrigerant leaving the upper bearing means over the surfaces of the electrical generator for cooling said generator.

4,362,021

GAS TURBINE ENGINE FUEL INJECTORS

Jeffrey D. Willis, Coventry, England, assignor to Rolls-Royce Limited, London, England

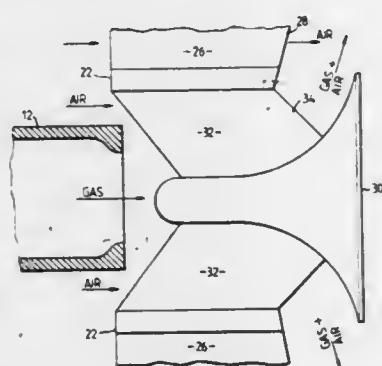
Filed Jul. 16, 1980, Ser. No. 169,430

Claims priority, application United Kingdom, Aug. 1, 1979, 7926836

Int. Cl.³ F23R 3/28; B05B 7/10

U.S. Cl. 60—737

4 Claims



1. A gas fuel injector for a gas turbine engine having a casing and a flame tube therein, said gas fuel injector being for use with gaseous fuels having a range of calorific values and comprising:
 a fuel nozzle positioned upstream of said flame tube for

discharging gaseous fuel in a downstream direction toward said flame tube, said fuel nozzle extending through an opening in and being attached to said casing of said engine; and

fuel and air inlet means downstream of said fuel nozzle, said fuel and air inlet means being fixedly attached to the upstream end of said flame tube and separately mounted with respect to said fuel nozzle, said fuel and air inlet means including an outer substantially annular passage containing air swirling means and arranged to receive a flow of compressed air and discharge the same downstream into said flame tube as a flow of swirling air in a direction generally parallel to the longitudinal axis of the flame tube, and an inner substantially annular passage for receiving gaseous fuel from the fuel nozzle and a flow of compressed air, said inner annular passage decreasing in cross-sectional area in a downstream direction and terminating in a downstream outlet aligned to direct the flow of gaseous fuel and compressed air discharged therefrom outwardly at an angle to the longitudinal axis of the flame tube into the flow of swirling air discharging from the outer annular passage.

4,362,022

ANTI-COKE FUEL NOZZLE

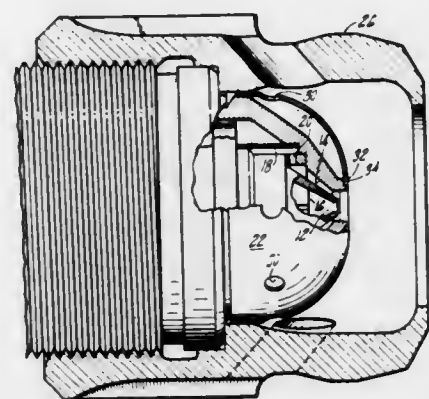
Joseph E. Faucher, East Hartford; Richard R. Wright, Williamantic; Francis C. Pane, Jr., South Windsor, and David Kwoka, Windsor, all of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Mar. 3, 1980, Ser. No. 126,256

Int. Cl.³ F02C 7/22

U.S. Cl. 60—742

4 Claims



1. A dual orifice type fuel nozzle for a combustor of gas turbine engine having a compressor, said fuel nozzle having a generally conically shaped casing with a primary fuel passage centrally disposed therein, secondary fuel passage formed therein concentrically disposed relative to the primary fuel passage, both primary and secondary passages exiting fuel into said combustor through a substantially mutual transverse plane, means for imparting a swirl component to compressor discharge air surrounding the fuel exiting from said primary and secondary passages, means for feeding fuel to said primary fuel passage so that it is normally continuously operative throughout the engine operating envelope and means for feeding fuel to said secondary fuel passage so that it is normally operative solely during the high thrust regimes and inoperative during the low thrust regimes of said engine operating envelope, means for pressurizing the secondary passage when said primary passage is solely operative with said compressor discharge air whereby said secondary passage maintains a positive pressure for preventing fuel from said primary passage from migrating therein and coking the walls of said secondary passage.

4,362,023

THERMOELECTRIC REFRIGERATOR HAVING IMPROVED TEMPERATURE STABILIZATION MEANS

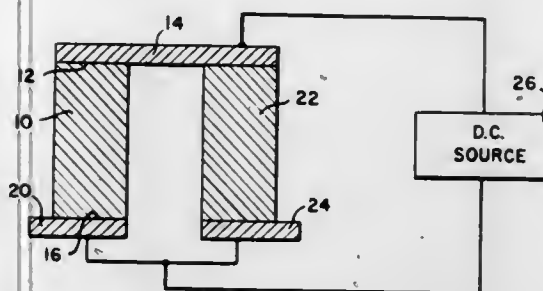
Charles M. Falco, Woodridge, Ill., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jul. 29, 1981, Ser. No. 287,965

Int. Cl.³ F25B 21/02

U.S. Cl. 62—3

8 Claims



1. A thermoelectric refrigerator having improved temperature stabilization means comprising:
 first and second elements connected electrically in series and thermally in parallel, forming a cold junction and a hot junction;
 means for passing an electrical current through said first and said second elements;
 means for a thermally connecting said cold junction to an object to be refrigerated, and means for connecting said hot junction to a heat sink;
 one of said first and said second elements having a first order change at a predetermined critical temperature above which said one of said first and said second elements functions as a thermoelectric refrigerator element and below which said one of said first and said second elements discontinuously ceases to function as a semiconductor thermoelectric refrigerator element whereby said thermoelectric refrigerator is thermally stabilized about said predetermined critical temperature.

4,362,024

PNEUMATICALLY OPERATED REFRIGERATOR WITH SELF-REGULATING VALVE

Otto C. Winkler, Balzers, Liechtenstein, assignor to Oerlikon-Bührle U.S.A. Inc., New York, N.Y.

Filed Jan. 22, 1981, Ser. No. 227,190

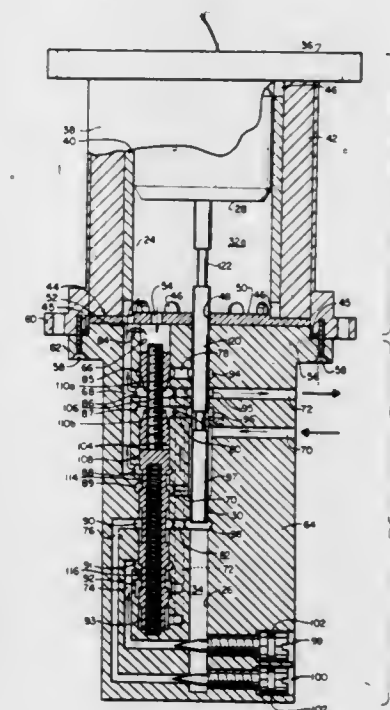
Int. Cl.³ F25B 9/00

U.S. Cl. 62—6

8 Claims

1. In a refrigeration apparatus operating on a compressed expandable fluid, comprising in combination:
 cylinder means;
 reciprocating means movable within said cylinder means between a first limit and a second limit and comprising a displacer mechanically joined to a piston, said displacer and said cylinder means together defining first and second refrigeration chambers of complementary variable volumes, and said piston and said cylinder means defining a driving chamber of variable volume, said displacer, piston, and cylinder means being so disposed that as said reciprocating means is moved from said first limit to said second limit said first chamber's and said driving chamber's volumes decrease from their maximum values to their minimum values while simultaneously said second chamber's volume increases from its minimum value to its maximum value;
 a fluid path communicating between said first and second chambers and including a regenerator means;
 a first fluid conductive manifold communicating between said first chamber and a plurality of ports of a first spool valve bore, one of said plurality of ports being a pilot port;
 a first pair of fluid conductive conduits communicating

between said driving chamber and individual ones of a second plurality of ports of said first spool valve bore;
 a second pair of fluid conductive conduits communicating between individual ones of a third plurality of ports of said first spool valve bore and individual ports of a second spool valve bore;
 a second fluid conductive manifold adapted to communicate with a high pressure source of said compressed fluid and further communicating with individual ports of said first and said second spool valve bores; and
 a third fluid conductive manifold adapted to communicate with means for exhausting said compressed fluid and further communicating with individual ports of said first and second spool valve bores;
 the improvement comprising in combination:
 a spring-loaded pilot spool valve configured and dimensioned to fit in said first spool valve bore and to be movable from a first position to a second position in response to fluid pressure in excess of a predetermined fluid pressure and to otherwise be urged toward said first position, said pilot spool valve being provided with (1) a first spool



section configured and dimensioned to connect said first manifold alternatively with (a) a first one and (b) a second one of said second pair of fluid conductive ports, (2) a second and a third spool section configured and dimensioned to cooperatively act to connect said second manifold alternatively to (a) said first manifold and (b) one of said first pair of conduits, and (3) a fourth spool section configured and dimensioned to (a) connect and (b) disconnect the other one of said first pair of conduits to said third manifold; each respectively according to the location of said pilot spool valve in said (a) second and (b) first position; and
 a second spool valve mechanically joined to said reciprocating means and configured and dimensioned to movably fit within said second spool valve bore, said second spool valve being provided with a pair of spool sections configured and dimensioned to (1) connect said third manifold with said second one of said second pair of conduits only when said reciprocating means is substantially at said second limit and (2) connect said second manifold with said first one of said second pair of conduits only when said reciprocating means is substantially at said first limit.

4,362,025

SOLAR POWERED REFRIGERATION APPARATUS
Franklyn H. Theakston, Guelph, Canada, assignor to The
Guelph Manufacturing Group Ltd., Guelph, Canada

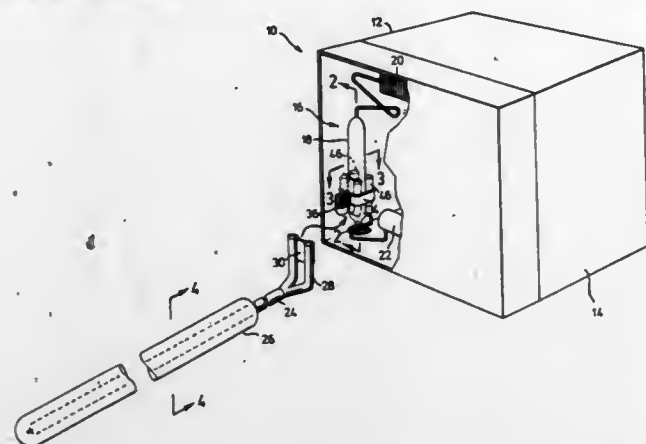
Filed Feb. 26, 1981, Ser. No. 238,595

Claims priority, application Canada, Sep. 16, 1980, 360351

Int. Cl.³ F25B 15/00

U.S. Cl. 62—148

11 Claims



1. Solar powered refrigeration apparatus comprising: an absorption refrigeration system having a boiler for input of heat energy thereto; a heat pipe thermally connected to the boiler for transferring heat energy from a remote location to the boiler, the heat pipe being downwardly inclined away from the boiler and having an upstanding end portion in thermal contact with the boiler, said end portion being disposed parallel to the boiler; a solar collector thermally coupled to the heat pipe at said remote location, the solar collector being a double walled glass vacuum tube having inner and outer walls and a central axial opening for accommodating the heat pipe, the solar collector being dimensioned to heat the heat pipe above 270° F. at said upstanding end portion when the solar collector is exposed to sunlight.

4,362,026

ENTHALPY CONTROL

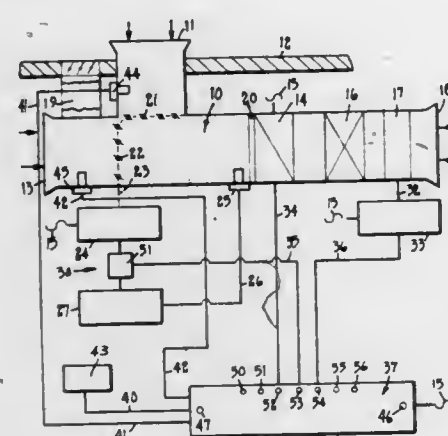
Lloyd W. Miller, 610 Carver Beach Rd., Chanhassen, Minn.
55317

Filed Oct. 27, 1980, Ser. No. 201,326

Int. Cl.³ F25B 29/00

U.S. Cl. 62—17E

3 Claims



1. Apparatus for conditioning the air in a space comprising, in combination:
a plenum;
means admitting to the plenum return air from within the space;
means admitting to the plenum air from outside the space;
a cooler;
a fan for drawing air from said plenum over said cooler and discharging it into said space;
means for varying the ratio between the quantities of outside

air and return air admitted to said plenum in accordance with the temperature of the air in said plenum;
means responsive to the enthalpy of the air outside said space;
and means disabling said cooler and maximizing said ratio when said enthalpy has less than a predetermined value.

4,362,027

**REFRIGERATION CONTROL SYSTEM FOR
MODULATING ELECTRICALLY-OPERATED
EXPANSION VALVES**

William J. Barbier, St. Louis, Mo., assignor to Sporlan Valve
Company, St. Louis, Mo.

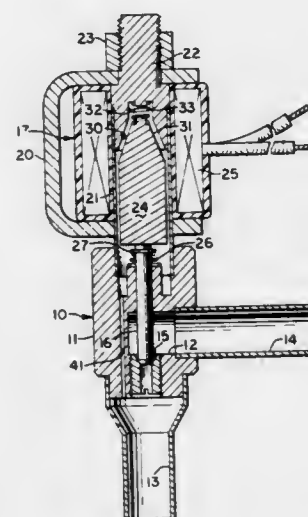
Continuation-in-part of Ser. No. 865,903, Dec. 30, 1977,

abandoned. This application Oct. 1, 1979, Ser. No. 80,398

Int. Cl.³ F25B 41/00; G05D 15/00

U.S. Cl. 62—197

2 Claims



1. In a refrigeration system including a compressor, a condenser, and an evaporator operatively connected, the system comprising:

- a modulating, electrically operated expansion valve connected to the inlet of the evaporator,
- first and second temperature-responsive electrical sensors, the first sensor being positioned to respond to the temperature of liquid refrigerant expanded to suction pressure, and the second sensor being positioned to respond to suction line sensible temperature,
- an electrical amplifier circuit connecting the sensors to the valve for modulation of the opening and closing of the valve in response to the differences in the temperatures sensed by the sensors,
- refrigerant-bleeding means in the system feeding refrigerant at a low flow rate when the first and second sensors sense the same temperature as during start-up of the system, the bleed flow causing the sensors to sense different temperatures to cause modulation of the valve to control superheat, the first sensor being positioned to respond to the saturation temperature of the suction pressure of the bleed flow,
- the refrigerant-bleeding means being a small orifice in a bypass line between the high and low pressure sides of the system of sufficient size to provide a low flow rate to initiate modulation of the valve,
- the bypass line being connected to the low pressure side of the system downstream of the second sensor, and
- the electrical amplifier circuit including a detector for determining whether the suction saturation temperature exceeds a maximum set point, and actuating the expansion valve to close and limit the suction saturation temperature on start-up and limit compressor motor start-up load.

4,362,028

MULTI-BOWL BEVERAGE DISPENSERS

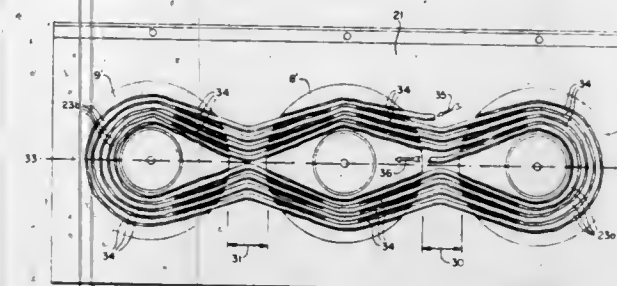
Alfred Armstrong, Norwood, Mass., assignor to Crathco, Inc.,
Canton, Mass.

Filed Jan. 14, 1981, Ser. No. 224,941

Int. Cl.³ B67D 5/62

U.S. Cl. 62—390

7 Claims



1. A beverage dispenser, comprising a stand housing a refrigeration system, a plurality of cooling members mounted on said stand with first surfaces oriented to transfer heat away from beverage in bowls on said stand, said cooling members all having second surfaces opposite said first surfaces in heat-transferring engagements with one evaporator in said refrigeration system, said evaporator having a single refrigerant passageway therethrough in the general form of a single multi-turn elongated loop with coplanar concentric turns, the successive passageway turns in said loop each coursing substantially arcuately about at least part of each of said cooling members, in succession, and then similarly coursing back across said cooling members in the opposite sequence to complete each turn in said loop, whereby to promote uniformity in cooling by said members.

4,362,029

**ABSORPTION REFRIGERATOR BOILER
CONSTRUCTION**

Peter E. Blomberg, Stockholm; Karl G. Boren, Skärholmen, and
Axel H. Östergren, Stockholm, all of Sweden, assignors to
Aktiebolaget Electrolux, Stockholm, Sweden

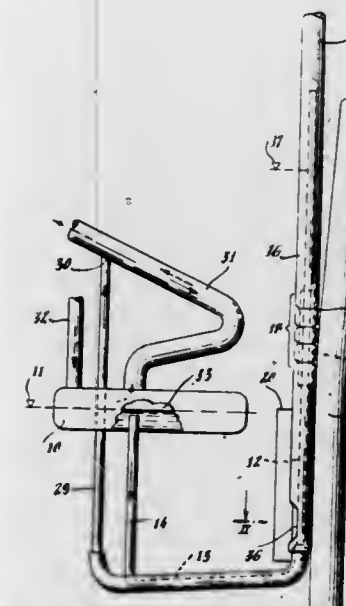
Filed Apr. 6, 1981, Ser. No. 251,347

Claims priority, application Sweden, Apr. 15, 1980, 8002803

Int. Cl.³ F25B 33/00

U.S. Cl. 62—497

6 Claims



1. In an absorption refrigerating apparatus having a single pipe boiler construction, and that operates with inert gas in which absorption solution rich in refrigerant is lifted in a central pump pipe in which vapor is expelled and the weak solution formed therein flows downwardly in an outer pipe, at least one heat source being arranged in heat-conductive contact with the outside of said outer pipe and heat from the heat source being conducted through the weak solution in the outer

pipe to the pump pipe and its contents, the improvement comprising: a first means for supplying heat directly by conduction to said outer pipe, and a deformed section of said outer pipe which engages said pump pipe and forms a second direct heat-conductive connection arranged between the outer pipe and said pump pipe.

4,362,030

REFRIGERATION CIRCUIT

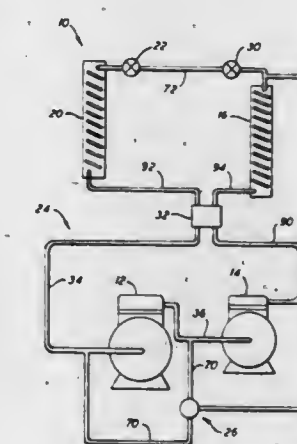
Roger J. Voorhis, Liverpool, N.Y., assignor to Carrier Corporation,
Syracuse, N.Y.

Filed Sep. 2, 1981, Ser. No. 298,817

Int. Cl.³ F25B 1/10

U.S. Cl. 62—510

10 Claims



1. A refrigeration circuit comprising:
a low stage compressor, a high stage compressor, a condenser, an expansion device, and an evaporator;
refrigerant flow means connecting the high and low stage compressors, the condenser, the expansion device, and the evaporator to form a closed, vapor compression refrigeration loop, and including
a low pressure line for conducting refrigerant vapor to the low stage compressor,
an interstage line for conducting refrigerant vapor discharged from the low stage compressor to the high stage compressor,
by-pass means connecting the low pressure line with the high stage compressor for conducting refrigerant vapor therebetween to by-pass the low stage compressor, and
a quench line connected to the by-pass means for conducting liquid refrigerant thereto; and
a check-quench valve located at the intersection of the by-pass means and the quench line and having
a quench position blocking the by-pass means and opening the quench line to direct refrigerant from the low pressure line serially through the low stage compressor, through the interstage line, and into the high stage compressor, and to inject refrigerant from the quench line into the refrigerant vapor discharged from the low stage compressor, and
a by-pass position opening the by-pass means and closing the quench line to direct refrigerant from the low pressure line through the by-pass means and into the high stage compressor to by-pass the low stage compressor.

4,362,031

MULTIPARTITE JEWELRY ITEM USEFUL AS A FINGER RING

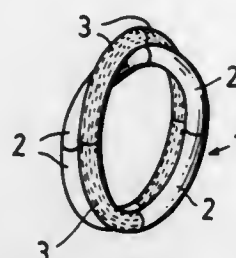
Hermann Obermüller, Schenkenzell, Fed. Rep. of Germany, assignor to Gebr. Niessing, Ureden, Fed. Rep. of Germany
Filed Jul. 17, 1980, Ser. No. 169,722

Claims priority, application Fed. Rep. of Germany, Jul. 27, 1979, 2930500

Int. Cl.³ A44C 9/00

U.S. Cl. 63—15

7 Claims



1. A multipartite item of jewelry particularly useful as a finger ring comprising: eight hollow tubular sections each formed as a circular arc subtending an angle of 90° arranged together end-to-end to form an overall endless closed loop, the ends of each of said sections being movable relative to the ends of each adjacent section to enable said sections to be turned relative to each other; and flexible means resiliently holding said curved sections together in the form of said overall endless closed loop while enabling said sections to be turned end-to-end relative to each other; said flexible means enabling said overall endless closed loop to be twisted upon itself to form said jewelry item into a smaller closed loop formed of two generally overlapping circular segments while maintaining the ends of adjacent sections in abutting contact; said overall endless closed loop having a circumferential dimension which is at least twice as large as the circumferential dimension of said smaller closed loop formed therefrom.

4,362,032

APPARATUS FOR USE IN PRODUCING KNIT FABRICS

Walter Palange, 989 Aqua Cir., Naples, Fla. 33940

Continuation-in-part of Ser. No. 23,455, Mar. 23, 1979, Pat. No. 4,246,768, which is a division of Ser. No. 886,776, Mar. 15, 1978,

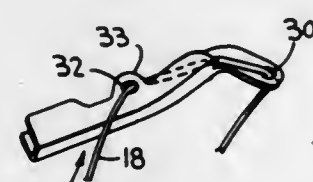
Pat. No. 4,193,273. This application Nov. 13, 1979, Ser. No. 93,882

The portion of the term of this patent subsequent to Jan. 27, 1998, has been disclaimed.

Int. Cl.³ D04B 3/00

U.S. Cl. 66—4

9 Claims



1. Apparatus for producing knit fabrics comprising a base member having an outer edge, a series of substantially equally spaced knitting supports arranged along said outer edge of said base member, each knitting support having an outer upright portion with a free upper surface and a flange portion extending rearwardly of said upright portion, said flange portion having an upper surface below the upper surface of said upright portion, said upright portion having at least one lateral surface defining a longitudinal groove extending from the upper surface of said upright portion to below the level of said upper surface of said flange portion and at least one needle for use in forming stitches on said knitting supports, said needle having a planar arched forward end portion including a crest and terminating in a tip, a first yarn-threading eye in said forward end portion adjacent said tip and a second yarn-

threading eye in said forward end portion spaced rearwardly from said first yarn-threading eye.

4,362,033

AUTOMATIC MIXING AND CLOTH BLEACHING CONTROL

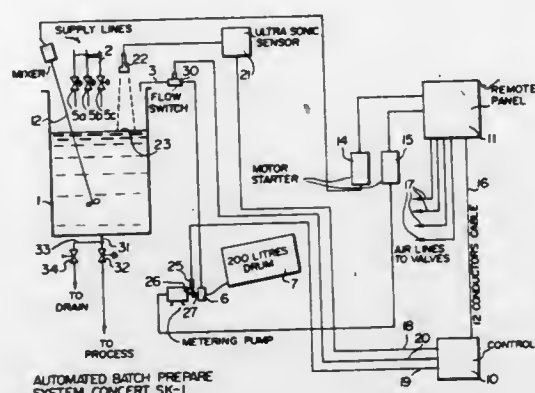
Charles W. Young, Dorval, Canada, assignor to Dominion Textile, Inc., Montreal, Canada

Filed May 8, 1980, Ser. No. 149,129

Int. Cl.³ D06B 23/26; B01F 15/02

U.S. Cl. 68—207

28 Claims



7. Apparatus for controlling the flow of at least one chemical to a cloth saturator bath through which cloth to be processed is continuously passed comprising means for measuring the speed of the cloth and for thereby deriving signals representative of the speed of the cloth, circuit means for selectively entering a value corresponding to the density of the cloth and for thereby weighting these signals according to the density of the cloth whereby signals corresponding to the weight of cloth per minute are obtained, means responsive to the last mentioned signals to pump into the saturator bath a quantity of said at least one chemical whereby the quantity of said at least one chemical pumped to the saturator bath corresponds to the measured weight of cloth per minute.

13. Apparatus for providing a mix of two or more liquids in predetermined volumetric proportions comprising a mixing tank, supply lines leading to the mixing tank from respective sources of the two or more liquids, valve means on each supply line for controlling the flow of the respective liquid, a single level sensor positioned above the tank for monitoring the level of liquid in the tank, control means supplied by electrical signals from the level sensor which electrical signals have a variable parameter indicative of the level of liquid in the tank, means in the control means for setting two or more desired levels corresponding respectively to the desired volumetric proportions and for comparing the level monitored by the level sensor with the set levels to obtain control signals and means responsive to the control signals to open and close each valve in sequence to obtain the desired mix.

4,362,034

DOOR LOCKING DEVICE

Abraham Amgar, Holon, Israel, assignor to Hosem Reliable Protection System Ltd., Holon, Israel

Filed May 9, 1980, Ser. No. 148,488

Claims priority, application Israel, Jun. 8, 1979, 57523

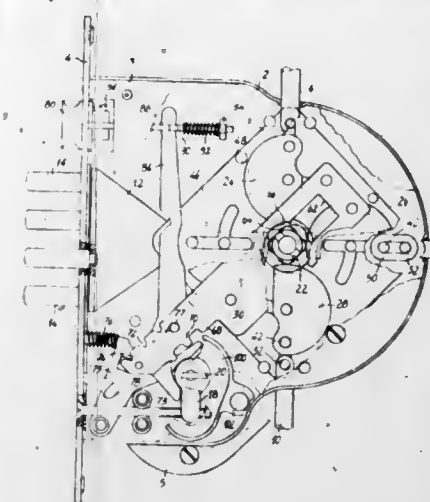
Int. Cl.³ E05B 59/00, 63/14

U.S. Cl. 70—108

8 Claims

1. A locking device mountable within a door and including at least one locking bar driven by actuator means to a locking position projecting from the respective side of the door into the door frame, or to an unlocking position withdrawn from the door frame, characterized in that the inner end of each locking bar includes a cam follower, and in that said actuator means includes a rotatable drive gear and a gear-cam segment for each locking bar driven by said drive gear and coupled to its respective locking bar for driving same; said segment in-

cluding gear teeth formed on a first portion of its outer circumference meshing with the teeth of the drive gear, and a cam



surface formed on a second portion of its outer circumference engageable by the cam follower carried by its respective locking bar.

4,362,035

LOCKABLE CLOSURE

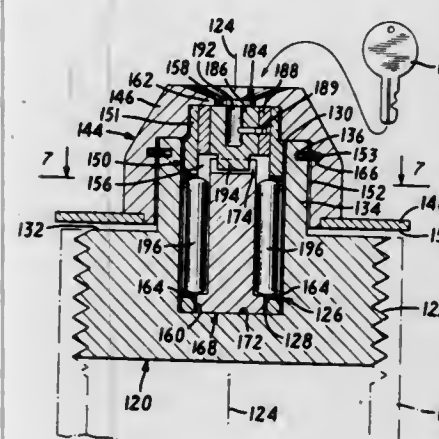
Steven Vitale, 269 Greencroft Ave., Staten Island, N.Y. 10308

Filed Aug. 25, 1980, Ser. No. 180,801

Int. Cl.³ B65D 39/08, 55/14; E05B 63/00; F16L 35/00

U.S. Cl. 70—165

8 Claims



1. A lockable closure for a threaded conduit comprising:
 - (a) a threaded element adapted sealingly to engage the conduit, the threads of such element defining an axis;
 - (b) a shield rotatably attached to said threaded element on said axis, said shield at least partially covering said threaded element, a surface of said shield confronting a surface of said threaded element so that during engagement of said threaded element with said conduit, said shield impedes direct engagement of said threaded element by a tool;
 - (c) means for permitting rotational coupling between said threaded element and a tool upon actuation by key means; and
 - (d) said confronting surfaces defining therebetween means including a gap for impeding linkage of said confronting surfaces by introductions of an adhesive material.

4,362,036

FUEL TANK LOCKING APPARATUS

Donald J. Shanklin, Fullerton, Calif., assignor to Superior Industries International, Inc., Van Nuys, Calif.

Filed Dec. 26, 1979, Ser. No. 106,396

Int. Cl.³ B65D 51/18, 55/14

U.S. Cl. 70—167

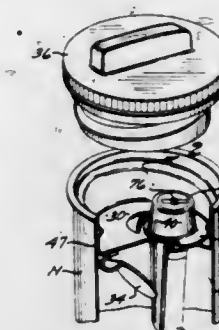
9 Claims

1. A fuel tank lock for use with a conventional filler neck having a baffle plate formed with a round constricted passage

that is eccentric to said filler neck and normally closed by a biased-shut valve member carried by said baffle plate that is forced open when engaged by an unleaded fuel nozzle of smaller transverse cross-section than said constricted passage, with the upper end of said filler neck being provided with a conventional fuel tank cap, said lock comprising:

a body provided with a key-operated locking mechanism in its upper portion and a shank that extends through said constricted passage;

collar means on said body larger than said constricted passage that rest upon the upper surface of said baffle plate to support said body thereupon;



latch means operatively associated with said body shank movable between a locked position wherein part of said latch means extend transversely of the underside of said baffle plate outwardly of said constricted passage and an unlocked position disposed inwardly of said passage to permit withdrawal of said shank from said passage, with said latch means being actuated by said locking mechanism; and

a transverse extension formed on said collar means that abuts said filler neck above said constricted passage and transversely outwardly thereof to prevent rotation of said body shank within said passage relative to said baffle plate as said key-operated locking mechanism is actuated.

4,362,037

HOLLOW ARTICLE INTERNAL PRESSURE FORMING APPARATUS AND METHOD

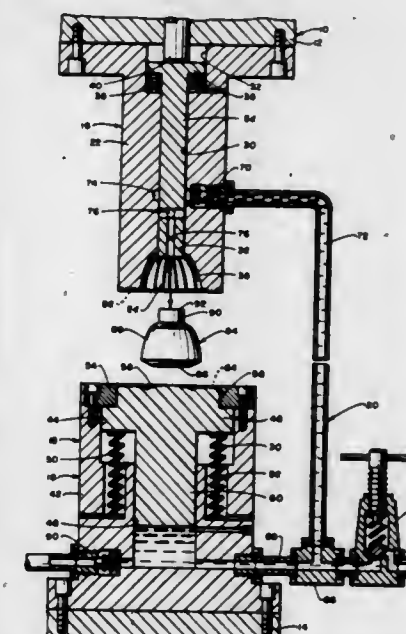
Therman C. Whitfield, Corona, Calif., assignor to Emhart Industries, Inc., Farmington, Conn.

Filed Oct. 24, 1980, Ser. No. 200,156

Int. Cl.³ B26D 26/02

U.S. Cl. 72—58

25 Claims



1. In a forming apparatus for bulging hollow bulbous metal knobshells outwardly relatively small distances against enclos-

ing die cavity surfaces by application of only internal high fluid pressures directed solely through a preformed reduced size knobshell neck access opening; the apparatus including: first and second dies constructed and arranged with said dies movable longitudinally together to a closed position and thereafter in said closed position by continued longitudinal urging placing said dies in progressive longitudinal pressure exerting conditions, said dies in said closed position forming a die cavity having surfaces enclosing said knobshell with a reduced size knobshell neck access opening exposed to said first die, said die cavity surfaces outwardly of said knobshell being exposed at all times venting to the atmosphere; die moving means for moving said dies to and from said closed position and progressively urging said dies into said die longitudinal pressure exerting conditions only while in said closed position; fluid pressure means operably connected free of reaction until said dies are in closed position but directly fluid flow reactive to said dies being urged into said die progressive longitudinal pressure exerting conditions and operably connected to said first die directing fluid flow into said knobshell through said knobshell neck access opening, said fluid pressure means during said dies being urged into said progressive longitudinal pressure exerting conditions at all times exerting a greater reverse longitudinal force on said dies tending to retain said dies in closed position than knobshell forming force created internally outwardly from within said knobshell against said die cavity surfaces tending to urge said dies apart.

4,362,038

WIRE FORMING APPARATUS FOR TORSION SPRINGS
Sota Katahira, Yokohama; Hideaki Tsukioka, Kawasaki;
Yutaka Sakuma, Yokosuka, and Hideo Higuchi, Shiga, all of Japan, assignors to Keihin Hatsujo Company Limited, Kanagawa, Japan

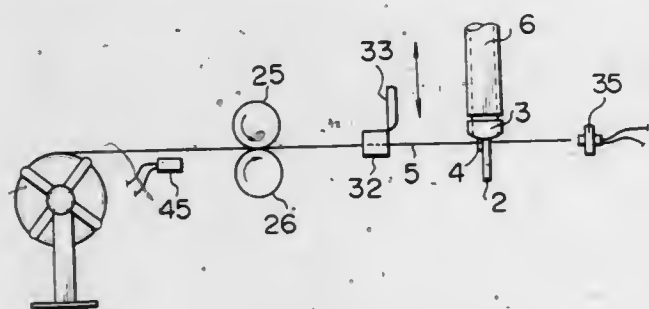
Filed Apr. 29, 1980, Ser. No. 144,812

Claims priority, application Japan, Sep. 19, 1979, 54-119252

Int. Cl.³ B21F 3/04

U.S. Cl. 72-130

5 Claims



1. A wire forming apparatus for producing torsion springs, comprising:
 - a first servomotor for rotating an arbor having a diameter corresponding to a central diameter of said torsion spring to be produced;
 - feed rollers for feeding a wire onto said arbor;
 - a second servomotor for reciprocally moving said arbor in an axial direction in accordance with a desired pitch for said torsion spring, said second servomotor rotating said feed rollers to feed said wire onto said arbor;
 - a terminal forming mechanism provided around said arbor for forming terminals of said torsion spring;
 - a cutting mechanism provided between said arbor and said feed rollers for cutting said wire;
 - a microcomputer adapted to generate control signals for controlling said first and second servomotors, said terminal forming mechanism and said cutting mechanism;
 - an input unit connected to said microcomputer for supplying torsion spring data required for generating said control signals;
 - a detecting mechanism connected to said microcomputer for supplying second signals detected during the production of said torsion spring to said microcomputer so that said

microcomputer can generate additional control signals thus achieving feedback control; and
said detecting mechanism comprising a first detecting unit placed at a predetermined position apart from said arbor for detecting a fitness of a feeding length of said wire, a second detecting unit provided around said arbor for detecting a fitness of the shape of said terminal after said arbor for detecting a limit position of said reciprocal movement of said arbor in said axial direction, a fourth detecting unit provided around a spindle of said arbor for detecting the returning of said arbor to its original position prior to producing said torsion spring, a fifth detecting unit provided around said arbor for detecting a variance of a winding angle of said torsion spring, and a sixth detecting unit provided between said feed rollers and a wire supply source for detecting a final end of said wire.

4,362,039

APPARATUS AND METHOD FOR PRODUCING FOLDABLE METAL DRAPE PANELS

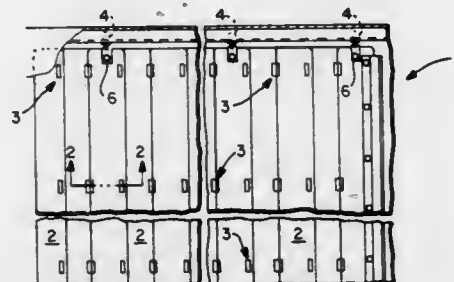
Andrew J. Toti, 311 W. River Rd., Modesto, Calif. 95351

Filed Mar. 31, 1980, Ser. No. 135,785

Int. Cl.³ B21D 13/00, 31/00

U.S. Cl. 72-186

29 Claims



1. In a machine for producing metal drape panels having integral male and female hinge means formed thereon at preselected intervals and a preselected cross-sectional profile, in combination:
 - rotary cutting die means for forming, at precisely spaced intervals, initial hinge patterns for successive pairs of male and female hinge means on a continuous strip of thin metal passing therethrough;
 - equalizing die means positioned at a die station following said rotary cutting die means for controllably stretching said strip as it passes therethrough to adjust the overall incremental distance between pairs of initial hinge patterns formed thereon; and
 - driving means for pulling said continuous strip through said rotary cutting die means and said equalizing die means while maintaining substantial tension in said strip as it passes through said die means.

4,362,040

METHOD AND APPARATUS FOR THE CONTROLLED COOLING OF HOT ROLLED STEEL RODS

Yoshihiro Yamaguchi; Kouro Takatsuka, both of Kobe; Shohei Murakami, Akashi; Rikuo Ogawa, Kobe; Yoshiro Yamada, Akashi; Tadamasu Yokoyama, Kobe, and Shoji Akita, Nishinomiya, all of Japan, assignors to Kobe Steel, Limited, Kobe, Japan

Filed Mar. 26, 1980, Ser. No. 134,300

Claims priority, application Japan, Mar. 29, 1979, 54-38049

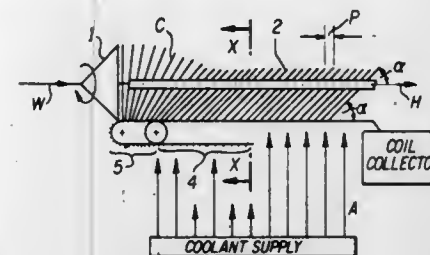
Int. Cl.³ B21B 43/10

U.S. Cl. 72-201

7 Claims

1. A method for controlled cooling of a hot rolled steel rod, which comprises:
 - forming a hot rolled steel rod into a coil,

transporting the coiled rod in a generally horizontal direction while supporting its loops at a loop plane angle of 30° to 60° relative to the direction of transportation and with a pitch of at least $2d/\sin \alpha$ in the direction of transportation, where d is a diameter of the coiled rod and α is the loop plane angle, and



applying a cooling medium to the coiled rod upwardly from below the coiled rod during transportation to cool the coiled rod uniformly at such a cooling rate as to achieve a phase transformation and to obtain a structure consisting essentially of fine pearlite.

4,362,041

METHOD OF FORMING BEAM BLANK

Teruyuki Nakanishi; Toshiyuki Akune; Takashi Kusaba, and Takashi Ehiro, all of Okayama, Japan, assignors to Kawasaki Steel Corporation, Hyogo, Japan

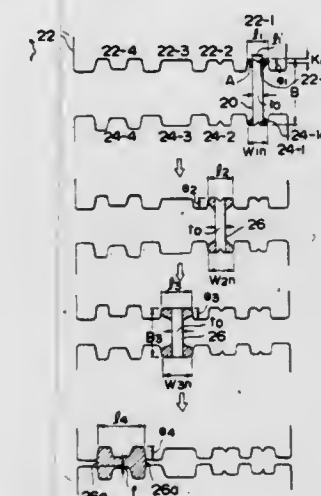
Filed Sep. 3, 1980, Ser. No. 183,829

Claims priority, application Japan, Sep. 11, 1979, 54-117026

Int. Cl.³ B21B 1/08

U.S. Cl. 72-221

3 Claims



1. A method of forming a beam blank having a web and flanges by means of horizontal working rolls provided with calibers for use to produce in subsequent rolling mills a final product of shaped steel, said method comprising the ordered steps of:

reduction-rolling a plate-shaped slab in the widthwise direction at first box calibers each formed at a center thereof with a belly, said first box calibers having a width greater than the thickness of the slab so that side spreadings are generated at opposite ends in the widthwise direction of the slab to make a dog-bone shaped blank, said belly having a tip so sharpened as to form a centering groove for positioning on the opposite end portions of the slab in the widthwise direction;

reduction rolling the dog-bone shaped blank in the widthwise direction at second box calibers each formed at a center thereof with a belly meeting with said groove, said second box calibers having a width greater than a maximum width of the dog-bone blank to enter a first pass at the second box calibers so that the side spreadings are further generated;

further reduction rolling the dog-bone shaped blank in the

widthwise direction at final box calibers each having a flat bottom or a bottom formed at the center thereof with a belly low in height, said final box calibers having a width greater than the maximum width of the dog-bone shaped blank to enter a first pass at the final box calibers so that the side spreadings are further progressed; and

rolling the dog-bone shaped blank at beam blank calibers in a direction to depress the opposite sides thereof for forming the web portion and the flange portions into their shapes thereby to provide a beam blank being of a predetermined shape in cross section.

4,362,042

METHOD OF FORMING A FASTENER

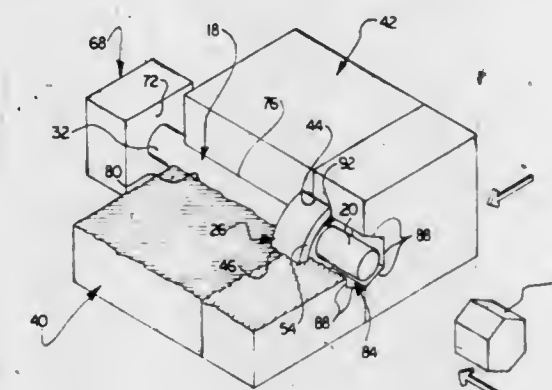
Glendon L. Crow, Jr., Gardendale, Ala., assignor to The Lamson & Sessions Co., Cleveland, Ohio

Filed Oct. 1, 1980, Ser. No. 192,650

Int. Cl.³ B21D 31/00, 53/00; B21K 1/44

U.S. Cl. 72-353

17 Claims



1. A method of forming a fastener having a head end portion and a shank portion, said method comprising the steps of providing a longitudinally extending workpiece having a uniform transverse cross sectional area throughout its length, heating an end portion of the workpiece so that the workpiece has a relatively hot end portion and a relatively cold end portion, said step of heating the workpiece including the step of increasing the transverse cross sectional area of the relatively hot end portion of the workpiece, providing a ring having a central opening with an area which is greater than the transverse cross sectional area of the cold end portion of the workpiece and less than the transverse cross sectional area of the hot end portion of the workpiece, effecting axial movement between the ring and workpiece with the ring circumscribing the relatively cold end portion of the workpiece, interrupting axial movement between the ring and workpiece by impacting engagement of the ring and the relatively hot end portion of the workpiece, applying force against the relatively hot end portion of the workpiece while holding the ring and workpiece against axial movement relative to each other to form the head end portion of the fastener, and thereafter effecting axial movement between the ring and the workpiece to disengage the ring from the shank portion of the fastener.

4,362,043

PIPE UNIONS

Thomas A. Hanson, 357-7 Devonshire Ave., Woodstock, Ontario, Canada

Continuation-in-part of Ser. No. 614,127, Sep. 17, 1975, abandoned. This application Oct. 8, 1980, Ser. No. 194,957

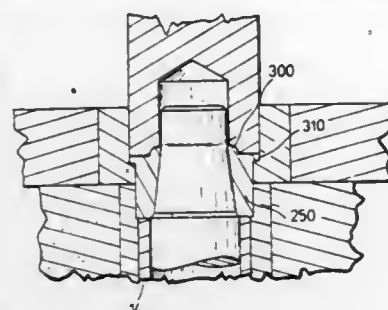
Int. Cl.³ B21K 1/16

U.S. Cl. 72-354

2 Claims

1. A multi-stage process for cold working a metal tubular blank to deform said blank in multiple stages to form a male component of a pipe union, said process comprising placing a tubular blank in a die cavity which supports the exterior surface of said blank, a tapered plug being positioned within said

blank where the base of the blank contacts the tapered plug, supporting the base of the blank, forcing a punch against the blank upper end, said punch having an annular angled face which deforms the blank wall towards and against said tapered



plug to form a shortened blank of thicker wall, removing said punch and in a second stage forcing a punch having a recessed face portion of a configuration which forms a flange and spigot for co-operating with a female component of a pipe union.

4,362,044

PIPE-BENDING DIE AND METHOD

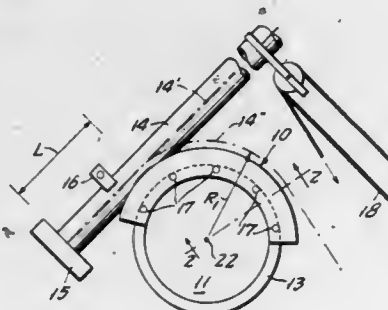
Arthur A. Green, Scarsdale, N.Y., assignor to Tubeco, Inc., Brooklyn, N.Y.

Filed Oct. 14, 1980, Ser. No. 196,300

Int. Cl.³ B21D 7/00

U.S. Cl. 72—388

9 Claims



1. Forming-die structure for use in the arcuate bending of a length of pipe of given range of outer diameters, such bending being in a radial plane about the bending axis, said structure comprising two axially spaced parallel base-plate members and means rigidly retaining their spaced relation on opposite sides of the radial plane of the bend, the outer-edge profile of said members being arcuate to the same radius about the bend axis, each of said edges being conical about the bend axis, the respective slopes of the generally conical edges being convergent in the axial direction of said radial plane, the axial extent of each of said conical edges and the axial spacing of said members being such in relation to the given pipe diameter as to enable concurrent local tangential pipe-section contact with the generally conical edges of both members, said members being free of such pipe-section contact on both axial sides of each such contact, whereby in the course of making a bend against the conical surfaces of said members, the material of the pipe engages the die structure only at opposite axial offsets from the radial plane of the bend, and whereby the range of pipe diameters upon which said forming die may be used is substantially determined by the conical extent of said edges.

4,362,045

TOOTH FORMING TOOLS

George Mickas, Southfield, Mich., assignor to Ex-Cell-O Corporation, Troy, Mich.

Filed Oct. 10, 1980, Ser. No. 195,843

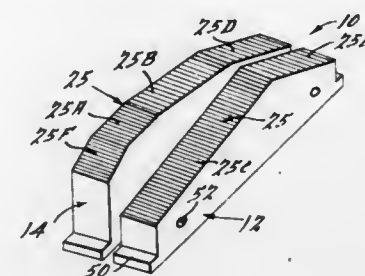
Int. Cl.³ B21H 5/00

U.S. Cl. 72—469

20 Claims

1. A set of tools for pressure forming teeth on the periphery of a cylindrical workpiece, said set being comprised of a pair of elongate racks each having a leading end and a trailing end and each being provided with a working face having a plurality of

teeth thereon each having a pitch line, a first section of said teeth on one of said racks being disposed between said leading end and said trailing end of said one rack, each of said teeth in said first section having a configuration conjugate to the configuration of the teeth to be formed on the workpiece, said one rack having second and third sections of teeth disposed between said first section of teeth and said leading end of said one rack, the teeth in said second section having a pitch line parallel to the pitch line of the teeth in said first section, the tops of the teeth in said second section sloping toward said leading end of said one rack, the pitch line and the tops of the teeth in said



third section sloping toward said leading end of said one rack, said one rack also having a fourth section of teeth disposed between said first section of teeth and said trailing end of said one rack, the pitch line and the tops of the teeth in said fourth section sloping toward said trailing end of said one rack, the other of said racks having fifth and sixth sections of teeth, the teeth in said fifth section having a pitch line parallel to the pitch line of the teeth in said first section, the tops of the teeth in said fifth section sloping toward the leading end of said other rack, the pitch line and the tops of the teeth in said sixth section sloping toward the trailing end of said other rack.

4,362,046

LIQUID SAMPLE INJECTION SYSTEM FOR GAS CHROMATOGRAPHY

Michel Perrut, St Nicolas de Port; Marcel Pointet, Serezin du Rhone, and Henri T. de Santerre, Saint Nazaire, all of France, assignors to Societe Nationale Elf Aquitaine, Paris, France

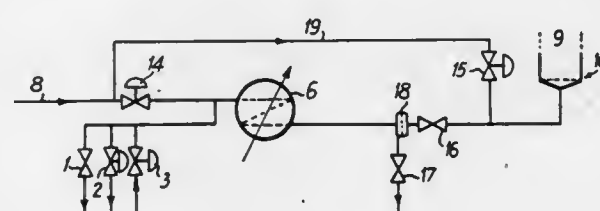
Filed Apr. 14, 1980, Ser. No. 140,114

Claims priority, application France, Apr. 26, 1979, 79 10649

Int. Cl.³ G01N 31/08

U.S. Cl. 73—23.1

3 Claims



1. A system for gas chromatography by feeding a vaporized liquid to be processed to a chromatographic column via a vaporizer swept by a vector gas, said system comprising: first valve means for coupling a conduit for said vector gas to an inlet of said vaporizer; means for enabling said vaporizer to substantially instantaneously vaporize said liquid; sample injection means including a second valve means for intermittently coupling a conduit for said liquid to an inlet of said vaporizer while the vector gas is passing through said vaporizer so that the concentration of said vaporized liquid in said vector gas varies with time with an essentially rectangular waveform; an outlet conduit for coupling the vaporized liquid and vector gas mixture from said vaporizer to an inlet of said chromatographic column;

a bypass conduit for providing communication between said vector gas conduit and said outlet conduit; and bypass valve means in said bypass conduit for selectively permitting said vector gas to flow directly to said chromatographic column when said vaporizer is inactive.

4,362,047

FILTER DEVICE FOR CIGARETTE TESTING

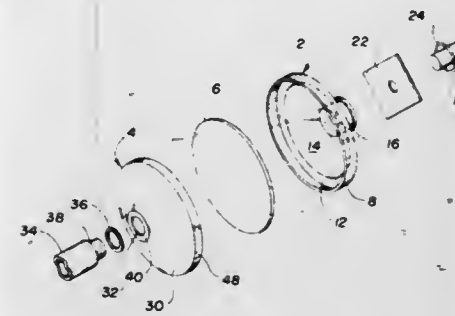
Charles E. vonReis, Ann Arbor; Attila Vadnay, Saline, and Robert E. Corbett, Ann Arbor, all of Mich., assignors to Gelman Sciences Inc., Ann Arbor, Mich.

Filed Feb. 23, 1981, Ser. No. 237,239

Int. Cl.³ G01N 1/22

U.S. Cl. 73—28

6 Claims



1. A disposable filter device comprising:

- a main body having a generally cylindrical portion open at one end thereof and having at the other end thereof a closure wall which has a peripheral portion with an inner annular surface lying in a plane normal to the axis of the body and a portion extending from said peripheral portion to a central, axially-extending nipple, said generally cylindrical portion having an inner wall with a radially outwardly flared portion adjacent said open end and with a portion between said outwardly flared portion and said closure wall which is tapered radially inwardly in a direction toward said open end;
- a filter disc in said main body with a peripheral portion positioned against the inner annular surface of said peripheral portion of the closure wall of said main body; and
- a closure cone having a conical wall portion with an opening at its small-diametered end for connection to a sub-ambient pressure source and having an annular flange which extends generally axially from the large-diametered end of said conical wall portion of said closure cone and which terminates in an annular surface positioned against the peripheral portion of said filter disc, said annular flange having an outer surface in contact with the radially inwardly tapered portion of the inner wall of the generally cylindrical portion of said main body;
- said closure member being formed of a substantially non-hygroscopic organic polymer which is relatively hard and said main body being formed of a substantially non-hygroscopic organic polymer which is relatively soft and resilient whereby the inherent resiliency of the generally cylindrical portion of said main body, in cooperation with the outwardly flared and radially inwardly tapered inner wall portions enables the annular flange of the closure member to be snap fitted into the generally cylindrical portion of the main body and removably retains the annular flange of the closure member within the generally cylindrical portion of the main body in sealed relationship therewith and in pressed contact with the peripheral portion of said filter disc.

4,362,048

APPARATUS FOR USE IN THE MEASUREMENT OF A VARIABLE

Joram Agar, Grand Cayman, British West Indies, and Gerald Anderson, New Alresford, England, assignors to Redland Automation Limited, England

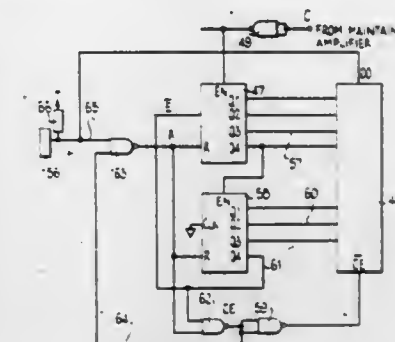
Continuation of Ser. No. 67,071, Aug. 15, 1979, abandoned. This application Dec. 18, 1980, Ser. No. 217,927

Claims priority, application United Kingdom, Jun. 4, 1979, 7919367

Int. Cl.³ G01N 9/00

U.S. Cl. 73—32 A

18 Claims



1. Apparatus for measurement of a fluid variable within a vessel comprising a housing adapted to be mounted in the vessel and including a sealed compartment and an unsealed compartment, said unsealed compartment being open for exposure to fluid in the vessel; a first transducer mounted within said unsealed compartment for exposure to fluid in the vessel for producing a transducer output signal dependent on both the value of the fluid variable and the value of at least one calibration constant of said transducer; a counter mounted within said sealed compartment and adapted to receive clock pulses; a memory mounted within said sealed compartment and programmed with information relating to the value of the at least one calibration constant, said counter responsive to an activating signal for addressing said memory to produce as an encoder output signal a pulse train at the frequency of clock pulses received by said counter, the pulse train containing information related to the at least one calibration constant; and connector means mounted externally on said housing, connected to said first transducer, said counter, and said memory, and adapted for connection to an output transducer, said connector means receiving the transducer output signal and the encoder output signal and, when connected to an output transducer, passing to the output transducer the transducer output signal and the encoder output signal and receiving from the output transducer an activating signal for application to said counter.

4,362,049

METHOD AND APPARATUS FOR LEAK TESTING THE INTERIOR OF PIPE

Mark D. Horton, Apartment #1028 2401 West Belt, North, Houston, Tex. 77043

Filed Oct. 6, 1980, Ser. No. 194,386

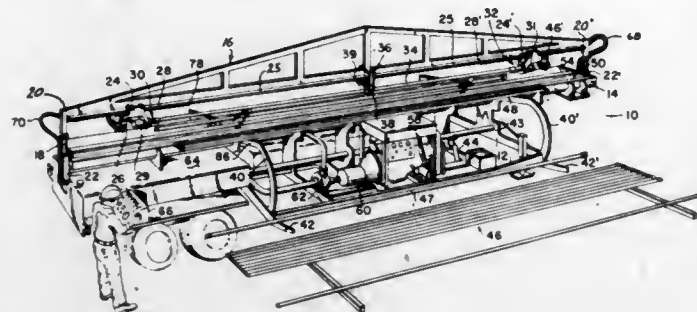
Int. Cl.³ G01M 3/28

U.S. Cl. 73—49.6

11 Claims

1. Apparatus for hydrostatically testing pipe comprising a main frame, an upwardly opening water trough supported by said frame, said trough having a length greater than the length of a pipe to be tested; a vertically movable pipe manipulator superimposed above said trough and movable towards and away from the trough opening; spaced heads reciprocally carried by said pipe manipulator, means by which said heads releasably engage the opposite ends of a pipe in sealed relationship therewith; a source of fluid pressure connected to one said head; means by which a pipe can be transferred into said trough and

positioned below the liquid level of any water which may be contained therein so that the pipe is filled with fluid; said pipe manipulator includes means for engaging and lifting a submerged pipe into a position above said trough; means for transferring a pipe away from said pipe manipulator; whereby pipe to be tested is submerged below the fluid level



of any water contained within the trough, the pipe manipulator is lowered until the heads are aligned with the axial centerline of the pipe, whereupon the heads are moved towards one another and into sealed engagement with the pipe ends, the pipe can then be removed from the trough, fluid pressure can then be applied to the interior of the pipe to thereby test the leak characteristics of the pipe, and the heads are then removed from the pipe ends.

4,362,050

FUEL INJECTION NOZZLE FOR INTERNAL COMBUSTION ENGINES

Gerhard Stumpp; Ewald Eblen, both of Stuttgart; Karl Hofmann, Remseck; Odon Kopse; Nestor R. Amaya, both of Stuttgart; Josef Schlagenhauf, Esslingen, and Johannes Locher, Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

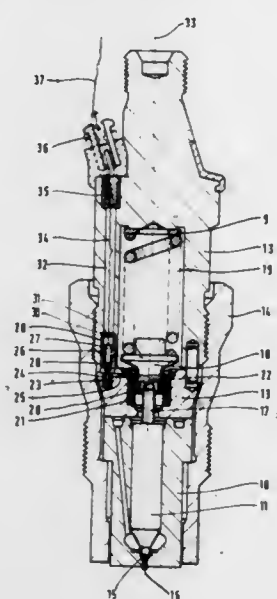
Filed Jul. 8, 1980, Ser. No. 166,924

Claims priority, application Fed. Rep. of Germany, Aug. 10, 1979, 2932480

Int. Cl.³ G01M 15/00

U.S. Cl. 73—119 A

11 Claims



1. A fuel injection nozzle for internal combustion engines comprising a nozzle body (10), containing a valve needle (11) including a pressure tang (17), said nozzle body being fastened to a nozzle holder (13), a closing spring (19) disposed in said nozzle holder, which reacts on said pressure tang (17) of the valve needle (11) via a pressure element (18); an intermediate plate (12) axially between the nozzle body (10) and the nozzle holder (13), said intermediate plate having a recess (21) for the penetration of said pressure tang (17) of the valve needle (11), said intermediate plate forming a stop for limitation of the opening stroke of the valve needle (11) in concert with an

annular shoulder in the transition of the tang (17) to an unweakened part of the valve needle (11) and which acts as a coil core to change the reluctance of a magnetic field formed by the induction coil to create a signal; characterized in that said induction coil (20) is imbedded in the recess (21) of said intermediate plate (12) and the tang (17) of the valve needle (11) extends at least partially through the induction coil (20), and a section (22) of the pressure element (18) extends through the induction coil (20) to form a coil core for said induction coil.

4,362,051

FUEL INJECTION NOZZLE HOLDER FOR INTERNAL COMBUSTION ENGINES

Josef Schlagenhauf, Esslingen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

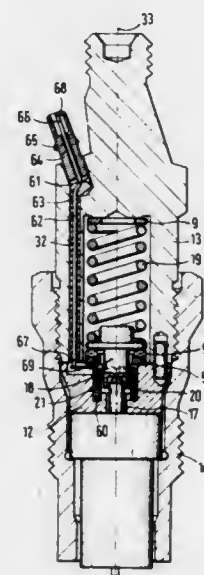
Filed Feb. 6, 1981, Ser. No. 232,442

Claims priority, application Fed. Rep. of Germany, Feb. 7, 1980, 3004424

Int. Cl.³ G01M 15/00

U.S. Cl. 73—119 A

10 Claims



1. A fuel injection nozzle for Diesel internal combustion engines, having an induction coil including a winding attached to a housing and a reciprocable valve needle comprises a coil core, the stroke of said valve needle coil core arranged to vary the reluctance of the magnetic circuit of the induction coil and thereby generate a signal, said induction coil secured in an intermediate disc member which abuts a nozzle holder and a pressure element and said valve needle form said coil core, characterized in that first and second contact springs are embedded in said induction coil, each of said contact springs having end portions, one end portion of which springs forms a substantially tangentially extending contact tongue, and another end portion of which springs protrudes into a recess in said induction coil for connection with said winding.

4,362,052

FLOWMETER

Alastair E. F. Heath, Dunton; David J. Neville, Aylesbury; Barry Cockburn, Gawcott, and Stephen Bussey, Buckingham, all of England, assignors to Leslie Hartridge Limited, Buckingham, England

Filed Apr. 30, 1981, Ser. No. 259,354

Claims priority, application United Kingdom, May 16, 1980, 8016368

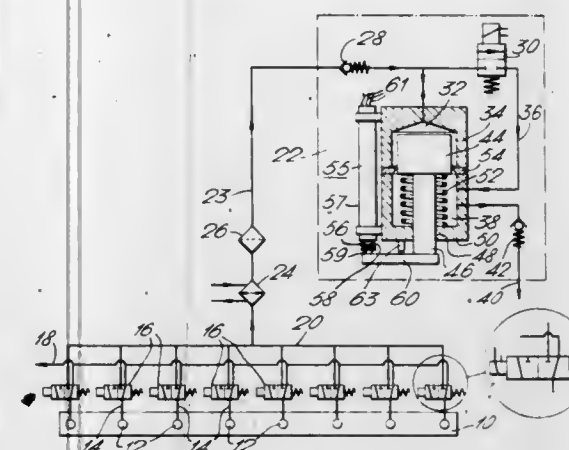
Int. Cl.³ G01F 3/14

U.S. Cl. 73—119 A

10 Claims

1. A flowmeter comprising a chamber-defining part and a displaceable member which is moveable in relation to said chamber-defining part between two ends of travel to change the size of the chamber, means defining an inlet fluid-flow path which leads to said chamber and an outlet fluid-flow path of

the flowmeter, flow-control means arranged in said fluid-flow path defining means to control the flow of fluid selectively through the said inlet fluid-flow path to move said displaceable member or from said inlet fluid-flow path to said outlet fluid-flow path without moving said displaceable member, measuring means arranged to measure the distance through which said displaceable member moves, flying start means connected to the measuring means to cause the latter to commence measurement at a time after said flow-control means have been switched to cause fluid to flow through said inlet fluid-flow



path to move said displaceable member away from one of said ends of travel, terminating means arranged to cause the measurement to be terminated before said displaceable member reaches its other end of travel, whereby the measurement is completed during a single stroke of said displaceable member, and return means arranged to return said displaceable member to its starting end of travel before each succeeding measurement by said measuring means, whereby all measurements are made with said displaceable member travelling in the same direction.

4,362,053

APPARATUS FOR MEASURING PARKING BRAKE ACTIVATING FORCES

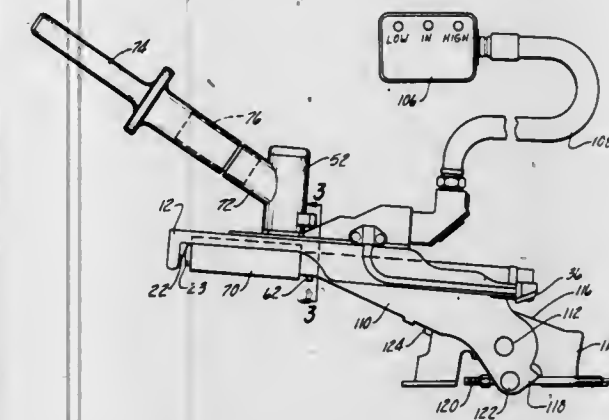
Gary L. Barrett, Union Lake, Mich., assignor to GSE, Inc., Farmington Hills, Mich.

Filed Mar. 9, 1981, Ser. No. 241,912

Int. Cl.³ G01L 5/28

U.S. Cl. 73—121

21 Claims



1. A test fixture for measuring the amount of force required to move a lever arm to a predetermined position, said test fixture comprising:

- a body adapted to be clamped to the lever arm;
- transducer means carried by the body for measuring the amount of force exerted on the body during movement;
- and
- switch means arranged to be actuated when the lever arm has been moved to a predetermined position whereby the output of the transducer means at the time of switch acti-

vation provides a measurement of the force required to move the lever arm to the predetermined position.

4,362,054

METHOD AND APPARATUS FOR DETERMINING DIRECTION PARAMETERS OF A CONTINUOUSLY EXPLORED BOREHOLE

Jean Ringot, Gif sur Yvette, France, assignor to Schlumberger Technology Corp., New York, N.Y.

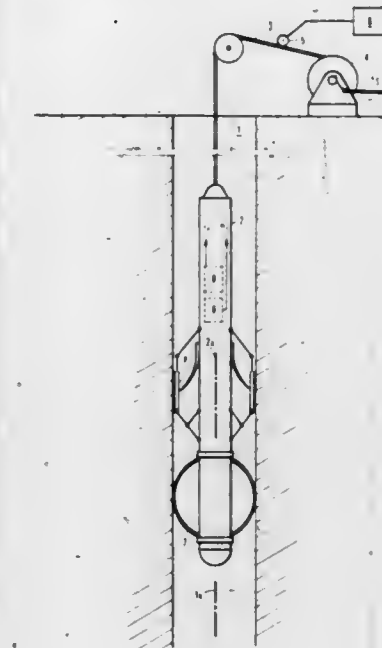
Filed Sep. 22, 1980, Ser. No. 189,421

Claims priority, application France, Sep. 27, 1979, 7924029

Int. Cl.³ E21B 47/00

U.S. Cl. 73—152

22 Claims



1. Method for determining at least two direction parameters of a borehole as a function of depth, comprising the steps of: producing an acceleration signal with three components representing a set of accelerations undergone by a tool travelling through the borehole, said components being detected along three reference axes related to this tool; producing a reference signal with three components representing a vector of fixed direction different from the vertical, in relation with said three reference axes; combining the components of said signals, measured at a given depth of the borehole, so as to eliminate the effects of tool movement in the components of one of said signals, constituting a signal to be stabilized, by means of the components of the other signal, constituting a stabilizing signal; and combining the resulting components with components of said signals in a manner so as to derive parameters related to the position of the tool in the borehole and therefore related to direction parameters of the borehole.

4,362,055

POWER TRANSMISSION PART TESTING APPARATUS

Werner H. Grobler, Stuttgart, Fed. Rep. of Germany, assignor to Deere & Company, Moline, Ill.

Filed Jan. 26, 1981, Ser. No. 228,423

Claims priority, application Fed. Rep. of Germany, May 29, 1980, 3020391

Int. Cl.³ G01M 13/02

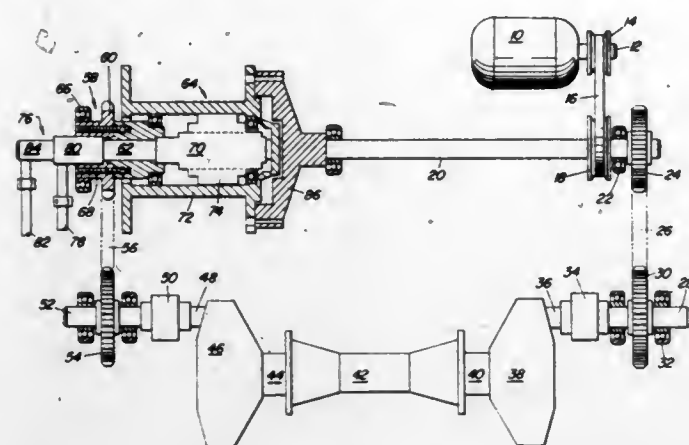
U.S. Cl. 73—162

7 Claims

1. An apparatus for testing parts for the transmission and absorption of power, comprising:

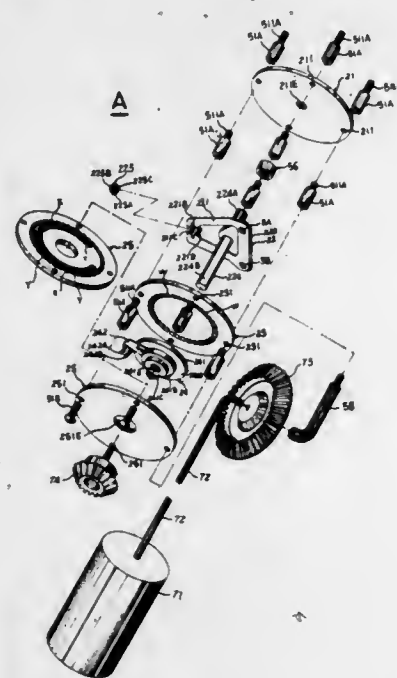
- a drive motor;
- a part to be tested having an input drivingly coupled to the drive motor and having an output; and
- torque generating means for applying a torque to the part to be tested, the torque generating means having an input

member drivingly coupled to the output of the part to be tested and having an output member drivingly coupled to the drive motor, the input member being rotatable



through more than 360 degrees relative to the output member, the torque generating means comprising a rotatable hydraulic motor.

4,362,056
DIGITAL INDICATING SYSTEM FOR FUEL QUANTITY OF A VEHICLE OR THE LIKE
Cheng-Shun Lee, 124, Po Ai Rd., Tao Yuan City, Taiwan
Filed Dec. 1, 1980, Ser. No. 211,912
Int. Cl.³ G01F 23/10
U.S. Cl. 73—317 11 Claims

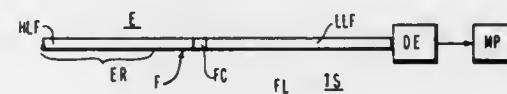


1. A system for indicating the quantity of fuel in a vehicle comprising:
a float located in a fuel tank of a vehicle;
a shaft cooperatively connected to said float so that movement of said float causes rotation of said shaft;
a fixed base surrounding said shaft;
a spring assembly fixed to said shaft for rotation therewith;
a digital readout system which includes a pair of electrical contacting elements mounted on said shaft for rotation therewith, a circular insulating plate surrounding said shaft and fixed to said base plate so that said shaft and said electrical contacting elements rotate relative to said insulating plate, a plurality of unit indicating contact plates fixed on said circular insulating plate in a circular configuration at a first radial location on said insulating plate, a plurality of decimal indicating contact plates fixed on said circular insulating plate in a circular configuration at a second radial location on said insulating plate, each one of said decimal indicating contact plates having an arcuate length corresponding to a plurality of said unit indicating

contact plates, said pair of electrical contacting elements including a unit indicating contacting element located at said first radial location and in electrical contact with said unit indicating contact plates and a decimal indicating contacting element located at said second radial location and in electrical contact with said decimal indicating contact plates so that as said shaft and electrical contacting elements rotate relative to said insulating plate, said electrical contacting elements contact different ones of said unit and decimal indicating plates, and a digital display device connected to said unit and decimal indicating contact plates to display numbers having a unit component corresponding to a unit indicating plate which is in contact with said unit indicating contacting element and a decimal component corresponding to a decimal indicating plate which is in contact with said decimal indicating contacting element whereby radial position of said shaft is translated into a number so that location of said float in the vehicle fuel tank is translated into the number displayed by said display device; and

error preventing means including a circular disc surrounding said shaft and fixed to said base and insulating plates so that said shaft rotates relative to said circular disc, said circular disc having a plurality of holes defined therein in a circular configuration at said first radial location, each hole being aligned with and having an arcuate length equal to that of one of said unit indicating contact plates so that each unit indicating contact plate is coincident with a hole in said error preventing means circular disc, a roller element mounted on said shaft for rotation therewith, said roller element being located at said first radial location to contact said holes, and biasing means on said spring assembly forcing said roller toward said holes so that as said shaft rotates said roller moves step-by-step with each step corresponding to a unit indicating contact plate whereby at any static location of said shaft said roller is entrapped in a hole thereby preventing a non-unitary location of said unit indicating contacting element and ensuring step-by-step movement of said digital readout system.

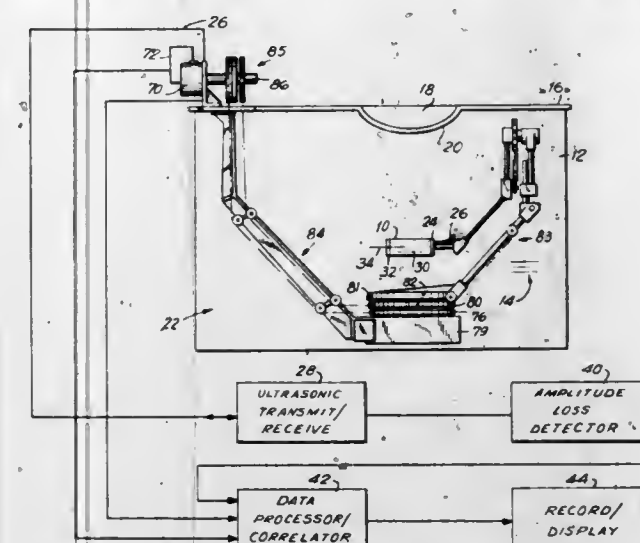
4,362,057
OPTICAL FIBER TEMPERATURE SENSOR
Milton Gottlieb, Churchill, and Gerald B. Brandt, Edgewood, both of Pa., assignors to Electric Power Research Institute, Inc., Palo Alto, Calif.
Filed Oct. 10, 1980, Ser. No. 195,911
Int. Cl.³ G01K 1/00
U.S. Cl. 374—4 7 Claims



1. Apparatus for determining the presence of a hot region associated with an object, comprising,
an elongated optical fiber element disposed in proximity to said object and within the temperature environment produced by said object, said optical fiber element responding to said temperature environment by self-generating thermal radiation within the optical fiber element, the wavelengths of the spectral composition of the self-generated thermal radiation varying along the length of said optical fiber length as a function of the variations in the temperature of the object along the length of the optical fiber element, the total radiation varying exponentially with temperature such that the spectral composition of the self-generated thermal radiation transmitted to an end of the optical fiber element is determined substantially by the highest temperature region along the optical fiber element, and
a thermal radiation detector means operatively coupled to an

end of said elongated optical fiber element to provide an indication of the hottest region of said object.

4,362,058
ULTRASONIC DIAGNOSTIC APPARATUS
Manlio Abele, Garden City, N.Y., assignor to New York University, New York, N.Y.
Filed Oct. 24, 1980, Ser. No. 200,568
Int. Cl.³ G01N 29/00
U.S. Cl. 73—599 19 Claims

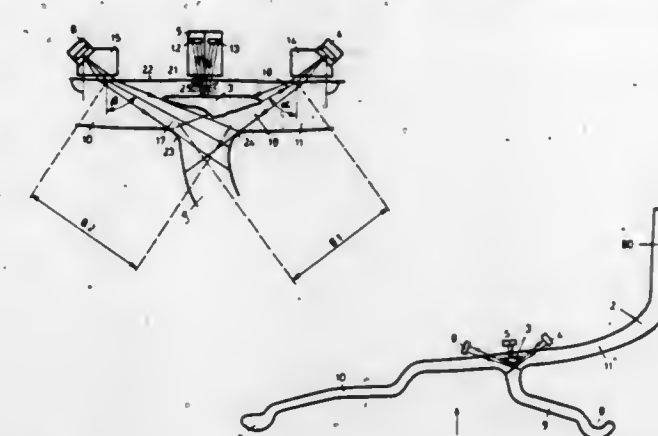


1. An ultrasound diagnostic device for examining a subject comprising
an elongated ultrasonic probe including means for repeatedly propagating and constraining ultrasonic surface waves along the length of said probe in a direction such that the evanescent pressure field penetrates said subject in a direction orthogonal to said surface wave,
means for moving said ultrasonic probe about said subject along a plurality of orientations for passing said evanescent pressure field through said subject along said plurality of orientations,
means for detecting the loss of energy in each evanescent pressure field resulting from absorption by said subject during each successive propagation, and
means for processing and correlating each successive detected loss of energy in each propagation for producing a computed tomographic image of a defined plane through said subject.

4,362,059
ULTRASONIC TESTING METHOD AND APPARATUS
Jules Zwysig, Schaffhausen, Switzerland, assignor to Georg Fischer Aktiengesellschaft, Switzerland
Filed Apr. 14, 1981, Ser. No. 253,907
Claims priority, application Switzerland, Apr. 16, 1980, 2942/80
Int. Cl.³ G01N 29/04
U.S. Cl. 73—628 11 Claims

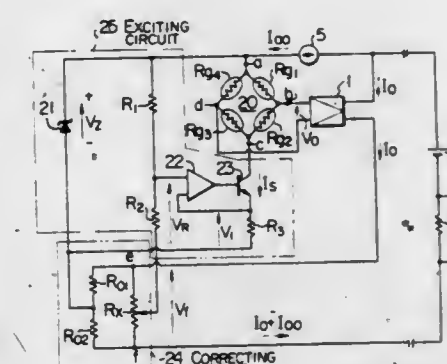
1. A method of testing a cast part of the type having a junction region of T- or Y-shaped cross section wherein the part can have an inclusion flaw within the junction region for determining the remaining wall thicknesses between the flaw and the respective outer surfaces, comprising the steps of providing at least one first transducer coupled to the outer surface of the part at the top of the T or Y junction for transmitting ultrasonic energy generally in the direction of the leg of the T or Y;
transmitting pulses of energy into the part from the first transducer,
receiving energy resulting therefrom as a measure of thickness of the part between the top outer surface and the flaw;
providing at least one second transducer coupled to the top outer surface of the part for transmitting ultrasonic energy in

a direction forming a predetermined acute angle relative to the direction of the first transducer;
locating the second transducer at a position spaced from the first transducer and transmitting pulses of energy into the part so that at least a portion of the energy passes between



the flaw and the junction surface at the back surface of the part;
receiving energy resulting therefrom as a measure of the spacing of the limits of the flaw from the back surface; and
comparing the energy transmissions thus determined with a standard to evaluate the remaining thicknesses.

4,362,060
DISPLACEMENT TRANSDUCER
Tsutomu Okayama, and Takashi Kugaya, both of Katsuta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Oct. 8, 1980, Ser. No. 195,108
Claims priority, application Japan, Oct. 8, 1979, 54-128920
Int. Cl.³ G01L 9/06, 19/04
U.S. Cl. 73—708 15 Claims



1. A displacement transducer for measuring displacement in a form of an electric signal, comprising a sensor for producing an electric signal in response to the displacement to be measured, an output amplifier for amplifying the electric signal output from said sensor, an exciting circuit for exciting said sensor with current or voltage and controlling the magnitude of excitation in accordance with deviation thereof from a reference value, and a correcting circuit connected to the output side of said output amplifier for correcting non-linearity of the output signal of said sensor, said correcting circuit including a first voltage dividing circuitry having a fixed voltage dividing factor and a second voltage dividing circuitry having a variable voltage dividing factor and connected in parallel to said first voltage dividing circuitry, wherein a voltage dividing point of said first voltage dividing circuitry is connected to a path for exciting said sensor, while a voltage dividing point of said second voltage dividing circuitry is connected to a circuit path for determining said reference value.

4,362,061

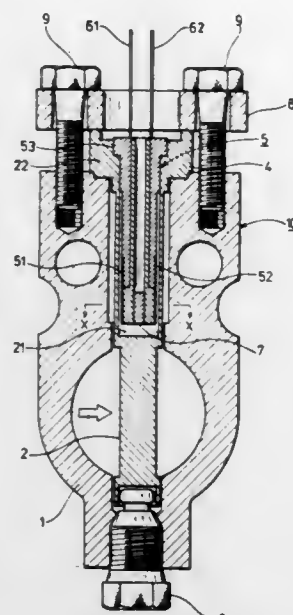
VORTEX SHEDDING FLOW MEASURING DEVICE
Shozo Yokogawa; Isamu Ohno, and Yoshio Kurita, all of Musashino, Japan, assignors to Yokogawa Electric Works, Ltd., Tokyo, Japan

Filed Feb. 4, 1981, Ser. No. 231,378

Int. Cl.³ G01F 1/32

U.S. Cl. 73—861.24

2 Claims



1. A flow measuring device comprising:
a pipe to carry a fluid to be measured;
an elongate vortex-generating body at least partly disposed in the interior of said pipe;
said vortex-generating body having a recess formed at one end and extending in the axial direction thereof;
an electrode structure having two electrodes and positioned in said recess with the electrodes spaced from the wall thereof and in symmetry with each other with respect to the direction of flow of said fluid;
the mass of said electrode structure being selected and physically distributed with respect to its length to provide that the deflection of the elements of said structure in response to vibrations imposed on said pipe substantially conforms with the deflection of said vortex generating body at least in the region of said electrodes; and
means differentially responsive to changes in the capacitances between the wall of said recess and said two electrodes.

4,362,062

BELT-TENSION GAUGE

Avo Peterson, Meerbusch-Niers, Fed. Rep. of Germany, assignor to V. Löwener Maschinen GmbH, Langenfeld, Fed. Rep. of Germany

Filed Jan. 8, 1981, Ser. No. 223,373

Claims priority, application Fed. Rep. of Germany, Jan. 9, 1980, 3000549

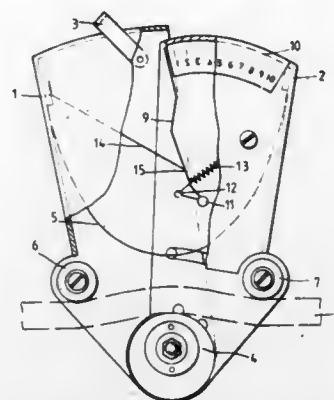
Int. Cl.³ G01L 5/06

U.S. Cl. 73—862.47

11 Claims

1. A belt-tension gauge comprising:
a housing formed by a pair of housing parts pivotally connected for relative swinging movement about a pivot axis; means forming a rotary bearing between said housing parts at said pivot axis;
a pressure member mounted on the means forming said bearing and adapted to engage one side of a belt whose tension is to be measured;
a respective backing member on each of said housing parts adapted to engage an opposite side of said belt;
spring means in said housing for urging said housing parts in

opposite senses about said axis whereby said backing members are displayed away from each other; and



a scale on said housing for indicating the degree of relative displacement of said parts by said spring thereby displaying the tension in said belt.

4,362,063

DEVICE FOR SAMPLING AND DISPENSING ADJUSTABLE VOLUMES OF LIQUID, WITH NUMERICAL DISPLAY

Eric Marteau d'Autry, 72, rue Gambetta, Villiers-le-Bel, France (95)

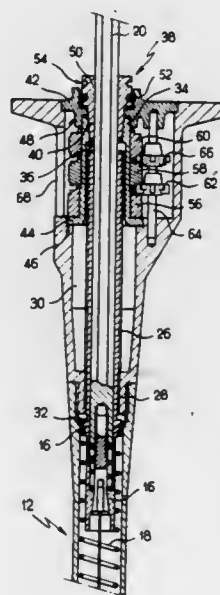
Filed Dec. 30, 1980, Ser. No. 221,397

Claims priority, application France, Jan. 4, 1980, 80 00130

Int. Cl.³ B01L 3/02

U.S. Cl. 73—864.1

10 Claims



1. A device for sampling and dispensing adjustable volumes of liquid samples, comprising an upper housing, a substantially cylindrical lower body secured to the upper housing, piston means movable reciprocally in the lower body, adjustable stop means limiting the travel of the piston means, means resiliently urging said piston means into contact with said adjustable stop means, a control rod which passes through the housing, and pushbutton means at the upper end of said control rod, wherein the improvement comprises a mechanism to adjust the position of said stop and to display the corresponding sample volume, said mechanism comprising:
an externally threaded sleeve which is capable of cooperating by screw action with an internal thread of the housing and whose lower end constitutes said adjustable stop, said control rod comprising a prismatic control rod and passing through said sleeve and having a profile such that said rod rotates with the sleeve, while permitting a relative sliding of said rod in relation to said sleeve;
a bush mounted to rotate freely in the upper part of the housing, and coaxial with the sleeve;

4,362,065

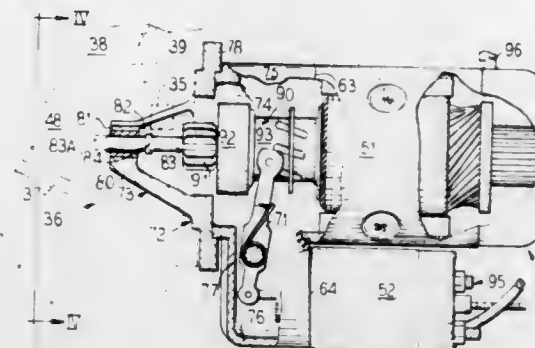
REPLACEMENT STARTING MOTOR ASSEMBLY
Mario Baratti, Chicago, Ill., assignor to Samar, Import and Export, Inc., Rosemont, Ill.

Filed Oct. 8, 1981, Ser. No. 309,605

Int. Cl.³ F02N 15/06; B22D 19/10; B23P 6/00

U.S. Cl. 74—7 A

20 Claims



means for causing said bush to rotate with the control rod, said means removably securing said bush to said rod; said bush including an inner opening with a diameter of a size to enable said sleeve to penetrate into said bush, a plurality of volume-indicator drums surrounding said bush in such a way that the units drum rotates with the bush, the other freely rotating drums being equipped with drive means capable of controlling the relative movement of the drums in dependence on the movement of the bush, the sleeve and the control rod rotating as a unit.

4,362,064

POSITIVE-DISPLACEMENT PIPETTE

Eric Marteau d'Autry, 72, rue Gambetta, Villiers-le-Bel, France (95)

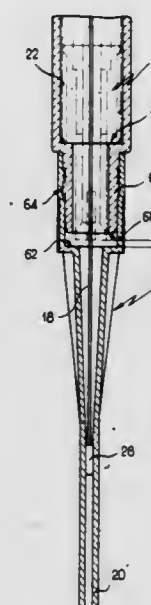
Filed Jan. 5, 1981, Ser. No. 222,550

Claims priority, application France, Jan. 11, 1980, 80 00605

Int. Cl.³ B01L 3/02

U.S. Cl. 73—864.13

13 Claims



1. A high-precision positive-displacement pipette for sampling and dispensing of small quantities of liquid, comprising:
a substantially tubular pipette body;
calibrated capillary means at the lower end of said pipette body;
tight fitting piston means movable in said capillary means; main spring means exerting an upward elastic restoring force against said piston means;
a control rod projecting from the upper end of said pipette body;
means gripping the upper end of the piston means; resilient members equipping said gripping means and movable apart radially by displacement;
second spring means having a resistance much higher than that of the main spring means and arranged for movement in translation with said control rod, said second spring means exerting a force opposing said displacement of said resilient members;
wherein the improvement comprises nozzle means associated with said capillary means and capable of engaging, by fitting together, with the free lower end of the pipette body, said lower end of the pipette body defining an opening permitting the passage of at least a part of said gripping means, and stop means provided on the inner surface of said nozzle means to come into contact with said gripping means and thereby ensure the simultaneous ejection of said nozzle and of the piston which remains captive in the capillary means.

4,362,066

STEP ADJUSTABLE MONOAXIAL VIBRATOR

Ion-Jan Necsoiu; Polidor P. Bratu; Aurelian Ghinea, all of Bucharest, and Gavril Axinte, Braila, all of Romania, assignors to Institutul de Cercetari in Constructii si Economia Constructiilor, Bucharest, Romania

Filed Sep. 19, 1980, Ser. No. 188,733

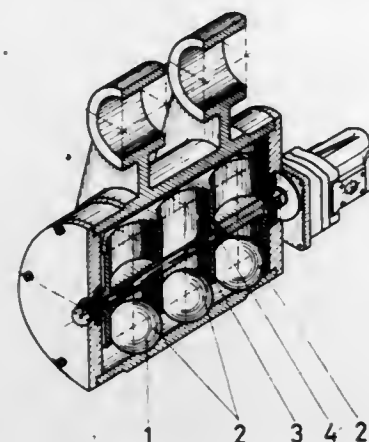
Int. Cl.³ B06B 1/16; B65G 27/20

U.S. Cl. 74—87

1 Claim

1. A step adjustable vibrator comprising:
a hollow housing defining a roller track surface on its interior;
a balanced rotor mounted in said housing to rotate about an axis of rotation surrounded by said roller track surface, said rotor having a plurality of axially spaced roller receiving compartments extending transversely of said axis of rotation;
a plurality of rollers carried by said rotor such that they roll along said roller track surface as said rotor turns, one roller being received in each of said compartments, at least

a pair of first rollers being situated on one side of said axis of rotation, a second roller being carried by said rotor in a respective compartment extending to opposite sides of said axis of rotation whereby said second roller can be selectively situated on either side of said axis of rotation depending upon the selected step in adjustment of the mode of operation of the vibrator; and
a movable blocking rod positioned along said axis of rotation and blocking moving of said second roller from one side



of said axis of rotation to the other, said blocking rod being movable to unblock movement of said second roller and allows said second roller to move from one side of said axis to the other, whereby when said second roller is situated on the same side of said axis as said first roller, the vibrator generates vibration at a first level and when said second roller is situated on the opposite side of said axis from said first rollers, the vibrator generates vibrations at a second relatively lower level.

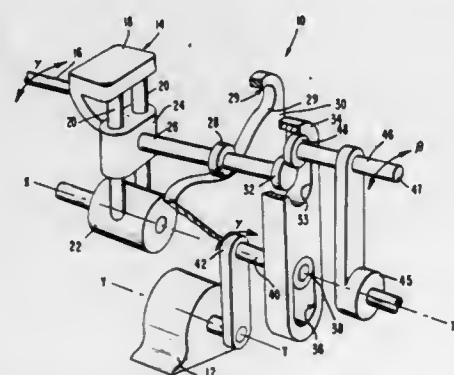
4,362,067 VARIABLE AUTHORITY TRIM MIXER

Robert W. Earl, Palos Verdes Estates, and William H. McCormack, Rancho Palos Verdes, both of Calif., assignors to The Garrett Corporation, Los Angeles, Calif.

Filed Aug. 21, 1980, Ser. No. 180,224
Int. Cl.³ G05G 11/00; F02C 9/28

U.S. Cl. 74-479

26 Claims



1. A mechanical variable authority trim mixer of the type used in a system for controlling the flow of fuel from a source of fuel to an engine comprising:

input means responsive to the position of a throttle lever for commanding a desired flow rate of fuel and thus a desired engine speed;

output means operably associated with said input means for changing the flow rate of fuel in response to the input means command;

trim means for modifying the response of said output means from that commanded by said input means and thus alter the fuel flow rate and engine speed from that commanded by the throttle lever position; and

means for limiting the extent of modification by said trim

means when the throttle is in selected portions of its stroke.

4,362,068 REMOTE CONTROL DEVICE FOR OUTSIDE REARVIEW MIRROR ADJUSTABLE FROM INSIDE OF A MOTOR VEHICLE

Stephane Manzoni, Saint Claude, France, assignor to Société Anonyme dite: Manzoni-Bouchot, Saint Claude, France

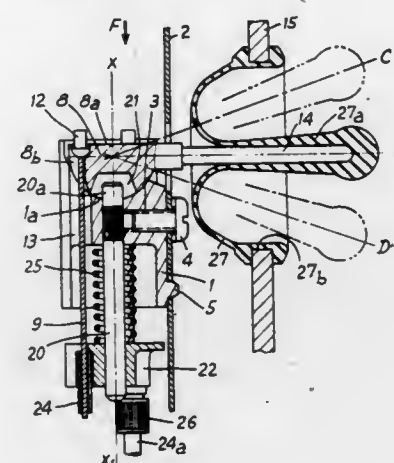
Filed Jul. 16, 1979, Ser. No. 57,773

Claims priority, application France, Jul. 18, 1978, 78 21303; Dec. 20, 1978, 78 35387

Int. Cl.³ F16C 1/10

U.S. Cl. 74-501 M

5 Claims



1. A remote control device for an outside rearview mirror adjustable from inside the vehicle by means of a cable transmission, comprising a body and a plurality of cables extending through the body along a substantially straight course and guided therein substantially in parallel to the longitudinal axis of the said body, the body being provided with a spherical socket against which rests a semi-spherical control member which is fast with one of the cable ends, wherein the said body is fitted on a vehicle door with its longitudinal axis in parallel to the longitudinal axis of the vehicle and wherein the semi-spherical control member is fast with an operating lever which is perpendicular to the axis of the said semi-spherical member and extending inside the said vehicle at a right angle to the longitudinal axis of the body when the said semi-spherical member is in the neutral position, said body being provided with two diametrically opposed openings whose edges ensure the guiding of the operating lever and of the semi-spherical control member having helical gradients against which move two studs integral with the semi-spherical control member, so that the movement of said studs against the helical gradients imparts a rotary movement to the semi-spherical member, the said body being provided between the two diametrically opposed openings with a third quadrangular opening in which moves the said control lever.

4,362,069 HIGH EFFICIENCY, ABRASION RESISTANT PRODUCT AND PROCESS

James L. Giatras, Spring City; Edward B. Golas, Conshohocken, and Wayne F. Reed, Norristown, all of Pa., assignors to Markel Corporation, Norristown, Pa.

Continuation-in-part of Ser. No. 25,901, Apr. 2, 1979. This application Jul. 16, 1980, Ser. No. 169,280

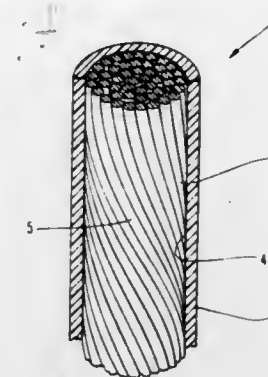
Int. Cl.³ B32B 15/00; F16C 1/10; F16L 11/06

U.S. Cl. 74-501 P

21 Claims

1. An extruded tubular product consisting essentially of a mixture of a resin of fluorocarbon polymers and a polymer of arylene sulfide in the range of from about 5 to 25 weight parts per hundred resin.

18. In a push-pull cable system comprising an extruded tube and a cable within said extruded tube, said cable moveable



within said extruded tube, wherein said extruded tube is the extruded tubular product as in claims 1, 3, 4, 8, or 13.

4,362,070 CHANGE SPEED APPARATUS FOR A TRACTOR

Yoshinobu Murayama, Sakai, and Tetsuaki Hayashi, Osaka, both of Japan, assignors to Kubota, Ltd., Osaka, Japan

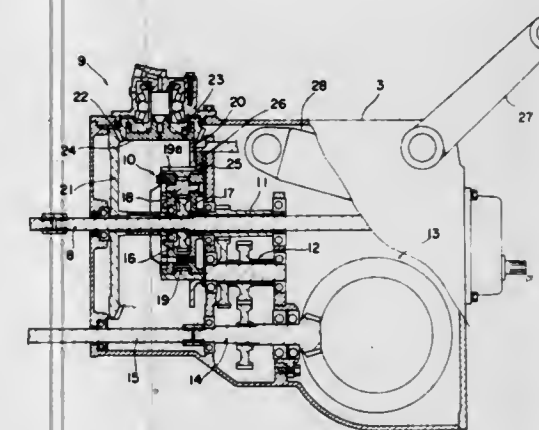
Filed Aug. 26, 1980, Ser. No. 181,343

Claims priority, application Japan, Aug. 30, 1979, 54-112189

Int. Cl.³ F16H 15/10, 17/04

U.S. Cl. 74-691

4 Claims



1. A change speed apparatus for a tractor comprising: Planetary reduction means (10) including a sun gear (16) mounted on a main shaft (8) rotatable by engine output, planet gears (18) meshing with the sun gear (16), and an internal gear (19) meshing with the planet gears (18), frictional stepless change speed means (9) including a driven disc (20) operatively connected to the internal gear (19), and a plurality of drive discs (24) contacting an outer periphery of the driven disc (20) and adapted to rotate on axes normal to a rotational axis of the driven disc (20), and a gear (21) mounted on the main shaft (8) to drive the frictional stepless change speed means (9), the driven disc (20) being axially shiftable to steplessly change the revolving speed of the planet gears (18) corresponding to the travelling speed of the tractor, characterized in that the gear (21) mounted on the main shaft (8) to drive the frictional stepless change speed means (9) has a large diameter, the planetary reduction means (10) is located in a space defined by the large diameter gear (21) and the drive discs (24), and the driven disc (20) engages the outer periphery of the internal gear (19) to be axially movable but not rotatable relative to the internal gear (19).

4,362,071 CAN OPENER FOR TAB-TYPE CLOSURE

Jess M. Coker, 1803 E. Osborne Ave., Tampa, Fla. 33610

Filed Feb. 20, 1981, Ser. No. 236,140

Int. Cl.³ B67B 7/40

U.S. Cl. 81-3.46 R

1 Claim



1. An opener for opening a closure of a container, the closure including a ring member for engagement with a weakened portion of the container, the opener comprising in combination:

a body portion having a wide bottom for pivoting on the container during the opening of the closure;

said bottom of said body portion being concaved inwardly to define two longitudinal legs for pivoting on the container;

a head portion secured to said body portion;

a lower lip secured to said head portion for insertion under the ring member of the closure;

a mouth portion for receiving the ring member after said lower lip is inserted thereunder;

a handle secured to said body portion enabling a person to grasp the opener, insert the lower lip under the ring member, and pivot said body member on the container to pull the ring member away from the container thereby causing the ring member to engage the weakened portion of the container to create an opening therein.

4,362,072 WRENCH

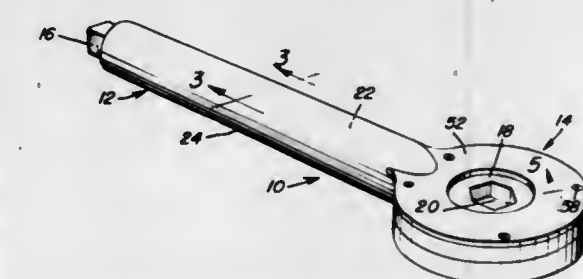
Jerry W. Tillman, 2209 Sybel Dr., Mobile, Ala. 36609

Filed Aug. 1, 1980, Ser. No. 174,586

Int. Cl.³ B25B 17/00

U.S. Cl. 81-57.29

7 Claims



1. A wrench containing an elongated handle and a head, said head comprising a rotatable flat disk containing an aperture therein for engaging a nut or bolt head, a housing enclosing the rotatable disk for rotation thereof relative to the housing, a gear disk connecting with said rotatable disk within the housing and containing gear teeth about a periphery thereof, an elongated drive shaft positioned through said handle and terminating at one end at a point beyond said handle to be engaged by a rotating means and terminating at another end in a rotatable gear drive means containing gear teeth which intermesh with said gear teeth on said gear disk, said gear drive

means being rotatable about a longitudinal axis of said handle and about a line perpendicular to a rotating axis of said gear disk with its connecting rotatable disk, said gear disk with its connecting rotatable disk being of circular shape having the gear teeth of said gear disk being contained within a uniform strip forming the circumference of said gear disk, said gear disk including a circular plate positioned within the circumference of said gear teeth, said plate containing a plurality of apertures, said rotatable disk including a plurality of posts positioned thereon to match the positions of said apertures on said plate, said rotatable disk being secured to said gear disk by the insertion of said posts in said apertures.

4,362,073

REVERSIBLE WRENCH

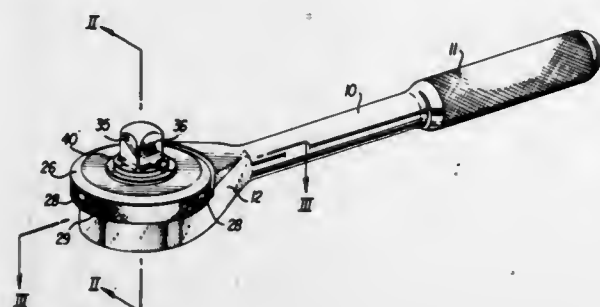
Don L. Cloud, Springfield, Mo., assignor to L. C. Tool Distributors, Inc., Springfield, Mo.

Filed Oct. 2, 1980, Ser. No. 193,303

Int. Cl.³ B25B 13/00

U.S. Cl. 81—59.1

5 Claims



1. A wrench, comprising: handle means having two ends; a base having an upper section and a lower section extending from one end of said handle means; an aperture through said base; a generally cylindrical post having upper and lower ends, having a flange at the lower end thereof, extending through said aperture, said aperture being shaped so that said post fits snugly in the lower section of said base and the upper section of said base is spaced from said post, said aperture being defined in the upper section of said base by a plurality of interconnecting part-cylinders; socket retaining means attached to the upper end of said post located outside base when said post is in said aperture; retention means for retaining said post in said aperture; generally cylindrical torque transmission means of radius less than that of said part-cylinders movably located in said aperture in the upper section of said base, having a height less than or equal to the vertical thickness of the upper section of said base, said torque transmission means having a generally horizontally extending hole; said base further comprising horizontal slots in the upper section of said base; reversing means comprising a reversing hub located around and above the upper section of said base, having a hole located radially outwardly of one of said cylindrical torque transmission means; non-elastic connecting means securing said hub to said torque transmission means by extending through said hole in said hub through said slot into said hole in said torque transmission means; and locking means for releasably retaining said reversing means.

4,362,074

METHOD FOR CUTTING VEGETATION

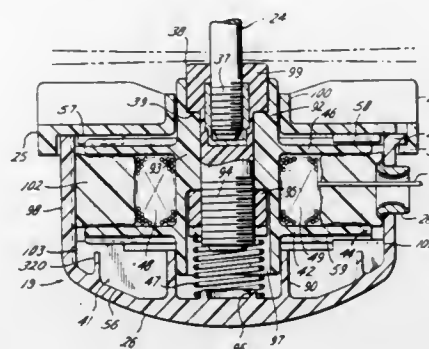
James L. Kwater, Birmingham, Ala., assignor to Emerson Electric Co., St. Louis, Mo.

Division of Ser. No. 67,585, Aug. 17, 1979, Pat. No. 4,269,372, which is a division of Ser. No. 934,226, Aug. 15, 1978, Pat. No. 4,189,833. This application Apr. 23, 1981, Ser. No. 256,805

Int. Cl.³ A01D 50/00

U.S. Cl. 83—13

1 Claim



1. A method for feeding line in a vegetation cutting apparatus while cutting vegetation growing on turf, comprising: rotating a spool member at a predetermined speed about an axis in a cutting plane, said spool containing a supply of flexible non-metallic line wound in the direction of rotation of said spool and having a free traveling end portion extending from said spool through an aperture in a head member surrounding said spool and into said cutting plane, rotating said head member at a speed less than the predetermined speed of rotation of said spool member to force an incremental length of line from said spool and into the cutting plane, and rotating said head member at the same predetermined speed of rotation of said spool to cut vegetation with said free end of said line including said incremental length of said line.

4,362,075

METHOD AND APPARATUS FOR SEPARATING AND FEEDING WRAPPED ARTICLES FROM A CONTINUOUS DISPENSER SHEET

Yoshikazu Utsumi, Kyoto, Japan, assignor to Tetra Pak International Aktiebolag, Lund, Sweden

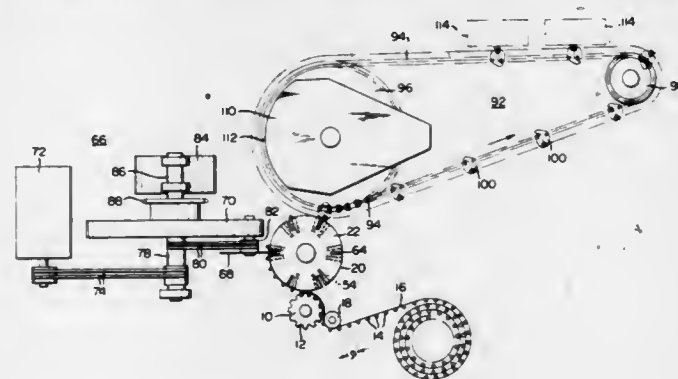
Filed Feb. 17, 1981, Ser. No. 235,088

Claims priority, application Japan, Feb. 22, 1980, 55/21995

Int. Cl.³ B26D 5/22

U.S. Cl. 83—42

8 Claims



8. A method for separating a wrapped article from a continuous strip-like dispenser sheet in which the articles are separately wrapped at positions spaced by a substantially equal pitch in the longitudinal direction of the sheet and for feeding the separated articles at desired pitches larger than the pitch of the articles in the dispenser sheet, comprising the steps of: defining a movable surface on which the dispenser sheet can

be supplied, said movable surface being movable along its surface; intermittently moving said movable surface in the longitudinal direction of the dispenser sheet to be fed thereon, each intermittent movement of said movable surface covering a desired distance which is equal to the pitch of the articles in the dispenser sheet multiplied by an integer while applying a suction in said movable surface to yieldably hold the dispenser sheet on the movable surface; intermittently feeding the dispenser sheet onto said movable surface, each intermittent feed feeding a single wrapped article by the pitch of the articles in the dispenser sheet and terminating at the same point in time as the termination of each intermittent movement of said movable surface; and separating the article from other wrapped articles in the dispenser sheet, when said movable surface is substantially stopped between the intermittent movements.

4,362,076

ELECTROSTATIC COPYING APPARATUS

Koichi Sasaki, Osaka; Yasuji Sumida, Nara, and Hiroshi Ishida, Ibaragi, all of Japan, assignors to Mita Industrial Company Limited, Osaka, Japan

Division of Ser. No. 29,053, Apr. 11, 1979, Pat. No. 4,295,731.

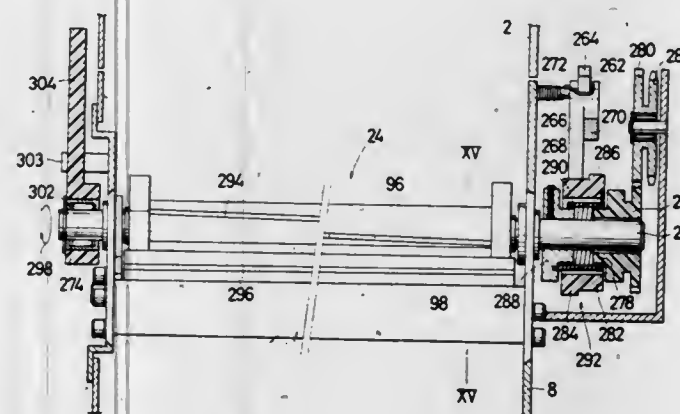
This application Jul. 23, 1980, Ser. No. 171,541

Claims priority, application Japan, Apr. 17, 1978, 53-45490; Apr. 17, 1978, 53-50972; Apr. 17, 1978, 53-50973; Apr. 19, 1978, 53-47309; May 23, 1978, 53-61822; May 23, 1978, 53-70043; May 23, 1978, 53-70044; May 23, 1978, 53-70045; May 23, 1978, 53-70046; May 23, 1978, 53-70047; May 30, 1978, 53-65949; May 30, 1978, 53-74580; May 30, 1978, 53-74581; May 30, 1978, 53-74582; May 31, 1978, 53-66119

Int. Cl.³ B23D 25/16; B26D 1/62

U.S. Cl. 83—285

2 Claims



1. A cutting apparatus for use in cutting copying paper sheets from a roll of copying paper in an electrostatic copying apparatus of the type including means for feeding copying paper along a copying paper path, a moving member moving along an exposure path during exposure of an original document to be copied, and a pivotally mounted paper cut detecting member positioned along the path of the moving member to be pivoted thereby to an actuated position, said cutting apparatus comprising:

a fixed blade immovably mounted on a frame, said fixed blade having a longitudinally straight cutting edge; a rotary shaft mounted for rotation on said frame; a rotary blade fixed to and carried by said rotary shaft for rotation therewith, said rotary blade having a spirally curved cutting edge adapted to cooperate with said straight cutting edge of said fixed blade to cut a copying paper sheet; a boss member fixed to said rotary shaft; and a gear rotatably mounted about said rotary shaft, said gear rotating continuously during operation of the copying apparatus, said gear having a boss directed toward said boss member;

a ratchet wheel mounted about said boss member and said boss; a spring positioned inwardly of said ratchet wheel and surrounding said boss member and said boss, said spring having a first end connected to said boss member and a second end connected to said ratchet wheel, said spring being wound to tighten in a rotating direction on said boss member and said boss; said ratchet wheel having extending from diametrically opposite positions of the periphery thereof a control tooth and a rotation lock tooth; a double cog member having a control cog and a rotation lock cog, said double cog member being mounted on said frame for pivotal movement between a first position, at which said control cog engages said control tooth thereby preventing tightening of said spring, and a second position, at which said control cog is out of engagement with said control tooth, thereby enabling said spring to tighten and transmit rotation of said gear to said rotary shaft and said rotary blade, and at which said rotation lock cog engages said rotation lock tooth after a predetermined rotation of said rotary blade and to prevent further rotation thereof; the length by which said rotation lock tooth extends from the periphery of said ratchet wheel being greater than the length by which said control cog extends from said periphery, thus ensuring engagement of said rotation lock tooth by said rotation lock cog; an inclinable member mounted on said frame and adapted to be moved to a pivoted position by the paper cut detecting member upon movement thereof to the actuated position thereof; and said double cog member having contact means, contacted upon movement of said inclinable member to said pivoted position thereof, for enabling pivoting of said double cog member from said first position thereof to said second position thereof.

4,362,077

APPARATUS FOR WORKING ON SHEET MATERIAL AND HAVING MAGNETIC HOLDDOWN MEANS

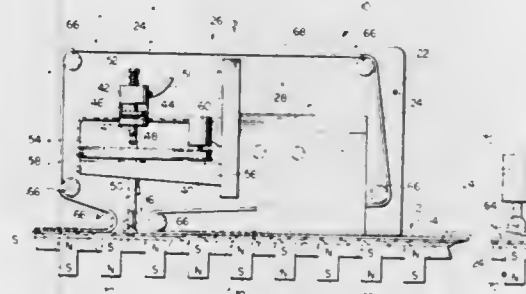
Heinz J. Gerber, West Hartford, Conn., assignor to Gerber Garment Technology, Inc., South Windsor, Conn.

Filed Mar. 9, 1981, Ser. No. 242,067

Int. Cl.³ D06H 7/00

U.S. Cl. 83—453

13 Claims



1. In an apparatus for working on sheet material and having means defining a support surface for supporting sheet material spread thereon, means for holding the sheet material in fixed position relative to the support surface, a tool carriage assembly, a tool supported by the tool carriage assembly, and means for moving the tool carriage assembly and the tool relative to the support surface to move the tool in working relation to sheet material spread on the support surface, the improvement wherein said means for holding the sheet material comprises at least one strip of flexible material extending longitudinally of said support surface to overlie associated portions of sheet material spread thereon, magnetic means for biasing portions of said one strip toward said support surface to clamp the associated portions of the sheet material in fixed position rela-

tive to said support surface, and strip supporting means for maintaining another portion of said one strip in the region of said tool in spaced relation to said support surface as said tool moves relative to said support surface and in working relation to sheet material spread thereon.

4,362,078

METHOD OF BLANKING

Tatsuo Ohnishi, Takeshi Uemura, and Teruo Nakajima, all of Osaka, Japan, assignors to Akzona Incorporated, Asheville, N.C.

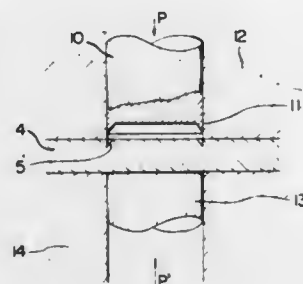
Filed Jan. 5, 1981, Ser. No. 222,232

Claims priority, application Japan, Mar. 25, 1980, 55-036910

Int. Cl.³ B21D 28/26

U.S. Cl. 83-862

6 Claims



1. A method of blanking, comprising the steps of: providing a lancing punch having an endless lancing edge projecting outwardly from one end thereof, which lancing edge is of a generally V-shaped cross section with the exterior side, of the V-shaped lancing edge extending perpendicular to the material sheet which is to be punched; moving said lancing punch into engagement with a surface of said material sheet for causing the lancing edge to penetrate said surface and form an endless groove in said sheet, which groove projects into said sheet from said surface and has a V-shaped cross section, with the outer peripheral edge of said groove extending at right angles to said surface; positioning said material sheet on a support having a knockout opening therein corresponding to the profile of the proposed blank as defined by said endless groove so that said proposed blank is aligned with and positioned over said knockout opening; providing a blanking punch having an endless blanking edge projecting from one end thereof, which blanking edge corresponds to and is adapted to occupy said endless groove; moving said blanking punch into engagement with said material sheet so that the blanking edge occupies said groove; and then moving said blanking punch towards the material sheet for cutting the blank from the material sheet and moving same into said knockout opening.

4,362,079

ACCENTUATOR PLATE FOR VIBRATING
SOUNDBOARD IN STRINGED MUSICAL
INSTRUMENTS

Charles J. Kelly, San Francisco, Calif., assignor to Thomas L. Ribbecke, San Francisco, Calif., a part interest

Filed May 15, 1981, Ser. No. 264,195

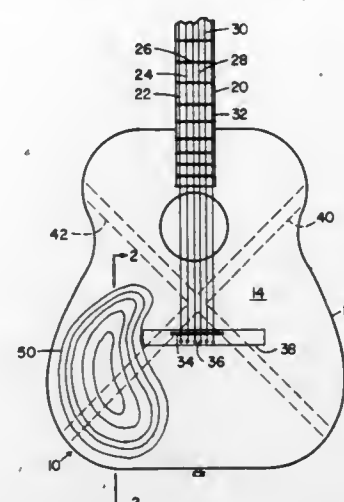
Int. Cl.³ G10D 3/02

U.S. Cl. 84-291

6 Claims

1. In a vibrating soundboard stringed musical instrument characterized by a hollow body, a neck extending therefrom and defining the longitudinal axis of said instrument, and one or more strings extending under tension from the distant end of the neck to a bridge located on a top surface of the body opposite the neck, the improvement comprising an accentuator plate seated in an opening provided for that purpose in said top surface and secured at the periphery thereof to the edge of said top surface around said opening, said accentuator plate having

an outward generally convex contour and having an inside generally concave contour, said plate and said opening being



laterally offset in said body to one side of the longitudinal axis and closely adjacent said bridge.

4,362,080

STACCATO COWBELL

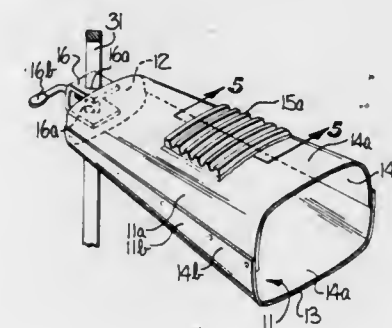
Ramon O. DeArmas, P.O. Box 668702, Charlotte, N.C. 28208

Filed Jul. 27, 1981, Ser. No. 287,161

Int. Cl.³ G10D 13/06

U.S. Cl. 84-406

9 Claims



1. A musical instrument, comprising a rigid sounding chamber, said sounding chamber being generally oval in lateral cross-section and having four generally trapezoidal shaped sides, said sounding chamber having an open larger end and a closed smaller end, support attachment means externally carried by said sounding chamber, a plurality of generally parallel ribs externally positioned in resonant relation to an adjacent side of said sounding chamber, said plurality of ribs being formed as an integral unit and being affixed to the adjacent side of the sounding chamber, said plurality of ribs adapted for successive striking as by a drumstick during play of the musical instrument whereby staccato sounds may be selectively intermittently produced during such play.

4,362,081

LAMINATED HEAD OF PLASTIC SHEET MATERIAL
AND NONIMPREGNATED SYNTHETIC WOVEN
FABRIC MATERIAL

Donald R. Hartry, La Canada, Calif., assignor to Remo, Inc., North Hollywood, Calif.

Filed Oct. 6, 1980, Ser. No. 194,461

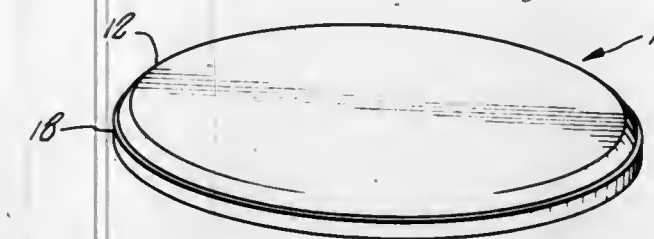
Int. Cl.³ G10D 13/02

U.S. Cl. 84-414

11 Claims

1. A head for a drum or similar musical instrument comprising a synthetic plastic sheet material laminated to each side of

a synthetic fabric material woven from a fiber yarn by means of an adhesive resin composition without impregnating the fabric



material, the fabric material forming the primary tension load carrier.

4,362,082

WEAVING LOOM FOR PROVIDING A LADDERFREE
WOVEN FABRIC

Frantz M. J. Boucraut, Troyes, France, assignor to Valton S.A., Troyes, France

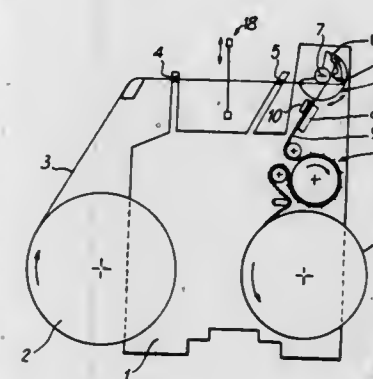
Filed Nov. 7, 1980, Ser. No. 204,905

Claims priority, application France, Nov. 13, 1979, 79 27929

Int. Cl.³ D04C 5/00

U.S. Cl. 87-24

8 Claims



1. A loom for weaving fabric having warp and weft threads, comprising a common support shaft, thread guides fixedly mounted side by side on said common support shaft, each of which thread guides has a substantially semicircular outer edge, at least two holes through which an associated warp thread may pass successively, an opening for the insertion of weft threads through the assembly of thread guides and a slot which connects the opening of each said thread guide with the outer edge thereof, wherein the common support shaft has a longitudinal axis and is drivably mounted for rotation between a first and a second position through an angle of approximately 180° about said axis, wherein the semicircular outer edge of the thread guides has a centre substantially coinciding with said axis, wherein said at least two holes are provided in each thread guide at locations close to said outer, semicircular edge of said guide, wherein said slot is curved in a direction opposite to the direction of rotation executed by the thread guide in moving from the first to the second position, and wherein there is provided a stationary table for supporting the woven fabric produced by the loom, which table is associated with a control plate and is positioned in a plane which includes said axis at a point located substantially diametrically opposite the last hole of said at least two holes through which warp thread passes when the thread guide is in its first position, each warp thread passing from said last hole towards said stationary table, wherein the insertion of the weft thread into said openings by said guides takes place whilst said guides are in said first position, and said weft threads leave said slots when the thread guides are in their said second position.

4,362,083

CASING FOR AN ARMoured VEHICLE

Hermann Straub, Winterthur, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

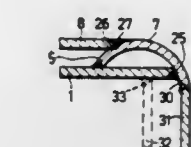
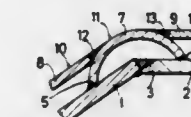
Filed Nov. 30, 1979, Ser. No. 99,078

Claims priority, application Switzerland, Dec. 4, 1978, 12352/78

Int. Cl.³ F41H 7/04

U.S. Cl. 89-36 H

11 Claims



1. A casing of an armored vehicle comprising at least one pair of intersecting walls, one of said walls having an outer plate with a longitudinal edge and an inner plate and the other of said walls having at least one outer plate with a longitudinal edge; an arcuate shell between said longitudinal edges of said intersecting walls, said arcuate shell having a curvilinear cross-section with a pair of edges; and welds securing said edges of said shell to respective plates of said plates and each said plate to said shell to define a closed box girder along said longitudinal edges.

4,362,084

HYDRAULIC ACTUATOR CONTROLS

Ronald B. Walters, Wembley, England, assignor to Sperry Corporation, Troy, Mich.

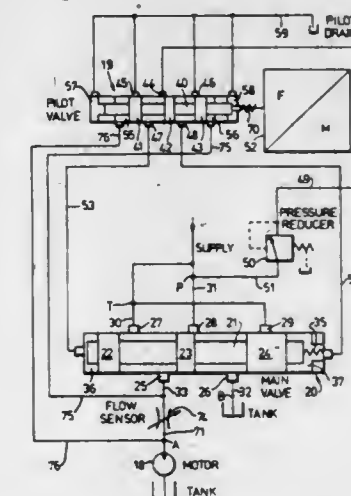
Filed Jun. 13, 1980, Ser. No. 159,362

Claims priority, application United Kingdom, Jun. 15, 1979, 7920932

Int. Cl.³ F15B 13/16

U.S. Cl. 91-47

12 Claims



pump pressure outlet and by-passing said series circuit consisting of said flow sensor and said load, said means including a fluid pressure-operated main valve having a main spool for regulating fluid flow from the pump pressure outlet and through said bleed-off path and thereby inversely regulating the fluid flow to said load; a pilot valve for controlling said main valve, said pilot valve including a pilot spool for regulating the fluid pressure for operating said main valve; an electrical force motor for producing a first force dependent upon said electrical input signal and for applying said first force to said pilot spool; an opposed piston arrangement operative upon said pilot spool; and hydraulic feedback means for applying said pressure difference produced across said flow sensor to said opposed piston arrangement in a direction to apply to said pilot spool a second force opposed to said first force.

4,362,085

FLIGHT CONTROL SYSTEM

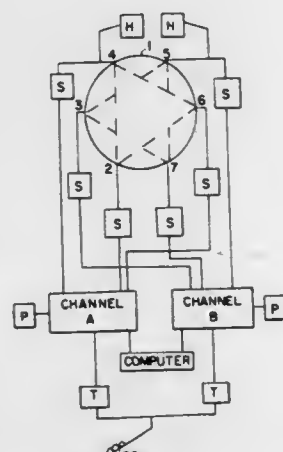
Peter R. Venuti, Jr., Turnersville, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Continuation-in-part of Ser. No. 47,522, Jun. 11, 1979, abandoned, which is a continuation-in-part of Ser. No. 853,785, Nov. 21, 1977, abandoned. This application May 29, 1980, Ser. No. 154,557

Int. Cl.³ F01B 1/00; F15B 13/16

U.S. Cl. 91-186

3 Claims



1. A helicopter swashplate drive mechanism comprising a first and second series of swashplate actuators spaced around the periphery of a swashplate to effect the control thereof, servo amplifier means including a computer for electronically actuating the first series of actuators to control swashplate operation, the first series thus being primary control swashplate actuators, said servo amplifier means also operating the second series of actuators in a tracking mode, the second series thus being supplemental actuators which track the operational status of the primary actuators, the primary swashplate and the supplemental swashplate actuators being alternately positioned around said swashplate periphery at approximately 60°, said computer separately energizing the two series of actuators for controlling, and for monitoring, swashplate operation whereby the supplemental actuator series assumes operation of the swashplate upon failure of the primary series of actuators.

4,362,086

PRESSURE LIMITER FOR HYDRAULIC BRAKE BOOSTER

Dean E. Runkle, LaPorte, Ind., assignor to The Bendix Corporation, Southfield, Mich.

Continuation of Ser. No. 936,271, Aug. 23, 1978, abandoned. This application Jul. 14, 1980, Ser. No. 168,972

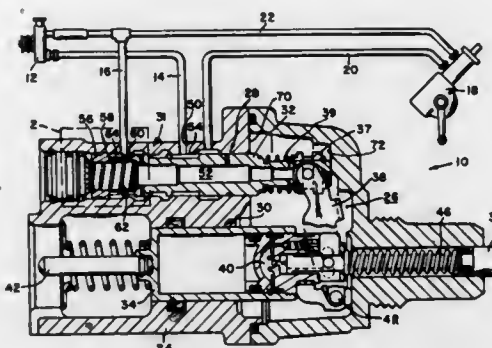
Int. Cl.³ F15B 0/42, 13/14

U.S. Cl. 91-391 R

1 Claim

1. A hydraulic brake booster having a housing with a pair of bores therein, said bores communicating with a pressure chamber, a pressure responsive piston slidably received in one of

said bores, said piston cooperating with means for effecting a brake application responsive to movement of said piston; an inlet, an outlet and a vent port all communicating with the other of said bores for communicating pressurized fluid through said housing, said other bore being stepped to provide a small diameter portion and a large diameter portion, a pressure responsive valve member slidably received in said small diameter portion, said valve member being movable relative to said housing between a first position in which said valve member communicates said inlet with said outlet and closes communication from said inlet to said pressure chamber while communicating said vent port with said pressure chamber and a second position in which said valve member restricts communication between said inlet and outlet and opens communication from said inlet to said pressure chamber while closing communication between said pressure chamber and said vent port, a ring member slidably received in said large diameter portion and cooperating with said valve member to define an annular chamber radially disposed between said valve member



and said large diameter portion and communicating with said vent port, said ring member defining a first area which is exposed to said annular chamber and a second oppositely disposed area which is exposed to said pressure chamber, said vent port providing communication with said annular chamber, yieldable resilient input means for moving said valve member from said first position toward said second position, said ring member producing a force opposing movement of said valve member toward said second position responsive to the pressure differential between pressurized fluid in said pressure chamber acting on said second area and vent port pressure in said annular chamber acting on said first area, said input means yielding responsive to said force at a predetermined pressure differential to prevent further communication of pressurized fluid to said pressure chamber and said vent port intersecting said other bore substantially at an axial intersection between said small and large diameter portions to remain continuously open to said annular chamber in all positions of said pressure responsive valve member during the brake application.

4,362,087

FULLY COMPENSATED FLUID CONTROL VALVE

Tadeusz Budzich, 80 Murwood Dr., Moreland Hills, Ohio 44022

Filed Mar. 26, 1981, Ser. No. 247,887

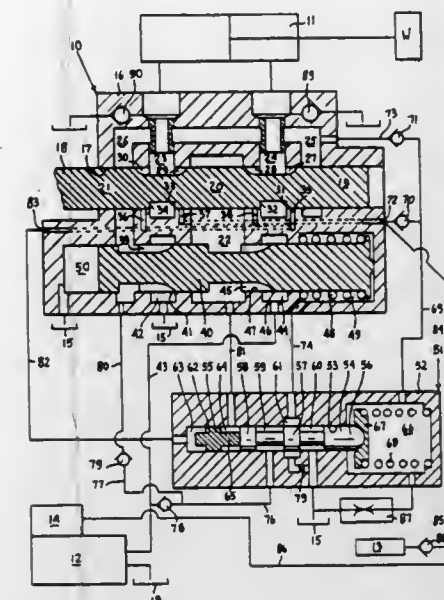
Int. Cl.³ F15B 13/08

U.S. Cl. 91-421

30 Claims

23. A valve assembly comprising a housing having an inlet chamber connected to a pump and an outlet chamber connected to exhaust means, means operable to selectively communicate said inlet and said outlet chambers with a fluid motor, first control orifice means interposed between said inlet chamber and said fluid motor, second control orifice means interposed between said fluid motor and said exhaust means, positive load fluid throttling means between said inlet chamber and said pump, and negative load fluid throttling means between said outlet chamber and said exhaust means, said positive and said negative load fluid throttling means controllable by a fluid power amplifying and control means and operable either to

throttle fluid flow by said positive load fluid throttling means to maintain a relatively constant pressure differential across said first control orifice means or to throttle fluid flow by said



negative load fluid throttling means to maintain a relatively constant pressure differential across said second control orifice means.

4,362,088

LOAD RESPONSIVE FLUID CONTROL VALVE

Tadeusz Budzich, 80 Murwood Dr., Moreland Hills, Ohio 44022

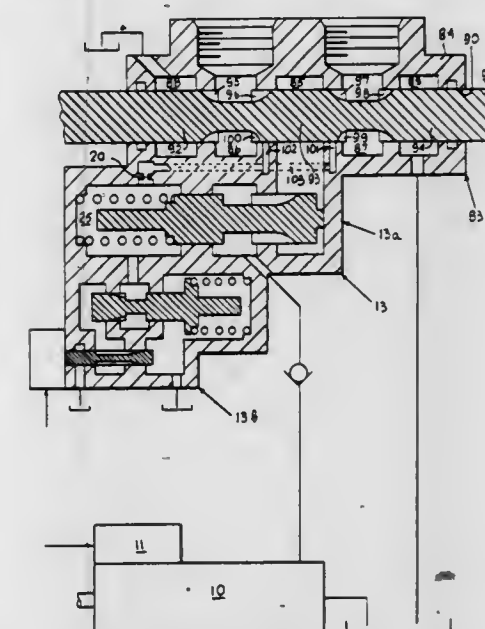
Continuation-in-part of Ser. No. 109,053, Jan. 2, 1980. This

application Jan. 7, 1980, Ser. No. 109,806

Int. Cl.³ F15B 13/04

U.S. Cl. 91-446

35 Claims



1. A load responsive valve assembly comprising a housing having an inlet chamber connected to a pump, a supply chamber connected to a fluid motor, and exhaust means, control orifice means interposed between said supply chamber and said fluid motor, and fluid throttling means interposed between said inlet chamber and said supply chamber, first control means operable through said fluid throttling means to maintain a pressure differential across said control orifice means at a controlled constant level and second control means operable through said first control means to vary the level of said constant pressure differential proportionally in response to a control signal.

4,362,089

VALVE SYSTEM

Kurt B. Melocik, Mazon, and Robert W. Earley, Minooka, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US80/00766, § 371 Date Jun. 16, 1980, § 102(e)

Date Jun. 16, 1980, PCT Pub. No. WO81/03689, PCT Pub.

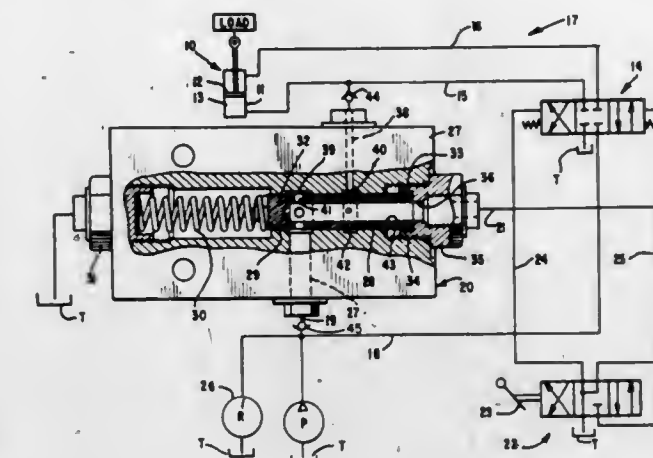
Date Dec. 24, 1981

PCT Filed Jun. 16, 1980, Ser. No. 245,228

Int. Cl.³ F15B 11/16

U.S. Cl. 91-461

8 Claims



1. A pressure regulating valve (20) comprising: wall means (27) defining a valve chamber (28), a first inlet port (37, 39), a second inlet port (38, 40), and an outlet port (36); a movable valve member (29) in said chamber (28) defining a first transfer passage (41) adjacent said first inlet port (37, 39), a second transfer passage (42) adjacent said second inlet port (38, 40), and an outlet passage (43) communicating at all times with said transfer passages and said outlet port (36); and means for biasing the valve member (29) to align said first transfer passage (41) with said first inlet port (37, 39) and preselected to permit fluid pressure in said outlet passage (43) to urge said valve member (29) against the biasing action thereof to variably partially disalign said first transfer passage (41) relative to said port (37, 39) and thereby regulate the fluid pressure in said outlet passage (43), said second transfer passage (42) being disposed to be fully disaligned with said second inlet port (38, 40) when said first transfer passage (41) is so partially disaligned with said first inlet port (37, 39) and to be aligned with said second inlet port (38, 40) by said biasing means (30) in the absence of fluid pressure in said outlet passage (43), and provide adjustable communication between said second inlet port (38, 40) to said second transfer passage (42) in the absence of fluid pressure delivered to said outlet passage (43) through said first inlet port (37, 39) and thereby regulate the pressure of the fluid delivered from said second transfer passage (42) to said outlet passage (43).

4,362,090

AIR CIRCULATING DEVICE AND METHOD

Isaac C. Whiteley, P.O. Box 294, Redmond, Oreg. 97756

Filed Aug. 21, 1979, Ser. No. 68,383

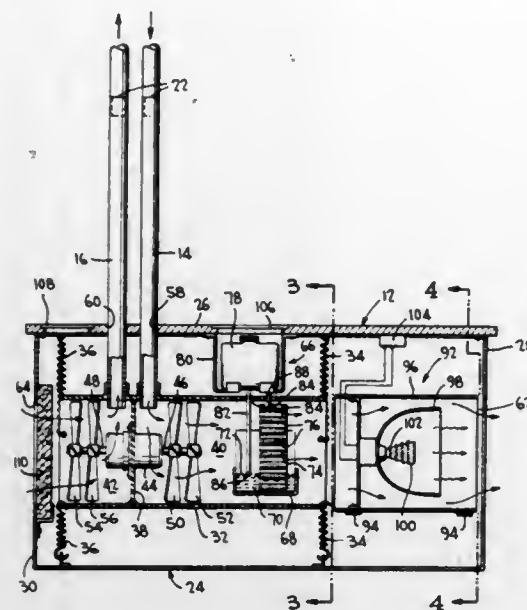
Int. Cl.³ F24F 13/00, 7/00

U.S. Cl. 98-33 A

22 Claims

8. A method of circulating air in a room to reduce temperature stratification comprising the steps of drawing hot air from the ceiling of the room and discharging the hot air at the floor of the room at a first volumetric rate of flow; and

drawing cold air from the floor of the room and discharging the cold air at the ceiling of the room at a second volumetric



ric rate of flow at least two times greater than the first rate of flow.

4,362,091

AIR DEFLECTION DUCT ASSEMBLY

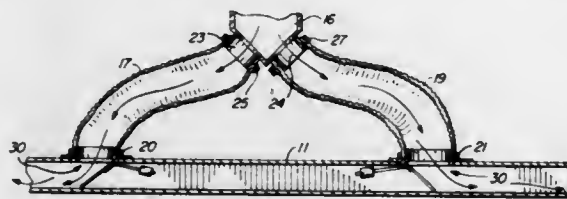
Howard W. Cox, Tempe, Ariz., assignor to Mission Marketing Corp. of Arizona, Tempe, Ariz.

Filed Apr. 13, 1981, Ser. No. 253,596

Int. Cl.³ F24F 7/06

U.S. Cl. 98—40 C

10 Claims



6. An air deflection duct assembly for adapting connection of an evaporative cooler to an existing refrigeration air conditioning duct including in combination:

a horizontal air duct having a top and a bottom; first and second plate means for attachment to first and second spaced holes in the top of said air duct therein, said first plate means adapted for attachment over said first hole and having an opening therethrough in communication with such first hole and said second plate means for attachment over said second hole and having an opening therethrough for communication with such second hole; first and second collar means attached, respectively, to said first and second plate means and extending around the peripheries of the openings in said first and second plate means to a predetermined distance above such openings; and

first and second normally biased closed, pressure-opened deflector means for closing the openings in said respective first and second plate means and each adapted to open at an angle into said air duct to which said first and second plate means are attached in response to air flow through said first and second collar means, respectively, to the openings for deflecting air in said air duct in opposite directions away from the space between the first and second spaced holes therein.

4,362,092 AUXILIARY VENTILATION SYSTEM FOR UNDERGROUND SITES

Gordon Elliott, Elm Rd., Ponteland, Northumberland; Stephen Elliott, 13 Corbridge Ave. Woodlands Park Estate, Wideopen, Gosforth, Newcastle Upon Tyne, and Frank Elliott, 53 Willoughby Dr., Woodburn Estate, Whitley Bay, Tyne & Wear, all of England

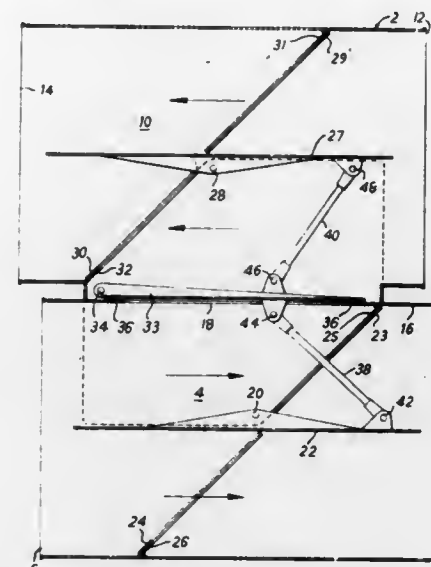
Filed Oct. 1, 1981, Ser. No. 307,527

Claims priority, application United Kingdom, Oct. 6, 1980, 8032100

Int. Cl.³ E21F 1/00

U.S. Cl. 98—50

6 Claims



1. An auxiliary ventilation system for an underground site comprising an air box for location at a region to be ventilated, first and second chambers extending through said air box, an inlet port and an outlet port associated with each of said chambers, the intermediate regions of said chambers being in communication with one another, and a substantially flat flap member mounted in each of the chambers to be pivotal about an axis extending substantially centrally across the flap member and transversely of the chamber, said flap members each being pivotal about the associated axis between a first position extending substantially fore and aft of the associated chamber to permit substantially unimpeded flow between the inlet and outlet ports of said chamber and a second position making sealing engagement with the sidewalls of the associated chamber to define a passage through the box between the inlet port to the first chamber and the inlet port to the second chamber, the air box further including means movable with the flap members to seal the first chamber from the second chamber when the flap members are in their first positions and to interconnect the intermediate regions of the first and second chambers when the flap members are in their second positions, an exhaust fan connected to the outlet port from the second chamber, and means for pivoting the flap members between their first and second positions.

4,362,093

BARBEQUE GRILL

Billie G. Griscom, Poste Restante, Jan Smuts Airport 1627, South Africa

Filed Jul. 18, 1980, Ser. No. 167,371

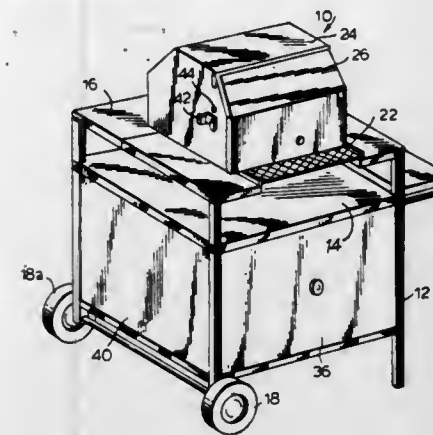
Int. Cl.³ A47J 27/00

U.S. Cl. 99—339

2 Claims

1. An improved barbeque grill comprising: a first horizontally-supported surface; a plurality of rigid vertical support members attached to said first surface; a second horizontally-supported surface mounted parallel to and above said first surface and attached to said vertical support members, said second surface having a recessed area along at least one side;

a firebox mounted to but beneath said second surface, part of said firebox extending below the recessed area of said second surface; a grate mounted in said recessed area; a removable enclosure moveably mounted on said second surface, said enclosure sized to encompass a substantial portion of said recessed area and a portion of said second surface simultaneously; and



a drip pan mounted on said first surface beneath a portion of the grate not covering the firebox, whereby the barbeque can be used simultaneously or individually for baking, grilling, roasting and warming dependent upon the placement of the foodstuff on the grate or the second surface and the location of the enclosure.

4,362,094

COOKING TIME CONTROL SYSTEM

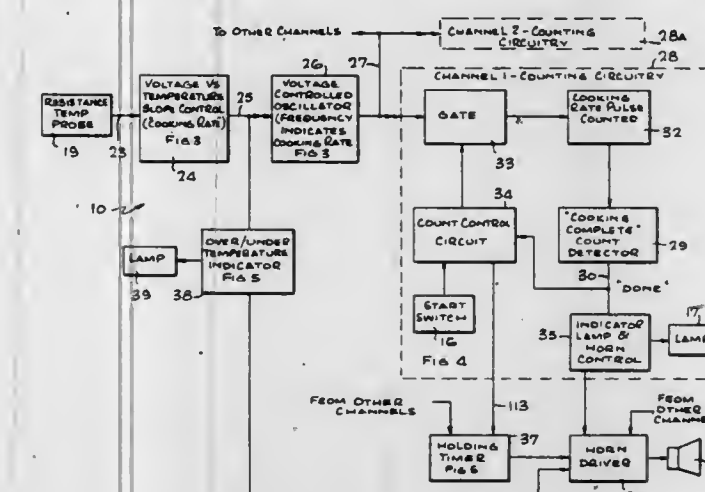
Louis S. Polster, 28034 Cero Dr., Saugus, Calif. 91350

Continuation of Ser. No. 732,214, Oct. 14, 1976, abandoned, which is a continuation of Ser. No. 627,089, Oct. 30, 1975, abandoned. This application May 4, 1978, Ser. No. 902,986

Int. Cl.³ A47J 23/12

U.S. Cl. 99—342

32 Claims



14. Apparatus for indicating the completion of cooking of food in a cooking medium contained in a cooking vessel, comprising:

a temperature transducer situated to sense the temperature of the medium in said vessel during cooking; cooking rate slope control circuitry responsive to the output of said transducer for providing a signal that is proportional to the cooking rate of said food at the sensed temperature; cooking rate pulse generating means for providing a pulse train having a pulse rate proportional to said signal from said slope control circuitry; a start switch; a counter connected to count said pulses from said pulse generating means beginning when said switch is actuated, and cooking complete count detector, responsive to the contents

of said counter, for providing a "DONE" signal upon detecting that said counter has reached a certain preset count indicating that cooking is complete.

4,362,095

STORAGE CONTAINER FOR GROUND COFFEE

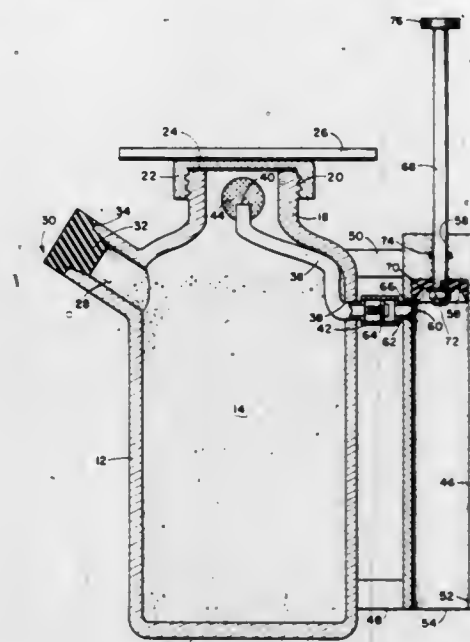
Charles Wheatley, Tulsa, Okla., assignor to Phyllis A. Wheatley, Tulsa, Okla., a part interest

Filed Mar. 2, 1981, Ser. No. 239,176

Int. Cl.³ B65D 81/20; A23B 0/00; B65D 51/16

U.S. Cl. 99—472

4 Claims



1. A storage container comprising a housing having one closed end and one open end, removable sealing cover means provided for said open end, discharge port means provided in the sidewall of the housing and interposed between the open end and closed end thereof, sealing plug means removably disposed in said discharge port means, handle means secured to the outer periphery of the housing means, pump chamber means provided in the handle means, passageway means having one end open to the upper portion of the pump chamber and the opposite end open to the interior of the housing between the cover means and discharge port means providing communication between the pump chamber means and interior of the housing, check valve means interposed in the passageway means for precluding backflow of fluid therethrough, and reciprocal plunger means disposed in said pump chamber means for selectively creating a vacuum in the interior of the housing.

4,362,096

TYING MACHINE

John F. Hanscom, Rehoboth, Mass., assignor to H. F. Hanscom & Company, Inc., Providence, R.I.

Filed Feb. 12, 1981, Ser. No. 233,931

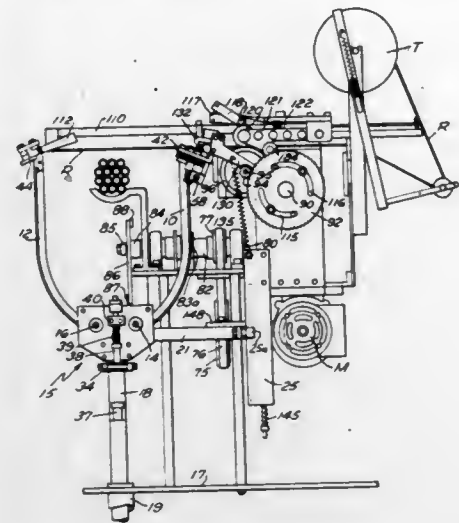
Int. Cl.³ B65B 13/16

U.S. Cl. 100—10

4 Claims

1. A tying machine for tying articles of varying size with material comprising a pair of arms mounted for pivotal movement in a single plane whereby the ends of the arms may be moved together, means for continuously maintaining said arms in a non-rotative position, a pair of spaced grippers for gripping tying material, said grippers mounted on the ends of said pair of arms and comprising substantially semi-circular members, means feeding tying material to said grippers, means cutting a preselected length of ribbon material,

means causing relative movement of said grippers and said articles,
means rocking said arms to move the grippers together, and



means rotating the grippers about a common axis to twist the material about itself and around the articles.

4,362,097

APPARATUS FOR DETERMINING WEIGHT OF CYLINDRICAL HAY BALES

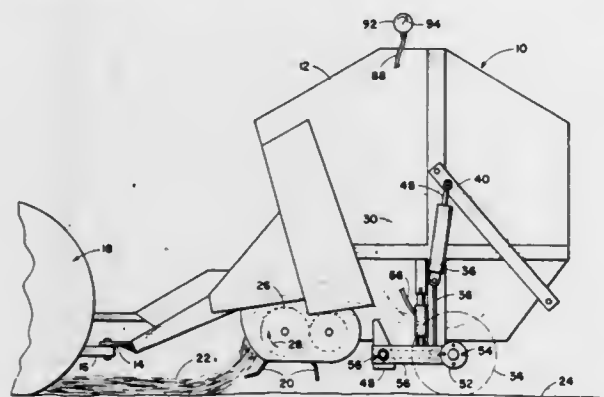
Laurence J. D. Rogers, Rte. 1, Box 230, Checotah, Okla. 74426

Filed Dec. 29, 1980, Ser. No. 221,025

Int. Cl.³ B30B 15/00

U.S. Cl. 100-99

5 Claims



1. In combination with a cylindrical bale hay baler, weight indicating apparatus for determining the weight of the bale as the bale accumulates on the baler and comprising lever means pivotally secured directly between the hay baler itself and at least one support wheel thereof with minimum alteration of the existing structure of the hay baler for yieldable supporting the hay baler from said wheel, sensing means secured to the lever means substantially centrally disposed between the opposite ends thereof and operably connected with the hay baler itself for response to vertical fluctuations of the hay baler during a hay baling operation, and weight indicating means operably secured to the sensing means for actuation thereby upon vertical fluctuations of the hay baler to provide a continual indication of the weight of the bale during the baling operation.

4,362,098

ROTARY PRINTING PRESS USING FLEXIBLE PLATES

Walter R. Stelling, Jr., Milwaukee; William A. Cummins, Nashotah, and John F. Beaudoin, Milwaukee, all of Wis., assignors to Faustel, Inc., Butler, Wis.

Filed Aug. 4, 1980, Ser. No. 175,296

Int. Cl.³ B41F 5/04, 13/20, 13/28

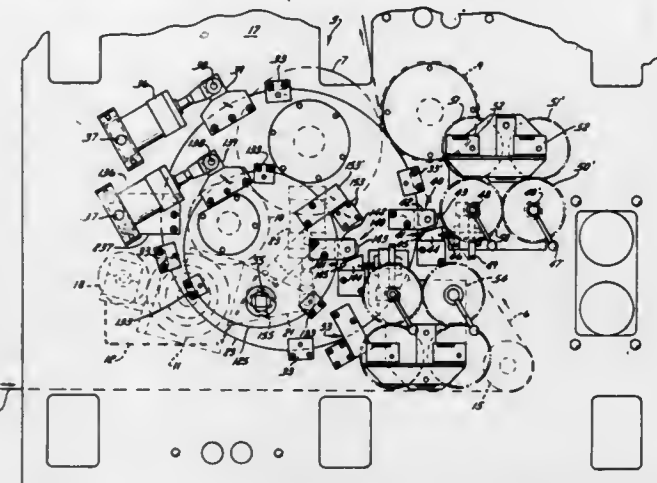
U.S. Cl. 101-219

17 Claims

1. In a printing press comprising a frame having opposite spaced apart side frame members and a pair of cylinders between said side frame members, each rotatable in a pair of

bearings that respectively support its opposite end portions, one of said cylinders being bodily movable relative to the other to and from an operative position in which said one cylinder is in proximity to the other and has its axis in a predetermined spaced and substantially parallel relationship to the axis of said other cylinder, mounting means whereby the bearings for said one cylinder are supported on said frame for bodily motion of that cylinder to and from said operative position, said mounting means being characterized by:

- A. a pair of circular bearing carriers, one for each side frame member, each carrying a bearing for said one cylinder, said bearings being spaced equal distances from the respective axes of said bearing carriers;
- B. each of said bearing carriers having its peripheral surface tapered axially in one direction;



- C. each side frame member having a hole in which its bearing carrier is rotatably seated and which defines a mating axially tapering surface that is engaged by the peripheral surface on its bearing carrier to define a limit of axial motion of the bearing carrier in said direction, said holes in the side frame members being coaxial;
- D. retaining means for each bearing carrier, adjacent to its marginal portion and the marginal portion of its hole in its side frame member, secured to one of said marginal portions and slidably overlying the other to confine the bearing carrier against axial motion away from said limit; and
- E. cooperating abutment elements on each bearing carrier and on its side frame member, engageable to define a position of rotation of the bearing carrier in which said one cylinder is in its operative position.

4,362,099

ADJUSTING DEVICE FOR SHEET REVERSING IN A SHEET-FED ROTARY PRESS

Masayuki Iwamoto, Shizuoka, Japan, assignor to Kabushiki Kaisha Shinoharatekkosho, Naganuma, Japan

Filed Apr. 17, 1981, Ser. No. 255,324

Claims priority, application Fed. Rep. of Germany, May 2, 1980, 3017013

Int. Cl.³ B41F 21/04, 21/10; B65H 5/12, 29/06

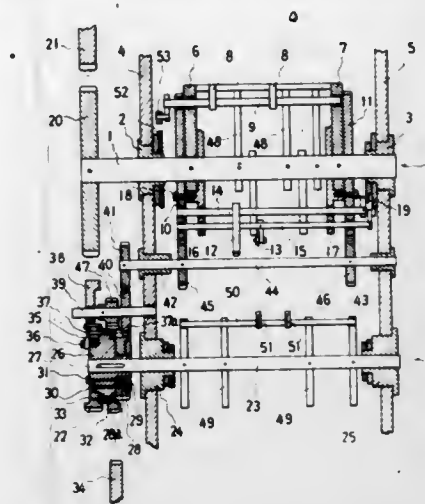
U.S. Cl. 101-230

4 Claims

1. An adjusting device for sheet reversing in a sheet-fed rotary press comprising a drive shaft, a reversing cylinder which is driven by the drive shaft and carries a plurality of sheet grippers, a rotary drum carrying a plurality of leading-end grippers, and a rotary assembly carrying a plurality of trailing-end grippers, which is concentric with said drum, wherein the improvement comprises a flange fixed to said drive shaft, a first drive gear fixed to said flange, a second drive gear which is adjustably attached to said flange and has a driving connection with said rotary assembly, a third drive gear which is adjustably attached to said flange and has a

driving connection with said rotary drum, and means for manually rotating said reversing drive cylinder through said first

completion of said printing to restart said transporting means.



drive gear, for selectively adjusting the angular position of attachment of the second and third gears to said flange.

4,362,100

ENVELOPE FEEDER

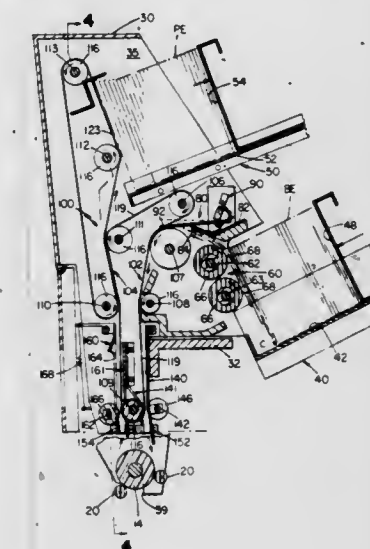
Edward S. Wu, Fremont, Calif., and Roger R. Souard, Dracut, Mass., assignors to Wang Laboratories, Inc., Lowell, Mass.

Filed Jul. 11, 1980, Ser. No. 167,465

Int. Cl.³ B41F 13/24

U.S. Cl. 101-233

11 Claims



1. An envelope feeder for a printer having a rotatable platen and cooperating printing means, platen drive means, and platen pinch roll means, said feeder comprising a blank envelope feeding hopper for supporting a stack of blank envelopes
envelope extracting means for extracting an envelope from said stack of blank envelopes in said blank envelope feeding hopper, said extracting means including
envelope engaging means adapted to contact the last envelope on said stack of blank envelopes to extract said last envelope and
envelope transporting means for transporting said extracted last blank envelope to said printer platen for printing and thereafter transporting said extracted printed envelope away from said printer platen
printing position envelope sensing means for sensing the arrival of an extracted envelope in the proper position for printing, said printing position envelope sensing means being connected and arranged to stop said transporting means for printing of said extracted envelope by said printer, and said transporting means having drive means responsive to

4,362,101

VARIABLE IMPRESSION HAND STAMP

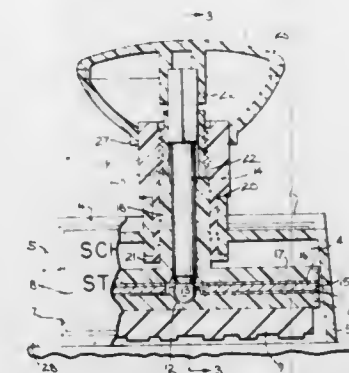
Robert H. Ahrens, Janesville, Wis., assignor to Schwaab, Inc., Milwaukee, Wis.

Filed Jul. 18, 1980, Ser. No. 170,038

Int. Cl.³ B41K 1/38; B41F 27/00

U.S. Cl. 101-327

3 Claims



1. An ink stamp, comprising a casing having an open bottom bordered by a bottom edge and having a top wall formed with an opening, a printing die to be impregnated with ink disposed within the casing and normally disposed above said bottom edge, said die adapted to print an image on a surface, a die holder secured to the upper surface of the die and disposed within the casing, a base disposed within the case above said die holder, a stem disposed for sliding vertical movement within said opening and the lower end of the stem engaged with the die holder, whereby vertical movement of said stem will raise and lower the die holder and the die, a handle secured to the upper end of the stem, said handle, stem and die holder constituting an integral structure, biasing means for biasing the die holder upwardly into engagement with said base, a barrel rotatably mounted with respect to the casing and bordering said opening, said barrel being fixed against axial movement with respect to said casing, and a sleeve threadedly engaged with the barrel, the inner end of said sleeve being connected to said base, said stem being slidably disposed within said sleeve, whereby a downward force applied to said handle will move the die holder downwardly to bring the die into contact with said surface, rotation of said barrel causing said sleeve to move vertically to thereby vary the vertical position of said base and correspondingly vary the position of said die holder and die with respect to said bottom edge.

4,362,102

SHAFT SEAL FOR DISTRIBUTOR ROLLERS IN INKING UNITS OF PRINTING PRESSES

Janko Despot, Offenbach am Main, Fed. Rep. of Germany, assignor to M.A.N.-Roland, Druckmaschinen Aktiengesellschaft, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 218,824, Dec. 22, 1980, abandoned. This application Jan. 22, 1981, Ser. No. 227,427

Claims priority, application Fed. Rep. of Germany, Dec. 21, 1979, 2951652

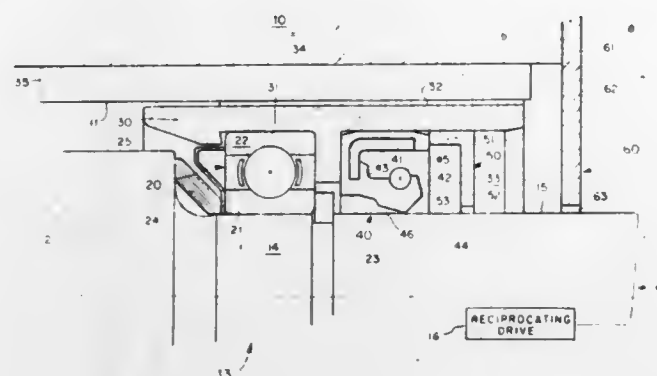
Int. Cl.³ B41F 31/14; B41L 27/16

U.S. Cl. 101-348

4 Claims

1. Means for journaling and sealing a reciprocated roller in a printing press comprising, in combination, a reciprocated roller having a shaft, a press frame having an opening through which the shaft extends, an anti-friction bearing adjacent the roller and having an inner race and outer race, means for holding the inner race axially captive on the shaft so that the bearing reciprocates with the shaft, the shaft having a portion projecting outboard beyond the bearing, a supporting sleeve secured to the outer race of the bearing interposed between the bearing and the wall of the opening in the frame and telescoped

over the projecting portion of the shaft to form an annular recess, means for keying the sleeve to the frame to prevent relative rotation of the sleeve in the frame while permitting reciprocation of the sleeve with the shaft, a sealing ring recessed in the telescoping portion of the sleeve, the sealing ring having a collar with an annular lip of impervious resilient material mounted thereon cantilever-fashion, the annular lip



being shaped to form a narrow ring of contact with the projecting portion of the shaft and having a garter spring in encircling relation so that sealing force is applied radially inwardly about the entire ring of contact, the collar of the sealing ring being fixed to the sleeve so that the ring of contact remains axially stationary with respect to the shaft as the shaft undergoes reciprocating movement.

4,362,103

INK PAD ASSEMBLY

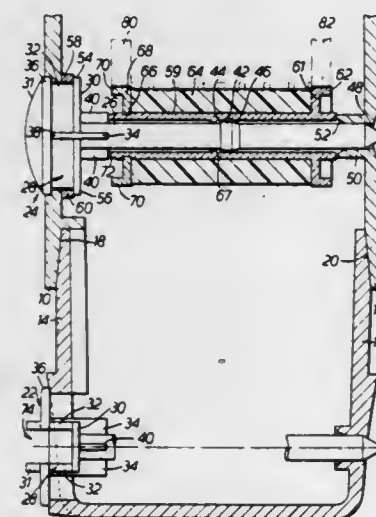
Anthony V. J. Figg, Kirby Cross, and Brian Nicholson, St. Osyth, both of England, assignors to Norcross Investments Limited, Reading, England

Filed Mar. 9, 1981, Ser. No. 241,676

Claims priority, application United Kingdom, Mar. 11, 1980, 8008125

Int. Cl.³ B41F 31/26

U.S. Cl. 101—348



1. An inking pad assembly comprising an inking pad roller of absorbent material rotatable about its longitudinal axis, a sleeve mounting the roller, a spindle supporting the sleeve and roller for free rotation with a clearance over the co-operating lengths of the spindle and the sleeve, and means operative between the roller and the spindle serving to reduce said clearance and thereby enable limited pivotal motion about axes transverse to said longitudinal axis so that uneven presentation of print facets can be accommodated, said means comprising a projection on the spindle, and

an internal ring formed within the sleeve and abutting the projection.

4,362,104

FLEXOGRAPHIC PRINTING PRESS

Hiroto Imai, Fukuyama, and Sumito Arima, Mihara, both of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

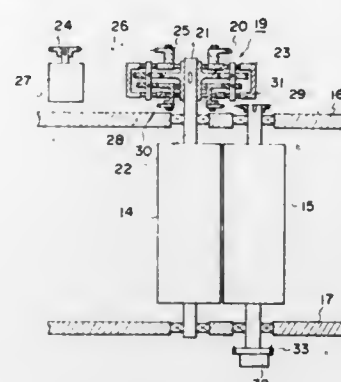
Filed Jun. 2, 1980, Ser. No. 155,784

Claims priority, application Japan, Jun. 5, 1979, 54-70239

Int. Cl.³ B41F 31/00

U.S. Cl. 101—349

3 Claims



1. A flexographic printing press wherein ink stored between an anilox roll and a doctor roll which are in contact with each other and which are rotated in opposite rotational directions is supplied via said anilox roll to a form plate attached to a printing cylinder, to thereby carry out a printing operation, comprising a speed change drive mechanism for reducing the peripheral speed of said doctor roll when the peripheral speed of said anilox roll is increased, and increasing the peripheral speed of said doctor roll when the peripheral speed of said anilox roll is decreased.

4,362,105

SHEET DRAWING DEVICE FOR A SHEET-FED ROTARY PRESS

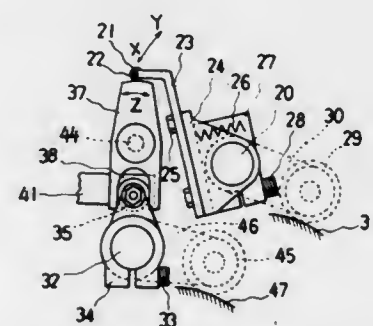
Masayuki Iwamoto, Shizuoka, Japan, assignor to Kabushiki Kaisha Shinoharatekkosho, Naganuma, Japan

Filed Apr. 17, 1981, Ser. No. 255,155

Int. Cl.³ B41F 21/04; B65H 5/12, 29/06

U.S. Cl. 101—410

1 Claim



1. A sheet drawing device for a sheet-fed rotary press comprising a main shaft, a pair of primary segment arms secured in spaced relation on the main shaft, a plurality of front-end grippers secured to a first gripper shaft which is pivotally mounted in said segment arms, means for controlling pivoting of said gripper shaft to operate said grippers, a pair of adjusting gears adjustably mounted on the main shaft, and a plurality of secondary segment arms rotatably mounted on the main shaft, wherein the improvement comprises a bearing block adjustably mounted on each of the secondary segment arms, which is pivotally mounted for adjustment about an axis perpendicular to the bearing axis of the bearing block, a sheet-drawing roll journaled in each bearing block, a plurality of fixtures secured

to a second gripper shaft which is pivotally mounted in the adjusting gears, each fixture being resiliently connected to a guide which is rotatably mounted on the second gripper shaft and which carries a freely rotatable trailing-end gripping roller that is engageable with one of the sheet-drawing rolls, means for controlling pivoting of the second gripper shaft to bring the trailing-end gripping rollers into and out of sheet gripping engagement with the sheet-drawing rolls, a third gripper shaft pivotally mounted in the adjusting gears, on which are secured a plurality of driving arms each of which carries a driving roller engaged in a recess in one of the sheet-drawing rolls, and means for controlling pivoting of the third gripper shaft, said means acting to take up slack in a sheet which is being gripped by the front-end grippers and the trailing-end gripping rollers, by driving the sheet-drawing rolls in the sheet-drawing direction.

4,362,106

FLOW DEFLECTOR FOR AIR DRIVEN POWER SUPPLY

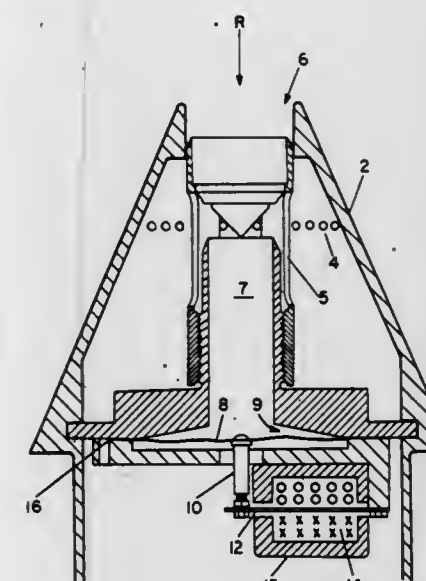
Carl J. Campagnuolo, Potomac, and Henry C. Lee, Annapolis, both of Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Apr. 21, 1980, Ser. No. 142,548

Int. Cl.³ F42C 11/00

U.S. Cl. 102—207

9 Claims



1. In a fuze having air inlet means for allowing air flow to enter the fuze deflector means for deflecting a portion of said air flow away from said inlet.

4,362,107

PRACTICE PROJECTILE

Rudolf Romer, Kaarst; Christian Jaeneke, and Günter Sikorski, both of Duesseldorf, all of Fed. Rep. of Germany, assignors to Rheinmetall GmbH, Duesseldorf, Fed. Rep. of Germany

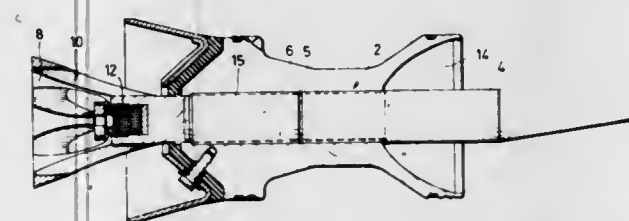
Filed Oct. 15, 1979, Ser. No. 84,758

Claims priority, application Fed. Rep. of Germany, Oct. 14, 1978, 2844870

Int. Cl.³ F42B 13/16

U.S. Cl. 102—520

4 Claims



1. A tail-stabilized subcaliber non-detonating projectile for target practice having a sabot operatively mounted thereon,

adapted to remain intact until impact practice, comprising in combination,

- (a) a casing which corresponds in weight and shape to a normal subcaliber projectile, said casing having at least one preset breaking line;
- (b) said sabot being mounted over said preset breaking line;
- (c) said preset breaking line being disposed in the zone of minimum firing loading upon the projectile casing;
- (d) said sabot being mounted on the projectile by means of an interfitting splines and grooves system, said preset breaking line being disposed in front of the rearmost extent of said interfitting splines and grooves system relative to the direction of flight of said projectile by a distance corresponding to about twice the diameter of the projectile, whereby upon impact the projectile disintegrates at said preset breaking line.

4,362,108

CONVEYOR SYSTEM

Erwin Jenkner, Lindenstrasse 13, D-7261 Gechingen, Fed. Rep. of Germany

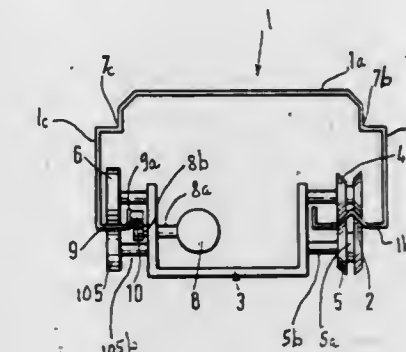
Continuation-in-part of Ser. No. 109,920, Jan. 7, 1980,

abandoned. This application Feb. 28, 1980, Ser. No. 125,358

Int. Cl.³ B61B 3/00; E01B 5/02

U.S. Cl. 104—94

16 Claims



1. In a conveyor system, the combination of a straight, elongated track having a substantially U-shaped or C-shaped cross-sectional outline and consisting at least in part of sheet metal, said track including a substantially V-shaped portion extending lengthwise of said track and a second portion spaced apart from and parallel to said V-shaped portion, and each of said portions having a first side and a second side, said track further including reinforcing means extending in parallelism with said V-shaped portion, and said track also including a pair of spaced-apart legs and a web between said legs, one of said legs comprising a ledge extending toward the other of said legs and including said V-shaped portion; and a vehicle including a first follower unit which engages said V-shaped portion and has a configuration at least partly complementary to the same so as to confine said vehicle to movement lengthwise of said track, said vehicle further including a second follower unit which engages said second portion of said track, and each of said follower units comprising a roller and a counterroller, said rollers engaging the first sides of the respective portions of said track while said counterrollers bear against the second sides thereof to thereby urge said rollers against the corresponding first sides.

4,362,109

RAILWAY VEHICLE TRUCKS

Romano Panagin, Turin, Italy, assignor to Centro Ricerche Fiat S.p.A., Turin, Italy

Filed Apr. 22, 1980, Ser. No. 142,805

Claims priority, application Italy, May 24, 1979, 68110 A/79

Int. Cl.³ B61F 3/08, 5/16, 5/30, 5/38

U.S. Cl. 105—182 R

14 Claims

1. A railway truck, said truck having a longitudinal axis extending in the direction of movement of the vehicle,

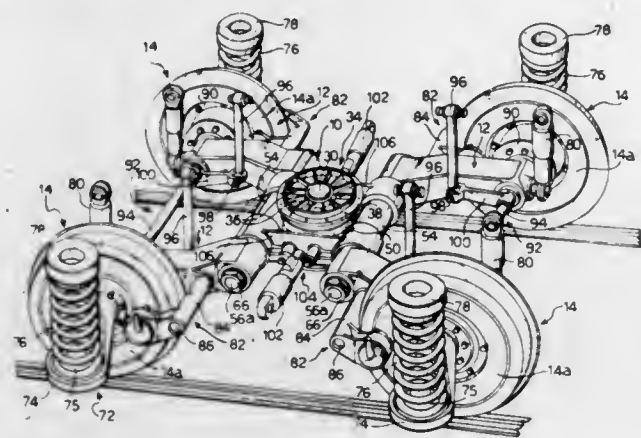
a support structure comprising a horizontal plate having central means defining a rectangular aperture having a major axis which is directed transversely to the longitudinal axis of the truck and a minor axis which is parallel to the longitudinal axis of the truck, said support structure further comprising two tubular transverse supports rigid with opposite ends of the plate in the direction of the longitudinal axis of the truck,

two shafts rotatably mounted in said tubular supports, bushes of elastomeric material interposed between said shafts and said tubular supports,

a respective pair of arms carried by each shaft with each arm carrying a transversely projecting wheel axle,

a respective wheel mounted on each said wheel axle, a helical suspension spring and an hydraulic shock absorber associated with each arm and extending upwards therefrom,

rectangular sliding block means mounted in said rectangular aperture of the support structure for substantial sliding movement along said major axis of the aperture and lim-



ited displacement along said minor axis of the aperture, the sliding block having a central hole the axis of which is vertical,

an upper plate element adapted to be connected to a vehicle body,

a truck pivot pin carried by said upper plate element and projecting downwardly therefrom, the pivot pin extending through said hole in the sliding block and terminating below said horizontal plate of the support structure,

a lower plate element fixed to the lower end of said pivot pin,

a first elastomeric-material annular element clamped between said upper plate element and the upper surface of said horizontal plate, and

a second elastomeric-material annular element clamped between the lower surface of said horizontal plate and said lower plate element, each of the annular elements of elastomeric material having a rigidity about the longitudinal axis of the truck which is less than the rigidity about the transverse axis of the truck.

4,362,110

INTERCONNECTED RAILWAY VEHICLE TRUCKS

Johann K. Pfister, Dietlikon, Switzerland, assignor to Schweizerische Lokomotiv-und Maschinenfabrik, Winterthur, Switzerland

Filed Jul. 7, 1980, Ser. No. 166,097

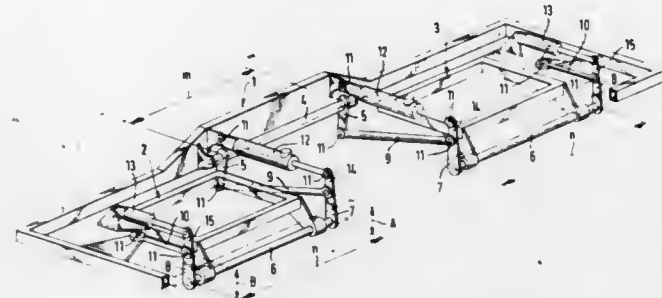
Claims priority, application Switzerland, Jul. 6, 1979, 6344/79 Int. Cl.³ B61F 3/08, 5/02, 5/38, 5/52

U.S. Cl. 105-176

8 Claims

1. A rail vehicle comprising a vehicle body; a pair of trucks rotationally and transversely supporting said body thereon; and a cross-coupling connecting said trucks together, said cross-coupling including

a torsion bar mounted on said body and extending longitudinally of said vehicle body, a pair of torsionally stiff levers, each said lever being disposed at a respective end of said torsion bar, a pair of shafts, each said shaft being mounted on a respective truck in parallel to said torsion bar, two pairs of torsionally stiff arms, each said pair of arms being disposed on the respective ends of each said shaft,



4,362,111

COVERED HOPPER CAR

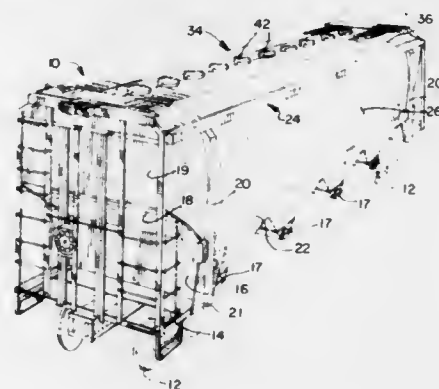
Marvin Stark, 727 Wax Myrtle, Houston, Tex. 77079, and Franklin P. Adler, 105 Boyd Cir., Michigan City, Ind. 46360

Filed Nov. 3, 1980, Ser. No. 203,242

Int. Cl.³ B61D 7/02, 17/08

U.S. Cl. 105-247

10 Claims



1. A railway hopper car adapted to carry lading which is loaded through hatch openings at the top of the car and discharged at the bottom of the car through discharge openings, the improvement comprising:

spaced side wall units extending the length of the hopper car and including a side sill connected to bolsters at each end thereof and a side plate; said side wall units comprising side sheets having an arcuate shape;

bolster posts extending upwardly from the bolster connection with the side sill having means connected to the side sill and side plate to form structural reinforcing rectangles surrounding the sides and top of the hopper car;

a roof unit having roof sheets extending across the top of the car and including curved portions sloping from the hatch openings, outwardly and downwardly to side margins adjacent the side wall units;

said side plate located at the juncture of the roof sheets and side wall unit and including means connecting the curved portions with the side sheets;

said side plate comprising a longitudinally extending beam member with a first portion abutting and attached to the

top margin of the side sheets and a side extending outwardly from the roof sheets; said side plate also including a second portion having means connected to the side sheets and with said first portion forming a hollow beam on the outside of the hopper car and extending to reinforce the upper portion of the side wall units.

4,362,112

DISCHARGE SIDE INDICATOR DEVICE FOR CASH DISCHARGE APPARATUS

Shinya Uchida, Tokyo, Japan, assignor to Laurel Bank Machine Co., Ltd., Tokyo, Japan

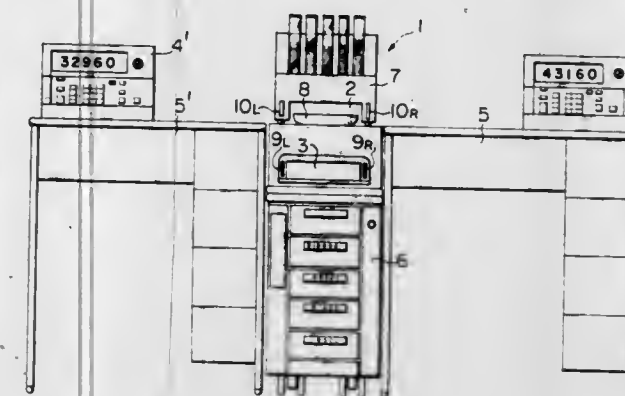
Continuation-in-part of Ser. No. 40,965, May 21, 1979, abandoned. This application Jan. 23, 1981, Ser. No. 227,778

Claims priority, application Japan, May 23, 1978, 53/61817

Int. Cl.³ E05G 7/00

U.S. Cl. 109-19

2 Claims



1. A discharge side indicator device for use with a cash discharge apparatus which comprises a bill discharge machine and a coin discharge machine located thereon, comprising: two pairs of indicator plates, one pair of which is disposed on the bill discharge machine at the opposite sides of the money discharge exit thereof, and the other pair of which is disposed on the coin discharge machine at the opposite sides of the money discharge exits thereof, said indicator plates being movable into and out of the body of said bill discharge machine and coin discharge machine, drive means for driving said indicator plates only at one side, when energized, to be protruded forward from the sides of said money discharge exits, and control means for controlling the energization of said drive means, whereby an indication is given that it is permissible to take cash out from only the side of said money discharge exits opposite to the side on which said indicator plates are protruded.

4,362,113

MECHANISM GENERATING HELICAL/ELLIPTICAL MOTION

Thomas Bock, Schaumburg; Chandrakant Bhatia, Buffalo Grove, and George M. Toman, Chicago, all of Ill., assignors to Union Special Corporation, Chicago, Ill.

Filed May 9, 1978, Ser. No. 904,207

Int. Cl.³ D05B 1/10, 57/02, 69/02

U.S. Cl. 112-199

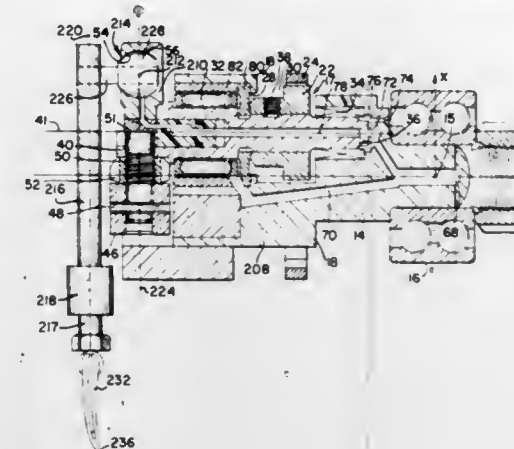
12 Claims

1. A sewing machine having a series of elements adapted to form a stitch, one of said elements comprising: work performing means;

Cardan gear means having an output which has a center-point means arranged relative to the Cardan gear means such that it generally sweeps out an ellipse having a major axis; and

lever means having said work performing means arranged for movement therewith, said lever means being operatively connected to said Cardan gear means output and mounted for reciprocal and oscillatable movement along

and about its longitudinal axis, said longitudinal axis being skewed with respect to the major axis of said ellipse such



4,362,114

TABLE TOP EMBROIDERING MACHINE HAVING A PLURALITY OF EMBROIDERING UNITS AND TO AN ADJUSTABLE TABLE TOP THEREFOR

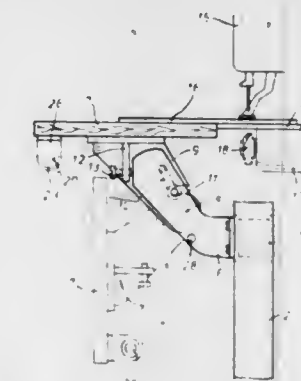
Kurt Bolldorf, Kaiserslautern, Fed. Rep. of Germany, assignor to Pfaff Industriemaschinen GmbH, Fed. Rep. of Germany Filed Sep. 10, 1980, Ser. No. 185,898

Claims priority, application Fed. Rep. of Germany, Sep. 21, 1979, 7926754[U]

Int. Cl.³ D05C 3/02; A47B 29/00

U.S. Cl. 112-217.2

8 Claims



1. A table top embroidering machine having a plurality of embroidering units with stitch plates arranged in a plane on an associated embroidering frame, comprising a step bearing adapted to be secured in position adjacent the frame, a bearing strap pivotally mounted on said step bearing for rotation about a horizontal axis, the table top carried on said bearing strap and being pivotal with said bearing strap between a horizontal position aligned adjacent the plane of the stitch plates to a substantially vertical position below the stitch plates.

4,362,115

METHOD OF AND APPARATUS FOR TOP STITCHING

John A. Rose, Knaresborough, and Keith Dyer, Leeds, both of England, assignors to AMF Incorporated, White Plains, N.Y.

Filed Sep. 15, 1980, Ser. No. 187,396

Claims priority, application United Kingdom, Sep. 14, 1979, 7931892

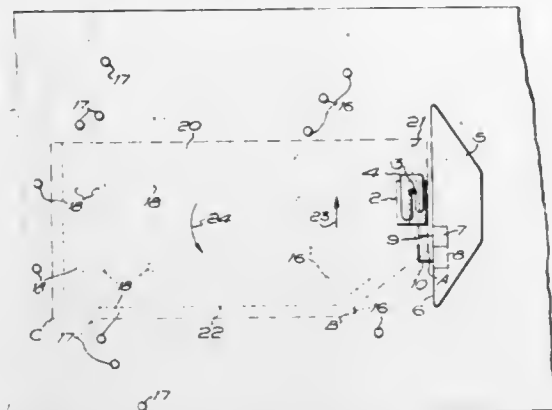
Int. Cl.³ D05B 97/00, 21/00

U.S. Cl. 112-262.3

5 Claims

1. A method for the production in a sheet material of a line of machine stitching having a change of direction, comprising the steps of continuously sensing the position of the material and controlling the production of the line of stitching thereby,

moving the material through a sewing machine at a predetermined rate to produce a first portion of the stitch line, reducing the rate of movement of the material through the machine when the sensed material approaches the position for the change of direction of the stitch line, acting on the underside of the material thereby turning the material substantially in its



own plane and simultaneously reducing the friction of the turning material until it is sensed to have reached the change of direction of the stitch line, and increasing the rate of movement of the material through the machine to the original rate of movement to produce a second portion of the stitch line along the changed direction.

4,362,116

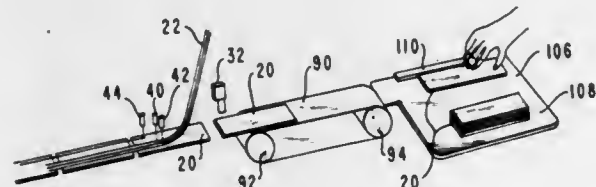
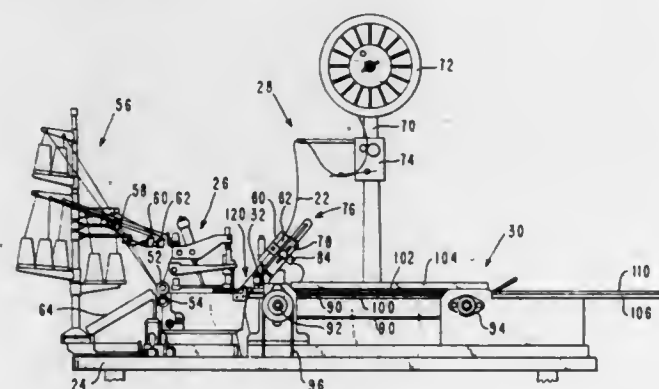
METHOD AND SEMI-AUTOMATIC APPARATUS FOR SEWING FLYPIECES TO SLIDE FASTENER CHAIN
Sisir K. Sen Gupta, and Wayne A. Becker, both of Meadville, Pa., assignors to Talon, Inc., Meadville, Pa.

Filed Dec. 10, 1980, Ser. No. 214,925

Int. Cl.³ D05B 3/12

U.S. Cl. 112—265.2

12 Claims



1. A method of sewing flypieces onto a continuous slide fastener chain, comprising the steps of guiding a continuous slide fastener chain to a sewing station defined by a sewing machine; sequentially feeding flypieces along a feed path to the sewing station by means of a conveyor; sensing the presence and absence of a flypiece at a predetermined point in the feed path spaced in front of the sewing station; operating the sewing machine in response to the sensing of the presence of a flypiece at the predetermined point; said operating including advancing the flypieces and slide

fastener chain through the sewing station, and sewing the flypieces to the slide fastener chain during the advancing; terminating operation of the sewing machine in response to the sensing of the absence of a flypiece at the predetermined point; said operating and said terminating each including delaying the operating and the terminating, respectively, of the sewing machine for selected durations after first sensing the presence and absence, respectively, of a flypiece at a predetermined point; said advancing of the flypieces and the slide fastener chain through the sewing station being performed at a first linear feed rate; and said feeding of the flypieces to the sewing station by the conveyor being performed at a second linear feed rate which is less than the first linear feed rate whereby a predetermined uniform spacing is produced between flypieces sewn to the slide fastener chain.

4,362,117

MARINE STEERING GEAR WITH EMERGENCY STEERING MEANS

Haruhiko Mishina, Nagasaki, Japan, assignor to Mitsubishi Jukogyo Kabushiki Kaisha, Japan

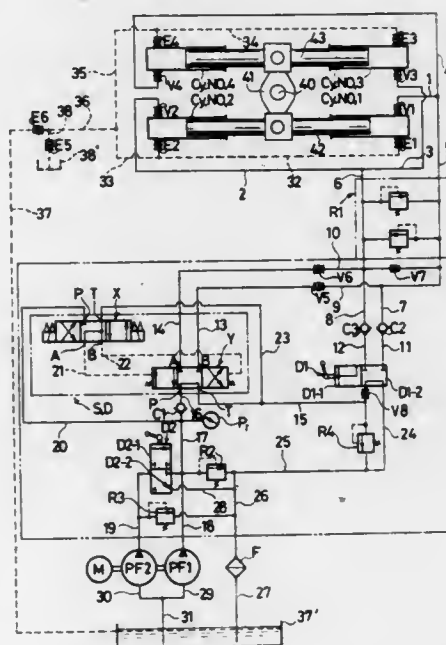
Filed Jun. 6, 1980, Ser. No. 157,276

Claims priority, application Japan, Jun. 16, 1979, 54-76076

Int. Cl.³ B63H 25/22

U.S. Cl. 114—150

7 Claims



1. An improved marine emergency steering system for controlling a fluid operated marine steering device, the steering device being of the type having a hydraulic steering engine and an actuator for actuating the steering engine, the actuator having a plurality of pressure chambers, and emergency steering means of the type having a hydraulic steering system for passing a hydraulic fluid to the plurality of pressure chambers, the improvement comprising a delivery pump, discharge line means for passing the hydraulic fluid from said delivery pump to the pressure chambers, a check valve mounted in said discharge line means at a location downstream of said delivery pump for checking back flow of the hydraulic fluid in a direction toward said delivery pump, a first relief valve mounted in said discharge line means, said first relief valve being operable to relieve hydraulic fluid from the discharge line means, a steering-directional control valve mounted in said discharge line means intermediate said check valve and the pressure chambers, an oil-charge-directional control valve mounted in said discharge line means intermediate said steering-directional control valve and the pressure chambers, said oil-charge-directional control valve having two working positions and being

operable to shift between a first one of said working positions in which fluid received from said delivery pump is passed to the pressure chambers and a second one of said working positions in which fluid received from said delivery pump is not passed to the pressure chambers, oil-charge check valves mounted intermediate said oil-charge-directional control valve and the pressure chambers for checking back flow of the hydraulic fluid in a direction toward said oil-charge-directional control valve, a second relief valve mounted in said discharge line means upstream of said oil-charge-directional control valve to relieve hydraulic fluid from said discharge line means at a set pressure corresponding to a desired charge pressure to forcibly reduce air volume in the pressure chambers, said discharge line means downstream of said steering-directional control valve comprising a first separate line including said oil-charge-directional control valve and a second separate line excluding said oil-charge directional control valve, both of said first and second separate lines being connected to the pressure chambers, and said steering-directional control valve being operable to alternately pass fluid received from said delivery pump through said discharge line means to the pressure chambers indirectly through said oil-charge-directional control valve and directly by by-passing said oil-charge-directional control valve.

4,362,118

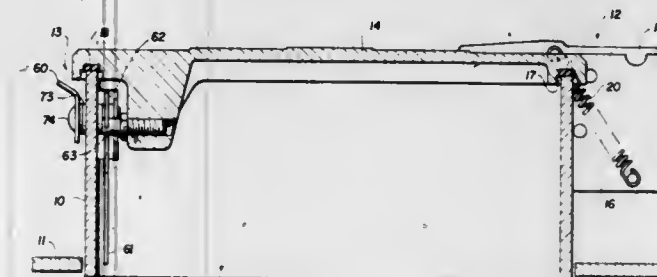
SELF-LATCHING HATCH COVER FOR BARGES
Robert C. Koch, Jr., Louisville, Ky., and Horst R. Hickmann, Cincinnati, Ohio, assignors to American Commercial Barge Line Co., Jeffersonville, Ind.

Filed Mar. 16, 1981, Ser. No. 243,742

Int. Cl.³ B63B 19/14

U.S. Cl. 114—201 R

9 Claims



1. A water tight hatch cover and coaming assembly on a barge or like vessel, comprising in combination, a manually operable cover adapted to selectively close a hatchway defined in part by the coaming assembly to keep water out and to open it for access to a cargo area, hinging means hinging the cover on the coaming assembly to move from open to closed hatchway positions thereon including a projection on said cover extending beyond the coaming and a substantially U-shaped open topped mating housing member extending from the coaming to surround the extension, a detent slot defined in said extension disposable in said housing member over the movement span of the cover, a pin extending through the housing member to engage the slot and seat in different detent positions therein for open and closed cover positions, means camming the projection against the housing member as the cover moves from an open to a closed position to move the cover slot from one detent position to another, and a quick release self-latching spring loaded lock for retaining said cover in a water tight closed position thereby permitting a deck hand to quickly open and close the hatch cover.

4,362,119

ANCHOR HOIST

Bengt Thimander, Vallingbyvagen 152, 162 21 Vallingby, Sweden

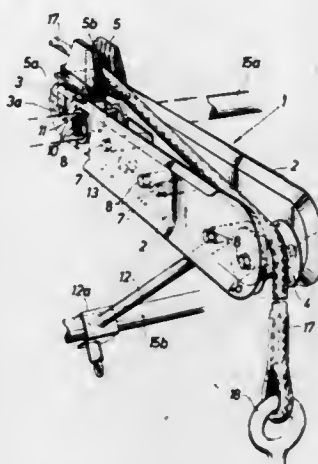
Filed Feb. 19, 1981, Ser. No. 235,790

Claims priority, application Sweden, Feb. 21, 1980, 8001382

Int. Cl.³ B63B 21/22

U.S. Cl. 114—210

5 Claims



1. An anchor hoist comprising:
a main body comprising two parallel side wall members, said main body being pivotally mounted on a pivot-forming boat fixture;
an inner sheave and an outer sheave for receiving an anchor line, said inner and outer rotatable sheave being rotatably mounted between said two side wall members of said main body, a distance between a pivoting axis of said main body upon said pivot-forming boat fixture and a rotary axis of said outer sheave being at least three times the diameter of said inner sheave;
a pivotable support device arranged on said main body in the region of an outer end thereof adjacent said outer sheave, said pivotable support device having means for engaging a further boat fixture in an in-use position of said hoist; and
a line-holding device rotatably mounted on an inner end of said main body member and having a rotary axis coinciding with said rotary axis of said main body member on said pivot-forming boat structure, said line-holding device being arranged to swing inwardly and downwardly when said anchor line is jerked inwardly of the boat so as to release said anchor line.

4,362,120

MOBILE PLATFORM OR PLATFORM TO BE USED AS FLOATING WORKSHOP

Cornelis Dekkers, Rotterdam, Netherlands, assignor to Gusto Engineering B.V., Schiedam, Netherlands

Filed Aug. 25, 1980, Ser. No. 181,242

Claims priority, application Netherlands, Aug. 24, 1979, 7906403

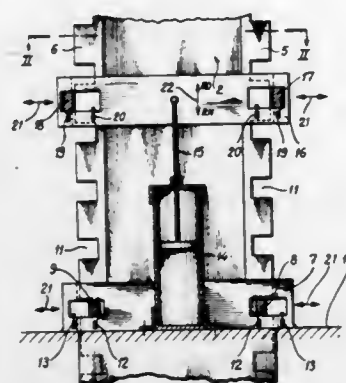
Int. Cl.³ B63B 35/44

U.S. Cl. 114—265

6 Claims

1. In a mobile platform comprising a buoyant pontoon and at least three legs movable in vertical direction relative to said pontoon, said legs being connected to said pontoon by means of a lifting-locking mechanism provided in the proximity of each leg, with which mechanism said leg can be secured and moved relative to said pontoon, said mechanism comprising at least two horizontally movable locking means spaced one above the other, said locking means cooperating with lock recesses of the leg and fitting therein with clearance in vertical sense and one locking means being disposed in a framework, said framework being movable with respect to said pontoon by means of a jack system, said locking means being adapted to act in turn on said leg, and in which each lifting-locking mechanism is provided with a safety means comprising at least one

element appertaining to each locking means, said elements recording the final positions of the locking means when said means have completed their movement, and a control circuit for the jack system; the improvement comprising a time relay in the control circuit of the jack system, said time relay interrupting the circuit when, after a previously set time which is



shorter than the time needed to traverse said clearance, the locking means moving inwards and outwards have not yet reached their final positions, said elements which record said final positions also controlling said circuit in such a manner that they interrupt said circuit when all locking means have reached their final positions, and in which also the time relay is switched off.

4,362,121

PRESSURE INDICATOR FOR PNEUMATIC TIRES

Philip H. Pegram, Leamington Spa, England, assignor to Dunlop Limited, London, England

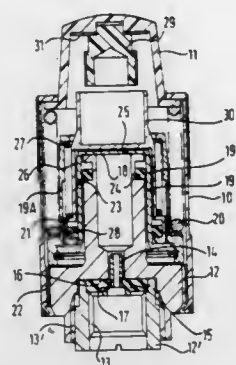
Filed Aug. 8, 1980, Ser. No. 176,685

Claims priority, application United Kingdom, Aug. 15, 1979, 792839

Int. Cl.³ B60C 23/04

U.S. Cl. 116—34 R

10 Claims



1. A deflation warning device for a pneumatic tire comprising a housing adapted to be placed in a communication with the air chamber of a pneumatic tire; a piston reciprocable in the housing, the piston being biased in one direction and moveable against said bias by tire air pressure; a brightly colored visual indicator enclosed within the housing which when is visible therein through a transparent portion of the housing when the piston is in a first position but is masked from view when the piston is in a second position and an annular, opaque mask moveable with the piston to move into or out of said housing portion to mask or unmask the colored element.

4,362,122

FLUID DISPENSING SYSTEM

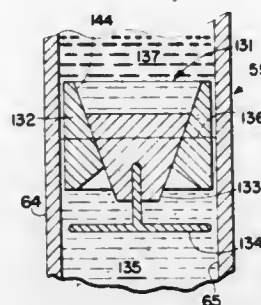
Edward J. Choinski, Wayland, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed May 4, 1981, Ser. No. 260,361

Int. Cl.³ B05B 12/00; B05C 5/02

U.S. Cl. 118—600

10 Claims



1. Coating apparatus, comprising, in combination: a cartridge battery comprising a plurality of fluid containers each adapted to contain, in superposed layers, a quantity of fluid coating composition and a quantity of drive fluid having a density less than the density of the coating composition and means for supporting said containers in a vertically oriented array; a fluid drive system comprising a set of positive displacement pumps, one for each container, each adapted to be connected to a different one of said containers to supply drive fluid to said containers and dispense coating fluid from said containers at rates equal to the rates of flow of drive fluid provided by said pumps; a coating head for applying coating compositions to a web; and means for connecting said containers to said coating head to deliver coating compositions to said coating head simultaneously at rates equal to the rates of flow of drive fluid supplied by said pumps.

4,362,123

APPARATUS FOR MANUFACTURING FLUORESCENT LAMPS

Hitoshi Yamazaki; Hiroshi Ito; Sadaharu Doi; Jun Imai, and Hiroshi Takada, all of Kamakura, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 127,522, Mar. 5, 1980, Pat. No. 4,308,297.

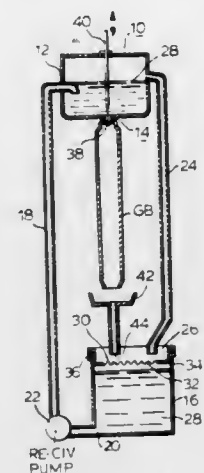
This application Oct. 21, 1980, Ser. No. 199,221

Claims priority, application Japan, Mar. 12, 1979, 54-28366

Int. Cl.³ B05C 7/04

U.S. Cl. 118—642

34 Claims



1. An apparatus for manufacturing a fluorescent lamp comprising:
a coating unit including:
an upper tank;
a coating nozzle disposed on said upper tank for causing a phosphor suspension to flow down on the inner surface

of a glass bulb therethrough to form a phosphor layer thereon;
a lower tank for recovering and accommodating a surplus of said phosphor suspension flowing down from said upper tank;
a suspension supply pipe for supplying said phosphor suspension to said upper tank from said lower tank therethrough;
and a filter unit for removing bubbles in said phosphor suspension and disposed within at least one of said upper and lower tanks;
and a baking unit disposed adjacent said coating unit for baking said phosphor layer on said glass bulb and including:
a pair of guide rails for guiding said glass bulb coating with said phosphor layer;
a pair of endless conveyors juxtaposed with said guide rails;
a plurality of guide tips affixed at predetermined equal intervals on each of said endless conveyors to project above its mating guide rail;
and a heating furnace for heating and baking said phosphor layer on said inner surface of said glass bulb while said glass is transported along said guide rails by means of said endless conveyors and an associated one of said plurality guide tips;
said coating nozzle including a stationary injection port disposed at an extremity of said coating nozzle so as to inject the phosphor suspension through a flow passageway disposed within said coating nozzle to reach the extremity thereof, an opening and closing valve disposed within said flow passageway to open and close said flow passageway through vertical movement thereof, and a liquid reservoir portion disposed between said opening and closing valve and said stationary injection port and arranged so as to be always filled with the phosphor suspension.

4,362,124

ANALOG PAINT OUTPUT CONTROL

Gunther Fleig, Hanau, Fed. Rep. of Germany, assignor to Ransburg Corporation, Indianapolis, Ind.

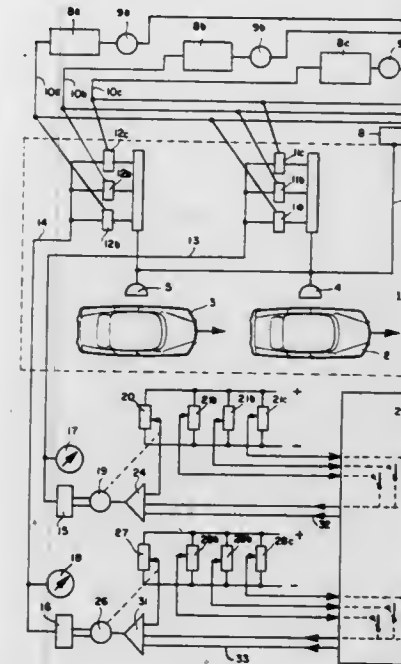
Continuation of Ser. No. 35,105, May 1, 1979, abandoned. This application May 8, 1981, Ser. No. 261,930

Claims priority, application Fed. Rep. of Germany, May 2, 1978, 2819302

Int. Cl.³ B05C 5/00

U.S. Cl. 118—698

10 Claims



1. A control system for the coating of articles in a production operation in which the articles are conveyed sequentially past an atomizing device for atomizing coating material, a

plurality of different coating material sources, and means for coupling the atomizing device to the different coating material sources, the control system including a plurality of coating material pressure regulators, one for each different coating material to be dispensed from the atomizing device, the means for coupling the atomizing device to the different coating material sources including the coating material pressure regulator, the coating material pressure regulator including a control input, an analog coating material pressure control means for generating a signal related to the desired coating material pressure to be maintained by the coating material pressure regulator, the analog coating material pressure control means including a control input and a controlled output, means for coupling the control input of the coating material pressure regulator to the controlled output of the analog coating material pressure control means, a plurality of signal sources, each providing a signal corresponding to one of a plurality of selected desired different coating material pressures, and means for coupling the signal sources to the analog coating material pressure control means including a plurality of switches and means for switching the switches in a selected desired sequence corresponding to the sequence in which the articles are conveyed past the atomizing device and the characteristics of the different coating materials and the articles themselves to insure that each article is coating substantially uniformly with the proper amount of a selected coating material.

4,362,125

QUARTZ OSCILLATOR MEASURING HEAD

Walter Schädler, Triesen, Liechtenstein, assignor to Balzers Aktiengesellschaft, Liechtenstein

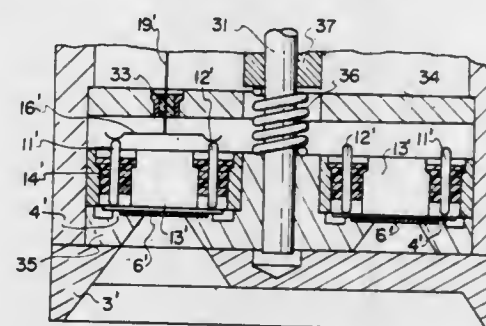
Filed Jul. 16, 1981, Ser. No. 283,885

Claims priority, application Switzerland, Jul. 21, 1980, 5557/80

Int. Cl.³ B05C 11/00

U.S. Cl. 118—712

7 Claims



1. In an oscillator crystal measuring head for vacuum coating apparatus, for determining the mass of substance which is being deposited on an oscillator crystal during a deposition of thin layers by a vapor stream, and by which the frequency of the crystal is changed, comprising a housing, a support accommodated in said housing for at least one oscillator crystal, at least one electrical conductor connected to a mechanism for clamping the oscillator crystal and a screen rigidly connected to the housing and provided with a window exposing one side of the oscillator crystal to the vapor stream to be measured during the measuring operation, the improvement comprising, said support being mounted in said housing for performing a rotary motion and provided with retaining mechanisms for a plurality of oscillator crystals, each individual oscillator crystal being associated with further screens which are movable along therewith and provided with apertures to define surface areas of each crystal to be coated with at least the screen of the oscillator crystal just occupying its measuring position brought into a heat conducting pressure contact with the screen which is connected to the housing.

4,362,126

BIRD SHOWER

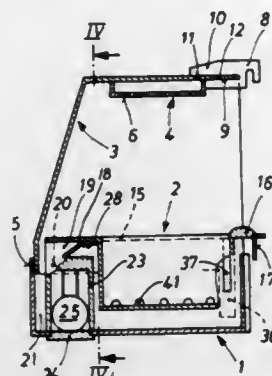
Herbert Ellerstorfer, Bismarckstrasse 133, 8500 Nürnberg, and Leopold Anetseder, Arnoldstrasse 13, 8000 München, both of Fed. Rep. of Germany

Filed Apr. 21, 1980, Ser. No. 142,158

Int. Cl.³ A01K 29/00

U.S. Cl. 119—1

29 Claims



1. A bird-shower bath comprising a shower-head positioned over a bottom portion, said bottom portion serving as a water reservoir and being substantially open at its top to receive water from said shower-head; a movable platform adaptable to accommodate a bird and positioned in said bottom portion; a biasing means to maintain said movable platform in a rest position; an electrically operated pump positioned to receive and transfer water from said bottom portion to said shower-head; a conduit, means for transferring the pumped water, connected at one end to said pump and at the other end to said shower-head; a switching means operatively connected to said pump, said switching means comprising a combination of a reed relay mounted on said bottom portion and a magnet mounted on said movable platform and being actuated by movement of said movable platform from its rest position whereby the force exerted by a bird contacting said movable platform actuates said switching means causing said pump to operate and transfer water from said bottom portion to said shower-head.

4,362,127

MILKING BARN SYSTEM AND APPARATUS

Floyd P. Nielsen, Phoenix, and Thomas A. Wallender; Chandler, both of Ariz., assignors to Nielsen Industries, Inc., Phoenix, Ariz.

Filed Jun. 18, 1981, Ser. No. 274,978

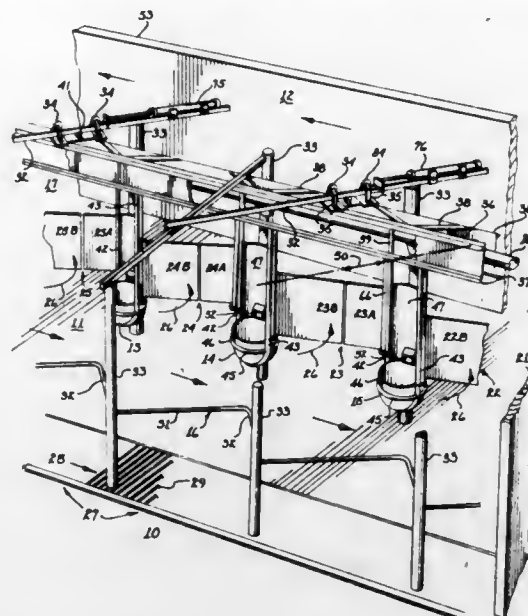
Int. Cl.³ A01K 1/12

U.S. Cl. 119—14.03

15 Claims

1. In a herringbone stall at least one pair of adjacent cow stations comprising a zig-zag stationary tail assembly for receiving the rear and rear side portions of at least two adjacent cows, a reciprocable framework mounted adjacent the head portions of adjacent cows, adjacent feed bowl frameworks being suspended from said reciprocable framework, each of said feed bowl frameworks cooperating with a respective one of said adjacent rear portions to form an individual cow stall, the space between said feed bowl frameworks and said rear and side portions defining an ingress aisle for cows, first and second gate sections mounted on each of said feed bowl frameworks, said first gate sections being pivotally mounted for clockwise rotation outwardly on one side of said feed bowl frameworks and said second gate sections being pivotally mounted for counterclockwise rotation outwardly on the opposite side of said feed bowl frameworks, the first gate section mounted on one feed bowl framework and the second gate section mounted on the adjacent feed bowl framework forming the gate for one cow, the line of said first and second gate sections for each stall has an acute angularity relative to the line of said cow stations,

an egress aisle on the side of said feed bowl frameworks opposite to said ingress aisle, and means on said framework for



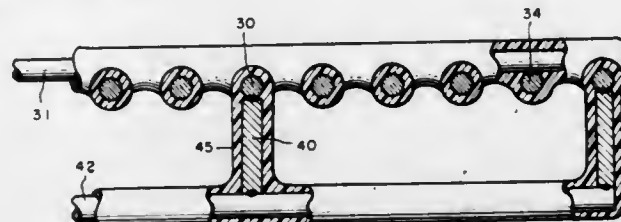
4,362,128
LIVESTOCK FLOORING
Bernard L. Downey, Oak Brook, Ill., assignor to B. L. Downey Company, Inc., Cicero, Ill.

Filed Jun. 26, 1981, Ser. No. 277,896

Int. Cl.³ A01K 1/01

U.S. Cl. 119—28

7 Claims



1. A livestock flooring panel, comprising:
a. a horizontal deck;
b. said deck including a plurality of steel base wires extending parallel to each other a first predetermined substantial uniform distance apart;
c. said deck further including a plurality of steel filler wires extending parallel to each other a second predetermined substantial uniform distance apart;
d. said filler wires extending perpendicular to said base wires and engaging them at intersections;
e. means fastening said filler wires and said base wires together at said intersections;
f. a plurality of individual, elongated steel support bars depending from said deck between its edges and adapted to support said deck from a support surface;
g. said support bars being separately welded to certain of said steel wires in at least one of said sets of steel wires; and
h. a resilient plastic coating material substantially uniformly covering the base wires, filler wires and support bars after they are welded together.

4,362,129

STEAM GENERATOR USING WASTE HEAT FROM GLASS FURNACE

Jozsef Banfi; Zoltan Lontay; Zoltan Vadas, and Bela Wenzel, all of Budapest, Hungary, assignors to Energiagazdalkodasi Intezet, Budapest, Hungary

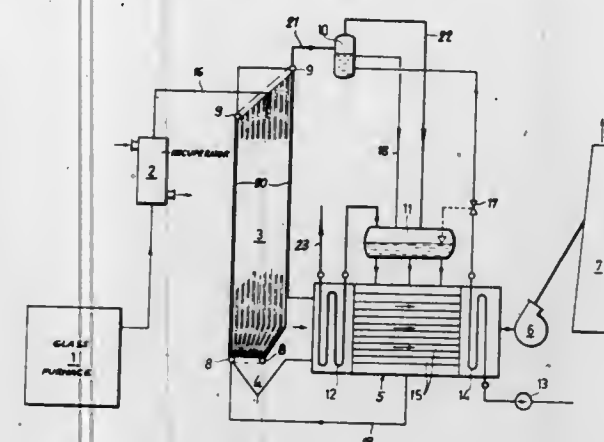
Filed Oct. 30, 1979, Ser. No. 89,388

Claims priority, application Hungary, Oct. 31, 1978, EE 2595

Int. Cl.³ F22D 1/00

U.S. Cl. 122—7 R

6 Claims



1. A steam generator utilizing waste heat from a source of flue gases, provided with a recuperator traversed by said flue gases at an elevated level above ground, comprising:
a cooling column with an upper inlet connected to said recuperator for receiving hot flue gases therefrom, said column being provided with a bank of generally vertical pipes abstracting heat from said flue gases and being further provided with a lower outlet for said flue gases;
a convective boiler disposed at ground level and provided with an entrance end connected to said outlet and with an exit end communicating with a chimney;
a supply of cooling water; and
conduit means including said bank of pipes for consecutively carrying said cooling water from said supply through said boiler and said column in counterflow to said flue gases and for passing resulting steam to a load.

4,362,130

SUPPLEMENTARY COMPOSITION FOR AND A METHOD OF COMBUSTION-BURNING OF GASOLINE

Antonio Robinson, 644 Sound Ave., New York, N.Y. 10473

Filed May 26, 1981, Ser. No. 266,995

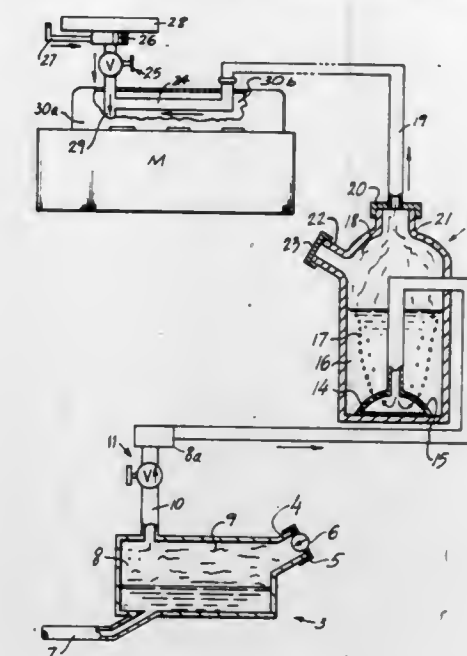
Int. Cl.³ F02B 47/04

U.S. Cl. 123—1 A

13 Claims

1. A method of combustion-burning gasoline in an internal combustion engine, comprising in combination; admix air, gasoline vapor, and fine vaporous droplets of a water solution of a metal hydroxide that is at least slightly soluble in water at ambient temperatures; sufficiently to form a first mixture in vaporous form; thereafter heating said first mixture; thereafter

admixing said heated first mixture with a gasoline-air fuel mixture sufficiently to form a final fuel mixture in a



heated state; and combustion-burning the final fuel mixture within a combustion fuel chamber.

4,362,131

ENGINE COOLING SYSTEM

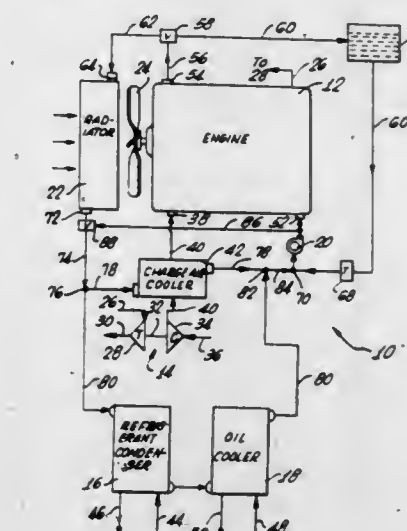
John L. Mason, and Robert C. Emmerling, both of Los Angeles, Calif., assignors to The Garrett Corporation, Los Angeles, Calif.

Filed Dec. 10, 1980, Ser. No. 215,206

Int. Cl.³ F01P 3/12, 7/14

U.S. Cl. 123—41.1

31 Claims



1. In a combustion engine system including a combustion engine, a charge air cooler heat exchanger, a refrigerant condenser, and an oil cooler, an engine cooling system, comprising:

a circulating pump for circulating a liquid coolant into and through the engine;
splitter means for splitting the liquid coolant exiting the engine into a primary flow constituting a substantial majority of the liquid coolant for recycle to said pump and a secondary flow constituting a substantial minority of the liquid coolant;
a cooling heat exchanger coupled to said splitter means for passage of said secondary flow to reduce substantially the temperature level thereof;
means for dividing said secondary flow exiting said cooling heat exchanger for flow in parallel through the charge air cooler heat exchanger and through in series the refrigerant condenser and the oil cooler; and

means for recombining said divided secondary flow and for returning the same to said pump for mixture with said primary flow and recirculation into and through the engine.

19. In a combustion engine system including a combustion engine, a charge air cooler heat exchanger, a refrigerant condenser, and an oil cooler, a method of cooling the combustion engine system comprising the steps of:
- circulating with a pump a liquid coolant into and through the engine;
 - splitting the liquid coolant exiting the engine into a primary flow constituting a substantial majority of the liquid coolant for recycle to the pump and a secondary flow constituting a substantial minority of the liquid coolant;
 - passing the secondary flow through a cooling heat exchanger to reduce substantially the temperature level thereof;
 - dividing the secondary flow for passage in parallel through the charge air cooler heat exchanger and through in series the refrigerant condenser and the oil cooler; and
 - recombining the divided secondary flow and returning the same to the pump for mixture with the primary flow and recirculation into and through the engine.

4,362,132

TWO-CYCLE ENGINE

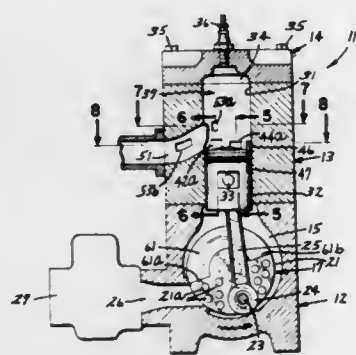
Clayton L. Neuman, 11440 Olive St., Coon Rapids, Minn. 55433

Filed Jan. 12, 1981, Ser. No. 224,256

Int. Cl.³ F02B 33/04

U.S. Cl. 123—73 D

22 Claims



1. A two-cycle internal combustion engine operable through combined cycles of intake, compression, combustion and exhaust, comprising:

- (a) engine housing means defining
 - (i) a combustion chamber;
 - (ii) and a crankcase communicating with the combustion chamber, the crankcase having a partially cylindrical configuration;
- (b) piston means disposed between the combustion chamber and crankcase and reciprocally movable to inversely vary the volume thereof with reciprocation;
- (c) said engine housing means further defining
 - (i) transfer passage means establishing fluid communication between the combustion chamber and crankcase, the transfer passage means having inlet port means opening in the crankcase and terminating in transfer port means in the combustion chamber;
 - (ii) and exhaust passage means establishing fluid communication between the combustion chamber and atmosphere and terminating in exhaust port means in the combustion chamber;
- (d) the piston means being constructed and disposed to open and close the transfer and exhaust port means in accordance with said combined cycles of intake, compression, combustion and exhaust;
- (e) crankshaft means rotatably carried in said housing means and including crank disc means disposed in the crankcase, the disc means being sized and configured in conformance to the partially circular configuration of the crankcase;
- (f) connecting rod means for operably connecting the piston

means at an eccentric point on the crank disc means so that reciprocal downstroke and upstroke movements of the piston means cause rotational movement of the crankshaft means;

- (g) fuel pocket means disposed on the periphery of the crank disc means in substantial opposition to said eccentric point;
- (h) and fuel inlet port means disposed in said engine housing for communication with the fuel pocket means;
- (i) said fuel inlet port means and crank disc means being so disposed and arranged that the fuel pocket means communicates with the fuel inlet port means as the piston means moves through its upstroke;
- (j) said transfer inlet port means and crank disc means being so disposed and arranged that the fuel pocket means tangentially throws its fuel charge into the transfer passage means as the piston means moves through its downstroke.

4,362,133

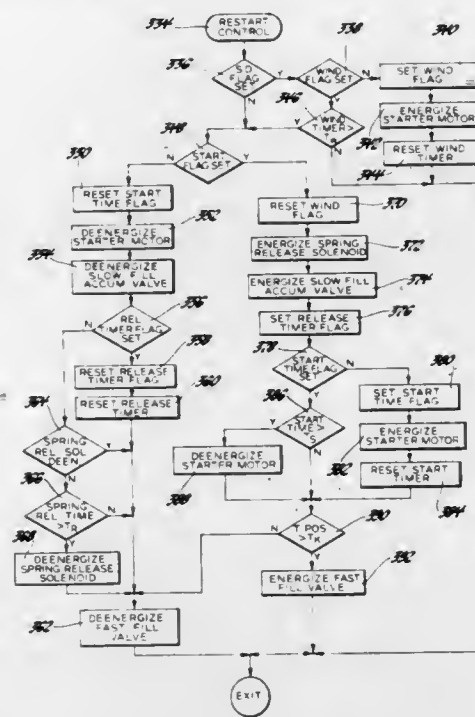
AUTOMATIC ENGINE SHUTDOWN AND RESTART SYSTEM

Marvin J. Malik, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed May 8, 1981, Ser. No. 261,804

Int. Cl.³ F02N 17/00

4 Claims



1. An automatic restart system for a vehicle internal combustion engine including a starter motor and a manually operable member for controlling engine operation, the system comprising:

- an engine driven automatic transmission for transmitting drive power to the vehicle, the transmission including a fluid pressure source, a fluid engageable drive establishing means having a fluid chamber and providing an engagement force varying with fluid pressure in the chamber and a manually operable shift valve in fluid communication with the fluid pressure source and being selectively operable among a plurality of drive positions including an automatic forward drive position, the shift valve coupling the fluid pressure source to an output drive port when in the automatic forward drive position; and
- means effective to automatically start the engine while the shift valve is in the automatic forward drive position, said means including (A) means responsive to a first condition of the manually operable member representing a commanded standing start effective to energize the starter motor and fill the chamber in the fluid engageable drive establishing means at a rate to slowly pressurize the cham-

ber for slowly increasing the engagement force for a standing start, (B) means responsive to a second condition of the manually operable member representing a commanded driveaway start effective to energize the starter motor and fill the chamber in the fluid engageable drive establishing means at a rate to quickly pressurize the chamber for quickly increasing the engagement force for a driveaway start, and (C) means responsive to the starting of the engine effective to deenergize the starter motor.

4. The method of shutting down and restarting a vehicle internal combustion engine having a fuel supply means, a manually operable throttle valve for controlling air flow into the engine, a starter motor and an engine driven automatic transmission having a shift valve operable among a plurality of drive positions including a forward drive position and a forward drive clutch providing an engagement force varying with the fluid pressure therein, the method comprising the steps of:

- disabling the fuel supply means when the throttle valve is closed and the shift valve is in the forward drive position so as to shut down the engine;
- sensing the opening of the throttle valve;
- energizing the starter motor and slowly pressurizing the forward drive clutch to provide a slowly increasing engagement force in response to a first characteristic of the throttle valve opening representing a commanded standing start;
- energizing the starter motor and quickly pressurizing the forward drive clutch to provide a quickly increasing engagement force in response to a second characteristic of the throttle valve opening representing a commanded driveaway start; and
- deenergizing the starter motor when the engine is running.

4,362,134

SHIELDED VALVE

Roger P. Worthen, Farmington Hills, Mich., assignor to Eaton Corporation, Cleveland, Ohio

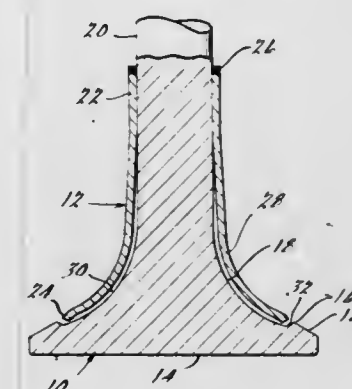
Continuation of Ser. No. 908,330, May 22, 1978, abandoned.

This application Sep. 22, 1980, Ser. No. 189,472

Int. Cl.³ F01L 3/20

U.S. Cl. 123—188 AA

6 Claims



1. In an intake valve of the type including a surface defining a face portion normally exposed to combusting gases in a combustion chamber of an expansible chamber engine, a frustoconical valve seat portion having a minor diameter, a stem portion partly exposed to incoming air for the chamber, and a fillet portion disposed between the seat and stem portions and also exposed to the incoming air,

- a fillet heat shield fixed against movement relative to the valve, said shield having a portion covering the fillet portion and a part of the stem portion for reducing the amount of heat flow from the fillet and stem portions to the incoming air, said fillet heat shield being fixed to the stem portion at its end distal from the valve seat portion, the surface of said shield adjacent the stem portion and fillet portion and the covered surface of the valve defining a thermal insulating cavity closed at its fixed end and open

at its other end positioned radially inward of the inner diameter of the frustoconical valve seat.

4,362,135

PISTON RING OF INTERNAL COMBUSTION ENGINE

Shoichiro Irimajiri, Kawagoe, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

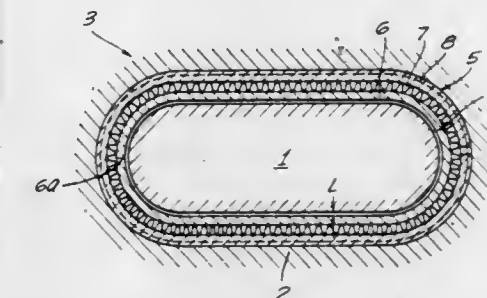
Continuation of Ser. No. 49,735, Jun. 18, 1979, abandoned. This application May 11, 1981, Ser. No. 262,350

Claims priority, application Japan, Jun. 26, 1978, 53-86845[U]

Int. Cl.³ F16J 9/06

U.S. Cl. 123—193 P

2 Claims



1. An internal combustion engine having an oblong cylinder wall and an oblong piston mounted to reciprocate therein, a continuous piston ring groove formed in said piston, an oblong piston ring assembly positioned within said groove and comprising three discrete rings, an outer ring, an inner ring and an intermediate resilient expander ring, said outer ring provided with an outer periphery in surface contact with said cylinder wall, said inner ring being formed of a material having a high degree of stiffness and substantially continuous about the periphery of said piston ring groove, with only one pair of ends said ends being in abutting relationship, said resilient expander ring being formed of a corrugated plate spring and supported on said inner ring to exert a predetermined expanding force on said outer ring, said inner ring being normally spaced from the inner periphery of said piston ring groove so that lateral displacement of said piston ring assembly is limited by the amount of said spacing during any lateral movement of the piston, thereby equally distributing the load of the corrugated plate spring of said expander ring positioned between the inner ring and the outer ring wherein said outer ring has only one pair of ends defining a single gap therebetween, said gap being positioned opposite from the ends of said inner ring along a central long axis of said oblong piston.

4,362,136

INTERNAL COMBUSTION ENGINE PISTON

Stefan Lipp, Neuhausen, Fed. Rep. of Germany, assignor to Mahle GmbH, Stuttgart, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 88,586, Oct. 26, 1979,

abandoned. This application Jan. 20, 1982, Ser. No. 341,017

Claims priority, application Fed. Rep. of Germany, Nov. 14, 1978, 2849276

Int. Cl.³ F02F 3/02

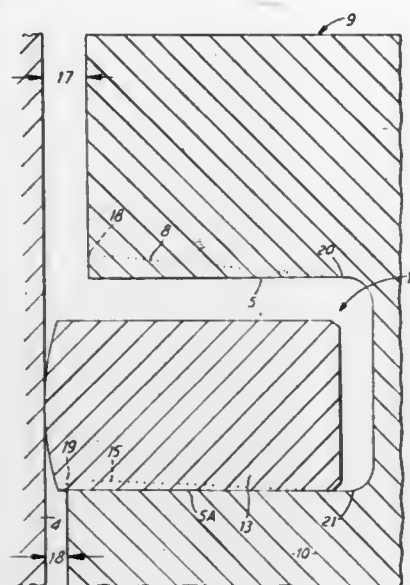
U.S. Cl. 123—193 P

2 Claims

1. A piston for an internal combustion engine having a crown at its upper end and an annular groove in the surface of its outer circumference for receiving a piston ring to be located in said groove, said groove having a generally axially extending inner wall joining together an upper flank and a lower flank, the upper flank being closer to the crown of the piston than the lower flank, said upper and lower flanks being manufactured at angles such that, in a cold condition of the piston:

- (a) the upper flank is angled radially upwardly, and has its outer edge located above a region formed by the upper flank meeting the inner wall,
- (b) the lower flank is angled radially upwardly, and has its outer edge located above a region formed by the lower flank meeting the inner wall

(c) the angle of the upper flank is smaller than that of the angle of the lower flank is relation to the piston axis so that the outer edges of the flanks are further apart than their inner corners.



(d) the angles of the flanks are such that under normal hot running conditions in an engine the flanks both assume positions substantially in planes at right angles to the piston axis.

4,362,137

HYDROGEN PYROLYSIS FUEL INJECTION

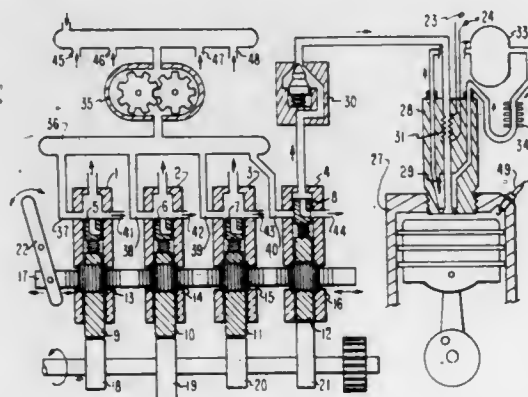
Louis R. O'Hare, 1041 Ponderosa #2, Ft. Collins, Colo. 80521

Filed May 7, 1980, Ser. No. 147,486

Int. Cl.³ F02B 43/08; F02M 31/20, 31/02

U.S. Cl. 123—295

4 Claims



1. A hydrogen enrichment fuel injection system for burning ultralean fuel-air mixtures in gasoline type engines comprising, variable metering and high pressure pumping means for pumping discrete metered quantities of liquid fuel in consecutive pulses with these metered quantities being controllable to coincide with variable engine power demands, the greater the demand the more the fuel metered, and timing means whereby the consecutive pulses arrive at cylinders of the engine one after another, first at one cylinder then at another and so on in an order which is determined by engine firing order and at such a time duration in each cylinder that each cylinder receiving fuel in its proper sequence is at a period in its compression cycle when it begins to receive the pulse of fuel and has completed receiving the fuel pulse in a period before the completion of that same compression cycle and, pressure valving control means whereby fuel injection begins only when injection pressure is high enough to assure a positive pressure surge into the cylinder against air being compressed in each cylinder and, controlled hydrogen removal injector means comprising an injector housing containing a pyrolysis means comprising

a chamber wherein each discrete fuel quantity is heated separately and by this heating effecting a partial pyrolysis of the liquid fuel thereby separating a quantity of hydrogen gas from the fuel and a cooling means for cooling a resulting mixture of the hydrogen gas and remaining fuel below ignition temperature by ducting said mixture through a cooler, wherein said mixture is injected into each cylinder while still under the pressure exerted by the fuel pumping means and, a fuel-air ignition means.

4,362,138

CHANGEABLE LENGTH
ACCELERATOR-CARBURETOR-SPEED REGULATOR
LINKAGE

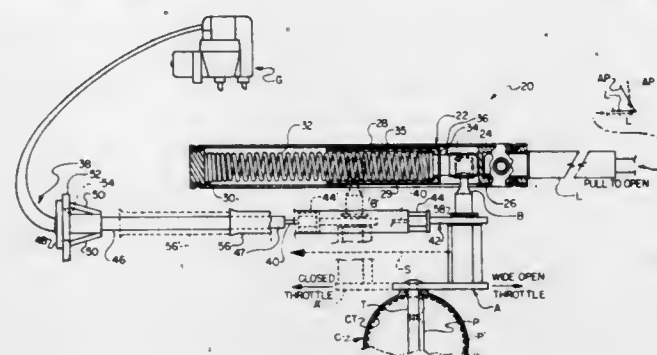
Ronald M. Krueger, Wrightsville Beach, and Harry D. Sturdy, Wilmington, both of N.C., assignors to Sturdy Truck Equipment, Inc., Wilmington, N.C.

Filed Apr. 8, 1981, Ser. No. 252,224

Int. Cl.³ F02D 1/08, 1/04, 31/00, 33/00

U.S. Cl. 123—342

6 Claims



1. A throttle actuator for an engine having a throttle, a governor, and a driver operated accelerator means, said actuator including:

- (a) first biasing means associated with said throttle for biasing it toward its closed position;
- (b) a throttle-linking means adapted to be connected between said accelerator means and said throttle and having a predetermined effective length for normally permitting said accelerator means to control the energy supply to said engine by exerting force on said throttle sufficient to overcome the biasing force exerted by said first biasing means for positioning said throttle in opposition to said first biasing means between full open and full closed positions;
- (c) an overriding throttle closing linkage operated by said governor and associated with said throttle for exerting force thereon in opposition to the force exerted thereon by said throttle-linking means to urge said throttle toward its closed position under the influence of said governor; and
- (d) means associated with said throttle-linking means for changing said predetermined effective length thereof when said accelerator means is operated to move said throttle from its closed position and said overriding linkage is operated to move said throttle toward its closed position; said length changing means comprising:
 - (i) a connecting link having relatively movable elements associated respectively with said accelerator means and said throttle and
 - (ii) second biasing means slightly stronger than said first biasing means for normally maintaining said movable elements in fixed relation to one another by exerting force therebetween during normal operation of said throttle by said accelerator means and for permitting relative movement of said movable elements to change the effective length of said throttle linking member when the combined forces exerted by said first biasing means and said overriding linkage exceed the force exerted by said second biasing means in opposition

thereto whereby operation of the accelerator means is not significantly affected by the operation of said overriding means.

4,362,140

LIQUID FUEL INJECTION PUMPS

John R. Jefferson, Rainham, and Frank Cunliffe, Doddington, both of England, assignors to Lucas Industries Limited, Birmingham, England

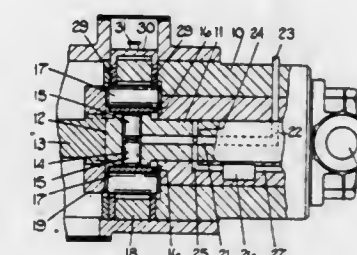
Filed Oct. 2, 1980, Ser. No. 193,086

Claims priority, application United Kingdom, Oct. 20, 1979, 7936479

Int. Cl.³ F02D 31/00

U.S. Cl. 123—366

3 Claims



4,362,139

VIBRATION ABSORBER FOR CENTRIFUGAL
GOVERNOR

Hiroshi Isobe, Masao Yoshino, and Koji Fukushima, all of Higashi-Matsuyama, Japan, assignors to Diesel Kiki Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 969,319, Dec. 14, 1978, Pat. No.

4,263,881. This application Feb. 13, 1981, Ser. No. 234,399

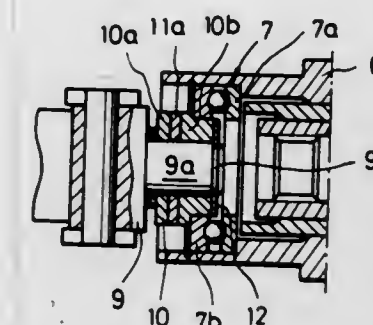
Claims priority, application Japan, Dec. 28, 1977, 52-175760

The portion of the term of this patent subsequent to Apr. 28, 1997, has been disclaimed.

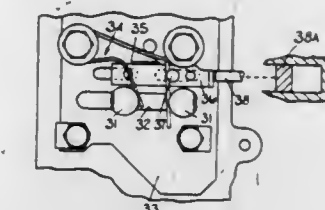
Int. Cl.³ F02D 31/00

U.S. Cl. 123—364

8 Claims



1. A centrifugal governor for use with a fuel injection pump controlling the speed of an engine, the governor comprising: a rotatable cam shaft adapted to be drivingly coupled to said fuel injection pump; a plurality of flyweights pivotally mounted on said cam shaft so as to pivotally move radially outwardly of said cam shaft due to acceleration in the rotation of said cam shaft and to pivotally move inwardly toward said cam shaft due to a deceleration in the rotation of said cam shaft; a shifter coupled to said flyweights and arranged for displacement in response to said radially outward and inward pivotal movements of said flyweights, said shifter having two ends, one end of which comprises an extending member; said governor being actuatable in response to said displacement of said shifter for varying the injection quantity of said fuel injection pump to provide a controlled engine speed; a sleeve arranged for displacement in response to said radially outward and inward pivotal movements of said flyweights, said extending member at said one end of said shifter being engaged within said sleeve for displacement together with said sleeve; a bush fitted over said extending member at said one end of said shifter, said bush being axially split in two parts; and a vibration damper means having opposite sides respectively interposed between said two parts of said bush so as to be located between said sleeve and said extending member of said shifter for absorbing vibrations of said flyweights, thereby preventing said flyweight vibrations from being transmitted to said shifter.



1. A liquid fuel injection pump for supplying fuel to a multi-cylinder internal combustion engine and of the kind comprising a rotary distributor member housed in a body and driven in use in timed relationship with an associated engine, a transverse bore formed in the distributor member and a plunger in said bore, a delivery passage communicating with the bore and arranged to register in turn with outlets in the body, as the distributor member rotates and during successive inward movement of the plunger, a cam ring surrounding the distributor member and having inwardly extending cam lobes for imparting said inward movements to the plunger, fuel supply means for supplying fuel to the bore during at least part of the time when the plunger is allowed to move outwardly by the cam lobes, said fuel supply means including an inlet port in the body to which fuel is supplied from a low pressure source, means for controlling the amount of fuel supplied through said port and stop means for limiting the outward movement of the plunger, said stop means comprising a ring mounted in the body for angular movement, said ring having a profile on its internal surface for engagement by a part associated with the plunger to limit the outward movement of the plunger, means effecting angular adjustment of said ring so that the amount of fuel which can be supplied to said bore can be varied, said means including a movable member, a first coiled torsion spring continuously biasing said member to a first position in which the ring is set for the normal maximum amount of fuel supply to the engine, a second coiled torsion spring stronger than said first spring continuously acting on said member to oppose the force produced by the first coiled torsion spring to continuously urge the member toward a second position in which the ring is set for an extra or excess amount of fuel supply to the engine, and means operable in use to force said member in the same direction as the first torsion spring so that the force exerted by said second spring on the member is overcome and the member is moved to said first position.

4,362,141

FUEL INJECTION PUMPING APPARATUS

Dorian F. Mowbray, Burnham, England, assignor to Lucas Industries Limited, Birmingham, England

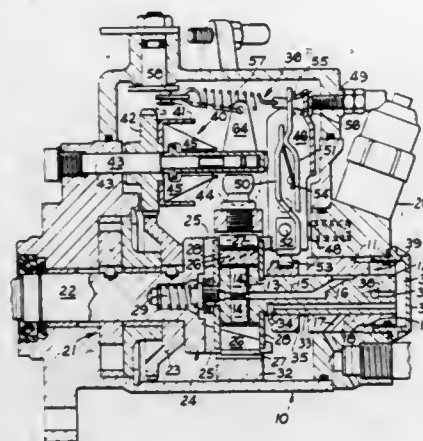
Filed Jan. 27, 1981, Ser. No. 228,785

Claims priority, application United Kingdom, Feb. 16, 1980, 8005311; Dec. 31, 1980, 8041538

Int. Cl.³ F02M 39/00

U.S. Cl. 123—449

16 Claims



1. A fuel injection pumping apparatus for supplying fuel to an internal combustion engine comprising a body part, a rotary distributor member located in the body part, an outwardly extending bore formed in the distributor member and a plunger located therein, means for feeding fuel to said bore to move the plunger outwardly during a filling stroke of the apparatus, a delivery passage communicating with the bore and arranged to register with an outlet port in the body part during a delivery stroke of the apparatus, a cam for imparting inward movement to the plunger to effect delivery of fuel, stop means for limiting the outward movement of the plunger and means for varying the axial setting of the distributor member, said stop means being arranged so that the amount of fuel delivered during the delivery stroke depends upon the axial setting of the distributor member, resilient means for biasing the distributor member in one axial direction, a variable volume chamber defined in part by an end face of the distributor member, said resilient means acting to urge the distributor member in a direction to reduce the volume of said chamber, an axially movable sleeve carried on said distributor member, said sleeve in conjunction with passage means in said distributor member which communicates with said chamber, acting to control the volume of liquid in said chamber, governor means operable to adjust the axial position of said sleeve, a low pressure pump for supplying liquid under pressure, a first passage for conveying liquid from the outlet of the pump to said chamber and said passage means comprising a second passage formed in the distributor member and in communication at one end with said chamber and at its other end with a port on the periphery of the distributor member, said port being positioned so that the flow of liquid there-through is determined by the relative axial position of the sleeve and distributor member.

4,362,142

FUEL HEATING APPARATUS FOR INTERNAL COMBUSTION ENGINE

Toshihiko Igashira, Toyokawa; Hitoshi Yoshida; Ken Nomura, both of Okazaki, and Seikou Abe, Kariya, all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan

Filed Oct. 9, 1980, Ser. No. 195,505

Claims priority, application Japan, Nov. 30, 1979, 54-155766

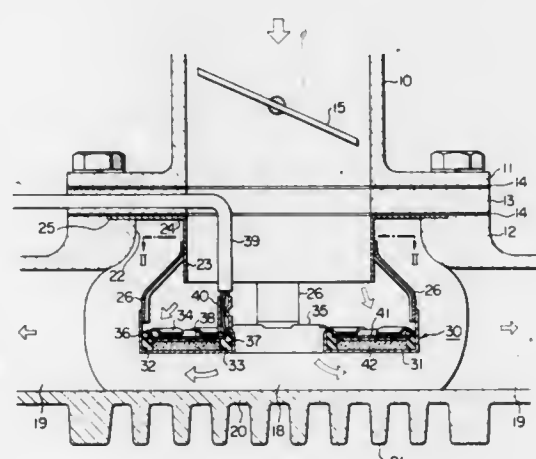
Int. Cl.³ F02M 31/00

U.S. Cl. 123—549

8 Claims

1. In an internal combustion engine including an intake pipe, a throttle valve provided therein, means upstream of said throttle valve for supplying liquid fuel into said intake pipe and an intake manifold for distributing a mixture of air and the fuel

to respective engine cylinders, said intake manifold defining an inlet opening connected to the bottom end of said intake pipe, the improvement which comprises a fuel heating apparatus including a tubular extension member disposed substantially coaxially with said intake pipe and extending downwardly through said inlet opening into said intake manifold and having a substantially cylindrical inner peripheral surface substantially flush with the inner peripheral surface of said intake pipe, and an annular heating element disposed in said intake manifold substantially in vertical alignment with the peripheral wall of said tubular extension member and supported therefrom wherein said inlet opening in said intake manifold is substantially coaxial with said intake pipe and has an inner diameter greater than the inner diameter of said intake pipe, the part of said intake manifold below said inlet opening defining a distribution chamber from which the mixture of air and fuel is distributed through branches of said intake manifold to respective engine cylinders, said heating element including a generally annular casing disposed in said distribution chamber and spaced downwardly a distance from the bottom end of said tubular extension member, at least one stay supporting said casing from said tubular extension member, said casing having a substantially annular open top disposed beneath the bottom end of said tubular extension member so that the part of the fuel which flows in liquid phase on the inner peripheral sur-



faces of said intake pipe and said tubular extension member falls down therefrom into said casing, a substantially annular heating means disposed in said casing and adapted to be electrically energized to heat and vaporize the liquid part received in said casing, wherein the part of said intake manifold which defines said inlet opening has a flat top surface secured to the bottom end of said intake pipe with a heat insulating member and a gasket member being sandwiched therebetween; said flat top surface being formed with an annular recess adjacent the peripheral edge of said inlet opening, and wherein said tubular extension member has an annular flange extending radially outwardly from the upper end of said tubular extension member into said annular recess, said annular flange having a top surface substantially flush with the top surface of said intake manifold around said annular recess, wherein said heating element further includes inner and outer annular packings disposed in said casing in substantially concentric relationship with each other, said annular heating means comprising an annular heating plate of a sheet metal having inner and outer peripheral edges axially and radially supported by said inner and outer packings, an annular ceramic heater disposed in heat-conductive relationship with the underside of said heating plate and adapted to be electrically connected to an electric power source, said ceramic heater being also electrically connected to said casing.

4,362,143

EXHAUST GAS SUPPRESSOR

Masafumi Fukumoto, Amagasaki, Japan, assignor to Nissin Jabara Industries Co., Ltd., Amagasaki, Japan

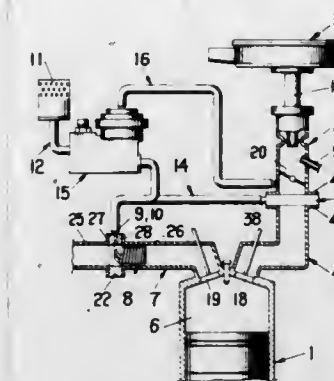
Filed Apr. 24, 1981, Ser. No. 257,344

Claims priority, application Japan, Jun. 2, 1980, 55-74576

Int. Cl.³ F02M 23/14

U.S. Cl. 123—556

6 Claims



1. An exhaust gas suppressor for internal combustion engines, comprising, a coiled heater tube formed of a metal tube in the form of a bellows, the ends of which extend outwardly through the exhaust manifold for heating secondary air by the heat of exhaust gases in said manifold and are inserted in holes in a heater tube attaching ring which is hermetically sealed and removably installed in a required place in the exhaust manifold, a secondary air introducing tube having an air filter on one end thereof opening to the atmosphere and connected at the other end thereof to one end of said heater tube, a heated secondary air feed tube connected at one end thereof to the other end of said heater tube and communicating at the other end thereof with the suction manifold for supplying secondary air heated by said heater tube to a mixture of primary air and fuel prepared by the carburetor, an eddy generating device disposed in the suction manifold and connected to the other end of said heated secondary air feed tube for eddying said primary air-fuel mixture and heated secondary air added thereto, and an air control valve placed between the ends of said secondary air introducing tube for controlling the amount of heated secondary air to be supplied in relation to the amount of said mixed gas.

4,362,144

CONTACTLESS IGNITION SYSTEM FOR INTERNAL COMBUSTION ENGINE

Toshiyuki Yamaguchi, Okazaki; Hiroyuki Nobuchi, Toyota; Yoshiaki Nakano, Gifu, and Tiaki Mizuno, Toyota, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

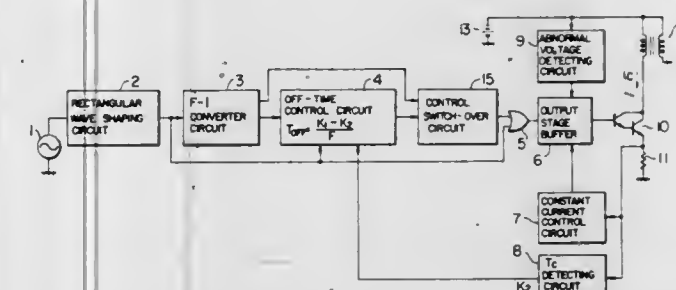
Filed Jan. 22, 1981, Ser. No. 227,249

Claims priority, application Japan, Jan. 24, 1980, 55-7077

Int. Cl.³ F02P 3/04

U.S. Cl. 123—609

3 Claims



1. A contactless ignition system for an internal combustion engine comprising:
an ignition coil including a primary winding and a secondary winding;
semiconductor switching means connected to the primary

winding of said ignition coil for controlling the primary current supply through the primary winding of said ignition coil;
current detecting means connected to said switching means for detecting the level of primary current supplied to the primary winding of said ignition coil;
a rising time detecting circuit connected to said current detecting means for detecting the rising period of time of the primary current until the level of the primary current attains a predetermined setting after the primary current starts to be supplied to the primary winding of said ignition coil, thereby generating a signal indicative of the rising time of the primary current;
means for generating a rectangular waveform signal having a period synchronized with the rotational period of the engine;
means for generating a current proportional to the rotational speed of the engine;
an off-time control circuit producing, on the basis of said current proportional to the rotational speed of the engine and said rising-time indicative signal, an off-time control signal for controlling the off-time of said ignition coil and to provide dwell angle control;
a control switch-over circuit gating said off-time control signal only when the engine rotation period indicated by the level of said current proportional to the rotational speed of the engine is shorter than a predetermined setting; and
an OR circuit controlling the off-time of said switching means on the basis of the logical sum of the output signal from said control switch-over circuit and said rectangular waveform signal.

4,362,145

PRACTICE WEAPON INCLUDING PELLET GUN MOUNTED WITHIN MISSILE FIRING TUBE

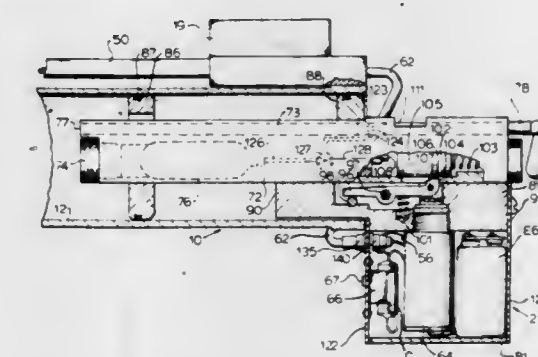
William N. Stelcher, Deerfield, Ill., assignor to Kinetratics Corporation, Lake Bluff, Ill.

Filed Dec. 22, 1980, Ser. No. 219,222

Int. Cl.³ F41F 27/00; F41B 11/06

U.S. Cl. 124—32

4 Claims



1. A practice weapon comprising a firing tube through which a rocket missile can be fired, a firing trigger mounted on said firing tube, a pellet gun for firing pellets through said tube, means for mounting said pellet gun within said tube and means connecting said firing trigger to said pellet gun for firing it, wherein said pellet gun has a firing sear and includes an electrical solenoid connected to move said firing sear, a battery with one side connected to one side of said solenoid and a first electrical switch actuated by said firing trigger to energize said solenoid, a capacitor with one side connected to said solenoid and said battery, said first electrical switch with its movable contact connected to the other side of said capacitor and movable to a firing position to contact a first contact connected to the second side of said solenoid and movable to engage a second contact connected to engage the second side of said battery for charging said capacitor.

4,362,146

SOLID FUEL STOVE

Marius C. Schuller, 112 Cork St., W., Guelph, Ontario, Canada

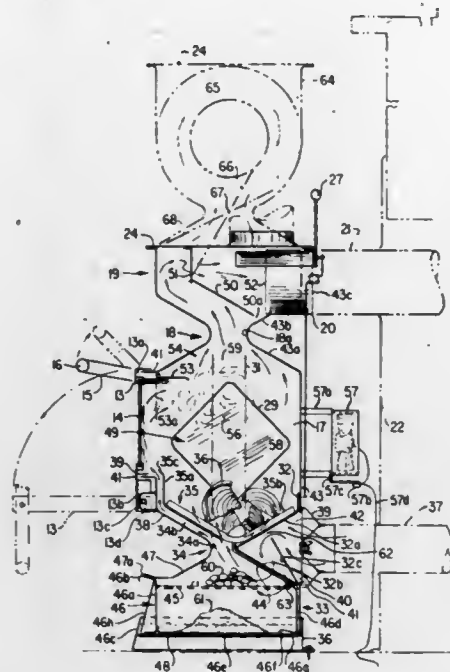
Filed Jul. 1, 1980, Ser. No. 165,157

Claims priority, application Canada, May 12, 1980, 351709

Int. Cl.³ F24C 1/14

U.S. Cl. 126—77

56 Claims



1. In a stove comprising a housing defining a combustion chamber, said housing being provided with a window through which said combustion chamber is visible from the exterior of said stove, means defining an inlet for admitting an inflow of air into said combustion chamber, means for supporting fuel for combustion in said combustion chamber and means for directing a portion of said air inflow upwardly past a surface of said window facing inwardly of said combustion chamber, the improvement comprising means for deflecting said air inflow portion from said inlet opening under and in contact with said fuel support means for preheating said air inflow portion prior to arrival thereof at said window surface.

2. A stove, comprising:
means defining a combustion chamber;
grate means in said combustion chamber for supporting fuel to be combusted;
said combustion chamber defining means comprising a vertical window in the front of said stove through which the combustion chamber is visible from the exterior of said stove;
a horizontal inlet opening located under said grate means at the bottom of said combustion chamber for the inflow of air into said combustion chamber through said grate means;
a horizontal outlet opening at the top of said combustion chamber for the outflow of gases from said combustion chamber;
said inlet and outlet openings, said grate means, said combustion chamber and said window being elongate in the direction of the width of said stove;
an air inlet communicating with said inlet opening for supplying the air thereto;
means for controlling air flow through said inlet; and
means in said combustion chamber for deflecting portion of the air upwardly past the face of said window directed inwardly of said combustion chamber.

4,362,147

ADJUSTABLE FIREPLACE PANEL

Anthony H. Tagliavere, Rte. 3, 198 Sunset Dr., Gallatin, Tenn. 37066

Filed Jan. 12, 1981, Ser. No. 224,295

Int. Cl.³ F24C 15/10

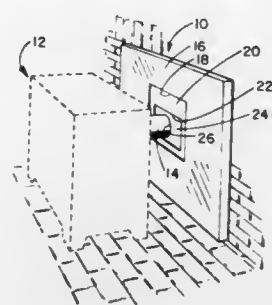
U.S. Cl. 126—140

19 Claims

1. An adjustable fireplace adapter panel for covering an opening to a fireplace and for receiving a stovepipe to utilize

the fireplace and chimney as an exhaust system for a stove, comprising:

a main panel dimensioned for covering the opening of the fireplace;
means for securing said main panel against the face of the fireplace in a position covering the opening thereof;
a first aperture formed in said main panel;
a first plate dimensioned to cover said first aperture and disposed on said main panel over said first aperture;



a second aperture formed in said first plate, having dimensions smaller than said first aperture and being disposed within the perimeter of said first aperture;
first clamp means for clamping and securing said first plate to said main panel; and
said first plate being movable through an infinity of positions on said main panel beneath said first clamp means so that said second aperture may be moved to an infinity of different positions within the perimeter of said first aperture.

4,362,148

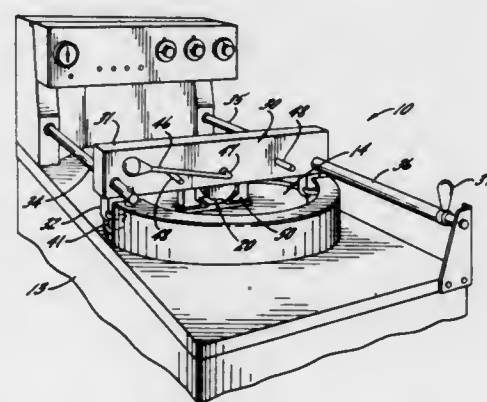
COOKING DEVICE WITH COVER LOCKING MEANS
Clement J. Luebke, Beloit, Wis., and Lowell W. Daniels, Rockford, Ill., assignors to Alco Standard Corporation, Valley Forge, Pa.

Filed Jun. 30, 1980, Ser. No. 164,244

Int. Cl.³ F24D 1/00; B65D 43/20

U.S. Cl. 126—369

4 Claims



1. A cooking device comprising an open-topped vessel adapted to hold liquid, a cover for selectively closing and sealing said vessel, means for heating the liquid to create pressure in said vessel when the latter is sealed, a support, means mounting said cover on said support for downward and upward shifting between unsealed and sealed positions, said cover being disposed in overlying but non-sealing relation with said vessel when in said unsealed position and being telescoped with and sealing said vessel when in said sealed position, an actuator mounted on said support and movable in a first direction to shift said cover downwardly from said unsealed position to said sealed position and in a second direction to shift said cover upwardly from said sealed position to said unsealed position, a first latching abutment located on and movable with said actuator and extending substantially vertically when said actuator has been moved to shift said cover to said sealed position, and a second latching abutment rigid with and extending substantially vertically from said cover, said second

latching abutment being movable in unison with said cover and into latching relation with said first latching abutment on said actuator when said cover is in said sealed position and the pressure in said vessel causes said cover to rise, said second latching abutment being immovable relative to said cover and being operable when in latching relation with said first latching abutment on said actuator to restrict movement of said actuator in said second direction thereby to render said actuator ineffective to shift said cover upwardly from said sealed position.

4,362,149

HEAT STORAGE SYSTEM AND METHOD

Wallace B. Thomson, Northridge, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

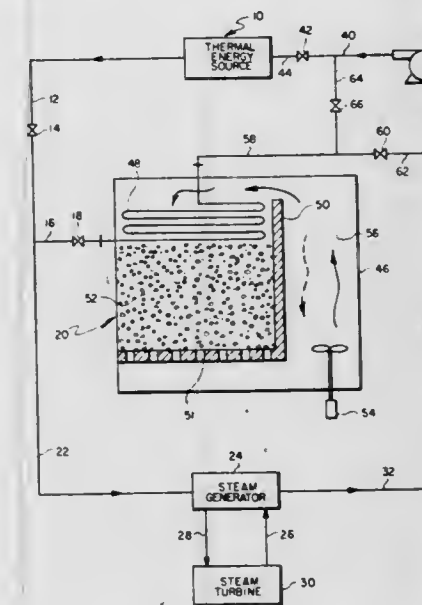
Filed Dec. 8, 1980, Ser. No. 214,380

The portion of the term of this patent subsequent to Sep. 16, 1997, has been disclaimed.

Int. Cl.³ F24H 7/00; F03G 7/02; F28D 13/00

U.S. Cl. 126—400

13 Claims



1. A thermal energy storage system comprising:
a source of heat for heating a heat collecting fluid to a temperature within the range of from about 600° to 1600° F.;
a housing containing a bed of rocks for storage of thermal energy;
a heat transfer gas in heat-exchange relationship with said bed of rocks;
means for moving said heat transfer gas through said bed of rocks at an apparent velocity of less than about 6 ft/sec;
means for causing said heat collecting fluid and said heat transfer gas to flow in counter-current, indirect, heat-exchange relationship with one another, said means including means for reversing the direction of flow of said heat collecting fluid and said heat transfer gas;
a working fluid;
means for passing said working fluid and said heat collecting fluid in indirect, heat-exchange relationship with one another; and
means operatively associated with said working fluid to convert thermal energy contained therein to mechanical energy.

4,362,150

PERCUTANEOUS INTRA-AORTIC BALLOON APPARATUS

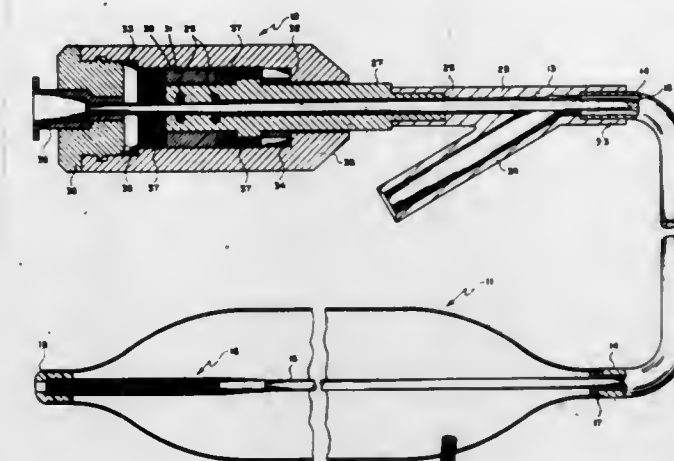
Edward J. Lombardi, Jr., Malden; Harold L. Neuman, Reading; Alfred E. Magro, Woburn, and Michael L. Rishton, Reading, all of Mass., assignors to Kontron Cardiovascular Inc., Everett, Mass.

Filed Sep. 10, 1980, Ser. No. 185,762

Int. Cl.³ A61B 19/00; A61M 25/00

U.S. Cl. 128—1 D

32 Claims



1. In a balloon catheter apparatus including a hollow catheter having a proximate end and a distal end, and an inflatable and deflatable balloon having a proximate end and a distal end, said proximate end of the balloon being sealably attached to the distal end of the catheter for admitting fluid and withdrawing fluid from the balloon, the improved combination comprising:

(a) a longitudinally flexible metal tubular member having a proximate end portion and a distal end portion and rotatably disposed within and extending the length of the catheter and into the balloon, said distal end portion of the tubular member being fixedly attached to the distal end of said balloon;
(b) a non-metallic tube portion fixedly attached to said distal end portion of the metal tubular member, said tube portion having relatively low resistance to lateral bending and being circumferentially rigid to withstand rotational torque without substantial distortion; and
(c) rotating means coupled to the proximate end of said catheter and fixedly attached to the proximate end portion of said tubular member for effecting wrapping and unwrapping of said balloon about said tubular member, said tubular member being rotated with respect to said catheter upon rotation of said rotating means with respect to said catheter, said tubular member defining a continuous open passage from and through said rotating means to and through said balloon.

4,362,151

TRACTION METHOD

George W. Cottrell, #10, 2455 NW. Marshall, Portland, Oreg. 97210

Filed Jan. 26, 1981, Ser. No. 228,366

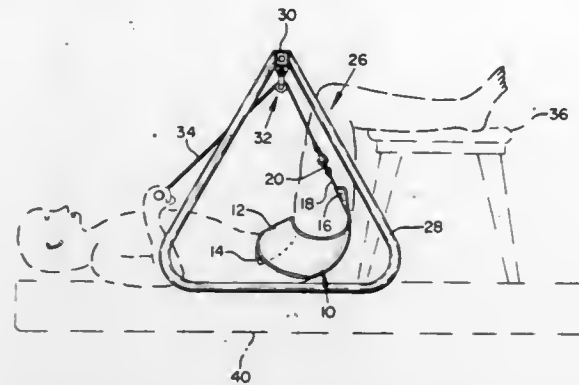
Int. Cl.³ A61H 1/02

U.S. Cl. 128—75

6 Claims

1. A method of treating a human patient to apply traction force to the lumbar spine operable to overcome anatomical lordosis comprising:
encircling the abdominal area and buttocks of the patient with a restraining device,
positioning the patient in a supine position on a support, and
lifting and holding the patient through said restraining device, at a region of the device located on the under or buttocks side of the patient with the patient supine and toward the knees of the patient from the zones where the

patient's femurs articulate with the patient's pelvis, whereby the weight of the patient forces curvature of the



patient's lumbar spine in a direction opposite to the curvature of lordosis.

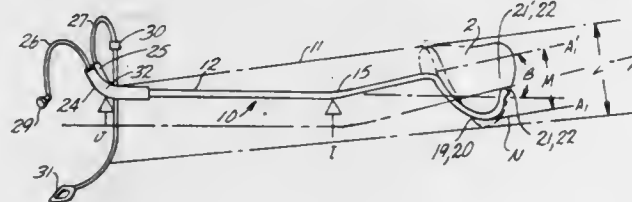
4,362,152 ERECTOR

Veniamin Gorokhovskiy, 1231 N. Genesee Ave., #7, Los Angeles, Calif. 90046, and Grigory Fradkin, 1230 N. Sweetzer Ave., #313, Los Angeles, Calif. 90069

Filed Jul. 2, 1980, Ser. No. 165,248
Int. Cl.³ A61F 5/42

U.S. Cl. 128—79

31 Claims



31. A method for inducing erection of a penis comprising: securing a prosthetic device around the root of the penis so that an elongate member of the device projects roughly perpendicularly away from the male torso in contact with the shaft of the penis just above the superficial dorsal vein; supporting the weight of the glans of the penis through the prosthetic device; and bending the glans upwardly relative to the longitudinal axis of the shaft to convert the weight of the glans into pressure applied by the member to the superficial dorsal vein to constrict the flow of blood from the penis thereby to induce erection of the penis.

4,362,153 BREATHING APPARATUS

John G. Wilson, Worsley, and John Scott, Doncaster, both of England, assignors to Coal Industry (Patents) Limited, London, England

Filed Nov. 5, 1980, Ser. No. 204,109
Claims priority, application United Kingdom, Nov. 27, 1979, 7940867

Int. Cl.³ A62B 7/00

U.S. Cl. 128—202.26

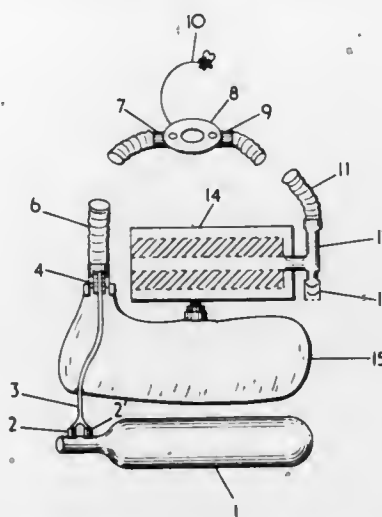
6 Claims

1. A method of reducing heat generated in a breathing apparatus used in an irrespirable atmosphere comprising a high pressure oxygen source provided with reducing valve means presettable to give a continuous high sustained constant flow rate of oxygen from the source in the range of 4 to 30 l/min, personal gas supply means to which the flow of oxygen is supplied, said gas supply means having an inhalation section with an inhalation valve and an exhalation section with an exhalation valve, a regenerative section connected to the exhalation section for absorbing carbon dioxide from exhaled air and a breathing bag connected to the regenerative section so that exhalations which have passed through the regenerative

section flow into said bag, the bag having a connection to the inhalation section, and means for exhausting excess gas from the breathing circuit; said method comprising

releasing oxygen from the high pressure source through the reducing valve means pre-set to give a continuous high sustained constant flow rate of oxygen in the range of about 4 to 30 l/min,

communicating said continuous high sustained constant flow rate of oxygen to the inhalation section of personal gas supply means which supplies breathable gas to a wearer, communicating exhaled air from the exhalation section of



the personal gas supply means to the regenerative means for absorbing carbon dioxide from said exhaled air, communicating carbon dioxide-free air from the regenerative means to the breathing bag, communicating air from the breathing bag to the inhalation section of the personal gas supply means, and exhausting excess gas through said exhausting means to the atmosphere whereby heat, moisture and carbon dioxide produced by the wearer, which would otherwise increase the heat generated inside the regenerative section, is carried by said high sustained flow of oxygen through said apparatus and exhausted to atmosphere.

4,362,154 PROCESSES AND DEVICES FOR REGULATING THE OXYGEN PARTIAL PRESSURE OF THE GAS MIXTURE OF THE RESPIRATORY CIRCUIT OF A DIVER

Yves Le Masson, Etampes, France, assignor to Laboratoires de Mecaniques Appliquees "Lama", Etrechy, France, a part interest

PCT No. PCT/FR80/00042, § 371 Date Nov. 21, 1980, § 102(e) Date Nov. 17, 1980, PCT Pub. No. WO80/02016, PCT Pub. Date Oct. 2, 1980

PCT Filed Mar. 21, 1980, Ser. No. 224,567
Claims priority, application France, Mar. 21, 1979, 79 07137; Oct. 5, 1979, 79 24850

Int. Cl.³ B63C 11/20

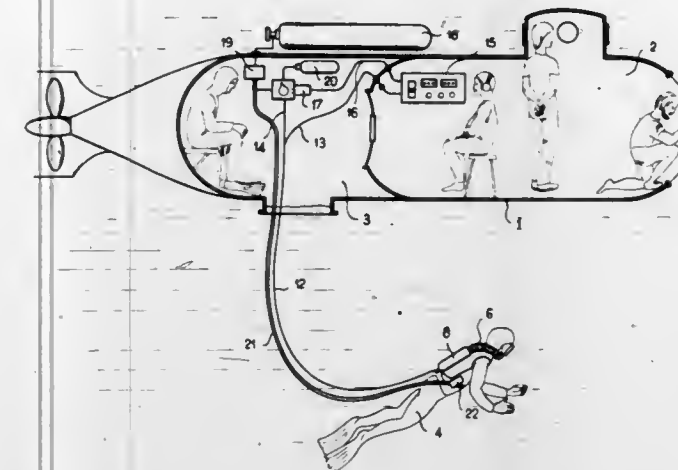
U.S. Cl. 128—204.22

21 Claims

1. A process for regulating the oxygen partial pressure of a gas mixture in a respiratory circuit of a diver, the diver being provided with a closed circuit breathing apparatus connected to a remotely located monitor chamber in which there is a pressure equal to or close to atmospheric pressure, said process comprising:

- continuously removing a sample of the gas mixture of the respiratory circuit of the diver;
- passing said sample into the monitor chamber where it expands, the partial oxygen pressure of the sample being determined therein, and an electrical control signal being produced when the pressure determined falls below a reference value; and
- using the control signal for triggering an injection of a defined and preset amount of an oxygen-rich gas mixture

to the respiratory circuit of the diver, the sample from the respiratory circuit being passed to the monitor chamber by a capillary conduit so that the variation in the oxygen partial pressure at the outlet from the capillary conduit



reproduces the variation in the pressure at the inlet of the capillary conduit and, therefore, in the respiratory circuit, with a delay, the section of the capillary conduit being so selected as to limit the duration of the transfer of the sample along the capillary conduit.

4,362,155 METHOD AND APPARATUS FOR THE TREATMENT OF AUTOIMMUNE AND ALLERGIC DISEASES

Simon V. Skurkovich, 261 Congressional La., #709, Rockville, Md. 20852

Filed Mar. 24, 1981, Ser. No. 247,205
Int. Cl.³ A61M 1/03

U.S. Cl. 128—214 R

12 Claims

1. A method for treating autoimmune diseases and allergy (hypersensitivity of immediate type) using an apparatus having, in continuous fluid communication, an inlet tube, absorbing means for absorbing and thereby removing interferon from the whole blood, and an outlet tube, said method comprising: connecting the inlet tube of said apparatus to a blood vessel of a patient and connecting the outlet tube of said apparatus to a vein of the patient; removing blood from the blood vessel of the patient; passing the removed blood through the absorbing means for absorbing interferon to thereby reduce the amount of interferon in the blood; and returning the blood to the vein of the patient.

4,362,156 INTRAVENOUS INFUSION ASSEMBLY

John Feller, Jr., Vandalia, and Stanley C. Wells, Jr., Centerville, both of Ohio, assignors to Riverain Corporation, Dayton, Ohio

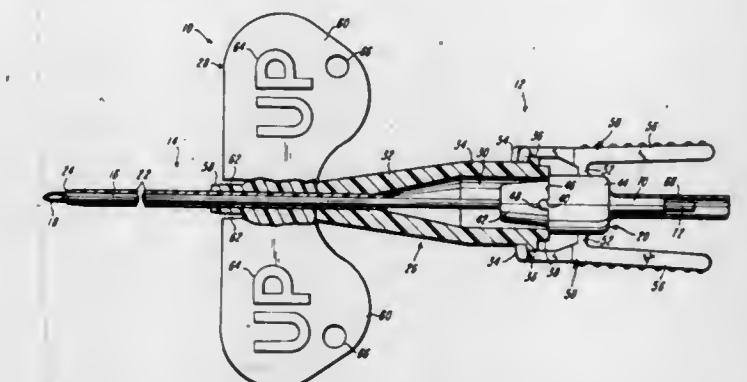
Filed Apr. 18, 1979, Ser. No. 31,306
Int. Cl.³ A61M 5/00

U.S. Cl. 604—165

10 Claims

1. An infusion assembly comprising: a needle assembly comprising a hollow needle and a needle hub rigidly connected to said needle; an over-the-needle catheter assembly comprising a catheter, and a catheter hub fixedly connected to said catheter; a gripping assembly comprising a pair of wings flexibly connected to said catheter assembly having a relaxed condition wherein they extend generally transversely to the longitudinal axis of said catheter assembly, said wings and their connection to said catheter assembly being sufficiently flexible that they may be gripped by the thumb and forefinger and brought into face-to-face engagement with one another without substantial distortion of said catheter; releasable locking means comprising a pair of clamp arms

fixed to said needle hub by pivot means, said clamp arms being on opposite sides of an upwardly directed plane containing the longitudinal axis of said needle and including engaging members on said clamp arms for engaging parts fixed to said catheter hub and thereby connecting and preventing relative axial movement between said needle assembly and said catheter assembly with said needle extending through said catheter so that one may, by gripping said wings, move said catheter assembly and said needle assembly together for insertion of said needle and said catheter into a vein, said locking means being releasable without relative movement between said catheter assembly and said needle assembly, so that one may, following such insertion and upon release of said locking means, retract said needle assembly from said catheter



assembly and the vein so that only said catheter remains in the vein; interfitting means on said needle hub and said catheter hub preventing relative rotation therebetween when said needle assembly and said catheter assembly are connected by said locking means, said interfitting means establishing an alignment between said catheter assembly and said needle assembly such that upwardly facing surfaces of said wings face the same direction as the upwardly facing surfaces of said needle so that said wings are on opposite sides of said upwardly directed plane containing the longitudinal axis of said needle; and said needle hub comprising a body having a distally facing surface abutting the proximal end of said catheter hub when said needle assembly and said catheter assembly are connected together.

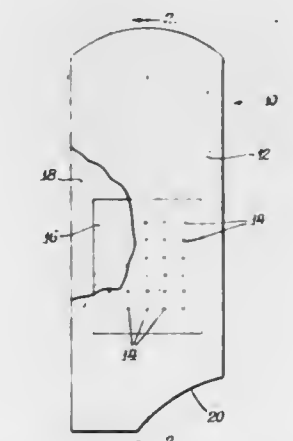
4,362,157 TEMPLATE FOR LOCATING HYPODERMIC INJECTION SITES

John D. Keeth, 1416 Naperville Rd., Wheaton, Ill. 60187
Filed Feb. 18, 1981, Ser. No. 235,768

U.S. Cl. 128—215

Int. Cl.³ A61M 5/00

19 Claims



1. A template for identifying a set of skin sites in a shot range

for hypodermic injection and repeatedly locating unused sites in the set of sites for succeeding injections comprising:

- a first flexible sheet having a plurality of orifice marking means at predetermined spaced intervals on said sheet corresponding to and identifying said set of skin sites;
- a flexible layer of liquid permeable absorbent material having a plurality of orifices aligned with said orifice marking means and capable of absorbing a coloring dye and retaining said coloring covering said marking means; and
- means for locating said template on a particular portion of the skin so that said marking means are repeatedly aligned with said set of skin sites.

4,362,158

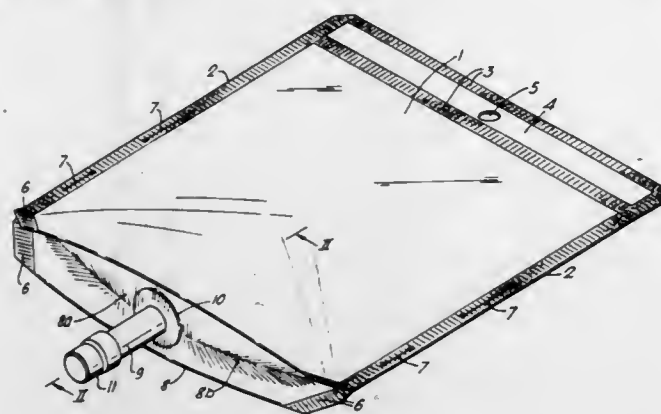
SYNTHETIC BAG-TYPE CONTAINER FOR HUMAN BLOOD AND ITS FRACTIONS, PERFUSION SOLUTIONS, DIALYSIS SOLUTIONS AND ALIMENTARY AND CHEMICAL LIQUIDS IN GENERAL
Paolo Lena, Via Castello, 13, 26038 Torre de'Picenardi (Cremona), Italy

Filed Oct. 15, 1980, Ser. No. 197,225

Claims priority, application Italy, Jan. 22, 1980, 34810/80[U]
Int. Cl.³ A61J 1/00

U.S. Cl. 128—272

12 Claims



1. A generally flat synthetic bag-type container for human blood and its fractions, perfusion solutions, dialysis solutions and alimentary and chemical liquids in general, constituted by a thin flexible walled casing which is in the form of a rectangular envelope having a bellows-shaped base and comprised of a single thin, pliable synthetic film sheet, and which is hermetically closed by welding along three edges of its perimeter while on its remaining edge at its base there is provided, integral with the sheet, a bellows facing towards the interior of the casing, said bellows having a central zone, of which there branches a nozzle set sealed to and extending from said central zone, each nozzle being provided with a resilient sealing member; and means along said three welded edges for supporting said casing.

4,362,159
TAMPON

Akira Sakurai, Utsunomiya, and Hiroshi Mizutani, Yachiyo, both of Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan
Filed Oct. 7, 1981, Ser. No. 309,542

Claims priority, application Japan, Oct. 15, 1980, 55-144164
Int. Cl.³ A61F 13/20

U.S. Cl. 128—285

6 Claims

1. In a tampon comprising an absorbent material composed of compression molded fibers, the improvement which comprises: said fibers consist essentially of polynosic rayon fibers having a dry strength of at least 4.0 g/denier, a wet strength of at least 3.0 g/denier, a wet strength at a 5% elongation of at least 1.0 g/denier and a wet elongation of not more than 3.0% under a load of 0.5 g/denier.

4,362,160
ENDOSCOPES

Siegfried Hildebrandt, Knittlingen, Fed. Rep. of Germany, assignor to Richard Wolf GmbH, Knittlingen, Fed. Rep. of Germany

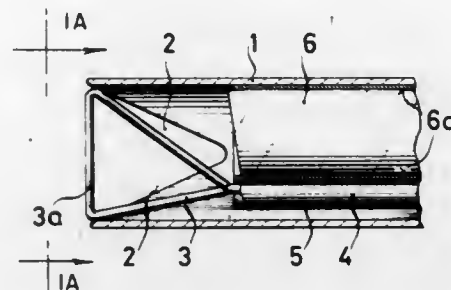
Filed Jul. 17, 1980, Ser. No. 169,610

Claims priority, application Fed. Rep. of Germany, Jul. 24, 1979, 7921081[U]

Int. Cl.³ A61B 17/32

U.S. Cl. 128—303.15

4 Claims



1. An endoscope for coagulating or resecting damaged parts of the cartilage of the meniscus of the knee joint under application of a unipolar HF loop electrode that has a supply lead which extends, together with an optical system, through an endoscope tube for proximal connection to an HF generator, wherein said endoscope tube is electrically insulated to prevent injury to adjacent areas of the knee joint anatomy and is provided at its distal end with distal delimiting excisions at either side of its vertical axial plane to form apertures in the sides of the tube for enflanking the damaged cartilage, said excisions having a geometry corresponding nearly to the cartilage to be enflanked, and wherein a stem delimiting said electrode loop at the distal end is situated in said vertical axial plane in the protected area of and between said excisions at the distal end of said tube.

4,362,161
CRANIAL DRILL

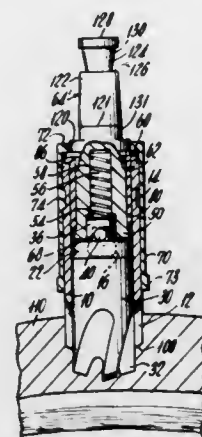
Harry G. Reimels, Braintree; Daniel G. Cerundolo, Dedham, and Roy W. Downing, Hingham, all of Mass., assignors to Codman & Shurtleff, Inc., Randolph, Mass.

Filed Oct. 27, 1980, Ser. No. 200,725

Int. Cl.³ A61B 17/16

U.S. Cl. 128—310

13 Claims



11. An apparatus for drilling bone structures comprising: a generally annular drill body having generally triangular shaped, diametrically opposed openings extending there-through, the bases of said triangular shaped openings being aligned generally circumferentially about said drill body and the sides of said openings being aligned at an angle to the axis of said drill body, the proximal end of said drill body including a bearing surface; a generally cylindrical primary drill member freely, slidably

and rotationally disposed within said drill body and having cutting surfaces on the distal end thereof;

a generally cylindrical drill driver rotatably and slidably disposed into the proximal end of said drill body and having a stem projecting from the proximal end thereof adaptable for insertion into a drill chuck;

a generally radially extending flange about the proximal end of said driver facing said drill body bearing surface for limiting the extent which said driver extends into said drill body;

a slot and pin-type clutch mechanism cooperatively disposed on the opposing proximal end of said drill member and said distal end of said driver;

the pin of said pin and slot clutch extending through the openings in said drill body wall and interacting with the base of said triangular slot to limit the forward movement of the drill member when the clutch is decoupled and interacting with the side of said triangular opening when the clutch is coupled so that when the drill member penetrates said bone structure, the component of force between the pin and the openings tends to accelerate the coupling of the clutch;

said clutch means further including a compression spring disposed between confronting surfaces of said drill member and said driver for urging the two apart and providing a resistance force which is overcome when the drill member is pushed against the bone structure and drilling begins.

4,362,163

STIFFENING CORE FOR CATHETERS

Gerd Krick, Bad Homburg, Fed. Rep. of Germany, assignor to Eduard Fresenius Chem.-Pharm. Industrie KG Apparatebau KG, Fed. Rep. of Germany

PCT No. PCT/DE79/00032, § 371 Date Nov. 28, 1979, § 102(e) Date Nov. 28, 1979

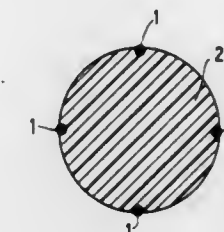
PCT Filed Mar. 28, 1979, Ser. No. 212,090

Claims priority, application Fed. Rep. of Germany, Mar. 28, 1978, 2813276

Int. Cl.³ A61M 25/00

U.S. Cl. 604—280

14 Claims



1. A stiffening core for catheters comprising a circular-section continuous strip of soft plastic core material which is provided with a plurality of evenly spaced-apart circular-section wire inserts in the outer surface of said continuous strip plastic core material and which are inserted in the outer surface of said plastic material to a depth of more than one-half of the cross-section of the wire insert.

4,362,164

ELECTRONIC PICK-UP DEVICE FOR TRANSDUCING ELECTRICAL ENERGY AND SOUND ENERGY OF THE HEART

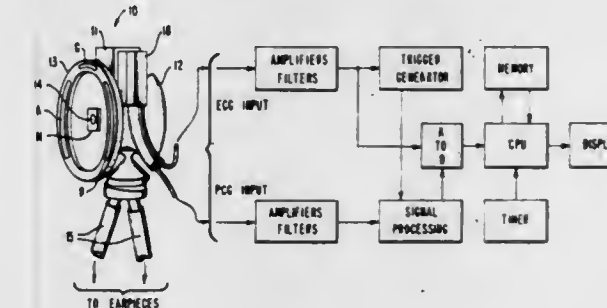
Michael J. Little, Tarzana, and Shi-Yin Wong, Santa Monica, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Sep. 11, 1980, Ser. No. 186,074

Int. Cl.³ A61B 5/02

U.S. Cl. 128—639

2 Claims



1. Apparatus including a stethoscope chestpiece, comprising:

- a stethoscope body portion;
- a chest bell having a base secured to said body portion and having a rim defining the open end of said chest bell, said chest bell being of electrical insulating material which is non-wettable providing a hydrophobic surface on said rim;
- three metal electrodes disposed on said rim, two of said electrodes being electrical current pickup electrodes which are each circumferentially dimensioned to occupy substantially one quadrant of said rim in diametrically opposite positions on said rim and the third being a ground electrode intermediate said pickup electrodes on said rim and which is smaller than said pickup electrodes, said metal electrodes each being capable of forming a redox couple of the metal and a chemical commonly found on the surface of the skin;

4,362,162

SURGICAL SUTURES

Takeaki Nakajima, Ibaragi; Tatsushiro Yoshimura, Takatsuki, and Yukihiko Karasawa, Tokyo, all of Japan, assignors to Daikin Kogyo Co., Ltd., Osaka, Japan

Filed Mar. 23, 1981, Ser. No. 246,382

Claims priority, application Japan, Mar. 26, 1980, 55-39220

Int. Cl.³ A61B 17/00

U.S. Cl. 128—334 R

3 Claims

1. A surgical suture characterized in that a multifilamentous suture has incorporated in its interstices a copolymer of tetrafluoroethylene and the other copolymerizable monomer in an amount of about 1% to about 30% by weight based on the weight of the multifilamentous suture, the copolymer being of 100-500 mμ in mean particle size, and that the portion of the copolymer present at least in the vicinity of the surface of the suture has been baked.

said body portion having a passage therein opening through the base of said chest bell;
a microphone supported in said passage; and
utilization circuits electrically coupled to said electrodes and said microphone and including high input impedance circuit elements individually coupled to said pickup electrodes to be controlled thereby.

4,362,165

STABLE GEL ELECTRODE

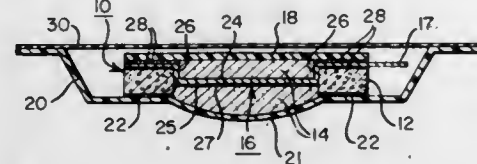
Amiram Carmon, Jerusalem, Israel; Kevin Claffey, Brooklyn, N.Y.; Daniel Lowe, Teaneck, N.J., and Lloyd Osipow, New York, N.Y., assignors to IPCO Corporation, White Plains, N.Y.

Filed Jan. 8, 1980, Ser. No. 110,449

Int. Cl.³ A61B 5/04

U.S. Cl. 128—640

9 Claims



1. A disposable electrode comprising:
 - a plastic member with an aperture in a central region thereof,
 - a firm, substantially uniform electrode gel in said aperture, said gel having cohesive and adhesive properties and comprising:
 - water,
 - a first polymer in weight percentage of at least 0.5 percent that has been dissolved, dispersed or hydrated in said water when said water is at an elevated temperature and that forms or can be made to form a rigid gel upon cooling,
 - a second polymer in weight percentage of at least 2.0 percent that is insoluble in hot water, that dissolves or hydrates on cooling, that is compatible with said first polymer and that has been combined with said first polymer and water when said first polymer is dissolved, dispersed or hydrated in said water,
 - a conductive layer, one portion of which is in the electrode gel making electrical contact with it and a second portion of which extends out of said gel, and
 - a cap covering said aperture on one side of said plastic member.

4,362,166

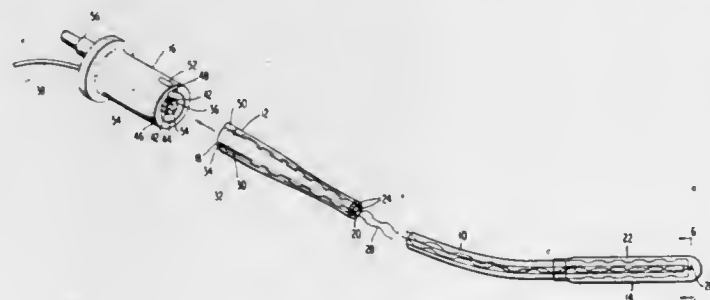
DISPOSABLE MEDICAL PROBE AND CONNECTOR
Alan G. Furler, Glens Falls, and Philip V. Stoddard, Greenwich, both of N.Y., assignors to Mallinckrodt, Inc., St. Louis, Mo.

Filed Nov. 4, 1980, Ser. No. 204,048

Int. Cl.³ A61B 5/00

U.S. Cl. 128—670

9 Claims



1. A probe and connector comprising:
 - (a) a disposable probe including a flexible tubular member

- having a central major lumen, said probe including a distal end and a proximal end;
- (b) a condition-sensing element disposed at said distal end;
- (c) a plurality of flexible conductors electrically connected to said sensing element, each of said conductors extending from said distal end to said proximal end of said probe;
- (d) the proximal ends of said conductors being disposed on the inner wall of said tubular member to form first contacts near the proximal end thereof;
- (e) said proximal end of said probe being formed to provide a female connector;
- (f) a relatively rigid reusable male connector having a plurality of second conductors extending therethrough and adapted to be connected to an indicating instrument, the ends of said second conductors being disposed on said male connector to form second contacts, said male connector being removably connected to said female connector with said second contacts engaging respective ones of said first contacts;
- (g) said first and second contacts being slidably movable relative to each other during engagement and disengagement thereof; and
- (h) said first contacts extending in a direction transverse of said second contacts, whereby the sliding movement during engagement and disengagement of said first contacts and said second contacts insures wiping action for removing any contamination from said contacts and achieving excellent electrical conduction.

4,362,167

DIAGNOSTIC MEASURING INSTRUMENT

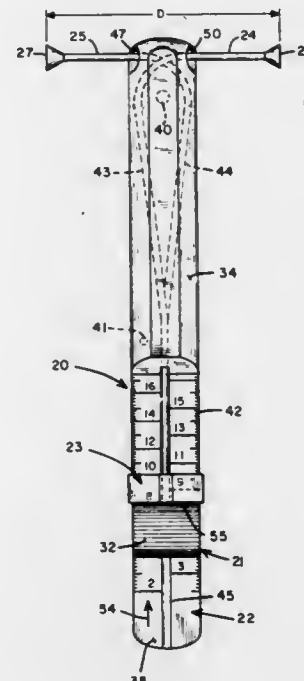
Donald R. Nicolai, Box 415, Monticello, Minn. 55362, and Oliver D. Hanson, 2255 Viking Blvd., NW., Cedar, Minn. 55011

Filed Feb. 6, 1981, Ser. No. 231,928

Int. Cl.³ A61B 5/10

U.S. Cl. 128—778

5 Claims



1. A diagnostic instrument comprising, in combination:
 - (a) a probe assembly including a pair of elongated flexible filaments, a tongued control member to which first ends of said filaments are secured so that they extend therefrom in the same direction, and a pair of cupped tips at the other ends of said filaments; and
 - (b) a guide assembly having first and second apposed portions, one of said portions being extended and receiving the tongue of said control member and guiding it in a first, longitudinal direction, said portions being separately channeled to pass said filaments respectively so that they change directions by generally 90° to extend laterally

from one end of said guide assembly in opposite directions, whereby linear movement of said control member results in opposite motions of said tips along a line transverse to said guide assembly.

4,362,168

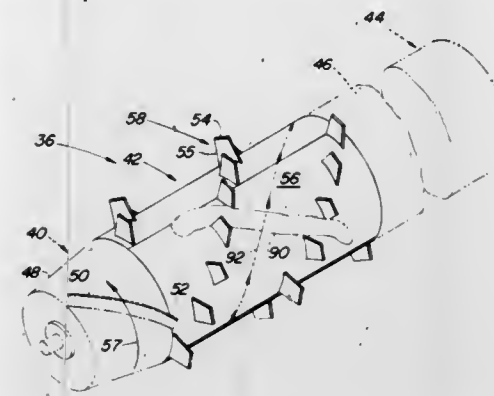
SEPARATOR FOR AN AXIAL FLOW ROTARY COMBINE
Edward J. Hengen, Bettendorf, and James H. Bassett, Davenport, both of Iowa, assignors to Deere & Company, Moline, Ill.

Filed Jan. 30, 1981, Ser. No. 229,688

Int. Cl.³ H01F 12/10

U.S. Cl. 130—27 H

17 Claims



1. In an axial flow rotary separator for a combine having an upstream receiving portion, a downstream discharge portion and at least one intermediate processing portion, and including an at least partially foraminous housing having internal angled guide vanes, and a rotor having a body approximately coaxial with the housing, rotatably mounted within the housing for engaging crop material delivered to the receiving portion and cooperating with the housing to propel the crop material downstream through the housing in a generally helical path and process it so that a portion of the crop material passes outward through the foramina of the housing as the rotor rotates, the improvement in the rotor comprising:

a plurality of axially and circumferentially spaced raised elements associated with the processing portion of the separator and carried by the rotor body in an array approximately defining at least a portion of a rib-like helix on the body, said helix being approximately coaxial with the rotor and of the same hand as the helical path in which the crop material is propelled through the housing, said elements having a maximum circumferential dimension not greater than about equal to their spacing within the array and the rotor having a substantially clear space on the rotor body extending a substantial distance on both sides of the array.

4,362,169

AIR FLOW DRY BOWL PIPE

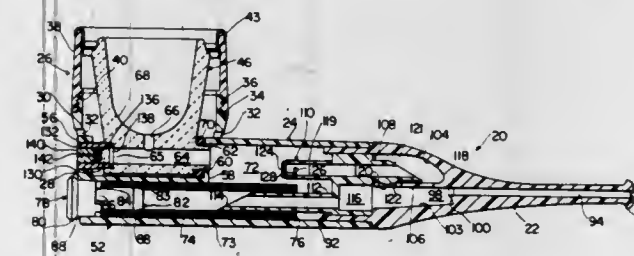
Edward H. Calkins, 333 E. Main St., Gaylord, Mich. 49735

Filed Dec. 5, 1980, Ser. No. 213,725

Int. Cl.³ A24F 1/22

U.S. Cl. 131—196

26 Claims



1. A smoker's pipe comprising
a hollow stem defining a first cooling chamber;

a mouthpiece having a bore therethrough on rearward end of said stem;
a bowl assembly on the forward end of said stem, said bowl assembly including
an outer bowl,
an inner bowl having a combustion chamber therein and a longitudinally extending passageway through the bottom thereof below said combustion chamber and in fluid communication therewith, and
means coupling said inner and outer bowls together so as to establish an annular air space therebetween all along the lengths thereof for the flow of cooling air around said inner bowl;
means for supplying fresh air to the forward end of said passageway;
means for establishing a smoke flow path between said passageway and said first cooling chamber; and
means for establishing a smoke flow path between said first cooling chamber and said mouthpiece bore.

4,362,170

TOBACCO CURING METHOD

Gus D. Keritsis, Richmond, Va.; Gordon H. Bokelman, Boulder, Colo., and Dewitt T. Gooden, III, Barnwell, S.C., assignors to Philip Morris, Incorporated, New York, N.Y.

Filed Dec. 9, 1980, Ser. No. 214,493

Int. Cl.³ A24B 3/12, 15/20, 15/28

U.S. Cl. 131—309

1 Claim

1. A method of artificially curing mature green tobacco from which juices have been expressed comprising contacting the tobacco having a moisture content of at least 10% OV with sulfur dioxide gas, allowing the sulfur dioxide treated tobacco to brown and drying the browned tobacco.

4,362,171

CIGARETTE FILTER

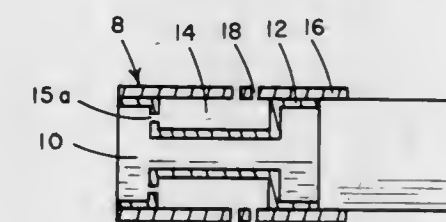
Robert R. Johnson, Louisville, and Daniel V. Cantrell, Prospect, both of Ky., assignors to Brown & Williamson Tobacco Corporation, Louisville, Ky.

Filed Nov. 21, 1980, Ser. No. 208,951

Int. Cl.³ A24D 3/04

U.S. Cl. 131—336

6 Claims



1. A filter rod for a cigarette comprising:
 - a porous filter rod of cylindrical configuration;
 - a smoke impervious wrapper extending longitudinally along said rod from one end thereof and circumscribing said rod leaving flow-through opposed ends of said rod, said wrapper having at least one longitudinally extending groove embedded into the filter rod and that portion of the wrapper defining the groove remaining smoke impervious, said groove having an opening in one end into the filter rod, said groove extending a distance less than the length of the filter rod intermediate of both ends; and,
 - tipping material extending longitudinally of and circumscribing said wrapper, said tipping material being air pervious and permitting ventilating air flow therethrough into said groove, said ventilating air being the only fluid flowing through said groove when the filter is used in combination with a cigarette during normal smoke draw.

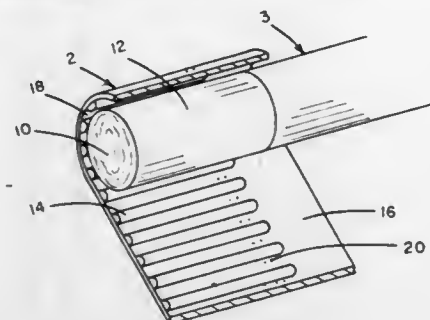
4,362,172

CIGARETTE FILTER

Robert R. Johnson, Louisville, Ky., assignor to Brown & Williamson Tobacco Corporation, Louisville, Ky.
Filed Dec. 1, 1980, Ser. No. 211,491
Int. Cl.³ A24D 3/04

U.S. Cl. 131—336

8 Claims



1. A filter for a cigarette comprising:
a porous filter rod of cylindrical configuration;
a smoke impervious wrapper extending longitudinally along said rod from one end thereof and circumscribing said rod leaving flow-through opposed ends of said rod;
tipping material extending longitudinally of and circumscribing said wrapper, said tipping material being provided with means permitting ventilating air flow there-through; and,
spacing means disposed between and non-unitary with said wrapper and said tipping material, said spacing means including a plurality of spaced parallel longitudinal members extending a preselected distance therealong defining ventilating air channels between said wrapper and said tipping material, ventilating air being the only fluid flowing through said channels when the filter is used in combination with a cigarette tobacco column during smoke draw.

4,362,173

CASHMERE COMBING MACHINE

Daryl J. Blinman, Glenfield, Australia, assignor to Minister for Public Works for the State of New South Wales, Sydney, Australia

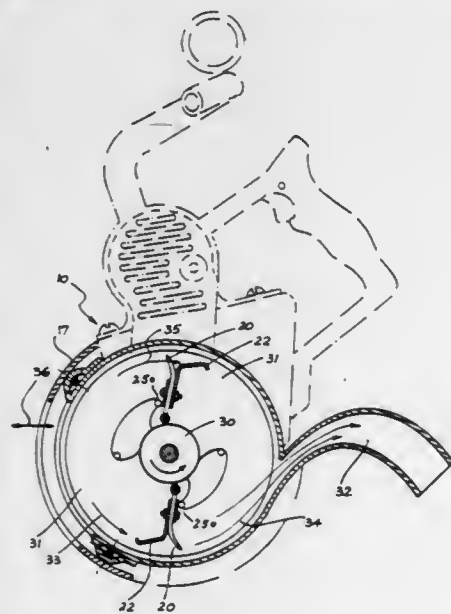
PCT No. PCT/AU80/00042, § 371 Date Mar. 17, 1981, § 102(e) Date Mar. 17, 1981, PCT Pub. No. WO81/00339, PCT Pub. Date Feb. 19, 1981

PCT Filed Aug. 1, 1980, Ser. No. 247,561

Claims priority, application Australia, Aug. 3, 1979, PD9820
Int. Cl.³ A45D 1/00

U.S. Cl. 132—9

13 Claims



1. An apparatus for the removal of hair from an animal comprising driven comb means for collecting the hair and a

housing for the comb means and within which the comb means is arranged to be driven, the housing having an inlet which exposes the comb means so that it can be moved through the hair of the animal, an outlet for the discharge of hair collected from the animal and means permitting connection of the outlet to a suction means so that when in use the suction means creates an air flow which is applied to the collected hair to facilitate its removal from the comb means; the comb means comprising at least one comb which in turn comprises a comb spine to which is attached a plurality of fingers which are each tapered convergently towards tips thereof, each finger being bent part way along its length such that in use the tip of each finger is inclined in the direction of travel of the comb through the hair of the animal, characterised in that the or each said comb is mounted on a rotatable hub member in such a way that the or each comb is substantially freely pivotally displaceable through an arc of movement for all rotary positions of the hub member, the suction means being arranged to cause a flow of air past the or each said comb after it has been moved through the hair of the animal to remove therefrom any hair collected by it.

4,362,174

TOOTHBRUSHES

Hugh W. B. Baker, Beaconsfield; Charles C. Packham, Wokingham, and Norman C. Welsh, Bradfield, all of England, assignors to The Gillette Company, Boston, Mass.

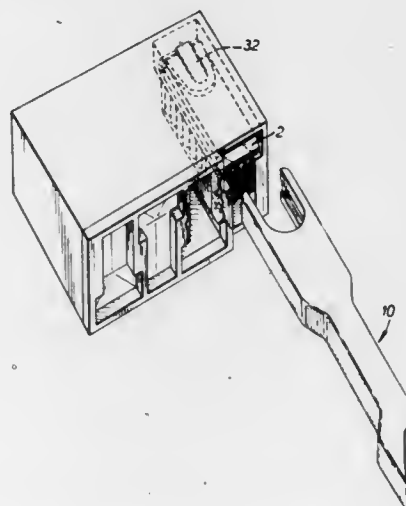
Filed Jan. 22, 1981, Ser. No. 227,452

Claims priority, application United Kingdom, Jan. 24, 1980, 8002410; Dec. 18, 1980, 8040554

Int. Cl.³ A45D 44/18

U.S. Cl. 132—84 R

17 Claims



1. A toothbrush system comprising
a handle,
a plurality of exchangeable toothbrush heads, and
a container for said heads,
said container having a plurality of compartments, each of said compartments being adapted to releasably retain one of said heads, each of said compartments having an opening therein,
said handle being insertable through said opening to engage said head in said compartment and being withdrawable from said compartment with said head secured to said handle.

4,362,175

DANDRUFF REMOVER COMBS

James P. Garvey, 11 Andersonstown Rd., Belfast, Northern Ireland (BT11 9AF)

Continuation of Ser. No. 828,975, Oct. 28, 1977, abandoned.

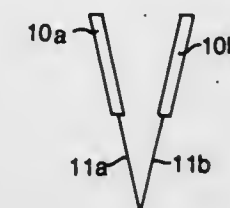
This application Apr. 28, 1980, Ser. No. 144,508

Claims priority, application United Kingdom, Aug. 31, 1977, 36425

Int. Cl.³ A45D 24/42

U.S. Cl. 132—119

9 Claims



1. A dandruff remover device including two inclined combs connected to a holder for a blade having a non-cutting edge, which blade is arranged to be extended against spring pressure into a cleaning position between the teeth of the combs.

4,362,176

DEVICE FOR ADJUSTING COIN PASSAGE OF COIN HANDLING MACHINE

Kenichi Watanabe, Tokyo, Japan, assignor to Laurel Bank Machine Co., Ltd., Tokyo, Japan

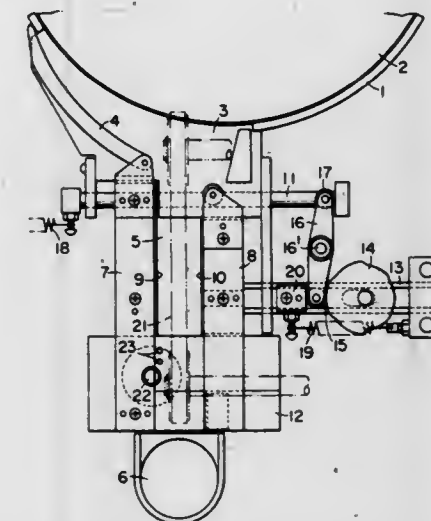
Filed Sep. 8, 1980, Ser. No. 184,779

Claims priority, application Japan, Dec. 25, 1979, 54-179749[U]

Int. Cl.³ G07D 9/00

U.S. Cl. 133—1 A

5 Claims



1. In a device for adjusting a coin passage of a coin handling machine so as to adapt the width of the coin passage for a certain sort of coins, wherein two coin selection guides defining the coin passage are moved relative to each other, the improvement which comprises:

two slider means connected respectively to said two coin selection guides and having engagement portions;
a link pivoted at a point substantially centrally of a longitudinal extension thereof and having ends engageable with engagement portions of respective ones of said slider means;
means for resiliently urging said ends of said link to engage said engagement portions of each of said slider means;
cam means abutting against one of said ends of said link for moving the same by a pre-set distance in response to a change in diameter of coins to be passed through said coin passage;
whereby said slider means are slidably moved in directions reverse to each other by the same distance so as to move

the associated coin selection guides to increase or decrease the width of said coin passage without changing the longitudinal center line of the coin passage; and
stopper means mounted on one of said coin selection guides for stopping the movement of coins at any desired time, said stopper means comprising a rotatable member having a semi-circular cut-off section, the diametrically extending edge of said semi-circular cut-off section being selectively aligned with an edge of the associated coin selection guide defining one of the walls of the coin passage for passage of coins and being positionable skewed to the coin selection guide edge to stop movement of coins.

4,362,177

COIN COUNTING APPARATUS FOR COIN HANDLING MACHINE

Katusuke Furuya, Tokyo, Japan, assignor to Laurel Bank Machine Co., Ltd., Tokyo, Japan

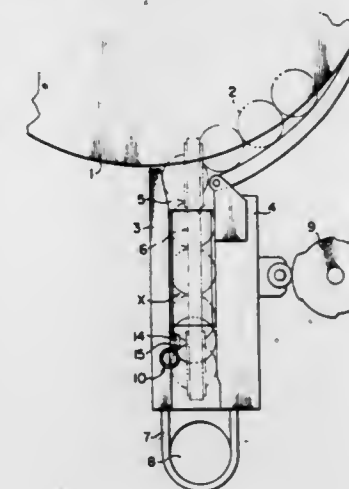
Filed Dec. 9, 1980, Ser. No. 214,729

Claims priority, application Japan, Dec. 29, 1979, 54-182588[U]

Int. Cl.³ G07D 9/04

U.S. Cl. 133—8 R

5 Claims



1. A coin counting system comprising: a coin path for guiding a series of coins to be counted therealong; conveying means juxtaposed to said coin path for conveying the coins in said coin path; light emitting means disposed at a downstream portion of said coin path for emitting a light; pre- and post-sensors juxtaposed to each other upstream and downstream in the coin conveying direction and arranged to receive the light emitted from said light emitting means and to be at least included temporality within the generally triangular space, which is defined by the inner wall of said coin path and by the facing circumferential portions of the two coins being conveyed adjacent to each other along said coin path, thereby generating respective signals; a generator circuit made receptive of the signals of said pre- and post-sensors for generating an addition signal, when said two coins pass in the normal order from said pre-sensor to said post-sensor, and a subtraction signal when said two coins pass in the abnormal order from said post-sensor to said pre-sensor; means made responsive to the addition and subtraction signals of said generator circuit for generating a count signal in response to the addition signal and for generating no count signal by the addition signal subsequent to the subtraction signal to the subtraction signal and a counter for counting up the number of said coins, when it receives said count signal, whereby the coin having been counted can be prevented from being erroneously counted up again even if it is conveyed backward.

4,362,178

FIGAL WASHER SYSTEM

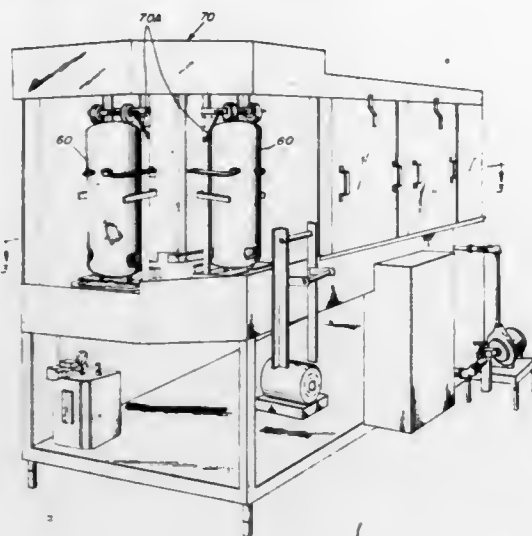
Robert S. Frye, Decatur, and Bernard M. Boehnlein, Sr., Atlanta, both of Ga., assignors to Coca-Cola Company, Atlanta, Ga.

Filed Mar. 18, 1981, Ser. No. 245,060

Int. Cl.³ B08B 9/08

U.S. Cl. 134—83

23 Claims



12. A system for washing a plurality of containers comprising an outer housing;
a horizontal track arranged longitudinally within said housing, said track extending through a plurality of washing, rinsing, and drying zones;
a plurality of carriage means riding on said track for carrying said containers through said washer, each of said plurality of carriage means including,
base means for supporting the weight of a said container
vertical support means attached to said base means for supporting said container along a length dimension and for preventing said container from falling in a first direction,
transverse support means attached to said vertical support means for transversely supporting and container and for preventing said container from falling in a second direction, different than said first direction, and
valve means attached to said base means and being connected to a water source means, said valve means on said base means being connected to a valve means on one of said containers when said container is loaded onto said carriage means; and
means for moving said plurality of carriage means through said plurality of washing, rinsing, and drying zones of said washer.

4,362,179

METHOD AND APPARATUS FOR CONTROLLING INK VISCOSITY

John MacPhee, Rowayton, and William W. Barton, Stamford, both of Conn., assignors to Baldwin-Gegenheimer Corporation, Stamford, Conn.

Filed Sep. 26, 1980, Ser. No. 191,290

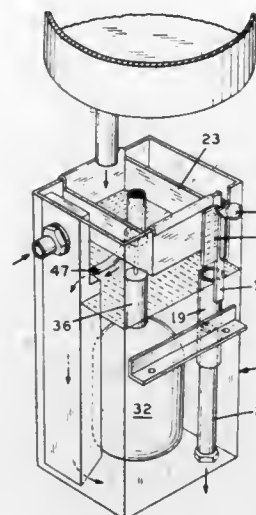
Int. Cl.³ G05D 11/00

U.S. Cl. 137—3

4 Claims

1. A method of maintaining the viscosity of printing ink at a predetermined level by monitoring the density of printing ink comprising:
(a) circulating printing ink to and from a printing press and a source of supply;
(b) monitoring the circulating printing ink in a control means which includes a tank adapted to receive the printing ink;
(c) maintaining in said tank a hydrometer and associated stem, said hydrometer having a predetermined weight range and said stem having a predetermined diameter

- range necessary to give the predetermined viscosity range of the printing ink;
(d) maintaining a supply of solvent in fluid communication with respect to said tank;
(e) maintaining valve means in operative relationship with said hydrometer and stem and said supply of solvent; and



- (f) maintaining said hydrometer so that said hydrometer opens said valve means when the printing ink density goes above a predetermined level to allow solvent to enter said tank and said hydrometer closing said valve means when the density of the printing ink reaches the predetermined level to thereby maintain the viscosity of the printing ink at a predetermined level.

4,362,180

POPPET VALVE AND METHOD OF ASSEMBLING SAME

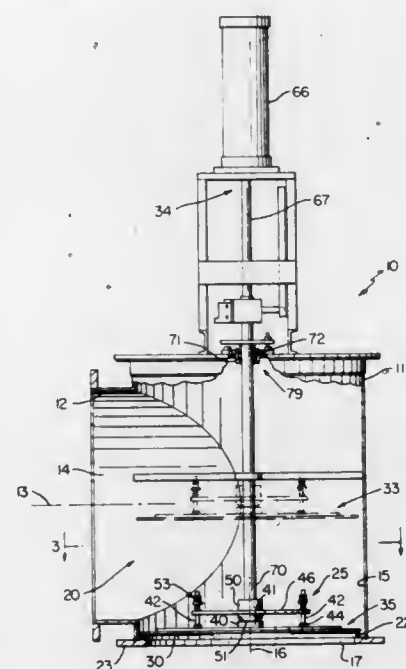
Paul P. Frisch, Skokie, Ill., assignor to Dayco Corporation, Dayton, Ohio

Filed Aug. 20, 1980, Ser. No. 179,859

Int. Cl.³ F16K 25/00, 43/00

U.S. Cl. 137—15

21 Claims



1. In a poppet valve including a valve body defining an internal chamber and having inlet and outlet passages communicating with said chamber, and closure means disposed within said chamber and adapted to close a selected one of said inlet and outlet passages; the improvement wherein said closure means comprises, in combination, means defining an annular sealing edge circumferentially of said selected one of said inlet and outlet passages so that said sealing edge lies in a plane substantially perpendicular to the axis of said selected passage,

a valve disc having an annular portion adapted to engage said annular sealing edge in fluid-tight sealing relation therewith, a backup plate fixed generally concentrically to said disc and defining a bearing surface generally centrally thereon, a spring plate defining a domed surface thereon, means supporting said spring plate internally of said chamber so as to lie in a plane substantially perpendicular to said axis of said selected passage in generally coaxial relation with said backup plate, and means cooperative with said backup plate and said spring plate for biasing them toward each other so that said domed surface engages said bearing surface in a manner to enable relative movement between said backup plate and said spring plate while maintaining relatively fixed rotational relation therebetween, said spring plate support means including means operative to move said backup plate and spring plate between a first position wherein said valve disc is spaced from said sealing edge to enable flow through said selected passage and a second position wherein said annular portion of said valve disc engages said sealing edge in fluid-tight sealing relation therewith.

16. A method of assembling a poppet valve which includes a valve body defining an internal chamber and having inlet and outlet passages communicating with said chamber, said method comprising the steps of inserting means within said chamber to define an annular sealing edge circumferentially of a selected one of said inlet and outlet passages so that said sealing edge lies in a plane substantially perpendicular to the axis of said selected passage, fixing a backup plate generally concentrically to a valve disc so as to establish an annular sealing edge on said disc of a size sufficient to engage said annular sealing edge, said backup plate defining a bearing surface generally centrally thereon, interconnecting said backup plate to a spring plate, said spring plate defining a domed surface thereon and being interconnected to said backup plate in a manner to bias said domed surface against said bearing surface and enable relative movement between said backup plate and said spring plate while maintaining relatively fixed rotational relation therebetween, and mounting said valve disc, backup plate and interconnected spring plate within said chamber so that said spring plate is movable between a first position wherein said valve disc is spaced from said sealing edge to enable flow through said selected passage and a second position wherein said annular portion of said valve disc engages said sealing edge in fluid-tight sealing relation therewith.

4,362,181

PRESSURE RELIEF SYSTEM

Lester G. Massey, Chagrin Falls, Ohio; David A. George, Park Forest, Ill.; Robert I. Brabets, Lombard, Ill., and William A. Abel, Joliet, Ill., assignors to CNG Research Company, Cleveland, Ohio

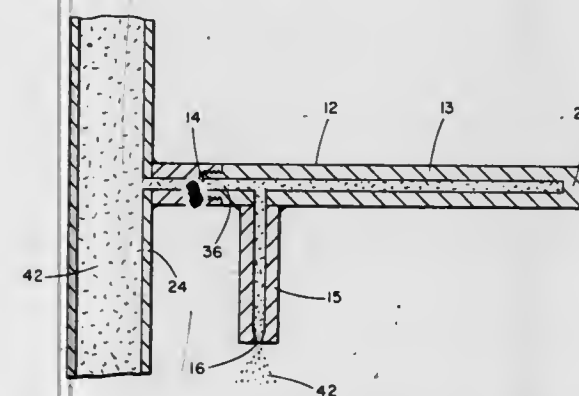
Continuation of Ser. No. 935,992, Aug. 22, 1978, abandoned.

This application Mar. 12, 1980, Ser. No. 129,655

Int. Cl.³ F17C 13/12

U.S. Cl. 137—68 R

4 Claims



1. In a system for processing a high solids content coal slurry at high temperature and pressures, said processing system comprising a reaction vessel and pumping system which safely withstand a first predetermined pressure level, the improve-

ment of an emergency pressure relief system, comprising, in combination:

a pressure container having first and second elongated tubes, said first elongated tube having a passageway, an open end, and a closed end, the open end of said first elongated tube defining a solitary inlet from the reaction vessel into the pressure container, said second elongated tube having a passageway with exposed open ends and extending generally transversely from the first elongated tube, the first open end of the second elongated tube communicating with the passageway of the first elongated tube to define a solitary outlet from said first elongated tube, the second open end of the second elongated tube defining a solitary outlet from the pressure container;

means at the open end of said first elongated tube for connecting the pressure container to the reaction vessel;

means for sealing the solitary inlet to the pressure container, said means for sealing including means rupturable into fragments which are projected into the pressure container when the pressure in the reaction vessel is greater than the first predetermined pressure; and

a flow restrictor in the second elongated tube at the second open end thereof for restricting flow through the outlet from said pressure container to a predetermined rate of flow;

the location of communication between the first open end of the second elongated tube and the passageway of the first elongated tube being adjacent the open end of the first elongated tube such that said location divides the passageway of the first elongated tube into a first passageway segment and a second passageway segment, said first passageway segment being between said sealing means and said solitary outlet from said first elongated tube, said second passageway segment being between said solitary outlet from said first elongated tube and said closed end of said first elongated tube, said second passageway segment defining fragment retention means which is removed from the solitary outlet of said first elongated tube for (1) capturing said fragments by providing that the momentum of rupture of the sealing means propels said fragments along the first elongated tube past the solitary outlet from the first elongated tube and into the fragment retention area, and (2) retaining the fragments there while slurry flows through the pressure container; and

said pressure container, said sealing means and said flow restrictor defining controlled depressurization means for: (1) safely and suddenly decreasing the slurry pressure within the processing system below said first predetermined pressure (2) to a level above a second predetermined level for a predetermined interval of time that prevents thermal shock and agglomeration of the coal slurry in the processing system while (3) minimizing the likelihood that said emergency pressure relief may itself become obstructed and (4) maintaining the integrity of the reaction vessel and pumping system until said processing system can be cleared of coal slurry.

4,362,182

NOZZLE FORCE FEEDBACK FOR PILOT STAGE FLAPPER

John R. Sjolund, Arden Hills, Minn., assignor to Sundstrand Corporation, Rockford, Ill.

Filed Jan. 14, 1981, Ser. No. 225,081

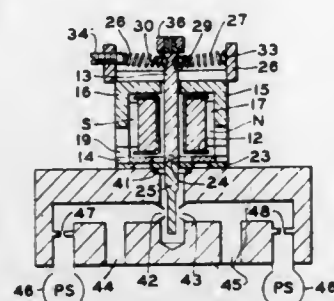
Int. Cl.³ G05D 16/00

U.S. Cl. 137—85

12 Claims

1. A pilot stage comprising:
magnetic torque motor means having an output torque in response to an input current;
a flapper operated by said magnetic torque motor means and responsive to said output torque, said magnetic torque motor means comprising permanent magnet means contributing to a magnetic spring rate applied to said flapper

and centering spring means for centering said flapper when little or no fluid supply pressure is applied to said pilot stage, said centering spring means contributing to a mechanical spring rate applied to said flapper, said permanent magnet means being magnetized at a point where the resultant spring rate between said magnetic spring rate and said mechanical spring rate is small but enough to center said flapper under little or no supply pressure conditions, and,



nozzle means responsive to the output torque applied to said flapper for providing an output pressure proportional to the input current, said nozzle means including at least one nozzle having a size sufficiently large to swamp out the resultant spring rate applied to said flapper so that said nozzle means applies a feedback torque to said flapper sufficient by itself to substantially balance motor torque.

4,362,183

SPRING LOADED SAFETY VALVE

Herbert Richter, Weinheim, and Karl Schaaf, Mannheim, both of Fed. Rep. of Germany, assignors to Bopp & Reuther GmbH, Mannheim, Fed. Rep. of Germany

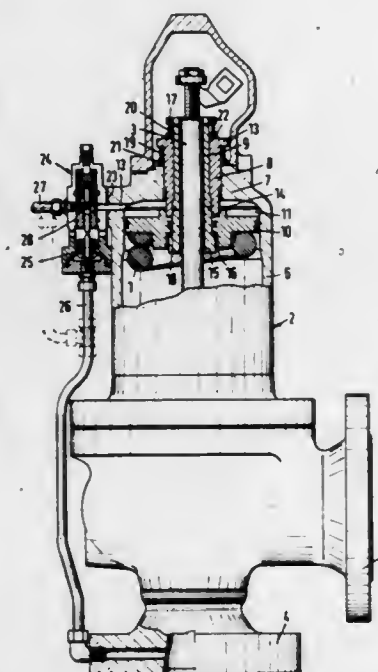
Filed Jun. 23, 1980, Ser. No. 162,397

Claims priority, application Fed. Rep. of Germany, Jun. 30, 1979, 2926522

Int. Cl.³ F16K 17/06

U.S. Cl. 137—489

9 Claims



1. A spring-loaded safety valve, particularly of small and medium dimensions, comprising a valve housing having an inlet port, an outlet port and an upper region functioning as an additional loading cylinder; a valve seat in said valve housing interposed between said ports; a valve member movable in said housing to and from a position in which it engages said valve seat; spring means permanently biasing said valve member towards said valve seat; single means arranged to superimpose upon the biasing force of said spring means an additional force acting upon said valve member in direction of said valve seat

while said valve member is in engagement therewith, and to relieve said additional force first before the pressure in said valve reaches a predetermined valve-opening level, said single means comprising piston means engaging said spring means and movable within said additional loading cylinder so as to apply said additional force to said spring means; limiting means for limiting the travel of said piston means, said limiting means comprising an inner adjustable sleeve having an abutment limiting the additional loading of said spring means by said piston means by directly contacting said piston means, and an outer adjustable sleeve arranged concentrically about said inner sleeve and having an abutment limiting the travel of said piston means by directly contacting said piston means thereby limiting the lessening of the additional force and setting the predetermined valve-opening level; and relieving means to relieve said additional force just before the pressure in said valve reaches a predetermined valve-opening level.

4,362,184

VALVE WITH SPRING BIASED SEAL

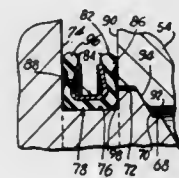
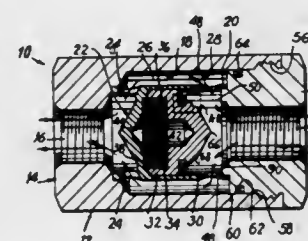
Iakovos Marabeas, 50A Hudson View A, Upper Nyack, N.Y. 10960

Filed Jan. 28, 1980, Ser. No. 116,045

Int. Cl.³ F16K 15/02

U.S. Cl. 137—516.29

9 Claims



1. A valve structure comprising:
a valve body with an inlet and outlet connected by a fluid passing bore, having an area of reduced cross-section adjacent the outlet;
a piston-like member movable in said bore towards a fixed bore endwall extending in a plane perpendicular to the axis of movement of said piston-like member;
said piston-like member formed with a conical endwall movable into a mating conical portion in the bore endwall to block same;
a circumferential recess in said piston-like member adjacent the conical endwall, said recess having two opposed walls, one wall of which is short and the other long, the short wall movable into the conical portion of the bore;
a resilient easily bent in elastic sealing member in said recess, said sealing member circumferentially surrounding said piston-like member, and formed with spaced legs extending above the short wall, and shorter than the long wall of said recess; and
elastic means between the legs of said sealing member urging same apart from each other, whereby upon movement of said piston-like member to a bore blocking position, the legs will be compressed between the stationary bore endwall and the long wall of the recess.

4,362,185

SEATING ARRANGEMENTS FOR POPPET OR NON RETURN VALVES

Max Kadner, 36 Brown St., Waverly, N.S.W., Australia (2024)

Continuation-in-part of Ser. No. 63,117, Aug. 2, 1979,

abandoned. This application May 13, 1981, Ser. No. 263,352

Claims priority, application Australia, Aug. 14, 1978, PD5475

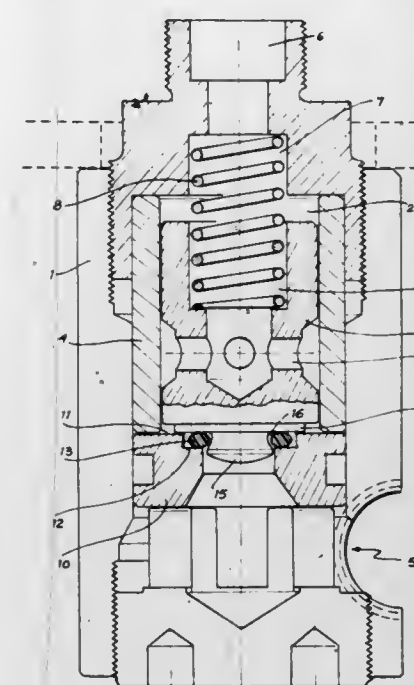
Int. Cl.³ F16K 15/02

U.S. Cl. 137—516.29

3 Claims

1. A poppet valve or non-return valve including:
(i) a valve chamber,

(ii) an annular valve seat,
(iii) a valve member movable in the valve chamber and having an O-ring retainer chamber and having an O-ring retainer member projecting towards the annular valve seat, and
(iv) an elastomeric O-ring on the retainer member to provide a seal between the valve member and the annular valve seat when the valve is in its closed position, and wherein the O-ring retainer member has:



(v) a head portion remote from the valve member, and,
(vi) a groove between the head portion and the valve member which comprised by:
(a) a first conical portion extending inwardly from the head portion and having a cone angle no greater than about 25°.
(b) a second conical portion spaced inwardly from the first conical portion and having a cone angle of at least about (90—2γ_E) where γ_E is given by the formula:

$$\cot \gamma_E = \frac{\pi}{4} \left[\left(\frac{R_0}{R_0 - x_1} \right)^2 + 1 \right]$$

wherein

R₀ is the cross sectional radius of the O-ring when the valve is open, and,

X₁ is the reduction in cross-sectional radius of the O ring when the valve is closed.

(c) a curved zone between the two conical portions which provides a smooth transition therebetween, the incremental value of the angle (90°—2γ_E) of the curved zone being given by the formula

$$\cot \gamma = \frac{\pi}{4} \left[\left(\frac{R_0}{R_0 - X} \right)^2 + 1 \right]$$

wherein

R₀ has the above meaning and,

X is the reduction in the cross-sectional radius of the O-ring at the incremental conical portion of the curved zone

so that the O-ring retainer member does not interfere with or constrain the O-ring during its deformation sequence as the valve closes and opens.

4,362,186

SANITARY FITTING

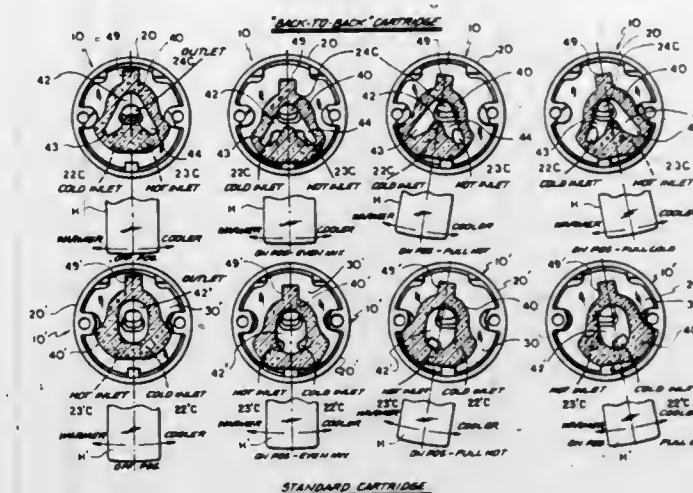
Richard G. Parkison; Armin O. Fischer, both of Louisville, Ky., and John C. Kaussner, Easton, Conn., assignors to American Standard Inc., New York, N.Y.

Filed Feb. 11, 1981, Ser. No. 233,419

Int. Cl.³ F16K 11/06

U.S. Cl. 137—625.17

4 Claims



1. A sanitary fitting adapted to be mounted in back-to-back relation to a standard sanitary fitting on the opposite side of a partition wall with the handle operation unchanged, without requiring cross-over connections of the cold and hot water lines, said fitting comprising:

a stationary valve plate having first and second water inlet openings for conducting cold and hot water respectively therethrough and an outlet opening, said plate having a polished surface defining a valve seat;

a shiftable valve plate having means for effecting an internal reversal of water flow through said sanitary fitting, said means including a bifurcated recess formed therein and defining first and second arm sections, for communicating with said first and second water inlet openings respectively;

said shiftable valve plate having a polished surface and being mounted in face-to-face contact with said polished surface, of said stationary valve plate effecting a watertight seal therebetween; and

a valve actuator means rotatably mounted on said sanitary fitting, and coupled to said shiftable valve plate, said actuator means being moveable along the vertical axis of said sanitary fitting for moving said shiftable valve plate rectilinearly so that at least one of said arm sections of said bifurcated recess uncovers said corresponding water inlet opening of said stationary valve plate and, when rotated, said other arm section of said bifurcated recess uncovers said other corresponding water inlet opening of said stationary valve plate.

4,362,187

SPIRALLY-FORMED THERMOPLASTIC TUBE

Allan Harris, Newport Beach, and Lemuel H. Huff, Anaheim, both of Calif., assignors to Manville Service Corporation, Denver, Colo.

Filed Aug. 5, 1980, Ser. No. 175,473

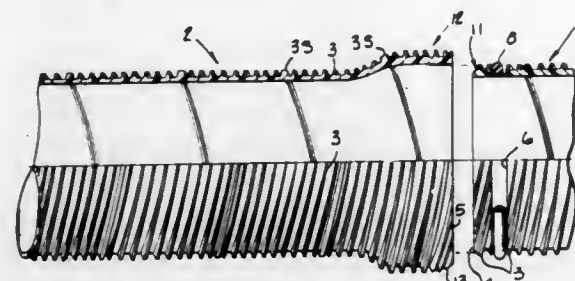
Int. Cl.³ F16L 9/16

U.S. Cl. 138—109

11 Claims

1. A pipe section formed of a spirally wound thermoplastic ribbon, said ribbon including first and second mating edges having mating shapes which, when joined together in spiral fashion form a substantially imperforate seam structure, and between said first and second mating edges, said ribbon includes a web which is generally flat in cross section and extends between said mating edges, and at least one upstanding reinforcing rib extending parallel to said first and second mating edges and projecting outward a substantial distance from

the outwardly facing surface of said web, said pipe section further includes a first end and a second end, an annular groove spaced a uniform distance from said first end and extending entirely around said pipe section, said annular groove extending from the outer circumference of said pipe as defined by said



at least one rib to a radially inward distance defined by said outwardly facing surface of said web, said uniform distance being such that said at least one rib in combination with said seam structure forms a flange between said annular groove and said first end, said flange extending completely around said pipe section.

4,362,188

ROTARY DOBBY

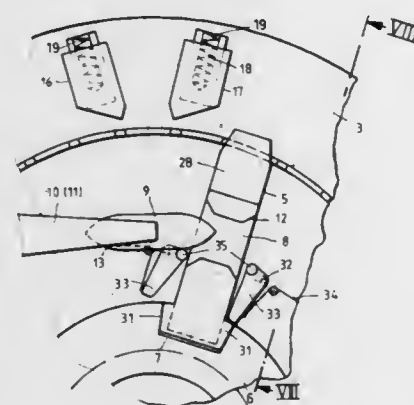
Paul Surkamp, Kempen-St. Hubert, and Josef Brock, Viersen, both of Fed. Rep. of Germany, assignors to Maschinenfabrik Carl Zangs Aktiengesellschaft, Krefeld, Fed. Rep. of Germany
Filed Dec. 30, 1980, Ser. No. 221,465

Claims priority, application Fed. Rep. of Germany, Jan. 16, 1980, 3001310

Int. Cl.³ D03C 1/12

U.S. Cl. 139—76

8 Claims



1. In a rotary dobby having a wedge coupling between a drive shaft and an eccentric device for a harness movement, the wedge being displaceably mounted in a radially extending recess in an eccentric disc mounted in a crank arm and couplable and uncouplable in accordance with a pattern in an axially extending groove of the drive shaft at two diametrically opposite coupling locations by a shift rod which is controllable in accordance with the pattern and engages with a coupling member of the shift rod into a groove of the wedge which is open in an axial direction of the drive shaft, the improvement comprising

a spring-biased locking pawl means for locking the wedge in a coupled position thereof on the eccentric disc against displacement,

said locking pawl means for being displaceable with the coupling member of the shift rod into a position which permits uncoupling of the wedge.

4,362,189

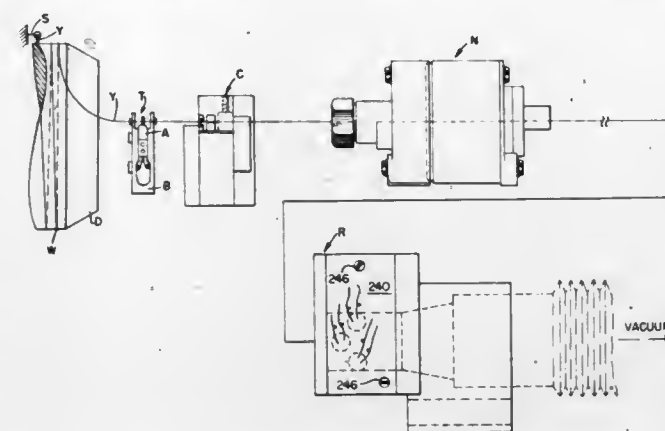
FLUID WEFT INSERTION LOOM MONITORING SYSTEM

Charles W. Brouwer, East Greenwich, R.I., and Larry C. Cowan, York, S.C., assignors to Leesona Corporation, Warwick, R.I.
Filed Jan. 7, 1981, Ser. No. 223,203

Int. Cl.³ D03D 51/18

U.S. Cl. 139—336

8 Claims



1. In a cyclical method of weaving including in each cycle a weft insertion stage in which weft yarn is propelled from one side to the opposite side of the shed of a loom by means of a stream of pressurized fluid emitted from a nozzle while being simultaneously withdrawn from an accumulated supply at said one side substantially equal in length to the length of yarn to be inserted, the improvement of monitoring the performance of each weaving cycle by the steps of sensing the occurrence of a sequence of operating events during each cycle including an increase in pressure in the nozzle upon the emission of the fluid stream therefrom, the exhaustion of the accumulated yarn supply, and the arrival of the leading yarn end at the opposite shed side; simultaneously activating a plurality of timers corresponding to the plurality of functions so sensed at a common starting time in the weaving cycle prior to the weft insertion stage, terminating the operation of each counter only at the instant of the occurrence of the corresponding operating event being sensed while holding the elapsed time at such termination on each timer, and resetting said plurality of timers at the end of each cycle when the arrival of the yarn at the opposite shed side has been sensed.

4,362,190

METHOD OF SENSING ABNORMALITY OF WEFT DETECTING DEVICE IN LOOM

Akio Arakawa, Kariya, Japan, assignor to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Aichi, Japan

Filed Oct. 31, 1980, Ser. No. 202,764

Claims priority, application Japan, Nov. 7, 1979, 54-144647

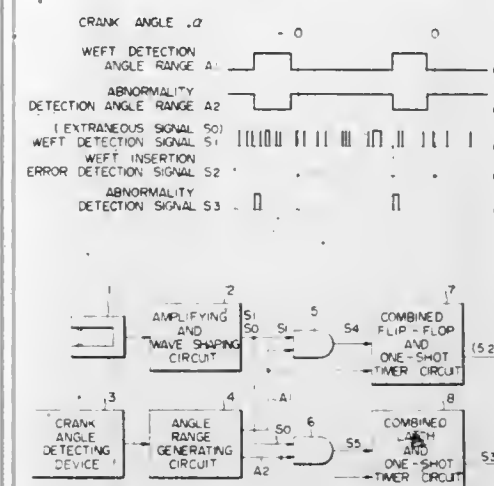
Int. Cl.³ D03D 51/34

U.S. Cl. 139—370.2

4 Claims

1. In a loom equipped with a weft detecting device for setting a predetermined crank angle range within one revolution of the crank and for detecting the presence of a weft within the set interval, a method of sensing an abnormality in the weft detecting device of said loom, which comprises the steps of regarding, as an abnormal signal, a signal which is generated

by the weft detecting device within a predetermined crank angle range excluding the weft detection angle range, and



detecting an abnormality in the weft detecting device on the basis of the abnormal signal.

4,362,191

WOVEN SLIDE-FASTENER STRINGER

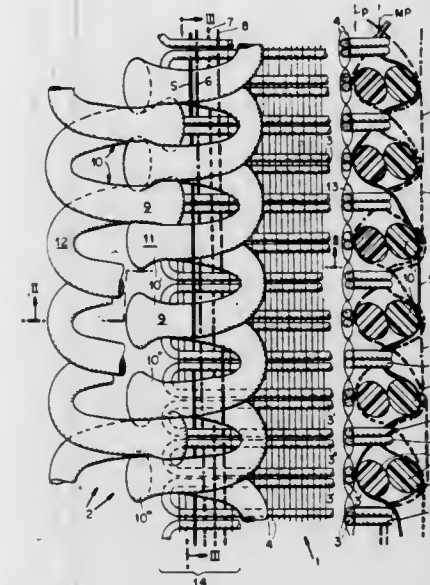
Alfons Fröhlich, and Karl Griessbaum, both of Essen, Fed. Rep. of Germany, assignors to Opti Patent-, Forschungs-und Fabrikations AG, Riedern-Allmünd, Switzerland
Filed Oct. 9, 1980, Ser. No. 195,000

Claims priority, application Fed. Rep. of Germany, Oct. 10, 1979, 2941067

Int. Cl.³ D03D 1/00; A44B 19/40, 19/34

U.S. Cl. 139—384 B

2 Claims



1. In a slide fastener having a stringer half formed with a woven ground-weave tape and a continuous monofilament coupling elements formed by weaving and woven into said tape during the weaving thereof and wherein said tape has a ground weave comprising ground warp yarns forming warp pockets receiving ground-double wefts reaching to a longitudinal edge of the tape and formed by a continuous ground weft yarn, said coupling element comprising a multiplicity of double-weft coupling members spaced apart along said edge with each coupling member having a coupling head projecting beyond said edge, and a pair of shanks having superposed projections in a slide fastener plane overlying a portion of said tape adjacent said edge with connecting parts bridging the shanks of successive coupling members, the improvement wherein said coupling element is secured to said tape on said portion by a plurality of connecting warp yarns and such that the shanks of each coupling member form a double weft interwoven with said connecting warp yarns and respective double wefts underlying the shanks of each coupling member while

interstitial ground double wefts lie between the coupling members, said connecting warp yarns being offset longitudinally from one another with a stagger of two picks and each overshooting both shanks of a pair of coupling members, overshooting both shanks of a further coupling member in a repeating pattern along the length of said tape, each connecting warp yarn passing under an interstitial ground double weft between each of said pairs of coupling members and the successive next coupling member, the interstitial double ground wefts engaged by said connecting warp yarns being drawn away from the ground weave at least to a median plane of the coupling element.

4,362,192

WIRE TYING POWER TOOL

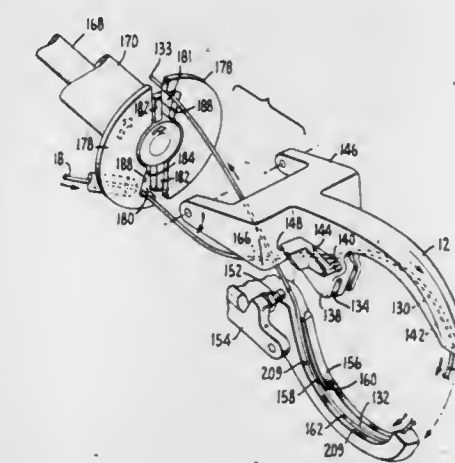
Donn B. Furlong, 185 McNear Dr., San Rafael, Calif. 94901, and Marvin M. May, 10401 Wilshire Blvd., Los Angeles, Calif. 90024

Filed Mar. 5, 1981, Ser. No. 240,964

Int. Cl.³ B21F 7/00, 9/02, 11/00, 23/00

U.S. Cl. 140—93.6

15 Claims



1. A tool for binding with wire reinforcing bars used in concrete structures, said tool comprising:

- (a) a pair of jaws relatively movable toward and away from each other between open and closed positions for insertion around two or more reinforcing bars,
- (b) means for selectively moving said jaws between their open and closed positions,
- (c) said jaws having grooves formed therein in the configuration of a loop when the jaws are in their closed position,
- (d) means for feeding a predetermined length of wire having a free end into the grooves when the jaws are in their closed position,
- (e) wire-retaining means on the jaws for blocking the exit of the wire from the grooves during the feeding of the wire into the grooves in the jaws,
- (f) means for cutting the wire after it has been fed all the way into the grooves in the jaws, and
- (g) means for twisting the cut ends of the wire to form a tie for binding the reinforcing bars.

8. A tool for binding with wire reinforcing bars used in concrete structures, said tool comprising:

- (a) a pair of jaws relatively movable toward and away from each other between open and closed positions for insertion around two or more reinforcing bars,
- (b) means for selectively moving said jaws between their open and closed positions,
- (c) said jaws having grooves formed therein in the configuration of a loop when the jaws are in the closed position,
- (d) a pair of relatively rotatable members forming a pair of openings therebetween,
- (e) means for feeding a predetermined length of wire having a free end through one of the openings between said relatively rotatable members, into the grooves in the jaws

while the jaws are closed, and the free end of the wire through the other of said openings between the relatively rotatable members,

- (f) means for causing one of said relatively rotatable members to rotate relative to said other member to close the openings therebetween, said one member having a cutter thereon to cut the wire and to twist the cut ends of the wire into tie for binding the reinforcing bars upon further rotation of said members.

4,362,193

INFLATING APPARATUS FOR PLAYBALLS

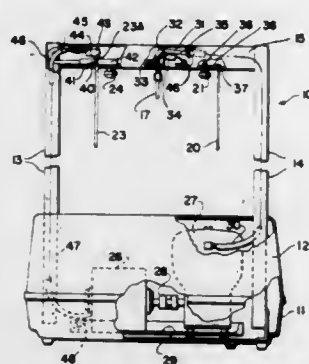
William A. Erdos, Peninsula, and Edward J. Stropkay, Chesterland, both of Ohio, assignors to Eagle Rubber Co., Inc., Ashland, Ohio

Filed Sep. 8, 1980, Ser. No. 185,288

Int. Cl.³ B65B 31/00, 3/28

U.S. Cl. 141-94

6 Claims



1. Inflation apparatus for inflating playballs to predetermined size comprising:

- (a) a frame providing a generally horizontal support having a first indicia and playball size indicia spaced apart at opposite sides of said first indicia for denoting playball size increments;
- (b) inflator means carried by said frame in position indicated by said first indicia to receive a playball for inflation;
- (c) playball size determining means carried by said frame support and selectively movable along said frame support, and including means fixing the spacially separated and adjusted positions of said size determining means for predetermining the final inflated size of the playball prior to being inflated;
- (d) a source of inflating gas connected to said inflator means;
- (e) first control means carried by said frame and initially operable upon a playball received on said inflator means for admitting the gas from said source for inflating the playball to a size for engaging said size determining means; and
- (f) second control means for stopping the admission of gas upon the playball engaging said size determining means.

4,362,194

MANUALLY MOBILE FIREWOOD LOG SPLITTER

Jack O. Lawson, R.D. #4, Ephrata, Pa. 17522

Filed Jan. 29, 1981, Ser. No. 229,453

Int. Cl.³ B27L 7/00

U.S. Cl. 144-193 R

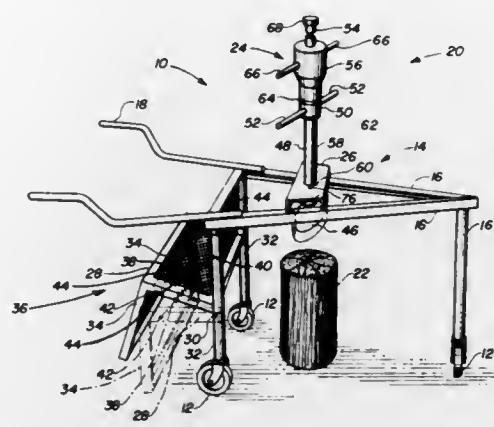
10 Claims

1. A manually mobile firewood log splitter adapted to be displaced from one use location to another by means of a caster mounted rigid supporting frame structure comprised of at least two interconnected horizontally and vertically disposed members provided with a rearwardly projecting set of horizontally spaced handles, said manually mobile firewood log splitter comprising in combination:

- (a) a slidable hammer splitter assembly having an interchangeable splitting blade connectably assembled at the lower vertical end of a splitting blade support shaft member provided with an integral vertical displacement guide means therefor, said member and said guide means being

vertically moveable perpendicularly through a shaped keyway opening within a structural platform member horizontally disposed in transversely connected assembly between two of said interconnected horizontally disposed members of said rigid supporting frame,

- (b) a slidable hammer impact anvil interchangeably connected to said splitting blade support shaft member by insertable engagement of an upper vertical end of said support shaft within a first axially aligned opening provided in the lower side of said slidable hammer impact anvil and secured therein by insertion of a retaining pin through a communicating set of aligned sidewall openings



therefor provided respectively within said slidable hammer impact anvil and said upper vertical end of said splitting blade support shaft member whereby said support shaft communicates vertically downwardly from said anvil through said structural platform member shaped keyway opening to said interchangeable splitting blade, and

- (c) a slidable impact hammer with an opening therethrough adapted for vertically displaced movement thereof upon a slidable hammer guide shaft connectably assembled at the lower vertical end thereof within a second axially aligned opening provided in the upper side of said slidable hammer impact anvil and upwardly projecting therefrom.

4,362,195

PORTABLE LOG DEBARKING APPARATUS

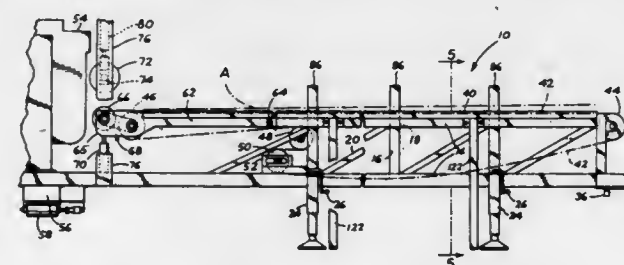
Louis F. Hill, Sweet Home, Oreg., assignor to Pacific Rim Equipment Corp., Sweet Home, Oreg.

Filed Jan. 9, 1981, Ser. No. 223,701

Int. Cl.³ B27L 1/00

U.S. Cl. 144-242 R

16 Claims



10. A portable log debarking apparatus comprising

- (a) an elongated infeed frame having road engaging wheel support means at one end thereof,
- (b) a hitch on the other end of said frame arranged to be connected to a pulling vehicle for movement of the frame to a site of logs to be debarked,
- (c) a power driven debarking unit on said frame adjacent one end,
- (d) a powered driven conveyor on said infeed frame operating toward said debarking unit,
- (e) said conveyor being arranged to feed logs deposited thereon longitudinally into said debarking unit,

- (f) a longitudinal feed segment at the end of said infeed frame adjacent said debarking unit,
- (g) said feed segment having opposite ends and having lateral pivotal connection to said infeed frame at its end which is away from said debarking unit,
- (h) means arranged to raise and lower said feed segment around its pivot end for guiding logs into said debarking unit,
- (i) one side of said infeed frame being unobstructed along a greater portion of said conveyor to allow side loading of logs onto said conveyor,
- (j) and stop means on the other side of said frame from said unobstructed side for limiting the loading travel of logs when side loaded onto said conveyor.

4,362,196

POWER TOOL TABLE WITH SAFETY SHUT-OFF

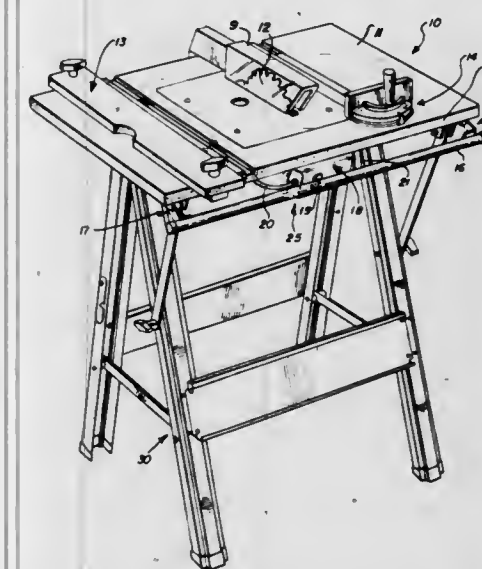
Irwin J. Ferdinand, Glencoe; Richard Sylvan, Glenview, and Herbert Baisch, Palatine, all of Ill., assignors to Hirsh Company, Skokie, Ill.

Filed Sep. 24, 1980, Ser. No. 190,442

Int. Cl.³ D06F 71/00; B25H 1/00

U.S. Cl. 144-286 R

9 Claims



9. An improvement in a table assembly for supporting a power tool in which said assembly includes a table defining an operator location along one edge, the improvement comprising:

- (a) an electric conductor supported by said table and adapted to transmit electricity from an electric power source;
- (b) a shut-off switch connected to said conductor and mounted to the underside of said table adjacent to said one edge;
- (c) an electric outlet receptacle connected in series with said shut-off switch and adapted to connect the shut-off switch to said tool;
- (d) a pair of spaced-apart mounting brackets on the underside of said table adjacent said one edge;
- (e) an arm pivotably mounted to each of said mounting brackets;
- (f) a cylindrical bar adjacent and generally parallel to said one edge of said table and secured at each end to one of said arms whereby the bar can be moved between a first position adjacent said operator location and a second position engaging said shut off switch; and
- (g) a leaf spring secured to and extending from the underside of said table along said one edge for biasing said bar toward first said position.

4,362,197

PROCESS FOR SLICING VENEER

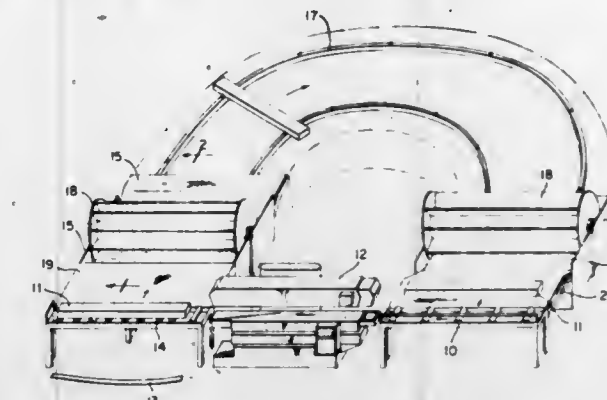
Charles H. Wick, Woodinville, and Stephen J. Suor, Bellevue, both of Wash., assignors to Simpson Timber Co., Seattle, Wash.

Filed Jan. 26, 1981, Ser. No. 228,131

Int. Cl.³ B27M 1/00

U.S. Cl. 144-364

10 Claims



1. A continuous process for slicing uniform veneer from kiln-dried lumber, comprising the steps of:

- (1) soaking the working face of the lumber to be sliced in a water bath for a sufficient time that a veneer cut therefrom will not curl excessively;
- (2) slicing a veneer from the working face of the lumber;
- (3) returning the lumber to the water bath to again soak the working face of the lumber; and
- (4) slicing a second slice of veneer from the working face.

4,362,198

CLOSURE DEVICE

Ewald A. Kamp, Chicago, Ill., assignor to Union Carbide Corporation, Danbury, Conn.

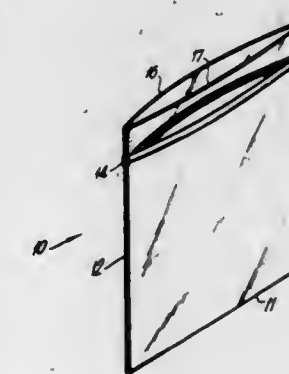
Division of Ser. No. 892,432, Mar. 31, 1978, Pat. No. 4,212,337.

This application Mar. 26, 1980, Ser. No. 134,167

Int. Cl.³ B65D 33/30

U.S. Cl. 150-3

22 Claims



1. A container including two sidewalls and a closure fastening device consisting essentially of:

- a first u-shaped channel element including a first base portion having one side connected to one of said sidewalls, a pair of spaced apart first webs extending from said first base portion, and first hook portions extending from each of said first webs and facing away from each other;
- and a second u-shaped channel element including a second base portion, a pair of spaced apart second webs extending from said second base portion having one side connected to the other sidewall, and second hook portions nonlinearly extending from each of said second webs and facing towards each other;
- one of said channel elements further comprising a spring element extending from its base portion to the base portion of said second channel element when said channel elements are occluded;

said bases being of sufficient width to allow at least one of them to flex during the occlusion and opening of said fastening devices;

said channel elements being adapted to interlock by pressing said first channel element into said second channel element so that said first and said second hook portions engage at predetermined pairs of contact surfaces, one of said pairs of said contact surfaces defining a negative angle of engagement and the other of said pairs of said contact surfaces defining either a positive or a zero angle of engagement; and

said channel elements establishing an open compartment defined by the interior surfaces of said first and second base portion and first and second web portion when said channel elements are occluded, each of said channel elements having substantially the same cross-section along its occludable length.

4,362,199

FLEXIBLE CONTAINERS

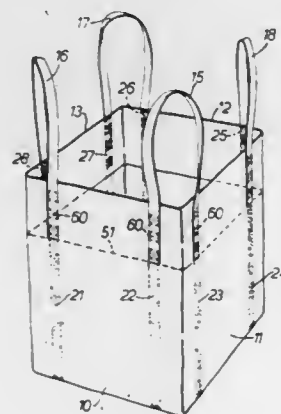
Charles S. Futerman, London, England, assignor to Miller Wheelblight Limited, London, England

Continuation-in-part of Ser. No. 864,850, Dec. 27, 1977, abandoned. This application Oct. 23, 1979, Ser. No. 87,507
Claims priority, application United Kingdom, Jan. 10, 1977, 795/77

Int. Cl.³ B65D 33/06

U.S. Cl. 150—12

17 Claims



1. A flexible bag for transporting material, comprising
 - (a) a body of textile fabric material including warp and weft threads, said body including bottom and side wall portions, said side wall portions having upper edges, selected parts of said side wall portions containing reinforcing warp threads which are formed of a synthetic plastic material and are interwoven with weft threads, thereby to provide reinforced areas, all of said reinforcing threads having a higher tensile strength than the warp threads in an area other than said reinforced areas; and
 - (b) open-ended loop lifting means having free ends, said free ends being attached to said reinforced areas at locations which are spaced upwardly from said bag bottom portion and are adjacent the upper side wall edges, respectively, thereby to produce a bag having a greater load bearing capacity when lifted by said lifting means.

4,362,200

PNEUMATIC TIRE

Paul M. Standley, Springfield, Mo., assignor to Dayco Corporation, Dayton, Ohio

Filed Oct. 20, 1980, Ser. No. 198,884

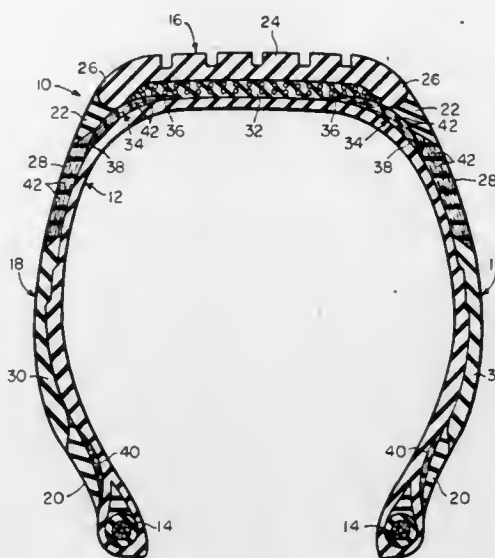
Int. Cl.³ B60C 19/06; C01B 31/04; C08K 9/00

U.S. Cl. 152—153

3 Claims

1. In a pneumatic tire construction made primarily of elastomeric materials and comprising: an inner carcass assembly terminating in a pair of bead assemblies; an outer assembly comprising a tread assembly having a pair of shoulder portions and a road-gripping portion therebetween, a pair of sidewall

assemblies, a rim strip between each of said bead assemblies and said sidewall assemblies, a sidewall-to-shoulder strip between each of said sidewall assemblies and said shoulder portions, and an annular reinforcing assembly disposed between said tread assembly and the radially outermost surface of said inner carcass assembly; the improvement comprising opposite layers of heat-conducting elastomeric material disposed between said inner carcass assembly and said tread assembly, said sidewall assemblies having outer portions also comprising heat-conducting elastomeric material, each of said opposite layers having one side portion thereof in contact with said reinforcing assembly and an opposite side portion thereof in contact with one of said outer portions of said sidewall assem-



blies, said opposite layers and said outer portions cooperating to conduct heat from an internal area in said tire to external areas of heat dissipation, said heat-conducting elastomeric material comprising an elastomer having a heat-conducting amount of particles of pyrolytic graphite homogeneously dispersed therethrough, said heat-conducting elastomeric material being a calendered material so that a substantial portion of said particles of graphite are oriented in one direction, said layer and said outer portions being disposed in said tire so that said direction of orientation of the oriented pyrolytic graphite particles is generally radial with respect to the toroid of the tire and extends generally from said internal area in said tire to said external areas of heat dissipation.

4,362,201

TREAD PROFILE FOR PNEUMATIC VEHICLE TIRES

Norbert Zinnen, Aachen, Fed. Rep. of Germany; Henri J. Mirtain, Compiègne, France, and Harm J. Arends, Voerendaal, Netherlands, assignors to Uniroyal Englebert Reifen GmbH, Aachen, Fed. Rep. of Germany

Filed Mar. 16, 1981, Ser. No. 243,712

Claims priority, application Fed. Rep. of Germany, Mar. 15, 1980, 8007151[U]

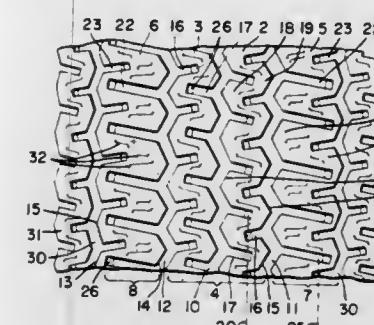
Int. Cl.³ B60C 11/06

U.S. Cl. 152—209 R

16 Claims

1. A tread profile for a pneumatic vehicle tire having a main tread and tire shoulders including respective shoulder regions and sidewalls, said tread having a central region extending in the circumferential direction of said tire between said shoulder regions with shoulder-block formation, said tread profile comprising in combination therewith a plurality of meandering profiled ribs both in the central region and shoulder regions including at least two narrow ribs extending continuously in the circumferential direction of said tire, and a plurality of continuous circumferential grooves including at least three grooves located peripherally which separate said profiled ribs from one another, said ribs having side edges formed by said grooves, said side edges being toothed in outline and obtuse-angled; extending into said ribs from said grooves are blind

grooves which are all very deep even in central and shoulder regions and which are all oriented at an angle to the circumferential direction of said tire and have closed ends that terminate in an inclined configuration for reasons of strength and stability, block-rib parts being formed between said side edges of said ribs and respective closed ends of said blind grooves, said block-rib parts having tread surfaces and an inclined triangular-wall-shaped lengthened meander side edge configuration of blocks existing for the shoulder-block formation having more extensive edge length by being inclined without leading disadvantageously to block tear-out damage, the shoulder regions being provided with a meandering profiled rib, that block-rib part of which facing the central region having larger raised surfaces which are at least twice as large as those of the ribs of the central region and said circumferential grooves having a corresponding zig-zag shape, and furthermore in a given profiled rib, which has two side edges, said blind grooves extend-



ing into said rib from both of said side edges, so that the blind grooves extending into said rib from one of said side edges extending toward said central region of said tread, and the blind grooves extending into said rib from the other of said side edges extending in the opposite direction, namely away from said central region of said tread, the length of these blind grooves extending beyond a center line of the ribs associated therewith, said blind grooves respectively representing a water-receiving and water-dissipating system of tread drainage by the blind grooves effective essentially in circumferential direction and particularly effective to function in a safe manner with tread road contact broadened in axial direction yet shortened in circumferential direction considerably to improve hydroplaning behavior accompanied by low noise development due to continuous tying together of said block rib parts, at least said blind grooves extending from the main tread to the tire shoulders being approximately twice as long as the remaining blind grooves.

4,362,202

SEMI-PNEUMATIC TIRE

Martin B. Sacks, Claypool, Ind., assignor to Sun Metal Products, Inc., Warsaw, Ind.

Filed Mar. 30, 1981, Ser. No. 249,024

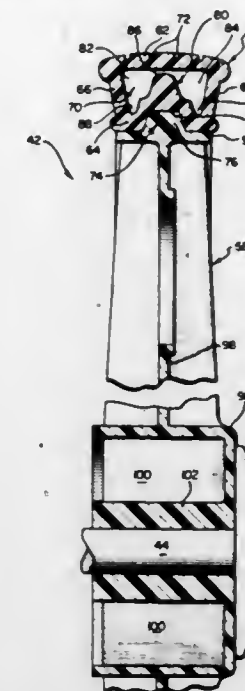
Int. Cl.³ B60C 7/24

U.S. Cl. 152—325

6 Claims

1. A semi-pneumatic tire body for assembly to the rim of a wheel, comprising: an annular, ground-engaging tire tread portion; an annular, rim-engaging tire root portion spaced apart from said tread portion in generally radial alignment therewith; laterally spaced sidewalls connecting said tread portion and said root portion to define annular, closed cavity means therebetween; and an annular, load-bearing rib confluent with one of said tire tread portion and said tire root portion and extending radially toward the other of said tire portions and into said cavity means to divide said cavity means into lateral chambers, said rib having a base element and a narrower tip element connected to said base element, detached from said other tire portion and normally spaced apart from the inner wall of said other tire portion in the unloaded state to establish

substantially continuous communication between said lateral chambers for free gaseous interchange and said rib having a



height substantially equal to the radial extent of said sidewalls whereby to support said other tire portion in the loaded state.

4,362,203

PROCESS FOR PREPARING FOUNDRY CORES OR MOLDS AND BINDER MATERIALS USED THEREFOR

Susumu Konii; Shigeo Sase; Masatoshi Yoshida; Shoei Kuroda, and Takeshi Sumi, all of Shimodate, Japan, assignors to Hitachi Chemical Co., Ltd., Tokyo, Japan

Division of Ser. No. 92,022, Nov. 7, 1979, Pat. No. 4,283,319.

This application Mar. 27, 1981, Ser. No. 248,536

Claims priority, application Japan, Nov. 13, 1978, 53-139733

Int. Cl.³ B22C 1/18; 1/22

U.S. Cl. 164—16

18 Claims

1. A process for preparing a foundry core or mold which comprises forming into a shape of a core or mold a foundry mold composition containing (A) refractory particles, and (B) a foundry binder material comprising an alcohol-soluble phenolic resin selected from the group consisting of a resole, a novolac, an N-methylene-resole, a dimethylene ether-type resole, a formal-type resole and a mixture thereof, 10 to 300 parts by weight of a hydroxide and/or an oxide of a polyvalent metal selected from the group consisting of an alkaline earth metal, aluminum, zinc, iron, nickel, titanium, silicon, tin, and a mixture thereof, 100-500 parts by weight of water, 1 to 100 parts by weight of an organic solvent selected from the group consisting of an alcohol, an aromatic hydrocarbon, a ketone, an acetic ester, a phthalic ester, an ether, a cellosolve, dimethylformamide dimethyl sulfoxide and a mixture thereof, and 0.1 to 50 parts by weight of an alkali metal hydroxide, said parts by weight being based on 100 parts by weight of said alcohol-soluble phenolic resin, and then gassing said core or mold with carbon dioxide.

4,362,204

METHOD AND APPARATUS FOR CURING A FOUNDRY CORE

Russell H. Moore, Gladstone, and Patrick O'Meara, Madison Heights, both of Va., assignors to The Mead Corporation, Dayton, Ohio

Continuation of Ser. No. 130,790, Mar. 17, 1980, abandoned.

This application Oct. 8, 1981, Ser. No. 309,740

Int. Cl.³ B22C 1/22

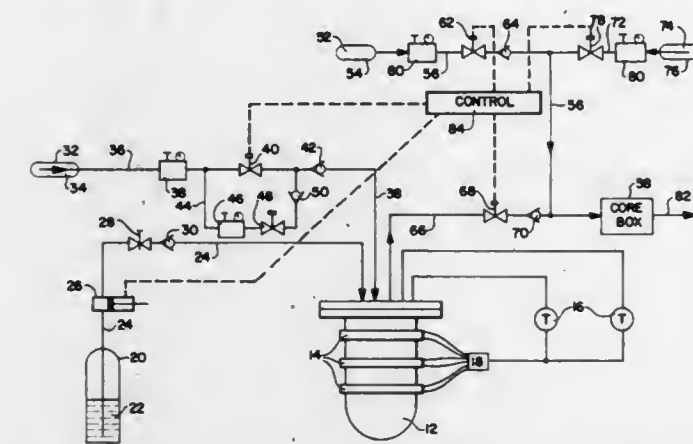
U.S. Cl. 164—16

7 Claims

1. A process for curing foundry cores of the type in which a foundry aggregate is mixed with a curable binder to form a

core mixture which is carried within a hermetically sealed core box comprising the steps of:

- causing a liquid amine curing agent in the amount 0.05 to 0.2% by weight of foundry aggregate to flow into a vaporizer;
- vaporizing completely the curing agent by the addition of heat to the vaporizer;
- evacuating the vaporized curing agent substantially completely from the vaporizer by the introduction of an inert carrier gas at a pressure of between 20 and 50 pounds per square inch into the vaporizer whereby a catalyzing mixture is formed consisting of the vaporized curing agent and the inert carrier gas;



injecting the catalyzing mixture into a lower pressure stream of air pressurized to between 5 and 30 pounds per square inch and at a temperature sufficient to maintain the mixture in a gaseous state such that the resultant mixture has a pressure of between 5 and 50 pounds per square inch; passing the air stream bearing the catalyzing mixture at a pressure of between 5 and 50 pounds per square inch about the core mixture within the core box thereby curing the core; and purging the catalyzing mixture from the box.

4,362,205

ROTOR DIE CASTING METHOD

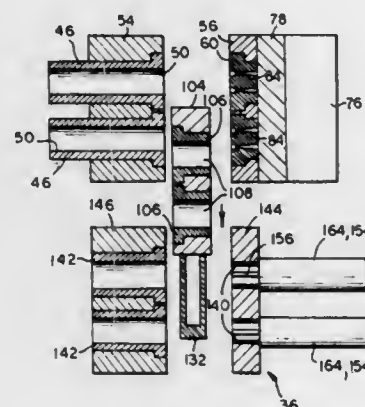
James C. Cole, Gallon, and George F. Cronenwett, Mount Gilead, both of Ohio, assignors to HPM Corporation, Mount Gilead, Ohio

Filed Feb. 2, 1981, Ser. No. 230,455

Int. Cl.³ B22D 19/00

U.S. Cl. 164—109

19 Claims



1. A method for die casting end rings and conductor bars on motor rotors comprising the steps of:
 - providing a compensator mechanism comprising a compensator sleeve having a breech opening in a side thereof and a compensator received in the sleeve for reciprocal movement along a first axis,
 - providing a die plate closing off one end of the compensator

sleeve to form a die cavity, the die plate and compensator sleeve being axially separable,

storing a plurality of stacks of motor laminations, each stack held together by a stacking pin, on a loading rack positioned laterally on one side of the compensator mechanism and the first axis,

causing one of the stacks to roll by gravity from the loading rack into the compensator sleeve through the breech opening thereof,

pushing the stack forward in the compensator sleeve by the compensator into abutment with the die plate,

injecting a charge of molten metal into the die cavity formed by the compensator, compensator sleeve and die plate on and through the stack to form end rings and conductor bars on the stack to thereby form a rotor,

then axially separating the die plate and compensator sleeve, moving a retriever laterally from said one side of the first axis and perpendicularly toward said first axis to an unload position interposed between the compensator sleeve and die plate, the retriever having an opening aligned with the compensator sleeve when it is moved to its unload position,

pushing the cast rotor out of the compensator sleeve and into the retriever opening and holding the rotor in the retriever opening,

then retracting the retriever to a position on said one side of said compensator mechanism and said first axis, while the rotor is in the retriever and when the retriever has been retracted, pressing the stacking pin out of the rotor along a second axis substantially parallel to the first axis and ejecting the rotor out of the retriever opening along said second axis,

after the retriever has retracted away from the compensator sleeve and die plate, bringing the die plate and compensator sleeve together, and

subsequent to clearing of the retriever from between the compensator sleeve and die plate and prior to the injection of the rotor from the retriever opening, rolling another stack into the compensator sleeve and pushing the last mentioned stack forward in the compensator sleeve.

4,362,206

SUPPORTING AND GUIDING STAND ARRANGEMENT TO BE USED IN A CONTINUOUS CASTING PLANT

Johannes Cordella; Franz Bayer, both of Linz, and Erich Felbermayer, Wels, all of Austria, assignors to Voest-Alpine Aktiengesellschaft, Linz, Austria

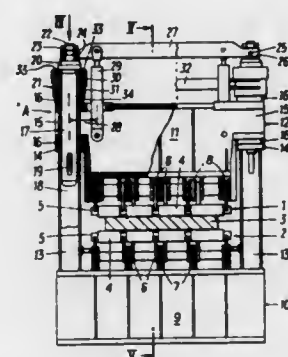
Filed Jun. 19, 1980, Ser. No. 160,924

Claims priority, application Austria, Jun. 28, 1979, 4511/79

Int. Cl.³ B22D 11/12

U.S. Cl. 164—448

3 Claims



1. In a supporting and guiding stand arrangement to be used in a continuous casting plant, such as a casting plant for slabs, and of the type including a first supporting framework and an oppositely arranged second supporting framework, each of said first and second supporting frameworks comprising cross carriers, and longitudinal carriers mounted on said cross carriers and extending over the total length of said supporting and guiding stand, a first and a second roller way being provided

on the longitudinal carriers of each of said first and second supporting frameworks, respectively, a plurality of drawing anchors for bracing said second supporting framework relative to said first supporting framework and for connecting said second supporting framework to said first supporting framework, and adjustment drives for displacing said second supporting framework relative to said first supporting framework, the improvement comprising connection means for connecting said drawing anchors with said first supporting framework, said drawing anchors being arranged on the ends of the oppositely arranged cross carriers and connecting the oppositely arranged cross carriers of said first and second supporting frameworks, the outer ends of said oppositely arranged drawing anchors being hinged to and connected by crossheads, said adjustment drives being approximately parallel to said drawing anchors and being hingedly connected with said crossheads and being connected with the cross carriers of said second supporting framework, said drawing anchors being detachably connected to the cross carriers of said first supporting framework, whereby after release of said connection means said drawing anchors are removable from said first supporting framework out of a connection position connecting said first and second supporting frameworks and retractable by said adjustment drives into a retraction position in said second supporting framework.

4,362,207

INTEGRATED HEAT EXCHANGE AND HEAT STORAGE SYSTEM USING LOW-TEMPERATURE REACTIONS

Flaviano Farfaletti-Casali, Brebbia; Umberto Buzzi, Angera; Leendert Nobel, Laveno Mombello, and Friedrich Reiter, Ispra, all of Italy, assignors to European Atomic Energy Community (Euratom), Luxembourg

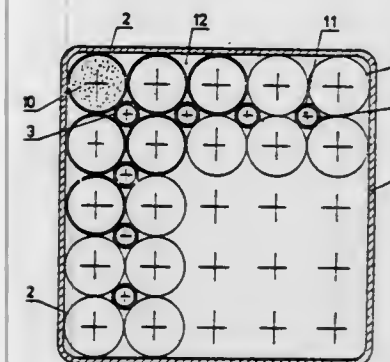
Filed Jul. 14, 1980, Ser. No. 168,067

Claims priority, application Italy, Jul. 12, 1979, 49736 A/79

Int. Cl.³ F28D 21/00

U.S. Cl. 165—10

5 Claims



1. An integrated heat exchange and heat storage system using thermochemical reactions, characterized in that it comprises: a first plurality of parallel adjacent tubes containing an element for storing and yielding heat; and a second plurality of tubes parallel to said first plurality of tubes and interposed therebetween and containing a fluid heat vehicle, said first and second plurality of tubes being disposed in a receptacle whose major axis extends parallel to the axis of the tubes, the voids between the various tubes being filled with a stagnant liquid serving to facilitate heat exchange between the fluid heat vehicle and the element for storing and yielding heat.

4,362,208 MOTOR VEHICLE, ESPECIALLY A TRUCK, WITH A COOLING SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

Kurt Hauser, Stuttgart, Fed. Rep. of Germany, assignor to Süddeutsche K hlerfabrik Julius Fr. Behr GmbH & Co. K.G., Stuttgart, Fed. Rep. of Germany

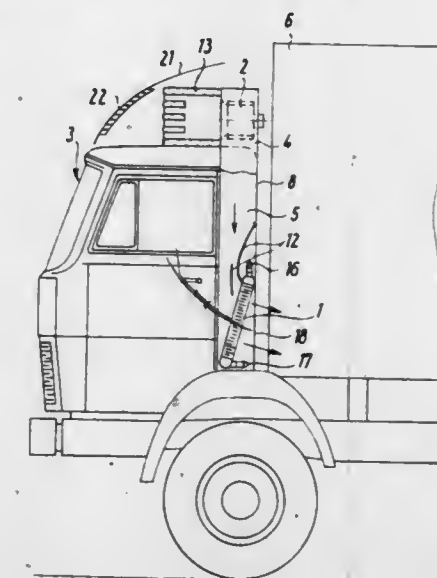
Filed Oct. 10, 1980, Ser. No. 195,855

Claims priority, application Fed. Rep. of Germany, Oct. 10, 1979, 2941093

Int. Cl.³ B60K 11/04

U.S. Cl. 165—51

19 Claims



1. A motor vehicle with a cab and a cooling system for a single internal combustion engine, said system comprising a heat exchanger disposed in an engine compartment and provided with an associated blower for providing approximately 70% of the maximum cooling power of said system, and at least one additional heat exchanger located outside the engine compartment and with which an additional blower is associated for providing the remaining cooling power of said system, wherein said additional blower is mounted on a roof of the cab and is connected through channel means with said additional heat exchanger which is located within said channel means in the vicinity of one wall of the cab, and wherein said additional heat exchanger is located at a level below the roof of the cab when said vehicle is in an upright position.

4,362,209

CERAMIC HEAT RECUPERATIVE STRUCTURE AND ASSEMBLY

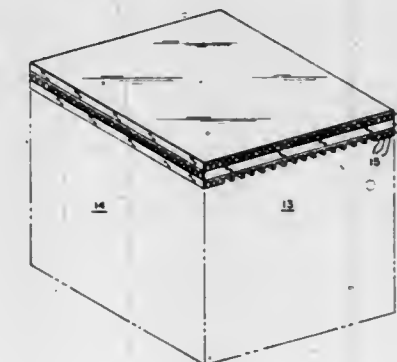
Joseph J. Cleveland, Dushore, Pa., assignor to GTE Products Corporation, Stamford, Conn.

Continuation of Ser. No. 939,094, Sep. 1, 1978, abandoned. This application Dec. 11, 1980, Ser. No. 215,307

Int. Cl.³ F28F 3/10

U.S. Cl. 165—166

17 Claims



1. A cross flow ceramic recuperative core structure, having first and second pairs of opposing faces defining channel open-

ings for the passage of heat transfer fluids respectively, in directions transverse to one another, the first fluid transferring heat to the second fluid during passage through the channels, whereby each pair of faces has in operation a hot face and a cold face, the hot face of the first pair being the inlet face for the first fluid and the hot face of the second pair being the outlet face for the second fluid, characterized in that the structure is composed of a plurality of stacked ribbed layers, each layer having opposing first and second sides and a plurality of upstanding ribs positioned on the first side thereof, the ribs substantially parallel to one another and substantially perpendicular to the side of the layer, the layers stacked so that the ribs of one layer are in substantial contact with the second side of an adjacent layer, and so that the ribs of adjacent layers are alternately transverse to one another, each layer having two outermost ribs and two outermost channels, each outermost channel comprising the space between each outermost rib and its respective adjacent rib, each outermost channel being filled with ceramic cement, said ceramic cement forming a seal that substantially prevents leakage of heat transfer fluids between adjacent layers.

4,362,210

FRICTION HOLD WEAR BUSHING

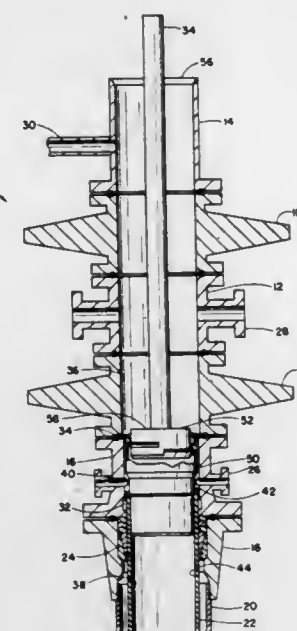
James R. Green, 3823 Ridgellake, Apt. 223, New Orleans, La. 70124

Filed Dec. 4, 1980, Ser. No. 212,855

Int. Cl.³ E21B 33/03

U.S. Cl. 166—85

5 Claims



1. An apparatus to protect the upper section of a string of oil well casing from drill string members passing therethrough, comprising: a tubular mandrel having a lower section for positioning within the upper section of the casing; the mandrel having a bore therethrough sufficient for the passage of drill string members; pliable packing disposed around and retained with the lower section of the mandrel; the packing being dimensioned so as to be positioned within and to be squeezed against the casing bore; means for reversibly compressing the packing between the mandrel and the casing bore such that the mandrel is sufficiently mounted with the casing, against forces caused by the drill string members; said means for reversibly compressing the packing including external threads formed with an upper portion of the mandrel, and annular ring positioned around the mandrel below the packing, means to retain the ring against downward movement with respect to the mandrel, a nut formed with internal threads for cooperating with the mandrel threads so as to compress the packing between the ring and the nut when the nut is rotated, such that the packing is deformed laterally and forced into contact with the mandrel and the casing bore so as to firmly mount the mandrel with the casing; the nut having an upper bore formed with a plurality of inwardly projecting circumferential flanges,

each flange being axially disposed from the others, each of the flanges extending for substantially one half the circumference around the bore, axially adjacent flanges being positioned diametrically opposite from each other; and a wrench member having sufficient length to reach and engage the nut when the nut and mandrel are mounted with the casing, the wrench and nut comprising a releasable connection sufficient to rotate the nut to thereby reversibly compress the packing, and to lift the apparatus.

4,362,211

LOCKING MANDREL

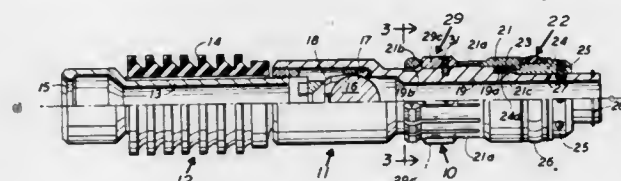
Ernest P. Fisher, Jr., Carrollton, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.

Filed Dec. 4, 1980, Ser. No. 212,996

Int. Cl.³ E21B 23/02, 23/08

U.S. Cl. 166—217

18 Claims



2. A locking mandrel comprising, an elongated body, a dog carrier mounted on the body for relative longitudinal movement with the body, radially extensible and contractable dog means supported on the dog carrier, first releasable latch means securing the dog carrier against longitudinal movement of the body, an expander slidable on the body for expanding said dog means, and second releasable latch means securing said expander against longitudinal movement on the body, said expander including shoulder means for engagement with a landing nipple shoulder and arresting movement of the expander in one direction, said expander movable to a position locating said expander under said dogs to position them in extended position after said second latch means has been released, said dog carrier and expander relatively movable to a position disengaging said dogs from said expander upon release of said first latch means.

4,362,212

METHOD FOR ENHANCED PETROLEUM OIL RECOVERY

Helmut Schulz, 611 Harrison Ave., Harrison, N.Y. 10528

Continuation-in-part of Ser. No. 58,635, Jul. 19, 1979, abandoned. This application Jun. 30, 1980, Ser. No. 164,439

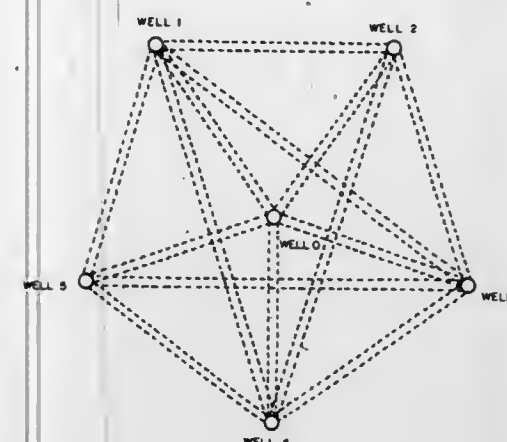
Int. Cl.³ E21B 43/22, 43/30, 43/40

U.S. Cl. 166—245

11 Claims

1. Process for the enhanced recovery of petroleum from partially depleted underground deposits which comprises the steps of (a) introducing into an oil-bearing deposit a non-condensable gas to establish a gas cushion of non-condensable gas with a back pressure at a regulated pressure level; (b) introducing a liquid mixture of light hydrocarbons into said underground oil deposit through at least one injection well penetrating said deposit against the back pressure of said non-condensable gas cushion, said back pressure being sufficient to maintain said hydrocarbon mixture in the liquid state at the temperature of said deposit (c) lowering the pressure of said non-condensable gas by withdrawing a portion of said non-condensable gas through at least one production well penetrating said oil deposit until the pressure within said deposit is lower than the vapor pressure of said light hydrocarbon mixture and maintaining this lower pressure until at least 20% of said hydrocarbon

mixture has vaporized; (d) reintroducing said non-condensable gas through said production well to raise the pressure within said petroleum deposit substantially above the vapor pressure of said light hydrocarbon mixture and maintaining the higher pressure until substantially all of the vaporized light hydrocar-



bon mixture has condensed within said deposit; (e) repeating the boiling and condensation sequence one or more times; and (f) then producing the resultant solution of extracted oil dissolved in said light hydrocarbon mixture by means of an appropriate displacement fluid.

4,362,213

METHOD OF IN SITU OIL EXTRACTION USING HOT SOLVENT VAPOR INJECTION

Paul R. Tabor, Mercerville, N.J., assignor to Hydrocarbon Research, Inc., Lawrenceville, N.J.

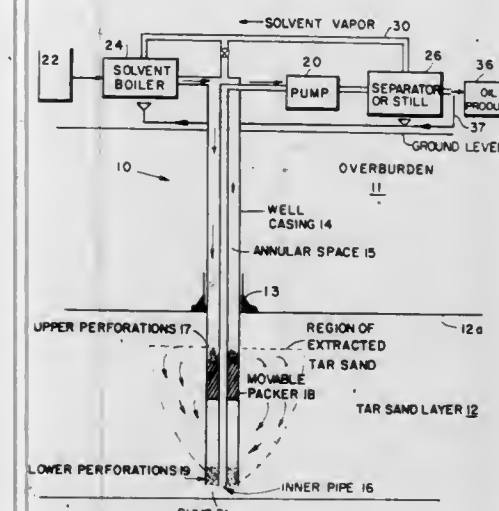
Continuation of Ser. No. 974,630, Dec. 29, 1978, abandoned.

This application Nov. 19, 1980, Ser. No. 208,214

Int. Cl.³ E21B 43/24, 43/40

U.S. Cl. 166—267

5 Claims



1. A method for recovering heavy hydrocarbons from an underground oil bearing formation, comprising the steps of:

- (a) providing a well hole through overburden and extending into the oil formation, and inserting a tubular casing into the hole;
- (b) perforating the casing at upper and lower locations vertically within the formation;
- (c) providing an inner pipe within the casing and positioning a first packer in the annulus between the casing and inner pipe at an intermediate level within the formation, so that the casing perforations are above and below the packer;
- (d) positioning a second packer above the first packer so that the vapor injection point is moved upward in the oil containing formation;
- (e) injecting hot hydrocarbon solvent vapor into the annulus at pressure not more than about 100 psi greater than the formation pressure, so that the vapor passes outwardly

through the upper perforations and into the formation to initially warm and extract oil from the formation;

- (f) allowing the extracted oil and condensed solvent liquid to drain through perforations below the first packer into the lower end of the casing and piping, while maintaining a liquid layer in the formation between the vapor injection point and the oil drainage point to prevent vapor breakthrough to the drainage point, then pumping the recovered oil and solvent liquid mixture out through the inner pipe to above ground;
- (g) reclaiming a solvent fraction from the recovered oil and solvent mixture by distillation; and
- (h) separately reheating the reclaimed solvent fraction and reinjecting it into the well hole to recover additional oil from the formation.

4,362,214

TUBING RETRIEVABLE VARIABLE SETTING DIFFERENTIAL PRESSURE ACTUATED WELL SAFETY VALVE

Ronald E. Pringle, Houston, and Arthur J. Morris, Magnolia, both of Tex., assignors to Camco, Incorporated, Houston, Tex.

Filed Jan. 19, 1981, Ser. No. 226,295

Int. Cl.³ E21B 34/10

U.S. Cl. 166—322

6 Claims



1. A tubing retrievable differential pressure actuated well safety valve comprising,

- a housing adapted to be threadably connected to well tubing, and having a bore therethrough,
- a valve element connected to the housing and movable between open and closed positions in the bore,
- a flow tube longitudinally movable in the housing for causing the opening and closing of the valve element,
- spring means positioned between the housing and the flow tube for moving the tube in a direction to open the valve element,
- a choke bean,
- longitudinally actuated non-threaded releasable connecting means between the bean and the flow tube for connecting the choke bean to and releasing the choke bean from the flow tube by longitudinal movement of the bean relative to the flow tube while the valve is positioned in a well.

4,362,215

MARINE RISER PROVIDED WITH A HINGED FOOT FOR OFFSHORE HYDROCARBON PRODUCTION

Charles Sparks, Le Vesinet, France, assignor to Institut Français Du Pétrole, Rueil-Malmaison, France

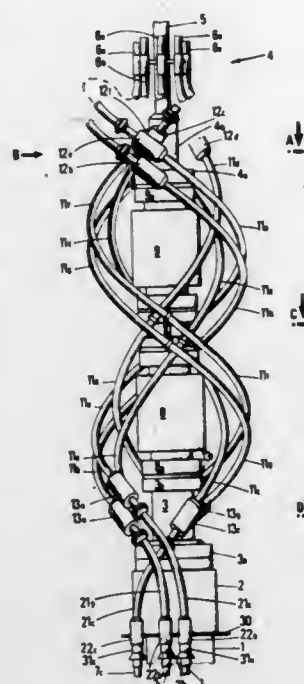
Filed Nov. 28, 1980, Ser. No. 210,963

Claims priority, application France, Nov. 30, 1979, 79 29723

Int. Cl.³ E21B 17/01, 33/038, 43/013

U.S. Cl. 166—367

12 Claims



1. A marine riser having a hinged foot, for offshore hydrocarbon production, adapted for connecting an underwater installation to a production platform, said riser comprising a central pipe provided with a plurality of satellite pipes, and a flexible assembly, for connecting the riser to the underwater installation, associated with a plurality of flexible connecting hoses each of which is arranged around said flexible connecting assembly in a substantially helical winding arrangement, and said flexible connecting hoses arranged for connecting said satellite pipes to corresponding tubes on the underwater installation, and upper securing means and lower securing means for securing said connecting hoses to said flexible connecting assembly, said upper and lower securing means being respectively integral with the upper and lower parts of said flexible connecting assembly and arranged for maintaining the extremities of each flexible connecting hose oriented in the extension of said helical winding arrangement.

4,362,216

PILE DRIVING APPARATUS

Joost W. Jansz, The Hague, Netherlands, assignor to Hollandse Beton Groep N.V., Rijswijk, Netherlands

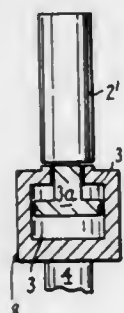
Filed Oct. 28, 1977, Ser. No. 846,563

Claims priority, application United Kingdom, Nov. 2, 1976, 45592/76

Int. Cl.² B25D 9/00

U.S. Cl. 173—131

7 Claims



1. A pile driving apparatus comprising a hammer for deliver-

ing an impact force to a pile, a housing having a bottom end, said hammer being mounted for movement within said housing, a pile sleeve extending downwardly from the bottom end of the housing for guiding the apparatus onto and receiving the top of a pile to be driven, a pile anvil, means holding said pile anvil captive within said pile sleeve for limited movement therealong, resilient impact transmitting buffer means disposed in the path of travel of the hammer for transmitting the impact force of the hammer to the pile anvil, said buffer means comprising a precompressed gas in a closed chamber defined by wall means and a strike piston movable therein for transmitting the impact force of the hammer through the gas to the pile, and resilient shock absorbing means separate from the hammer and interposed between the bottom end of the housing and the pile anvil and being precompressed to a lesser degree than the buffer means.

4,362,217

DOWNHOLE SHEARERS

Frederick Fletcher, 43 Chepstow Rd., Grange Park, Blackpool, Lancashire, England

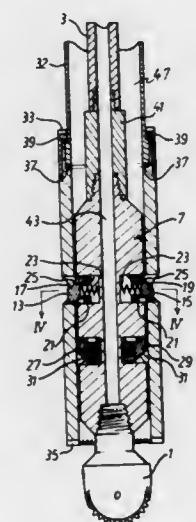
Filed Apr. 24, 1980, Ser. No. 143,453

Claims priority, application United Kingdom, Oct. 25, 1979, 7936965

Int. Cl.³ E21B 10/26

U.S. Cl. 175—402

16 Claims



1. A downhole casing shearer for use in drilling bore holes, comprising a sub-member and a hollow cylindrical shearer, the sub-member being adapted to be connected between a drilling bit and a drilling rod string and being insertable at least partially within the shearer, releasable locking means being provided for locking the sub-member and shearer together to prevent relative rotational movement therebetween, one end region of the shearer being provided with rearwardly directed teeth, said shearer further being adapted to be rotationally connected to a casing liner for lining the bore in which the shearer is used enabling the shearer to rotate while the liner moves axially in the bore.

4,362,218

OVERLOAD PROTECTION FOR A WEIGH SCALE HAVING A FLEXURE BEAM

Ralph S. Shoberg, Brighton, Mich., assignor to GSE, Inc., Farmington Hills, Mich.

Filed Jul. 1, 1980, Ser. No. 165,156

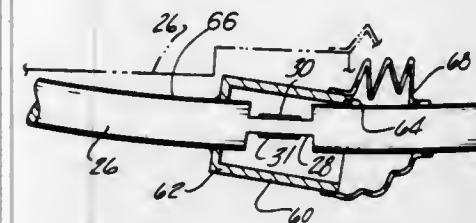
Int. Cl.³ G01G 23/02, 3/14

U.S. Cl. 177—154

10 Claims

1. A weigh scale comprising at least one beam, a base, a platform, load transmitting means for deflecting the beam as a function of the load placed on the platform, sensor means on central portions of the beam for providing a signal relating to the amount of deflection, and rigid overload protection means

carried by the beam and generally bridging the central portion of the beam adapted to engage the beam when deflected beyond a certain amount to restrict further deflection of the beam to prevent yielding thereof.



4,362,219

FOOD PREPARING MACHINE

Karl L. Carlsson, Atvidaberg, Sweden, assignor to Aktiebolaget Electrolux, Stockholm, Sweden

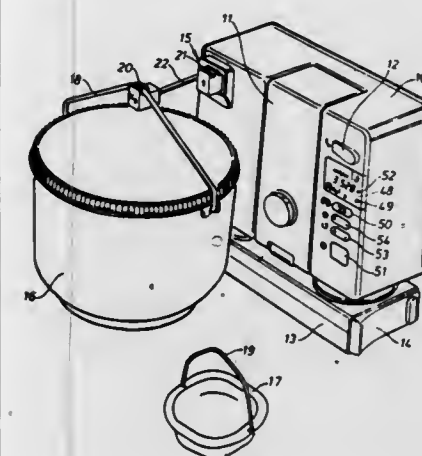
Filed Apr. 2, 1981, Ser. No. 250,210

Claims priority, application Sweden, Apr. 3, 1980, 8003580

Int. Cl.³ G01G 19/52

U.S. Cl. 177—245

8 Claims



1. In a food processing machine having a casing enclosing an electric motor adapted to drive one or more detachable food processing implements, the improvement wherein said machine further comprises a weight-measuring device, said weight-measuring device comprising a separable scale pan, and a weighing element extending within said casing, said weighing element having a portion for receiving said scale pan external of said casing, said weighing element being downwardly bendable under weight in said pan, said weight measuring device further comprising a display, and mechanical-electrical transducing means for converting bending movement of said weighing element to electric signals for said display.

4,362,220

INDUSTRIAL TRUCK

Eric W. Baston, Warwickshire, England, assignor to Coventry Climax Limited, England

Filed May 30, 1980, Ser. No. 154,606

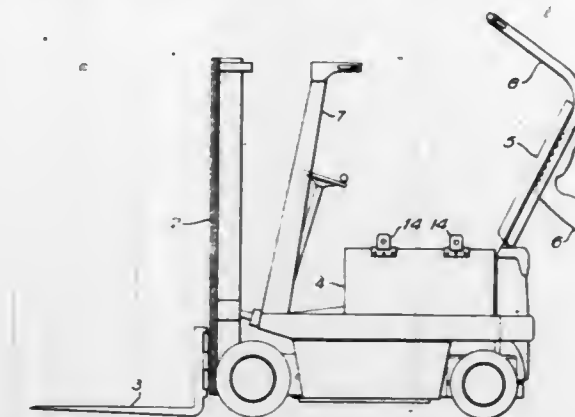
Claims priority, application United Kingdom, Jun. 2, 1979, 7919422

Int. Cl.³ B62D 25/00

U.S. Cl. 180—68.5

4 Claims

1. An industrial truck of the type including a battery box fixedly mounted against horizontal movement relative to the remainder of said truck but normally free for vertical movement, and an overhead guard for a truck operator; said truck being improved by said overhead guard including a part having a pivotal mounting for facilitating movement of said overhead guard part to an out of the way position relative to said battery box, and cooperating means on said overhead guard part and said battery box for locating said battery box against vertical movement when said overhead guard part is in an operative operator-guarding position and releasing said battery



4,362,221

VEHICLE DRIVE WHEEL SUSPENSION

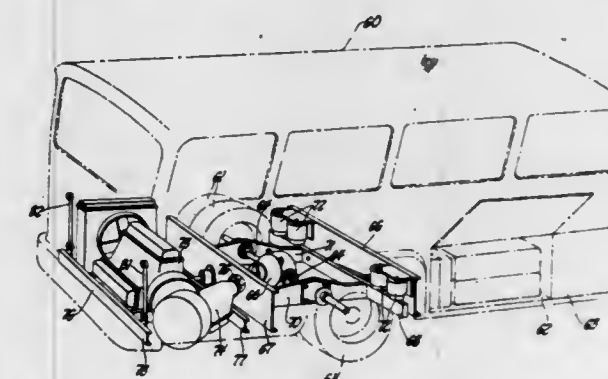
Donald L. Manning, 4002 Normanwood Dr., Orchard Lake, Mich. 48033

Continuation of Ser. No. 870,701, Jan. 19, 1978, abandoned, which is a continuation-in-part of Ser. No. 630,053, Nov. 7, 1975, abandoned. This application Oct. 22, 1979, Ser. No. 86,857

Int. Cl.³ B60K 7/000

U.S. Cl. 180—73 R

3 Claims



1. In a vehicle, a body member, a differential securely mounted to the body member, driving wheels laterally opposite the differential, live axles drivingly interconnecting the differential and wheels and having universal joints accommodating swinging movement of the wheels relative to the differential, a dead axle for carrying said wheels, said dead axle being in the form of a rack of generally rectangular configuration as viewed in plan and having two cross-members, one cross-member spaced rearwardly of the differential and the other cross-member spaced forwardly of the differential, two wheel bearing support members extending longitudinally of the vehicle between said cross-members, said cross-members and wheel carrying members being rigidly interconnected adjacent their respective ends, spring means interposed between said body member and said rack, a universal pivotal connection between the body and one of said cross-members intermediate said wheel bearing support members, an engine extending transversely of the vehicle and spaced longitudinally thereof from said one cross-member, said engine having an angle-drive transmission at its output end, a prop shaft having universal joints at its opposite ends drivingly connected to said transmission and differential respectively, a supporting frame for said engine, a pair of generally vertically extending links pivotally interconnecting the body and the lateral extremities of said frame, and a universal pivotal connection between said

frame and the body longitudinally opposite said universal pivotal connection between the body and said one cross-member.

4,362,222

ARRANGEMENT FOR DAMPING AND ABSORPTION OF SOUND IN ROOMS

Per A. Hellström, Gothenburg, Sweden, assignor to Byggnadsfysik A & K AB, Gothenburg, Sweden

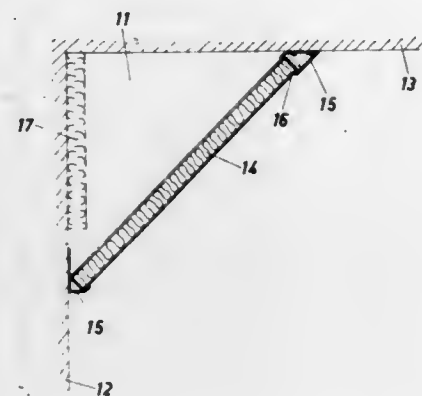
Filed Apr. 2, 1981, Ser. No. 250,254

Claims priority, application Sweden, Apr. 9, 1980, 8002653

Int. Cl.³ E04B 1/82, 1/99

U.S. Cl. 181—30

11 Claims



1. An acoustical system for damping and absorbing sound in rooms even at very low frequencies as well as improving speech comprehension in the entire room by lowering the resonance time, comprising sound absorbents in the form of plates, panels, mats or the like are arranged in at least one corner area formed by the walls and ceiling of the room at an angle with respect to said walls and ceiling with the absorption surface of the sound absorbents facing the interior of the room so that an air volume is trapped in said corner area behind the absorbents and due to the sound influence the absorbents have a membrane effect.

4,362,223

SOUND ABSORBING DEVICE

Irmhild Meier, Am Menzelberg 6, 3400 Goettingen 1, Fed. Rep. of Germany

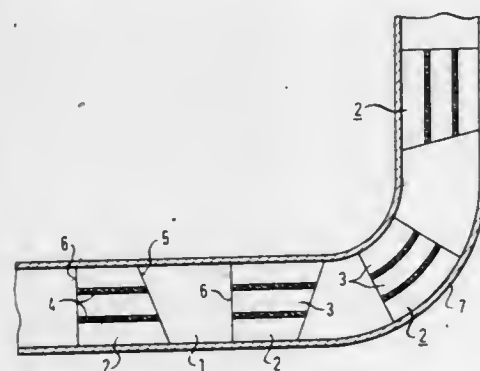
Filed Oct. 6, 1980, Ser. No. 194,020

Claims priority, application Fed. Rep. of Germany, May 18, 1979, 2920278

Int. Cl.³ F01N 1/06; E04F 17/04

U.S. Cl. 181—206

14 Claims



1. Apparatus for damping a sound field propagating in a fluid propagation medium within a main channel (1) having a closed cross-sectional periphery, comprising at least one first lattice work (2) arranged in said main channel (1) for extending between a first longitudinal section and a second longitudinal section of the free main channel cross-section, said lattice work being comprised of first and second thin partition wall means crossing each other and subdividing the free channel cross-section.

tion in the manner of a guide blade into a plurality of partial channels (3) for juxtaposed and superposed branching between said first and second longitudinal sections, said partial channels running in the direction of the main channel and being open at both longitudinal ends and having a length which is larger than the cross-sectional width dimensions of said partial channels, said length being at least a quarter of the wavelength of the sound oscillation having the lowest fundamental frequency of said sound field, wherein at least predetermined ones of adjacent partial channels (3) have different lengths for producing different sound oscillation states therein to be out of phase in said predetermined ones of adjacent partial channels, whereby in said predetermined ones of adjacent partial channels local sound pressure differences are produced and distributed over their length, said partition wall means (2) between said predetermined ones of adjacent partial channels (3) of different lengths being permeable for the propagation medium, at least over a partial length for causing at least partly local sound pressure difference compensation of said local sound pressure differences by a flow of the propagation medium from the one of the predetermined ones of said adjacent partial channels (3) into the adjacent one thereof, said wall means comprising a damping material, such as felt or sintered material, for frictionally damping said flow of the propagation medium.

4,362,224

DISCRETE POSITION LOCATION SENSOR

Robert E. Fairbrother, Simsbury, Conn., assignor to Otis Elevator Company, Farmington, Conn.

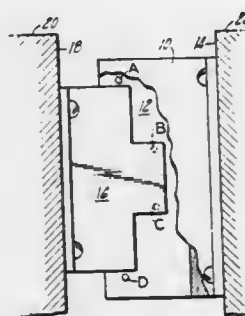
Continuation of Ser. No. 93,475, Nov. 13, 1977, abandoned. This

application Sep. 21, 1981, Ser. No. 304,212

Int. Cl.³ B66B 3/02

U.S. Cl. 187—29 R

5 Claims



1. A position encoder comprising a first member and at least one second member, said members being relatively movable with respect to each other, said first member having disposed thereon N detectors, each having two states, the proximity of said second member with each of said detectors causing such detector to assume a first one of two states and the absence of said second member in proximity with any detector causing such detector to assume the other one of said states, said plurality of detectors being disposed on said first member in sequence along a direction of relative motion between said first member and any of said second members, said detectors being spaced apart from one another, said second member being sized and shaped to provide a length of effectiveness with respect to each of said detectors, along said direction of relative motion, to provide transition from one of said states to the other of only one of said detectors at one time, thereby to provide a pattern of the one of said states in which the various one of said detectors are in having two-N discrete positional zones which are symmetrical with respect to central alignment of said two members with one another, and to provide, when said first member and said second member are in maximum, central alignment along said direction of motion, the two outermost ones of said detectors in one of said states with at least one other of said detectors in another, different one of said states.

4,362,225

FRICTION LINING CARRIER MEMBER HAVING REPLACEABLE FRICTION LININGS

Peter Drott, Frankfurt am Main, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

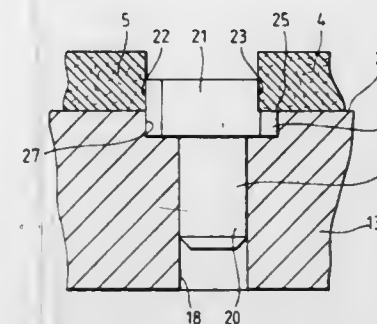
Filed Nov. 10, 1980, Ser. No. 205,134

Claims priority, application Fed. Rep. of Germany, Nov. 26, 1979, 2947537

Int. Cl.³ F16D 65/12

U.S. Cl. 188—218 XL

14 Claims



1. A friction lining carrier member having a plurality of replaceable friction linings comprising:
said carrier member having a first formation on an inner portion thereof and a second formation on an outer portion thereof, each of said plurality of friction linings being guided in a circumferential direction between and in positive engagement radially with said first and second formations; and
at least one supporting element disposed between each adjacent ones of said plurality of friction linings, said supporting elements being in a positive engagement with said carrier member and held in position in said carrier member by one of said adjacent ones of said plurality of friction linings being in an overlapping relationship therewith; each of said supporting elements being a round bolt having a substantially rectangular head larger than the diameter of a shank portion of said bolt, said shank portion being disposed in a bore in said carrier member, said head including a step on a side surface thereof adjacent to said one of said adjacent ones of said plurality of friction linings, said head being disposed in a recess in said carrier member such that said step and a surface of said carrier member supporting said plurality of friction linings are on the same plane, and
said one of said adjacent ones of said plurality of friction linings being placed on said step in an abutting relation with a surface of said head perpendicular to said step.

4,362,226

VISCOUS FLUID CLUTCH AND RESERVOIR BY-PASS VALVE THEREFOR

Thomas A. Gee, Allen Park, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Continuation-in-part of Ser. No. 948,448, Oct. 4, 1978, Pat. No. 4,246,995. This application Nov. 3, 1980, Ser. No. 203,025

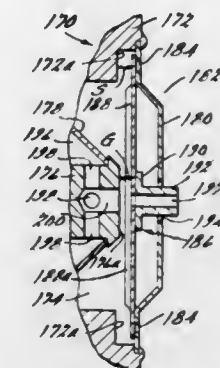
Int. Cl.³ F16D 33/10

U.S. Cl. 192—58 B

14 Claims

1. A viscous fluid clutch comprising:
a first member secured for rotation with a shaft;
a second member rotatably disposed on said shaft relative to said first member;
shear surfaces disposed on said first and second members and forming an operating chamber therebetween;
a fluid storage chamber adjacent said operating chamber;
pump means operative to circulate fluid between said operating chamber and fluid storage chamber;
a valving element operable to modulate said fluid circulation and including an elongated valve blade disposed within said fluid storage chamber and axially displaceable between a first position in which said blade overlays at least

one drain port interconnecting the radially outwardmost portion of said fluid storage chamber with said operating chamber, and a second position in which said blade uncovers said drain port, thereby permitting fluid communication between said fluid storage chamber and said operating chamber; and



valve-blade control means comprising stiffening means co-operatively oriented along the line of elongation of said valve blade and operative to maintain said valve blade in an orientation substantially parallel to that assumed in said first position when said valve blade is in said second position.

4,362,227

CLUTCHES AND BRAKES

John M. Walton, and Anthony H. Mather, both of Greater Manchester, England, assignors to Stone-Platt Oldham Limited, Greater Manchester, England

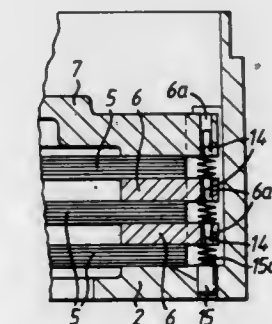
Filed Oct. 17, 1980, Ser. No. 198,177

Claims priority, application United Kingdom, Nov. 1, 1979, 7937890

Int. Cl.³ F16D 13/56, 55/38

U.S. Cl. 192—70.28

4 Claims



1. A clutch or brake assembly comprising:
a. A hub adapted to be mounted on a rotatable shaft for rotation therewith,
b. a reaction member which in the operative condition of the clutch or brake becomes coupled to the hub to prevent or inhibit relative rotation therebetween.
c. a first coupling disc located so that it is restrained against rotation relative to the reaction member and is displaceable axially of the hub relatively to the reaction member and having a plurality of holes extending through it,
d. a set of spring members by means of which said first coupling disc is, in the inoperative condition of the clutch or brake, located axially relatively to the reaction member, each spring member having an integrally formed loop portion which locates in a respective one of the holes in said first coupling disc and which is so shaped that it frictionally engages the wall of the hole in which it locates to mount the spring member directly on said first coupling disc.

- e. a second coupling disc mounted on the hub so that it is fixed for rotation with the hub, and
f. actuating means for rendering the clutch or brake operative by applying an axial force to cause frictional engagement between the coupling discs.

4,362,228

CONTROL LEVER MOUNTING

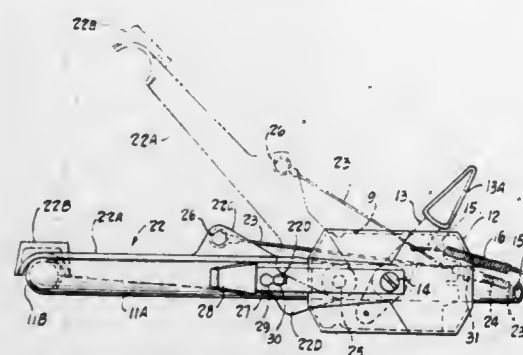
Gerhard R. Plamper, Valley City; Hartmut Kaesgen, Berea, and Robert W. Rush, Jr., Elyria, all of Ohio, assignors to MTD Products Inc., Cleveland, Ohio

Filed Oct. 22, 1980, Ser. No. 199,574

Int. Cl.³ B60K 41/28

U.S. Cl. 192—0.094

10 Claims



1. A mounting for the controls of an engine driven appliance such as a mower and the like, the appliance having a handle extending therefrom, the handle having a rearwardly disposed bar for being grasped by the operator of the appliance, a driven working part such as a mower blade adapted to be driven by the appliance engine, and a clutch mechanism for clutching and de-clutching the connection between the engine and driven working part, a dead-man control lever adapted to be operable by the operator grasping the rearwardly disposed bar of said handle, the dead-man control lever controlling the operation of said clutch mechanism through a cable interconnecting the clutch mechanism and the dead-man control lever, and a throttle lever for controlling the operation of the said appliance engine through a cable interconnecting the throttle lever and the said engine, the improvement comprising the combination of a mounting member secured to said handle within reach of the operator, said mounting member including a first pivot pin member extending into said handle, and providing a pivotal mounting for said throttle lever, the mounting member having a space provided therein for permitting the throttle member to swing within a range between spaced stops provided by the mounting member, the said mounting member including a second pivot pin extending into said handle at a distance along the handle from the said first pivot pin and providing a pivot mounting for said dead-man control lever, the mounting member having a space provided therein for permitting the said dead-man control lever to extend from the mounting member and to swing in an upright plane and along the said mounting member, and a locking member for selectively locking the dead-man control lever against pivotal movement toward a first position permitting movement of the clutch mechanism to clutched condition, said locking member being selectively movable to permit the dead-man control lever to move toward a position moving the clutch mechanism to unclutched condition, said locking member including a bolt-carrying member anchored to the said mounting member, biasing means biasing the bolt-carrying member toward said upright plane, said bolt-carrying member carrying an engaging member adjacent its free end for manually moving the bolt-carrying member against the bias of the said biasing means away from said upright plane, and a bolt secured to said bolt-carrying member and extending laterally of said mounting member to be moved by said bolt-carrying member into and out of said upright plane, the said bolt upon being moved across said upright plane by the bolt-carrying member under the urging of said biasing means protruding athwart the path of said dead-

man control lever to bar its movement toward the first position permitting movement of the clutch mechanism to clutched condition, the dead-man control lever being movable by the operator to a second position to permit the movement of the clutch mechanism to clutched condition upon the withdrawal of said bolt from athwart the path of the dead-man control lever in said upright plane by the operator manually moving the bolt-carrying member and bolt carried thereby against the bias of the said biasing means away from said upright plane.

4,362,229

CLUTCH RELEASE BEARING

Gino Villata, Buttoglieria d'Asti, Italy, assignor to Valeo, Paris, France

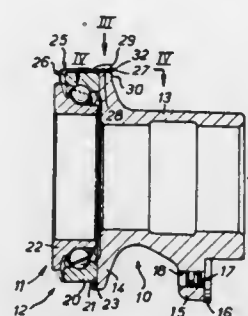
Filed Jul. 29, 1980, Ser. No. 173,387

Claims priority, application France, Aug. 16, 1979, 79 20772

Int. Cl.³ F16D 23/14

U.S. Cl. 192—98

11 Claims



1. A clutch release bearing of the kind comprising an operating element intended to be subjected to the action of a control member, a drive element adapted to act on the release device of a clutch by the action of the operating element, and a connecting cap fastening said drive element axially to said operating element, said connecting cap comprising a plurality of axial lugs by which it is attached to the operating element, and a front wall which forms axially-acting resilient means, and through which it bears against the drive element to urge said drive element into contact with the operating element, characterized in that each of the axial lugs of the connecting cap has an enlarged free end which comprises laterally, at least one arm, and the operating element is formed, for each of the said axial lugs, with an axial groove adapted to receive one of said lugs, at least one transverse retaining surface being provided on one side of this groove adapted for abutment with said lateral arm of the respective axial lug.

4,362,230

MOTOR VEHICLE CLUTCH MECHANISM

Cecilio Martinez Corral, Murcia, Spain, assignor to Fraymon S.A.E., Madrid, Spain

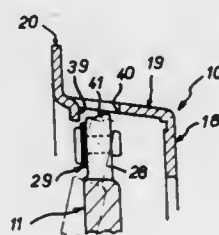
Filed Aug. 14, 1980, Ser. No. 178,010

Claims priority, application France, Aug. 17, 1979, 79 20837

Int. Cl.³ F16D 13/70, 13/69

U.S. Cl. 192—109 R

13 Claims



1. A clutch mechanism for a motor vehicle, comprising a cover having a transverse wall extending perpendicular to its axis; and lateral wall means joined to the transverse wall and

extending substantially parallel to the said axis, a pressure plate connected for rotation with the cover by coupling means enabling axial displacement of said pressure plate relative to said cover, and, disposed between the cover and the pressure plate, axially acting elastic means bearing on the cover and acting axially on the pressure plate to urge said pressure plate away from said cover, and abutment means operable to axially retain the pressure plate after a predetermined axial travel thereof relative to the cover, said abutment means comprising at least one transverse bearing shoulder integral with the cover and located on the other side of the pressure plate relative to the transverse wall of said cover, said bearing shoulder being formed directly on the cover and comprising a recess in the lateral wall thereof.

4,362,231

CHUTE FOR TRANSPORTING TIMBER

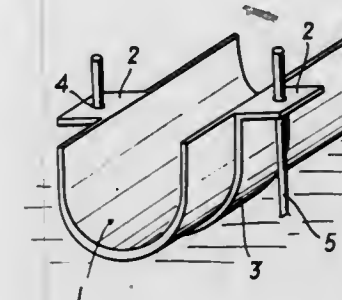
Walter Meyer, Liezen, Austria, assignor to Firma Leykam-Mürztaler Papier und Zellstoff Aktiengesellschaft, Vienna, Austria

Continuation of Ser. No. 602,726, Aug. 7, 1975, abandoned. This application May 18, 1978, Ser. No. 907,812

Int. Cl.³ B65G 11/10

U.S. Cl. 193—2 R

5 Claims



1. A chute for transporting timber by gravity, comprising interconnected trough-shaped chute sections of polyethylene, the chute sections defining a concavity capable of receiving the timber and having smooth and elastically deformable polyethylene walls supporting the timber.

4,362,232

STEP FOR PASSENGER CONVEYOR

Cyutchi Saito; Isamu Shiraki, and Hiroshi Yumino, all of Kat-suta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

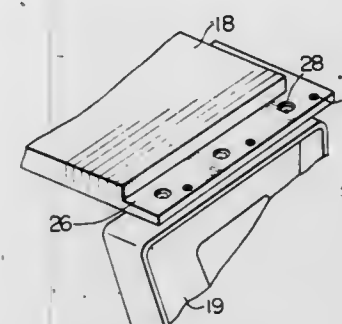
Filed Feb. 29, 1980, Ser. No. 125,780

Claims priority, application Japan, Mar. 5, 1979, 54-24436

Int. Cl.³ B66B 9/12

U.S. Cl. 198—333

10 Claims



1. A step for a passenger conveyor, comprising a tread formed with a plurality of cleats defining grooves therebetween and adapted to mesh with comb-shaped teeth provided on step-on and step-out landings, and frame means on which said tread is mounted, wherein said tread is formed with substantially planar mounting sections having no cleats and extending longitudinally along opposite side edges of the tread, a first set of fastener means for removably mounting said tread at said substantially planar mounting sections on said frame

means, said first set of fastener means being disposed so as to be freely accessible from above the mounting sections, a plurality of small covering members for respectively covering the mounting sections, each of the covering members are provided with at least two cleats defining a groove therebetween, and a second set of fastener means for removably mounting the respective covering members on the substantially planar mounting sections, said second set of fastener means being freely accessible from above the covering members.

4,362,233

PALLET REGISTRY MECHANISM

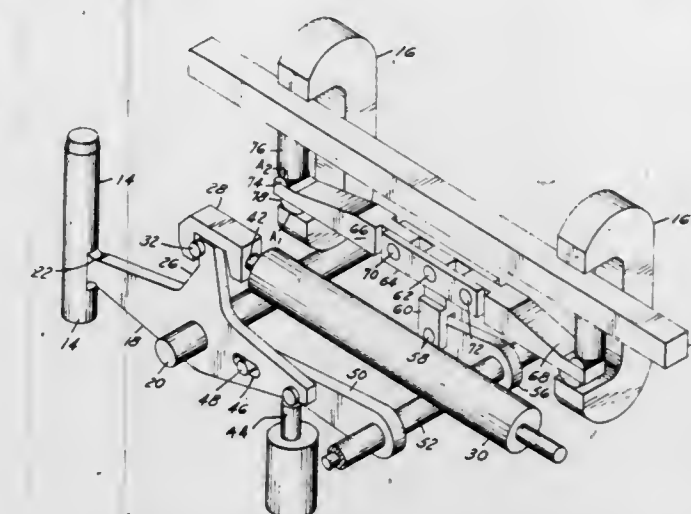
John H. Brems, 32867 White Oaks Trail, Birmingham, Mich. 48010

Continuation-in-part of Ser. No. 950,318, Oct. 11, 1978, abandoned. This application Jun. 30, 1980, Ser. No. 164,092

Int. Cl.³ B65G 47/00

U.S. Cl. 198—345

28 Claims



1. In a multiple station transfer machine in which workpieces are located and supported in pallets, and in which said pallets are moved in sequence through said machine, interrelated registry mechanisms for locating and clamping said pallets, each of which comprises:

- a registry frame,
- one or more locating pin means slideably mounted in said frame to engage corresponding locating holes in said pallet,
- clamping means for said pallet movably mounted in said frame to contact said pallet on a contact surface,
- elastic energy storage means individual to and mounted in said registry frame,
- mechanical means on said frame interconnecting said energy storage means with said locating pin means and with said clamping means to sequentially engage said locating pins in said holes in said pallet and clamp said pallet to said registry frame independently of outside forces, and
- external power means interconnected with said mechanical means operable only to retract said clamping means from said pallet and thereafter to disengage said locating pin means from said holes in said pallet after engagement by said energy storage means.

4,362,234

HIGH SPEED CAP ORIENTING AND FEEDING APPARATUS

Walter McDonald, 558 Dell Rd., Landing, N.J. 07850, and Norbert F. Seitel, 45 Gillette Rd., Gillette, N.J. 07933

Continuation-in-part of Ser. No. 194,144, Oct. 6, 1980, abandoned. This application Nov. 3, 1980, Ser. No. 203,128

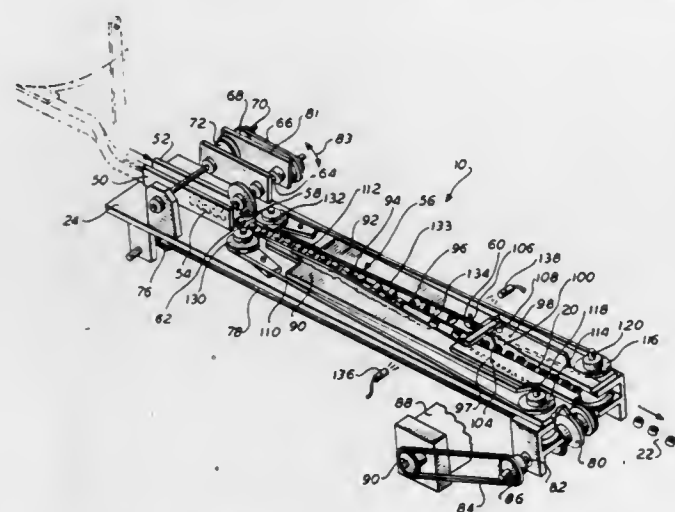
Int. Cl.³ B65G 47/24

U.S. Cl. 198—400

10 Claims

1. In apparatus for accepting an initially presented popula-

tion of randomly oriented container caps and providing an output in-line stream of said caps wherein the open or lighter ends of the caps face in an upward direction; said apparatus including means for accepting said randomly oriented caps and feeding an in-line stream of said caps wherein the caps are oriented with their diameters substantially in a vertical plane; and guide channel means having a base and including an input end for receiving said caps at said vertical orientation, an output end whereat the caps reside along their diameters with the open ends thereof facing upwardly, and a transition zone between the input and output ends whereat said caps may gravitationally tip and fall from the said vertical plane to their surfaces which include said diameters; a narrow support member extending longitudinally and centrally along the base of said transition zone for underlying and supporting said caps thereat; and a pair of members extending along the lateral sides



of said transition zone, the spacing between said members being such at the upstream end of said zone as to sandwich the said caps to constrain same against tipping, and said members diverging toward the downstream end of said zone, whereby to remove said constraint and permit said tipping; the improvement enabling higher speed feed of said caps through said channel and increased dependability of tipping in the desired direction, comprising:

said narrow support member and said lateral members comprising bands which are continually moveable at common speed through said transition zone; said members thereby grasping said caps at the upstream end of the said transition zone and conveying said caps through said zone, while permitting same to gravitationally fall as said lateral bands diverge, without said caps being rolled along said support member or otherwise being rotated about their axes.

4,362,235

APPARATUS FOR ASSEMBLING ARRAYS OF CIGARETTES OR THE LIKE

Otto Erdmann, Hamburg, Fed. Rep. of Germany, assignor to Hauni-Werke Körber & Co., KG, Hamburg, Fed. Rep. of Germany

Filed Sep. 19, 1980, Ser. No. 188,255

Claims priority, application Fed. Rep. of Germany, Sep. 25, 1979, 2938613

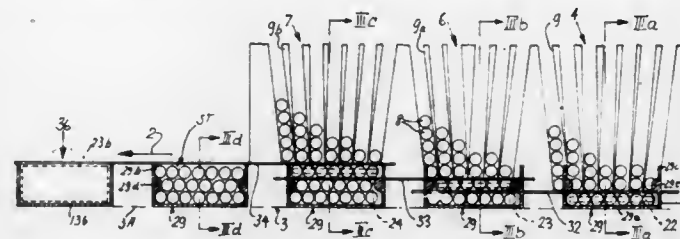
Int. Cl.³ B65G 57/09, 57/18

U.S. Cl. 198—419

14 Claims

1. Apparatus for assembling arrays of overlapping layers of parallel cigarettes or analogous rod-shaped articles which constitute or form part of smokers' products, comprising conveyor means movable stepwise in a predetermined direction along a predetermined path and including a series of receptacles; a magazine for storage of a supply of parallel articles, said magazine having a series of elongated openings, as considered in said direction, said openings being disposed in different planes and each thereof registering with a different receptacle during each period of dwell of said conveyor means, said

magazine further having several groups of ducts, one group for each of said openings, for accumulation of successive layers of parallel articles in alignment with the corresponding openings; means for transferring layers of articles through said openings and into the registering receptacles during the intervals of dwell of said conveyor means whereby each receptacle which registers with a preceding opening, as considered in said direction, contains a lesser number of layers than the next-following receptacle wherein the layers overlie each other as a result of



disposition of said openings in different planes; and stationary guide members adjacent to said openings and each overlying at least a portion of the layer which issues by way of the adjacent opening, said guide members being spaced apart from each other and the guide member which is adjacent to a preceding opening being overlapped by the guide member which is adjacent to the next-following opening, such guide members overlapping each other at least along the length of the next-following opening.

4,362,236

WORKPIECE LOADER

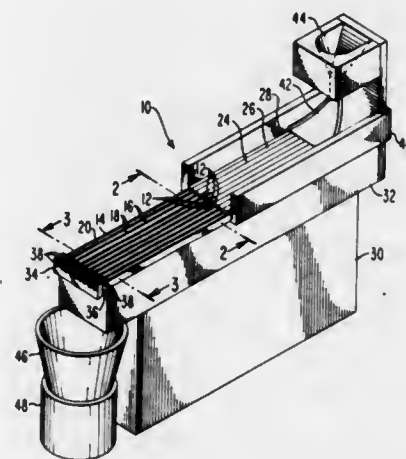
Rudolph H. Hedel, West Windsor, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 12, 1980, Ser. No. 205,916

Int. Cl.³ B65G 47/12

U.S. Cl. 198—446

13 Claims



1. An apparatus for loading workpieces comprising a processing tray having two parallel sets of grooves adjacent a surface thereof, the grooves of one set alternating with and having grooves of a depth greater than the depth of the grooves of the other set, said apparatus further comprising an aligning tray having a depth greater than the depth of the grooves of said other set and having a periodicity equal to the periodicity of the grooves of said other set, said aligning and said processing trays being positioned in tandem so that the grooves of said other set are aligned with the grooves of said aligning tray.

4,362,237

MATERIAL CONVEYING SYSTEM WITH A PNEUMATICALLY OR MECHANICALLY OPERATED SUBSTANTIALLY UPRIGHT CONVEYOR PROVIDED WITH A DEVICE FOR LOOSENING AND TRANSPORTING THE MATERIAL TO THE UPRIGHT CONVEYOR

Adalbert Olszynski, Wolfsburg, and Bernd Hardegen, Braunschweig, both of Fed. Rep. of Germany, assignors to Buehler-Miag GmbH, Braunschweig, Fed. Rep. of Germany

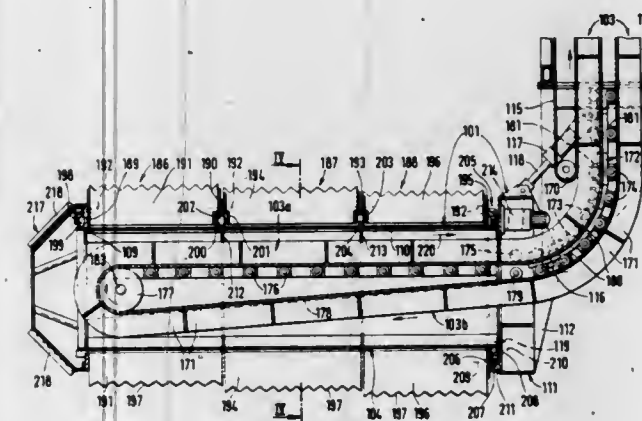
Filed Jul. 7, 1980, Ser. No. 166,254

Claims priority, application Fed. Rep. of Germany, Jul. 12, 1979, 2928162

Int. Cl.³ B65G 65/20

U.S. Cl. 198—509

8 Claims



1. A material conveying system, especially for unloading of ships, comprising substantially upright support means; an adjustable jib connected to the bottom end of said upright support means, extending transverse to the latter and being provided at the upper side thereof with an elongated material inlet opening; means turnably mounted about said tubular jib and extending substantially over the whole length thereof for loosening material and for transporting the loosened material through said inlet opening into the interior of said jib, said material loosening and transporting means including a drum provided over the whole length thereof with circumferentially uniformly spaced shovels; drive means connected to said material loosening means for rotating the latter about the axis of said tubular jib; a driven endless band conveyor provided with a plurality of plates projecting uniformly spaced from each other in the direction of the band of the conveyor substantially normal therefrom to form a succession of material receiving cells which are open at the sides thereof opposite from said band, said band conveyor having a first portion extending beneath the material inlet opening through said jib to directly receive the material from said material loosening means and a second substantially vertical rising portion extending through said upright support means to uninterruptedly transport the material loosened by said material loosening means to a material receiving station; and a driven cover band extending parallel to said rising portion of said conveyor and covering the open sides of cells, said drum having a front end distant from said upright support means, and including a frustoconical head member coaxially connected to said front end of said drum for rotation therewith and provided on its outer surface with a plurality of uniformly displaced reaming plates to facilitate penetration of the outer end of said jib into a heap of material to be transported.

4,362,238

SELECTIVE DRIVE ARRANGEMENT FOR ROLLER CONVEYOR

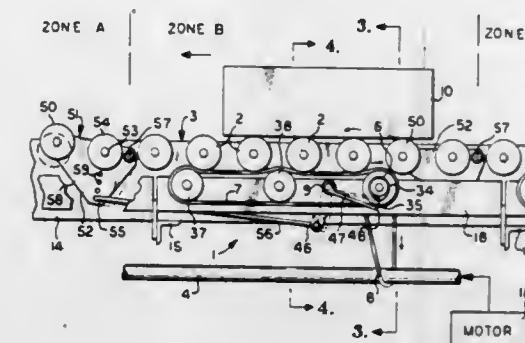
Gerard B. Rivette, Mission Hills, Kans., assignor to Mid-West Conveyor Company, Kansas City, Kans.

Filed Apr. 10, 1980, Ser. No. 139,029

Int. Cl.³ B65G 13/06

U.S. Cl. 198—781

2 Claims



1. In a roller conveyor defined by a plurality of article conveyor rollers transversely journaled between a pair of elongated conveyor side rails and including a longitudinally extending drive shaft supported on said conveyor and having motor means connected thereto to operatively provide driving rotation to said rollers, the improvement comprising:

- (a) an endless roller drive belt supported on said conveyor and frictionally engaging selected rollers of said plurality thereof;
- (b) sheave means frictionally engaging said drive belt;
- (c) an endless power-take-off belt engaging said drive shaft and said sheave means to thereby transfer driving rotation from said drive shaft through said sheave means and said drive belt to said selected rollers;
- (d) a drive sheave rotatably supported on said conveyor and having said power-take-off belt frictionally engaged therewith;
- (e) a driven sheave rotatably supported on said conveyor substantially coaxial to said drive sheave, said driven sheave having said roller drive belt frictionally engaged therewith;
- (f) clutch means interposed between said drive sheave and said driven sheave for selective coupling therebetween;
- (g) said clutch means including a lug on an external surface thereof which revolves during the rotation of said sheave means, said clutch means normally effecting engagement between said drive sheave and said driven sheave and effecting disengagement therebetween upon the immobilization of said lug;
- (h) signal means operatively connected with said clutch means for selective actuation thereof and including:
 - (1) a lug stop member supported on said conveyor and movable into a position to engage and thereby immobilize said lug;
 - (2) a signal roller normally positioned above the level of said article conveyor rollers for lowering to said level upon engagement by an article on said conveyor, and
 - (3) connecting means connected to said lug stop member and said signal roller and operative to move said lug stop member into a position to engage and immobilize said lug upon the lowering of said signal roller;
- (i) said signal roller being supported on crank means rotatably connected to said conveyor;
- (j) said lug stop member being rotatably supported on said conveyor;
- (k) a lug stop lever projecting from said lug stop member; and
 - (1) a connecting link connected to said crank means and said lug stop lever to thereby rotate said lug stop member into a position to immobilize said lug upon the rotation of said crank means effected by the lowering of said signal roller.

4,362,239

DISPLAY CARD WITH CONCAVE PANEL

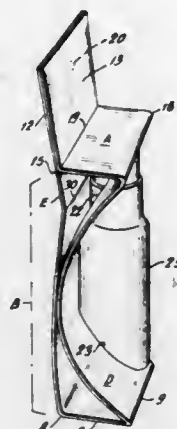
Harry I. Roccaforte, Western Springs, Ill., assignor to Champion International Corporation, Stamford, Conn.

Filed Oct. 14, 1980, Ser. No. 196,662

Int. Cl.³ B65D 5/50

U.S. Cl. 206—45.14

12 Claims



1. A display support for an article of merchandise, said support comprising a back wall; a top horizontal wall; a bottom horizontal wall; said horizontal walls extending from said back wall; a smooth concave curved front wall without any folds therein extending continuously in an arc from the outer edge of the top horizontal wall to the outer edge of the bottom horizontal wall; at least one opening in the concave front wall for supporting merchandise to be displayed; said back wall being provided with a transverse score line parallel and adjacent to one of the horizontal walls and spaced from said one horizontal wall thereby permitting the back wall to bend at the transverse score line to maintain the smooth curvature of the front concave wall.

4,362,240

ARTICLE CARRIER CARTON

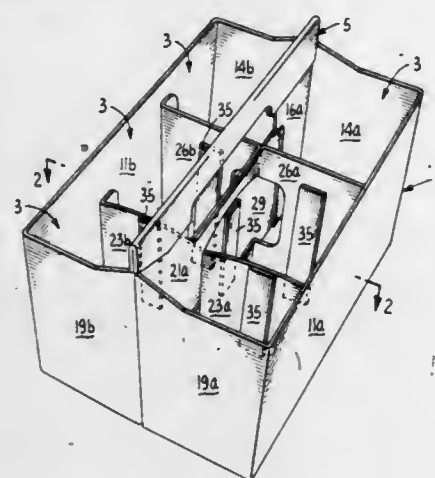
John R. Elward, Novato, Calif., assignor to Pacific Paperboard Products, Inc., San Mateo, Calif.

Filed Mar. 16, 1981, Ser. No. 243,726

Int. Cl.³ B65D 75/00

U.S. Cl. 206—188

3 Claims



1. A basket type multi-use carrier carton comprising: a bottom panel; a first sidewall panel foldably joined to the bottom panel along a bottom-side panel fold line; a second sidewall having a foldable tab for securing to it a free margin of the bottom panel opposite said bottom-side panel fold line; a first pair of end-forming panels each foldably joined to a separate one of the side panels along fold lines perpendicular to said bottom-side panel fold line; a first pair of medial risers each foldably joined to one of said first pair of end-forming panels along fold lines perpendicular to said bottom-side panel fold line and foldably joined together on the medial axis of the carrier carton;

ular to said bottom-side panel fold line and foldably joined together on the medial axis of the carrier carton; a second pair of end-forming panels each foldably joined to a separate one of the side panels remote from the first pair of end-forming panels along a fold line also perpendicular to the bottom-side panel fold line; a second pair of medial risers each foldably joined to one of said second pair of end-forming panels along fold lines also perpendicular to said bottom panel fold line and foldably joined together on the medial axis of the carrier carton; one internal separator panel struck out from each of the second pair of medial risers and foldable therefrom to be adhered by a tab perpendicular to one of the side panels; another internal separator panel foldable from each of the second pair of riser panels along fold lines adjacent to the said one internal panel struck out from each riser to be adhered by a tab perpendicular to one of said side walls spaced from said corresponding one internal separator panel to form an article well there between; a medial reinforcing panel foldably joined to one of the second pair of medial risers along a fold line substantially co-extensive with said one internal separator panel struck from said riser and parallel to said bottom-side panel fold line; separator strips adhered to each of said internal separator panels and said medial reinforcing panel to provide double material thickness between all carried articles; each pair of risers being folded on the fold line that joins them and being glued together to form the pair of end-forming panels joined to each of them into a complete end for the carrier carton; and a handle disposed on the medial axis of the carrier above the medial reinforcing panel foldably joined to one pair of medial risers at one end and fixed at its other end to the other pair of medial risers.

4,362,241

APPARATUS FOR COLD DISINFECTION OF DENTAL AND MEDICAL INSTRUMENTS

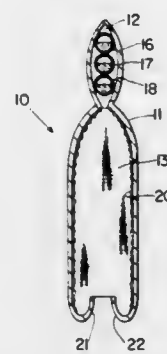
Robert M. Williams, 705 Kenyon St., NW., Washington, D.C. 20010

Filed Aug. 6, 1980, Ser. No. 175,633

Int. Cl.³ B65D 81/32, 30/22, 81/24; A61L 2/00

U.S. Cl. 206—210

10 Claims



1. A device for disinfecting dental and medical objects, including instruments, comprising, an envelope of liquid impervious material, said envelope having an opening which permits the entry of an object into the envelope, a liquid absorbent liner located in said envelope, said liner having an opening which permits the entry of an object into the liner within said envelope, said absorbent liner facing inwardly and being exposed to make physical contact with an object placed within said liner, said liner being attached to the envelope near the opening of the liner retaining the liner in position relative to the

envelope when an object is being inserted into the envelope, a cold disinfectant solution located in said envelope for impregnating said absorbent liner, said envelope and said liner being of flaccid material permitting their deformation and enabling said liner to conform to the outer surface of an object therewithin, said opening of said envelope being sealable to retain the object in the envelope and preventing the loss of said cold disinfectant solution from said envelope and impregnated liner.

4,362,242

MULTI-COMPARTMENT CONTAINER FOR STORING AND MIXING DENTAL AMALGAM INGREDIENTS, AND METHOD OF USING SUCH A CONTAINER

Jeffery J. Cheetham, 5 Brunsdon St., Bayswater, Victoria 3153, Australia

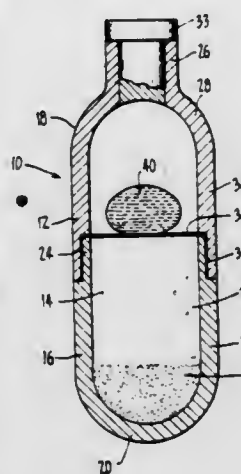
Filed Mar. 24, 1980, Ser. No. 133,262

Claims priority, application Australia, Apr. 10, 1979, PD8360

Int. Cl.³ B65D 25/08

U.S. Cl. 206—219

14 Claims



5. A self activating multi-compartment container comprising an outer wall defining a chamber, a thin, taut, rupturable partition dividing the chamber into first and second compartments, the first compartment containing a globule of liquid mercury and the second compartment containing a quantity of dental metallic alloy powder, both compartments being of fixed volume and being otherwise devoid of any actuating or rupturing means for rupturing or dislodging the partition, the partition being tautly mounted such that when the container is subjected to a sufficient rapid oscillatory motion in a direction substantially at right angles to the partition the globule of mercury acquires sufficient kinetic energy to rupture the partition so that admixture of the components can take place.

4,362,243

TOOL HOLDER

Margaret J. Deyesso, and George G. Deyesso, both of 118 Oak St., Pembroke, Mass. 02359

Filed Jul. 6, 1981, Ser. No. 281,013

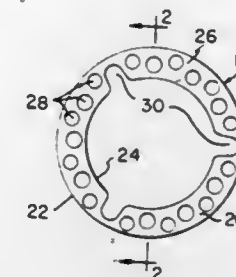
Int. Cl.³ B65D 85/28

U.S. Cl. 206—373

2 Claims

1. The combination of a container and a tool holder insert, the container including an open top and bottom, the bottom closed by a base portion, the top and base portion connected by a continuous wall, the wall having an inner surface, the insert having a continuous, uninterrupted outer facing surface butted against the inner surface between the top and base portion and the insert having an annular configuration with a central aperture formed therethrough and having an inner facing surface and an upper surface, the outer facing surface being spaced from the inner facing surface and butted against the inner surface of the wall, between the top and base portion, and having at least one hole formed through the upper surface and the remaining portion of the insert, the vertical axis of the hole

in parallel relation to the vertical axis of the central axis, the hole adapted to hold a tool or the like, the inner facing surface



of the tool holder insert having a notch formed therein, the notch adapted to hold a tool or the like.

4,362,244

NESTABLE CONTAINERS WITH INDICIA HOLDER
Jean Cornou, Verrieres les Buisson, France, assignor to Allibert S.A., Grenoble, France

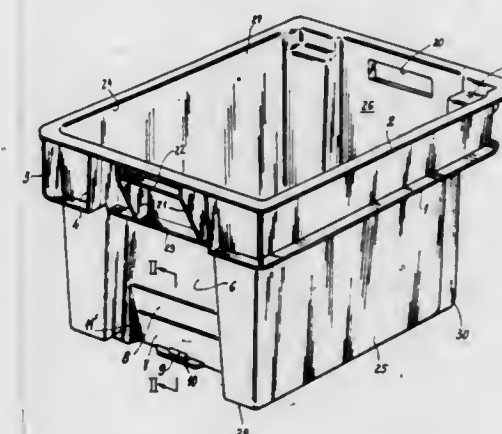
Filed Oct. 7, 1980, Ser. No. 194,897

Claims priority, application France, Oct. 8, 1979, 79 25624

Int. Cl.³ B65D 21/04; G09F 3/18

U.S. Cl. 206—507

5 Claims



1. An open-topped nestable and stackable container of rectangular outline having a pair of identical oppositely disposed upright sidewalls and first and second oppositely disposed upright endwalls, said sidewalls and said endwalls tapering downwardly, said container having a first outwardly projecting flange formed along the periphery of the open top thereof and a second outwardly projecting flange formed on said container and spaced from said first flange and parallel thereto, a pair of inwardly projecting upright shoulders being formed at the corners of said container where said first endwall meets said sidewalls, each of said shoulders being formed with a horizontal step spaced from the open top of said container and said second endwall being formed with a recessed zone adjacent the bottom of said container for receiving an indicia-carrying card and defined by a vertical wall perpendicular to said bottom and lying inwardly of said second endwall, said vertical wall having a horizontal lip projecting outwardly therefrom and lying in the same plane as said bottom and formed at the free end thereof with an upwardly extending tongue lying inwardly of said second endwall and defining with said vertical wall an upwardly open groove, an inclined portion extending upwardly from said vertical wall to join said second endwall at a height no greater than the spacing between said first and second flanges, said inclined portion being juxtaposed with said upwardly open groove, and a pair of vertical flanges flanking said recessed zone and lying in the same plane as said tongue and defining with said vertical wall a pair of vertical grooves open toward one another and at the upper ends thereof for facilitating the insertion of said indicia-carrying card therein, said container being adapted to receive an identi-

cal container in a nested position therein when said containers are oriented to face in the same direction, the bottom of said identical container being spaced from said bottom of the first mentioned container by a distance equal to the spacing between said first and second flanges and the indicia-carrying card of said identical container being retained out of contact with said first mentioned container and hidden thereby, and said identical container being stackable on said first mentioned container when said containers are oriented in opposite directions, the bottom of said identical container resting on said horizontal steps of said first mentioned container.

4,362,245

LIQUID TIGHT POURING CARTON

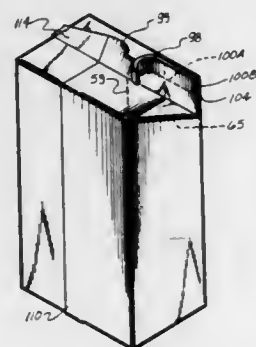
Morris W. Kuchenbecker, Neenah, Wis., assignor to American Can Company, Greenwich, Conn.

Continuation-in-part of Ser. No. 101,713, Dec. 10, 1979. This application Mar. 19, 1980, Ser. No. 131,755

Int. Cl.³ B65J 5/74

U.S. Cl. 206—621

24 Claims



1. A liquid tight carton constructed from a structural carton material, and having a heat sealable layer on the inner surface thereof, said structural carton material and said heat sealable layer comprising the material structure of said carton, said carton comprising: a bottom wall, upstanding side walls and upstanding end walls, said side walls and end walls connected to the edges of said bottom wall and to each other to form a receptacle; and a top wall connected to said side walls and said end walls; said top wall comprising extensions of said side walls and said end walls; said extensions being joined together, and comprising main extension panels joined to said side walls and said end walls, and sealing margins on the edge of each said extension remote from said side walls and said end walls; said sealing margins being joined together in the form of a fin seal, producing a fin having multiple thicknesses of said material structure joined together on the top of said carton, said seal having an outer edge disposed toward the outer edge of said fin and an inner edge disposed toward the interior of said carton; said carton having one end, and said fin having a corresponding one end for disposition of opening means thereon; each said thickness of said material structure having a structural line of weakness substantially on said inner edge of said seal and extending along said fin from substantially said one end thereof to a point short of the other end of said fin, said structural lines of weakness being disposed within said structural carton material; said heat sealable layer being devoid of said structural lines of weakness and serving as an effective barrier against leakage of product which may be contained in said carton; said structural lines of weakness on opposing thicknesses of said material structure being in substantial registry with one another, forming an easily removable section of the top wall, said top wall being joined to said end wall on said one end of said carton by an intermediate panel defined by a pair of arcuate score lines extending from one said side wall to another said side wall.

4,362,246
METHOD OF TREATING COLLECTED MAMMAL
SEMEN AND SEPARATING SPERM INTO X Y
COMPONENTS

Edwin L. Adair, 191 East Orchard, Littleton, Colo. 80123

Filed Jul. 14, 1980, Ser. No. 168,078

Int. Cl.³ B07G 5/02

U.S. Cl. 209—3.3

13 Claims

1. A method of preserving semen for use in artificial insemination comprising the steps of:
collecting semen from a mammal;
treating the mammal semen by adding mammal saliva to prevent coagulation;
diluting the semen with a diluting solution; and
storing the semen in a water bath at substantially the body temperature of the mammal.

4,362,247

TACO STAND

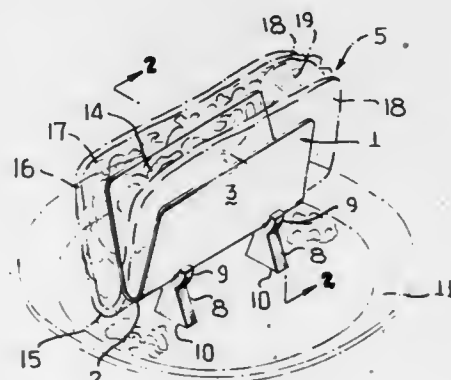
Robert Rueda, 1034 SE. 122nd St., Portland, Ore. 97233

Filed Jun. 24, 1980, Ser. No. 162,362

Int. Cl.³ A47F 7/00

U.S. Cl. 211—13

1 Claim



1. A portable stand for vertically supporting a taco-like food product on a food plate in position for removal and consumption, wherein such product includes a generally flat rectangular folded baked crust with a stuffing therebetween, said stand comprising a generally V-shaped body having a pair of flat generally rectangular diverging walls concavely joined at their lower edges, said body having an open upper end, spaced supporting leg means for vertically supporting said body, said leg means having generally flat and downwardly flared sides with flattened lower ends for flatly resting on said plate, the upper ends being concavely recessed to snugly accommodate the concaved lower end of said body, and adhesive means interposed between said mating concavities for removably mounting said leg means thereon, whereby said taco-like product is downwardly positioned between said walls and engages with said concavity so as to be vertically arranged between and flatly engaged by said walls and relative to the plate.

4,362,248

ORGANIZATIONAL AID DEVICE

Jorge O. Vilanova, Calle Balmes 361, Barcelona, Spain

Filed Sep. 19, 1979, Ser. No. 76,931

Claims priority, application Spain, Sep. 30, 1978, 238,455[U]

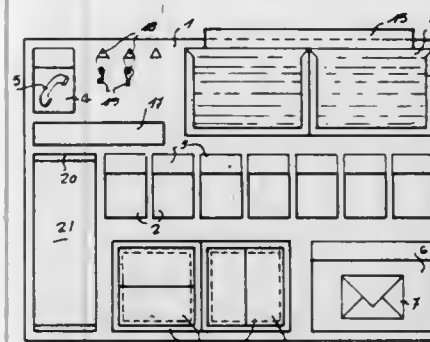
Int. Cl.³ A47F 7/00

U.S. Cl. 211—50

3 Claims

1. An organizational aid device comprising:
support means having a front face and provided with a plurality of compartments accessible from the front of said support means, one of said compartments being constructed and arranged for receiving mail;
respective compartment-identifying indicia associated with at least some of said compartments;
a cardholder mounted on said front face;
a plurality of cards each bearing a respective marking denot-

ing a respective period of time, each card having a surface-portion for the recording thereon of information relating to said respective period, said cards being removably and interchangeably mounted in mutually overlying relationship in said cardholder, said cardholder and cards being constructed and arranged so that at least a part of said surface-portion of the front one of said cards is visible and accessible from the front of the device;
a generally planar carrier member for a notepad;
mounting means for mounting said carrier member on said support member at an angle inclined to the front face thereof such that said carrier member is at an angle appropriate for writing on a notepad supported on said carrier member;



means for removably mounting an information-bearing element on said front face with information on said element displayed;

a calendar card mountable in a certain one of said compartments so as to partially project therefrom, said certain compartment having a wall, and spring means located in said certain compartment for urging said card against said wall, whereby said card may be held projecting from said certain compartment by selectively varying amounts;
at least one holder for writing implements, said holder being mounted on said front face; and
a plurality of hook means on said front face for detachably securing small objects to said support means.

4,362,249

POSITIVE LOCKING MERCHANDISE HOOK

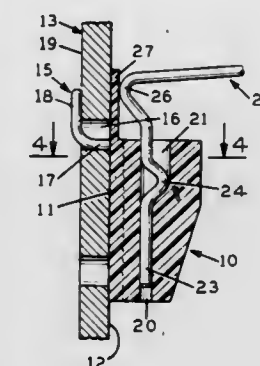
David R. Thalenfeld, Beechurst, N.Y., assignor to Trion Industries, Inc., Garden City, N.Y.

Filed Jun. 16, 1980, Ser. No. 160,109

Int. Cl.³ A47F 7/00

U.S. Cl. 211—59.1

13 Claims



1. In a merchandise display device of the type having a base member, panel engaging lugs extending rearwardly and upward from the upper back edge area of said base member, and merchandise support means extending forwardly from said base member, the improvement which comprises
(a) said merchandise support means comprising a wire-like member movably mounted on said base member,
(b) said wire-like member having locking portions adapted to closely confront or bear upon the front face of a display

panel, at a level above the upper back edge of said base section, to provide substantially positive locking of said display device to said panel board.

4,362,250

CONTAINER FOR STORING REACTIVE OR VOLATILE MATERIAL

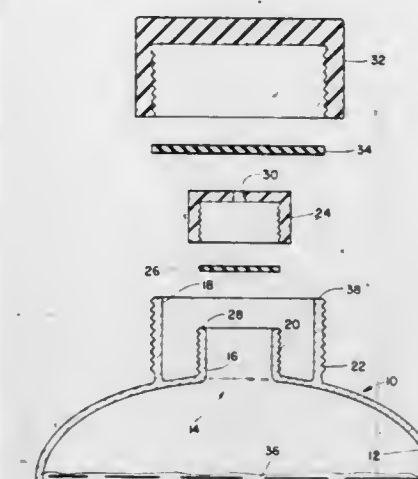
Auburn B. Cottingham, Cincinnati, Ohio, assignor to National Distillers & Chemical Corp., New York, N.Y.

Filed Mar. 26, 1981, Ser. No. 247,660

Int. Cl.³ B65D 41/04

U.S. Cl. 215—247

7 Claims



1. A reusable container provided with inner and outer seals for material stored therein, comprising:

- (a) a container body having an access opening providing access to the material stored therein;
- (b) a substantially cylindrical outer neck extending about said access opening and projecting from the container body as an integral part therewith, said outer neck having external threads formed therearound such that it is adapted to form an outer seal for the container; and
- (c) a substantially cylindrical inner neck extending from said container body as an integral part therewith and being in spaced relationship within said outer cylindrical neck and being arranged coaxially relative thereto, said inner cylindrical neck having external threads formed therearound such that it is adapted to form an inner seal for the container, and said inner cylindrical neck projecting from the container body for a distance less than that of the outer cylindrical neck so as to have the inner cylindrical neck recessed within the outer cylindrical neck, whereby an inner cap can be threadably engaged over said inner cylindrical neck to provide an inner seal therefor, and an outer cap can be threadably engaged over said outer cylindrical neck to provide an outer seal over both the inner cap and the outer cylindrical neck.

4,362,251

SPACE DIVIDING ASSEMBLY

Douglas S. Marling, 2511 Elizabeth St., Janesville, Wis. 53545

Filed Jun. 20, 1980, Ser. No. 161,598

Int. Cl.³ B65D 6/24, 25/06

U.S. Cl. 220—22

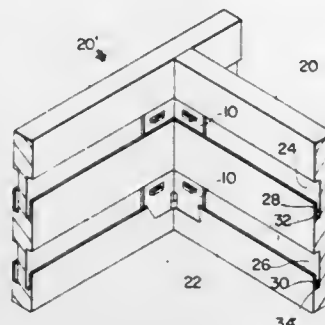
9 Claims

1. A space dividing assembly for dividing a space so as to define a plurality of separate compartments or the like, said assembly comprising:

- a plurality of partition members of flat, generally rectangular shape and including at least one longitudinal groove formed in each of the major oppositely facing surfaces of said partition member and extending from one end of said surfaces to the other, said partition members further including flexible first rails which extend substantially parallel to the major surfaces of the partition member from

parts of the partition member which define one side wall of said grooves so as to cover a portion of said grooves over the length of said grooves and to thereby form channels therewith; and

a plurality of connector members for connecting said partition members together to form the space dividing assembly, each of said connector members including a pair of generally planar, orthogonally extending flanges joined to



each other along adjacent sides, each of said flanges engaging in a respective channel of juxtaposed, orthogonally disposed ones of said partition members so as to connect said juxtaposed partition members together, the planes of the flanges of the connector members extending parallel to the rails of the channels in which the flanges are engaged and each connector member being of such a size and shape so as to lie substantially entirely within the channels of the partition members connected together thereby.

4,362,252

SINGLE-USE SHEET PLASTIC CLOSURE FOR APPLICATION TO RIMMED CONTAINERS

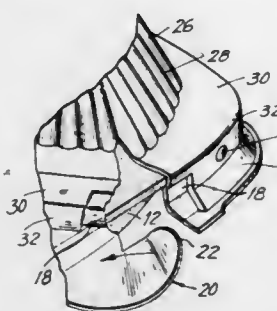
Stewart M. Graff, c/o Douglas Stephens Plastics, Inc., 101 E. Main St., Little Falls, N.J. 07424

Continuation-in-part of Ser. No. 281,477, Jul. 9, 1981, abandoned. This application Mar. 5, 1982, Ser. No. 354,141

Int. Cl.³ B65D 17/34

U.S. Cl. 220—270

14 Claims



1. A one-piece sheet plastic peripherally rupturable single-use closure for application to rimmed containers of the same shape and of the type usable to hold edible goods comprising:

- (a) a crown having a vertical plane of symmetry;
- (b) a skirt downwardly dependent from the periphery of the crown;
- (c) means in one piece with the skirt for detachably and mechanically tightly locking said closure to the rim of the container; and

(d) a pull tab in one piece with the closure at the lower edge of the skirt for destroying the integrity of the periphery of the skirt, whereby when the pull tab is bent and has a tensile force applied thereto it will start a tear which will progress from the apex of the notch through a portion of the periphery of the closure to destroy the integrity of said

periphery and permit the closure to be removed from the container and discarded.

4,362,253

TAMPER PROOF CLOSURE

Michael Wortley, Waterloo, Ontario; Michael Hughes, Denmead, and Robert Povey, Eastleigh, all of England, assignors to Cope Allman Plastics Limited, England

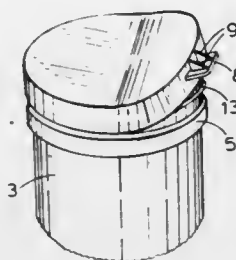
Continuation of Ser. No. 183,647, Sep. 3, 1980, abandoned. This application Nov. 30, 1981, Ser. No. 326,118

Claims priority, application France, Sep. 4, 1979, 79 22059

Int. Cl.³ B65D 17/40

U.S. Cl. 220—276

5 Claims



1. A re-closable tamper-proof snap-on closure assembly comprising a closure cap, said cap having a peripheral skirt, a tamper-proof strip below said skirt and joined to said skirt by a circumferentially extending weakened breakable web, said strip being free of any graspable finger tab, and a co-operating container neck onto which said cap fits, said neck being provided with an external circumferentially extending bead formation under which said strip engages when said cap is in place, said cap being provided with an outwardly extending finger-engageable lug, a gap formed in said breakable web in the region of said lug allowing a user to push upwards on the region of the cap that carries said lug thereby separating said cap from said strip initially in said region at opposite sides of said gap, and the arrangement being such that continued upward pressure on said lug flexes said cap and progressively tears said web until said cap and tamper-proof strip are both free of said container neck.

4,362,254

CLOSURE AND CONTAINER NECK STRUCTURE THEREFOR

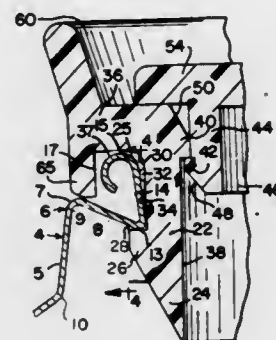
Donald J. Roth, Westport; Charles S. Kubis, Weston, both of Conn., and John Walter, Evergreen Park, Ill., assignors to The Continental Group, Inc., Stamford, Conn.

Continuation-in-part of Ser. No. 291,594, Aug. 10, 1981. This application Dec. 2, 1981, Ser. No. 326,956

Int. Cl.³ B65D 39/00

U.S. Cl. 220—307

17 Claims



1. A neck and closure assembly for a container wherein said neck comprises:

- a tubular neck member integrally formed with a portion of a container and extending axially from the remainder of the container for receiving a closure,

said neck member including a radially and axially intumed lip, a retainer ring carried by said lip extending axially of the container,

said closure comprising a tubular element mounted within said ring and having means in fluid-tight engagement with said tubular neck member.

4,362,255

BARRIER SPOUT AND CAP FOR FLEXIBLE BAGS OR POUCHES

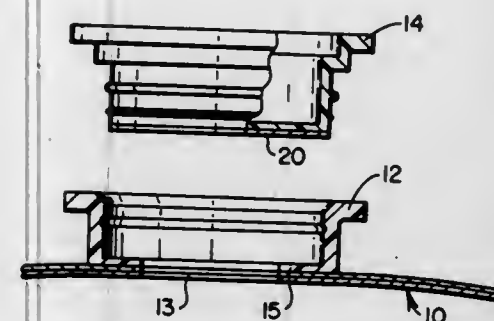
Curtis J. Bond, Marion, Ohio, assignor to Liqui-Box Corporation, Worthington, Ohio

Filed Oct. 24, 1980, Ser. No. 200,528

Int. Cl.³ B65D 39/04

U.S. Cl. 222—107

9 Claims



9. A flexible bag formed of a laminate including a gas barrier layer having a spout and cap assembly mounted thereon in association with a filling and dispensing opening, said assembly comprising a tubular spout and a removeable and replaceable sealing cap mounted thereon, said spout having an attaching flange which is heat-sealed to said bag laminate with said flange carrying a gas barrier layer, said cap carrying a transversely-extending gas barrier layer which extends completely across said opening and overlaps said barrier layer on the attaching flange; said spout and cap being plastic, said spout comprising a tubular body with its attaching flange axially-inwardly disposed therein and said cap comprising a tubular body which is inserted into said spout tubular body and which carries its barrier layer at an axially-inwardly disposed position, said spout attaching flange extending radially inwardly and the barrier layer on the cap contacting the outer surface of said radially inwardly-extending flange.

4,362,256

BEVERAGE DISPENSER

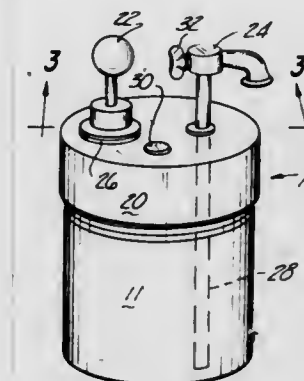
Randolph J. Polasek, 8900 Gittins, Union Lake, Mich. 48085

Filed Jan. 25, 1980, Ser. No. 115,344

Int. Cl.³ B67D 5/54

U.S. Cl. 222—383

6 Claims



1. A removable, reusable dispenser for a beverage container having first and second frangible areas, said frangible areas being breakable to form first and second openings in said container, said dispenser comprising:

- pressure means having an elongated air inlet adapted to be

sealingly connected to said container in said first opening for forcing a gas into said container;

a tap having an elongated fluid inlet, a valve, and a spout, said fluid inlet being adapted to be sealingly connected to said container in said second opening so that said fluid inlet communicates with the interior of said container whereby fluid may be selectively drawn out through said spout by operating said valve;

first means for sealing the air inlet of said pressure means in said first opening;

second means for sealing the fluid inlet of said top tap in said second opening;

wherein said first sealing means comprises a first pliable gasket disposed about said air inlet and insertable through said first opening, a first rigid plate affixed to said air inlet adjacent said first gasket, said first plate being insertable through said first opening, a second pliable gasket disposed about said air inlet and slidable thereon, a second rigid plate slidably disposed on said air inlet adjacent said second gasket, and means for tightening said second plate against said first plate so as to seal said first opening between said first and second gaskets; and

wherein said first opening is slit-shaped, and the diameter of said first pliable gasket is greater than the length of said slit-shaped opening.

4,362,257

PRESSURE FILLABLE DISPENSING DEVICE

Joseph J. Shay, Manchester, N.H., assignor to Ethyl Products Company, Richmond, Va.

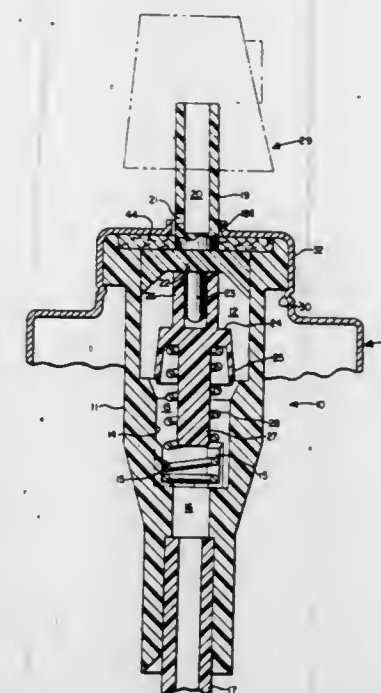
Filed May 5, 1980, Ser. No. 146,513

The portion of the term of this patent subsequent to Sep. 2, 1997, has been disclaimed.

Int. Cl.³ E65D 83/00

U.S. Cl. 222—402.2

7 Claims



1. A dispensing device for a pressurized liquid container capable of delivering metered quantities of an aerosol composition and having a discharge tube through which the container can be filled with fluids under pressure comprising:

- a. a generally cylindrical chamber including an upper chamber and a lower chamber, said generally cylindrical chamber being adapted to be sealed into a neck of said container, said upper chamber being closed at the upper end with respect to said container by a seal means;

b. discharge tube means mounted in said seal means and extending therethrough into said generally cylindrical chamber, said discharge tube being resiliently biased toward the upper end of said upper chamber and being movable axially in said generally cylindrical chamber, said

4,362,264

CONTAINER CONSTRUCTION

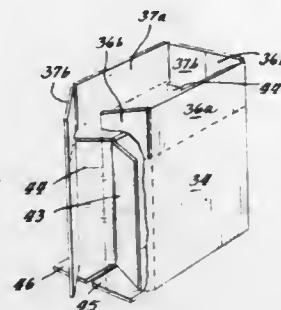
Jack E. Duncan, Vincennes, Ind., assignor to Packaging Corporation of America, Evanston, Ill.

Filed Feb. 20, 1981, Ser. No. 236,505

Int. Cl.³ B65D 5/48

U.S. Cl. 229—27

22 Claims



1. A container formed from a blank of foldable sheet material for accommodating a plurality of articles arranged in segregated groups, said container comprising a pair of upright non-sectional first walls disposed in opposed space relation; a pair of upright sectional second walls disposed in opposed spaced relation, each second wall including a pair of first panel sections each having a peripheral portion foldably connected to an adjacent first wall; a sectional article-supporting bottom wall coacting with said first and second walls to form an open top chamber for accommodating the groups of articles, said bottom wall including a pair of second panel sections arranged in side-by-side relation with said first panel sections and being angularly disposed relative to said first walls; and a sectional partition wall disposed intermediate and spaced from said first walls and extending between said second walls, said partition wall forming said chamber into contiguous compartments, each compartment accommodating a predetermined number of article groups, said partition wall including a pair of third panel sections disposed in face to face relation and having first peripheral portions thereof foldably interconnected, second peripheral portions being connected to said first panel sections by reinforcing flaps, and third peripheral portions thereof connected to a bottom wall section.

4,362,265

CONTAINER

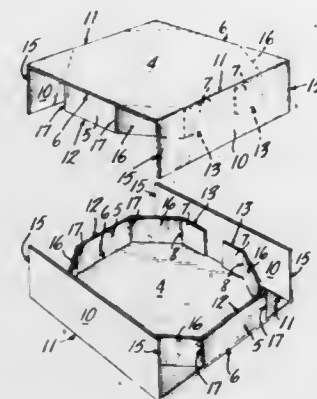
Donald L. Williams, Morris, Ill., assignor to Champion International Corporation, Stamford, Conn.

Filed May 1, 1981, Ser. No. 259,652

Int. Cl.³ B65D 5/26, 5/68

U.S. Cl. 229—32

1 Claim



1. A container comprising a pair of cooperating, identical trays, each tray comprising a main body portion, opposed side walls being of uniform height and together forming an octagon and extending upwardly from the main body portion, opposed ends walls extending upwardly from said main body portion, said end walls being approximately twice as tall as said side walls, said trays being inverted and rotated 90° relative to each other so that the taller end walls of one tray are telescoped

over the shorter side walls of the other tray with the end walls completely covering the side walls to produce a seamless container, said end walls and said side walls being hingedly connected to said main body portion and each side wall comprising (1) a central portion hingedly attached to said main body along a side edge thereof and (2) outer portions angularly attached to opposite ends of said central portion along first fold lines and (3) end flaps angularly attached to the opposite ends of said outer portions along second fold lines parallel to said first fold lines, each end flap being attached to the inner face of the adjacent end wall completely inwardly from the end edges of said end wall, each of said end flaps being of a length substantially less than one-half of the width of an end wall wherein an outer edge of the side wall central portion of one tray will abut and be supported on an outer edge of the end flap of the other tray when said trays are inverted and rotated 90° relative to each other and one of said trays seated on the other to form a closed container.

4,362,266

NON-GLUED TAPERED TRAY

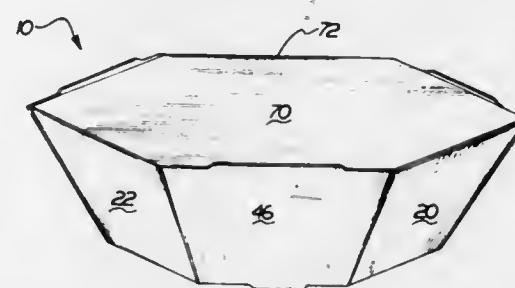
George P. Webinger, Robbinsdale, Minn., assignor to Champion International Corporation, Stamford, Conn.

Filed Mar. 2, 1981, Ser. No. 239,311

Int. Cl.³ B65D 5/22

U.S. Cl. 229—33

5 Claims



1. A tray formed from sheet stock, said tray comprising:
 - (a) a polygonal base having a plurality of side edges;
 - (b) a plurality of trapezoidal first side panels on said tray, said first side panels being foldably connected along the shorter of their parallel edges to respective side edges of said base, said first side panels all extending upwardly and outwardly from said side edges of said base to form a top of said tray which is the same polygonal shape as said base but larger in area than the area of said base;
 - (c) a plurality of second trapezoidal side panels foldably connected to the upper edge of each of alternate ones of said first side panels along the longer parallel edge of said first and second side panels, said second side panels being folded down adjacent said respective alternate ones of said first side panels to overlie the latter, each of said second side panels being provided with a projecting tab at the shorter of its parallel edges, with said projecting tabs being received in cooperating slots formed in the fold connections between said base and said alternate ones of said first side panels to retain said second side panels in said overlying positions;
 - (d) means forming a medial slot in the fold connections between said first and second side panels; and
 - (e) pairs of side flaps foldably connected one to each side edge of intermediate ones of said first side panels, the latter of which are disposed intermediate said alternate ones of said first side panels; each of said side flaps being sandwiched between the adjacent pair of said alternate ones of said first side panels and said second side panels, and each of said side flaps including a locking tab on its upper edge with said locking tabs engaging said medial slots to retain all of said side panels in their upwardly and outwardly extending positions.

4,362,267

MAIL BOX TRAY

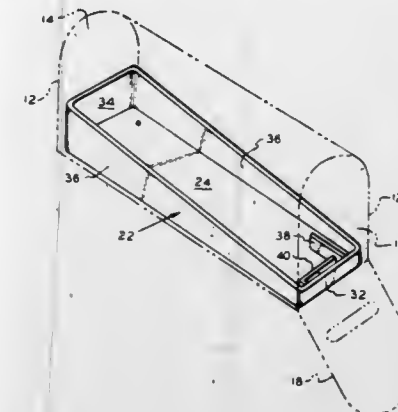
Homer A. Donaldson, 3475 Wisner Hwy., Adrian, Mich. 49221

Filed Oct. 14, 1980, Ser. No. 196,737

Int. Cl.³ B65D 91/00

U.S. Cl. 232—17

3 Claims



1. A mail box tray for slidable support within a mail box to facilitate access to the mail box contents comprising, a tray body of a molded homogeneous synthetic plastic material having a bottom panel and lateral side walls, a front wall and a rear wall extending upwardly from said bottom panel, said rear wall having a greater vertical dimension than that of said front wall, said side walls intersecting said rear and front walls and having a vertical dimension at the intersection with said walls substantially corresponding to that of the intersected wall whereby the vertical dimension of said side walls decreases from said rear wall to said front wall, a first ridge homogeneously extending upwardly from said bottom panel in spaced parallel relationship to one of said side walls for positioning the edge of an envelope upon said bottom panel, and a second ridge homogeneously extending upwardly from said bottom panel in spaced parallel relationship to said front wall defining a coin receiving slot with said front wall, the exterior of said bottom panel and side walls being free of protuberances.

4,362,268

AIR CONDITIONING SYSTEM FOR AN AUTOMOTIVE VEHICLE COMPARTMENT

Yukio Shimada; Naoyoshi Suzuki; Toshio Ohashi, all of Yokohama, and Yasushi Inoshita, Tokyo, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

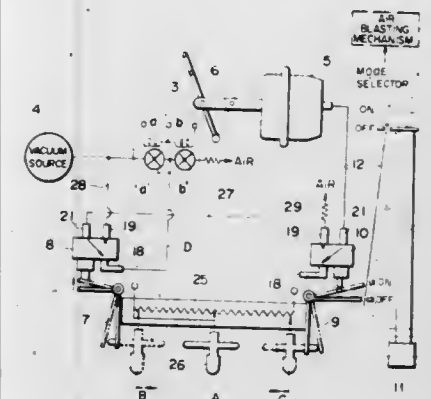
Filed Oct. 16, 1980, Ser. No. 197,678

Claims priority, application Japan, Oct. 24, 1979, 54-136450

Int. Cl.³ G05D 23/13

U.S. Cl. 236—13

11 Claims



6. A defrost mode fixing means for a vehicle air conditioning system including:

- (a) a vacuum source (4);
- (b) a double solenoid vacuum device (3) having two valves, one valve linked with said vacuum source which opens to admit a vacuum from said vacuum source thereto when the corresponding solenoid is energized in response to a temperature adjustment electronic control circuit, and the

4,362,269

CONTROL SYSTEM FOR A BOILER AND METHOD THEREFOR

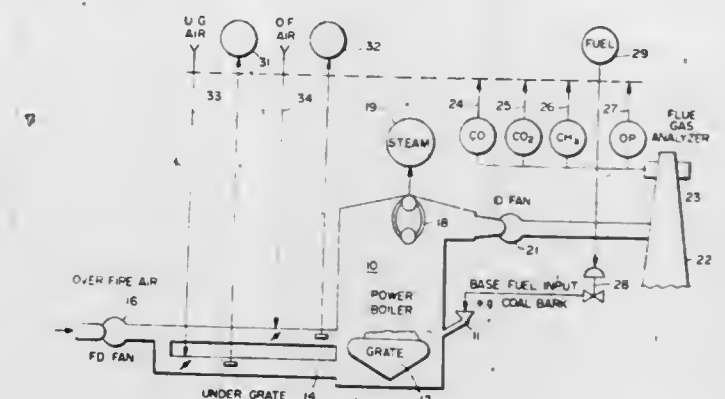
Laxmi K. Rastogi, San Jose; Arthur D. Allen, and John Y. H. Tsing, both of Cupertino, all of Calif., assignors to Measurex Corporation, Cupertino, Calif.

Filed Mar. 12, 1981, Ser. No. 243,170

Int. Cl.³ F23N 1/08

U.S. Cl. 236—14

10 Claims



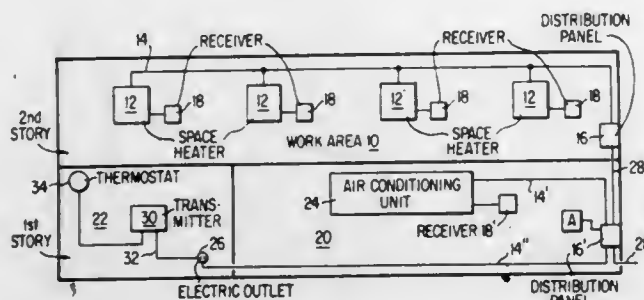
1. A control system for a boiler producing steam having a fire bed of fuel where air is admitted under or at the fire bed (undergrate air) to accomplish the preliminary burning of fuel in said fire bed and air is admitted over the fire bed (overfire air) for completing combustion, said system comprising: means associated with the exhaust stack of said boiler for sensing carbon dioxide and carbon monoxide in the flue gas; means for controlling the amount of said undergrate air admitted into

said boiler as a function of said carbon dioxide or steam/fuel ratio; means for controlling the amount of said overfire air admitted into said boiler as a function of said carbon monoxide.

4,362,270

ELECTRONIC TEMPERATURE CONTROL SYSTEM
Robert J. Cleary, Levittown, and Ronald R. Chin, Flushing, both of N.Y., assignors to Energy Master, Inc., Atlanta, Ga.
Continuation-in-part of Ser. No. 798,142, May 18, 1977, Pat. No. 4,132,355. This application Dec. 20, 1978, Ser. No. 971,409
Int. Cl.³ F23N 5/20
U.S. Cl. 236—46 R

1 Claim



1. A control system for a plurality of temperature controlling devices, each of which is disposed in a structure and is connected to an existing electrical power distribution network and each including a control circuit responsive to temperature conditions at a location in said structure to connect the device to the electrical conductor network for energization, comprising:

- a control transmitter responsive to each of a plurality of combinations of temperature and the passage of preselected periods of time to impose electrical pulses of different predetermined control frequencies on said conductor network at a pulse rate corresponding to the power supply frequency;
- said transmitter including:
 - a plurality of fixed frequency oscillators each operable at a frequency greater than the power supply frequency;
 - first gating circuit means for permitting each of said oscillators to provide pulses at a rate corresponding to the power supply frequency;
 - a time clock connected to each of said oscillators to prevent oscillation of the oscillator except at a time period determined by the time clock;
 - a master thermostat for monitoring temperature within the structure; and
 - a second gating circuit means for imposing said oscillator pulses on said conductor network responsive to the temperature monitored by the master thermostat; and
 - a receiver associated with each of said plurality of devices responding to the presence of pulses of a different one of said predetermined control frequencies to render the control circuit for the device inoperative.

4,362,271

PROCEDURE FOR THE ARTIFICIAL MODIFICATION OF ATMOSPHERIC PRECIPITATION AS WELL AS COMPOUNDS WITH A DIMETHYL SULFOXIDE BASE FOR USE IN CARRYING OUT SAID PROCEDURE
Robert Montmory, St. Islier, France, assignor to Agence Nationale de Valorisation de la Recherche (ANVAR), Paris, France

Filed Oct. 29, 1980, Ser. No. 201,802
Claims priority, application France, Nov. 2, 1979, 79 27135;
Jun. 20, 1980, 80 13745

Int. Cl.³ A01G 15/00; E01H 13/00

U.S. Cl. 239—2 R

33 Claims

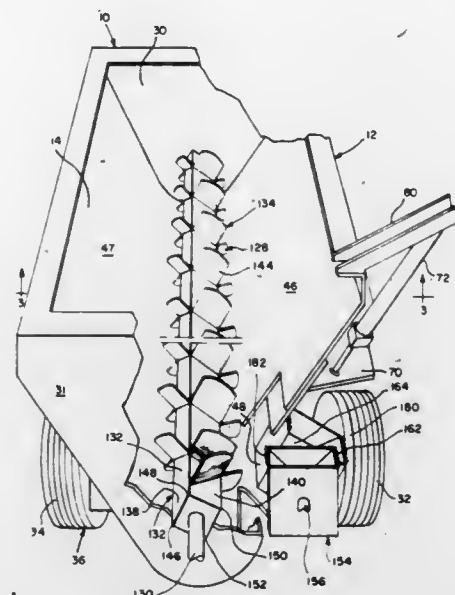
1. A process for artificially modifying atmospheric precipitation comprising dispersing into an atmosphere capable of giving rise to precipitation microdroplets of a liquid composition

containing dimethyl sulfoxide as the principal active ingredient.

4,362,272

MANURE SPREADER WITH MULTIPLE SIDE AUGER
Mervin G. Martin, Myerstown, Pa., assignor to Hedlund Manufacturing Co., Inc., Boyceville, Wis.
Filed Jul. 28, 1980, Ser. No. 172,976
Int. Cl.³ A01C 23/00
U.S. Cl. 239—7

42 Claims



1. A manure spreader including:

- a container for holding manure to be spread;
- an impeller means arranged for rotation within said container to propel manure to an opening in said container;
- a first drive system connected to the impeller means to rotate said impeller means at a first slow, rotative speed;
- said container having an opening to provide an outlet through which manure can exit from said container;
- spreader means positioned outwardly adjacent to the opening in said container to receive manure and to spread the manure in a spray pattern;
- said spreader means comprising a chamber and a spinner, said spinner including a shaft and being adapted for rotation within said chamber to propel manure in a spray pattern, said spinner comprising at least two scoop sections angularly offset from one another on said shaft;
- said spinner being adapted to rotate at a second, fast, rotative speed; and
- a second drive system interconnected between said first drive system and said spinner to rotate said spinner at a second, fast, rotative speed.

4,362,273

PRODUCTION OF DYESTUFF POWDERS
Junzaburo Seino, Osaka; Hiroshi Ikeda, Nara; Washohati Abo; Iwao Minami, both of Osaka, and Joji Fuji, Aomori, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

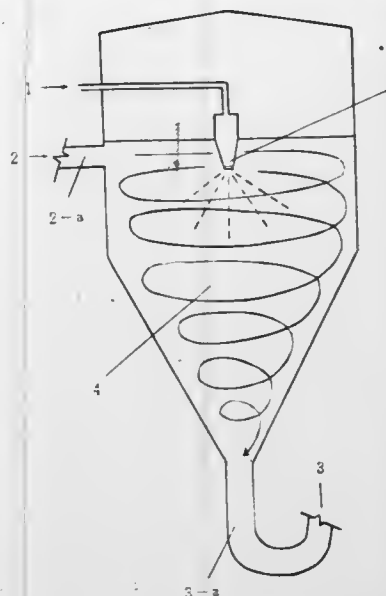
Filed Nov. 6, 1980, Ser. No. 204,710
Claims priority, application Japan, Nov. 28, 1979, 54-154751
Int. Cl.³ F26B 3/10

U.S. Cl. 239—128

11 Claims

1. A method for producing dyestuff powders by spray drying a dye dispersion or solution comprising spray drying in a spray dryer which includes a drying room with an inlet for introducing hot air into the drying room and an outlet for discharging hot air with dyestuff powders from the drying room, an atomizer for spraying the dye dispersion or solution therethrough positioned at the upper part of the drying room and an acceleration means for increasing the velocity of hot air; said method further comprising maintaining the tempera-

ture at the inlet at between 110° and 260° C., the temperature at the outlet at between 60° C. and 80° C. and the velocity of

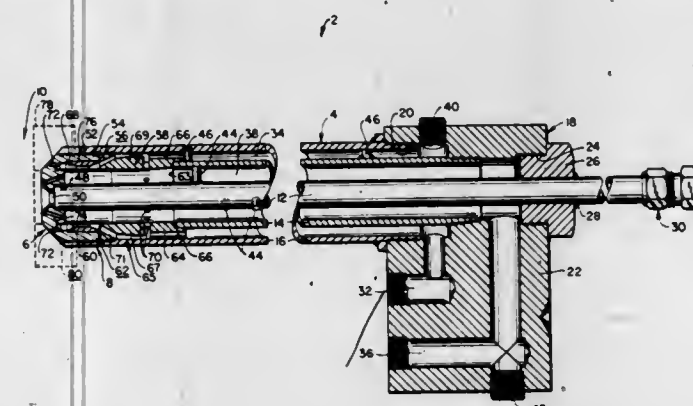


4,362,274

DUAL FUEL ATOMIZER
Albert W. Davis, Tahoe City, Calif., assignor to Coen Company, Inc., Burlingame, Calif.
Filed Jun. 27, 1980, Ser. No. 163,556
Int. Cl.³ F23D 11/16

U.S. Cl. 239—419.3

13 Claims



1. A nozzle for the simultaneous atomization of first and second liquid fuels comprising first and second conduits for independently flowing the first and second fuels, respectively, towards a discharge end of the nozzle, a third conduit for flowing a pressurized fuel atomizing medium towards the discharge end, means fluidly connected with the third conduit defining first and second passages for flowing first and second streams of the medium from the third conduit, first atomizing means in fluid communication with the first passage for contacting the first fuel with the first medium stream so that the first medium stream causes the atomization of the first fuel outside the nozzle, and second atomizing means in fluid communication with the second passage for contacting the second fuel with the second medium stream so that the second medium stream causes the atomization of the second fuel within the nozzle and prior to its discharge therefrom.

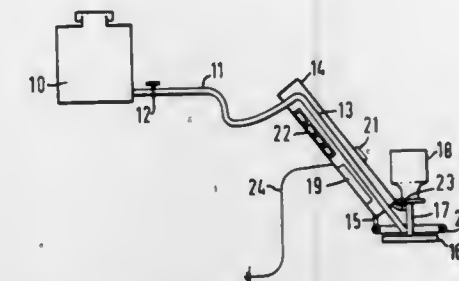
4,362,275
SPRAYERS

Ronald A. Coffee, Haslemere, England, assignor to Imperial Chemical Industries Limited, London, England
Filed Oct. 29, 1980, Ser. No. 201,971
Claims priority, application United Kingdom, Nov. 19, 1979, 7935554

Int. Cl.³ B05B 3/10

U.S. Cl. 239—700

6 Claims



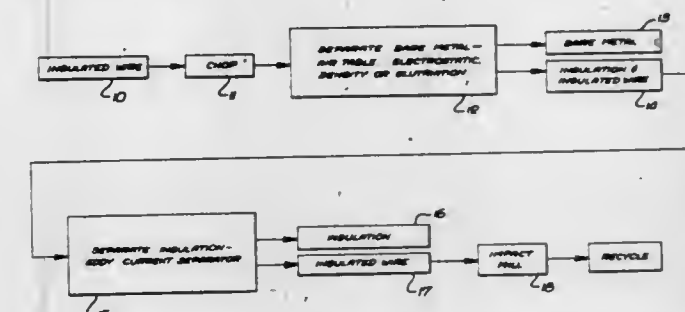
1. An agricultural sprayer, comprising a rotatable conductive sprayhead in the form of a disc or cup, means for supplying spray liquid from a reservoir to an inner surface of the sprayhead, an electric motor for rotating the sprayhead about its axis at a rate of 1000 to 8000 revolutions per minute, a circular induction electrode disposed adjacent the sprayhead rim, a high-voltage generator for charging the electrode to a potential in the range 1-3 kilovolts, and means for earthing the sprayhead.

4,362,276

PROCESS AND APPARATUS FOR RECOVERING METAL AND PLASTIC FROM INSULATED WIRE
Booker W. Morey, Pasadena, Calif., assignor to Occidental Research Corporation, Irvine, Calif.
Filed Dec. 8, 1977, Ser. No. 858,633
Int. Cl.³ B02C 23/14

U.S. Cl. 241—24

15 Claims



1. In a process for separating plastic insulated, non-ferrous, electrical conducting wire into three fractions for recovering metal and plastic, the steps of: comminuting the plastic insulated, non-ferrous, electrical conducting wire to reduce the wire to small pieces; separating the small pieces into a first bare metal fraction and a second fraction containing plastic and plastic covered metal; and separating the plastic of said second fraction by eddy current separation from the plastic covered metal, providing a bare metal fraction, a plastic fraction, and a plastic covered metal fraction.

4,362,277

DOMESTIC ELECTRICAL FOOD PROCESSING APPLIANCE

Jacques H. J. Amiot, Alencon, France, assignor to Moulinex, Societe Anonyme, Bagnolet, France

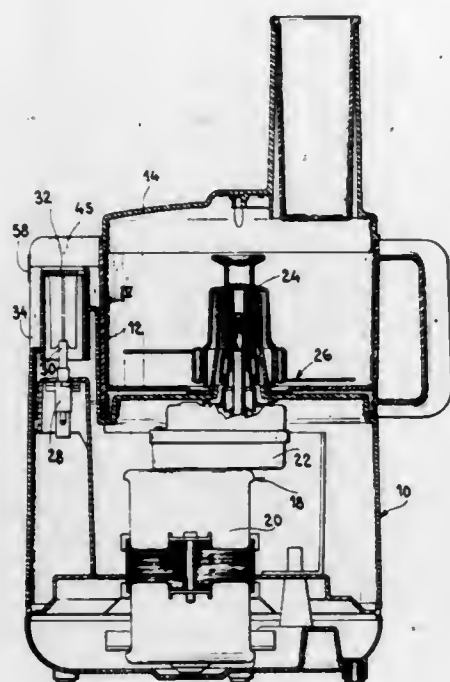
Filed Sep. 9, 1980, Ser. No. 185,406

Claims priority, application France, Sep. 21, 1979, 79 23558

Int. Cl.³ B02C 18/00

U.S. Cl. 241—37.5

8 Claims



1. Electrical food processing appliance comprising a base supporting a work bowl and having a boss adjacent to said bowl, a detachable cover for the work bowl, engaging means arranged upon relatively rotary movement between the cover and the bowl to hold the cover in a closed position on the bowl, a motor unit mounted in said base, said motor unit having an output shaft extending within said work bowl, a work tool arranged within said bowl and carried by said output shaft, a switch for controlling said motor unit, a push-button for actuating said switch mounted in said boss for movement between a rest position and an operating position in which it actuates said switch, a safety bolt mounted in said boss for movement between a locked position in which it maintains said push-button in its rest position and an operative position in which it permits movement of the push-button to its operating position, return means urging said safety bolt into its locked position, an arm carried by said cover arranged to engage in a slot in said boss and to move said safety bolt into its operative position against the urging of said return means when the cover is moved into its closed position on the bowl, and locking means arranged to automatically lock the safety bolt in its operative position, wherein the safety bolt is pivotally mounted in said boss and has a bifurcated portion which projects partially into the slot of the boss, said bifurcated portion comprising first and second teeth arranged consecutively along a path travelled by the arm of the cover in said slot during the closing movement of the cover, the first tooth forming an operating tab of the bolt against which the arm acts to move the bolt into its operative position, and the second tooth forming a capture lug for the arm, which, when the bolt is in its said operative position, engages said arm on the cover when the cover is moved in a direction to remove the cover from the bowl.

4,362,278

ROLL DISPENSER

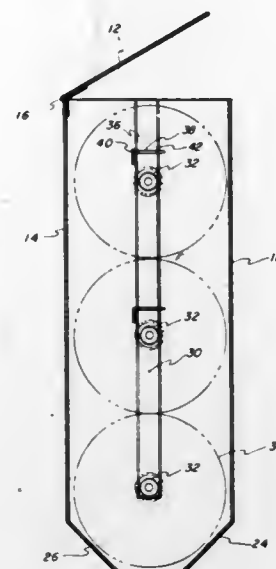
Linn L. Hopkinson, 515 Park Ave., Herkimer, N.Y. 13350

Filed Feb. 23, 1981, Ser. No. 236,736

Int. Cl.³ B65H 19/04

U.S. Cl. 242—55.3

4 Claims



1. A holder and dispenser for a dispensing roll of paper and at least one storage roll of paper comprising:
a generally hollow cabinet having a backside, a front side, a right side and a left side;
a pair of supporting means located on said left side and said right side of said hollow cabinet, said supporting means providing support for a cylindrical core of said dispensing roll of paper;
a cover means pivotally mounted on a top end of said cabinet and moveable between positions in which said top end is normally covered and uncovered for selective insertion of a roll of paper;
a guide means operatively connected to said right side and said left side of said cabinet for guiding a cylindrical core of a dispensing roll of paper to said supporting brackets and for guiding a cylindrical core of at least one storage roll of paper to be in a position over said dispensing roll so as to be gravity fed as a new dispensing roll as soon as a user has exhausted paper rolled on said dispensing roll and has removed the cylindrical core of said dispensing roll from said supporting means; and
a first antipilfering means positioned within said guide means so as to prevent removal of a storage roll or a dispensing roll from said cover means.

4,362,279

WIRE BRAKE FOR A WINDING MACHINE

Wolfgang Rosenkranz, Traunreut, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

PCT No. PCT/DE80/00059, § 371 Date Jan. 9, 1981, § 102(e) Date Jan. 9, 1981, PCT Pub. No. WO80/02548, PCT Pub. Date Nov. 27, 1980

PCT Filed May 8, 1980, Ser. No. 230,949

Claims priority, application Fed. Rep. of Germany, May 11, 1979, 2919145

Int. Cl.³ B65H 59/10

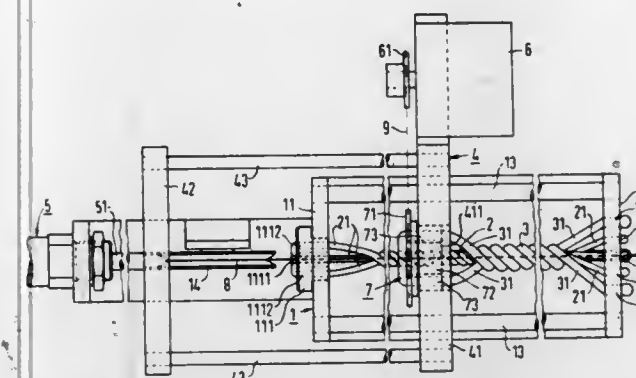
U.S. Cl. 242—147 R

5 Claims

1. A wire brake for a wire winding machine for electrical cables, comprising:
a. a support frame;
b. a carriage slideably mounted on said support frame;
c. a stretching device coupled to said carriage for moving said carriage relative to said frame;
d. a plurality of brake strands, forming a brake cable, wound about the wire in a single layer and having first ends thereof fixedly clamped to said support frame;

e. a twisting device in said support frame and coupled to the second ends of said plurality of brake strands for selectively winding the second ends of said brake strands about the wire;
f. a plurality of pressure strands, forming a pressure cable, wound about said brake strands in a single layer and having first ends thereof coupled to said support frame; and

converters comprises a generally cylindrical elongate hollow casing wide open at both ends, means for moving said casing lengthwise through the air while restraining it from rotation, and fixed screw means fixed in said casing for imparting a rotary motion to air entering the open front end of said casing and passing through said casing as said casing is moved lengthwise through the air.



g. a control element, rotatably supported by said carriage, coupled to the second ends of said pressure strands, for controlled rotating the second ends of said pressure strands to control the pressure exerted on the brake strands on the wire to control braking thereof.

4,362,280

METHOD AND APPARATUS FOR REDUCING DESTRUCTIVE EFFECTS OF TORNADOS

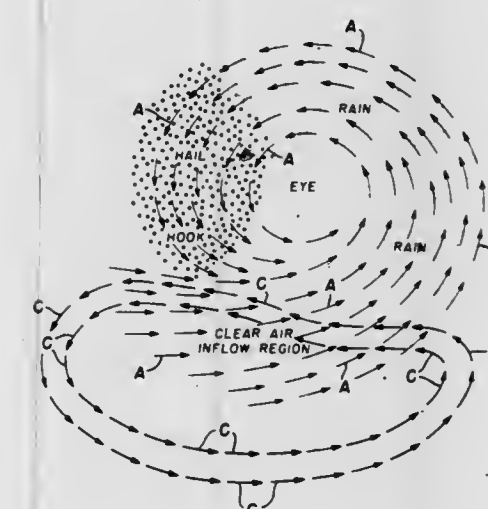
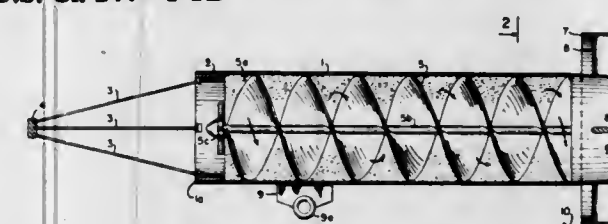
Joseph McCambridge, 12 Watson La., Setauket, N.Y. 11733

Continuation-in-part of Ser. No. 12,513, Feb. 15, 1979, abandoned. This application Nov. 10, 1980, Ser. No. 205,676

Int. Cl.³ B64C 39/02; A01G 15/00; E01H 13/00

U.S. Cl. 244—1 TD

17 Claims



1. A method of reducing the destructive effects of violent storms having a rotary motion about a center and having at its periphery at least one clear air inflow region, which comprises propelling through said inflow region in a direction approximately tangential to the storm and opposite to the direction of air flow in said inflow region a plurality of fluid dynamic converters each imparting a rotary motion to a column of air and thereby disturbing the balance of the rotary motion of the storm and reducing its intensity, each of said fluid dynamic

4,362,281

PYLON MOUNTING SYSTEM FOR REDUCING HELICOPTER VIBRATION

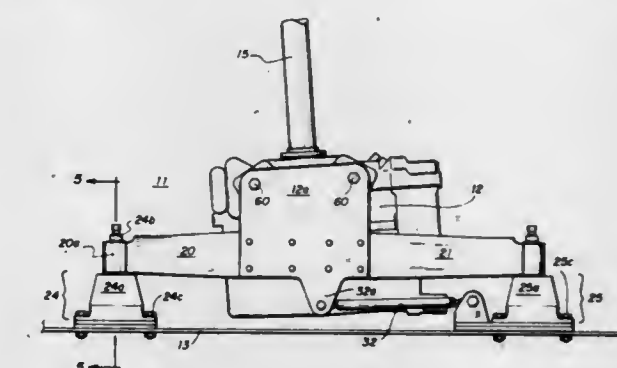
Wesley L. Cresap, Fort Worth; Alan W. Myers, Burleson, and Sathy P. Viswanathan, Bedford, all of Tex., assignors to Textron, Inc., Providence, R.I.

Continuation of Ser. No. 16,403, Mar. 1, 1979, abandoned. This application Feb. 26, 1981, Ser. No. 238,466

Int. Cl.³ B64C 27/00

U.S. Cl. 244—17.27

5 Claims



1. In a helicopter with a fuselage and a pylon including a main rotor, a mount for interconnecting the pylon and fuselage and for attenuating rotor excitation forces, which comprises: four laterally spaced apart resilient support links arranged in two longitudinally spaced apart pairs interconnecting the pylon and fuselage for relative vertical motion, said links having a predetermined composite spring rate of low stiffness relative to the pylon mass in order to resiliently support said fuselage from said pylon during level flight in an operational region immediately below the point where said pylon and fuselage would resonate so as to attenuate oscillatory forces from the rotor and thereby reduce vibration in said fuselage; and stop means interconnected between said pylon and fuselage for rigidly limiting vertical deflection therebetween; said resilient support links being preloaded downward such that said pylon and fuselage are rigidly connected by said stop means up to a predetermined rotor thrust below that necessary to achieve flight.

4,362,282

RAILROAD FROGS

Earl E. Frank, Tallman, N.Y., assignor to Abex Corporation, Columbus, Ohio

Filed Sep. 21, 1979, Ser. No. 77,608

Int. Cl.³ E01B 7/10

U.S. Cl. 246—468

3 Claims



1. In a railroad frog for trackwork installation which includes a frog point casting with gage lines divergent from the narrow point-of-frog rearwardly to the heel of the frog, the heel of the frog having integrally cast thereto a heel extension

with a hollow interior serving as a spacer for a pair of running rails to be aligned to said gage lines at the heel end of the frog casting, the improvement comprising:

a pair of rail joints cast integral with the frog point and extending rearwardly of the heel on opposite sides of said heel extension and cooperating with the heel extension to afford respective recesses for receiving the related end portions of the running rails; and one of said rail joints being considerably closer to the point-of-frog than the other.

4,362,283

INSTRUMENT STAND

Lucien Bouffechoux, Villemonble, France, assignor to Essilor International (Compagnie Generale d'Optique), Creteil, France

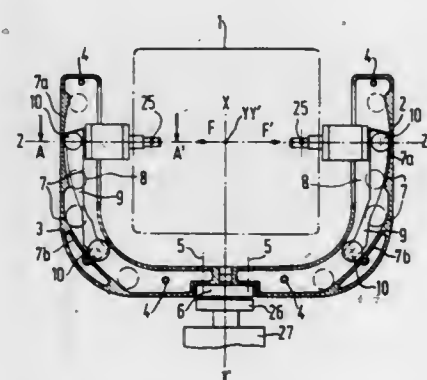
Filed Dec. 4, 1980, Ser. No. 213,106

Claims priority, application France, Dec. 6, 1979, 79 29984

Int. Cl.³ F16M 11/12; A61B 3/00

U.S. Cl. 248—183

7 Claims



1. An instrument stand equipped with means for fitting an instrument to the stand, and for allowing the instrument to be oriented, in relation to its position when at rest, around one geometrical axis X of the instrument, around a second geometrical axis Y of the same instrument, intersecting the axis X at a fixed point, and around a third geometrical axis Z of the same instrument, perpendicular to the axis Y and also passing through the point of intersection of axes X and Y, said stand comprising:

a head which rotates on a shaft that coincides with the axis X when the instrument is at rest, said head including means for orienting the instrument around axes Y and Z; orientation means comprising two runners equipped with respective pairs of runner wheels which run along separate tracks located on opposite sides of said head, said tracks presenting circular profiles defined around the axis Y, the treads of the runner wheels being elastically flexible, one of the pairs of wheels on each runner being positioned at a greater distance from the axis Y than the other of the pair of wheels on the same runner, each of said tracks comprising two portions, one portion guiding each of the pair of wheels on each runner, said portions being positioned at different distances from the axis Y and presenting different radii with respect to said axis, each runner comprising a revolving shaft mounted with friction contact and extending along axis Z towards the point of intersection of all three axes, said revolving shafts being fitted with means for attaching the instrument to the stand; and

a friction contact assembly for enabling said head to rotate around the axis X.

4,362,284 FASTENER FOR ATTACHING ELECTRICAL BOXES TO STEEL STUDS

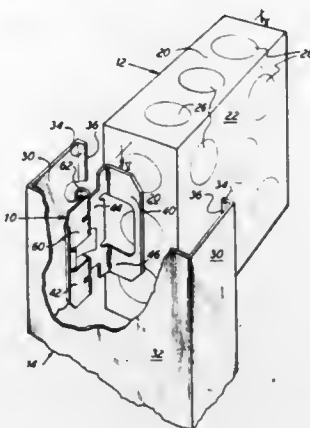
Jay J. Bolante, Chicago, Ill., assignor to Appleton Electric Company, Chicago, Ill.

Filed Nov. 3, 1980, Ser. No. 203,468

Int. Cl.³ H02G 3/08

U.S. Cl. 248—205 R

2 Claims



1. An improved fastener for attaching an electrical box to a formed sheetmetal member, said member including a flange with a lip turned generally at a right angle thereto and terminating in an edge, the improved fastener attaching only to the flange and lip and comprising:

a piece of formed metal having an electrical box attachment portion and a sheetmetal member attachment portion, said electrical box attachment portion including means for securely affixing said fastener to said electrical box, said sheetmetal member attachment portion being spaced from the electrical box attachment portion and having at least one finger extending therefrom designed to fit over said lip and part of said flange, said sheetmetal member attachment portion also having pressure application means extending therefrom in the form of an elongate and resilient appendage having midportions that push against said edge in an outward direction so as to drive said finger into compressive contact with said flange and lip to thereby lock the fastener thereto, said midportions including at least two longitudinally spaced locking stops extending outwardly therefrom, one of which engages the lip edge for preventing slipping between said appendage and lip.

4,362,285

CHANNEL MOUNTING HOOK SUPPORT

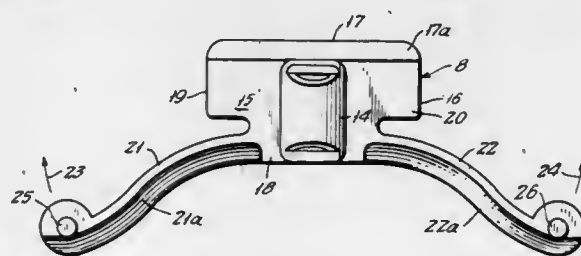
Lawrence A. Lewis, Englewood, N.J., assignor to Clip Strip Corporation, South Hackensack, N.J.

Filed Jul. 30, 1980, Ser. No. 173,457

Int. Cl.³ A47G 25/00

U.S. Cl. 248—221.3

13 Claims



1. A support for a hook, said support being receivable in spaced portions of a C-shaped channel and comprising:

a body having a first side having a pair of ends, a second, opposite side and a pair of lateral sides extending from the ends of the first side to the opposite side, said first side being receivable in a portion of said channel;

a projection on a face of said body in spaced relation to said first side, said projection having at least one aperture therein for receiving a hook, the axis of said aperture extending in a direction substantially perpendicular to a rectilinear line between said ends of said first side and extending at an angle less than 90° with respect to the plane of said face of said body;

a first resilient arm extending from a lateral side of said body other than said first side and in a direction parallel to the plane of said face, said arm having a portion receivable in another portion of said channel and said portion being disposed at the sides of said projection opposite from the sides of said projection at which said first side and one of said lateral sides are disposed; and

a second resilient arm extending in a direction substantially parallel to the plane of said face and from a lateral side of said body other than said first side and other than the side from which said first arm extends, said second arm having a portion receivable in said other portion of said channel and said portion of said second arm being disposed at the sides of said projection opposite from the sides of said projection at which said first side and the other of said lateral sides are disposed.

4,362,287

SHOCK ABSORBER ARRANGEMENT FOR MOUNTING DELICATE EQUIPMENT AND SHOCK ABSORBER FOR USE IN THE ARRANGEMENT

Oddvar Grongstad, Kongsberg, Norway, assignor to A/S Kongsberg Vapenfabrikk, Kongsberg, Norway

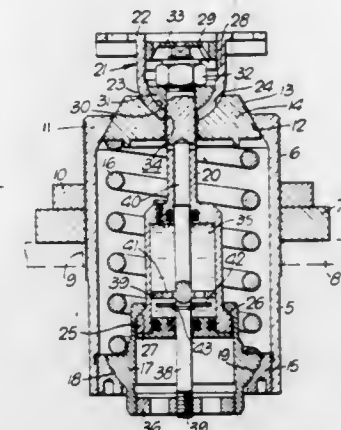
Filed Feb. 11, 1980, Ser. No. 120,351

Claims priority, application Norway, Feb. 16, 1979, 790531

Int. Cl.³ F16M 13/00

U.S. Cl. 248—563

4 Claims



1. Shock absorber arrangement for mounting delicate equipment on a carrier such as a vessel or vehicle in such a manner that the equipment is normally rigidly connected to the carrier in a predetermined position relative thereto, but is permitted to yield as a result of shocks involving an acceleration beyond a certain limit, whereupon it is forced back into said predetermined position, characterized in that the arrangement comprises three separate, self-contained, identical shock absorbers which all act in both directions along a vertical axis and carry the equipment at a level different from that of the centre of gravity of the equipment, whereby horizontal shocks result in a tilting movement and thus a vertical load in opposite directions on the shock absorbers, comprising a piston-like element having an outer conical surface which by means of a biased spring is forced into self-centering engagement with a corresponding inner conical surface on a second element, characterized in that the opposite end of the spring engages an abutment element having an engagement surface which by the spring is forced towards a corresponding engagement surface on said second element, which forms a sleeve-like housing in which the spring is arranged, and is adapted to be adjustably mounted on the carrier, and that a shaft-like element which extends axially through the housing and displaceably through the piston element and the abutment element, respectively, at both ends of the housing and which is adapted to be connected to the equipment to be mounted, engages axially outwardly directed engagement surface on the piston element and the abutment element, whereby the relative axial movement between the shaft and the housing can take place in both directions by movement of either the abutment element or the piston element inwardly in the housing with concomitant compression of the spring between these elements.

4,362,286

QUARTER-TURN-LOCKING THERMAL CONNECTOR

Alain Gentric, 27 Lotissement de Keranroux, Ploubezre, 22300 Lannion, and Jean Le Rouzic, 23, rue de Bourgogne, 22300 Lannion, both of France

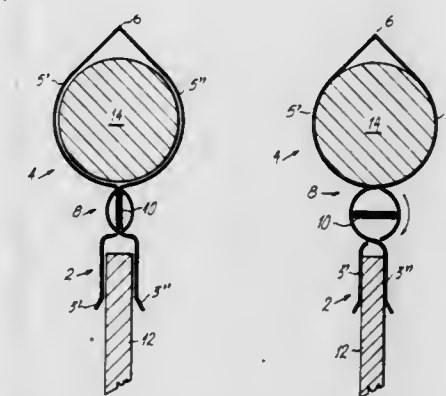
Filed May 12, 1980, Ser. No. 148,944

Claims priority, application France, May 15, 1979, 79 12310

Int. Cl.³ A47B 96/06; E04G 3/00

U.S. Cl. 248—229

5 Claims



1. A thermal connector adapted to connect a calorific dissipating support to a thermal drain, said connector comprising a deformable metal two-part clamp, each part of which is constituted by two webs conforming to the shape of the dissipating support, as regards one of said clamp-parts, and the shape of the thermal drain, as regards the other clamp-part, said connector being also provided, between said two clamp-parts, with a housing for an actuating-key with longitudinal edges, said key having a position of rest at which said longitudinal edges do not exert any force whatever on the walls of said central housing, the webs of the end clamp-parts being then moved apart and said connector being unlocked, and a working position, obtained by causing said key to rotate by a quarter turn with respect to said position of rest, said key having then the function of moving apart the walls of said central housing and to draw the webs of each of said end clamp-parts nearer to each other, said connector being thus locked.

4,362,288

SHOCK-ABSORBING CABLE ANCHOR FOR MOBILE EQUIPMENT

Herman Allen, Rte. 3, Box A-16, Orgas, W. Va. 25148

Filed Jun. 27, 1980, Ser. No. 163,578

Int. Cl.³ F16M 13/00

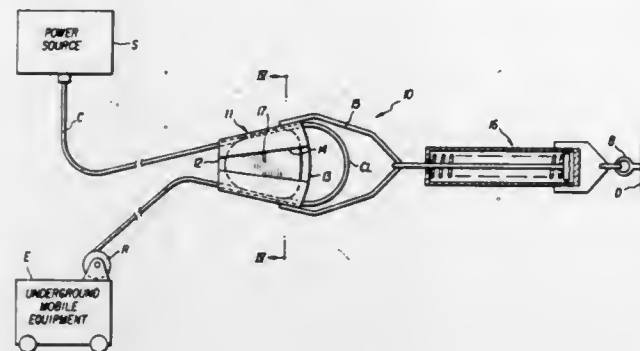
U.S. Cl. 248—613

1 Claim

1. A cable anchor or support for supporting an electrical cable connected with mobile equipment, comprising:

a sleeve having first and second open ends and a slot extending longitudinally completely across one side thereof, said sleeve being tapered from the first end to the second end and being larger in width at the second end than the first

end, said sleeve comprising a sheet metal member bent to define the open ended slotted structure;
a generally triangular shaped wedge formed of a solid, metallic body shaped complementally to the sleeve and being insertable lengthwise into the sleeve and entirely received therein through the second open end thereof into a position between opposite flights of a cable loop inserted into the sleeve through the slot thereof for wedging opposite flights of the cable against opposite inner edge por-



tions of the sleeve, whereby the cable is supported with a bight portion thereof projecting out of the second open end of the sleeve and the ends of the cable projecting out of the first open end of the sleeve, said wedge having a peripheral groove for contact with the cable;
spring means connected between the second end of the sleeve and a fixed anchor point; and
a stirrup fixed to the sleeve at the second end thereof, said spring means connected with the stirrup.

4,362,289

SUPPORT BASE FOR A MACHINE OR THE LIKE

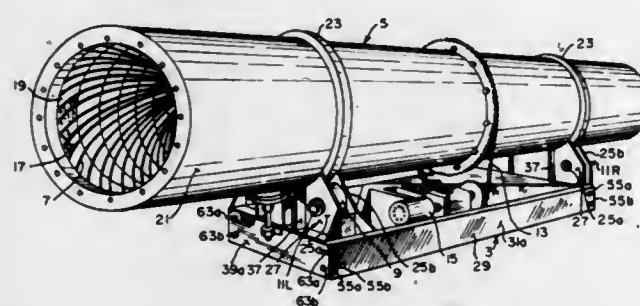
Albert J. Meade, St. Louis County, Mo., assignor to Ancel Products, Inc., St. Louis, Mo.

Filed Apr. 12, 1979, Ser. No. 29,273

Int. Cl.³ B22D 29/00

U.S. Cl. 248—656

4 Claims



1. A support for a machine or the like comprising a frame having first and second axes thereon and at least two supports at spaced intervals on said frame, each of said supports having at least one reference point thereon, said support base further having means for adjustably securing said supports to said frame with said reference point of each of said supports being in a desired position, said frame and said supports interfitted with one another, said securing means comprising a first set of one or more fasteners extending in a direction parallel to said first axis and interconnecting said frame and said support and a second set of one or more fasteners extending in the direction of said second axis and interconnecting said frame and said support, said first and second sets of fasteners each being independently adjustable so as to selectively move said support relative to said frame along said first and second axes and being securably operable so as to lock said support to said frame in its desired adjusted position with said reference points in their desired positions, said frame being a weldment having a longitudinal side member at each side thereof, said longitudinal side

members being parallel to said first axis of said frame, said supports being generally perpendicular to said side members and being generally parallel to said second axis, each of said longitudinal side members having a socket therein for receiving a portion of each of said supports, said socket at least partially receiving a portion of its respective support, said first set of fasteners extending through a portion of said socket adjacent the sides of the support in a direction generally parallel to said first axis and being engageable with the sides of the support, said second set of fasteners extending through said longitudinal side member in a direction generally parallel to said second axis and being engageable with said support.

4,362,290

MOLD FOR PLASTIC NEEDLEPOINT SHEET

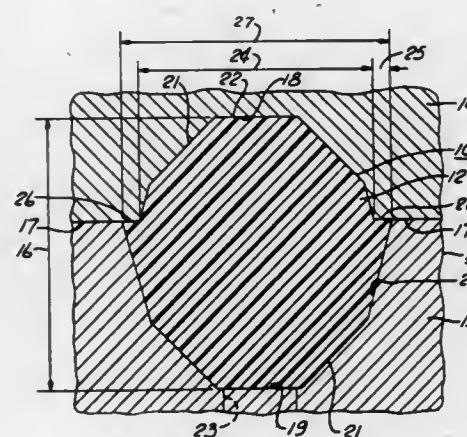
Michael K. Marx, Pittsburgh, and Louis P. Musante, Fairview, both of Pa., assignors to Westminster Marketing, Inc., Pittsburgh, Pa.

Filed Jul. 17, 1981, Ser. No. 203,908

Int. Cl.³ B27C 1/00; B29F 1/00

U.S. Cl. 249—60

9 Claims



1. In a mold having engageable top and bottom mold body halves with open uniform mold channels formed in each half in a lattice configuration wherein the channel lattices of the mold halves cooperatively mate with each other upon engagement of said mold halves to define a mold cavity therebetween for molding therein of a resultant needlepoint sheet of flexible plastic material having a plurality of aligned rows of perforations with said perforations defining plastic threads therebetween, the improvement comprising said open lattice channels in said mold body halves constructed whereby the lattice channels in one half define a greater total volume than that of the other half, such that the greater volume of plastic to be molded in said cavity is received in said one mold half.

4,362,291

METAL MOLD FOR MOLDING HOLLOW ARTICLE HAVING INWARDLY TAPERED SIDE WALL

Yasukiyo Fuke, and Ryoichi Watanabe, both of Numazu, Japan, assignors to Toshiba Kikai Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 24, 1981, Ser. No. 237,607

Claims priority, application Japan, Feb. 26, 1980, 55-23576

Int. Cl.³ B29C 1/06, 1/16

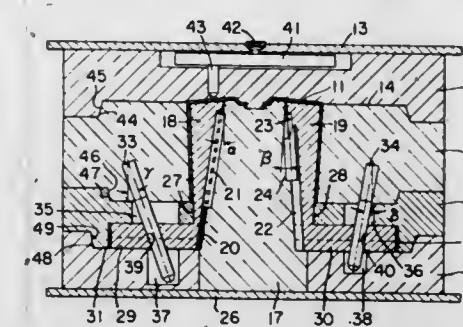
U.S. Cl. 249—144

1 Claim

1. A metal mold for molding a hollow product having a narrow opening, a wide bottom plate and a side wall between said narrow opening and said bottom plate, said metal mold comprising:

- a stationary mold plate secured to a stationary mounting plate of an injection molding machine and provided with a resin inlet runner for molding said bottom plate;
- a movable cavity plate which is brought into contact with said stationary mold plate when said metal mold is closed and separated therefrom when said metal mold is opened;
- means for moving said cavity plate in an axial direction of

said mold over a stroke sufficient to remove a molded product from said stationary mold plate;
first and second pins secured to said movable cavity plate and oppositely inclined with respect to an axis of said mold;
a core to be located inside of said molded product and secured to a movable die plate of said injection molding machine, said core having a plurality of axially extending polygonal surfaces surrounding the same;
first slide cores which when said mold is closed engage with said polygonal surface of said core to form a portion of a side wall of said molded product, whereas when said mold is opened, said first slide cores are guided by said first pin to move together with said core toward the center of said mold over a stroke sufficient to remove said molded product in the axial direction and also to move in the radial direction;
first dove tail means disposed between one end of said first slide cores and said movable die plate and extending in a direction perpendicular to the axis of said core;



first and second cotters respectively having inclined surfaces parallel to said inclined polygonal surfaces;
second slide cores disposed adjacent said polygonal surfaces of said core, said second slide cores molding another portion of said side wall of said molded product together with said first slide cores when said mold is closed, said second and first slide cores being alternately arranged about said core, said first cotters being secured to said second slide cores, the inclined surfaces of said second cotters being caused to engage the inclined surfaces of said first cotters by said second pin when said mold is closed so as to urge said second slide core against said polygonal surfaces of said core; and
second dove tail means disposed between one end of said second slide cores and said movable die plate and extending in a direction perpendicular to the axis of said core, said first and second dove tail means limiting axial movements of said first and second slide cores while guiding their radial movements.

4,362,292

OVERHEAD HOIST ASSEMBLIES

Donald J. Rowan, Box 91; Larry J. Rowan, Box 54, and Kenneth L. Rowan, Box 82, all of Elkhorn, Manitoba, Canada

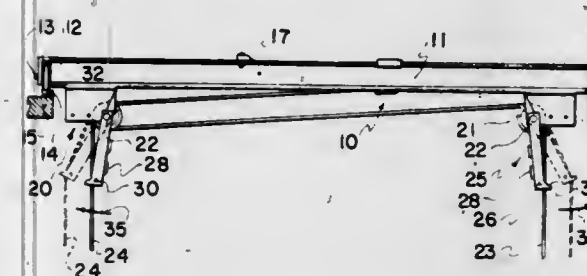
Filed Mar. 12, 1981, Ser. No. 242,913

Claims priority, application Canada, Mar. 14, 1980, 347666

Int. Cl.³ B66D 1/54; B66C 15/00

U.S. Cl. 254—336

8 Claims



1. In an overhead hoist assembly which includes a pair of spaced apart cables extending downwardly therefrom and

being operatively connected to said hoist assembly; the improvement comprising a cable guiding arm assembly for each cable, means pivotally to support said arm assembly from said hoist assembly, means on said arm assembly guiding said cable, and spring means normally urging said arm assemblies outwardly away from one another thereby displacing said cables from the vertical, tension on said cables above a predetermined amount, overcoming said spring means and allowing said cables to straighten and run vertically.

4,362,293

CUPOLA

Anatoly A. Cherny, ulitsa Slavy, 7, kv. 40, Penza, U.S.S.R.

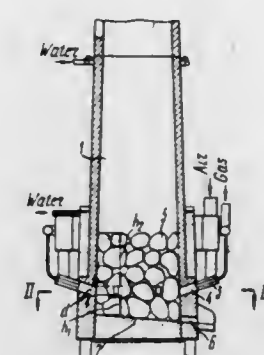
Filed Feb. 18, 1981, Ser. No. 235,393

Claims priority, application U.S.S.R., Aug. 23, 1979, 2810462

Int. Cl.³ F27D 1/08

U.S. Cl. 266—219

2 Claims



1. A cupola comprising:

- a shaft;
 - a plurality of burners, each burner having an outlet, said outlets being situated around the periphery of the bottom part of said shaft;
 - a plurality of nozzle ducts, each of which ducts is connected to the outlet of a respective burner, each duct having an outlet situated about a plane of a cross-section of said shaft;
 - a hearth positioned at the bottom of said shaft; and
 - a refractory bed located above said hearth;
- wherein the total outlet cross-sectional area of the nozzle ducts (Σf) is equal to from 0.02 to 0.18 of the cross-sectional area of said shaft (F) in said plane of location of the nozzle ducts, and the outlet cross-sectional area (f) of each nozzle duct is chosen such that the distances (h_1 , h_2) from the nozzle duct lower edge to the cupola hearth and from the nozzle duct upper edge to the top level of the refractory bed are respectively $(0.8 \text{ to } 7.0)d$ and $(2 \text{ to } 16)d$ where " d " is the diameter of a circle whose area is equal to said outlet cross-sectional area (F) of the nozzle duct.

4,362,294

SPRING SEAT FOR A COIL SPRING

Hermann Schobbe, Fellbach; Wolfhard König, Stuttgart, and Werner Möhrmann, Fellbach, all of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Sep. 22, 1980, Ser. No. 189,705

Claims priority, application Fed. Rep. of Germany, Sep. 20, 1979, 2938101

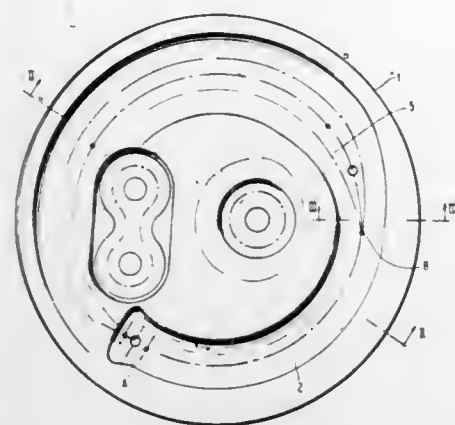
Int. Cl.³ F16F 1/12

U.S. Cl. 267—170

5 Claims

1. A spring seat for accommodating a freely terminating end portion of a spring wire of a coil spring of an axle suspension arrangement of a motor vehicle, the spring seat including a supporting groove, characterized in that the supporting groove only extends over a circumferential range of about 75° – 120° , and in that the supporting groove has an approximately V-shaped cross section with side flanks of the support-

ing groove being disposed such that the terminating end portion of the spring wire only contacts the side flanks of the



V-shaped supporting groove whereby the terminating end portion of the spring wire is prevented from participating in a rolling motion when the coil spring is under a load.

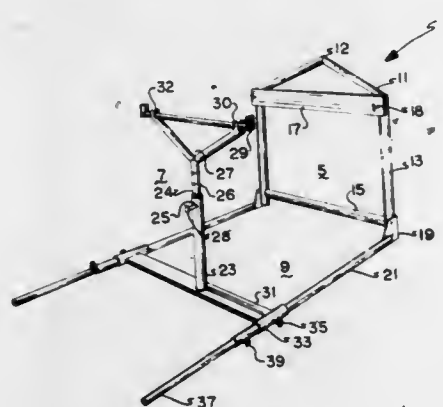
4,362,295

LOG HOLDING DEVICE

Henry E. Ford, 381 Highland Rd., Macedonia, Ohio 44056
Filed May 4, 1981, Ser. No. 260,082
Int. Cl.³ B23Q 1/04

U.S. Cl. 269—69

4 Claims



1. A log securing device, comprising:
a base of adjustable length, said base comprising a pair of longitudinally extending parallel members;
a stand, adjustably movable upon and extending normal to said base, said stand comprising a V-shaped yoke at a top end thereof and telescoping sections for selective vertical extension; and
a bow received at an end of said base in alignment with said stand, said bow comprising an inverted V-shaped brace at a top end thereof.

4,362,296

X-RAY FILM DISPENSING APPARATUS

Gunter Schmidt, Malibu, Calif., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Division of Ser. No. 925,554, Jul. 17, 1978, Pat. No. 4,260,896, which is a continuation-in-part of Ser. No. 805,815, Jun. 13, 1977, abandoned. This application Oct. 24, 1980, Ser. No. 200,197

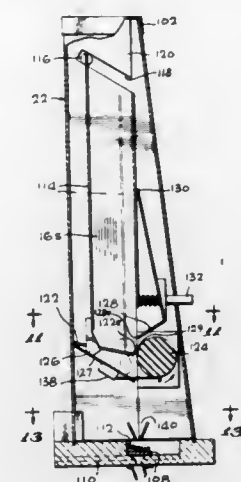
Int. Cl.³ B65H 3/52

U.S. Cl. 271—121

4 Claims

1. Apparatus for receiving a stack of film sheets and dispensing one film sheet at a time, comprising:
a housing having a region for holding a stack of film sheets wherein each film sheet extends in a largely vertical plane;
a roller at the lower end of said housing;
means spaced slightly from said roller to normally allow

only one film sheet at a time to pass by said roller, said means including a support plate; and
a backing device disposed in said housing with a lower end thereof on a side of said region opposite said roller, said backing device being urged to move so its lower end



moves toward the roller to push a film sheet against said roller, said backing device including a low friction block at the bottom thereof having fingers thereon, the fingers having a low friction forward portion which moves close to said roller to press a last film of a stack against said roller.

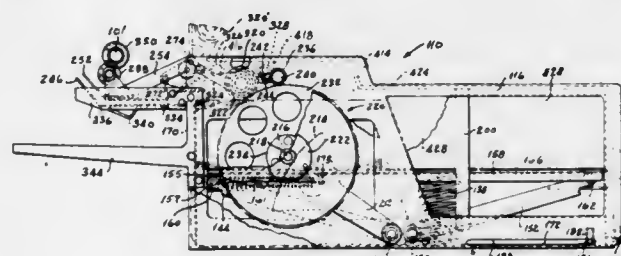
4,362,297

LARGE CAPACITY COMBINATION MAGAZINE AND SHEET FEEDER FOR COPYING MACHINES

Benzion Landa, Edmonton, Canada, assignor to Savin Corporation, Valhalla, N.Y.
Continuation of Ser. No. 898,139, Apr. 20, 1978, abandoned.
This application Jun. 3, 1981, Ser. No. 269,774
Int. Cl.³ B65H 1/18

U.S. Cl. 271—152

14 Claims



1. In a magazine having a delivery opening through which sheets of a stack of sheets are successively removed and means for advancing said stack toward said delivery opening, the improvement comprising an inertial damper and means including a one-way clutch for coupling said inertial damper to said advancing means to damp said advancing means to limit the rate of movement of said stack.

4,362,298

ANGULAR-LINEAR SHEET TRANSPORTS

Rafn Stefansson, San Marino, and Raymond M. McManaman, Glendora, both of Calif., assignors to Bell & Howell Company, Chicago, Ill.

Filed Jan. 26, 1981, Ser. No. 228,487

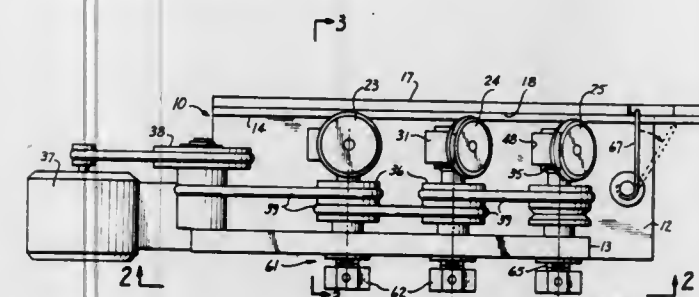
Int. Cl.³ B65H 9/04, 9/16

U.S. Cl. 271—236

13 Claims

1. A method of transporting a sheet first toward and then along a registration edge, comprising in combination the steps of:
providing a support of said sheet having a sheet support surface adjacent said registration edge;

providing a first drive wheel at right angles to said sheet support surface and rotatable about an angularly movable first axis extending parallel to said sheet support surface; providing a second drive wheel rotatable about a second axis intersecting said first axis at an angle; providing said first wheel laterally with a circular driven part extending about said first axis in a tangential plane of said second wheel; positioning said first wheel at an angle to said registration edge and rotating said first wheel with said second wheel through said driven part about said first axis and bringing said sheet into peripheral engagement with said first drive wheel to transport said sheet on said sheet support surface to said registration edge;



laterally moving said circular driven part with said first wheel relative to said second wheel equidistantly about said second axis to swing said first wheel toward parallel relationship with said registration edge; further rotating said swung first wheel with said second wheel through said driven part about said first axis to transport said sheet along said registration edge; temporarily retaining said sheet at said first drive wheel against transportation by said rotating first drive wheel and in alignment with said registration edge; and subsequently releasing said retained sheet for further advancement along the registration edge by said rotating first drive wheel.

4,362,299

AMUSEMENT DEVICE WITH FLUID MOVABLE ARTICULATED MEMBER

Nobuhiro Suzuki, Tokyo, Japan, assignor to Tomy Kogyo Co., Inc., Tokyo, Japan

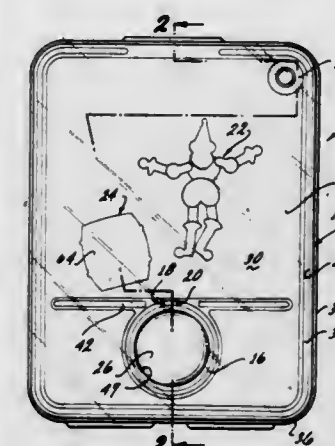
Filed Mar. 2, 1981, Ser. No. 239,421

Claims priority, application Japan, Mar. 31, 1980, 55-42657[U]; Nov. 6, 1980, 55-158740[U]

Int. Cl.³ A63F 7/00, 9/06

U.S. Cl. 273—1 L

6 Claims



1. An amusement device which comprises:
a housing having;
a fluid member divided into a first section and a second section;
said fluid chamber capable of holding a body of fluid;

at least one fluid passageway connecting said first and said second sections of said chamber;
said second section including means capable of moving a portion of a body of fluid through said fluid passageway alternately between said first and said second sections of said chamber;
said first section including a generally flat face plate, a generally flat rear plate and a wall means, said wall means attaching to both said face plate and said rear plate maintaining said face plate and said rear plate spaced a distance apart from each other in a parallel planar relationship with one another;
at least one generally planar member having a front side and a rear side, said member including a plurality of parts articulately joined together such that any one of said parts is movable with respect to at least one other of said parts, said member movably located in said first section with its front side located towards said face plate and freely movable throughout said first section in response to fluid movement through said passageway from said second section to said first section, said member sized with respect to the distance between said face plate and said rear plate so as to be incapable of rotating within said first section to locate its rear side towards said face plate.

4,362,300

CAP FOR PINBALL GAME REBOUND DEVICE

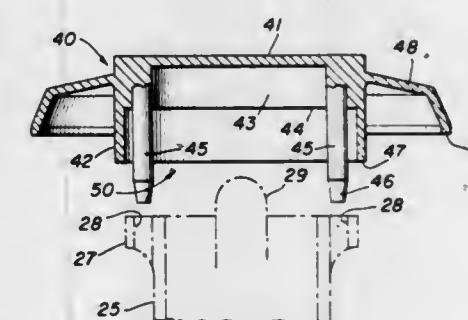
Max Wiczor, Skokie, Ill., assignor to Wico Corporation, Niles, Ill.

Filed Nov. 17, 1980, Ser. No. 207,681

Int. Cl.³ A63F 7/10

U.S. Cl. 273—119 A

7 Claims



1. In an automatic rebound device mounted on the playfield board of a pinball game and having a pedestal portion projecting above the playfield board and carrying an electric lamp therein, the improvement comprising an opening formed in the top of the pedestal portion, a cap having a cylindrical side wall shaped and dimensioned to permit overlapping with the pedestal portion and a top wall closing the upper end of said side wall, said cap including a flange extending laterally outwardly and downwardly from said side wall around the perimeter thereof and terminating well above the lower end of said side wall, an elongated mounting pin connected to said top wall of said cap and extending therefrom in the same direction as and well beyond the lower end of said side wall, said pin being adapted for press-fitting into said opening to a selected depth for mounting said cap in an assembled position covering the pedestal portion and the electric lamp therein, said cylindrical side wall of said cap being dimensioned for cooperation with the pedestal portion for substantially concealing the electric lamp and to provide a chamber for the electric lamp of sufficient volume to prevent overheating of the cap.

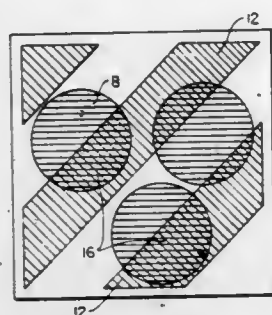
4,362,301

MULTIPLE IMAGE VISUAL PUZZLE AND METHOD
Edward W. Duveyoung, 2052 Wilkins Ave., Apt. #19, Napa, Calif. 94558

Filed Dec. 17, 1980, Ser. No. 217,360
Int. Cl.³ A63F 9/06

U.S. Cl. 273—157 A

12 Claims



1. A visual puzzle comprising:
a plurality of partial image sheets, said sheets of a transparent material and having partial image portions of a first color and background portions of a second color formed thereon, said partial image portions and background portions formed on both sides of at least one of said partial image sheets, said image and background areas forming a first image or a second image when properly arranged in corresponding overlying relationships, said image portions and background portions formed on said partial image sheets by selectively masking portions of said first image with either said second image or other partial image sheets or both so that said image portions and said background portions are codified onto said partial image sheets.

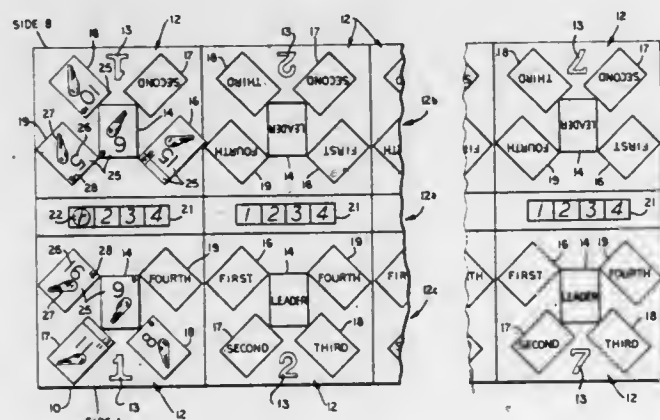
4,362,302

BOARD GAME UTILIZING PLAYING CARDS
Anthony R. Gardner, 436 N. Highland Ave. NE., Atlanta, Ga. 30307

Filed Aug. 14, 1980, Ser. No. 178,138
Int. Cl.³ A63F 3/00

U.S. Cl. 273—236

2 Claims



1. A board game comprising:
a game board including indicia thereon defining a plurality of columns adjacent to one another, each of said columns including a pair of player posts positioned at opposite ends of said column; each of said player posts defining a leader location and a plurality of supporting locations arrayed adjacent to said leader location and marked (1) in sequential association with said leader location and (2) in correspondence with one of the supporting locations of the opposite player post; said indicia further defining a sequence of play set of indicia defining areas marked to correspond to corresponding opposite pairs of said supporting locations;
a plurality of cards each bearing indicia corresponding to a support location to which said card must be assigned

when dealt to one of said player posts and a value symbol for comparing said cards to one another; and
a sequence of play marker movable within said sequence of play set of indicia to indicate which supporting location is to be associated with said leader locations of said player posts.

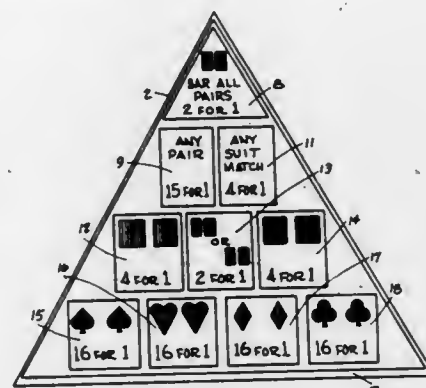
4,362,303

TABLE GAME EMPLOYING TWO SETS OF CARDS
Philip T. Pell, P.O. Box 125, Pilot Mountain, N.C. 27041

Filed Sep. 15, 1980, Ser. No. 187,571
Int. Cl.³ A63F 3/00

U.S. Cl. 273—274

4 Claims



1. A game adapted to be run by an operator and which may involve one or more players, and comprising
two separate sets of conventional playing cards, with each playing card having one of thirteen rankings, one of four suits, and one of two colors, and
a table having a plurality of defined player areas, with each player area having a plurality of distinct regions, with the regions each including a visual representation of a possible relationship between the rankings, or suits, or colors, or a combination thereof, of a dealt playing card from each set, and with the possible relationship represented at each region being different from that represented at the other regions.

4,362,304

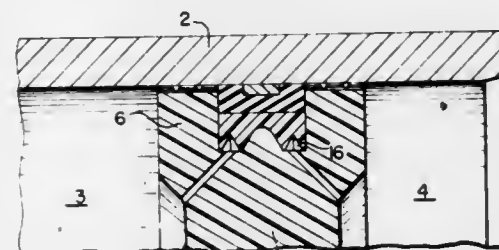
PACKING ARRANGEMENT FOR A FLOATING PISTON
Walter Hüniger, Otto-Nagler-Str. 13, D-8700 Würzburg, Fed. Rep. of Germany

Filed Nov. 28, 1980, Ser. No. 211,279
Claims priority, application Fed. Rep. of Germany, Nov. 28, 1979, 2947895

Int. Cl.³ F16J 15/48

U.S. Cl. 277—27

5 Claims



1. A packing arrangement for a floating piston dividing a cylinder into first and second chambers comprising:
a circumferential groove formed in the sliding surface of said floating piston;
a circumferential elevation dividing the bottom of said groove into first and second spaces situated on either side of said elevation;

4,362,306

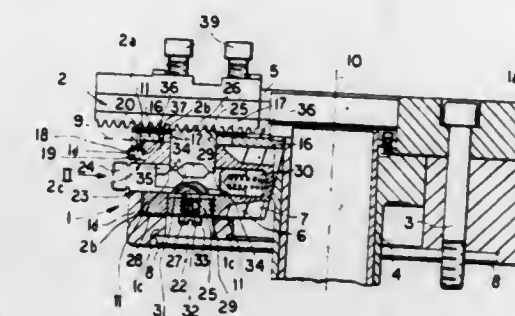
SPLIT-JAW LATHE CHUCK
Günter H. Röhm, Heinrich-Röhm-Strasse 50, 7927 Sontheim, Fed. Rep. of Germany

Filed Jun. 16, 1980, Ser. No. 159,654
Claims priority, application Fed. Rep. of Germany, Jul. 26, 1979, 2930721

Int. Cl.³ B23B 31/16

U.S. Cl. 279—121

10 Claims



1. A chuck comprising:
a chuck body rotatable about a chuck axis and subdivided along a plane substantially perpendicular to said chuck axis into a front chuck part and a rear chuck part connected integrally together, said chuck body being formed in said rear chuck part with a plurality of angularly spaced and radially extending rear T-section guide grooves opening axially forwardly at said plane and each having a pair of radially extending sides each in turn formed with a step extending parallel to and backwardly offset from said plane, said front chuck part being formed in axial alignment with said rear guide grooves with respective angularly spaced and radially extending front guide grooves opening axially forwardly, said front chuck part having a backwardly facing planar face lying on said plane and forwardly closing said rear guide grooves and respective webs forming the bases of and backwardly closing said front guide grooves, said webs forming respective parts of said backwardly facing face and each being formed with a radially throughgoing aperture substantially smaller than the respective front guide groove;
respective rear jaw parts radially displaceable in said rear grooves and each having a pair of oppositely projecting ridges each in turn having a rear face riding on the respective step and a front face riding on said back face of said front chuck part;
means including at least one operating element engageable with said rear jaw parts for radially displacing same jointly in said chuck body in the respective rear guide grooves;
respective front jaw parts projecting forwardly and axially from said chuck body and radially displaceable therein in said front guide grooves and
means including respective coupling members engageable through said apertures between said rear jaw parts and the respective front jaw parts and each displaceable between a coupling position engaging both of the respective jaw parts for coupling same together for joint radial displacement and a decoupling position for relative radial displacement of the respective jaw parts.

4,362,307

SHOULDER-CARRIABLE CART
Koma Nakatani, Tokyo, Japan, assignor to Nihon Velbon Seiki Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 11, 1980, Ser. No. 186,184
Claims priority, application Japan, Nov. 9, 1979, 54-156390

Int. Cl.³ B62B 1/04; A47D 13/02

U.S. Cl. 280—30

10 Claims

1. A shoulder-carriable cart comprising: a frame including a pair of pipes; a pair of wheel supports fitted over the lower

backing material placed in said groove;
a sealing ring radially situated upon said backing material; first and second extensions on said backing material projecting into said first and second spaces, respectively;
each extension having first and second lips forming an annular space between the bottom of said groove and the internal surface of said backing material;
said first lip of each extension abutting a lateral wall of said groove and said second lip of each extension abutting a lateral surface of said elevation;
a first pressure channel connecting the first chamber with said annular space formed by said first extension; and
a second pressure channel connecting the second chamber with said annular space formed by said second extension.

4,362,305

PUMP SEALING DEVICE

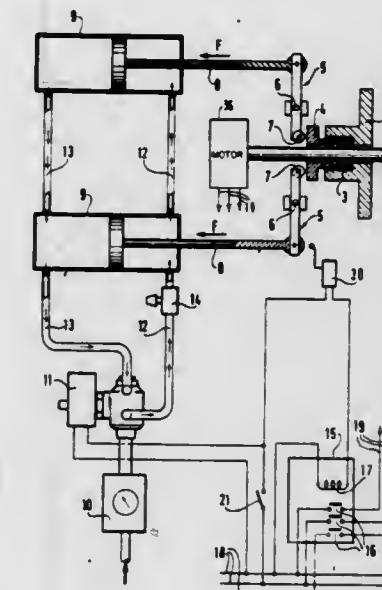
Andre Salaün, Colombes, France, assignor to Societe Anonyme dite: Compagnie Generale d'Automatisme, Paris, France

Filed Mar. 19, 1980, Ser. No. 131,886
Claims priority, application France, Mar. 26, 1979, 79 07521

Int. Cl.³ F16J 15/18

U.S. Cl. 277—113

7 Claims



1. A pump shaft sealing device for a pump having a body, a drive shaft extending from the body, and a motor operatively connected to the drive shaft, the device including a stuffing box surrounding the drive shaft where it passes through the pump body, packing disposed in the stuffing box, a packing gland for compressing the packing against the shaft, and means for adjustably pressing the gland against the packing, wherein the improvement comprises:

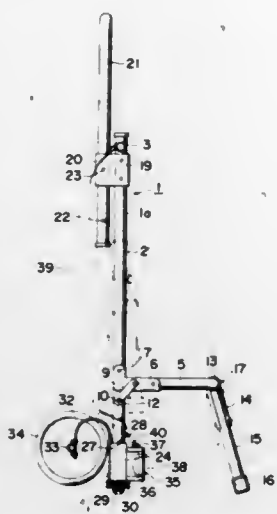
said means for adjustably pressing the gland against the packing includes

at least two levers disposed radially with respect to the axis of the drive shaft in equiangularly spaced relation to each other, each lever having an inner end and an outer end and being pivotally mounted for rotation about an axis located intermediate the inner and outer ends and tangent to a circle concentric with the drive shaft;

drive means coupled to the outer end of each lever for rotating the lever about its pivot axis so as to selectively move the inner end of the lever toward and away from the packing gland; and

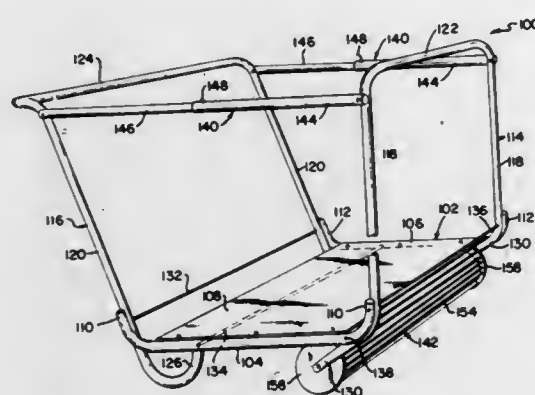
means for automatically actuating each drive means to cause the inner end of the respective lever to exert a predetermined axial force on the packing gland as soon as the pump motor stops and to release said force before the pump motor starts.

portions of the frame in such a manner that they can be rotated or held immovable; wheels, each mounted on and projecting from one side of a wheel support, pins projecting from the frame; grooves formed in the wheel supports to receive the



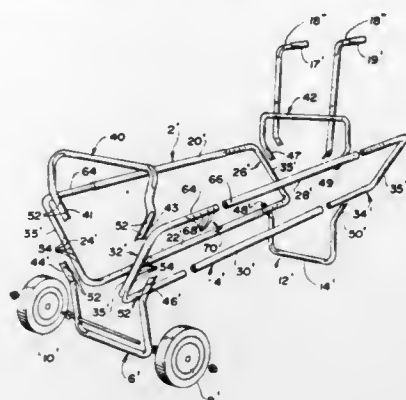
pins to selectively hold the wheels immovable on the front side of the frame, the back side of the frame, and between the pipes of the frame, and a buckle through which a waist belt is inserted attached to each wheel support on the side thereof opposite the side on which an associated wheel is mounted.

4,362,308
COMBINATION PORTABLE CHAIR AND CONTAINER
James S. Hicks, P.O. Box 703, Sussex, N.J. 07461, and Pasquale Massaro, 65 Hunter Rd., Lincoln Park, N.J. 07035
Filed Jan. 8, 1981, Ser. No. 223,405
Int. Cl.³ B62B 1/12
U.S. Cl. 280—30
18 Claims



1. A collapsible, multi-purpose assembly comprising a base, a pair of sidewall members each having first and second ends, said first ends of said sidewall members being pivotally connected to opposite sides of said base, a pair of securing means for securing said sidewall members in a first position and for permitting said sidewall members to be arranged into a second and third position, said securing means being connected to the second ends of said sidewall members between common sides thereof, said assembly forming a container when arranged in said first position, a chair when arranged in said second position and a collapsed assembly when arranged in said third position, and rotating means located adjacent one side of said base for moving said assembly over a desired surface, said rotating means comprising a plurality of longitudinally extending ribs arranged radially about the longitudinal axis of said rotating means.

4,362,309
TRASH CAN HAULER
James F. Stamper, Nashville, Ind., assignor to Seymour Division of Lear Siegler, Inc., Seymour, Ind.
Filed Jan. 7, 1981, Ser. No. 223,178
Int. Cl.³ B62B 3/02
U.S. Cl. 280—47.19
6 Claims

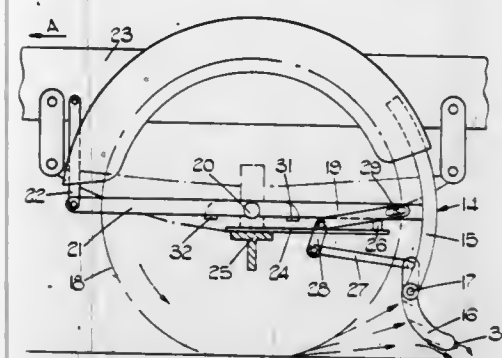


1. A trash can hauler comprising:
a pair of trash can supports, each comprising (a) an upper beam having a forward end and a rearward end and adapted to laterally support trash cans, (b) a lower beam having a forward end and a rearward end and spaced from and extending parallel to the upper beam and adapted to support trash cans thereon, (c) a bent front beam having adjustable telescopic connections to the forward ends of said upper and lower beams, and (d) a bent rear beam having adjustable telescopic connections to the rearward ends of said upper and lower beams; the upper and lower beams of each of said trash can supports being in planes which are at an angle to each other, the lower beam of said supports being positioned in a horizontal plane and being spaced from and parallel to each other, and the upper beams of said supports being spaced from and parallel to each other, the spacing between the upper beams being greater than the spacing between the lower beams, said front and rear beams adapted to laterally support trash cans received on the lower beams at the front and the rear of the hauler;
a front member being connected to both of said front beams at selected ones of a first plurality of attachment locations and having a lower beam member extending below the horizontal plane with at least one ground-engageable, rotatable wheel connected thereto wherein said wheels are disposed in front of and below said front member to prevent interference with a trash can supported on said lower beams adjacent the front member; and
a rear member having (a) a lower ground-engageable portion and (b) a pair of spaced, upper portions, each of said spaced upper portions being connected to the corresponding rear beam of said trash can supports at selected ones of a second plurality of attachment locations.

4,362,310
SPRAY-INHIBITING MEANS FOR USE ON A ROAD VEHICLE
Maurice Goodall, Burton-upon-Trent, England, assignor to Maurice Goodall (Holdings) Limited, Staffordshire, England
Filed Dec. 20, 1979, Ser. No. 105,514
Claims priority, application United Kingdom, Dec. 27, 1978, 50004/78; Aug. 4, 1979, 7927268; Aug. 11, 1979, 7928041
Int. Cl.³ B62B 9/16
U.S. Cl. 280—157
9 Claims

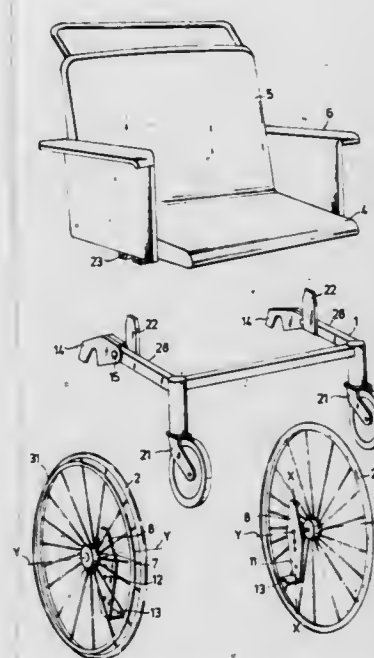
1. Spray-inhibiting means for a road vehicle having a vertically movable load carrying part supported by suspension means including wheel means, said spray-inhibiting means comprising a screen which is adapted in use to intercept water thrown rearwardly from a vehicle tyre, support means for mounting said screen on the vehicle in a manner so that said

screen and said load carrying part can move vertically relative to each other, said support means including linkage means connecting said screen with both said suspension means and said load carrying part said screen being connected pivotally through said linkage means to said suspension means and to



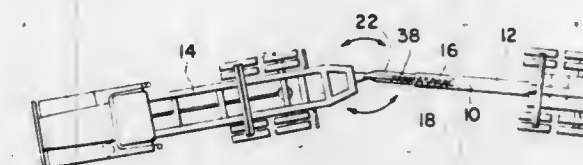
said load carrying part, said linkage means being responsive to vertical movement of said load carrying part to correspondingly vertically move said screen so as to maintain said screen at a relatively fixed distance from the road surface during said vertical movement of said load carrying part.

4,362,311
DISMOUNTABLE WHEEL-CHAIR
Per G. Bergman, Hyggevägen 21, Spanga, Sweden (S-163 54)
Filed Nov. 15, 1979, Ser. No. 94,746
Claims priority, application Sweden, Nov. 16, 1978, 7811853
Int. Cl.³ A61G 5/02
U.S. Cl. 280—242 WC
18 Claims



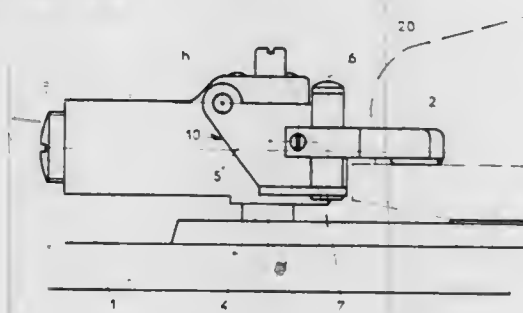
1. A dismountable wheel-chair comprising a base structure, rotatably mounted drive wheels and caster wheels, and a seat member with a back rest, means for detachably connecting said drive wheels, caster wheels and seat member to said base member, and means for detachably connecting said arm rests to said seat member, said means for detachably connecting said drive wheels, seat member and arm rests comprising separate self-locking wedge joints having substantially vertical wedge axes.

4,362,312
REACH COMPENSATOR FOR LOGGING TRUCK AND TRAILER
Frank DeIaco, and Allan J. McInnes, both of 2355 Marlborough Dr., Nanaimo, B.C., Canada (V9S 3J3)
Filed May 8, 1978, Ser. No. 903,835
Int. Cl.³ B62D 53/00
U.S. Cl. 280—404
3 Claims



1. In a trailer adapted to be towed by a towing vehicle where said trailer and said towing vehicle are each fitted with means to secure to a common semi-rigid load member that may be fastened to both the trailer and the towing vehicle, a reachpole including a tubular member having a forward end, an elongated cylindrical inner sleeve telescopically received within and movable longitudinally of said tubular end; spring means urging said sleeve into said reachpole; said inner sleeve having a front end extending out of said tubular member and having means on said front end for releasably attaching same to said towing vehicle, in which the said inner sleeve is normally free to rotate with respect to the tubular member, further including a longitudinal bar guide removably secured to the outer surface of said inner sleeve, by fastener means, to prevent rotation thereof in said tubular member, when the trailer and towing vehicle are being loaded.

4,362,313
TOE ABUTMENT MEMBER FOR A SKI BINDING
Louis Andrieu, Guerigny; Jean Bernard; Jean Beyl, both of Nevers; Daniel LeFaou, Varennes Vauzelles; Henri Peyre, and Jacky Veniat, both of Nevers, all of France, assignors to Sté Look, Nevre, France
Filed Oct. 27, 1980, Ser. No. 200,978
Claims priority, application France, Nov. 13, 1979, 79 27894
Int. Cl.³ A63C 9/22
U.S. Cl. 280—628
6 Claims



1. A toe abutment member for a ski binding, comprising:
a jaw unit constituted by two lateral arms adapted to cooperate with the front portion of the ski boot in order to maintain said boot in the axis of the ski, said jaw unit being carried by a body and said body being pivotally mounted on a pivot which is intended to be attached vertically to said ski;
a resilient device housed within the body for locking the arms in the boot-retaining position with a predetermined stiffness of release, wherein said toe abutment member comprises a feeler member adapted to be in contact with the front portion of the ski boot and to cooperate with the resilient device so as to reduce the stiffness of release of said device at the time of a forward-fall position of the skier and/or of an axial thrust exerted by the ski boot, and wherein the jaw unit is mounted on the body for pivotal displacement about a transverse horizontal axis and the

feeler member is also mounted so as to be capable of rotation about a transverse horizontal axis and consequently of producing action on the resilient device by reducing its stiffness of release in the further event of a backward-fall position of the skier.

4,362,314

SAFETY-STRAPLIKE CONNECTING MEMBER

Josef Svoboda, Schwechat, Austria, assignor to TMC Corporation, Baar, Switzerland

Division of Ser. No. 31,493, Apr. 19, 1979, Pat. No. 4,312,519.

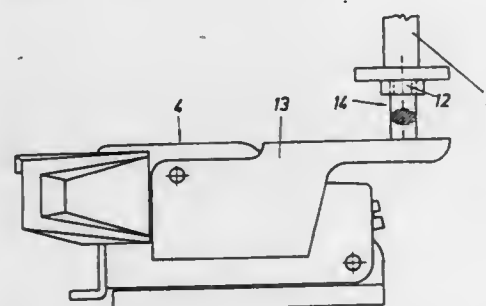
This application Mar. 12, 1981, Ser. No. 243,029

Claims priority, application Austria, Apr. 21, 1978, 2897/78

Int. Cl.³ A63C 9/00

U.S. Cl. 280—637

2 Claims



1. A retaining device adapted for use with a ski having a ski binding mounted thereon releasably securing a ski shoe to the ski, said device comprising:

a resilient T-shaped element having a stem of substantially elliptic cross section and a head which extends substantially parallel to the major axis of said elliptical cross section of said stem, the end of said stem remote from said head being fixedly mounted to a surface of said ski binding;

a safety strap, one end of said safety strap being releasably securable to the leg of a skier; and

a platelike holding part securely attached to the end of said safety strap remote from said one end and having two intersecting slots therein, one said slot being longer than the other said slot and having a shape substantially the same as the shape of said head and a size slightly greater than the size of said head, and the other said slot, being slightly shorter in length than the major axis of said elliptical cross section of said stem;

whereby said head can be passed easily through said one slot when aligned therewith to position said stem of said T-shaped element in said intersecting slots, said holding part can be rotated relative to said stem to effect a gripping of said stem by said other slot, and the magnitude of force which must then be applied to said safety strap to effect a deformation of said resilient T-shaped element sufficient to separate said holding part therefrom is controlled by the size of said head and said stem relative to the size of said other slot and by the degree of elasticity of said T-shaped element.

4,362,315

BABY CARRIAGE

Kenzou Kassai, Osaka, Japan, assignor to Kassai Kabushikikaisha, Osaka, Japan

Filed Jan. 27, 1981, Ser. No. 229,020

Claims priority, application Japan, Jan. 30, 1980, 55-10424

Int. Cl.³ B62B 7/06

U.S. Cl. 280—650

9 Claims

1. A baby carriage comprising:

a pair of support leg pusher rod connecting rods (1) disposed to extend longitudinally,

a pair of front legs (3) each pivotally connected (2) to the relatively forward portion of the associated support leg pusher rod connecting rod (1),

a pair of rear legs (4) each pivotally connected (19) to the

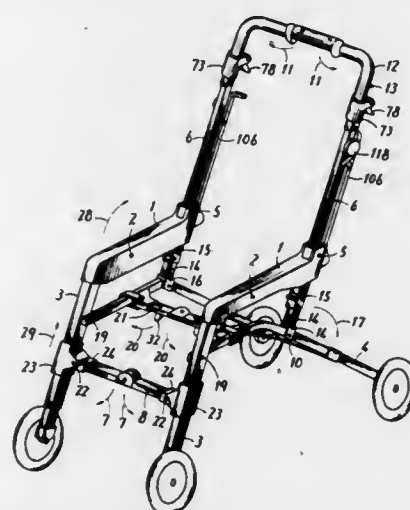
intermediate portion of the associated front leg (3) and rearwardly downwardly extending therefrom,

a pair of pusher rod support angle bars (14) each pivotally connected at one end thereof (as at 16) to the intermediate portion of the associated rear leg (3) and adapted to be vertically turnable,

a pair of pusher rod bodies (6) each pivotally connected at the lower end thereof (15) to the other end of the associated pusher rod support angle bar (14) and pivotally connected to the rear end of the associated support leg pusher rod connecting rod (1) at a pivot point (5) spaced a predetermined distance from the lower end of said pusher rod body,

a pair of connecting rod turning members (23) each axially slidably fitted on the middle portion of the associated front leg (3),

a pair of arms (26) each extending from said front legs (3), a front leg connecting rod (8) downwardly foldable at the middle thereof, pivotally connected at the opposite ends thereof (22) to said connecting rod turning members (23) and pivotally connected at positions spaced a predetermined distance from each end thereof to said arms (26),



bar links (25) connected between said connecting rod turning members (23) and the front ends of said support leg pusher rod connecting rods (1), and a pusher rod connecting member (12) foldable at the middle thereof and pivotally supported at the opposite ends thereof by said pusher rod bodies (6),

the arrangement being such that when said pusher rod support angle bars (14) are upwardly turned each around a pivot point (16) on one end thereof, the opened state of the baby carriage is established and that when said pusher rod connecting member (12) is folded and said pusher rod support angle bars (14) are turned in the opposite direction around said pivot points (16), said front legs (3), rear legs (4), support leg pusher rod connecting rods (1) and pusher rod bodies (6) are respectively turned toward each other while in response to the turning of said support leg connecting rods (1) said bar links (25) cause said connecting rod turning members (23) to slide upward while folding said front leg connecting rod (8), thereby establishing the folded state of the baby carriage in which the longitudinal, transverse and vertical dimensions thereof have been reduced.

4,362,316

FOLDING TRAILER

John O. Wright, 35 Heybridge St., Auckland, New Zealand

Filed Aug. 27, 1980, Ser. No. 181,748

Claims priority, application New Zealand, Aug. 29, 1979, 191427

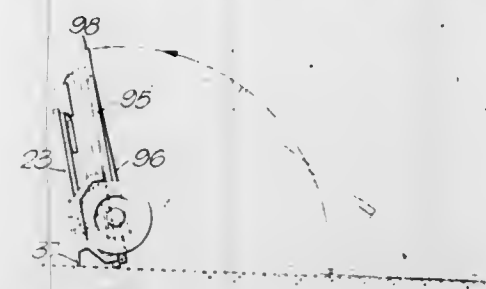
Int. Cl.³ B60P 9/00

U.S. Cl. 280—656

14 Claims

1. A trailer comprising: a load bearing section comprised of

a front part and a rear part; a pair of wheels disposed in coaxially spaced relationship to each other and operatively connected to said load bearing section to support said load bearing section in a substantially horizontal towing configuration; and a draw bar projecting beyond the front of said load bearing section substantially perpendicular to the axis of said wheels to enable engagement of said trailer with a towing vehicle, said load bearing section being foldable between a first position in which said two parts lie in a substantially common plane and a



second position in which said two parts are juxtaposed in substantially parallel planes, said axis being so located to permit said load bearing section when in said second position to be supported by said wheels in a substantially horizontal configuration and to be moved to a substantially vertical configuration in which vertical configuration said load bearing section is substantially supported by an end of said front or rear part, said draw bar being pivotally associated with said load bearing section rearward of said axis when said load bearing section is in the substantially horizontal configuration.

4,362,317

EXTENSIBLE FRAME STRUCTURE FOR TRAILER TYPE LAND VEHICLE

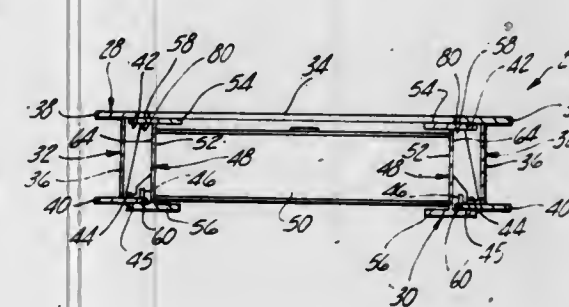
Arthur C. Brockman, 14200 Jay Rd, Detroit, Mich. 48228, assignor to Arthur C. Brockman, Detroit, Mich.

Filed Dec. 15, 1980, Ser. No. 216,078

Int. Cl.³ B62D 53/06

U.S. Cl. 280—656

14 Claims



1. In a trailer type land vehicle, longitudinally extensible frame structure which comprises,

a first frame section having beams secured in longitudinally extending laterally spaced relation,

each beam having a vertical web and a lower flange portion which extends laterally inboard of said web, said flange portion having an exposed upper surface,

a second frame section having beams secured in longitudinally extending laterally spaced relation, each of the latter said beams having a vertical web and a lower flange portion which extends laterally outward thereof,

the webs of said second frame section being disposed between said flange portions of said first frame section, said flange portions of said second frame section projecting laterally beneath said flange portions of said first frame section,

shoe means projecting laterally outboard of each web in said second frame section and having a lower surface,

said lower surfaces being slideably engaged in load transmitting relation respectively on said upper surfaces, said beams of said second frame section having a height not substantially less than that of the beams of said first frame section, and means forming a longitudinally extending rail projecting upward from each flange portion of said first section inboard of said upper surface, said rails being effective to contain said shoe means against lateral disengagement from said upper surfaces.

4,362,318

SUSPENSION SYSTEM INCLUDING AUXILIARY SPRING FOR LIGHTLY LOADED CONDITIONS

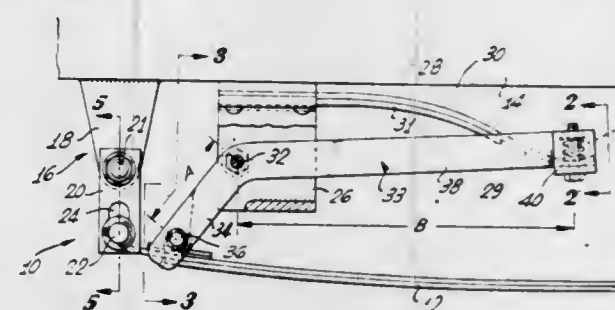
Albert J. Lampert, Los Angeles, Calif., assignor to Cambria Spring Company, Los Angeles, Calif.

Continuation-in-part of Ser. No. 891,847, Mar. 30, 1978, Pat. No. 4,226,441, which is a continuation-in-part of Ser. No. 783,661, Apr. 1, 1977, Pat. No. 4,175,772. This application Oct. 14, 1980, Ser. No. 196,288

Int. Cl.³ B60G 11/04

U.S. Cl. 280—718

13 Claims



1. In a vehicle having a frame, an axle, at least one wheel mounted on said axle, a suspension system comprising:

a main spring connected to said axle and urging said axle away from said frame;

hanger means attached to the frame of said vehicle for retaining said main spring while permitting vertical travel thereof within a predetermined vertical range;

an auxiliary spring; and

spring force multiplication means for multiplying the force of said auxiliary spring and for applying said force to said main spring so as to urge said main spring toward the lower end of said range.

4,362,319

STEERING ASSEMBLY SUPPORTING DEVICE OF A MOTOR VEHICLE

Kunihiko Masaki; Naoto Kitagawa, both of Toyota, and Kosaku Yamada, Nagoya, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Sep. 17, 1980, Ser. No. 188,254

Claims priority, application Japan, Jun. 11, 1980, 55-77849

Int. Cl.³ B62D 1/18

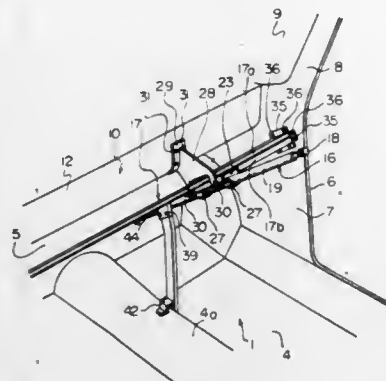
U.S. Cl. 280—779

9 Claims

1. A steering assembly supporting device of a motor vehicle comprising a steering assembly, a floor, front door opening flanges, first and second cowl side panels each extending forward from a front end of the corresponding front door opening flange, front pillars each forming a portion of the corresponding front door opening flange and having a root portion connected to the corresponding cowl side panel, a cowl inner panel spaced from the floor and transversely extending substantially in parallel to the floor at a position above the floor, and a dash panel arranged between the floor and the cowl inner panel, said device comprising:

a steering assembly supporting base portion transversely extending substantially in parallel to the cowl inner panel and comprising a first end fixed onto the first cowl side panel, a second end fixed onto the second cowl side panel,

a central portion, an intermediate portion located between said first end and said central portion and supporting said steering assembly thereon, a first portion located between said first end and said intermediate portion and having a hollow tubular cross-section, and a second portion of dish



shaped cross-section located between said second end and said intermediate portion; and
a leg portion connected to said second portion and central portion of said base portion and having a lower end fixed onto the floor.

4,362,320

WEBBING DRIVING GUIDE

Mitsuhiro Ogura, Toyota, and Toshio Saito, Nagoya, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha and Kabushiki-Kaisha Tokai-Rika-Denki-Seisakusho, both of Aichi, Japan

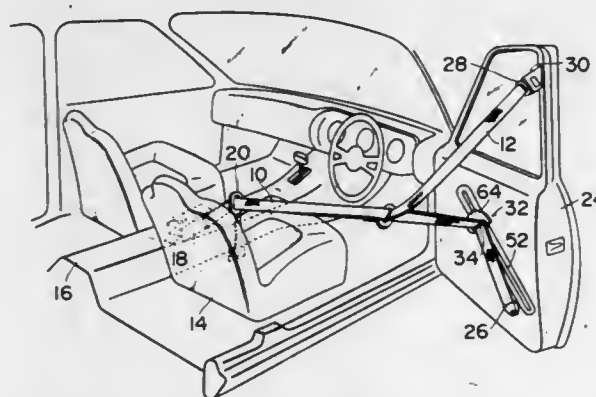
Filed Sep. 29, 1980, Ser. No. 191,495

Claims priority, application Japan, Oct. 8, 1979, 54-140377[U]

Int. Cl.³ B60R 21/10

U.S. Cl. 280—802

15 Claims



1. A webbing driving guide for use in a seatbelt system having a webbing, at least one end of which is engaged with a door, and another end of which is engaged with a retractor, said webbing being movable forward or rearward in a vehicle in accordance with the respective opening or closing action of said door whereby an occupant of said vehicle is free to enter and leave said vehicle, comprising:

(a) suspending means for suspending an intermediate portion of said webbing on the side of said door, said suspending means including,

a roller, on which said webbing is wound,
an arm supporting said roller,

a bracket secured to said arm at a position apart from one end of said roller by a distance of 1/5 to 2/5 of a length which is defined by the length of said roller which effectively supports said webbing in a lateral direction of said webbing, said bracket being twisted at a predetermined angle so that an end of said roller farthest from said bracket recedes from an inner side surface of said door;

- (b) supporting means for supporting said suspending means at said door;
(c) driving means for driving said supporting means to drive said suspending means along a guide member on said door; and
(d) connecting means for connecting said suspending means to said supporting means.

4,362,321

DEVICE FOR PASSIVE ACTUATION OF A SAFETY BELT

Hans-Joachim Volk, Ebersdorf, and Michael Forkel, Coburg, both of Fed. Rep. of Germany, assignors to Metallwerk Max Brose GmbH & Co., Coburg, Fed. Rep. of Germany

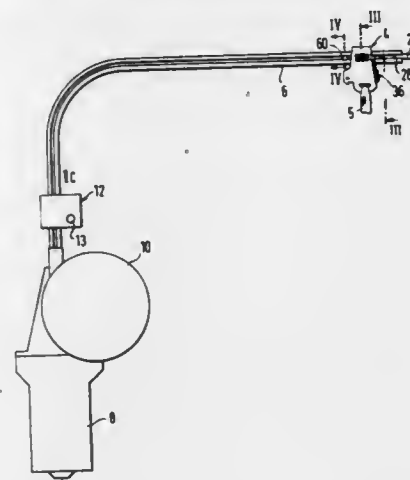
Filed Dec. 8, 1980, Ser. No. 213,916

Claims priority, application Fed. Rep. of Germany, Dec. 21, 1979, 2951880

Int. Cl.³ B60R 21/10

U.S. Cl. 280—804

16 Claims



1. Device for the passive actuation of a safety belt, comprising a motor driven elongated force transmission member, an engaging member for a safety belt engageable with and movable by said force transmission member, wherein the improvement comprises means for forming a driving connection between said engaging member and said force transmission member, said connection means being releasable, and said engaging member being shaped to be slid manually along said force transmission member when said connecting means is released, connecting means comprising a member releasably coupled within said force transmission member, said member comprises a pin, a borehole formed in said force transmission member and extending transversely of the longitudinal direction thereof and said pin passing through said engaging member, and a rocking lever pivotally attached to said engaging member and engageable with said pin for disengaging said pin from said borehole in said force transmission member.

4,362,322

SKI STICK

Jochen Schwarz, 39 1/2 Post Bruckmuhl, Ginsham, Fed. Rep. of Germany

Filed Jul. 1, 1980, Ser. No. 165,186

Claims priority, application Fed. Rep. of Germany, Jul. 6, 1979, 2927398; Jan. 22, 1980, 3002102; Mar. 25, 1980, 3011514

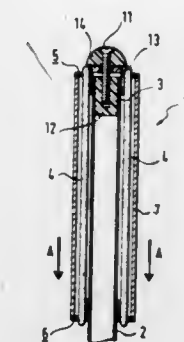
Int. Cl.³ A63C 11/22

U.S. Cl. 280—821

13 Claims

1. A ski stick comprising a ski stick tube; a sprung ski stick handle having a handle body and top handle fixing means, said top handle fixing means being at least in part fixed on the top end of the ski stick tube, said handle body being displaceable with respect to the ski stick tube; and spring means arranged between the ski stick handle body and the ski stick tube which

comprises resiliently stretchable cords which run through the ski stick handle body from the top handle fixing means toward



the bottom end of the ski stick handle body and are joined to the ski stick handle body at the bottom end thereof.

4,362,323

PIPE PART WITH A SOCKET END

Bernhard Lodder, Hardenberg; Jan P. van Dongeren, Bergen-theim, and Gerard A. E. Blok, Gramsbergen, all of Netherlands, assignors to Wabin B.V., Zwolle, Netherlands

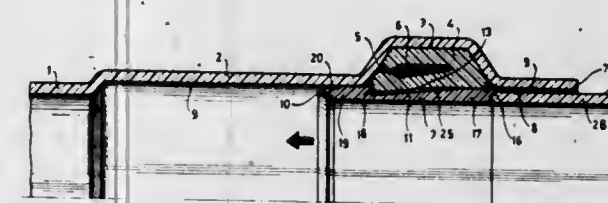
Continuation of Ser. No. 18,904, Mar. 9, 1979, abandoned. This application Feb. 24, 1981, Ser. No. 237,722

Claims priority, application Netherlands, Mar. 13, 1978, 7802712; Mar. 13, 1978, 7802713; Mar. 13, 1978, 7806354

Int. Cl.³ F16L 55/00

U.S. Cl. 285—4

17 Claims



1. A pipe part having a socket end for receiving a male pipe part, said socket end having an internal groove, an annular sealing member disposed in said groove, a support ring supporting said annular sealing member, said support ring having a first and second deformable sealing edge parts extending therefrom which sealingly engage said pipe part on opposite ends of said internal groove, said support ring compressing said sealing ring less than a male pipe part after its insertion, and a lubricant disposed in the space between overlapping portions of said sealing member and support ring whereby said support ring is removable from below said sealing member upon insertion of said male pipe part.

4,362,324

JOINTED HIGH PRESSURE CONDUIT

John W. Kelly, Burbank, Calif., assignor to Haskel Engineering & Supply Company, Burbank, Calif.

Filed Mar. 24, 1980, Ser. No. 133,009

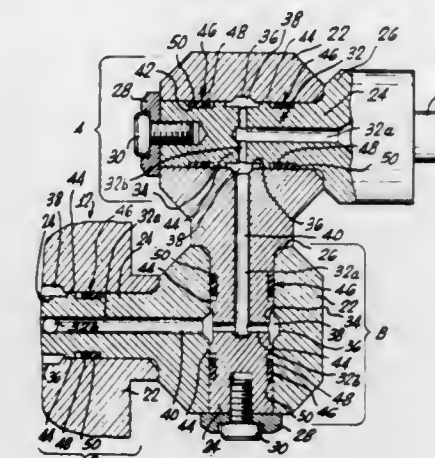
Int. Cl.³ F16C 27/00

U.S. Cl. 285—119

8 Claims

1. A high pressure hydraulic tool comprising:
a source of hydraulic pressure including intensifier means for producing a fluid pressure of at least 30,000 psi;
power head means for applying said fluid pressure to a work piece;
a plurality of rigid thick-walled sections arranged end to end from said source to said power head means; and
a plurality of joint means for connecting said sections to each other, to said source and to said power head means to form a conduit for the transmission of said fluid pressure, each of said joint means comprising:
(a) a thick-walled outer member having a bore therein;

- (b) a generally cylindrical thick-walled inner member rotatably received within said bore;
(c) an annular cavity defined between said outer and inner members;
(d) an outer passageway for hydraulic fluid extending through said outer member and opening into said cavity;
(e) an inner passageway for hydraulic fluid extending through said inner member and opening into said cavity, thus communicating with said outer passageway;



- (f) a pair of seal retaining annular grooves on opposite sides of said cavity;
(g) a pair of sealing means each disposed in one of said grooves for permitting free relative rotational movement of said outer and inner members in the absence of said fluid pressure, and for expanding radially upon the application of said fluid pressure thereto thereby rendering said joint immovable and preventing the escape of said fluid from said cavity; and
(h) means for securing said inner member within the bore of said outer member.

4,362,325

LIMITED ANGLE PIGGABLE SWIVEL

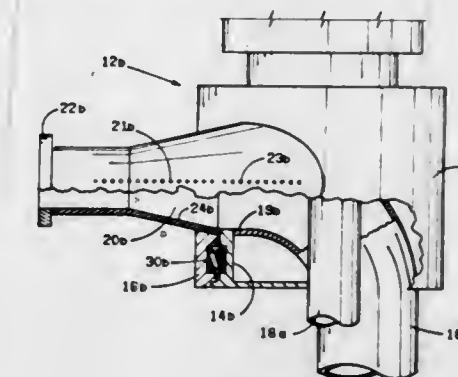
John E. Ortloff, and W. Robert Wolfram, Jr., both of Houston, Tex., assignors to Exxon Production Research Co., Houston, Tex.

Filed Nov. 17, 1980, Ser. No. 207,482

Int. Cl.³ F16L 27/08

U.S. Cl. 285—190

3 Claims



1. A fluid swivel comprising a stationary cylindrical shaft and a rotatable housing member, said shaft having a conduit positioned therein extending from the base of said shaft to the side of said shaft, said base end of said conduit adapted to mate with a first fluid line, said rotatable housing member circumferentially mounted around said shaft in sealing engagement, said housing member having a passageway extending therethrough having an inner and outer end, said outer end adapted to mate with a second fluid line, said housing member adapted to rotate around said shaft to enable coaxial alignment of said conduit

and said passageway, said inner end of said passageway being flared outwardly in an amount sufficient to enable a traveling member, having a circumferential dimension substantially equal to circumferential dimension of said conduit, to pass from said conduit to said passageway when the longitudinal axis of said passageway is angularly offset from the longitudinal axis of the side end of said conduit.

4,362,326

DISCONNECTABLE COUPLING

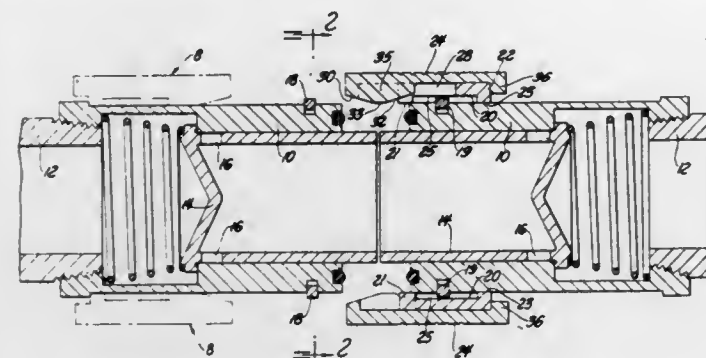
Erwin F'Geppert, Novi, Mich., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Feb. 2, 1981, Ser. No. 230,922

Int. Cl.³ F16L 37/08

U.S. Cl. 285—315

4 Claims



1. In association with two separable tubes having similar end connectors (10) adapted to abut one another; improved means for removably joining the end connectors, comprising a first resilient split ring (18), having radial side surfaces seated in an endless external groove in one of the end connectors for outward radial motion from a contracted position contained within the end connector profile to an expanded position projecting outwardly beyond the end connector profile; a second ring (19) having radial side surfaces carried by the other end connector and projecting radially beyond the end connector profile; an axially slidable collar (20) mounted on said other end connector for movement between an inactive position spaced from said first ring to a locking position spanning said first and second rings; the internal surface of the collar defining a first land area (21) at one end of the collar, a second land area (23) at the other end of the collar, and an intervening internal groove (25) that has an axial dimension defined by end surfaces that are axially spaced the same as the distance between the rings when the end connectors are abutted together; the diameter of each land area being less than the diameter of the second ring and the split ring when said split ring is in its expanded condition, said land areas being sized to ride on the outer surfaces of the end connectors the radial side surfaces of the rings and the end surfaces of the internal groove (25) being normal to the longitudinal axis of the end connectors whereby when the rings are located within the groove the nonadjacent side surfaces of the rings will abut the groove end surfaces so that the collar locks the rings and associated end connectors together; and means for depressing said first resilient split ring to enable the collar to move between its inactive position and its locking position; said ring depresser means comprising a sleeve (24) encircling said collar for limited axial movement along the collar outer surface, said sleeve having two opposite divergent internal cam surfaces (30, 32) and an intervening land surface (33) on the end of the sleeve nearest said one end connector, whereby when the sleeve-collar assembly is moved to a position spanning the two end connectors one of said cam surfaces (30) depresses said resilient split ring to its contracted position, the collar being dimensioned so that its first land area (21) passes over said split ring while said split ring is being retained in its depressed position by the aforementioned sleeve land surface (33); the other cam surface (32) being located closely adjacent the resilient split ring when the collar is in its locking position, whereby movement of the sleeve away from

said one end connector causes said other cam surface (32) to move over the resilient split ring to depress same to its contracted position, after which the aforementioned land surface (33) holds the resilient split ring in its contracted position while said sleeve moves the collar so that the first land area (21) passes over the split ring.

4,362,327

SEPARABLE PIPE AND/OR ARMATURE CONNECTION

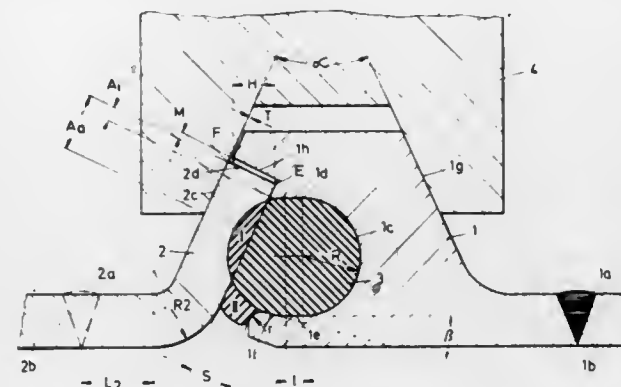
Hans O. Mieth, Hamburg, Fed. Rep. of Germany, assignor to Otto Tuchen GmbH & Co. KG, Fed. Rep. of Germany
Filed Mar. 17, 1980, Ser. No. 130,609

Claims priority, application Fed. Rep. of Germany, Mar. 19, 1979, 2910684

Int. Cl.³ F16L 19/06

U.S. Cl. 285—332.3

2 Claims



1. In a separable connection of pipes or armatures for systems which must meet hygienic requirements, including two connecting sections attached to the pipe ends or armature ends between which an O-ring can be arranged, and a third component to fasten the two connecting components together, the improvement comprising

one connecting component having a frustoconical outer clamping face and a frustoconical inner contact face and a second surface extending outwardly from its frustoconical contact face to form a recess in which the other connecting component can be inserted,

the other connecting component being the flared end of a pipe or armature with a frustoconical outer clamping face and a frustoconical inner contact face,

the second surface of the one connecting component providing guidance of the other connecting component, the frustoconical contact face of the recess positioning the other connecting component in the assembly without contact between the connecting components at the second surface of the one connecting component,

the one connecting component having an O-ring groove in its frustoconical contact face with a bottom having a radius which is smaller than the radius of the undeformed O-ring, with an outer face extending tangentially from the outermost point of the groove bottom to the frustoconical contact face, and with an inner face extending tangentially from the innermost point of the bottom groove for a length equivalent to the stretched length of the O-ring in place in the groove and thereafter into a beveled face with its inclination angle reducing the width of the groove to less than twice the radius of the undeformed O-ring, said O-ring groove being sheltered by the second surface, the inner face of the O-ring groove extending into a surface forming, upon assembly, a gap with an opposing surface of the other connecting component,

the third component being split in the cross-sectional plane of the connection and having a pair of frustoconical surfaces to engage the frustoconical outer clamping faces of the two connecting sections and compress them together in the direction of their central axis of symmetry.

4,362,328

PATIO DOOR LOCK

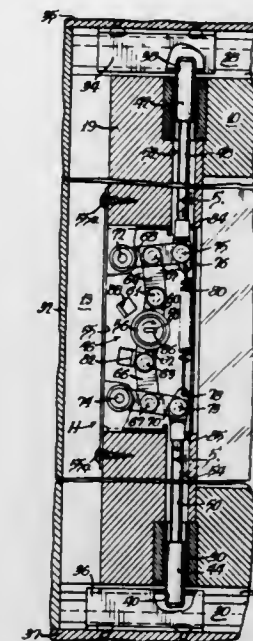
John C. Tacheny, Owatonna; Gary F. Paulson, Waseca, and Jerome W. Natzel, Owatonna, all of Minn., assignors to Truth Incorporated, Owatonna, Minn.

Filed May 19, 1980, Ser. No. 150,714

Int. Cl.³ E05C 1/12

U.S. Cl. 292—36

4 Claims



1. A door lock for a movable door having a pair of vertically aligned movable bolts positioned one at the top and one at the bottom of the door for locking engagement with a pair of keepers mounted at the top and bottom of the door frame, and means for positioning said bolts including a pair of bolt rods in substantial alignment along a vertical axis and connected one to each of the bolts at their outer ends and having their inner ends positioned at a distance from each other, a rotatable operator disposed in the space between said inner ends, a pair of bolt rod actuating links each pivotally fixed relative to the door and extending generally normal to the length of said bolt rods, each of said links being pivotally connected to one of said bolt rods at a connection lying in said vertical axis, and means interconnecting said rotatable operator and said links for movement of said links through a relatively short arc which is generally along said vertical axis to exert force axially of said bolt rods, said interconnecting means including an over-center link structure, spring means effective to urge said link structure over-center, and stop means for limiting movement of said link structure in either direction beyond said over-center position.

4,362,329

MOBILE SERVICE VEHICLE

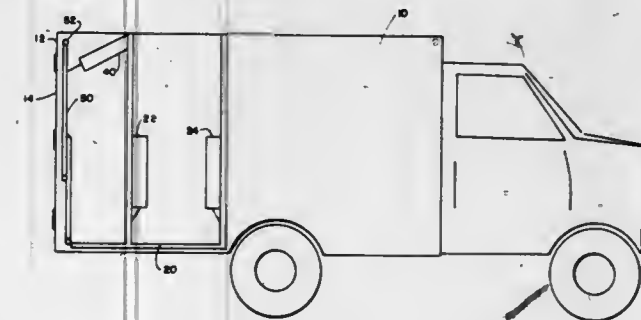
Dennis Laube, Wapakoneta; Michael Bell, Gahanna, and Daniel E. Hausch, Findlay, all of Ohio, assignors to Countdown, Columbus, Ohio

Filed Sep. 4, 1980, Ser. No. 148,296

Int. Cl.³ B60P 3/34

U.S. Cl. 296—26

5 Claims



1. A mobile repair/service vehicle, having a pair of horizon-

tally swinging doors at its rear opening, modified to provide a service bay, comprising:

a roof structure hingedly connected along the upper portion of the rear opening of the vehicle, said roof structure raisable to extend rearwardly and outwardly of the rear opening over said service bay from a lowered upright position extending vertically at the rear of the inside of the vehicle, and means for maintaining said roof structure in its raised position in cooperation with the rear doors when open; the rearmost portion of the floor of said vehicle having means for lowering said floor portion from its normal height to ground level, said portion of floor further including an extendable portion hingedly connected thereto to extend from a closed upright position to an open position resting on the ground.

4,362,330

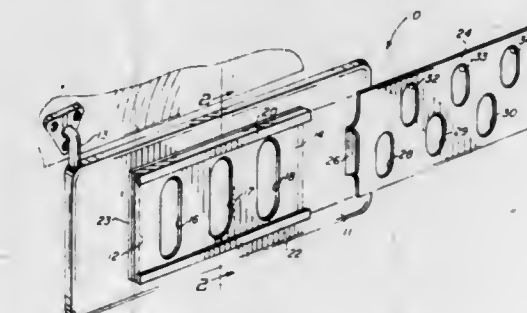
SEE THROUGH AUTOMOBILE SUN VISOR

Francis W. Cramer, 4158 Caywood Cir., Orlando, Fla. 32810
Filed Nov. 17, 1980, Ser. No. 208,169

Int. Cl.³ B60J 3/00

U.S. Cl. 296—97 F

9 Claims



1. An automobile sun visor comprising:

- (a) a flat visor member having opposing flat parallel surfaces and adapted to be pivotally joined adjacent the windshield of an automobile, said member having plural slots therein;
- (b) a moveable member having slots therein;
- (c) means for mounting said moveable member against said visor member and over said slots in said flat visor member, whereby said moveable member may be moved to align a slot in said moveable member with a slot in said visor member; and wherein
- (d) movement of said moveable member permits the automobile operator to align at least one of said slots in said moveable member with one of said slots of said visor member, so that a restricted amount of light is visible along a selected line-of-sight through both said members.

4,362,331

AUTOMOBILE FRONT BODY CONSTRUCTION

Hayathugu Harasaki, and Yoshihiro Morimoto, both of Hiroshima, Japan, assignors to Tokyo Kogyo Co., Ltd., Hiroshima, Japan

Filed Jan. 8, 1981, Ser. No. 223,293

Claims priority, application Japan, Jan. 16, 1980, 55/3770[U]
Int. Cl.³ B60K 20/08

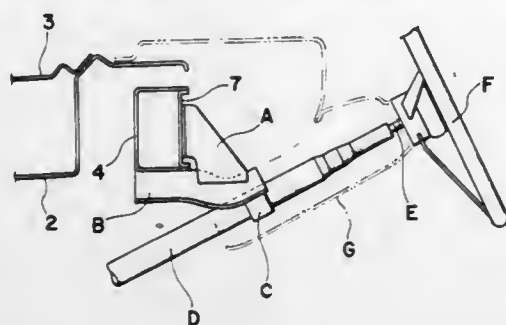
U.S. Cl. 296—194

6 Claims

1. In an automobile front body having a steering column, the improvement comprising:

- a pair of front pillars for hingedly supporting left and right doors of the automobile;
- an upper dash panel protruding frontwardly of the automobile front body, to which said steering column is fixed, respectively fixed at opposite ends to each of said pair of front pillars, said upper dash panel having an upright wall having first opposite end portions adjacent said opposite ends; and

a reinforced beam assembly including an elongated main frame member of generally U-shaped cross-section, having a wall section and upper and lower flanges respectively extending along its length between said pair of front pillars, defining three sides of a first space having a generally rectangular cross-section, and an elongated closure member spaced from said wall section in face-to-face relation thereto along the entire said length to close said



generally rectangular cross-section of said first space and rigidly fixed at opposite ends to said pair of front pillars; said reinforced beam assembly having a central portion and two second end portions at opposite sides of said central portion, being located rearward of said upper dash panel, said central portion being in spaced relation to said upright wall of said upper dash panel, said two second end portions being rigidly secured to said first opposite end portions of said upright wall.

4,362,332

SUNROOF AIR DEFLECTOR

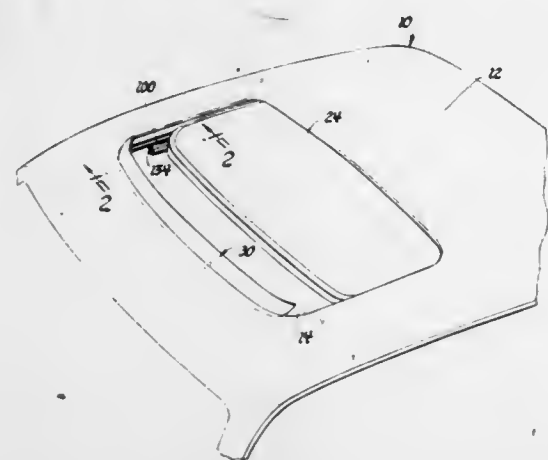
Edward E. Garnham, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 26, 1981, Ser. No. 247,726

Int. Cl.³ B60J 7/04

U.S. Cl. 296—217

3 Claims



1. In combination with a vehicle body roof panel having a roof opening, and a sunroof closure panel adapted for movement between a forward closed position and a rearward open position, an air deflector device comprising:

a deflector panel adapted for mounting within the roof opening at an angularly raised position projecting above the roof panel to deflect oncoming airflow above the roof opening;

mounting means mounting the deflector panel for pivotal movement between the angularly raised air deflecting position and a downwardly pivoted position below the roof panel;

track means acting between the vehicle body and the mounting means and adapted to permit longitudinal translation of the deflector panel between a rearward position registering with the roof opening and a stored position beneath the roof panel substantially forward of the roof opening; and operating means operatively associated with the mounting means selectively coupled with the closure panel

during forward movement of the closure panel to effect downward pivotal movement of the deflector panel from the angularly raised position and bodily forward movement of the deflector panel to the stored position substantially forward of the sunroof opening.

4,362,333

SELF-SUPPORTING INFANT CHAIR

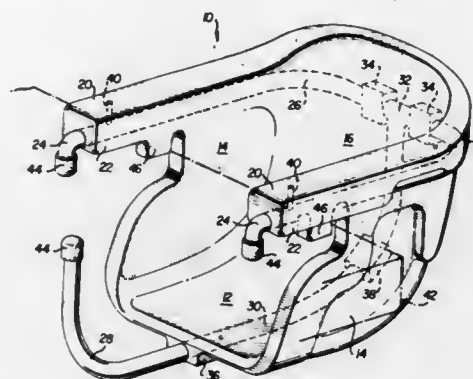
Daniel E. Cohen, 2515 Cumming Ave., Superior, Wis. 54880

Filed Feb. 6, 1981, Ser. No. 232,224

Int. Cl.³ A47B 39/00

U.S. Cl. 297—174

19 Claims



1. An infant chair adapted to be self-supporting from a horizontally disposed table surface, comprising:

a seat portion, a back portion, and a pair of sidewall portions; first support arm means comprising a single frame member defining a pair of arms projecting outwardly from said sidewall portions of said chair, and a rear portion operatively associated with said back portion of said chair;

second support arm means projecting outwardly from said seat portion of said chair;

said first and second support arm means defining a horizontal channel therebetween within which said table surface is to be disposed and for engaging the upper and under surfaces of said table respectively; and

said second support arm means being integrally connected to said rear portion of said first support arm means single frame member so as to form a one-piece support arm framework for supporting said chair from said table surface.

4,362,334

PORTABLE FOLDING ORTHOPEDIC SEAT

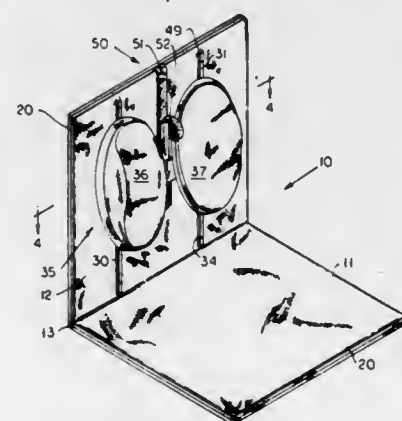
Robert M. Ross, Redondo Beach, and George M. Kristof, Gardena, both of Calif., assignors to Accu-Back, Inc., Carson, Calif.

Filed Oct. 14, 1980, Ser. No. 196,387

Int. Cl.³ A47C 7/02

U.S. Cl. 297—230

21 Claims



1. In a portable folding orthopedic seat unit having:

a seat member hinged to a back member with an internal rigid support frame extending from the bottom to the top of said back member, and a cloth cover enclosing said seat member and said back member,

a pair of separate, padded, generally elliptically-shaped, back-support members, spaced apart from each other and joined by a horizontally rigid connecting member, each said back-support member comprising a rigid rear portion attached to said connecting member, a forward resilient portion supported on said rear portion, and cloth cover means enclosing said resilient portion and said rear portion,

the combination therewith of:

two vertical parallel internal track support members attached inside said back member to said rigid frame, two parallel separate guide tracks attached through said back member to said internal track support members, extending substantially from the bottom to the top of said back member,

slidable clip means reciprocal with said guide tracks attached to the back of said rigid rear portion of said pair of back support members, for slidably mounting said back-support members on said guide tracks, said pair of back-support members being slidably disposed on said parallel guide tracks,

a first strip of material attached to the middle of said back member parallel with said guide tracks, and,

a second strip of material which adheres to said first strip of material upon contact therewith, said second strip being attached to said horizontally rigid connecting member and disposed vertically upwardly between said back-support members,

whereby said back-support members may be adjusted to solely support the lower back of a person sitting in said seat unit by sliding said pair of back-support members on their guide tracks to a desired position and securing said second strip of material to said first strip of material, thereby holding said back-support members at the desired position.

4,362,335

ADJUSTABLE CHAIR BACKREST MECHANISM USING PNEUMATIC AND MECHANICAL SPRINGS

Fritz Drabert, Marienstrasse 37, and Ulrich H. von Waldegge, Weidestr. 35, both of D-4950 Minden, Fed. Rep. of Germany

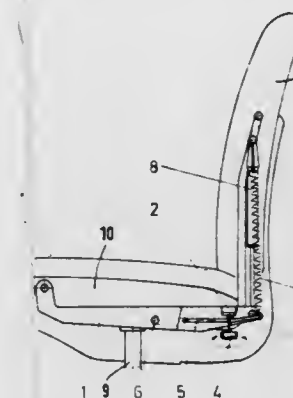
Filed Oct. 3, 1980, Ser. No. 193,872

Claims priority, application Fed. Rep. of Germany, Oct. 5, 1979, 7928353[U]

Int. Cl.³ A47C 3/00

U.S. Cl. 297—300

4 Claims



1. In a chair of the type comprising a base support, a vertical column attached at its lower end to said base support, a seat carrier rotatably mounted on the upper end of said column for supporting a generally horizontal seat, a backrest carrier disposed adjacent said seat carrier for supporting a generally vertical backrest, and spring means attached to said backrest carrier for resiliently positioning said backrest relative to said seat and for providing a restoring force to said backrest carrier when it is angularly displaced relative to said seat, the im-

provement wherein said backrest carrier comprises a pair of laterally spaced bars each of which includes a generally horizontal portion the forward end of which is pivotally attached to said seat carrier at a first point located between the front and rear edges of said seat carrier, the rearward end of the said generally horizontal portion of each bar being integral with a generally vertical portion of said bar that extends in an upward direction adjacent to the rear edge of said seat carrier, a structural member extending between and interconnecting the vertical portions of said bars at a position above and relatively widely spaced from the rear edge of said seat carrier, said spring means comprising a generally vertically oriented pneumatic spring located between and extending generally parallel to the vertical portions of said bars, said pneumatic spring being operative to exert a restoring force on said backrest carrier and comprising a cylinder and piston one of which is directly attached to said structural member and the other of which is directly attached to the rear edge of said seat carrier, a generally horizontal lever located between and extending generally parallel to the horizontal portions of said laterally spaced bars, said lever having a forward end which is pivotally attached to said seat carrier at a second point that is located between one of said first points and the rear edge of said seat carrier, the rear end of said lever being disposed closely adjacent to the rear edge of said seat carrier, said spring means further comprising a generally vertically oriented mechanical draw spring located between the generally vertical portions of said bars and extending parallel to said pneumatic spring, the upper end of said mechanical draw spring being attached to said structural member and the lower end of said mechanical draw spring being attached to the rear end of said lever, an abutment located on said seat carrier above and overlying said lever, a generally vertical spindle located below said seat carrier adjacent the rear edge thereof and extending through said lever in thread engagement with said lever, the upper end of said spindle bearing on said abutment, and a hand wheel attached to said spindle for rotating said spindle to move said lever toward and away from said abutment by angularly displacing the rear end of said lever about said second point thereby to vary the force which is exerted on said backrest carrier by said mechanical draw spring, the force exerted by said mechanical draw spring being in opposition to the restoring force exerted on said backrest carrier by said pneumatic spring whereby angular movement of said lever in a direction which increases the force that is exerted by said mechanical draw spring operates to reduce the total restoring force exerted on said backrest carrier by said spring means.

4,362,336

SLIDING CHAIR

Otto Zapf, Herzog-Adolph-Str. 5, 6240 Königstein, Fed. Rep. of Germany, and Josef Kuchinke, Oberusel, Fed. Rep. of Germany, assignors to Otto Zapf, Königstein, Fed. Rep. of Germany

Filed Mar. 13, 1980, Ser. No. 130,136

Claims priority, application Fed. Rep. of Germany, Apr. 7, 1979, 2914200; Apr. 26, 1979, 2916897

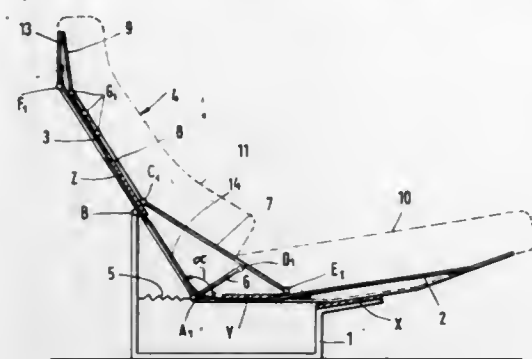
Int. Cl.³ A47B 1/023

U.S. Cl. 297—317

8 Claims

1. In a chair type article of furniture in which a seat member is movable generally horizontally and is articulated to a backrest which is supported at a lower portion thereof for generally horizontal movement with said seat member and is also articulated to the frame of said article of furniture at a location above said lower portion thereof for rearward reclining thereof when said seat member moves forwardly, the improvement comprising a back plate positioned forwardly of said backrest, a lower portion of said back plate constituting a support for the lumbar region of a person sitting on the furniture and being supported for generally horizontal movement with said seat member, said back plate being supported by said backrest at a location above said lower portion of said backrest for rear-

ward reclining thereof when said back rest reclines rearwardly from an upwardly directed and non-reclining position to provide support for said lumbar region of a seated person, said back plate being divided by a pivotal joint into upper and



lower back plate sections, and guide means between said back rest and said back plate for allowing relative movement between said back rest and said back plate in the general direction of movement of said seat member.

4,362,337

TUNNELING SYSTEM

Paul Casanova, Paris, France, assignor to Techniques Industrielles et Minières, Paris, France

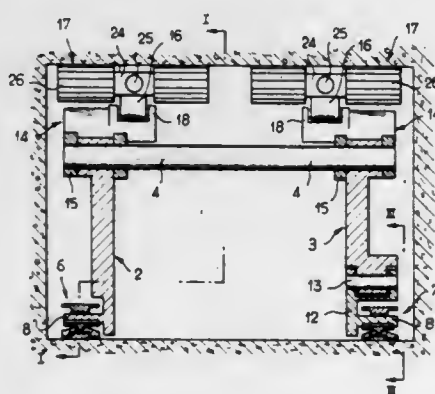
Filed Jun. 18, 1980, Ser. No. 160,459

Claims priority, application France, Jun. 21, 1979, 79 15908

Int. Cl.³ E21D 9/10

U.S. Cl. 299—31

16 Claims



1. In a tunneling system, comprising a cutting tool articulated on a frame and mounted so as to be movable along the height of the mine face, said frame being provided with ground support means and with propulsion means for following the progress of the cutting, the articulation point of the cutting tool being situated in the upper half of the system in any operating position; the improvement wherein the frame comprises two upstanding lateral flanges with a free space between them, the cutting tool being mounted for vertical swinging movement on a horizontal shaft that is supported at its ends by said flanges, the space below that portion of the shaft that is between its supported ends being open down to the ground to give access to the mine face for staff and any apparatus.

4,362,338

SAFETY DEVICE TO ACTUATE RAILROAD CAR AIR BRAKE

Charles D. Sanchez, Manson, Iowa 50563

Filed Feb. 12, 1981, Ser. No. 233,676

Int. Cl.³ B60T 11/26

U.S. Cl. 303—86

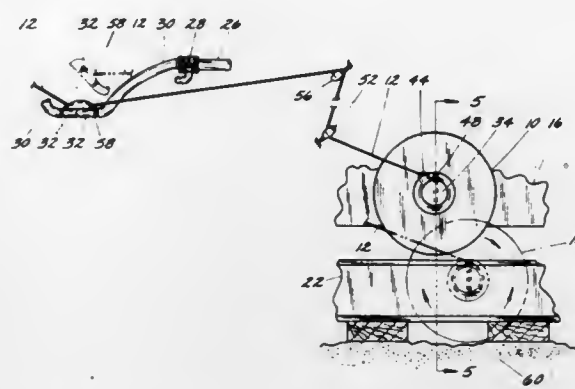
6 Claims

1. Apparatus to automatically actuate the air brake system on a train of railroad cars at the onset of a derailment, said train including a predetermined number of coupled cars each supported at respective front and rear ends on a wheeled truck frame for riding on a railbed and provided with a pressurized

air brake system that includes a rigid train line on each car connected by a flexible hose with coupling to a like hose and coupling on each adjacent car, said apparatus comprising:

a wheel,

means mounting said wheel to one said wheeled truck frames so that when said frame is in railbed engagement, said wheel is in a predetermined spaced relationship above said railbed,



a flexible cable operably secured at one end to and windable on said wheel and operably connected at its other end to said train line, and
derailment of said wheeled truck frame effective in moving said wheel into ground engagement to cause it to rotate and wind up said cable so as to break said train line and immediately actuate the air brake system on the train.

4,362,339

HYDRAULIC BRAKE SYSTEM WITH AN ANTISKID CONTROL APPARATUS

Juan Belart, Walldorf, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

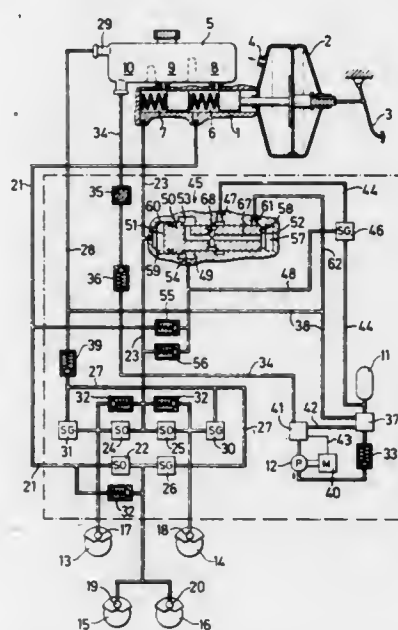
Filed Jan. 23, 1981, Ser. No. 227,895

Claims priority, application Fed. Rep. of Germany, Mar. 20, 1980, 3010639

Int. Cl.³ B60T 8/08

U.S. Cl. 303—117

13 Claims



1. A hydraulic brake system having an antiskid control apparatus comprising:

a master brake cylinder;

a fluid return line;

at least one wheel brake cylinder;

antiskid control valves coupled to said master cylinder, said wheel cylinder and said return line to connect said wheel cylinder to one of said master cylinder and said return line; and

a valve device coupled to a fluid source, said master cylinder and said return line to connect fluid from said fluid source to said wheel brake cylinder through a passage in said valve device and at least one check valve opening in opposition to master cylinder pressure, said valve device being controlled by a piston having a first end surface acted upon by said master cylinder pressure in the sense of opening said passage in said valve device and a second end surface acted upon by the pressure of said fluid of said source in the sense of closing said passage in said valve device.

4,362,340

TRACKED VEHICLES

Cornelis van der Lely, 7, Brüschrain, Zug, Switzerland

Continuation of Ser. No. 895,024, Apr. 10, 1978, abandoned.

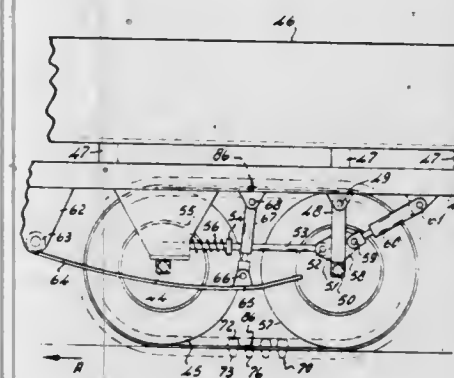
This application Nov. 24, 1980, Ser. No. 210,020

Claims priority, application Netherlands, Apr. 15, 1977, 7704127; Apr. 15, 1977, 7704128

Int. Cl.³ B62D 55/24, 55/04

U.S. Cl. 305—31

27 Claims



1. A vehicle included in the group which comprises tractors, motorcars, soil cultivating machines, trucks, wagons and the like, said vehicle comprising a frame and at least two pairs of aligned wheels, one said pair on each side of the vehicle, each said wheel comprising at least one pneumatic tire, each said pair of wheels being mounted in tandem, at least one of said wheels in each said pair of wheels being driven and having its axis in a fixed position relative to said frame, at least one removable track selectively received around each said pair of wheels, means for selectively rapidly removing and installing said track around each pair of said wheels including a hydraulically operable device for selectively shortening the distance between said wheels sufficiently to permit installation of each said track around the corresponding pair of said wheels, resilient means which is operatively coupled with said device biased for lengthening the distance between each said pair of wheels thereby tensioning the corresponding said track, and a single actuatable lifting means for lifting both pairs of wheels from the ground simultaneously, said lifting means centered between said pairs of wheels as seen from the rear.

4,362,341

LOW-NOISE LEVEL INTERNAL COMBUSTION ENGINE

Yasuo Matsumoto, Yokohama, and Yoshimasa Hayashi, Kamakura, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Apr. 23, 1980, Ser. No. 142,960

Claims priority, application Japan, Apr. 25, 1979, 54-56320[U]

Int. Cl.³ F16C 9/00

U.S. Cl. 308—26

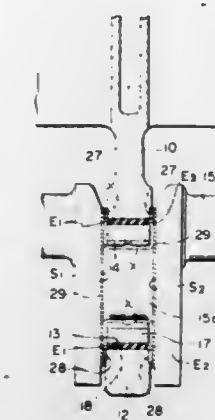
8 Claims

1. An internal combustion engine having a bore for receiving a crankshaft which bore is defined between opposed semicylindrical surfaces located respectively on a cylinder block and a bearing cap, said engine comprising:

a cylindrical housing disposed in said bore;

a metal sleeve bearing extending coaxially through and

fixedly retained in said cylindrical housing, said metal sleeve bearing having a journal of said crankshaft rotatably supported therein; and



4,362,342

BEARING CLOSURE ASSEMBLY

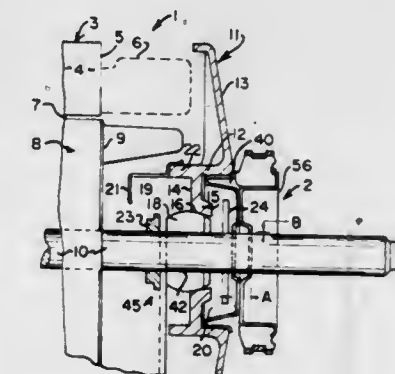
Ray E. Bushor, and Robert F. Bischoff, both of Florissant, Mo., assignors to Emerson Electric Co., St. Louis, Mo.

Continuation-in-part of Ser. No. 887,947, Mar. 20, 1978, abandoned. This application Dec. 17, 1979, Ser. No. 104,357

Int. Cl.³ F16C 33/74; H02K 5/16

U.S. Cl. 308—36.1

11 Claims



1. A bearing closure assembly for a motor, the latter having a shaft and a bearing for journaling the shaft, said bearing closure assembly having means for effectively preventing airborne lint or dust from entering said bearing and yet for permitting increased radial tolerances between said shaft and said bearing closure assembly, said airborne dust preventing means comprising a generally planar surface of said bearing closure assembly on the outboard side of said bearing and another portion connected to said planar surface defining an opening for reception of said shaft, said other portion having an axial length of dimension A and clearing said shaft at its closest point along the entire axial length of A dimension by a dimension B with the ration A/B being at least as great as 5/1, said planar surface being defined by a first part and a second part; each of said parts having a layer of material attached to one another to delimit said surface, said other portion being formed from the material layers of said first and second parts and extending therefrom in axially opposite directions.

5. A bearing closure assembly for a motor, the latter having a shaft and a bearing for journaling the shaft, said bearing closure assembly having means for effectively preventing airborne lint or dust from entering said bearing and yet for permitting increased radial tolerances between said shaft and said bearing closure assembly, said airborne dust preventing

means comprising a generally planar surface of said bearing closure assembly on the outboard side of said bearing and another portion connected to said planar surface defining an opening for reception of said shaft, said other portion having an axial length of dimension A and clearing said shaft by a dimension B along the entire axial length of A dimension with the ratio A/B being at least as great as 5/1, said planar surface having a groove therein adjacent said other portion and generally concentric therewith, said groove being open toward the outboard side of said bearing closure whereby water running down the outer surface of said planar surface toward said other portion enters said groove and flows therein around said other portion clear of said shaft and is discharged from said groove blow said other portion.

9. In an electric motor having a bearing support including a hub, a shaft with a longitudinal axis, bearing means in said hub for journalling said shaft, wherein the improvement comprises: a bearing closure outboard of said bearing and surrounding said shaft, but being clear thereof, and being adapted to be secured on said hub, said bearing closure including a wall, and a flange supported by said wall and surrounding said shaft, said flange extending axially from said wall outwardly from said motor, whereby water running down the outside of said wall toward said flange engages said flange and flows around said flange so as to prevent this water from entering said bearing, said flange having a portion thereof which extends axially inwardly toward said bearing relative to said wall.

4,362,343

AXIAL BEARING

Teunis Visser, Sliedrecht, Netherlands, assignor to IHC Holland N.V., Papendrecht, Netherlands

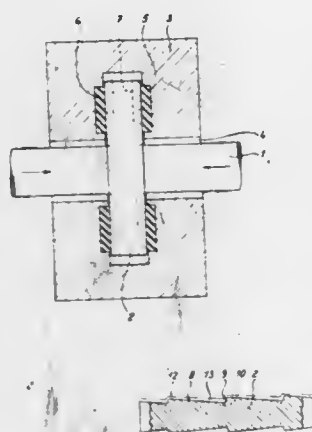
Filed Apr. 16, 1981, Ser. No. 254,983

Claims priority, application Netherlands, Apr. 18, 1980, 8002281

Int. Cl.³ F16C 17/04

U.S. Cl. 308—170

2 Claims



1. An axial bearing consisting of a rotary disc provided with grooves mounted on a shaft and a stationary ring-shaped disc in a house characterized in that the stationary disc consists of elastomeric material and that the grooves have at least one flank at a small angle with the surface of the stationary disc, the opening of said angle being directed in the direction of rotation.

4,362,344

SEALED BALL BEARING WITH STAMPED RACES

Frederick E. Lederman, Sandusky, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 3, 1981, Ser. No. 289,491

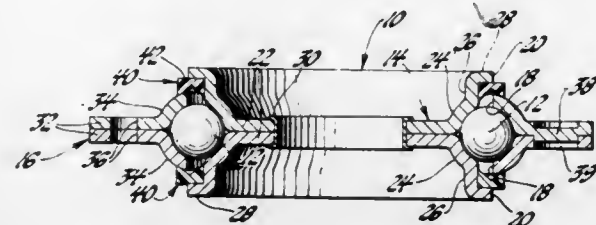
Int. Cl.³ F16C 33/78

U.S. Cl. 308—187.1

4 Claims

1. A bearing, comprising, a pair of inner bearing races, each having a curvilinear raceway, a pair of outer bearing races concentric with the inner races, each outer race having a curvilinear raceway

in confronting relation to a respective raceway of an inner race, a complement of antifriction elements disposed in rolling engagement between the confronting raceways of the inner and outer races, the raceway of each inner race further including an axially extending portion and a radially extending portion terminating in a first circular edge, the raceway of each outer race further including a second



circular edge which is of substantially the same radius as the first circular edge and is axially spaced therefrom, an annular seal disposed in the space between each respective first and second circular edge, each seal including an outer sealing lip in sealing contact with the raceway of an outer race and an inner diameter in sealing contact with the axially extending portion of an inner race, each seal filling the space between the respective first and second circular edges to limit misalignment of the inner and outer bearing races.

4,362,345

PROVISION FOR ROTATABLE BEARING OF A CYLINDRICAL DEVICE IN A BEARING HOUSING

Peter Zimmer, Untere Sparchen 54, Kufstein, Austria (A-6330)

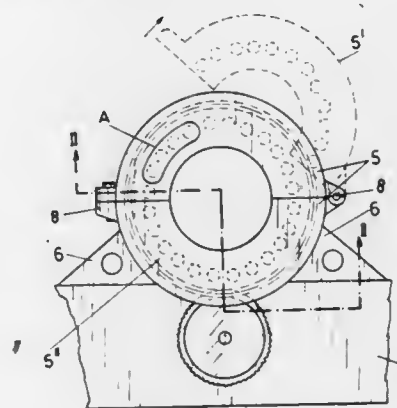
Filed Sep. 12, 1980, Ser. No. 186,428

Claims priority, application Austria, Sep. 13, 1979, 6021/79

Int. Cl.³ F16C 13/00

U.S. Cl. 308—207 R

8 Claims



1. A bearing assembly for a replaceable cylindrical component, comprising: an annular bearing housing formed by a pair of housing members and defining a separating plane, said housing being formed with a circular lateral opening; pivot means for swingably interconnecting said members on one side of a separating plane thereof whereby at least one of said members can be swung away from the other of said members about a pivot axis defined by said pivot means to enable removal of said component from and replacement of said component in said bearing assembly; a multiplicity of roll bodies spaced around said housing and protruding through said opening to bear upon said component; respective bearing cages individual to said roll bodies and received in said housing members, said cages being movable with said roll bodies around said housing; and support means for retaining said roll bodies and said cages in the respective housing members when said one of said

housing members is swung away from the other of said housing members.

contacting the other end of each said capsule and extending above the outer upper surface of said body member as a series

4,362,346

DISHWASHER RACK MOUNTING TRACK

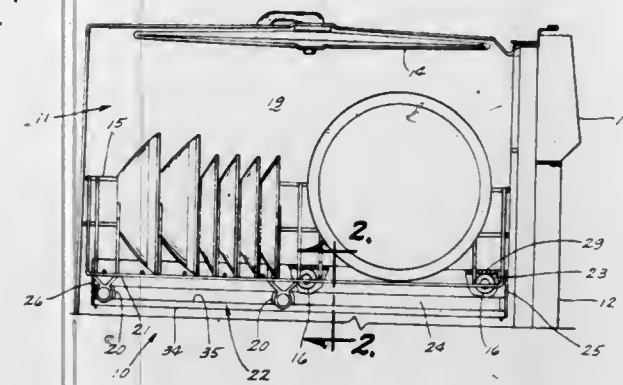
Clayton F. Emmert, Newton, Iowa, assignor to The Maytag Company, Newton, Iowa

Filed Oct. 9, 1980, Ser. No. 195,673

Int. Cl.³ A47B 88/00; F16C 17/00

U.S. Cl. 312—311

11 Claims



10. An improved rack mounting system for a dishwashing apparatus having a washing chamber with side walls and open at the front and further having a door for closing the open front, the combination comprising: a rack disposed in said washing chamber and including opposite side portions juxtaposed to said chamber side walls; a pair of rollers mounted on each of said chamber side walls; a pair of elongated tracks with one of said tracks disposed between each of said chamber side walls and the adjacent one of said rack side portions, each of said tracks formed from a single unitary piece of sheet metal and defining a pair of oppositely opening flanged channels substantially vertically aligned one above the other, said channels each including lower and upper retaining flanges and lower and upper horizontal leg portions with the lower horizontal leg portion of the upper channel and the upper horizontal leg portion of the lower channel being a common member and with the side of each of said channels opposite said flanges closed by vertical wall members connecting said lower and upper leg portions, a first of said channels opening outwardly toward said chamber side walls to receive said pair of side wall mounted rollers, a second of said channels opening inwardly toward said rack to receive said pair of side portion mounted rollers, said lower flange of said first channel and said upper flange of said second channel comprising a double layer of sheet metal folded back on itself, said rollers being movable in said channels whereby said rack may be pulled from said chamber while supported by said tracks.

4,362,347

MODULAR CONNECTOR AND PROTECTOR

Sidney J. Berglund, Stillwater, and Gary B. Matthews, Birchwood, both of Minn., assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Division of Ser. No. 75,737, Sep. 14, 1979, Pat. No. 4,272,147.

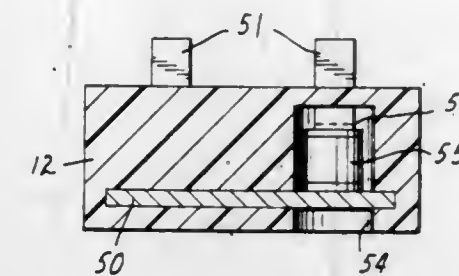
This application Nov. 26, 1980, Ser. No. 210,856

Int. Cl.³ H01R 13/66

U.S. Cl. 339—14 R

1 Claim

1. An overvoltage protection module comprising an elongate body member, a bus bar passing longitudinally through said body member and extending outwardly at both ends, a series of protector capsules disposed within said body member with one end resting against said bus bar, and contact elements



of transversely oriented blades disposed successively in two parallel longitudinal rows.

4,362,348

EMI: X-RAY PROTECTED MULTI-CONTACT CONNECTOR

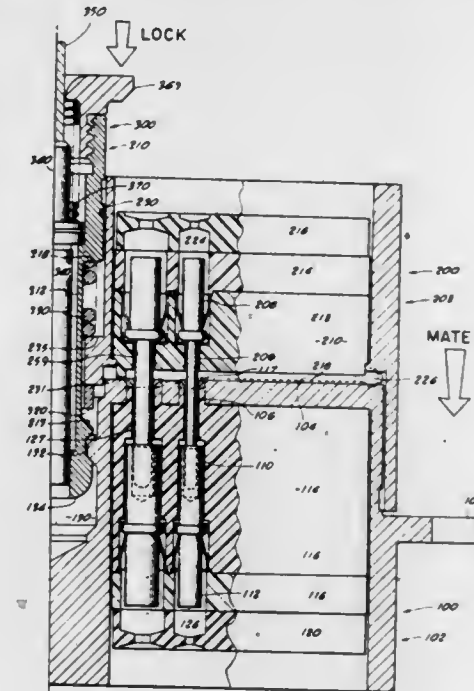
Roger C. Stephenson, Woodland Hills, and Dale T. Chaput, Yorba Linda, both of Calif., assignors to Automation Industries, Inc., Greenwich, Conn.

Filed Jul. 3, 1980, Ser. No. 165,648

Int. Cl.³ H01R 13/629, 13/658

U.S. Cl. 339—75 M

4 Claims



1. A multi-contact plug and receptacle electrical connector comprising:

A. the receptacle comprising:

a conductive metal housing for mating with the plug including a face having perforations therein, said metal being capable of absorbing a substantial amount of X-ray radiation striking said face;

said face being thick enough to cause X-ray radiation entering said perforations at an angle to said face to be shielded from striking the electrical sockets positioned beneath said perforations;

the dimensions of said perforations being selected to form wave traps having a cut-off frequency above the frequency of radio frequency electromagnetic energy striking said face during operational use of said receptacle; and an insulator insert positioned beneath said face enclosing the sides of said sockets;

B. the plug comprising:

a conductive metal housing for mating with said receptacle, said plug metal being capable of absorbing a substantial amount of X-ray radiation striking said plug;

an insulative insert positioned within said plug housing, said plug insert enclosing a portion of the length of electrical pin contacts for making electrical connection with sockets of said receptacle, and also enclosing a barrel portion of said pin contacts;

C. means for locking said receptacle and said plug in the mated relation;

D. means for rapidly unlocking said plug and receptacle and for disengaging said plug and receptacle from the mated relation; and

E. said means for locking and for rapidly unlocking said receptacle and plug including, in combination with said plug, a tubular means terminating in collet fingers, each of said fingers terminating in a finger tip, said finger tips being capable of closing to a roughly ball shape and opening to an expanded diameter;

a plunger movable longitudinally within said collet fingers and said collet finger tips, whereby when said plunger is in the extreme forward position, said finger tips cannot move inwardly and are locked in the expanded position within a recess included in said receptacle;

spring means associated with said plunger for maintaining said plunger in the forward position;

spring means associated with said tubular means for imparting rearward movement of said collet finger tips out of said recess, whereby said receptacle and said plug are unlocked and electrically disengaged.

4,362,349

ELECTRICAL CONNECTOR HOUSING WITH INTEGRAL RETENTION MECHANISM

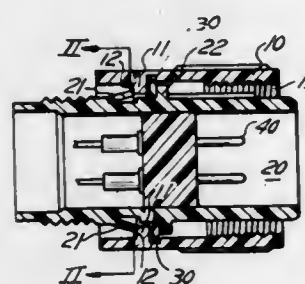
David O. Gallusser, Oneonta; Valentine J. Hemmer, Sidney, and Gary C. Toombs, Oneonta, all of N.Y., assignors to The Bendix Corporation, Southfield, Mich.

Filed Nov. 14, 1980, Ser. No. 206,771

Int. Cl.³ H01R 13/639

U.S. Cl. 339—89 M

4 Claims



1. In combination with an electrical connector of the type having: a housing having a central axis, a forward surface portion, a rear portion and a middle portion that includes an annular shoulder extending outwardly from said central axis; at least one electrical contact mounted in said housing; a tubular coupling member disposed around a portion of said housing, said coupling member having a rear portion that includes an annular shoulder extending inwardly towards said central axis and a forward portion adapted to connect to a similar housing having at least one contact adapted to mate with said contact in said housing; and means for mounting the coupling member to said housing, the improvement wherein the means for mounting said coupling member comprises:

at least one finger integrally molded with and having a longitudinal axis extending outwardly and rearwardly from the forward surface portion of said housing, said finger resiliently and radially deflectable inwardly towards the central axis of said housing, the rearwardly facing end of said finger abutting the forward face of the annular shoulder of said coupling member, whereby said coupling member is mounted to said housing and may be removed from said housing by deflecting said finger.

4,362,350

CONTACT RETENTION ASSEMBLY

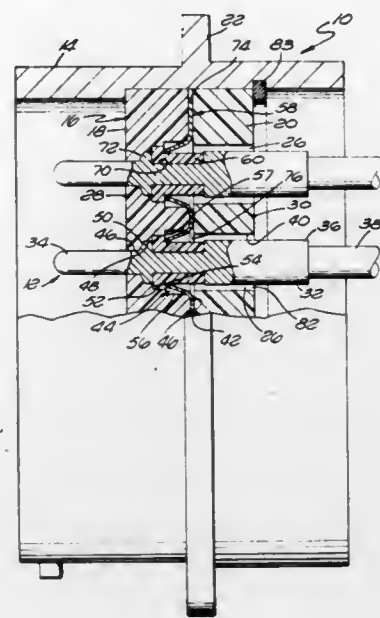
James L. von Harz, South Laguna, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Jun. 9, 1980, Ser. No. 157,978

Int. Cl.³ H01R 13/648

U.S. Cl. 339—143 R

21 Claims



1. An electrical connector member comprising: an insulator having a plurality of passages extending there-through from a front face to a rear face thereof; a contact retention plate extending transversely across said insulator substantially normal to the longitudinal axes of said passages; said plate embodying apertures each aligned with a corresponding one of said passages; a radially deflectable retention finger extending inwardly from the edge of each said aperture into its corresponding passage toward one of said faces; and a contact in at least one of said passages having an insulative sleeve thereon formed with a shoulder directed toward the other of said faces and engaged by said finger whereby said finger restricts movement of said contact in the direction of said other face.

4,362,351

TERMINAL ASSEMBLY

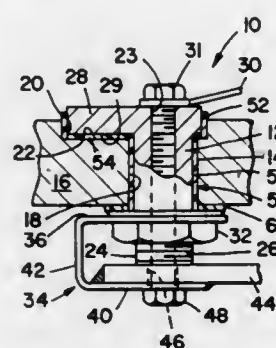
John E. Wible, Painesville, Ohio, assignor to Towmotor Corporation, Mentor, Ohio

Filed Feb. 6, 1981, Ser. No. 232,089

Int. Cl.³ H01R 9/16

U.S. Cl. 339—214 R

12 Claims



1. A terminal assembly (10) for providing a conductive path through a housing (16) comprising: a terminal (12) having first (24) and second (28) end portions, the second end portion (28) being eccentric relative to the first end portion (24) and defining a stepped surface (29) therebetween;

a stepped bore (14) defined in the housing (16) by first (18) and second (20) cylindrical surfaces and a stepped surface (22) therebetween, the second cylindrical surface (20) being eccentric relative to the first cylindrical surface (18); means (26, 32) for securing the terminal (12) in the stepped bore (14), the securing means (26, 32) being adjustable to longitudinally translate the terminal (12) in the stepped bore (14) and to urge the stepped surface (29) of the terminal (12) into a preselected position of support in relation to the stepped surface (22) of the bore (14); and means (34, 38, 48) for locking the securing means (26, 32) against movement and for maintaining the terminal (12) at the preselected position of support.

4,362,352

SPlicing DEVICE

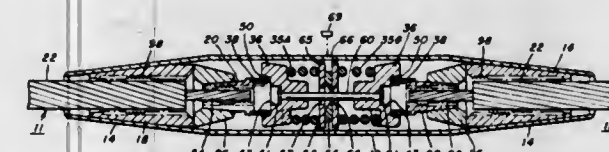
Ronald G. Hawkins, and Dwain L. DeHart, both of Massena, N.Y., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed May 8, 1980, Ser. No. 147,561

Int. Cl.³ H01R 7/06

U.S. Cl. 339—248 S

6 Claims



1. An assembly for making a mechanical and/or electrical connection between two conductors and the like, comprising: a tubular housing having tapered portions converging toward open outer ends of the housing, unitary, tubular, conductor gripping structures located within said housing, the wall of each structure having an outer tapered surface converging toward the open outer end of the housing, and thin wall portions that form a continuous hoop of material at least adjacent the ends of the structure, hammers of substantial mass located within the housing, and spaced a predetermined distance from the conductor gripping structure, at least one coil spring made of relatively large gauge spring material located between and in engagement with the hammers, rod means extending between and in engagement with the hammers for holding the hammers against the spring and the spring in compression, and means for releasing the rod such that the hammers and the compression of the spring are released, the hammers and released compression of the spring being effective to drive the hammers the predetermined distance to the conductor gripping structures, and the gripping structures toward the open end of the housing, the tapered portion of the housing being effective to reduce the diameter of the structures by folding the thin wall portions thereof.

4,362,353

CONTACT CLIP FOR CONNECTING A CERAMIC SUBSTRATE TO A PRINTED CIRCUIT BOARD

Robert F. Cobough, Elizabethtown, and Norwood C. Graeff, Harrisburg, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed May 27, 1980, Ser. No. 153,514

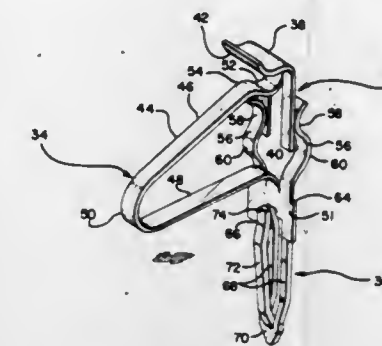
Int. Cl.³ H01R 13/12

U.S. Cl. 339—258 P

11 Claims

1. A contact clip for mounting a substrate to a printed circuit board, said clip comprising, an elongated length of conductive material, its top section being curved around to provide a downwardly facing surface and having a depending first finger, its lower section having a portion adapted for insertion into a hole in a printed circuit board and further having a second finger extending upwardly and slidably engaging the

first finger to provide an electrical signal path therebetween, and its intermediate section formed into an elongated, outwardly projecting nose consisting of an upper limb attached to and extending obliquely downwardly from the top section, a



lower limb attached to and extending outwardly from the lower section, and a bight connecting the two limbs, said downwardly facing surface of the top section cooperating with the top surface of the upper limb to provide a receptacle for an edge of a substrate.

4,362,354

TWO-AXIS MOUNTING STRUCTURE FOR A TELESCOPE

Karl-Heinz Hager, Heldenheim, Fed. Rep. of Germany, assignor to Carl Zeiss-Stiftung, Oberkochen, Fed. Rep. of Germany

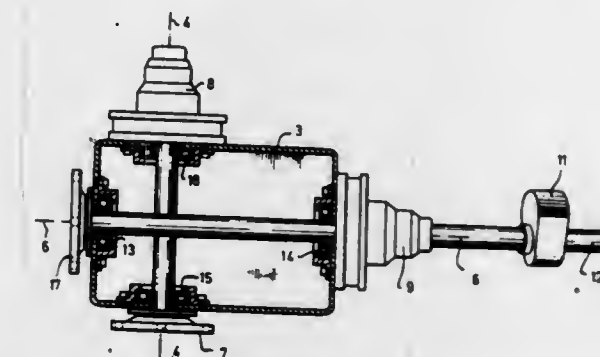
Filed Jul. 29, 1980, Ser. No. 173,392

Claims priority, application Fed. Rep. of Germany, Aug. 8, 1979, 2932085

Int. Cl.³ G02B 23/16

U.S. Cl. 350—83

7 Claims



2. As an article of manufacture, a two-axis telescope mount, comprising a rigid housing having first and second pairs of opposite side-wall portions, a first-axis shaft journaled in said first pair of side-wall portions and including means external of said housing for fixed-reference mounting of said shaft, a second-axis shaft journaled in the second pair of side-wall portions and including means external of said housing for secure connection to a telescope, said shafts extending within said housing in orthogonally related directions and in close but clearance-offset relation to each other.

4,362,355

OPERATING MICROSCOPE ASSEMBLY

Naoyuki Takahashi, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Japan

Filed Jan. 29, 1981, Ser. No. 229,462

Claims priority, application Japan, Apr. 28, 1980, 55-58679[U]

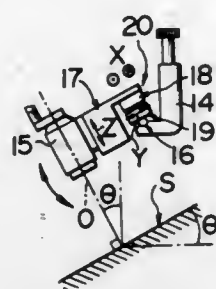
Int. Cl.³ G02B 21/24

U.S. Cl. 350—84

7 Claims

1. A movable microscope assembly, comprising: a microscope having an optical axis; support means for supporting said microscope;

tilting means for tilting said optical axis of said microscope; a translational movement mechanism for translationally moving said microscope in any desired direction in a plane perpendicular to said optical axis of said microscope; and



a focussing mechanism for moving said microscope along said optical axis.

4,362,356

CONCENTRIC OPTIC TERMINATION UTILIZING A FIXTURE

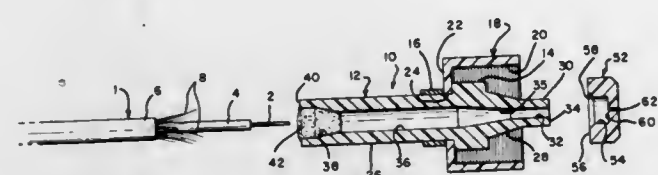
Russell H. Williams, Wormleysburg, Pa., and Robert F. Meeham, Sudbury, Mass., assignors to AMP Incorporated, Harrisburg, Pa.

Continuation of Ser. No. 940,926, Sep. 11, 1978, abandoned. This application Apr. 22, 1981, Ser. No. 256,351

Int. Cl.³ G02B 7/26

U.S. Cl. 350—96.20

6 Claims



1. A method of terminating an end of a fiber optic cable in a fiber optic connector, comprising the sequential steps of: positioning the end of the fiber optic cable within a passage-way of the fiber optic ferrule along with a solidifiable encapsulant material until an exposed end of an optic waveguide extends outwardly beyond a forward end of said ferrule; placing said forward end of said ferrule within a bore of a fixture with said exposed end of said waveguide extending through a hole in said fixture, said hole being concentric with said bore so that the axis of said exposed end of said waveguide is in coincident alignment with the axis of said ferrule; solidifying said encapsulant material thereby securing the end of the fiber optic cable in said ferrule; removing said fixture from said forward end of said ferrule; and polishing said exposed end of said waveguide.

4,362,357

OPTICAL STAR COUPLER FOR MULTI-MODE LIGHT CONDUCTING FIBERS

Michael Stockmann, and Hans-Hermann Witte, both of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany
Filed Apr. 2, 1980, Ser. No. 136,423

Claims priority, application Fed. Rep. of Germany, Apr. 12, 1979, 2915114

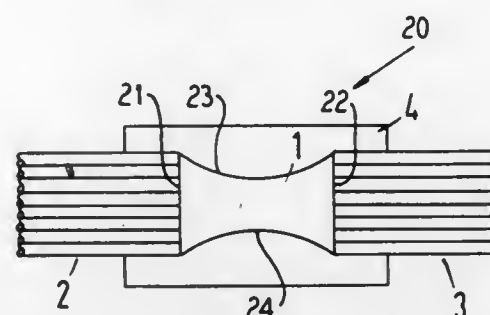
Int. Cl.³ G02B 7/26

U.S. Cl. 350—96.16

6 Claims

1. A method of forming an optical star coupler for the interconnection of one group of a plurality of multimode light conducting fibers arranged in a single layer on a substrate to a second group of multi-mode light conducting fibers arranged in a single layer on the substrate by a mixing element formed by

a planar waveguide having a semi-circular shape, said method comprising the steps of providing a substrate, forming guide means for two separate groups of light conducting fibers on the surface of said substrate, cutting the substrate on a plane into two substrate portions with at least one of the portions having guide means for the two groups, positioning two groups of fibers in a layer of a single thickness on a surface of the one



substrate portion utilizing said guide means, polishing the end of the fibers to the plane of the cut substrate portion, providing a semi-circular waveguide on the surface of the other substrate portion with the edges flush with a cut plane surface thereof, assembling the two substrate portions together with the edges of the semi-circular waveguide engaging the groups of fibers.

2. An optical coupler produced by the method of claim 1.

4,362,358

OPTICAL ENCODER HAVING ONE OR TWO FIBER OPTIC CABLES

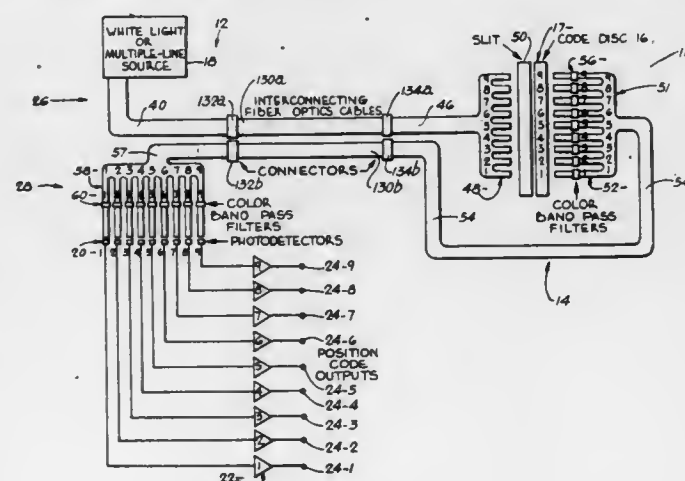
Ralph S. Hafle, Benton, Ark., assignor to BEI Electronics, Inc., Little Rock, Ark.

Filed Aug. 13, 1980, Ser. No. 177,832

Int. Cl.³ G02B 5/14

U.S. Cl. 350—96.16

8 Claims



1. An optical encoder, comprising a multi-colored light source in an active zone, first fiber optic means for conducting light from said source to a passive zone, an optical encoding member in said passive zone and having a plurality of code tracks, said first fiber optic means having a plurality of branches corresponding to said code tracks for conducting light to said code tracks, second fiber optic means for conducting light from said passive zone to said active zone, said second fiber optic means having a plurality of branches corresponding with said code tracks for receiving and combining the light therefrom after modulation by said code tracks, a plurality of first color filters corresponding with said code tracks for imparting a different color to the light received by said second fiber optic means from each of said code tracks,

a plurality of photodetectors in said active zone and corresponding with said code tracks for producing electrical signals corresponding to the modulated light from said code tracks,

said second fiber optic means having a plurality of photodetector branches in said active zone for conducting portions of the combined light to said photodetectors, and a plurality of second color filters corresponding with said photodetectors for transmitting light of only one of the different colors to each of said photodetectors whereby each photodetector receives the colored light from only the corresponding code track.

4,362,359

COUPLING DEVICE FOR COUPLING SIGNALS INTO AND OUT OF A TRANSMISSION GLASS-FIBER

Hans Dammann, Tangstedt, and Ulrich Killat, Hamburg, both of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

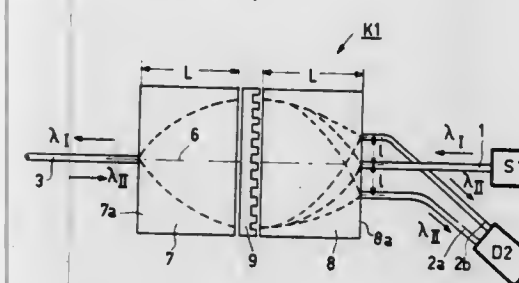
Filed Apr. 21, 1980, Ser. No. 141,858

Claims priority, application Fed. Rep. of Germany, Apr. 21, 1979, 2916234

Int. Cl.³ G02B 5/172

U.S. Cl. 350—96.19

2 Claims



1. An optical wavelength-division multiplexing and demultiplexing device comprising:

first and second imaging devices, each of which can convert a point light source into parallel rays and can convert parallel rays into a point light source; and an optical grating situated between the imaging devices such that parallel rays, produced by the imaging devices from point light sources, will pass through the grating;

CHARACTERIZED IN THAT:

the grating is a binary transparent phase grating with a rectangular groove profile, said grating having a duty factor of 1:1;

the grating has an optical path difference, $H = (n-1)h$, which is substantially given by

$$H = n_1 \lambda_1, \text{ and } H = (m_1 + \frac{1}{2}) \lambda_k$$

where n_1 and m_1 are positive integers, N is the refractive index of the grating material, h is the grating height and λ_1 and λ_k are two optical wavelengths to be multiplexed and demultiplexed; and

the device further comprises a transmission optical fiber having an end located to one side of the grating at a point where light exiting the fiber will be converted, by one of the imaging devices, into parallel rays substantially perpendicular to the grating, light beams of the two optical wavelengths to be multiplexed being simultaneously passed through the optical fiber in opposite directions.

4,362,360

SOCKET FOR A DETACHABLE PLUG AND SOCKET CONNECTION FOR COUPLING AN OPTICAL FIBER AND DETECTOR ARRANGEMENT TO A LIGHT SOURCE

Lothar P. Mannschke, Eckental, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

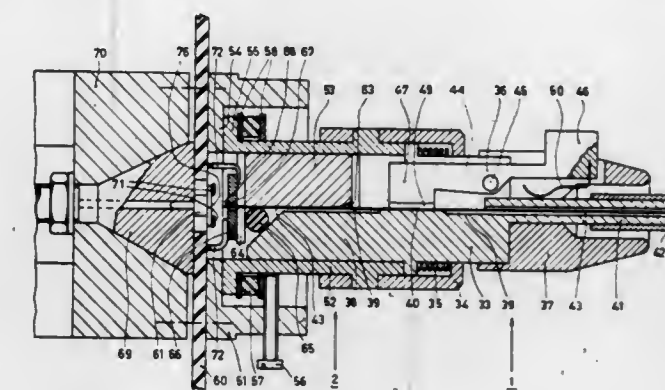
Continuation of Ser. No. 13,585, Feb. 21, 1979, abandoned. This application Apr. 13, 1981, Ser. No. 253,485

Claims priority, application Netherlands, Mar. 1, 1978, 7802231

Int. Cl.³ G02B 7/26

U.S. Cl. 350—96.20

7 Claims



7. A socket provided with a semiconductor light source, for a detachable plug and socket connection for coupling an optical fiber to the semiconductor light source, comprising:

an intermediate member, having a light source end near the light source and a plug end, said member having a fiber guide therein extending from the light source end to the plug end;

a disc-shaped semiconductor light detector disposed adjacent to the fiber guide at the light source end and having a hole in which the fiber guide ends;

an outer can;

an inner member disposed in the outer can, said inner member including the intermediate member, said outer can comprising mounting means for mounting the socket on a support for the light source; and

adjusting means for positioning the inner member with respect to the light source;

wherein the outer can has a bearing surface and the inner member has a flange which bears upon the bearing surface, the adjusting means being set screws fitted in the outer can and whose ends engage the inner member, said socket further comprising a ring-shaped resilient element spaced between the set screw ends and the flange of the inner member.

4,362,361

COLLIMATED BEAM MANIFOLD WITH THE NUMBER OF OUTPUT BEAMS VARIABLE AT A GIVEN OUTPUT ANGLE

Cecil W. Campbell, and Robert B. Owen, both of Huntsville, Ala., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Sep. 15, 1980, Ser. No. 187,106

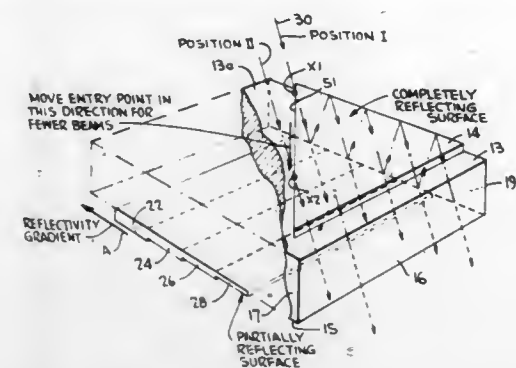
Int. Cl.³ G02B 27/14

U.S. Cl. 350—171

2 Claims

1. An optical manifold comprising: an optical substrate having front and rear surfaces; a fully reflecting coating on the rear surface; a partially reflecting coating on the front surface establishing a reflectivity gradient thereon;

said fully reflective coating partially covers the rear surface, and the dividing line between the fully reflecting coating



and uncoated portion on the rear surface is approximately 45° to the reflectivity gradient.

4,362,362

ELECTRIC REMOTE CONTROL REARVIEW MIRROR
Susumu Usami, Nagoya; Nobuyuki Teranishi, Mie; Tomohisa Kuwako, Anjo; Ikuo Sugiyama, Gifu; Yoshio Tsujiuchi, Nagoya, and Shigeo Hara, Aichi, all of Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi, Japan

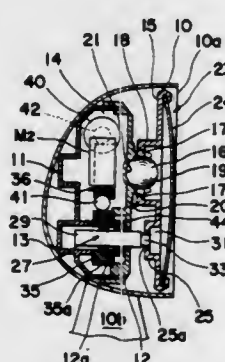
Filed Sep. 30, 1980, Ser. No. 192,599

Claims priority, application Japan, Oct. 17, 1979, 54-144090[U]; Oct. 19, 1979, 54-145052[U]

Int. Cl.³ G02B 7/18

U.S. Cl. 350—289

6 Claims



1. An electric remote control rearview mirror assembly comprising:

- a mirror unit including a mirror support plate and a mirror having a reflective surface and a backside and supported by the mirror support plate with the backside facing thereto;
- a support casing positioned on one side of the mirror support plate remote from the mirror;
- a spherical mounting member positioned between the mirror unit and the support casing for clamping the mirror support plate thereon for pivotal movement around horizontal and vertical axes;
- a pair of sockets defined in the mirror support plate in spaced relation to the spherical mounting member and spaced a predetermined angle from each other with respect to the spherical mounting member;
- a pair of elastic rod members formed of elastic material, each said elastic rod member comprising a stem portion, an end fixture portion fitted in a respective said socket, and a neck portion between said stem portion and said fixture portion;
- a pair of drive members formed of rigid material and rotatably supported inside said support casing, each said drive member being held in driving engagement with said stem portion of a respective said rod member at a location inside said support casing;
- an electric drive means housed inside said support casing for selectively rotating said drive members to axially move said rod members, thereby to pivotally adjust said mirror unit about said spherical mounting member, and thereby

to adjust the angular position of said mirror unit with respect to said horizontal and vertical axes;

each said fixture portion and the respective said socket having complementary engaging surface means for preventing relative movement therebetween in any direction during axial movement of the respective said rod member and the resultant pivotal movement of said mirror unit; and

each said neck portion having a diameter smaller than that of the respective said stem portion and an elastic flexibility greater than the elastic flexibility of said stem portion and sufficient to enable said neck portion to bend with respect to the axis of said stem portion upon said pivotal movement of said mirror unit.

4,362,363

POLYGONAL MIRROR WITH TIGHTENED REFLECTING FOIL

Bernardus A. Mulder, Deurne, and Bontko Wittetech, Venlo, both of Netherlands, assignors to J.E.-Nederland B.V., Venlo, Netherlands

PCT No. PCT/NL79/00009, § 371 Date Jun. 25, 1980, § 102(e) Date Jun. 25, 1980, PCT Pub. No. WO80/01049, PCT Pub. Date May 29, 1980

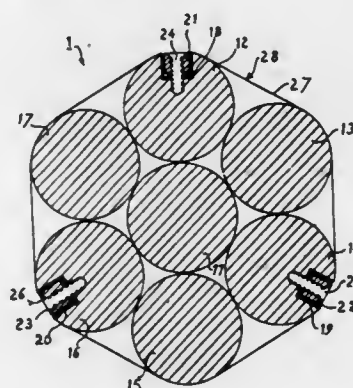
PCT Filed Nov. 23, 1979, Ser. No. 205,999

Claims priority, application Netherlands, Nov. 27, 1978, 7811599

Int. Cl.³ G02B 7/18, 5/08

U.S. Cl. 350—299

21 Claims



1. A polygonal mirror, comprising a plurality of mirror surfaces arranged round an axis of rotation, each of which surfaces is inclined equally to the axis of rotation, characterized in that the mirror comprises a reflecting foil tightened over a plurality of supporting elements arranged round the axis of rotation.

4,362,364

APERTURE STOP ASSEMBLY FOR A LASER BEAM OPTICAL SYSTEM

Albert H. Smith, Tinton Falls, N.J., assignor to Litton Systems, Inc., Melville, N.Y.

Filed Jun. 18, 1980, Ser. No. 160,772

Int. Cl.³ G02F 1/33

U.S. Cl. 350—358

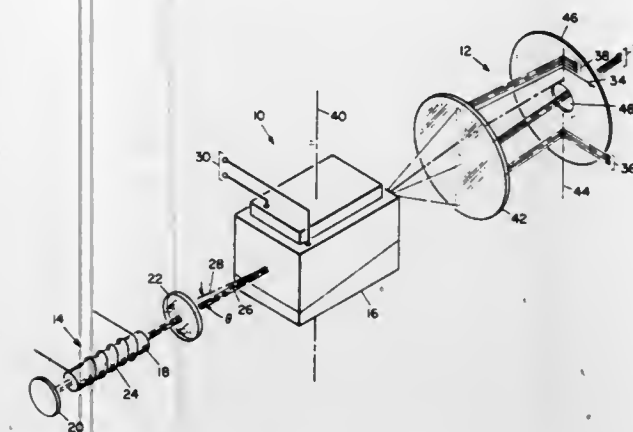
11 Claims

1. An aperture stop for use in an optical system, comprising:

- a source of coherent light which forms a light beam;
- an acousto-optic modulator through which said light beam is passed;
- a frequency source connected to said acousto-optic modulator for splitting said coherent light beam into a plurality of beams including a desirable first order beam and a number of undesirable zero order, negative first order and second order beams;
- lens means for focusing said plurality of beams upon a focal plane; and
- stop plate means having an aperture therein mounted at said focal plane;

said stop plate means aligned to permit sole passage of said desirable first order beam through said aperture;

said stop plate means aligned at an angle to said plurality of beams to absorb said number of undesirable zero order, negative first order and second order beams;



said frequency source being a multi-frequency source which causes said acousto-optic modulator to split said coherent light beam into a plurality of beams including a number of desirable first order beams.

4,362,365

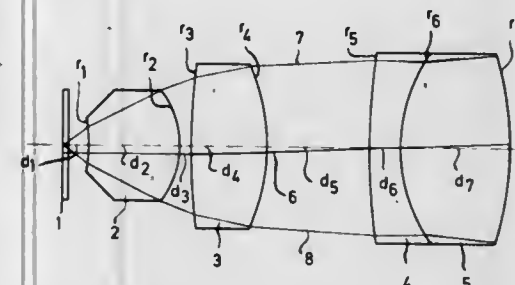
ACHROMATIC MICROSCOPE OBJECTIVE
Karlheinz Esswein, Aalen-Unterkochen, Fed. Rep. of Germany, assignor to Carl Zeiss-Stiftung, Heidenheim on the Brenz, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 97,536, Nov. 26, 1979, abandoned, which is a continuation-in-part of Ser. No. 900,694, Apr. 27, 1978, abandoned. This application Mar. 9, 1981, Ser. No. 241,813

Int. Cl.³ G02B 21/02

U.S. Cl. 350—414

8 Claims



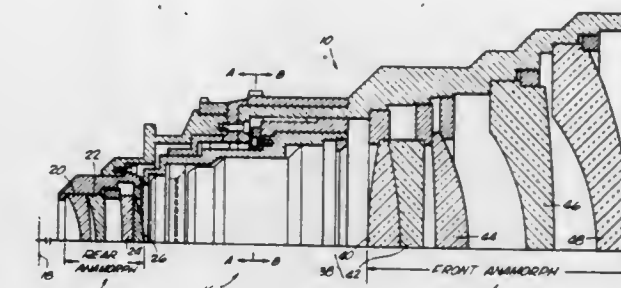
1. An achromatic microscope objective with a magnification within the range of 35× and 45× and a numerical aperture greater than 0.60, the complete objective having only four lens elements forming three lens components, the first component, numbering the components consecutively from front to rear, being a single positive element, the second component also being a single positive element, and the third component being a cemented doublet consisting of a front negative element and a rear biconvex positive element, the refractive index n_d and the Abbe number v_d of each element being within the range indicated in the following table:

Element	1	2	3	4
n_d	1.70	1.63	1.53	1.55
v_d	64	56	56	56
n_d	1.70	1.63	1.53	1.55
v_d	64	56	56	56
n_d	1.97	1.93	1.75	1.65
v_d	29	21	21	20
n_d	1.57	1.53	1.47	1.46
v_d	85	51	51	50

4,362,366
FOCAL LENGTH EXTENDER
Robert E. Gottschalk, Los Angeles, Calif., assignor to Panavision, Incorporated, Tarzana, Calif.
Filed Jul. 28, 1980, Ser. No. 172,939
Int. Cl.³ G02B 13/08

U.S. Cl. 350—420

1 Claim



1. A lens system having a front portion and a rear portion in which the rear portion is described by the following table:

SURFACE	Radii	Height	Width	Index Of Refraction	Distance
1	+0.769	.786	1.000		
2	+2.571	.864	"	1.620	.100
3	+1.176	.872	"		.060
4	+6.994	.976	"	1.620	.100
5	+6.667	1.000	"		.200
6	+20.000	1.000	"	1.621	.120
7	+1.206	1.000	"	1.620	.120

and the front portion is described by the following table:

SURFACE	Radii	Width	Height	Diagonal	Index Of Refraction	Distance
A	-9.524	3.330	1.900	3.834		
B	+7.143	3.434	2.102	4.026	1.620	.620
C	PLANO	3.674	2.230	4.300	1.621	.400
D	+17.551	3.772	2.364	4.450		.250
E	+4.307	3.888	2.556	4.653	1.621	.600
F	+3.571	4.044	3.126	5.111		1.072
G	+18.845	4.636	3.286	5.682	1.620	.500
H	+3.846	4.740	3.712	6.020		.800
I	+8.431	5.946	3.906	7.114	1.620	.600

4,362,367

MINIATURIZED SYMMETRIZATION OPTICS FOR JUNCTION LASER

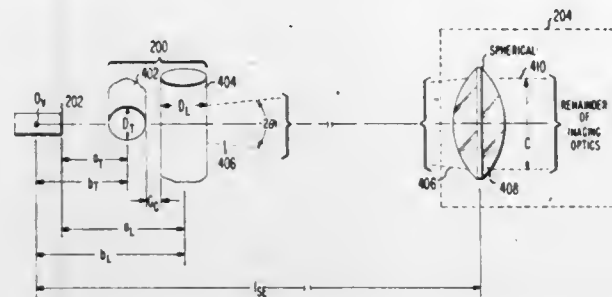
Jacob M. Hammer, Plainsboro; Charlie J. Kaiser, Trenton, both of N.J., and Clyde C. Neil, Levittown, Pa., assignors to RCA Corporation, New York, N.Y.

Filed Jul. 11, 1980, Ser. No. 167,689

Int. Cl.³ G02B 13/18

U.S. Cl. 350—433

5 Claims



1. Improved symmetrization optics for a junction laser that emits from a surface of its junction layer an asymmetrical light beam that diverges in both the lateral and transverse directions with respect to the junction layer plane of said laser; said symmetrization optics comprising:

first and second cylindrical rods of respective selected given diameters and axial lengths, said diameters being of the order of millimeters or less;

said first rod being situated at a first selected distance from the emitting junction of said laser in the path of the divergent beam therefrom, with the axial length of said first rod being oriented substantially parallel to the lateral dimension of said junction; said selected given diameter and axial length of said first rod, as related to said first selected distance, being sufficient for said first rod to collect at least substantially all the emitted light in said divergent beam, whereby said first rod occupies a first volume of space with respect to said junction laser; said first rod being composed of a material exhibiting a first selected index-of-refraction;

said second rod being situated at a second selected distance, greater than said first selected distance, from the emitting junction of said laser in the path of the divergent output beam from said first rod, with the axial length of said second rod being oriented substantially parallel to the transverse dimension of said junction; said selected given diameter and axial length of said second rod, as related to said second selected distance, being sufficient for said second rod to collect at least substantially all of the light of the beam emerging from said first rod, whereby said second rod occupies a second volume of space with respect to said junction laser; said second rod being composed of a material exhibiting a second selected index-of-refraction; and

wherein the respective selected values of said first and second distances, said first and second indices-of-refraction, and the respective diameters and axial lengths of said first and second rods are such that (1) said first and second volumes of space are mutually exclusive, and (2) said first and second rods cooperate as a lens system to derive a symmetrical cross-section output beam of light from said lens system.

4,362,368

PROGRESSIVE POWER OPHTHALMIC LENS HAVING WIDE TRANSITION CORRIDOR

Raoul F. van Ligten, No. 43 Woodleigh Park, Singapore, 1335, Singapore

Filed May 15, 1980, Ser. No. 150,069

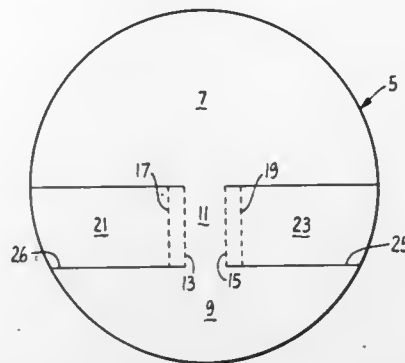
Int. Cl.³ G02C 7/06

U.S. Cl. 351—169

4 Claims

1. A progressive power lens having a top portion for distance viewing and a bottom portion for close-up viewing, said

top and bottom portions being connected by at least one corridor of continuously varying power, said power varying from the distance portion to the close-up portion, said corridor being a transition zone defined by at least two spaced generally



vertical curves wherein said two spaced curves are umbilic and the portion of the lens corridor between said curves departs from zero intrinsic astigmatism, said departure being no greater than 0.50 diopters, said lens having nonumbilic areas horizontally spaced on each side of said corridor.

4,362,369

CAMERA HAVING A DATA PHOTOGRAPHING DEVICE

Kazuyuki Kazami, and Nobuyoshi Hagiyuda, both of Tokyo, Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

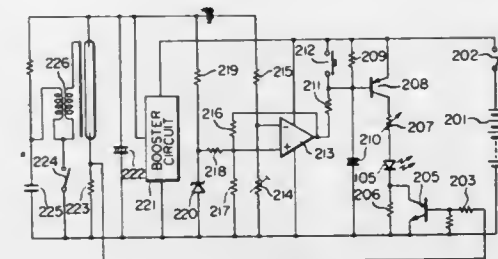
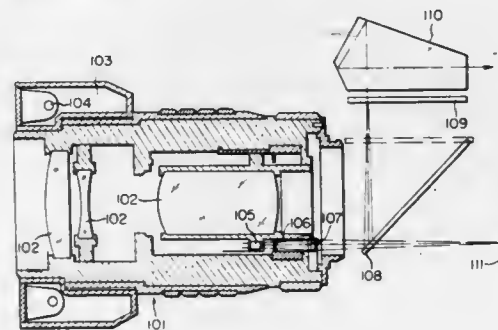
Filed Sep. 24, 1980, Ser. No. 190,413

Claims priority, application Japan, Oct. 8, 1979, 54/128833

Int. Cl.³ G03B 17/24

U.S. Cl. 354—106

5 Claims



1. In a camera having a flash unit for illuminating an object to be imaged onto a film by a phototaking lens, a movable mirror for directing the light from said phototaking lens to a viewfinder during observation and for directing said light onto the surface of the film during photography and a data photographing device provided in structural association with said phototaking lens, said flash unit including a flash tube and means for detecting the light emission capable condition of said flash tube, said data photographing device including information display means having a light source, and an optical system for imaging onto said film the light beam from said information display means, the improvement comprising:

drive means for turning on the light source of said data photographing device in response to the detection of the detecting means of said flash unit; and means for directing the light from said light source to said mirror so that said light can be observed.

4,362,370

AUTOMATIC FILM TRANSPORT DEVICE

Hiroshi Iwata, Nara, and Tsunemi Yoshino, Ibaraki, both of Japan, assignors to West Electric Co., Ltd., Osaka, Japan

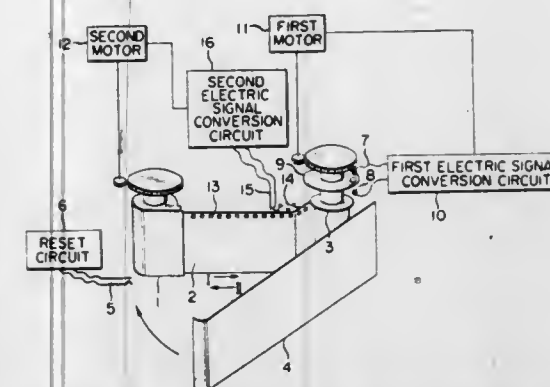
Filed Feb. 18, 1981, Ser. No. 235,750

Claims priority, application Japan, Feb. 26, 1980, 55-23652; Feb. 26, 1980, 55-23653

Int. Cl.³ G03B 1/04, 17/36; B65H 25/32

U.S. Cl. 354—173

8 Claims



1. An automatic film transport device characterized by the provision of

- a take-up reel for winding thereon a film unrolled from a film case loaded into a camera body,
- a first drive means for rotating said take-up reel in one direction,
- a film winding condition detection means for detecting the condition of the film being wound on said take-up reel which is driven by said first drive means,
- a first drive control means which is adapted to activate said first drive means in response to the action of any suitable part of a camera accomplished prior to the first exposure of the film and deactivate said first drive means in response to the output from said winding condition detection means,
- a second drive means for rewinding the film into said film case from said take-up reel,
- a film detection means adapted to detect the length of the film rewound into said film case, and
- a second drive control means which is adapted to activate said second drive means everytime when one exposure is completed after said first drive means has been deactivated and to deactivate said second drive means in response to the output from said second film detection means, thereby rewinding the film by a predetermined length.

4,362,371

MOTOR DRIVE APPARATUS

Yoshitaka Watanabe, Tokyo, and Tomonori Iwashita, Fuchu, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 1, 1981, Ser. No. 279,244

Claims priority, application Japan, Jul. 4, 1980, 55-91464

Int. Cl.³ G03B 1/04

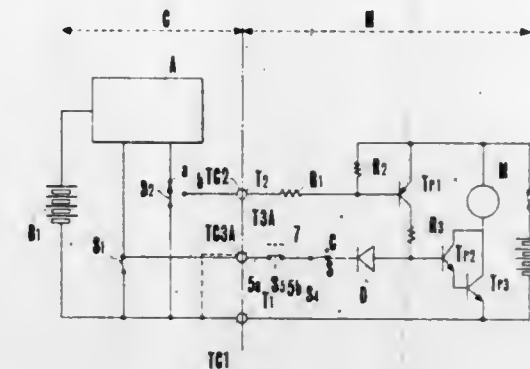
U.S. Cl. 354—173

14 Claims

1. A motor drive apparatus to be coupled with a camera for winding film, comprising:

- a winding signal terminal;
- a grounding terminal;
- a mode signal terminal;
- a mode signal line connected to said mode signal terminal; and
- switching means inserted in said mode signal line connected to said mode signal terminal, said means to render

said mode signal line ineffective when the motor drive apparatus is attached to a camera having a mechanical



coupling member of a type different from that of the apparatus.

4,362,372

FOCUSING SYSTEM AND METHOD WITH ADJUSTMENT FOR LENS DEPTH OF FOCUS

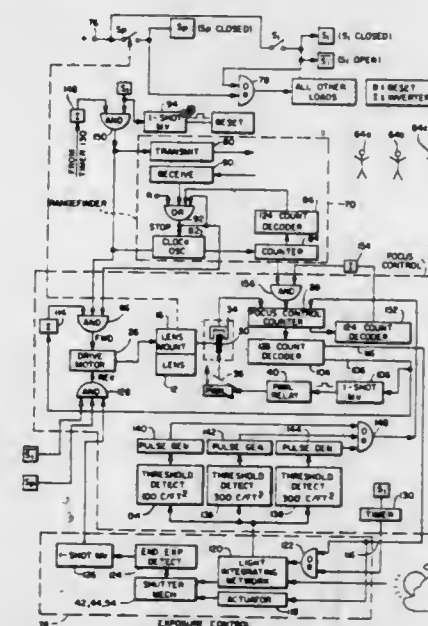
Kenneth C. Kiesel, Wayland, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation of Ser. No. 126,824, Mar. 3, 1980, abandoned. This application Mar. 18, 1981, Ser. No. 244,964

Int. Cl.³ G03B 3/10

U.S. Cl. 354—195

14 Claims



1. The method of focusing a variable aperture objective lens of a photographic camera having a range finder to determine the distance from the camera to the near part of a subject to be photographed, focus control means for positioning said lens at a focus setting corresponding to the distance determined by said range finder and aperture control means for determining the effective lens aperture value for proper exposure of camera-contained film to said subject, said method comprising the steps of:

- generating a signal representative of objective lens depth of focus for the determined lens aperture value to be used; and
- transmitting said signal to said focus control means to effect a focusing adjustment of said lens in accordance with said determined aperture value to a focus setting corresponding to a distance greater than that determined by said range finder.

4,362,373

SHUTTER CONTROL DEVICE FOR A CAMERA HAVING A SHUTTER RELEASE LOCK DEVICE

Kazuyuki Kazami, Tokyo, and Yoshiaki Ohtsubo, Kawasaki, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

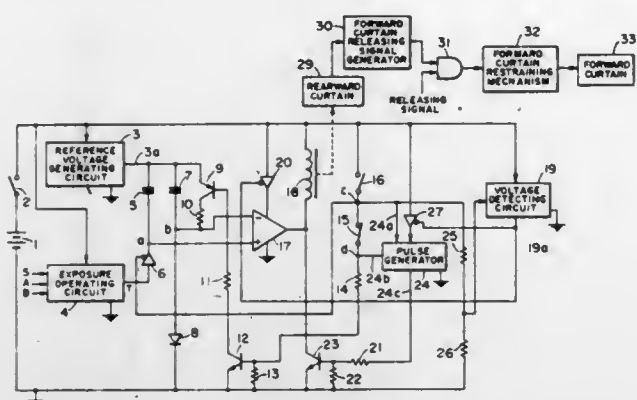
Filed Apr. 10, 1981, Ser. No. 252,995

Claims priority, application Japan, Apr. 30, 1980, 55-56159

Int. Cl.³ G03B 9/08, 7/00

U.S. Cl. 354—234

3 Claims



1. A shutter control device for a camera having (a) an automatic exposure time control device provided with a comparator circuit for comparing a time output corresponding to the lapse of time from the opening operation of a shutter with a proper shutter speed output representing a proper shutter speed and for generating a comparison output when said two outputs are in a predetermined relation and a magnet for blocking the closing operation of the shutter by energization, said magnet being adapted to be deenergized in response to said comparison output to close the shutter, and (b) a shutter release lock device provided with voltage detecting means for detecting a power source voltage and for deenergizing said magnet before the opening operation of the shutter when the power source voltage is below a reference value and blocking means for blocking the opening operation of the shutter by the deenergization of said magnet before the opening operation of the shutter, said shutter control device including means for forcibly energizing said magnet until the start of the opening operation of the shutter in response to shutter release operation, said means being operative in response to the output of said voltage detecting means when said power source voltage is greater than said reference value.

4,362,374

FOCAL PLANE SHUTTER WINDING MECHANISM

Haruo Ishii, Wako, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

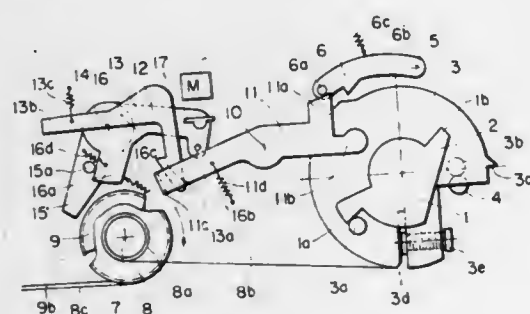
Filed Sep. 25, 1981, Ser. No. 305,770

Claims priority, application Japan, Oct. 3, 1980, 55-141101[U]

Int. Cl.³ G03B 9/32

U.S. Cl. 354—242

7 Claims



1. In a focal plane shutter mechanism of the type having a top curtain biased for movement in a shutter curtain running

direction and a top curtain drum on which said top curtain is to be wound, a shutter winding mechanism comprising:

- a shutter winding plate;
- means for rotating said shutter winding plate in a shutter winding direction; and
- a flexible ribbon coupling said shutter winding plate and said top curtain drum for rotating said top curtain drum to wind said top curtain when said shutter winding plate is rotated in said shutter winding direction.

4,362,375

APPARATUS INCLUDING A CIRCULATING CHAIN FOR CONVEYING PHOTOSENSITIVE MATERIAL

Toshiro Tahara, and Izumi Seto, both of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

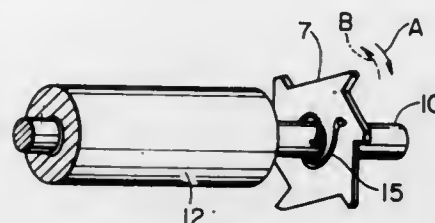
Filed Jun. 2, 1981, Ser. No. 269,215

Claims priority, application Japan, Jun. 9, 1980, 55-80164

Int. Cl.³ G03D 3/08

U.S. Cl. 354—320

7 Claims



1. In an apparatus for processing photosensitive material including a guide bar to which one end of a photosensitive material is fixed, a circulating chain which carries said guide bar which is grasped by a link plate, and a ratchet wheel which delivers said guide bar between said ratchet wheel and said circulating chain, the improvement comprising said ratchet wheel being mounted on a drive shaft through an elastic material, wherein torque from said drive shaft is elastically transmitted to said ratchet wheel when said guide bar is delivered between said ratchet wheel and said chain.

4,362,376

FILM PROCESSOR WITH A BY-PASS TRANSFERRING MECHANISM

Masami Otani, Kyoto, Japan, assignor to Dainippon Screen Mfg. Co., Ltd., Kyoto, Japan

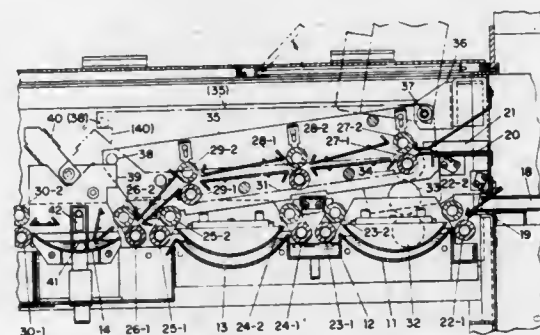
Filed May 11, 1981, Ser. No. 262,398

Claims priority, application Japan, May 22, 1980, 55-71604

Int. Cl.³ G03D 3/08

U.S. Cl. 354—319

6 Claims



1. Apparatus for processing films comprising: a processing route having a plurality of different processing sections for processing an exposed ordinary film and means for transferring the exposed ordinary film continuously along the processing route from one processing section to the next; first film inlet means for communicating film inserted therein to said transferring means for transferring film along the entire processing route;

second film inlet means; and by-pass transferring means for receiving film from said second inlet means and for delivering film to said transferring means for by-passing at least one processing section; wherein film requiring only a single-bath developing treatment and washing is transferred via said by-pass transferring means through only a portion of said processing route.

4,362,377

FILM PROCESSOR WITH AGITATION MEANS

Atsushi Yoshida, and Norimasa Nomura, both of Kyoto, Japan, assignors to Dainippon Screen Mfg. Co., Ltd., Kyoto, Japan

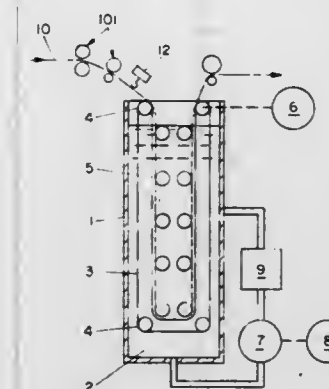
Filed Sep. 30, 1981, Ser. No. 306,949

Claims priority, application Japan, Oct. 17, 1980, 55-148904[U]

Int. Cl.³ G03D 3/04, 3/08

U.S. Cl. 354—320

5 Claims



1. A film processor having a film conveying device which conveys exposed film to be processed; a developing tank in which developing solution is supplied, said exposed film being conveyed through the tank; and an agitating device for agitating the developing solution, comprising a film detector for detecting the insertion of film into the developing tank, the detector generating a detecting signal; control means for controlling the said agitating device, the control means operating continuously the agitating device when the detecting signal is received and operating it intermittently when the film is conveyed out of the tank; and switchover means for switching over the said agitating device from the continuous agitation to the intermittent or inversely so that the developing solution is agitated continuously during film is in the tank and intermittently during film is not in it.

4,362,378

PAPER FEED AND IMAGE TRANSFER FOR ELECTROSTATOGRAPHIC COPIERS AND DUPLICATORS

William G. Erskine, Morpeth; Kenneth Moore, Chester le Street; Ronald Purvis, Rowlands Gill; Robert F. Ridley, Newcastle upon Tyne, and Nicholas G. Shreeve, Weybridge, all of England, assignors to Roneo Alcatel Limited, Essex, England

Filed Aug. 12, 1980, Ser. No. 177,342

Claims priority, application United Kingdom, Aug. 21, 1979, 7929020

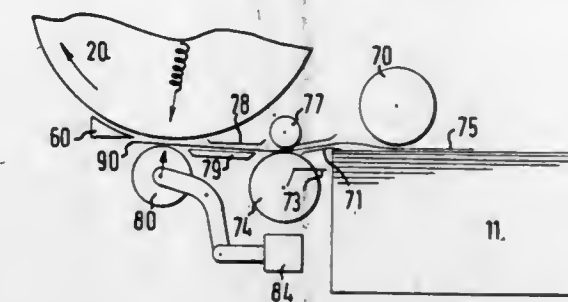
Int. Cl.³ G03G 15/18

U.S. Cl. 355—3 TR

6 Claims

1. Apparatus for electrostatographic reproduction of an original document including an electrostatographic recording member on which may be formed a latent electrostatic image, a rotatable support for the recording member, means for rotating the electrostatographic member and the support, a developing station at which a toner is applied to the recording member, means for supplying copy sheets sequentially to the rotatable support in registration with the latent image, and a transfer station at which the copy sheets pass synchronously with rotation of the support to a transfer roller which defines a nip with said support, said transfer roller being operative to

engage the copy sheets in a line contact and to apply an electric field to transfer the developed image from the recording member to the copy sheets, the transfer roller being arranged to operate in timed relationship to the rotation of the support and



a time to said imaging station from the bottom of said first hopper, thus forming duplex copies; if an even number of originals was detected present in the set, delivering the duplex copies one at a time from said imaging station through a first delivery path that delivers the duplex copies into a second hopper with their last imaged side facing upward; but if an odd number of originals was detected present in the set, before commencing said second pass delivering the bottommost single-sided copy from said first hopper through said imaging station without again imaging it and thence through a second delivery path that delivers it into said second hopper with its imaged side facing upward, and then delivering the duplex copies formed on said second pass one at a time through said second delivery path into said second hopper with their first imaged side facing upward.

4,362,380

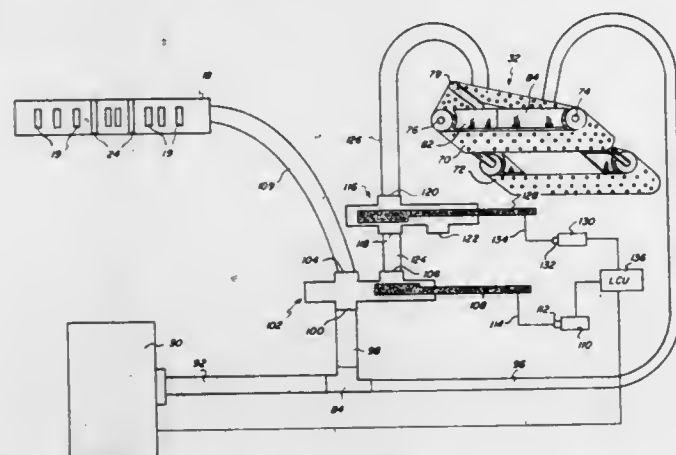
DOCUMENT FEEDER WITH VACUUM SYSTEM HAVING TWO CONTROL VALVES IN SERIES

Roger T. Dragstedt, Rochester, N.Y.; assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 2, 1981, Ser. No. 269,168
Int. Cl.³ G03G 15/00; B65H 3/12, 5/02

U.S. Cl. 355—3 SH

4 Claims



1. In a sheet feeder for feeding a sheet along a path extending from a storage position to a work station, the improvement comprising:

- a vacuum blower;
- vacuum operated means coupled to said blower and effective to at least partially remove a sheet from the storage position and feed the sheet into the path;
- vacuum transport means for receiving a sheet from the vacuum operated means and for advancing the sheet along the path to the work station, the vacuum transport means comprising a vacuum belt located along the path, and first and second vacuum plenums adjacent the belt, the vacuum transport means being operable to apply a first level of vacuum through said first plenum to a sheet as the sheet travels along a first part of the path and to apply a second and lower level of vacuum through said second plenum to a sheet as the sheet travels along a subsequent part of the path, the second plenum being coupled directly to said blower;
- a first control valve for regulating the flow of air from said vacuum operated means to said blower, the first valve having an inlet port coupled to said blower, a first outlet port coupled to said vacuum operated means and a second outlet port; and
- a second control valve for regulating the flow of air from the first plenum to the blower, the second valve having an inlet port coupled to the second outlet port of the first valve and an outlet port coupled to said first plenum.

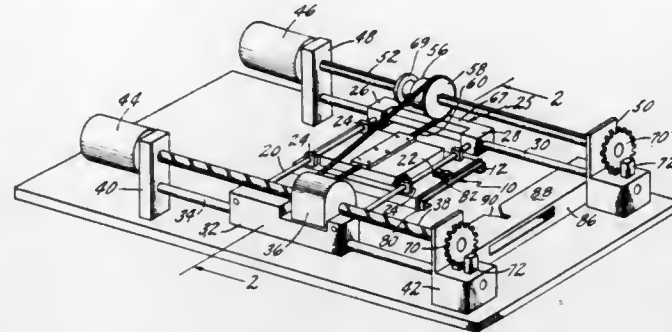
4,362,381 MULTIFORMAT FILM CASSETTE TRANSPORT

Phillipp J. Quedens, Berlin, Conn., assignor to SmithKline Instruments, Inc., South Windsor, Conn.

Filed Mar. 27, 1980, Ser. No. 134,517
Int. Cl.³ G03B 27/44

U.S. Cl. 355—54

11 Claims



1. A transport mechanism for a recording medium comprising:
 - means for receiving and holding a recording medium;
 - means supporting said receiving means for linear motion in a first direction;
 - means mounting said supporting means for linear motion in a second direction transverse to said first direction;
 - a first stationary drive motor;
 - drive belt means, said drive belt means being affixed to said receiving means;
 - idler means for supporting said drive belt means at a point displaced in a first direction beyond a first limit of motion of said receiving means, said idler means being mounted from said supporting means for movement therewith;
 - means for engaging and driving said drive belt means;
 - a rotatable spline shaft, said spline shaft being driven by said first stationary motor, said drive belt means engaging means being mounted on said spline shaft for rotation therewith, said engaging means also being moveable in said second direction on said spline shaft;
 - means supporting said spline shaft at points displaced in said second direction beyond the opposite limits of motion of said supporting means in said second direction; and
 - means including a second stationary motor for imparting motion to said supporting means in the second direction independently of movement of said receiving means in said first direction.

4,362,382

PRECESSION SCANNING SYSTEM

George R. Simpson, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Feb. 23, 1981, Ser. No. 237,058
Int. Cl.³ G03B 27/70

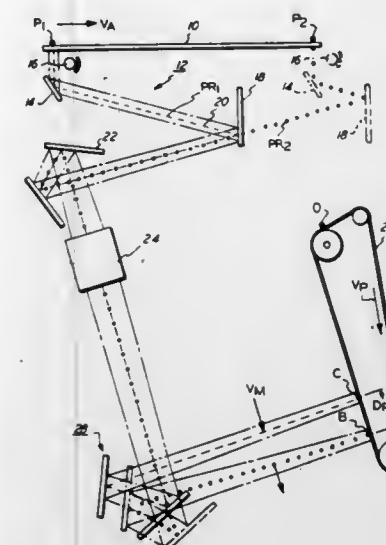
U.S. Cl. 355—66

6 Claims

1. An optical system for a copying device wherein a stationary document lying on an object plane is imaged onto a flat photoreceptor, said system comprising:
 - an illumination scanning means for scanning said document at a scanning speed V_A ,
 - projection means positioned between said scanning means and said photoreceptor moving at a velocity V_P , said projecting means adapted to project reflected images of the document along an optical path towards said photoreceptor, and
 - a corner mirror assembly positioned along the optical path between said projecting means and said photoreceptor, said assembly adapted to move along a linear path during said scanning operation so as to reflect said projected images, in substantially perpendicular orientation, onto

said photoreceptor, said linear movement causing said reflected images to precess along the surface of the photo-

producing the optimum approximation at a plurality of wavelengths.



receptor at a speed V_M equal to $V_A - V_P$ and along a precession distance D_P .

4,362,383

METHOD AND AN APPARATUS FOR COLOR COMPENSATION EXPOSURE

Hiroyuki Yonehara, Hikone; Yoshikazu Kimura, Kusatsu, and Kenjiro Tanabe, Hikone, all of Japan, assignors to Dainippon Seizo Kabushiki Kaisha, Japan

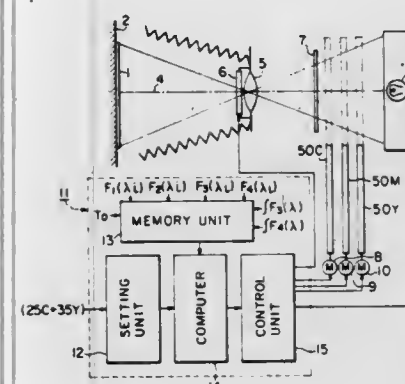
Filed May 1, 1980, Ser. No. 145,522

Claims priority, application Japan, May 2, 1979, 54-53506

Int. Cl.³ G03B 27/72

U.S. Cl. 355—71

3 Claims



1. A method for color compensation exposure for use in taking photographic pictures in a color duplication process, wherein according to the principle of partial exposure intervals, the exposure is first made with white light followed by exposures using a first maximum index color compensation filter of a color for which the highest level of color compensation is required and then using a second maximum index color compensation filter of another color for which additional color compensation is required so as to obtain the substantially same effect as by fixed color compensation filters selected from a number of color compensating filters with varying densities, the process comprising the steps of:
 - making a first partial exposure with white light, for a first time interval (T_1);
 - making a second partial exposure with the first color compensating filter for a second time interval (T_2);
 - and
 - making a third partial exposure with the second color compensating filter in combination with the first color compensating filter, for a third time interval (T_3);
 said intervals being determined by designating the indices of the fixed filters which would produce the desired effect of color compensation and carrying out an algorithm which yields the three time intervals (T_1 , T_2 and T_3) required for

4,362,384 MEANS FOR PROVIDING UNIFORM ILLUMINATION TO A LIGHT SENSITIVE ELEMENT

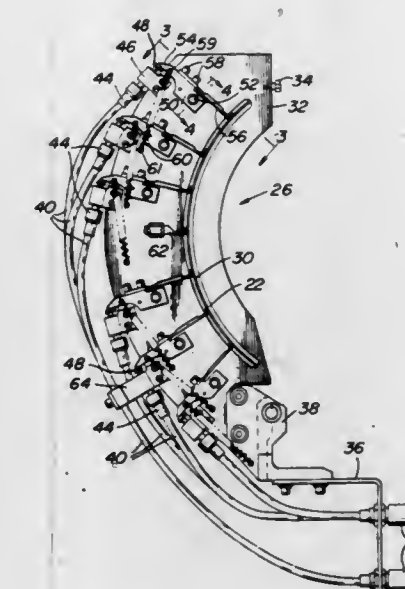
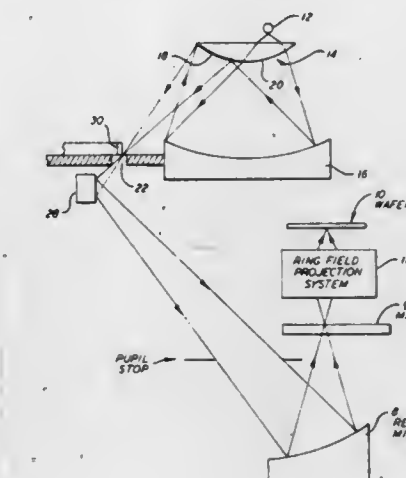
Orest Engelbrecht, Bethel, and David A. Markle, Norwalk, both of Conn., assignors to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed May 1, 1981, Ser. No. 261,314

Int. Cl.³ G03B 27/72

U.S. Cl. 355—71

4 Claims



1. Means for controlling the transmission of light from a light source to a mask for reproducing an image comprising:
 - a plate member having an elongated curved slit opening disposed between said light source and said element,
 - a flexible band secured to said plate member and extending along said slit opening, said flexible band disposed perpendicular to said plate member to obstruct light from said light source from passing through said slit opening,
 - a plurality of sets of adjustment elements connected between spaced areas on said flexible band and said plate member to permit independent flexure of said flexible band at selected points to vary the degree of the slit opening along its length,
 - said plurality of sets of adjustment elements comprising a plurality of flexible strips secured between said flexible band and a plurality of brackets pivotally mounted to said plate member, a plurality of flexible cables connected to move said brackets and thereby said flexible band, and manual control elements for selectively adjusting said

flexible cables thereby controlling the effective width of said slit opening along the length thereof.

4,362,385

PROCESS AND ARRANGEMENT FOR COPYING MASKS ON A WORKPIECE WITH ARRANGEMENT FOR CORRECTION OF ALIGNMENT ERRORS

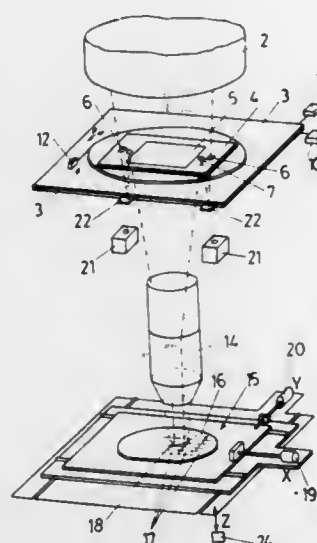
Ernst Lobach, Eschen, Liechtenstein, assignor to Censor Patent- und Versuchsanstalt, Vaduz, Liechtenstein

PCT No. PCT/EP80/00007, § 371 Date Oct. 14, 1980, § 102(e) Date Oct. 10, 1980, PCT Pub. No. WO80/01722, PCT Pub. Date Aug. 21, 1980

PCT Filed Feb. 7, 1980, Ser. No. 197,992

Claims priority, application Fed. Rep. of Germany, Feb. 14, 1979, 2905636

Int. Cl.³ G03B 27/42; G01B 11/26; G03B 41/00; G05B 3/04 U.S. Cl. 355—77 10 Claims



1. In a method of copying a pattern of a mask member upon a semiconductor substrate member in the production of integrated circuits, whereby a semiconductor substrate member is disposed in an image plane of an objective having an optical axis and an image of said mask pattern is cast upon a first predetermined area of said substrate member during an exposure interval, said substrate member is then shifted in said image plane, a second predetermined area of substrate member is positioned along said optical axis and another image of said mask member is cast upon said substrate member, and the sequence is repeated until a multiplicity of predetermined areas of said substrate member have been exposed, the improvement wherein:

- initiating prior to the conclusion of one of said exposure intervals a determination of the alignment error between the mask pattern and the respective predetermined area, said determination being carried out at least in part during one of said exposure intervals; and
- adjusting the position of one of said members prior to a subsequent exposure to correct the relative positions of said members after the respective shift for said subsequent exposure by a value corresponding to said alignment error.

4,362,386

METHOD AND APPARATUS FOR RECOGNIZING SMEARS

Hajime Matsushita, and Yoshimasa Shimura, both of Katsuta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 18, 1980, Ser. No. 208,076

Claims priority, application Japan, Nov. 19, 1979, 54-148912

Int. Cl.³ G01N 33/48

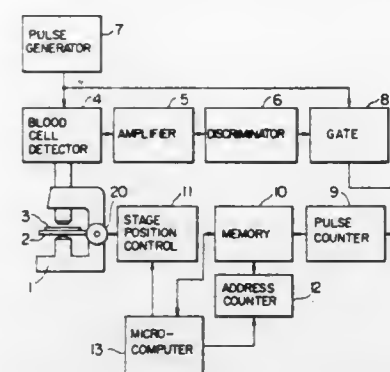
U.S. Cl. 356—39

10 Claims

- A method for recognizing a smear comprising the steps of:
 - positioning a slide held on a movable stage of a microscope to a predetermined position such that the test smear

on said slide is positioned within a view field of said microscope,

- moving said stage along said smear in response to an instruction from a control unit such that different areas of said test smear along the length of said smear are sequentially positioned within the view field of said microscope,
- sequentially detecting by a detector objects to be counted in test samples at respective measuring points appearing in



- the view field of said microscope as said stage is moved, to determine distribution densities of the objects to be counted at the respective measuring points,
- comparing the distribution densities at the respective measuring points with a preset distribution density to determine an optimum test area on the test smear, and
- moving said stage in response to an instruction from said control unit such that the view field of said microscope is positioned to said optimum test area.

4,362,387

METHOD AND APPARATUS FOR MEASURING VISIBILITY FROM THE POLARIZATION PROPERTIES OF THE DAYLIGHT SKY

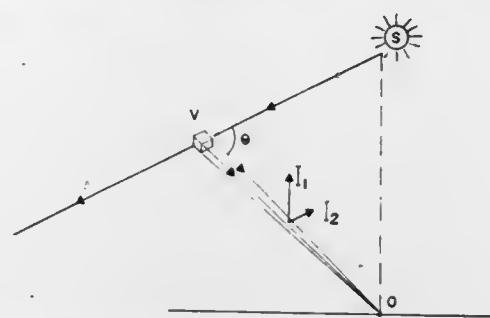
Roy Clark, Los Angeles, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Aug. 22, 1980, Ser. No. 180,536

Int. Cl.³ G01N 21/21

U.S. Cl. 356—338

22 Claims



- A method for determining visibility of the atmosphere comprising the steps of:
 - measuring the intensities of two linearly polarized components of scattered daylight, said two components being respectively oriented perpendicular and parallel to a first plane containing the sun, an observation point, and a volume of the atmosphere under investigation,
 - aligning a light intensity measuring means from said point of observation towards said volume at an observation angle of approximately 90° away from a vertical plane including the sun and said point of observation for measuring the intensities of said two linearly polarized components, and comparing said two intensities to one another, the greater the intensity of the polarized component of daylight perpendicular to said first plane relative to the intensity of the polarized component of daylight parallel to said first plane, the better the visibility of the atmosphere.

4,362,388

REMOTE MEASUREMENT OF CONCENTRATION OF A GAS SPECIE BY RESONANCE ABSORPTION

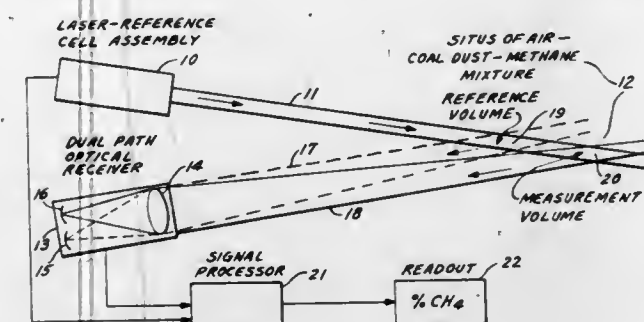
Walter D. Egan, Bethlehem; Roger T. Boos, Coopersburg, both of Pa.; Robert L. Byer, Stamford, Calif., and Richard K. DeFreez, Beaverton, Oreg., assignors to Bethlehem Steel Corp., Bethlehem, Pa.

Filed Nov. 17, 1980, Ser. No. 207,850

Int. Cl.³ G01N 21/00

U.S. Cl. 356—341

12 Claims



- In a method of remotely determining the concentration of a specie of gas at a situs comprising, directing a beam of energy along an axis to said situs wherein said energy beam includes a frequency within a resonance absorption band of said specie of gas, detecting said energy by spatially displaced detectors positioned off said axis, measuring the intensities of the energy scattered from two spaced volumes along said beam at said situs with one of said detectors measuring said intensity from a first of said volumes and another of said detectors measuring said intensity from a second of said volumes, and determining the ratio of said intensities, said ratio being a measure of the concentration of said gas specie.

4,362,389

METHOD AND APPARATUS FOR PROJECTION TYPE MASK ALIGNMENT

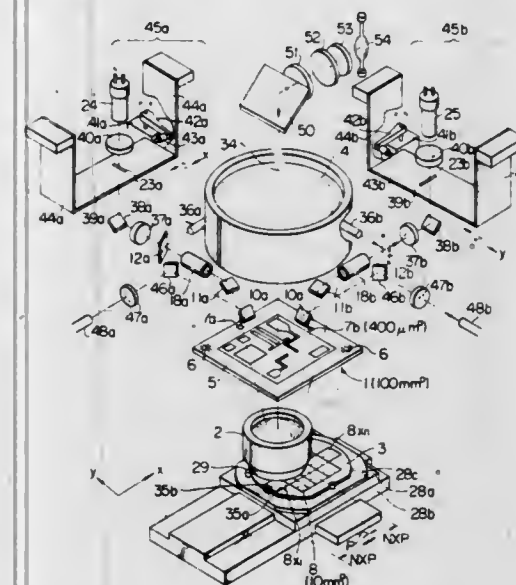
Mituyoshi Koizumi; Nobuyuki Akiyama, and Yoshimasa Oshima, all of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 19, 1980, Ser. No. 122,484

Int. Cl.³ G01B 11/27; H05K 13/00

U.S. Cl. 356—401

7 Claims



- A mask alignment method of projection type comprising the steps of:
 - disposing a wafer in a region onto which a mask is projected by a projection lens, said wafer including first and second wafer alignment patterns formed thereon, said first wafer alignment pattern having at least a first line segment, said first line segment being formed at a first position on said wafer and having a predetermined length in a first direction with first and second step edges extending parallel to

one another along said predetermined length, said second wafer alignment pattern having at least another first line segment, said another first line segment being formed at a second position different than said first position on said wafer and having a predetermined length in a second direction approximately perpendicular to said first direction with said first and second step edges extending parallel to one another along said predetermined length, said first and second wafer alignment patterns having respective pattern center axes, said pattern center axes being approximately parallel to said first and second line segments, respectively, said first and second positions being determined so as to cause directions along which each of said pattern center axes lies to intersect with the optical axis of said projection lens;

projecting first and second mask alignment patterns of said mask onto said first and second wafer alignment patterns, respectively, said first and second mask alignment patterns being laid respectively upon said first and second wafer alignment patterns when said mask is projected onto said wafer by said projection lens, each of said first and second mask alignment patterns including at least a second line segment having a predetermined length, said first and second mask alignment patterns being formed at such positions on said mask as to make each of said second line segments parallel to a corresponding one of said first line segments when said mask is correctly aligned with said wafer; and

aligning said mask and said wafer with each other by the use of optical images of said first and second wafer alignment patterns and said first and second mask alignment patterns, said optical images being formed and converted into video signals, a relative displacement between each of said first line segments and a corresponding one of said second line segments being determined by a video signal corresponding to said first line segment and a video signal corresponding to said second line segment, said relative displacement being reduced to align said wafer with said mask,

wherein, during the course of said adjusting, equal amounts of said projected light will be reflected off the first and second step edges of each of said first and second wafer alignment patterns due to the positional relationship of the longitudinal center axes of the first and second wafer alignment patterns to the optical axis of the projection lens.

4,362,390

DRIVE ASSEMBLY FOR VEHICULAR CEMENT MIXERS

Manfred Fischer, Friedrichshafen, Fed. Rep. of Germany, assignor to Zahnradfabrik Friedrichshafen, Aktiengesellschaft, Friedrichshafen, Fed. Rep. of Germany

Filed Aug. 6, 1980, Ser. No. 175,921

Claims priority, application Fed. Rep. of Germany, Aug. 7, 1979, 2931969

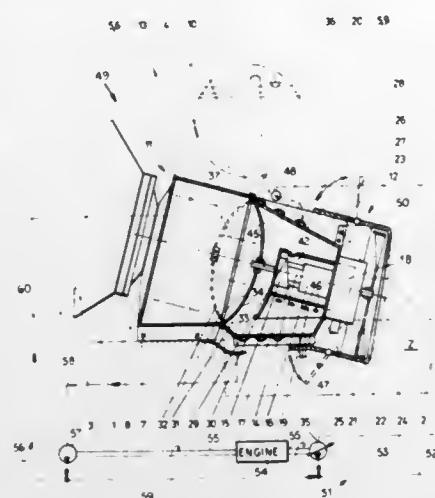
Int. Cl.³ B28C 5/20

U.S. Cl. 366—61

13 Claims

- A cement mixer comprising:
 - a frame;
 - a cement-mixing drum rotatably mounted on said frame;
 - tapping means on said frame for extracting cement mixture from said drum;
 - loading means on said frame for conveying raw materials into said drum;
 - a drive housing attached to said frame and provided with a first chamber having in an upper region an overflow outlet, said housing having a second chamber defined in part by an outer housing wall provided with a plurality of outwardly extending cooling fins, said second chamber communicating with said first chamber via said outlet and including a lower portion forming a sump;
 - a hydrostatic motor disposed in said first chamber;
 - transmission means in said housing connected to said motor

and to said drum for transmitting rotary power thereto from said motor;
fluid-circulating means including a hydraulic drive on said frame for energizing said motor, said fluid-circulating means being connected to said second chamber for drawing cooled



fluid from said sump and utilizing the cooled fluid to drive said motor; and
fan means operatively connected to said motor and mounted on said housing for blowing air past said fins upon operation of said motor.

4,362,391

WATCH WITH A CALENDAR DISPLAY AND HAND SETTING DEVICE ACTUATED BY A SETTING SHAFT
Josef King, and Wolfgang Ganter, both of Schramberg, Fed. Rep. of Germany, assignors to Gebrüder Junghans GmbH, Schramberg, Fed. Rep. of Germany

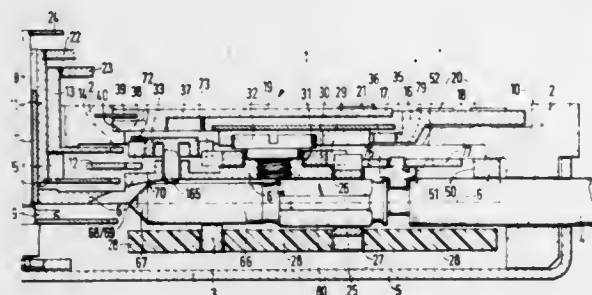
Filed Nov. 18, 1980, Ser. No. 208,017

Claims priority, application Fed. Rep. of Germany, Nov. 24, 1979, 2947400

Int. Cl.³ G04B 19/24; G04C 17/00

U.S. Cl. 368—34

14 Claims



1. A watch with a calendar display and a hands setting device, comprising a setting shaft having a plurality of axial positions, the calendar display and the hands setting device being selectively coupled for rotation with the setting shaft as a function of the instantaneous axial position of said setting shaft, the setting shaft is drivingly connected during the transition from a first preselection axial position into a second calendar correction axial position through a reversing lever with a coupling element that may be rotated into one of two preselectable working positions, the setting shaft is rotatably connected in the first preselection axial position with the coupling element to move the coupling element to one of two preparatory positions for the two working positions dependent upon the direction of rotation of the setting shaft, the setting shaft being rotatably disengaged from the calendar display in the first axial position, a slotted link acting on the coupling element during movement of the shaft from the first to the second axial position to urge the coupling element into the preselected working position in engagement with either a date display disk or a day-of-the-week display disk, a third axial position of the setting shaft for the setting of the hands, the coupling element

being returned by the slotted link into an intermediate position and held between the two preparatory positions in the third axial position, and the setting shaft being rotatably connected with the minute hand in the third axial position through a hand setting wheel displaceable along an axis of the wheel in a direction transverse to a longitudinal axis of the setting shaft.

4,362,392

ELECTRONIC TIMEPIECE WITH MESSAGE AND/OR ALARM OUTPUT CAPABILITY

Kiyoshi Kumata, Kyoto, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

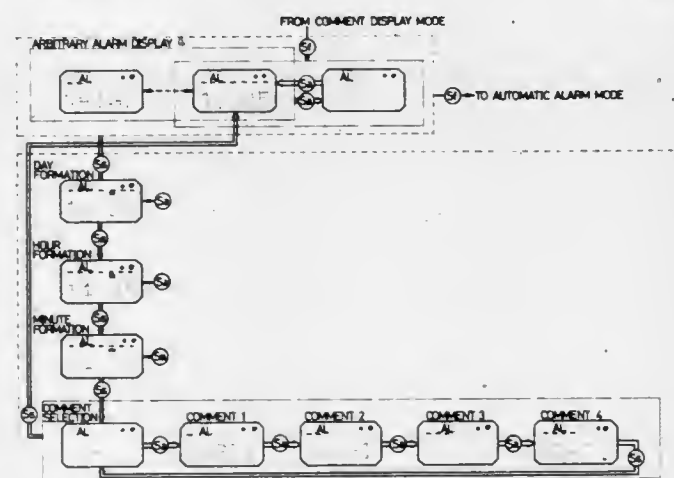
Filed Jun. 25, 1980, Ser. No. 162,884

Claims priority, application Japan, Jun. 29, 1979, 54-83157; Aug. 20, 1979, 54-106217; Aug. 24, 1979, 54-108490; Sep. 12, 1979, 54-117516

Int. Cl.³ G04C 19/00; G04B 45/00

U.S. Cl. 368—82

3 Claims



1. An electronic timepiece comprising:
means for providing horological information representative of current time information;
display means responsive to the providing means for indicating a visual display of the horological information;
means for storing a plurality of types of code information representing separate comment frames of symbolic information;
means coupled to the storing means for independently selecting code information of any one of said separate comment frames, in which the code information is generated to enable the formation of a comment in said frame, and a comment formation mode, in which the symbols in the comment frame are selected to form said comment;
means responsive to the selecting means for instructing said display means to indicate the symbolic information of one or more comment frames as a message thereon;
the storing means comprising first memory means and second memory means, the first memory means containing the types of the code information representing separate comment frames and providing the respective symbols of the comment in a circulating manner in response to the comment frame selected by the selecting means, and the second memory means being responsive to the types of the code information generated by the first memory means for storing coded forms of the respective comments formed during the comment formation mode;
means responsive to the instructing means for extracting the coded forms of the respective comments from the second memory means;
means responsive to the extracting means for converting the coded forms of the respective comments into the symbolic information comprising the comments; and
said display means being responsive to the converting means for displaying the symbolic information as the message thereon.

4,362,393

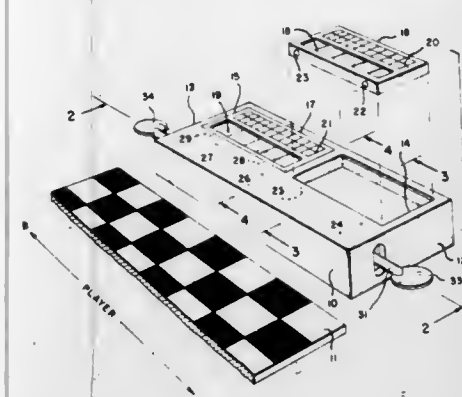
CHESS CLOCK

Pierre L. Tissot, 863 Via de la Paz, Pacific Palisades, Calif. 90272

Filed Nov. 17, 1980, Ser. No. 207,687

Int. Cl.³ G04F 3/00

U.S. Cl. 368—96



1. A chess clock, including, in combination: an electronic, portable pocket calculator including means, when actuated, for automatically repeating the previously performed function of the calculator, an equal/repeat key for actuating said means and first and second spaced accessible contacts exposed on a surface portion of said calculator, wired in parallel with said equal/repeat key so that momentary short circuiting of said contacts effects the same function in said calculator as pressing and releasing said equal/repeat key; additional first and second spaced contacts for engagement with said first mentioned first and second spaced contacts respectively; a control circuit for short-circuiting said additional first and second spaced contacts at a given repetition frequency; and switch means for connecting when closed and disconnecting when opened said control circuit to said additional first and second spaced contacts whereby said calculator and control circuit constitute a countdown device during a period defined by the lengths of time said switch means is closed.

4,362,394

TIME INTERVAL MEASUREMENT ARRANGEMENT
Robert P. Menlove, Aberdeen, Scotland, assignor to Marconi Instruments Limited, Chelmsford, England

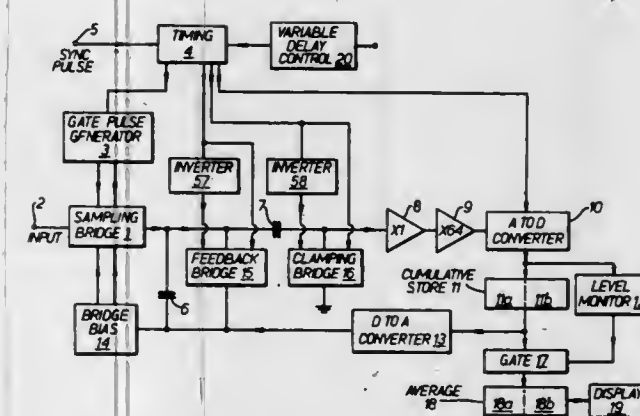
Filed Jul. 28, 1981, Ser. No. 287,586

Claims priority, application United Kingdom, Sep. 30, 1980, 8031492

Int. Cl.³ G04F 8/00; G01R 23/16

U.S. Cl. 368—118

6 Claims



1. A time interval measurement arrangement including means for receiving a signal having a repetitively recurring waveform; means for determining the amplitude of the waveform at a selected point on the waveform by repetitively sampling the signal at said selected point so as to progressively alter in incremental steps the sample value to bring it into agreement with the value of the signal at said selected point; means for varying the sampling instant so as to alter said se-

lected point until the measured amplitude agrees with a predetermined amplitude condition; and means for determining the sampling instant when said agreement is obtained.

4,362,395

DEVICE FOR WINDING AND SETTING A TIMEPIECE
Vincent Calabrese, Lausanne, Switzerland, assignor to Corum, Ries, Bannwart & Co., Switzerland

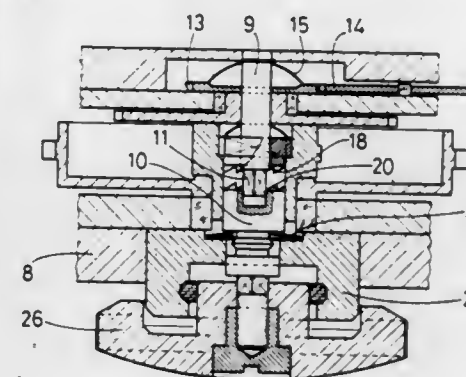
Filed Oct. 10, 1980, Ser. No. 196,120

Claims priority, application Switzerland, Oct. 19, 1979, 9400/79

Int. Cl.³ G04B 27/00

U.S. Cl. 368—146

8 Claims



1. A winding and setting assembly for a timepiece comprising a spring drum with a hollow shaft, a ratchet secured to said shaft and a setting wheel for the timepiece, a connecting member in said hollow shaft and fixed for rotation therewith, a rotatable and axially movable two-part stem extending through said hollow shaft and comprising a first part which extends freely through said connecting member and carries a pinion engageable with said setting wheel in one axial position of said stem to set said timepiece, and a second part carrying driving means engageable with cooperating driving means on said connecting member in another axial position of said stem to rotate said shaft and thereby wind said timepiece.

4,362,396

BATTERY HOLDER FOR ELECTRONIC WRIST WATCH
Friedrich Perrot, Lengnau, Switzerland, assignor to ETA A.G. Ebauches-Fabrik, Soleure, Switzerland

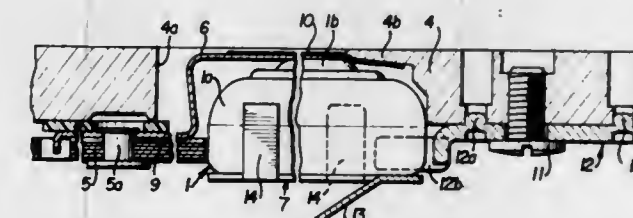
Filed Aug. 4, 1980, Ser. No. 174,798

Claims priority, application Switzerland, Aug. 21, 1979, 7629/79

Int. Cl.³ B32B 00/00

U.S. Cl. 368—203

8 Claims



1. An electronic watch comprising:
a case body;
a back removably secured to said case body;
a watch movement frame part secured within said case body;
a lodging in said frame part for receiving a battery, the bottom of said lodging being defined by a holding portion integral with said frame part;
a flat cylindrical battery engaging said lodging and having a sidewall;
said battery having a first pole connected to said sidewall;

a cover connected to a second pole of said battery;
a flat wall opposed to said cover;
first and second spring contacts secured with respect to said frame part, said first contact engaging said cover to be in electrical contact with said second pole, said second contact engaging said sidewall to be in electrical contact with said first pole; and
a separate bracket means fitted onto said battery and having a resilient protruding tongue which bears against said back, said bracket means pressing said battery against said holding position, whereby said battery is axially held within said watch through said bracket means, which is independent of said spring contacts.

4,362,397

ANALOG-DISPLAY TIMEPIECE

Hans U. Klingenberg, 3274 St. Niklaus bei Merzligen (Canton of Berne), Switzerland

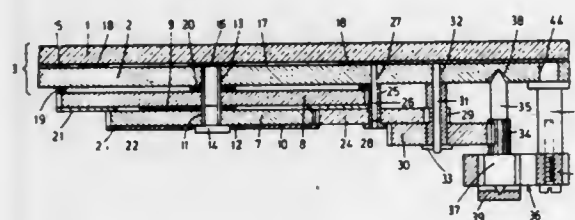
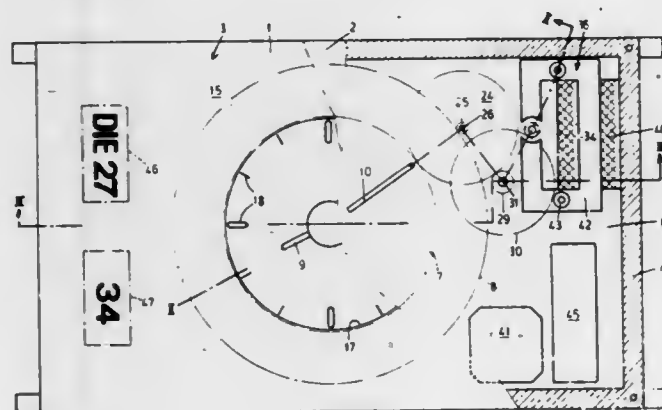
Filed Sep. 29, 1980, Ser. No. 191,497

Claims priority, application Switzerland, Oct. 9, 1979, 9079/79

Int. Cl.³ G04B 19/20

U.S. Cl. 368—233

7 Claims



1. A timepiece of the type having a glass, two or more discs rotatably disposed under said glass for analogically indicating the time, and drive means for rotating said discs, wherein the improvement comprises:

an arbor having a first end rigidly secured to the underside of said glass, a second end of said arbor being remote from said glass and remaining free, and said discs being pivoted about said arbor, and

a retaining member affixed to said second end of said arbor for preventing detachment of said discs from said arbor, said drive means comprising a plurality of gear wheels and pinions and a plurality of arbors about which said gear wheels and pinions are respectively pivoted, each of said plurality of arbors having a first end secured to or in said glass whereby sole support for said drive means is derived from said glass.

4,362,398

MULTIPLEXED LCD ANALOG TIMEPIECE

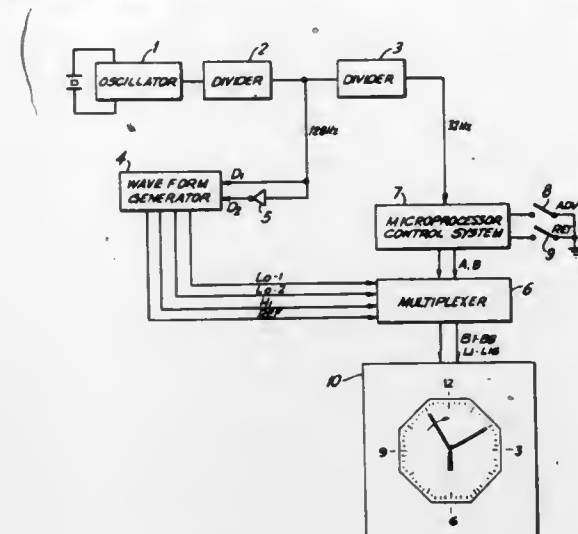
Michael Jackson, San Jose, Calif., assignor to Timex Corporation, Waterbury, Conn.

Filed Oct. 14, 1980, Ser. No. 197,060

Int. Cl.³ G04C 17/02

U.S. Cl. 368—240

10 Claims



1. An LCD analog timepiece comprising
 - (a) a time base including a quartz oscillator and countdown divider chain providing timekeeping pulses of a first frequency and display driving pulses of a second frequency,
 - (b) a liquid crystal analog display comprising a plurality of backplane electrodes on one substrate and a plurality of radial electrodes on the other substrate connected in strings, whereby each string of radial electrodes traverses all of the backplane electrodes,
 - (c) a waveform generator connected to receive said second frequency pulses and providing four output waveforms, one pair of which when combined will activate opposed electrodes in said liquid crystal display and any other combination of which will not activate the display electrodes,
 - (d) a multiplexer connected to receive the plurality of waveforms and to sequentially supply selected waveform combinations to the display backplanes and radial sets in pairs, and
 - (e) timekeeping and control means for counting the first frequency pulses and activating the multiplexer so as to sequentially apply selected activating combinations of waveforms to display electrodes causing the radial segments to display the time.

4,362,399

CIRCUIT FOR AN ELECTRONIC CLOCK HAVING A PARALLEL-CONNECTED ALARM DEVICE AND STEPPER MOTOR

Franz Fick, Hamburg, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 2, 1980, Ser. No. 193,211

Claims priority, application Fed. Rep. of Germany, Oct. 12, 1979, 2941388

Int. Cl.³ G04C 21/16

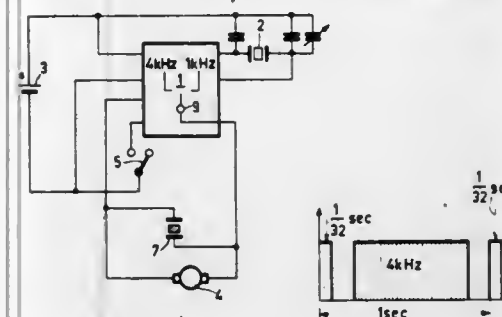
U.S. Cl. 368—255

2 Claims

1. A circuit for an electronic clock having display elements and an alarm device, which comprises:

- a quartz oscillator;
- a stepper motor for driving the display elements;
- a PXE alarm element connected in parallel with said stepper motor;
- a frequency divider having its input coupled to said quartz oscillator and its output coupled to the parallel combination of said stepper motor and said alarm element; and
- means for switching the output frequency of said divider

from a first frequency for providing stepping pulses to said motor to a second frequency for driving said parallel-con-



nected PXE element during the time interval between said stepping pulses.

4,362,400

TIMEPIECE WITH ALARM FUNCTION INCLUDING ANNULAR DIAPHRAGM TO ACCOMMODATE BATTERY

Takahiko Ihochi; Masashi Tanaka, both of Koganei; Kazuo Kojima, Tokorozawa, and Yutaka Nakajima, Mitaka, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

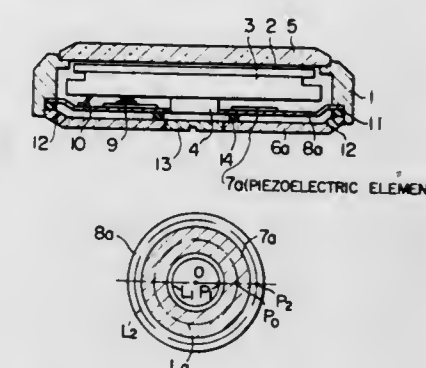
Filed Oct. 23, 1980, Ser. No. 199,975

Claims priority, application Japan, Oct. 24, 1979, 54-136403

Int. Cl.³ G04C 21/16

U.S. Cl. 368—255

7 Claims



1. A timepiece comprising a casing having a transparent viewing surface; a display unit mounted adjacent said transparent viewing surface; a diaphragm having its peripheral portion carried by the casing and serving to generate sound; a piezoelectric element mounted on the diaphragm; and a module arranged to be powered by an electric cell for driving at least one of the display unit and the piezoelectric element; the display unit, the diaphragm, the piezoelectric element and the module being mounted in said casing with said diaphragm being disposed on the opposite side of said module and said display unit from said viewing surface; wherein the diaphragm and the piezoelectric element are ring-like plates each having holes at their centers which are substantially coaxial with each other, the space provided by the holes in said diaphragm and said piezoelectric element being used to accommodate at least a part of the electric cell in the casing.

4,362,401

WATCHCASE

Gen Mitamura; Takao Eguchi, and Yukio Nagami, all of Tokyo, Japan, assignors to Kabushiki Kaisha Daini Seikoshu, Japan

Filed May 24, 1979, Ser. No. 42,131

Claims priority, application Japan, Sep. 8, 1978, 53-110881

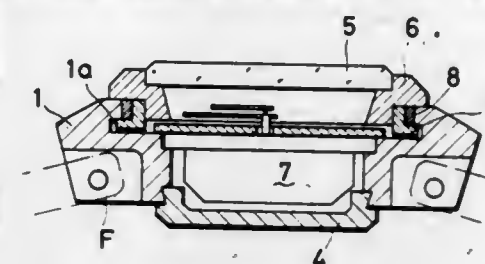
Int. Cl.³ G04B 37/00

U.S. Cl. 368—309

16 Claims

1. A watchcase comprising: a case body having oppositely disposed internal recesses therein; a back cover; a support member fixedly connected to said back cover, said support member having an outwardly extending flange extending an outward radial direction of the watchcase from the upper end surface of the support member and having at least a pair of peripheral beads extending further outwardly from said flange and engageable with respective ones of said recesses; means

defining clearances between the flange peripheral beads and the case body recesses to permit sufficient movement of the back cover relative to the case body in a diametrical direction of the watchcase to enable removal of the back cover from the case body without causing deformation of the case body, back



cover or support member; and biasing means for resiliently biasing the back cover to a balanced position in which the flange peripheral beads engage with respective ones of the case body recesses to thereby removably join said back cover to said case body.

4,362,402

CLOCK WITH A HOLDER

Manfred Kallinke, Hofheim-Wallau; Walter Bleuel, Hofheim; Wolfgang Hoehn, Liederbach, and Kurt Heinrich, Usingen, all of Fed. Rep. of Germany, assignors to VDO Adolf Schindling AG, Frankfurt am Main, Fed. Rep. of Germany

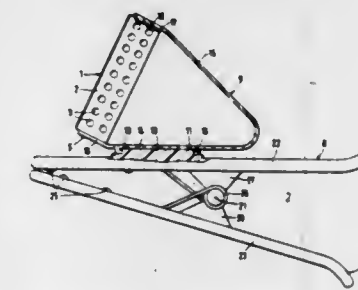
Filed Jul. 14, 1980, Ser. No. 167,886

Claims priority, application Fed. Rep. of Germany, Jul. 20, 1979, 2929373

Int. Cl.³ G04B 37/00; A47F 7/00

U.S. Cl. 368—317

13 Claims



1. A clock with a holder comprising a clock having a housing and a dial plate mounted therein, said housing being square in cross-section in the plane of the dial plate, holder means for detachably holding said housing, at least one part of said holder means is formed in the shape of a yoke having two resilient arms, said housing is clampingly insertable between said arms, at least side surfaces of said housing and at least free ends of said arms being formed with interlocking profile means for a snap-in connection of said housing and said holder means, said profile means are calotte-shaped, and said profile means comprise calotte-shaped depressions in at least said side surfaces of said housing and calotte-shaped elevations in at least said free ends of said arms, said yoke is formed in a V-shape with the ends of said arms parallel to each other,

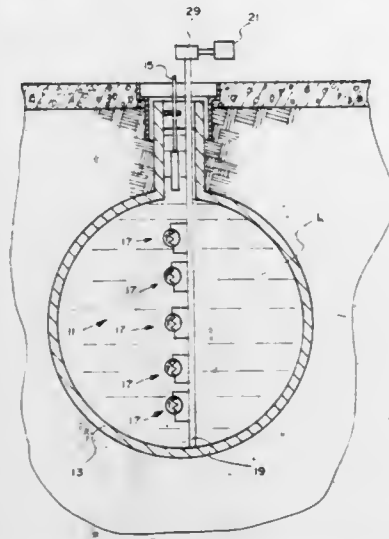
the width of the ends of said arms is approximately equal to the depth of said housing, a part of said holder means is formed in the shape of a clamp with two clamping jaws which are movable relative to each other, said yoke is seated on said clamp.

4,362,403

MEANS AND METHOD OF SENSING TEMPERATURE
Joseph R. Mooney, 33 Hawk St., New Orleans, La. 70124
Filed Aug. 3, 1981, Ser. No. 289,793
Int. Cl.³ G01F 23/24

U.S. Cl. 374-4

6 Claims



1. An improved temperature sensing apparatus for sensing temperature in a system for detecting leaks in a liquid storage reservoir of the type including an apparatus for indicating the level of liquid in the reservoir and a temperature sensing apparatus for indicating the temperature of the liquid in the reservoir, said improved temperature sensing apparatus comprising:

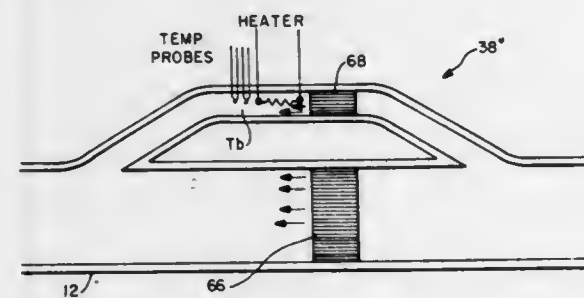
- (a) a plurality of temperature sensing means for placement at a plurality of locations within the liquid and for displaying measurable electrical characteristics responsive to the temperature of the liquid;
- (b) a sensitive electrical meter means for indicating minute electrical characteristics;
- (c) an electric circuit for electrically coupling said temperature sensing means and said meter means; and
- (d) selector switch means interposed in said electric circuit between said temperature sensing means and said meter means for allowing each of said temperature sensing means to be individually electrically coupled to said meter means.

4,362,404

HEAT MEASURING APPARATUS AND METHOD FOR USE IN A CONTINUOUS FLUID STREAM
Peter R. Armstrong, Santa Cruz, Calif., assignor to Electric Power Research Institute, Inc., Palo Alto, Calif.
Filed Mar. 17, 1980, Ser. No. 131,028
Int. Cl.³ G01K 17/08

U.S. Cl. 374-39

4 Claims



1. An apparatus for use in measuring the amount of heat entering a continuous fluid stream at a predetermined location

along the path of said stream from a heat generating system, said apparatus comprising:

- (a) means for diverting a fixed portion of said fluid stream from said path at a specific diversion point and returning said stream portion back to said path along a bypass route upstream of said heat entering location, said diverting means being such that the fluid entering the bypass route and the fluid remaining in the continuous stream at said diversion point have substantially the same pressure and temperature, said diversion means including a plurality of laminar flow elements together forming a flow dividing arrangement which is located at said diversion point and which has a bypass section through which the diverted portion of said stream passes and a main section through which the rest of said stream passes;
- (b) means for applying heat to said diverted stream portion at a fixed point along said bypass route;
- (c) a heat control arrangement including:
 - (i) means for detecting the difference in temperature between the continuous stream at a fixed point on said path downstream of said heat entering location and the diverted stream portion at a fixed point along said bypass route downstream of said heat applying point, and
 - (ii) means responsive to the temperature difference detected for controlling the amount of said heat applied to said diverted stream portion so as to substantially eliminate said difference; and
- (d) means for measuring the amount of heat applied to said diverted stream portion, said applied heat being proportional by a fixed amount to the heat entering said continuous stream from said generating system whereby the latter can be determined.

4,362,405

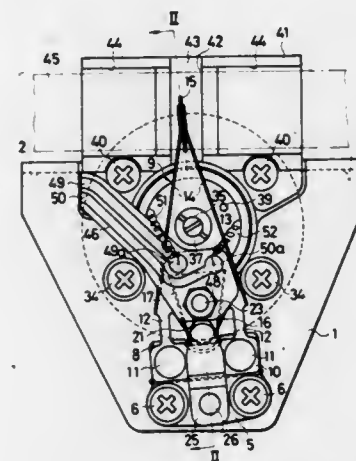
MOVING COIL TYPE PRINTING HEAD

Yoshiaki Ikeda, Tokyo, Japan, assignor to Seikosha Co., Ltd., Japan

Filed Dec. 5, 1980, Ser. No. 213,660
Int. Cl.³ B41J 3/02, 3/08

U.S. Cl. 400-121

14 Claims



1. A moving coil type printing head comprising: a cantilevered printing lever comprised of a leaf spring and having at a free end thereof a printing element opposing a platen; a movable coil secured to said printing lever for movement therewith; magnetic flux generating means for producing a magnetic flux which intersects said movable coil to effect movement of the coil; said printing lever having a base portion supported by a holding member, two resilient leg portions integrally extending from said base portion, a triangular lever portion integral with said leg portions and carrying said movable coil, and a tongue portion integrally extending from the base of said lever portion toward said base portion; and a fulcrum member attached to one of said tongue portion and a plate member mounted on said holding member so as to be in

contact with the other of said tongue portion and said plate member.

4,362,406

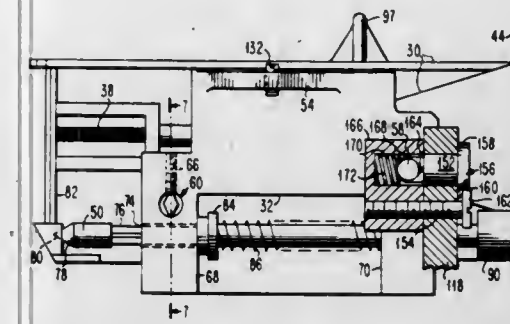
DOT MATRIX PRINT HEAD

John M. Choberka, Pompano Beach, and Donald K. Rex, Highland Beach, both of Fla., assignors to International Business Machines Corp., Armonk, N.Y.

Continuation of Ser. No. 62,257, Jul. 30, 1979, abandoned. This application May 14, 1981, Ser. No. 263,524
Int. Cl.³ B41J 3/12

U.S. Cl. 400-124

3 Claims



1. A dot matrix printer tilting print head for printing dots on a record medium during lateral movement in one direction across said medium and adapted to be tilted to print dots between the first printed dots during lateral movement in the opposite direction, said print head comprising:

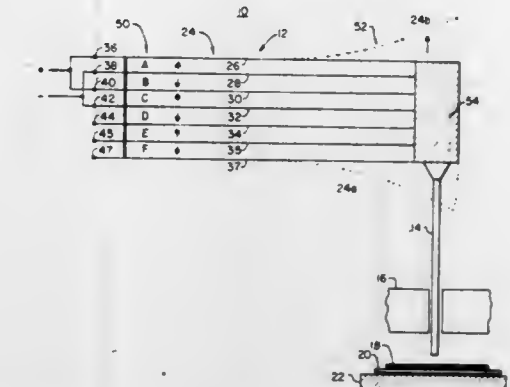
- a print head housing containing a plurality of actuatable print wires, the center of each wire, at its end, being separated from adjacent wires by a given distance;
 - a frame for holding said print head and adapted to be moved laterally across said medium;
 - means for rotating said housing with respect to said frame about an axis of rotation through said housing, said rotation being by an amount which moves the ends of said wires less than said given distance;
 - a cylindrical pivot post extending from each side of said housing at a position through said axis of rotation;
 - pivot receiving means for each pivot post, said pivot receiving means having a concave angular shape end and being affixed to said frame, each pivot post being positioned against an associated pivot receiving means; and
 - spring means for and associated with each pivot post for maintaining the associated pivot post positioned against the pivot receiving means end;
- wherein said spring means includes a spring housing and a spring, said housing having a first opening into which the associated pivot post is positioned and a second opening, crossing said first opening, said pivot post being inserted in said first opening and said spring under compression and said pivot receiving means being inserted in said second opening on opposite sides of said pivot post; wherein said first opening is slotted and said second opening is circular;
- wherein said pivot receiving means and said spring housing are affixed to said frame means by common means; wherein said pivot receiving means includes post means having said angular shaped end on one side and a head with an indented section, and
- wherein said common means is bolt means for affixing said spring housing to said frame, and head of said bolt means fitting over said indented section of said pivot receiving means to affix said pivot receiving means to said frame.

4,362,407
PIEZOELECTRIC PRINTER AND PIEZOELECTRIC MULTILAM ACTUATOR USED THEREIN
Henry H. Kolm, Wayland, and Eric A. Kolm, Brookline, both of Mass., assignors to Piezo Electric Products, Inc., Cambridge, Mass.

Filed Sep. 8, 1981, Ser. No. 300,025
Int. Cl.³ B41J 3/12

U.S. Cl. 400-124

21 Claims



1. A piezoelectric printer comprising:

- a frame;
- a plurality of printer units mounted on said frame; each unit including:
- a piezoelectric multilam including at least two piezoelectric members and having a mounting portion and an actuating portion; said actuating portion being movable in an actuating direction and a cocking direction; said multilam being tapered in its lateral dimension, being larger at the mounting portion and smaller at the actuating portion; a weight carried by said multilam for increasing the energy transfer of said multilam; and a printing element driven by said actuating portion;
- means for applying a cocking voltage and an actuating voltage to said members which voltages are less than the rupture voltage in the poling direction and less than the depoling voltage in the depoling direction for cocking and actuating said multilam to drive said printing element to the printing position; and
- guide means attached to said frame for guiding said printing elements.

4,362,408

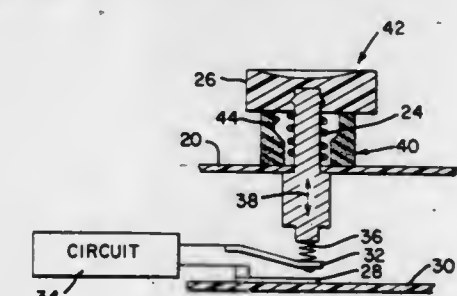
MEANS FOR AVOIDING ACCIDENTAL ACTUATION OF A CRITICAL FUNCTION KEY

Richard E. Cordes, Kettering, and Ronald J. Sears, Middletown, both of Ohio, assignors to NCR Corporation, Dayton, Ohio

Filed Dec. 1, 1980, Ser. No. 211,598
Int. Cl.³ B41J 5/26

U.S. Cl. 400-481

1 Claim



1. A keyboard having a plurality of keys thereon, with each said key being moveable from a rest position along an actuation path having a makepoint therealong, whereby completion of an electrical circuit is effected by moving a said key with

predetermined force along its actuation path to its associated said makepoint;

each said key having means for restoring it towards its said rest position;

at least one of said keys being designated as a special key and also having warning means associated therewith and positioned with respect to said special key and keyboard to increase the force above said predetermined force required to actuate said special key, said increase in force providing tactile feedback to an operator of said keyboard before said special key's associated makepoint is reached to thereby warn said operator that he is about to actuate said special key;

said warning means comprising a resilient member; said special key having a key cap and a key stem; and said resilient member having a shape to enable it to be positioned around said key stem and under said key cap so as to increase the force necessary to actuate said special key; said restoring means comprising a compression spring which is mounted on said key stem and is located under said key cap; and

said resilient member being positioned around said compression spring and also having a reduced wall thickness near said key cap to minimize the abrasion of said resilient member by said compression spring during actuation of said special key.

4,362,409

AUTOMATIC SHEET FEEDING SYSTEM OF A PRINTING APPARATUS

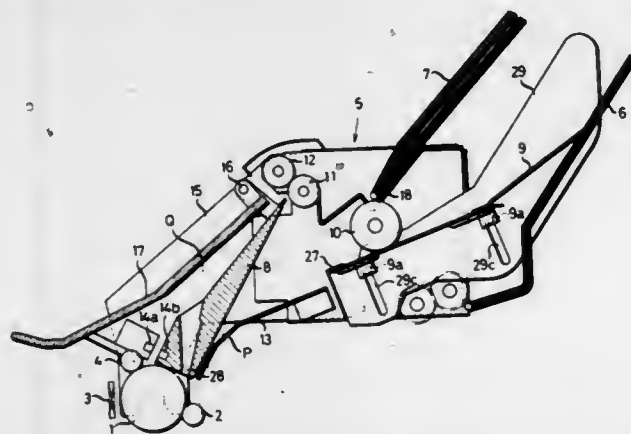
Kazuhiro Endo, Atsugi; Toshiyuki Soejima, Yamato, and Masahiro Fujiwara, Kofu, all of Japan, assignors to Ricoh Co., Ltd. and Nipponseimitsu Kogyo Kabushiki Kaisha, both of Japan

Filed Jul. 28, 1980, Ser. No. 172,958

Claims priority, application Japan, Sep. 11, 1979, 54-115723
Int. Cl.³ B41J 11/58; B65H 9/04

U.S. Cl. 400—625

11 Claims



1. In an automatic sheet feeding system of a printing apparatus for feeding sheets of a stack one after another, the printing apparatus comprising a platen, a printing head arranged on a front side of the platen and movable axially of the platen, a sheet ejecting stacker disposed rearwardly of the platen and a sheet feeding stacker disposed rearwardly of the platen and underlying the sheet ejecting stacker, the improvement comprising:

a guide member disposed close to the platen in such a manner that a sheet ejecting passage connected to the sheet ejecting stacker is formed at the upper side of said guide member and a sheet feeding passage connected to the sheet feeding stacker is formed at the lower side of said guide member; said guide member having a slit therein for receiving manually inserted sheets, said slit having an inlet end intermediate the upper and lower side of said guide member and an outlet end adjacent the lower side of said guide member;

a sheet feeding roller;

a motor for driving said sheet feeding roller for feeding one sheet after another from the sheet feeding stacker;

a pinch roller cooperating with the platen for feeding the sheet therebetween; and

a transmission means for transmitting rotation from a drive of the printing apparatus to the platen, so that rotation of the platen is initiated only after the leading edge of a sheet fed by the sheet feeding roller has butted against a holding section formed between the platen which remains stationary and the pinch roller.

4,362,410

MECHANICAL PENCIL

Yasuyuki Hashimoto, Nishinomiya, Japan, assignor to Ancos Co., Ltd., Osaka, Japan

Filed May 23, 1980, Ser. No. 152,958

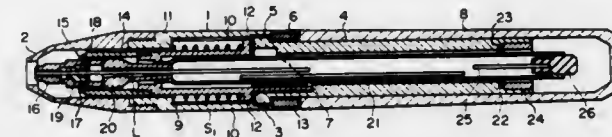
Claims priority, application Japan, Apr. 21, 1980, 55/53196[U]

The portion of the term of this patent subsequent to Aug. 19, 1997, has been disclaimed.

Int. Cl.³ B43K 21/22

U.S. Cl. 401—67

7 Claims



1. A rotational slide type mechanical pencil comprising: a hollow axial body composed of first and second bodies, said first and second bodies being rotatable relative to each other; a lead case for storage of extra leads disposed within and fixed to said hollow axial body; a chuck for firmly clamping a lead during writing, said chuck being rigidly coupled to said lead case; a chuck tightening member having a chuck receiving portion for engaging and tightening said chuck, said tightening member being disposed in said first axial body; slider means for frictionally gripping said lead, said slider means being movable back and forth through a predetermined distance within said axial body and said slider means being disposed in front of said chuck; and a conversion mechanism for converting rotational movement of said second axial body to linear movement of said chuck tightening member whereby rotational movement of said second axial body relative to said first axial body moves said slider means forwardly extending a portion of said slider means from a front opening of said axial hollow body, wherein said hollow body is provided with a hollow space in which said chuck tightening member is movable between a first position and a second position, said chuck tightening member being biased towards said first position, a hollow cylindrical sleeve being provided extending forwardly from a front end of said chuck tightening member, said hollow cylindrical sleeve frictionally retaining said slider means in a front portion thereof, said chuck in said first position being disengaged from said chuck tightening member and said chuck in said second position being engaged with said chuck tightening member, and in said second position, said slider means being fully retractable into said hollow body upon said lead being worn during writing.

4,362,411

DEVICE FOR PROVING A FRICTION JOINT

Sture L. Asberg, Partille, Sweden, assignor to SKF Nova AB, Gothenburg, Sweden

Filed Oct. 19, 1979, Ser. No. 86,415

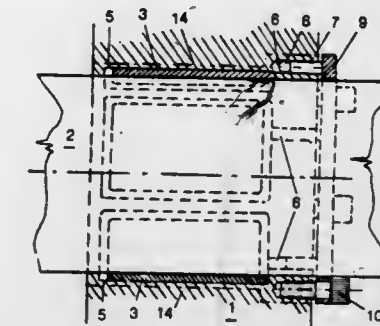
Claims priority, application Sweden, Jan. 10, 1979, 7900207
Int. Cl.³ F16B 00/00

U.S. Cl. 403—5

9 Claims

1. Means providing a friction joint between a pair of members having confronting surfaces comprising a plurality of

spaced pockets in the confronting surface of one of said members arranged in an annular pattern, an element mounted in each of said pockets, means for independently pressurizing by a fluid pressure medium each of said pockets to thereby actuate the said elements into pressure applying relation with the surface of the other member which they confront and means for selectively relieving independently the pressure in each



pocket, said pockets defined by wall portions including radial walls separating the pockets circumferentially disposed closely adjacent the confronting surface of said other member whereby forces are transmitted via said elements and said walls defining said pockets, said elements bring rigid members and seal means made of a resilient elastic material surrounding the periphery of each element and contacting said elements and the walls of said pocket.

4,362,412

COUPLING FOR REMOVABLY CONNECTING A ROD TO A DRIVING SHAFT

Wolfgang Kunz, Lörrach-Hauingen, Fed. Rep. of Germany, assignor to Firma Kunz Maschinen-U. Apparatebau GmbH, Lörrach-Hauingen, Fed. Rep. of Germany

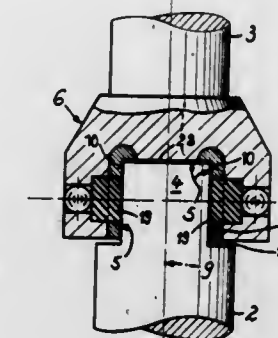
Filed Aug. 12, 1980, Ser. No. 178,705

Claims priority, application Fed. Rep. of Germany, Aug. 14, 1979, 2932895

Int. Cl.³ B25G 3/00; F16D 1/00; F16G 11/00

U.S. Cl. 403—11

23 Claims



1. A coupling for releasably connecting a rod to a driving shaft, comprising at least one flat surface on a peripheral end portion of said rod; a coupling socket attached to the face of the driving shaft, said socket having an open lateral side for receiving said one end portion of the rod and at least one flat inner wall matching the flat surface of said portion; and an exchangeable wearing piece fitting between the flat inner wall and the flat surface to transfer rotary moment from said shaft to said rod.

4,362,413

RETRIEVABLE CONNECTOR ASSEMBLY

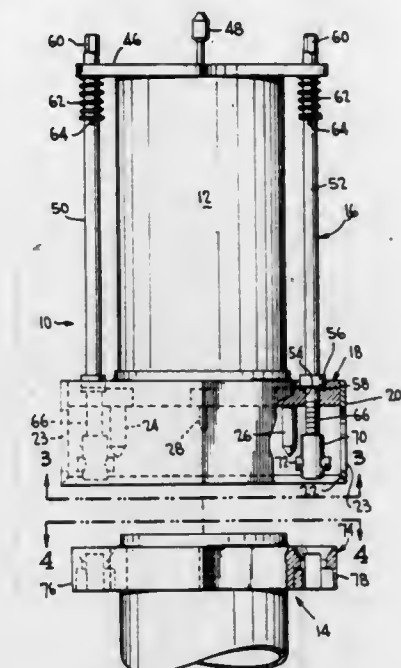
Richard A. Heard, Dallas, and Aaron E. Pierce, Humble, both of Tex., assignors to Exxon Production Research Co., Houston, Tex.

Filed Dec. 10, 1979, Ser. No. 102,064

Int. Cl.³ F16B 7/18

U.S. Cl. 403—14

9 Claims



7. A retrievable connector assembly for detachably securing first and second parts together comprising:

frame means attached to the first part and including a rotatable shaft having a threaded end and male coupling means threadedly engaging said threaded end and having pins extending therefrom, said male coupling means being movable along said shaft in response to relative rotation therebetween; and

mounting means attached to the second part and including female coupling means for receiving said male coupling means and having slots therein formed of a longitudinal leg joined with a lateral leg, said pins being longitudinally movable along said longitudinal leg and rotatably movable along said lateral leg in response to rotation of said shaft to lodge said pins in said lateral leg and cause said male coupling means to move longitudinally along said shaft to force the first and second parts together, wherein said female coupling means includes a socket having a mouth with bevelled edges adjacent to said longitudinal leg for guiding said pins into said longitudinal leg and an opening in the bottom of said socket opposite said mouth to permit passage of said threaded shaft and said male coupling means therethrough.

4,362,414

QUICK RELEASE CONNECTOR ASSEMBLY

Fritz Volz, 8020 Denrock Ave., Los Angeles, Calif. 90045

Filed Mar. 16, 1981, Ser. No. 244,190

Int. Cl.³ F16B 7/20

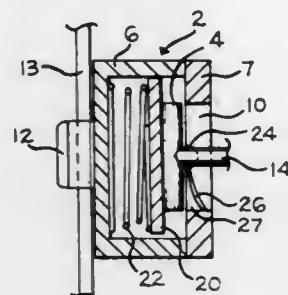
U.S. Cl. 403—24

8 Claims

1. A detachable connector assembly comprising: a plug member connected at one end thereof to an arcuate plate which is secured to a utilization means, the other end of said plug member having an elongated head portion formed thereat parallel to the axis of curvature of said arcuate plate, a receptacle member including a hollow housing and a face portion attached to one end of said housing, said face portion having an entry opening for receiving therethrough the head portion of said plug member, the underside of said face portion which is located at the interior of said housing having a slot formed therein, said

slot being spaced from said entry opening and dimensioned to receive and seat the head portion of said plug member when said plug member is inserted through said entry opening and moved into engagement with said slot, locking means located within the interior of said housing and being positionable adjacent the underside of said face portion,

at least one rising surface formed at the underside of said face portion and inclining between said entry opening and one end of said slot for guiding the head of said plug member from said entry opening into receipt by said slot,



at least one stop portion formed at the underside of said face portion, said stop portion being located adjacent the other end of said slot and extending above said rising surface, so as to prevent the head portion of said plug member from being guided beyond said slot, and resilient means located within the interior of said housing for biasing said locking means into contact with the head portion of said plug member, in order to removably connect said utilization means to said receptacle member.

4,362,415

EXTENSIBLE AND RETRACTABLE STRUT WITH SAFETY LATCH

Joseph R. Metz, Ridgefield, and Richard C. Lutterman, Danbury, both of Conn., assignors to Norco, Inc., Ridgefield, Conn.

Filed Mar. 31, 1981, Ser. No. 249,687

Int. Cl.³ F16B 7/10

U.S. Cl. 403—109

11 Claims



1. An extensible and retractable strut comprising in combination:

- a pair of telescoping members relatively shiftable between a retracted position wherein the members are nested one in the other, and an extended position wherein the members are only partially nested one in the other,
- a manually-operable collar slideable on the outer member adjacent one end thereof,
- cooperable means on said collar and outer member, restricting axial sliding movement of the collar between locking and unlocking positions,
- biasing means engageable with the outer member and collar, urging the latter toward its locking position,
- releasable means for locking said members to each other when the collar is in its locking position, and
- a manually-releasable safety locking means operative in response to the collar being shifted by said biasing means to its locking position, for locking the collar in said position.

4,362,416

EXTENSION JOINT FOR CONCRETE POLES

Matti Kaimo, Virkkala, Finland, assignor to Oy Lohja AB, Nummela, Finland

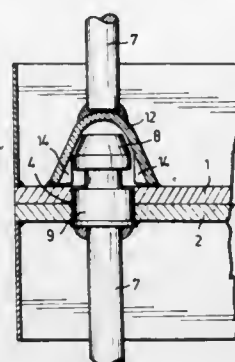
Filed Jan. 21, 1981, Ser. No. 226,738

Claims priority, application Finland, Jan. 28, 1980, 800237

Int. Cl.³ E02D 5/52

U.S. Cl. 403—316

4 Claims



1. An extension joint for concrete poles in which the joint ends of the poles are provided with a bottom plate to which are fastened jointing means comprising a pin projecting from the bottom plate of a first pole, an opening in the bottom plate of a second pole, and a stop face which is located around the opening on the inside of the bottom plate and through which said pin can extend, and a wedge which is transverse to the pin and provided with shanks each engaging the pin on one side and which can be wedged in between a shoulder at the end of the pin and the stop face for locking the pin of the first pole to the second pole with prestressing, whereby, on the path of movement of the wedge shanks, when they are being driven into their positions, there are guide means fastened to the stop face, by the effect of which guide means the shanks are turned towards each other having passed by the pin, thereby locking the wedge in the locking position, and, moreover, the wedge and the free end of the pin are covered by a channel member parallel to the wedge, the longitudinal edges of the channel being fastened to the stop face, the guide means for the wedge shanks consisting of wall portions of the channel bent diagonally inwards at transverse cuts in the side walls of the channel.

4,362,417

EXTENSION JOINT FOR CONCRETE PILES

Markku Vesa, Kytöniittyntie 49 E, 00670 Helsinki 67, and Matti Kaimo, Hemgarden, 08700 Virkkala, both of Finland

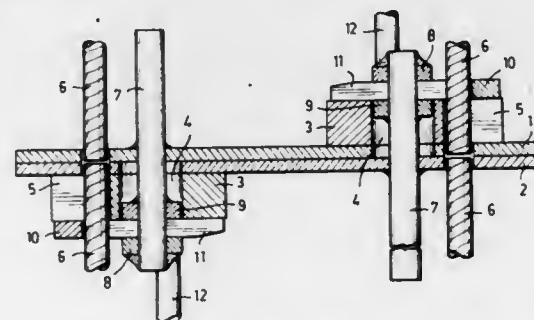
Filed Apr. 22, 1980, Ser. No. 142,654

Claims priority, application Finland, May 11, 1979, 791517

Int. Cl.³ E04B 1/48

U.S. Cl. 405—317

8 Claims



1. A joint assembly for connecting two piles, the bottom plates of which are each correspondingly formed with a projecting pin and a hole spaced therefrom whereby the projecting pin of one pile may be inserted into the hole of a second pile, comprising a flange secured to the end of said pin having an outer dimension less than the dimension of said hole, and a locking plate secured to said pile over the bottom plate and having an opening in registry with said hole through which said flange passes, and a U-shaped wedge insertable about said

pin, between the flange and the upper surface of the locking plate for placing said flange and locking plate under opposing stress thereby securing said piles together.

4,362,418

FERRULE JOINT

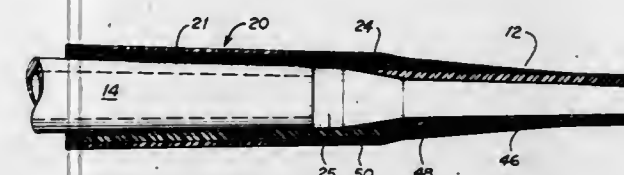
Gary A. Loomis, P.O. Box 907, Woodland, Wash. 98674

Filed Dec. 22, 1980, Ser. No. 218,717

Int. Cl.³ B25G 3/00; F16B 7/02; F16D 1/00

U.S. Cl. 403—334

13 Claims



1. A ferrule joint for a fishing rod blank made from joining plural flexible tapered resin shafts having hollow cores, said ferrule joint comprising a ferrule integral with the end of a first shaft and having a tapered bore extending inwardly from the end of the first shaft, with the hollow core of a second shaft being insertable into the tapered bore to frictionally interlock the shafts; a transition section integral with the first shaft having a tapered bore therein joining the tapered bore in the ferrule to the hollow core of the first shaft with the tapered bore in the ferrule and the tapered bore in the transition section being formed from plural overlapping patterns of fiber reinforced resin superimposed on the first shaft around the hollow core.

4,362,419

COUPLINGS

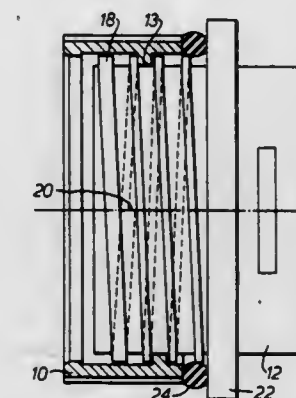
William C. W. Duncan, Bugbrooke, England, assignor to Plessey Overseas Limited, Ilford, England

Filed Jul. 28, 1980, Ser. No. 172,686

Int. Cl.³ F16B 7/18

U.S. Cl. 403—343

5 Claims



1. A coupling comprising:

first and second hollow cylindrical bodies, said first body having a helical rib of rectangular cross-section formed on its external surface, and said second body having a helical rib of rectangular cross-section formed on its internal surface, said helical ribs being adapted to mate on relative rotation in one direction between said first and second bodies; said helical rib of said first body having a helical portion which is reduced in width from a position intermediate of its ends whereby when said helical rib in said second body passes into engagement with said rib portion of reduced width a limited degree of relative axial movement is provided between said first and said second bodies; and

resilient means for urging said first and said second bodies relatively axially so that one side of said helical rib of said first body is urged into contact with one side of said helical rib of said second body, the position at which said

helical rib of said first body reduces in width having a step whereby the end of said helical rib of said second body engages said step and relative rotation between said first and said second bodies is prevented in the direction to separate said two bodies.

4,362,420

DEVICE FOR MOUNTING AND REMOVING A CUTTER AT THE END OF THE CUTTER SHAFT FROM A CUTTER DREDGE

Corneel R. M. Van der Veken, Wilrijk, Belgium, assignor to Dredging International, Scheldedijk, Belgium

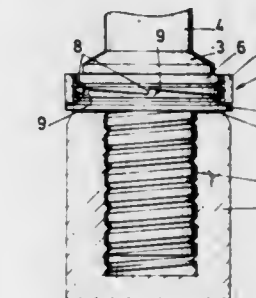
Filed Oct. 24, 1980, Ser. No. 200,419

Claims priority, application Belgium, Oct. 24, 1979, 197799

Int. Cl.³ B25G 3/00; F16B 7/18; F16L 1/00, 15/00

U.S. Cl. 403—343

10 Claims



1. A device for mounting and removing a cutter at the end of the cutter shaft of a cutter dredge, a cutter boss being provided with an inner screw-thread and the cutter shaft with an outer screw-thread, which device comprises first and second concentric rings those surfaces of which facing one another being provided with slanting teeth fitting into one another, whereby the slanting of said teeth is opposite to the angle of said screw-threads, and wherein means are provided to lock said first and second rings during the screwing of the cutter on the cutter shaft in such a position relative to one another where said rings have so rotated relative to one another that the joint thickness thereof is increased as compared with the joint thickness of the toothed rings when the teeth thereof have completely rotated into one another.

4,362,421

ANCHOR FOR USE IN THE POST-TENSIONING OF PRESTRESSED CONCRETE

William F. Kelly, 100 Bellaire Dr., New Orleans, La. 70124

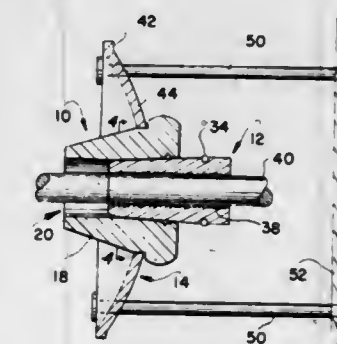
Continuation of Ser. No. 130,599, Mar. 17, 1980, abandoned.

This application Dec. 16, 1981, Ser. No. 331,384

Int. Cl.³ B25G 3/20; F16B 2/00, 7/04

U.S. Cl. 403—369

9 Claims



1. A tendon-gripping anchor for use in the post-tensioning of prestressed concrete, including

- an anchor case of unitary construction comprising a tubular member having a longitudinal bore
- the inner wall surface of said tubular member being tapered from one end to the other

- (c) a chuck positioned within the longitudinal bore of said tubular member
- (d) said chuck comprising a plurality of transversely arcuate wedge segments
- (e) the outer face of said wedge segments being tapered longitudinally for engagement with the tapering inner wall surface of said tubular member
- (f) the inner face of each of said wedge segments being provided with a plurality of tendon-gripping members
- (g) the wall of said tubular member being thickened at one end of said anchor case
- (h) the outer wall surface of said tubular member being tapered from one end thereof to a point intermediate the length thereof
- (i) thrust plate receiving means on the outer wall surface of said tubular member, and
- (j) a thrust plate having a central opening positioned on said thrust plate receiving means whereby, when said chuck is drawn through said anchor case, hoop stresses exerted by the wedge segments are directed at, and contained by, said thickened wall portion and said thrust plate.

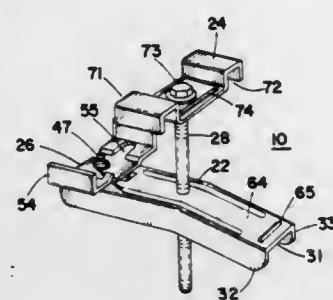
4,362,422

GRATING FASTENER

Paul J. Zinkann, 14 Klonteska Ct., Brevard, N.C. 23712; David R. Tuttle, 719 Creekside Dr., Aurora, Ohio 44202, and Thomas G. Tuttle, 32247 B Hamilton Dr., Solon, Ohio 44139
Filed Sep. 12, 1980, Ser. No. 186,500
Int. Cl.³ F16B 2/12

U.S. Cl. 403—387

17 Claims



1. In a fastening device for fastening a parallel bar grating to a support member comprising: a base member having a width less than the spacing between adjacent grating bars, an aperture disposed centrally in said base member and an engagement portion disposed on a first end of said base member; an upper clamp adapted to engage the top of a bearing bar; a threaded fastening means passing through said upper clamp and engaging said base member; and a swivel clamp having a length greater than the spacing of adjacent bars and adapted to engage the bottoms of two adjacent bars and being rotatably mounted on said base member on an end opposite to said engagement portion, the improvement which comprises: spring means biasing said swivel clamp against a first rotation stop in said engaged position and said swivel clamp being rotatable against said spring bias to a second position parallel to said base member such that said base member and said swivel clamp may be passed through adjacent bearing bars.

4,362,423

COUPLING FOR COIL-THREAD REBAR

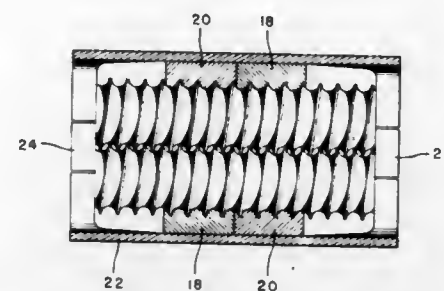
Wendell J. Miles, Grand Haven, Mich., assignor to Williams Form Engineering Corporation, Grand Rapids, Mich.
Filed Sep. 8, 1980, Ser. No. 184,897
Int. Cl.³ B25G 3/36; E04G 7/00

U.S. Cl. 403—393

5 Claims

1. In combination with a pair of overlapped rods each having a regular pattern of protrusions and indentations on the side surfaces thereof, a coupling device comprising:
a pair of blocks each having substantially parallel grooves for laterally receiving overlapped portions of said rods, said grooves having surfaces providing a mating configuration

ration to the surfaces of said rods establishing an interlock between said rods and blocks for transfer of axial forces from one of said rods to the other thereof, said blocks having laterally interengaging portions for alignment of said blocks with respect to each other; and



a sleeve adapted to fit closely around the assembly of said rods and blocks to hold said blocks in engagement with said rods.

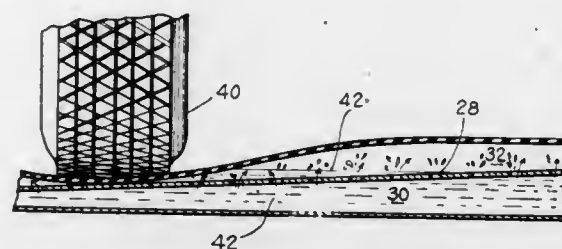
4,362,424

SPEED BUMP

Gerald L. Barber, 10 Wittington Ct., Greenville, S.C. 29605
Filed Jul. 30, 1980, Ser. No. 173,739
Int. Cl.³ E01F 13/00

U.S. Cl. 404—6

4 Claims



1. A speed bump for use on a road for imparting a controlled jar to a vehicle as the tires of said vehicle pass thereover comprising:

- an elongated flexible housing having a length sufficient to extend across a portion of a road to cover a path traveled by vehicles;
- an elongated chamber carried in said housing;
- fluid carried in said elongated chamber;
- means for securing said elongated flexible housing to said road;
- said elongated housing projecting vertically above said road and being compressible by a tire of said vehicle as said tire passes thereover for displacing said fluid under said tire from said chamber; and
- means for retarding the displacement of said fluid from said chamber and the compression of said housing at a controlled rate as said tire of said vehicle passes over said elongated flexible housing.

4,362,425

ROAD MARKER

Byron P. Dixon, 4574 S. 700 East #3, Salt Lake City, Utah 84107

Filed Dec. 16, 1980, Ser. No. 216,796

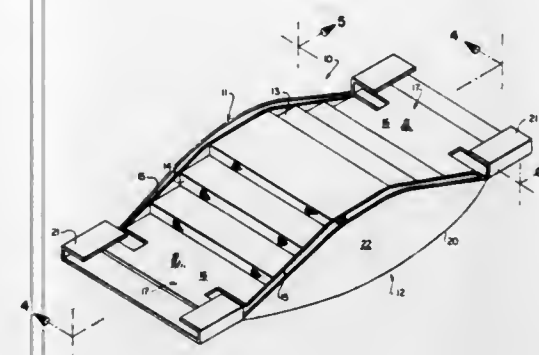
Int. Cl.³ E01F 9/04

U.S. Cl. 404—16

3 Claims

1. A retro-reflective highway marker for delineating traffic control on a roadway, said highway marker comprising
a curved top assembly of high strength, resilient materials that deflects into a depression, said top assembly comprising a set of steps arranged in cobbliestep configuration, an end support plate at each opposite end of the steps and a

crossbar with projections extending from each support plate; and



a base assembly having a curved base plate means arranged to form a depression to receive the top assembly and guide means to receive the projections.

4,362,426

ROAD SURFACE COMPRISING INDIVIDUAL INTERCONNECTED ELEMENTS

Willi Ruckstuhl, Augwilerstr. 43, Kloten, Switzerland
PCT No. PCT/CH80/00100, § 371 Date May 4, 1981, § 102(e)
Date May 4, 1981, PCT Pub. No. WO81/00732, PCT Pub. Date Mar. 19, 1981

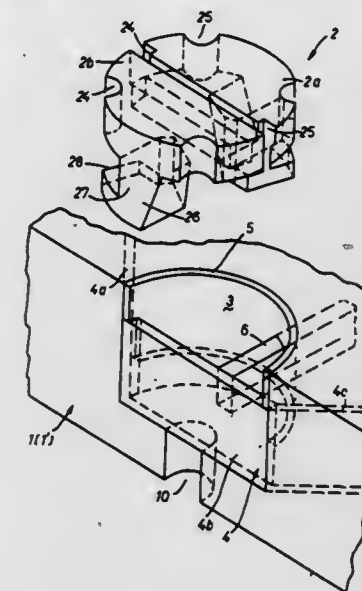
PCT Filed Aug. 29, 1980, Ser. No. 261,212

Claims priority, application Switzerland, Sep. 3, 1979, 7952/79

Int. Cl.³ E01C 5/00

U.S. Cl. 404—40

5 Claims



1. Road surface formed from individual interconnected elements, whereof each element (1, 1') has in at least one end face at least one semicircular cut-out portion (3, 3') which, together with the corresponding cut-out portion of the adjacent element (1') forms a chamber which receives a substantially cylindrical lock (2), provided with at least two catches (26), each of which interacts with a bolt (6, 6') on each element (1, 1') when the lock is secured, said bolt being anchored in the element and protruding into the cut-out portion (3, 3'), characterized in that the lock comprises one cross-sectionally circular member or two cross-sectionally semi-circular and assembled members (2a, 2b), the radius of said member or members being constant over the entire height of the member, and that each catch (26) comprises a root (27) which projects vertically downwards from the lower face of the member or members (2a, 2b) and a tooth (28) extending horizontally from the lower end thereof, the teeth extending in the same direction along the periphery of the lock (2), the top of each tooth engaging the bottom of the associated bolt (6, 6') which in turn passes below the member (2c, 2b).

4,362,427

SEALING STRIP

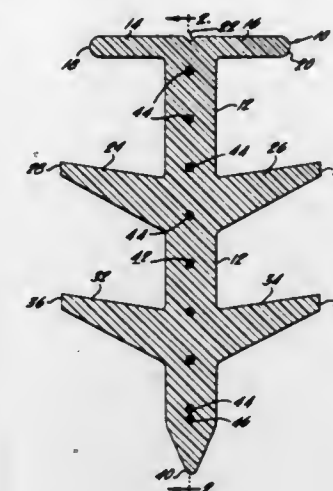
Ronald H. Mass, Naperville, and Daniel L. Maloney, Chicago, both of Ill., assignors to Schlegel Corporation, Rochester, N.Y.

Filed May 30, 1980, Ser. No. 154,712

Int. Cl.³ E01C 11/10

U.S. Cl. 404—64

8 Claims



1. A resilient deformable sealing strip for expansion joints in concrete, comprising in cross-section:
a vertically extending central core;
a reinforcing web embedded in the central core, the web having a plurality of interconnected longitudinal and vertical members which inhibit compression and elongation of the central core;
a first pair of fins extending outwardly and substantially perpendicularly from the top of the central core, having ends adapted to engage opposite void walls of the joint, the first pair of fins sealing the joint against entry of moisture and debris; and,
second and third substantially identical pairs of fins extending outwardly and upwardly from the central core, vertically spaced from the first pair of fins, from the bottom of the central core and from one another, the second and third pairs of fins also having ends adapted to engage the void walls, but extending beyond the ends of the first pair of fins when uncompressed, the second and third pair of fins locking the sealing strip in place and providing secondary sealing against the entry of moisture and debris, inward and outward movements of the void walls causing the fins of each of the second and third pair of fins to rotate in opposite directions and to an equal extent, the rotation distorting the central core by compression and elongation thereof, the reinforcing web controlling the distortions on the central core by localizing the compression and elongation in a manner which produces, an equilibrium condition of localized opposing forces which lock the sealing strip in place.

4,362,428

EXPANSION SEAL

James J. Kerschner, Tonawanda, N.Y., assignor to Acme Highway Products Corporation, Amherst, N.Y.

Filed Dec. 22, 1980, Ser. No. 218,702

Int. Cl.³ E01C 11/10

U.S. Cl. 404—64

6 Claims

1. An expansion joint seal for effectively sealing relatively larger size gaps between spaced-apart structural members while providing adequate vertical support, said seal comprising:

an elongated body including longitudinal side edges, an upper corrugated treadway surface integrally connected to an upper portion of each of said side edges, a lower undersurface integrally connected to a lower portion of

each of said side edges, and an internal web structure confined within the boundaries of said longitudinal side edges, said upper treadway surface and said lower undersurface, said internal web structure comprising:

- a plurality of laterally spaced, vertically disposed webs, an upper pair of cross-bars extending upwardly and outwardly from the upper end of each of said vertically disposed webs and connected to said upper treadway surface, a lower pair of cross-bars extending downwardly and outwardly from the lower end of each of said vertically disposed webs and connected to said lower undersurface;
- a central, vertically disposed lower web integrally con-

coextensive therewith and spaced below said planar upper surface thereof,

- each of said grooves having an upper and a lower wall with the outermost edge of said lower wall thereof spaced inwardly of the outermost edge of said upper wall,
- a side wall coextensive with said member and extending downwardly from the outermost edge of the lower wall of each of said grooves in inwardly offset relation to the side edge portions of said upper surface, and
- a lower surface extending downwardly and inwardly from each of said side walls to facilitate entry thereof into said channel.

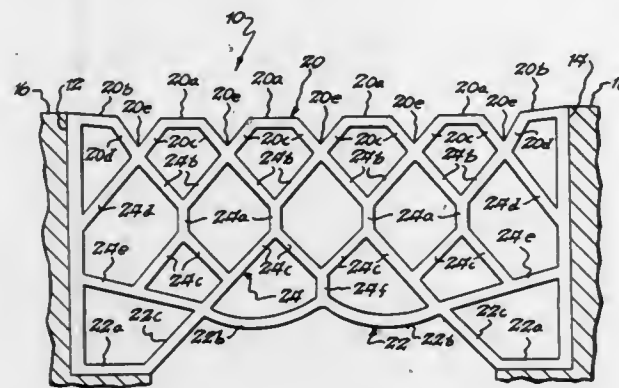
4,362,430

WABOCRETE FMV

Marcel Ceintrey, Anse de Kerjegu, 29120 Combrit, France
Continuation-in-part of Ser. No. 174,457, Aug. 1, 1980, abandoned. This application Oct. 24, 1980, Ser. No. 200,581
Claims priority, application France, Aug. 13, 1979, 79 21124
Int. Cl.³ E01C 11/04

U.S. Cl. 404—68

12 Claims



nected at its upper end to one cross-bar each of an adjacent pair of said lower cross-bars and integrally connected at its lower end to said undersurface;

- additional lower cross-bars extending from said side edges downwardly and inwardly and directly connected to said undersurface, the outermost ends of each of the outermost of said lower cross-bars joining the adjacent additional lower cross-bar intermediate the ends thereof; and
- the lower cross-bars extending downwardly and inwardly from the outermost of said vertically disposed webs being integrally connected with the lower cross-bars extending downwardly and outwardly from the inwardly adjacent vertically disposed webs at a point intermediate the ends of said last-named cross-bars.

4,362,429

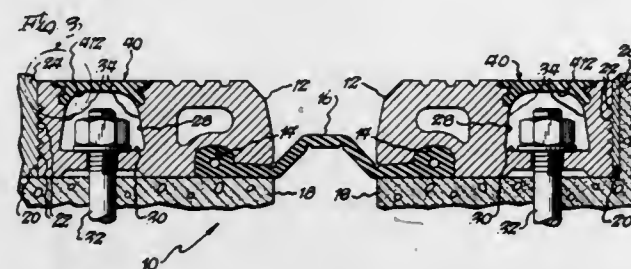
COVER CAP FOR THE ANCHOR BOLT RECEIVING CHANNEL OF AN EXPANSION JOINT SYSTEM RETAINER

Guy S. Puccio, Snyder, and James J. Kerschner, Tonawanda, both of N.Y., assignors to Acme Highway Products Corporation, Amherst, N.Y.

Filed Jun. 2, 1980, Ser. No. 155,178
Int. Cl.³ E01C 11/04

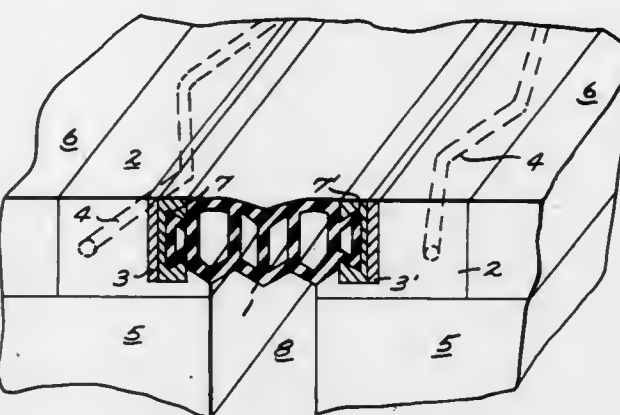
U.S. Cl. 404—68

5 Claims



1. A continuous strip type cap for sealing the anchor bolt channel of a retainer in an expansion joint system for roadways or the like, comprising:

- a longitudinally extending sealing member fabricated of a resilient material,
- said member having a substantially planar upper surface adapted to be flush with the upper surface of the retainer when said sealing member is positioned in said channel,
- a longitudinal groove in each opposite side of said member



being graded at its perimeter to accommodate the existing working depth which is larger than the minimum value but surface grade of the region.

4,362,435

APPARATUS FOR LAYING PIPE

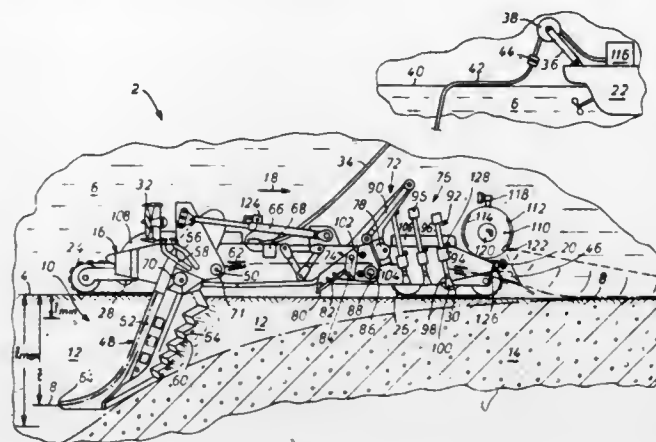
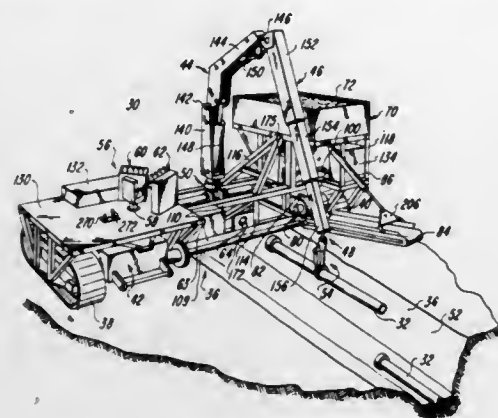
John T. Henry, 1226 Summit View Dr., Ft. Collins, Colo. 80524

Filed Jul. 10, 1979, Ser. No. 56,456

Int. Cl.³ F16L 1/02

U.S. Cl. 405—154

35 Claims



ground formations, and the mechanical loosening is terminated when the flushing depth has exceeded the working depth of the mechanical loosening over a predetermined period of time.

4,362,437

APPARATUS FOR PROVIDING A LIQUID FREE WORKING ENVIRONMENT ON SUBMERGED SURFACES

Sean J. Leary, 10 Circle Ave., Larchmont, N.Y. 10538

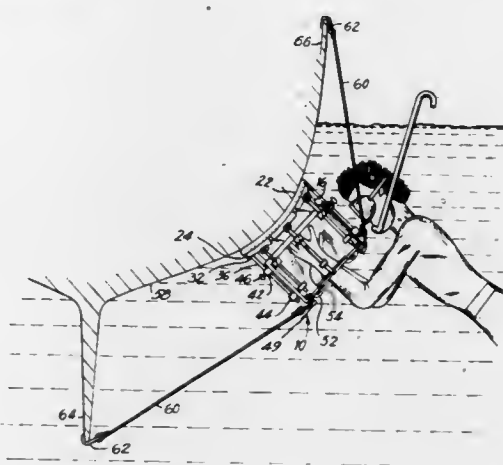
Filed Jan. 2, 1981, Ser. No. 222,065

Int. Cl.³ B63C 11/52

U.S. Cl. 405—188

27 Claims

1. Apparatus for laying pipe in a trench and joining successive sections of said pipe as laid, comprising: an elongated carriage of a length sufficient to straddle said trench; propelling means mounted at each end portion of said carriage for engaging the surface outward from respective upper sides of said trench and moving said carriage along said trench; means for driving said propelling means steerably along the length of said trench; a crane arising from a central portion of said carriage and including an adjustably articulated arm of adjustable length and having an outer end portion controllably movable both laterally with respect to said trench and between respective positions effectively above the upper level of said trench and within said trench below the level of said carriage; mounting means for securing said crane with respect to said carriage and permitting adjustable tilting of said crane relatively toward and away from the sidewalls of said trench; and a controllable grapple mounted at said other end portion of said arm and engageable with said pipe.



1. Apparatus for providing a substantially liquid free working environment on a submerged surface comprising: a liquid impervious enclosure for defining said liquid free working environment in conjunction with said submerged surface; a sealing edge located on said enclosure for forming a liquid proof seal with said submerged surface; means cooperating with the sealing edge for altering the shape of said apparatus so that said sealing edge can form a seal with submerged surfaces of different shape; and means operatively connected with the enclosure for enabling manipulation of objects within said liquid free environment from outside said environment.

4,362,438

SUPPORTING DEVICE

Ian R. Spink, Hvalstad, Norway, assignor to A/S Akers Mek. Verksted, Oslo, Norway

Filed Oct. 3, 1980, Ser. No. 193,637

Int. Cl.³ E21B 43/01

U.S. Cl. 405—195

4 Claims

1. A device for supporting equipment at (4, 5) on a floating

4,362,436
METHOD AND DEVICE FOR EMBEDDING CABLES OR THE LIKE INTO AN UNDERWATER GROUND

Rudolf Harmstorf, Hamburg, Fed. Rep. of Germany, assignor to

Hydro-Jet System Establishment, Vaduz, Liechtenstein

Filed Jun. 2, 1980, Ser. No. 155,529

Claims priority, application Fed. Rep. of Germany, Jun. 1, 1979, 2922410

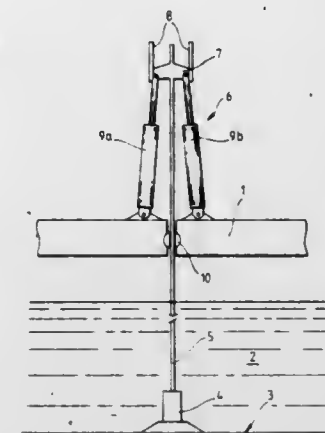
Int. Cl.³ F16L 1/04; E02F 5/08

U.S. Cl. 405—161

50 Claims

1. A method for embedding a cable or the like into an underwater ground in which method the cable is introduced into a zone of reduced density which is produced progressively in the underwater ground by a flushing process, and upon meeting with ground formations which are only insufficiently loosened by the flushing process, the underwater ground is mechanically loosened in the flushing area during performing the embedding process said mechanical loosening being performed in an area which is, in the embedding direction, disposed ahead of the center of the flushing area, wherein the mechanical loosening is automatically controlled in dependence upon the flushing depth so that it is initiated if the flushing depth obtained with the flushing alone becomes smaller than a predetermined minimum value, the mechanical loosening is performed to a

structure, said equipment preferably extending between the structure (1) and the ocean floor (3), comprising at least two hydraulic cylinders (9a, 9b) which are arranged between the structure and the equipment and which are connected to a source of hydraulic pressure fluid, characterized in that it further comprises a valve means (17) which for each of the hydraulic cylinders (9a, 9b) is connected to the respective hydraulic cylinder (9a, 9b) on the piston rod side of its piston (11a, 11b) via a first conduit (16a, 16b) and via a second conduit (18a, 18b) is connected with the hydraulic cylinder (9a, 9b) on the opposite side of the piston (11a), the valve means (17) being



arranged to connect said first and second conduits (16a, 16b; 18a, 18b) for each hydraulic cylinder (9a, 9b) under normal pressure conditions and under deviant pressure conditions in one hydraulic cylinder (9a, 9b) to break the connection between said first and second conduits (16a, 16b; 18a, 18b) for the remaining hydraulic cylinders (9a, 9b) and connect the first conduits (16a, 16b) for these with the first and second conduits (16a, 16b; 18a, 18b) of the deviant hydraulic cylinder (9a, 9b), and in that the area of the piston (11a, 11b) of each hydraulic cylinder (9a, 9b) on the piston rod side is equal to the piston area (A) on the opposite side divided by the number of hydraulic cylinders (9a, 9b) connected to the valve means (17).

4,362,439

HYDROSTATICALLY OPERATED UNDERWATER PILE DRIVER AND METHOD OF OPERATING SAME

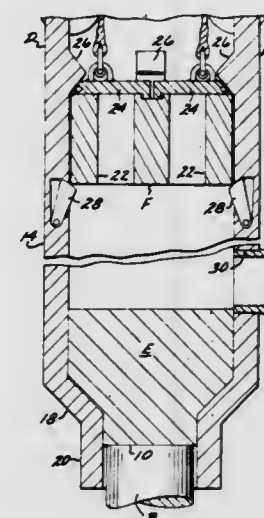
Peter P. Vaynkof, 916 Creekside Dr., Fullerton, Calif. 92633

Filed Mar. 2, 1981, Ser. No. 239,353

Int. Cl.³ E02D 7/20

U.S. Cl. 405—228

9 Claims



1. A device capable of being disposed a substantial distance below the surface of a body of water to drive a pile having an upper end by the hydrostatic force exerted downwardly on said device, said device including: a housing assembly that includes an elongate tubular member that has upper and lower open ends, said lower open end capable of slidably engaging said upper end of said pile when said device is vertically disposed and coaxially aligned with

said pile; an anvil in said tubular member in contact with said upper end of said pile; a ram slidably movable in said tubular member, said ram capable of occupying either a first position adjacent said upper open end or a second position in contact with said anvil; and a stop that limits said ram from being moved upwardly above said first position in said tubular member, said ram having at least one opening extending transversely therethrough, said anvil, an intermediate portion of said tubular member and said ram defining a first confined space when said ram is in said first position, said tubular member having an opening therein;

- first means on said ram that when in a first position obstructs said opening and in a second position does not obstruct said opening;
- second means for raising said ram from said second to said first position;
- third means for removably supporting said ram in said first position; and
- fourth means in communication with said opening for evacuating water from said first confined space when said ram is in said first position and said first means in said first position, with said ram when released by said third means being driven downwardly in said tubular member by the weight of a column of said water thereabove to impact on said anvil, and the force of said impact being transferred from said anvil to said pile to drive the latter downwardly, with said first means being moved to said second position, said second means moving said ram to said first position with water from said body of water exerting equal but oppositely directed forces on the top and bottom of said ram, said support means removably engaging said ram when the latter reaches said first position in said tubular member with said ram being successively moved between said first and second positions until said pile has been driven to a desired depth.

4,362,440

TUBULAR LOST BOREHOLE CLOSURE

Otto-Ernst Glaesmann, Dortmund; Frank Meyer, Essen, and Walter Marsch, Recklinghausen, all of Fed. Rep. of Germany, assignors to Bergwerksverband GmbH, Essen, Fed. Rep. of Germany

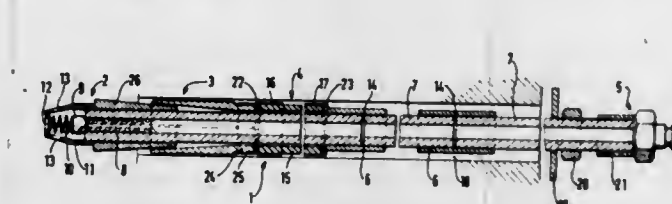
Filed Jan. 25, 1980, Ser. No. 115,289

Claims priority, application Fed. Rep. of Germany, Jan. 27, 1979, 2903137

Int. Cl.³ E21D 20/02

U.S. Cl. 405—269

4 Claims



1. A lost borehole closure, especially for injection of suitable media, such as for instance plastic, into boreholes for consolidation of rock, comprising a tube having a leading end and a trailing end, each provided with an outer screw thread; a one-way valve having a housing threadably connected to the leading end of said tube; holding means and sealing means surrounding said tube rearwardly of said housing, said holding means and said sealing means being axially compressible and radially expandable by turning said tube; extension means for placing said tube at any selected distance from the outer end of the borehole and comprising a plurality of tube sections and connecting bushings for connecting said tube sections with different restraining forces respectively to each other and to said trailing end of said tube, with one of said tube sections projecting beyond the outer end of the borehole; a screw nipple connected to the outer end of said one tube section for turning said tube sections and said tube to thereby axially

compress and radially expand said sealing means and said holding means; and including a mixing element in said tube in the region of the leading end thereof.

4,362,441

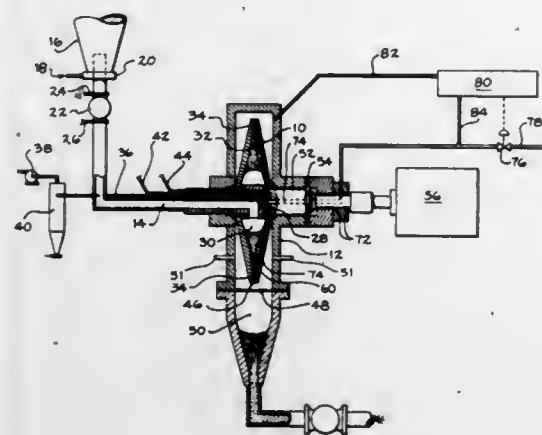
MEANS AND APPARATUS FOR THROTTLING A DRY PULVERIZED SOLID MATERIAL PUMP

John W. Meyer, Palo Alto; Arnold D. Daniel, Jr., Alameda County, and John H. Bonin, Sunnyvale, all of Calif., assignors to Lockheed Missiles & Space Company, Inc., Sunnyvale, Calif.

Continuation-in-part of Ser. No. 36,578, May 7, 1979, abandoned. This application Oct. 23, 1980, Ser. No. 199,861
Int. Cl.³ B65G 53/40, 53/66

U.S. Cl. 406—14

10 Claims



1. Apparatus for the control continuous feeding of relatively fine particulate material into a high pressure container, comprising:

- a rotor having a central hub and a plurality of sprues providing a passageway through which the particulate material is passed,
- each of said sprues extending radially outward from an inner periphery of said rotor to terminate adjacent to a control nozzle at the periphery of the rotor,
- the sprue at the section adjacent the termination having a low angle of convergence and the nozzle having a substantially greater angle of convergence, and
- variable pressure means connected to said control nozzles at a location radially outward from and adjacent to said sprue for varying the gas pressure within said control nozzles to thereby adjust the flow rate of the particulate material.

4,362,442

VENTURI BARGE UNLOADING SYSTEM

Ib Bentzen-Bilkvist, Ann Arbor, Mich., and Wayne M. Jacobson, York, Nebr., assignors to Dundee Cement Company, Dundee, Mich. and Cyclonaire Corporation, Henderson, Nebr.

Filed Apr. 14, 1980, Ser. No. 140,326

Int. Cl.³ B65G 53/14, 53/28

U.S. Cl. 406—109

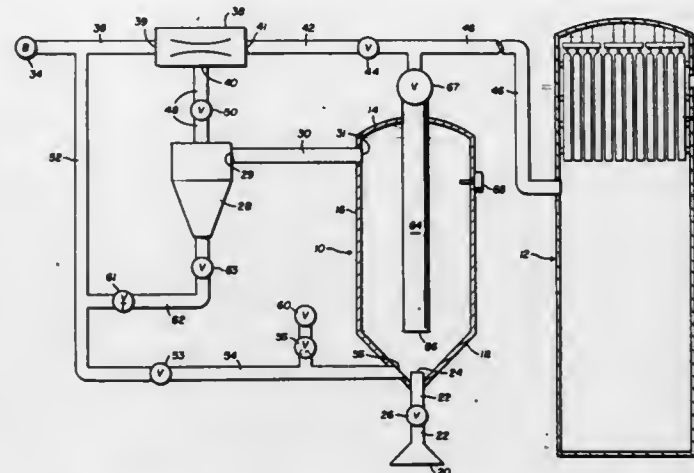
2 Claims

2. In a system for unloading dry, bulk, particulate material from a ship, barge, or the like into a pressure vessel and thereafter transferring the material from said pressure vessel to a storage container or silo including a venturi having first and second inlets and a first outlet, a blower for forcing air through said first venturi inlet and said venturi outlet for creating a flow of primary air through said venturi and for thereby inducing a suction at said venturi second inlet; means coupling said venturi second inlet to said pressure vessel; and nozzle means connected to said pressure vessel for filling said pressure vessel with dry, bulk, particulate material when said suction is induced at said venturi second inlet; the improvement comprising:

a cyclone separator connected to said venturi second inlet, said

pressure vessel and said blower, said cyclone separator having a first inlet connected to said pressure vessel by a first conduit means and an outlet at the top of the cyclone separator which is connected to said venturi second inlet by a second conduit means, valve means including first, second, third and fourth valves each of which is positioned exteriorly of said pressure vessel, said first valve connected in a third conduit means between said venturi outlet and said storage container, said second valve connected in said second conduit means between said cyclone separator and said second venturi inlet, said third valve connected in a fourth conduit means between said blower and a second inlet to said cyclone separator at the bottom of said cyclone separator, and said fourth valve connected between said pressure vessel and said storage container;

said valves being positioned so that on opening said first and second valves and closing said third and fourth valves, air from said blower is directed through said venturi and then through said first valve and suction is induced in said pressure vessel and through said second valve, said cyclone separator receiving particles and air through said first separator



inlet from said pressure vessel and separating said particles from air during the filling of said pressure vessel in response to said induced suction and exhausting air to said venturi through said second conduit means; and so that on opening said third and fourth valves and closing said first and second valves, air from said blower by-passes said venturi for terminating said flow of primary air through said venturi for terminating said induced suction, and air from said blower is directed through said third valve and into the bottom of said cyclone separator for emptying any particles from said cyclone separator back through said cyclone separator first inlet and into said pressure vessel for transferring said dry, bulk, particulate material from said pressure vessel through said fourth valve and to said silo; and

wherein said valve means includes a fifth valve in said fourth conduit means which adjusts air flow between said blower, said third valve, and said pressure vessel, said fifth valve being operable to throttle air from said blower into said pressure vessel for aerating said dry, bulk, particulate material as part of the transferring of said dry, bulk, particulate material to said pressure vessel or from said pressure vessel to said silo.

4,362,443

PNEUMATIC TUBE CARRIER END CLOSURE ADAPTER UNIT

Jeffrey B. Mallory, 2238 High Point Cir., Carrollton, Tex. 75007, and Charles M. Campbell, 609 Ann Lois La., Burleson, Tex. 76028

Filed Jul. 18, 1980, Ser. No. 169,947

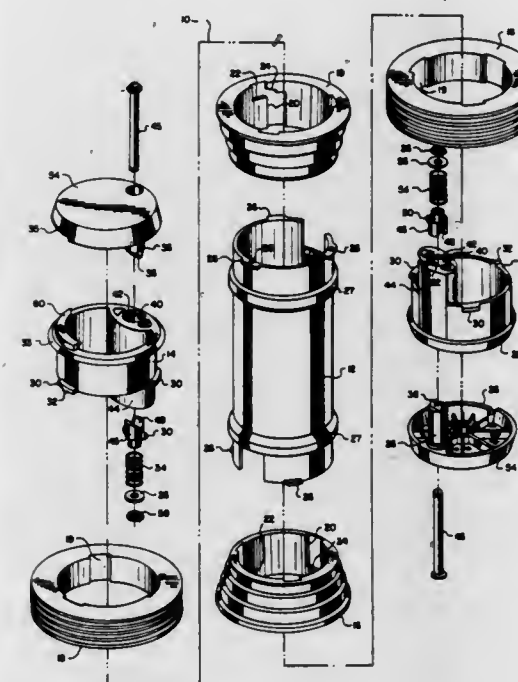
Int. Cl.³ B65G 51/06

U.S. Cl. 406—188

8 Claims

1. Apparatus for containing articles to be conveyed through a pneumatic tube, which comprises:

a tubular material-conveying carrier having first and second ends, at least one hollow end closure housing having first and second ends, attaching means on the first end of the at least one end closure housing, attaching means on the at least one end of said tubular material-conveying carrier, annular restraining means at the second end of said at least one end closure housing, annular restraining means set away from said at least one end of said tubular material-conveying carrier, at least one air seal ring adapted for insertion over said attaching means of said first end of said at least one end closure housing and capable of being restrained against axial movement past said second end of said at least one end closure housing unit by said annular restraining means thereon, the at least one air seal ring adapted for insertion over the attaching means on the at least one end of the tubular material-conveying carrier and capable of being restrained



by said annular restraining means set off from said at least one end of said tubular material-conveying carrier, means for securing the attaching means of the first end of said at least one end closure housing to the attaching means of said at least one end of said tubular material-conveying carrier, space filling means for preventing axial movement of the at least one air seal ring between the annular restraining means on the second end of said at least one end closure housing and the annular restraining means set away from said at least one end of said material-conveying carrier, at least one disclike cap for covering said second end of said at least one end closure housing unit, means contained within the at least one end closure housing unit and attaching to the at least one disclike cap for pivoting the disclike cap in its own plane about an axis located near a circumferential edge of the said disclike cap, and means for creating a torque at the axis of rotation of said at least one disclike cap and acting between said disclike cap and said at least one end closure housing.

4,362,444

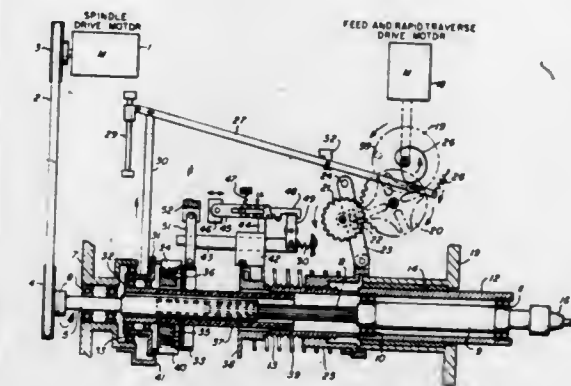
PECK DRILL

John A. Watkins, 361 Country Club Rd., Cheshire, Conn. 06410
Filed Oct. 10, 1980, Ser. No. 195,927

Int. Cl.³ B23B 39/10, 47/18

U.S. Cl. 408—17

9 Claims



1. In a peck drilling machine of the type employing
 - (a) a spindle having means for supporting a cutting tool,
 - (b) a spindle housing in which the spindle is supported for rotation, and
 - (c) means supporting the spindle housing whereby the spindle housing and the spindle can move axially as a unit toward and away from the work, the improvement comprising
 - (1) a feed screw attached to the spindle housing to be axially movable therewith,
 - (2) a feed nut disposed upon and engaged with the threads of the feed screw,
 - (3) rapid traverse means connected to the feed nut for rapidly retracting the spindle away from the work and for rapidly advancing the spindle toward the work by causing the feed nut to be moved axially, the rapid traverse mechanism having means arranged to hold the feed nut fixed in position in the interval between rapid advance and rapid retraction,
 - (4) drive means for intermittently actuating the rapid traverse means,
 - (5) peck feed means connected to the feed screw for repetitively feeding the spindle toward the work by causing the feed screw to progressively advance into the feed nut in the intervals between rapid advance and rapid retraction,
 - (6) a return spring secured to the feed screw and to the feed nut whereby the spring is wound by the advance of the feed screw into the feed nut, and
 - (7) hitch feed means coupled to the feed screw, the hitch feed means permitting the feed screw to rotate a preset amount in the reverse direction in the interval between the end of a feed stroke of the peck feed means and the end of the next rapid advance.

4,362,445

FLOATING BORING BAR CARTRIDGE

William D. Armbrust, Greensburg, Pa., assignor to Kennametal Inc., Latrobe, Pa.

Filed Jul. 7, 1980, Ser. No. 166,468

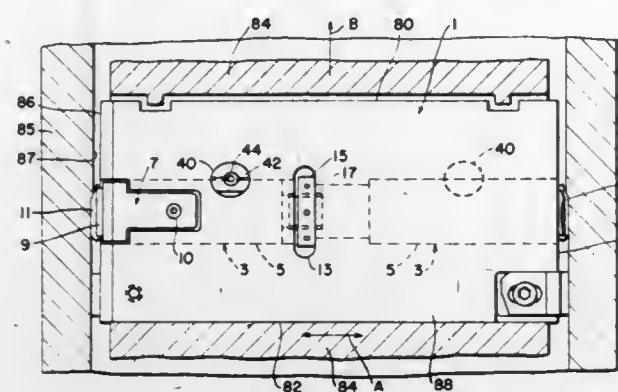
Int. Cl.³ B23B 29/03

U.S. Cl. 408—182

12 Claims

1. An adjustable floating boring bar cartridge comprising: a boring bar cartridge having oppositely extending apertures, and each aperture having a substantially circular cross sectional configuration; means for releasably holding an indexable apertures, and having a cross sectional configuration similar to and substantially filling said substantially circular aperture cross sectional configuration; means for advancing and retracting said means for releasably holding said indexable cutting insert within said aperture such that a portion of said cutting insert may extend for a variable distance outside of said boring bar cartridge; recesses intersecting said oppositely extending

apertures; and means for releasably clamping and orienting located in said recesses and abutting with said means for releasably holding said indexable inserts, said recesses and said



means for releasably clamping and orienting are also located forward of said means for releasably holding said inserts, in both the sense of the direction in which said boring cartridge is to be driven and the direction in which it is to be rotated.

4,362,446

TORCH TIP REBUILDING TOOL

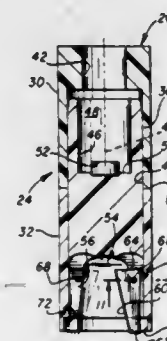
Roland G. Bell, Kermit, Tex., assignor to Thomas Lee Taylor, Odessa, Tex.

Filed Sep. 16, 1980, Ser. No. 187,809

Int. Cl.³ B23B 51/00

U.S. Cl. 408—211

6 Claims



1. In an oxy-acetylene cutting torch tip having spaced seating faces at the inlet end thereof, the combination with said torch tip of a tool by which the seating faces can be refaced; said tool comprises an elongated body having an outwardly opening cavity formed at one end thereof; a plurality of refacing blades, a plurality of radially spaced slots formed within said body and extending radially towards said cavity; each said blade having an elongated cutting edge formed thereon; means pivotally securing one said blade within one said slot, there being one blade within one slot, with the cutting edge of the blade being directed towards the longitudinal axial centerline of the tool and forming an acute angle therebetween; said blade lies in a plane which extends through the axial centerline of the tool and can be pivoted within the plane to change the magnitude of the acute angle, so that the cutting edge of the blade can simultaneously engage the spaced seating faces located at the inlet end of a torch tip which may be located within the cavity; said tool includes a milling element, a cutting face formed on said milling element which lies normal to said axial centerline, a second cavity formed in said main body in opposition to the first recited cavity; means mounting said milling element within said second cavity in a manner to engage the torch tip face located at the outlet end of a torch tip when a torch tip is placed within said second cavity and rotated relative to the main body.

4,362,447 STEAM GENERATOR TUBESHEET FACE MACHINING APPARATUS

Frank M. Pekar, Pensacola, Fla., and Frank W. Cooper, Jr., Monroeville, Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

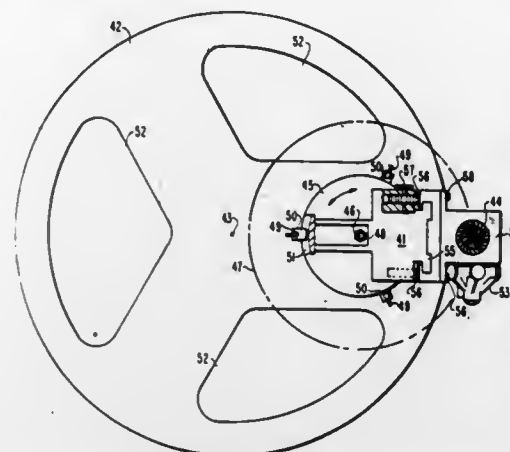
Continuation of Ser. No. 896,869, Apr. 17, 1978, abandoned.

This application Jul. 27, 1979, Ser. No. 61,227

Int. Cl.³ B23C 1/20; B23B 3/22; B23F 21/03

U.S. Cl. 409—200

3 Claims



1. Apparatus for machining the face of a tubesheet disposed in a steam generator shell from which the tubes have been removed, comprising, primary support means adapted to be welded to the inner wall of said steam generator shell, secondary support means removably attached to said primary support means, including adjustable centering means and a large diameter anti-friction bearing having a non-rotatable outer bearing race and a rotatable inner bearing race, a circular turntable disposed parallel to the aforesaid tubesheet face and removably attached at its outer periphery to said rotatable inner bearing race, a machining tool assembly disposed on a face of said turntable adjacent to said tubesheet for machining the corresponding face thereof during rotary movement of said turntable, mounting means for said machining tool assembly constructed and arranged to permit adjustment in the radial position of such assembly on said turntable, said mounting means being rotatable about a pivot axis on said turntable to effectuate the aforesaid radial position adjustment of said machine tool assembly, and power operated drive means for turning said turntable during operation of said machining tool assembly.

4,362,448

APPARATUS FOR REMOVING BURRS FROM CONTINUOUS CAST SLABS

Nobuhisa Hasebe; Hiroshi Kawada, both of Yokohama, and Tatsuo Kobatake, Fukuyama, all of Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 6, 1980, Ser. No. 193,900

Claims priority, application Japan, Oct. 9, 1979, 54-139109[U]

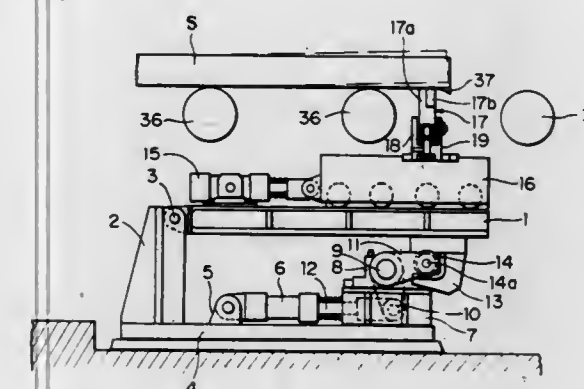
Int. Cl.³ B23D 1/10, 13/02

U.S. Cl. 409—300

3 Claims

1. An apparatus for removing burrs from a surface of a continuous cast slab along the cut edge thereof, said slab being movable in a substantially horizontal direction, said slab comprising a base; a support standard extending vertically from said base; a structure extending vertically from said base;

- a first movable means connected to said structure and movable horizontally;
- bed means connected movably at one end thereof to said support standard;
- an extended jaw means disposed on one surface of said bed means at the other end thereof;
- link means operable by said first movable means connected to said structure for vertically moving said extended jaw means, thereby to move said bed means from a horizontal position;
- second movable means connected to said bed means on another side thereof;
- truck means movably positioned on said other side of said bed means and movable by said second movable means;
- and cutting means disposed on said truck means, said cutting means comprising a plurality of cutting edges disposed to be adjacent said surface of said slab having burrs along the cut edge thereof,



- a plurality of cutting tool means for holding each cutting edge, each having means for pivotal movement thereof,
- cutting tool holder means for attaching said cutting edges to said cutting tool means for holding,
- cutting tool support frame means for holding said cutting tool holder means and said connected cutting edges in a serial manner along the cut edge of said slab,
- rod means for selectively moving each of said cutting tool holder means about said means for pivotal movement, and cylinder means for moving said truck means in a horizontal direction to effect trimming of said slab, whereby said continuous cast slab after cutting is positioned substantially horizontally to have its cut edge having said burrs on one surface of said slab exposed to be cut by said plurality of cutting edges with selective upward and angular movement of said plurality of cutting edges to adjust for the contour of the surface of said slab.

4,362,449

FASTENER ASSEMBLIES

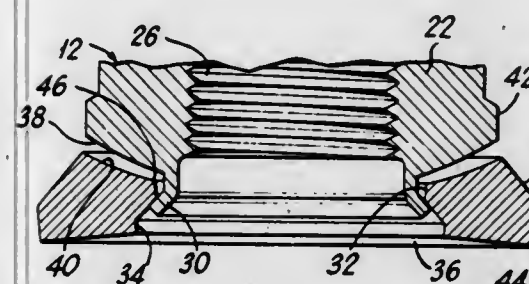
Emil J. Hlinsky, Oak Brook, Ill., assignor to MacLean-Fogg Company, Mundelein, Ill.

Filed Nov. 30, 1979, Ser. No. 98,918

Int. Cl.³ F16B 37/00, 39/04

U.S. Cl. 411—156

10 Claims



1. A fastener assembly for applying a clamp load to the flat,

- planar surface of a workpiece in a threaded joint, said fastener assembly comprising: a threaded fastener having a body and having a thread structure disposed generally in a cylindrical plane parallel to and surrounding the central longitudinal axis of said body; said body including a structure engageable by a tool for tightening of the threaded joint to urge the fastener assembly against the workpiece;
- a clamp washer rotatable relative to said body and having a central aperture surrounding said cylindrical plane and interposed between said fastener body and the workpiece;
- a body bearing surface defined on the workpiece-facing end of the fastener body and a cooperating washer bearing surface defined on one side of said clamp washer and interfacing with said body bearing surface; and
- a workpiece engaging clamp surface defined on the opposite side of said clamp washer;
- said clamp surface, prior to tightening, being uniplanar and generally conical and engageable with said workpiece only along a circular line of contact at the radially outer periphery of said clamp surface, and said washer bearing surface, prior to tightening, being engageable with said body bearing surface at the radially inner periphery of said washer bearing surface and spaced from said body bearing surface at the radially outer periphery of said washer bearing surface;
- said body bearing surface comprising a continuous annular spherical zone having a center of curvature lying on said body axis;
- said body bearing surface and said washer bearing surface having equal radii of curvature;
- said washer bearing surface in the tightened condition comprising a similar spherical zone in engagement with the body bearing surface and said clamp surface in the tightened condition comprising a flat, planar surface in engagement with said workpiece.

4,362,450

TORQUE STABILIZING METHOD FOR FASTENERS AND TORQUE STABILIZED FASTENERS

Shiro Hasegawa, and Sanehiro Gima, both of Nagoya, Japan, assignors to Nippon Oil and Fats Co. Ltd., Tokyo, Japan

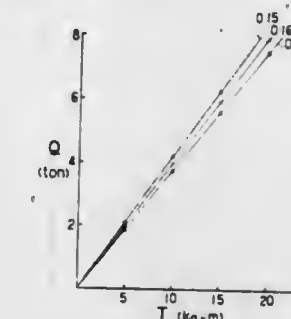
Continuation-in-part of Ser. No. 40,044, May 17, 1979, abandoned. This application Oct. 22, 1980, Ser. No. 199,550

Claims priority, application Japan, May 18, 1978, 53-59587; Nov. 7, 1978, 53-137608

Int. Cl.³ F16B 39/22; B05D 3/02

U.S. Cl. 411—258

3 Claims



3. A torque stabilizing fastener comprising threaded a metal or metal alloy fastener coated with a torque stabilizing agent comprising a film-forming water emulsifying alkyd resin and from about 2% to about 25% by weight of a polyoxyalkylene monoalkyl ether fatty acid ester surface active agent.

4,362,451

POLE-SETTING APPARATUS

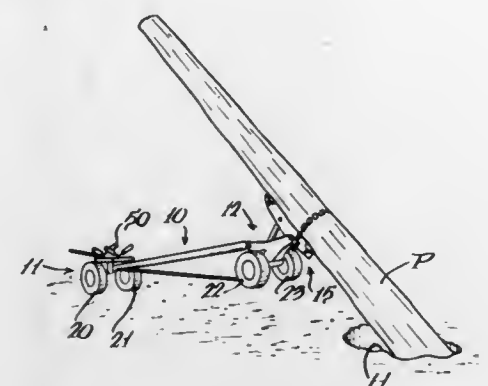
William E. Thiermann, Sr., Mequon, Wis., assignor to Racine Federated Inc., Racine, Wis.

Filed Aug. 25, 1980, Ser. No. 180,862

Int. Cl.³ B66F 11/02

U.S. Cl. 414—23

7 Claims



1. A pole-setting apparatus for raising a pole from a horizontal position into a vertical position in a hole and having a boom assembly extended between a ground-engaging dolly and a cradle-support structure, a cradle assembly including a cradle frame pivotally-mounted between its ends to said cradle-support structure, extensible hydraulic means connected between said cradle-support structure and said cradle frame for causing rotation of the cradle frame, a pair of upwardly and outwardly diverging inner and outer pole supports positioned one at each end of the cradle frame for support of a pole extending horizontally and longitudinally of the cradle frame, and a single binder member carried by the cradle frame for wrap around a pole to hold the pole and cradle frame in fixed relation, said binder member being unequally spaced from said pole supports and closer to said outer pole support to provide a major lever arm in association with the inner pole support during pole setting and a minor lever arm with said outer pole support to prevent fall out of a pole from the cradle frame as the pole approaches an upright position.

4,362,452

PROCESS AND APPARATUS FOR LOADING AND EMPTYING A STORE FOR PRESS SUPPORTS

Werner Sparr, Pfungstadt, Fed. Rep. of Germany, assignor to Carl Schenck AG, Fed. Rep. of Germany

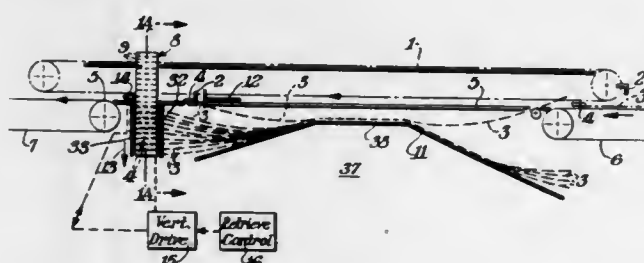
Filed Nov. 6, 1980, Ser. No. 204,606

Claims priority, application Fed. Rep. of Germany, Mar. 3, 1980, 3008090

Int. Cl.³ B65H 1/04, 1/06

U.S. Cl. 414—37

15 Claims



1. A process for loading and emptying a temporary store for press supports installed in a conveyor line, comprising the steps of catching and dragging the press supports by their front ends over a storage pit into which the trailing portion of the press support is dropped, the front ends of the press supports being inserted in a storage rack disposed on both sides of the conveyor line, the vertical position of the storage rack being controlled to determine whether the press support is immediately transferred forward along the conveyor line or dropped below its path of movement to temporarily store the press support in

the pit, stored press supports being removed from storage by raising the rack to catch the front end of the press support and resume its transport along the conveyor line.

4,362,453

PRE-FABRICATED GRAIN ELEVATOR

Klaus U. Driedger, Edmonton, Canada, assignor to ABL Engineering Ltd., Calgary, Canada

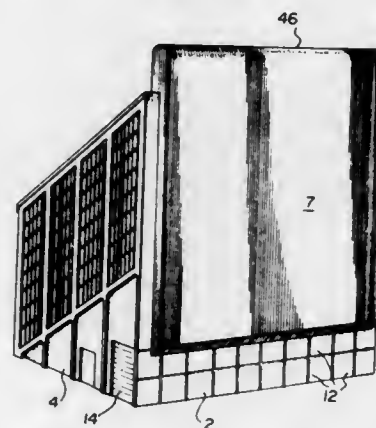
Filed Jan. 4, 1980, Ser. No. 109,503

Claims priority, application Canada, Sep. 26, 1979, 336363

Int. Cl.³ B65G 3/10, 3/20

U.S. Cl. 414—268

5 Claims



1. A grain elevator comprising a building defined by a base, a top wall, front and rear side walls and a pair of end walls extending between said front and rear side walls; a plurality of parallel, vertically extending rows of inclined bins constructed from prefabricated modules, said bins extending between said front and rear side walls, said bins having an integral slope of predetermined angle; feed means for individually loading each bin in each vertical row at the upper end thereof with grain; and a normally closed discharge means for individually loading each said bin in each vertical row at the lower end of the bin; each said bin including a plurality of sections interconnected in end to end relationship to define a bin, a plurality of bins being stacked one on top of another to form a vertical row of bins, the top of each bin being closed by a superjacent bin, and the tops of of the uppermost bins being closed by a roof; said feed and discharge means being located within said elevator.

4,362,454

HANDLING SYSTEM FOR WORKPIECES

Rudolf Kripzak, Heilbronn, Fed. Rep. of Germany, assignor to Rudolf Kripzak, Fed. Rep. of Germany

Filed May 14, 1981, Ser. No. 263,367

Claims priority, application Fed. Rep. of Germany, May 19, 1980, 3019017

Int. Cl.³ B65G 1/06, 1/10

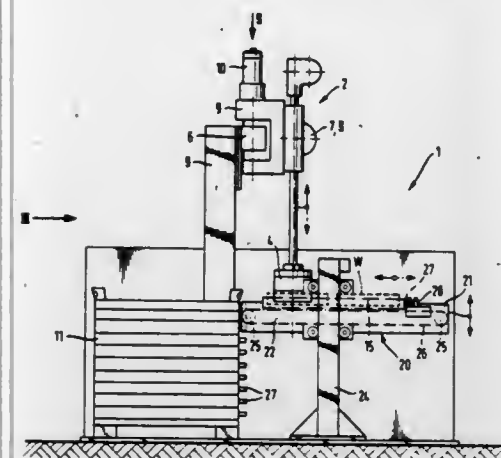
U.S. Cl. 414—280

4 Claims

1. A handling system for workpieces, to be used in conjunction with a machine tool, including a workpiece storage device comprising a plurality of drawers having locations for the workpieces, guides for locating said drawers at different levels, means for removing, transporting, and returning workpieces to and from said storage device including a vertically and horizontally movable grab, a handling device arranged to withdraw the drawers from said storage device, to raise the drawers into a loading and unloading station, to move the drawer at

the loading and unloading station at right angles to the horizontal direction of movement of said grab, and also to lower

zonally through an arc about said post, load engaging and support means on the end of each said arm opposite said pivot post, each said load engaging means having outer side edges



the drawer and push the said drawer back into the storage device.

4,362,455

VIBRATING BOWL FEEDER

Yoshiyuki Hirose, 7-24-B-4 Hirose 2-Chome, Shimamoto-Cho, Mishima-Gun, Osaka, Japan

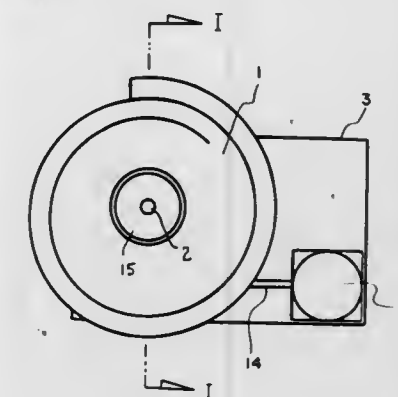
Filed Jun. 26, 1979, Ser. No. 52,244

Claims priority, application Japan, Jun. 26, 1978, 53-077683; Apr. 19, 1979, 54-048585; May 5, 1979, 54-055047; May 15, 1979, 54-064725[U]

Int. Cl.³ B65G 65/00, 27/16

U.S. Cl. 414—306

5 Claims



1. A vibratory bowl feeder, comprising:
a base;
a bowl for holding articles to be fed;
a vibratory plate fastened to the bowl;
first means for securing the vibratory plate to the base in a manner that the bowl is rotatable and will move up and down with respect to the base when rotated;
a rotatable shaft;
an eccentric plate secured to the shaft;
motor means for rotating the shaft; and
second means for converting rotational motion of the shaft to oscillatory rotation of the bowl, said second means including a link arm of adjustable length, one end of the link arm being pivotally secured to the eccentric plate and another end of the link arm being pivotally secured to the vibratory plate.

4,362,456

ROTARY LOADER AND STORAGE SYSTEM

Leonard D. Barry, 19300 Pennington Dr., Detroit, Mich. 48221

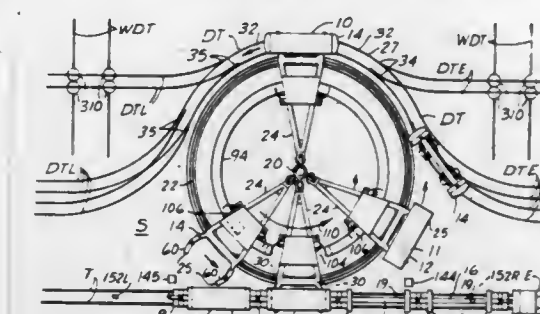
Filed Nov. 6, 1978, Ser. No. 957,710

Int. Cl.³ B65G 67/22; B61K 1/00

U.S. Cl. 414—334

23 Claims

4. A rotary loader having a single vertical pivot post, at least one load arm pivotally mounted and supported to rotate hori-



curved convex in a horizontal plane such that, during motion of a load carrying conveyance in a path tangential to said arc, said load engaging means will mesh between ledges on the conveyance for transfer of a load to or from the conveyance.

4,362,457

COTTON LOADER AND PACKER

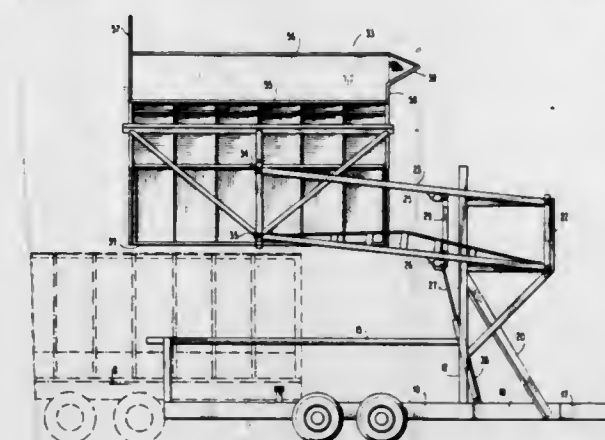
Chauncey D. Taylor, Morgan, and Herbert E. Sims, Blakely, both of Ga., assignors to Hydrapak Corporation, Blakely, Ga.

Filed Jul. 1, 1980, Ser. No. 165,044

Int. Cl.³ B60P 1/02

U.S. Cl. 414—345

15 Claims



1. A vehicle for hauling cotton from a harvester to a transport trailer comprising
an elongated frame having an open end and a closed end, said frame consisting essentially of a U-shaped horizontal base with vertical posts rising up therefrom, the sides of the frame being far enough apart to permit the open end of the frame to straddle the end of a cotton transport trailer; ground-engaging wheels mounted to said frame;
a basket for receiving and carrying cotton, positioned above, and substantially centered over, the U-shaped base of the frame, the basket being supported by the vertical posts of the frame in such a manner as to be vertically movable from a lowest position in which the bottom of the basket is above the ground a distance of about 1 to 3 feet, to a highest position in which the basket can clear the top of a cotton trailer; said basket having a bottom opening through which the basket's contents can be dumped straight down;
at least one gate hingedly connected to the basket along a horizontal axis to cover the bottom opening, said gate being swingable in a downward direction away from the bottom of the basket to uncover the opening and cause the basket's contents to be dumped, said gate being in a substantially vertical plane when in the open position, with the lowermost edge of said gate being at a lower elevation than the bottom of the basket;
means for moving said basket up and down between its lowest and highest positions;

and means for opening and closing said gate.

4,362,458

APPARATUS FOR MOVING LARGE HEAVY OBJECTS

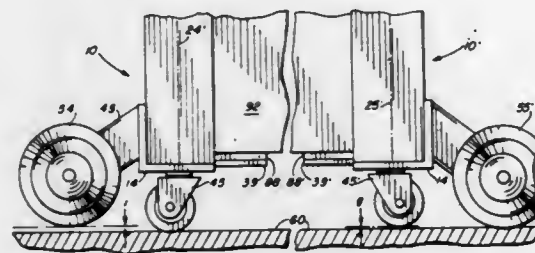
Albert T. Jantzi, 5520 W. Mission La., Glendale, Ariz. 85302

Filed Oct. 14, 1980, Ser. No. 196,402

Int. Cl.³ B60P 3/000

U.S. Cl. 414—458

9 Claims



1. Apparatus for moving a large, heavy, unwieldy object over a surface comprising: a pair of hand trucks, each of said trucks having a frame; a lift plate having a lift platform slidably mounted in said frame; force amplifying means for raising and lowering the lift plate relative to said frame; a pair of fixed wheels and a pair of casted wheels mounted on the frame of each truck; the lowest points on the perimeters of one of said pair of wheels being a slight distance above the corresponding points of the perimeters of the other pair of wheels when each truck is substantially vertical on said surface; said object adapted to be positioned so that it is supported by the lift plates of each truck, said wheels of each truck being positioned so that by raising one lift plate more than the other above the surface, the fixed wheels of one truck will contact said surface and the casted wheels of the other will contact said surface whereby the loaded trucks can be maneuvered over the surface by one person.

4,362,459

SYSTEM FOR STORING AND TRANSPORTING GUIDED MISSILES AND SIMILAR FLYING BODIES

Gert Klausbrückner, Moosburg, and Bernd Tüshaus, Högerthausen, both of Fed. Rep. of Germany, assignors to Steinbock GmbH, Moosburg, Fed. Rep. of Germany

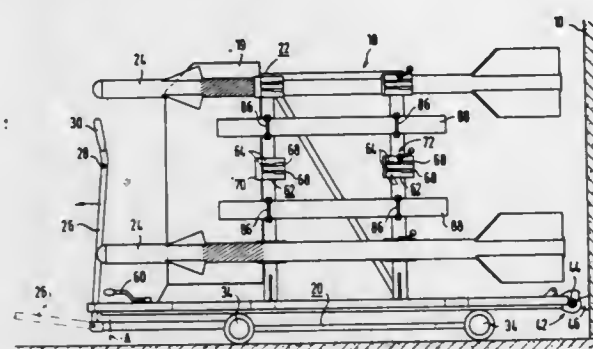
Filed Jun. 27, 1980, Ser. No. 163,567

Claims priority, application Fed. Rep. of Germany, Jul. 27, 1979, 2930555

Int. Cl.³ B65G 67/002

U.S. Cl. 414—584

29 Claims



1. System for storing and transporting guided missiles and similar flying bodies including storage structures positionable in a storage location, wherein the improvement comprises that each of said storage structures has a front end and a rear end with the front end-rear end direction of said storage structures representing the normal travel direction of said storage structures and a pair of sides extending in the front end-rear end direction, each of said storage structures including means for moving and steering said storage structures so that at least one row of said storage structures can be arranged in a storage location with said storage structures disposed in side-by-side

relation, each of said storage structures being positioned alongside one another in said row in closely spaced relation so that the space therebetween is of a width insufficient to form a walkway to allow loading and unloading of said storage structures and individual said storage structures in said row can be moved in the normal travel direction of said storage structures out of said row and turned in the direction of said row of said storage structures without moving adjacent said storage structures in said row, said storage structure includes a safety catch for securing said storage structure in the storage location for preventing said storage structure from experiencing movement caused by an accidental thrust of a guided missile, means on said storage structure for mounting the guided missiles, and means arranged to be mounted on the guided missiles for interengaging said means for mounting the guided missiles on said storage structure, and said means for mounting said guided missiles on said storage structure and said means arranged on the guided missiles for interengagement with said means for mounting said guided missiles on said storage structure each including stops interacting with one another for preventing the guided missiles from moving relative to said support structure, said safety catch is mounted on the rear end of said storage structure, and remote control means are connected to said safety catch, said remote control means comprises an operating member located adjacent the front end of said storage structure for operating said safety catch.

4,362,460

DEVICE FOR DISENTANGLING BARS

Rolf Peddinghaus, Deterberger Str. 25, Ennepetal, Fed. Rep. of Germany

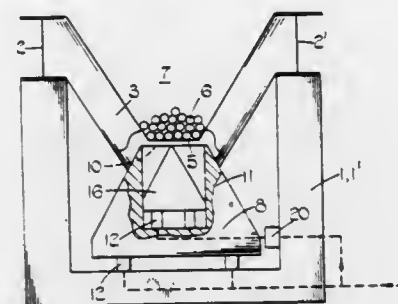
Filed Apr. 17, 1980, Ser. No. 141,181

Claims priority, application Fed. Rep. of Germany, Apr. 21, 1979, 2916228

Int. Cl.³ B65G 47/12

U.S. Cl. 414—745

8 Claims



1. A device for disentangling bars, comprising a storage bed composed of a number of frame units each of which defines a respective upwardly opening V-shaped recess, said bars being received in the recesses and said frame units being spaced apart longitudinally of said bars with the recesses mutually aligned; a plurality of lifters which intermesh with said frame units, each said lifter being vertically movable in a space defined between a respective adjacent pair of said frame units and including a middle part having a substantially horizontal flat upper surface for supporting at least a portion of the disentangled bars whose width perpendicular to the longitudinal axis of said storage bed is intermediate the width of an upper end of each recess and the width of a lower end of each recess, and means for raising and lowering said lifters.

4,362,461

SELECTIVE VACUUM LIFTING DEVICE

William P. Cathers, Allison Park, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed May 27, 1980, Ser. No. 153,373

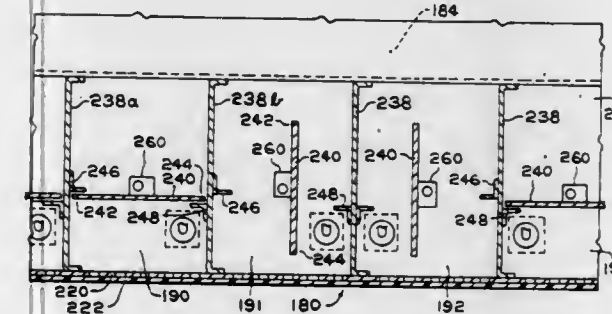
Int. Cl.³ B66C 1/02

U.S. Cl. 414—752

10 Claims

1. An apparatus for transferring articles, comprising:

a chamber having apertured wall portions to provide communication between chamber interior and environment; a first opening providing communication between vacuum means and the chamber interior; a second opening between said first opening and said apertured wall portions providing communication between the chamber interior and the environment; first means pivotally mounted within the chamber interior for isolating said second opening and said apertured wall portions from said first opening; second means mounting said chamber to overlay said second opening for isolating the chamber interior from the environment when said second isolating means is in a closed position;



means for biasing said second isolating means toward the closed position;

means acting on said first isolating means for moving said first isolating means to a first position to interconnect said first opening and said apertured wall portions and into a second position to isolate said apertured wall portions from said first opening; and

said first isolating means pivoting into the second position acts on said second isolating means to urge said first isolating means against said biasing means to move said second isolating means out of the closed position to interconnect the chamber interior to the atmosphere by way of the second opening as said first isolating means isolates the first opening from said apertured wall portion.

4,362,462

METHOD OF INTERMEDIATE COOLING OF COMPRESSED GASES

Wilfried Blotenberg, Oberhausen, Fed. Rep. of Germany, assignor to M.A.N. Unternehmensbereich G.H.H. Sterkrade, Fed. Rep. of Germany

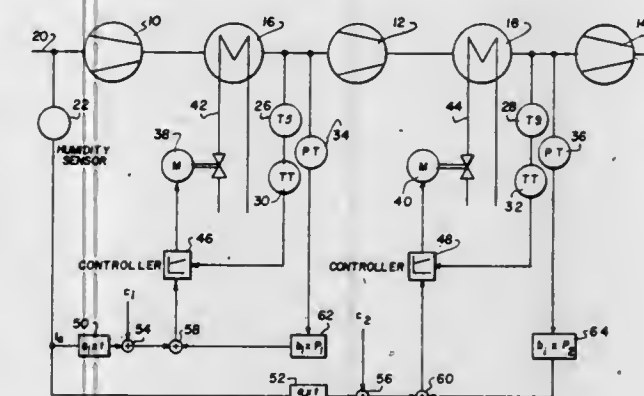
Filed Mar. 11, 1980, Ser. No. 129,238

Claims priority, application Fed. Rep. of Germany, Mar. 12, 1979, 2909675

Int. Cl.³ F04D 29/58

U.S. Cl. 415—1

1 Claim



1. In a multi-stage intercooled compressor system having a plurality of compression stages connected in series with a cooling unit controlled by adjustment means between each

stage, an improved method of cooling compressed gases intermediate the stages without forming condensate comprising: measuring the absolute humidity of the gases to be compressed at the suction side of a first compression stage which corresponds to a dew point τ of the gases at the suction side of the first compression stage; measuring the temperature and pressure of the compressed gases at the suction side of a successive compression stage designated i ; generating a set point temperature signal on the basis of the linear equation

$$T_i = a_i \tau + b_i P_i + c_i$$

where P_i is the pressure of the compressed gases at the suction side of the successive compression stage designated i , and a_i , b_i and c_i are constants; generating a control signal for controlling the cooling of the gases upstream of the compression stage designated i as a function of the set point temperature signal and the actual temperature of the compressed gases at the suction side of the compression stage designated i ; and using the control signal to control the adjustment signal to control the adjustment means of the cooling unit which is upstream of the compression stage designated i .

4,362,463

MOVABLE BLADE PUMP

Sumio Sudo, Oaza Shimoinayoshi; Hiromichi Anan, Iwamachi, and Masayuki Yamada, Oaza Shimoinayoshi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

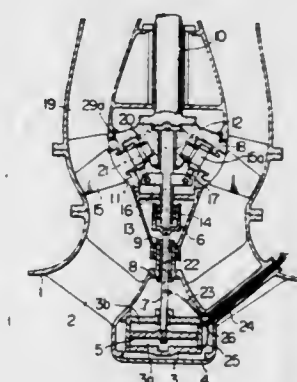
Filed Feb. 4, 1981, Ser. No. 231,342

Claims priority, application Japan, Feb. 6, 1980, 55/12505; Jun. 18, 1980, 55/81440

Int. Cl.³ F01D 7/00, 11/00

U.S. Cl. 415—129

5 Claims



1. A movable blade pump comprising: a hydraulic cylinder chamber secured to a suction casing for mounting a hydraulic cylinder; a piston mounted in said hydraulic cylinder; a non-rotating actuating shaft secured at one end portion thereof to the piston and formed at the other end portion thereof with a connection; a solid rotary actuating shaft supported by the connection of the non-rotating actuating shaft and connected to an impeller boss mounted on a main shaft for rotation therewith; blades rotatably supported by the impeller boss; and a control mechanism for converting the up and down movement of the rotary actuating shaft into the rotational movement of the blades.

4,362,464

TURBINE CYLINDER-SEAL SYSTEM

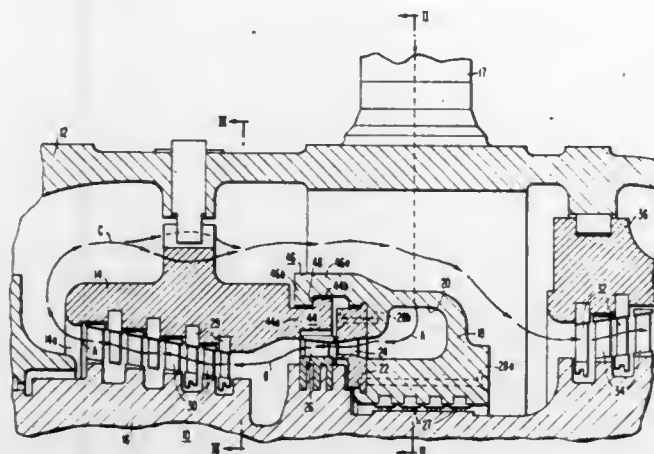
Alvin L. Stock, Wallingford, Del., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 22, 1980, Ser. No. 180,769

Int. Cl.³ F01D 25/26, 25/24

U.S. Cl. 415—136

6 Claims



1. An axial flow elastic fluid turbine comprising:
a rotor;

an outer casing;

an inlet nozzle ring disposed within said outer casing circumferentially about said rotor with a radial separation space between said nozzle ring and said rotor, said inlet nozzle ring having upper and lower portions each of which includes a plurality of nozzle chambers rigidly joined together, said nozzle ring having a first flange portion which includes an axially extending component and a radially extending component joined thereto; and an inner casing supported within said outer casing and disposed circumferentially about said rotor, said inner casing having first and second axial ends, said first end being disposed axially adjacent said nozzle ring and said second end opening into said outer casing, said first end having a second flange portion which includes an axially extending element and a radially extending element joined thereto, said radial extending element protruding in the opposite radial direction as said radial extending component, said first and second flange portions cooperating to seal and structurally interlock said inlet casing to said nozzle ring, said radial element being radially adjacent said axial component and axially adjacent said radial component, said radial component being axially engagable with said radial element.

4,362,465

SET OF BLADES FOR A TURBINE

Gilbert Riollot, Paris, and Raymond Bessay, Belfort, both of France, assignors to Societe Anonyme Dite: Alsthom-Atlantique, Paris, France

PCT No. PCT/FR79/00090, § 371 Date Jun. 5, 1980, § 102(e) Date Jun. 2, 1980, PCT Pub. No. WO80/00729, PCT Pub. Date Apr. 17, 1980

PCT Filed Oct. 4, 1979, Ser. No. 196,798

Claims priority, application France, Oct. 5, 1978, 78 28461
The portion of the term of this patent subsequent to Jun. 22, 1999, has been disclaimed.

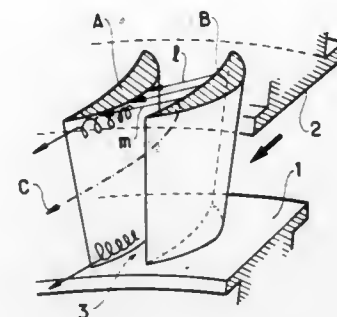
Int. Cl.³ F02C 7/92

U.S. Cl. 415—144

5 Claims

1. In a set of blades for a turbine, said set of blades including a group of blades bearing opposite convex and concave surfaces disposed between an upper plate and a lower plate which delimit a group of passages, the improvement wherein, for each blade, said set includes at least two ducts (13, 14), one in the upper plate (12) and the other in the lower plate (11), each duct (13, 14) opening at one end in the neighbourhood of the

convex surface of the blade and at the constriction (6) of the passage which is delimited by the convex surface of said blade



and, in the other end, at a point situated upstream from said set of blades.

4,362,466

WIND-OPERATED POWER-GENERATORS AND WIND WHEELS THEREFOR

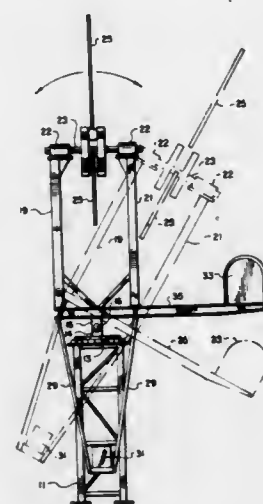
Walter Schonball, Gielsdolerstrasse 16, 5300 Bonn 1, Fed. Rep. of Germany

Filed Jul. 23, 1980, Ser. No. 171,595

Int. Cl.³ F03D 7/02

U.S. Cl. 416—142

1 Claim



1. A wind operated power generator comprising:

a tower structure;

a wind-wheel comprising a plurality of vanes carried by a rotor shaft and arranged normally to occupy a vertical plane through the center of said tower structure;

a pair of spaced apart frame members in which the ends of said rotor shaft are journaled;

a platform member supporting said frame members, which are upstanding therefrom;

means rotatably connecting said platform member to a horizontal shaft, carried by a support member and disposed below the bottom of the vanes; and

counterweight means depending from said platform by means of support arms along which said counterweight means are adjustably movable;

said plurality of vanes and said counterweight means being disposed to lie in the vertical plane with said horizontal shaft, and being horizontally rotatable about said shaft to maintain the weight of the wind-wheel centered over said horizontal shaft.

4,362,467

VARIABLE PITCH PROPELLER DEVICE

Morris C. Elliott, 11723 Norino Dr., Whittier, Calif. 90601

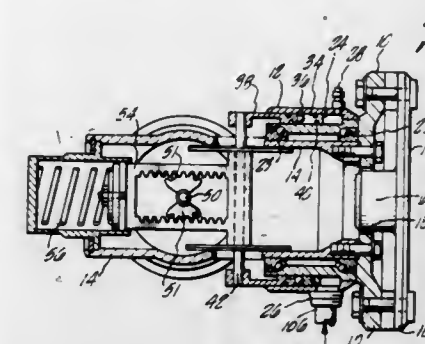
Continuation-in-part of Ser. No. 10,483, Feb. 8, 1979,

abandoned, which is a continuation-in-part of Ser. No. 841,130, Oct. 11, 1977, abandoned. This application Jul. 20, 1979, Ser. No. 59,285

Int. Cl.³ B64C 11/38

U.S. Cl. 416—157 R

19 Claims



1. A hydraulically-controllable variable pitch propeller device for removable mounting of a propeller shaft flange comprising:

(a) a mounting flange removably mountable on an engine propeller shaft flange to rotate as the engine propeller shaft rotates;

(b) a propeller hub for supporting propeller blades, the hub being supported by the mounting flange to rotate as the mounting flange rotates;

(c) a propeller hydraulic mechanism supported by the mounting flange and positioned between the mounting flange and the propeller hub, the propeller hydraulic mechanism comprising a cylinder and a piston slideable therein in response to the action of a hydraulic fluid, the cylinder and piston remaining stationary as the mounting flange and propeller hub rotate; and

(d) means for varying the pitch of the propeller blades in response to movement of the piston within the cylinder, said varying means being supported by the mounting flange to rotate as the mounting flange rotates; wherein the propeller hub, the propeller hydraulic mechanism, and the varying means, when mounted on a propeller shaft, are axially aligned with the propeller shaft.

4,362,468

SINGLE CURVATURE FAN WHEEL OF A DIAGONAL FLOW FAN

Yoshiyasu Nishikawa, Ono; Chosei Harada, Akashi, and Masao Nakano, Kobe, all of Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Kobe, Japan

Division of Ser. No. 872,459, Jan. 25, 1978, Pat. No. 4,227,868.

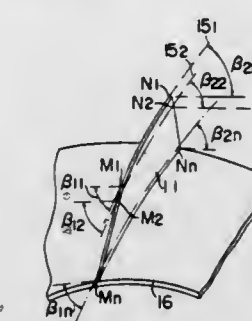
This application Jun. 20, 1980, Ser. No. 161,401

Claims priority, application Japan, Jan. 28, 1977, 52-8947

Int. Cl.³ F04D 29/30

U.S. Cl. 416—186 R

1 Claim



1. A fan wheel of a diagonal-flow fan for propelling a flow of a gas, said fan wheel comprising a rotational shaft, a frusto-conical main plate coaxially fixed to the shaft, a frusto-conical

side plate spaced apart from the main plate and forming therebetween a diagonal flow path for the gas, and a plurality of fan blades each fixed at respective opposite side edges to the inner surfaces of the main and side plates and having an inner entrance part and an outer exit part, said entrance and exit parts extending transversely with respect to said diagonal flow path, said blades being secured between said frusto-conical main and side plates, said frusto-conical side plate being coaxially fixed with respect to the axis of rotation of the shaft, the cone angle of the main plate being greater than the cone angle of the side plate, each of said fan blades being in the form of a curved plate of a surface shape conforming to a portion of a cylindrical surface with a longitudinal axis, said portion being formed of elements constituted by mutual intersection lines between said cylindrical surface and successive coaxial conical surfaces varying between said conical surfaces of said main and side plates corresponding to ideal stream surfaces, respectively, said coaxial conical surfaces progressively diminishing in cone angle from said main plate to said side plate and having a common axis coinciding with said axis of rotation of the shaft and lying in a plane which is in parallel spaced relationship to said longitudinal axis of the cylindrical surface, said common axis being inclined at an angle with respect to said longitudinal axis when viewed in a direction perpendicular to said plane; and further defined by a rectangular coordinate system with two axes lying in a plane perpendicular to the longitudinal axis of said cylindrical surface and having its origin at the vertex of one of said conical surfaces; one of said axes lying in a plane which includes a line passing through the vertices of said conical surfaces and is parallel to said longitudinal axis, the coordinate of the longitudinal axis with respect to the other of said axes is negative.

4,362,469

DEVICE FOR DERIVING ENERGY FROM A FLOW OF FLUID

Theodoor van Holten, Pijnacker, Netherlands, assignor to Stichting Energieonderzoek Centrum Nederland, The Hague, Netherlands

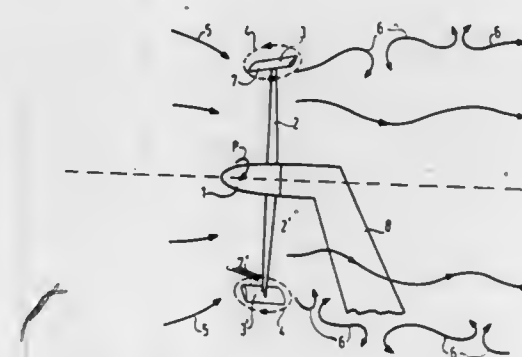
Filed Aug. 25, 1980, Ser. No. 181,391

Claims priority, application Netherlands, Sep. 4, 1979, 7906627

Int. Cl.³ F03D 1/06

U.S. Cl. 416—191

3 Claims



1. Apparatus for deriving energy from a flow of fluid, such as a windmill driven by a flow of air, said device comprising a hub which is rotatable around an axis and upon which substantially radially extending propeller wings are attached in a twisted way, such that substantially along the entire length of the wings the relative flow direction of the fluid, occurring during operation, will exert a driving rotating force on the hub, the wings being provided at their ends with auxiliary blades, which seen in a sectional plane defined by the relative flow direction of the fluid and the centerline of the wings are directed such that the forward elongation of the chord of the blades profile situated in said plane will intersect a line positioned in said plane and running parallel to the said flow direction and through the rotational axis of the hub, characterized by that the device has the axis of rotation of the hub at an angle

of 15°-45° to the horizontal whereby said auxiliary blades are so formed and have such an angle of adjustment, that they generate during operation a lifting force substantially directed radially in the direction of the hub.

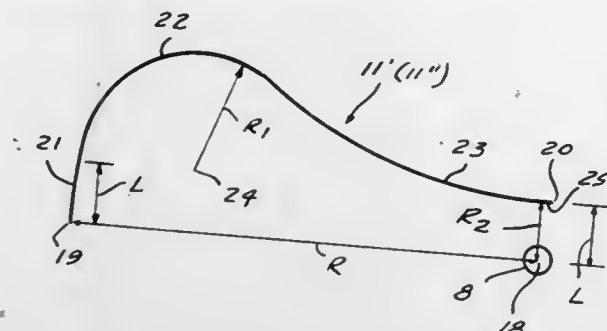
4,362,470 WIND TURBINE

Gerlando J. Locastro, 28 Rosemary La., Centereach, N.Y. 11720, and Peter P. Giemsch, 1020 Hawkins Ave., Lake Grove, N.Y. 11755

Filed Apr. 23, 1981, Ser. No. 256,905
Int. Cl.³ F03D 3/06

U.S. Cl. 416-197 A

9 Claims



1. A wind turbine, comprising a shaft rotatable about an axis; and a plurality of blades mounted on said shaft and arranged to be rotated by wind and to thereby rotate said shaft, each of said blades having an outer portion which has an outer edge formed at the outer end of a radius with a center at said axis and extends only rearwardly from said outer edge over a circumference described from said center, each of said blades having an inner edge which is rearwardly offset relative to said outer edge and also from said radius in a direction which is normal to said radius by a predetermined distance, said outer portion having a length which corresponds to said distance, each of said blades having a central portion including a radially outer section and a radially inner section formed so that said radially outer section is concave toward said radius and described from a center which is offset from said radius in the normal direction by said distance, whereas said radially inner section is convex toward said radius.

4,362,471

ARTICLE, SUCH AS A TURBINE ROTOR AND BLADE WHICH COMPRISES A FIRST ZONE OF A NONOXIDE CERAMIC MATERIAL AND A SECOND ZONE OF A SOFTER MATERIAL

Manfred Langer, Fallersleben, and Johann Siebels, Wolfsburg, both of Fed. Rep. of Germany, assignors to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Fed. Rep. of Germany

Division of Ser. No. 635,399, Nov. 26, 1975, Pat. No. 4,214,906.

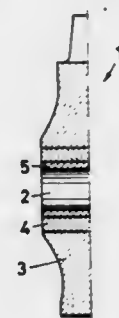
This application Mar. 5, 1980, Ser. No. 127,393

Claims priority, application Fed. Rep. of Germany, Nov. 29, 1974, 2456435

Int. Cl.³ F01D 5/28

U.S. Cl. 416-241 B

14 Claims



1. An article, such as a turbine rotor and blade, which comprises a first zone of a nonoxide ceramic material; a second zone of a different, softer material which can be soldered or

welded; and a transition region between said zones which bonds said zones together; wherein said transition region comprises intermingled materials of the first and second zones, which article is formed from two powders, the first powder being capable of forming said nonoxide ceramic material and the second powder being selected from the group consisting of Al_2O_3 , 52% Cu-35% Cr-13% Ni, 35% Cu-15% Cr-50% Ni, Co-Ni-Fe compounds, Co-Ni-Fe-Mo compounds, transition metals, and transition metal compounds, which powders are introduced into respective portions of a mold corresponding to said first and second zones, are mingled to form said transition region, and are molded together at least by the application of pressure to form a solid article.

4,362,472

ROTARY COMPRESSOR WITH VARIABLE BUILT-IN VOLUME RATIO

Rolf I. Axelsson, Norrköping, Sweden, assignor to Stal Refrigeration AB, Norrköping, Sweden

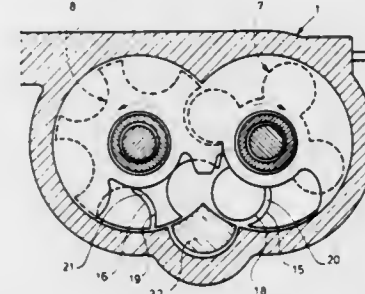
Filed Jun. 9, 1980, Ser. No. 158,061

Claims priority, application Sweden, Jun. 8, 1979, 7905002

Int. Cl.³ F04B 49/00

U.S. Cl. 417-53

7 Claims



1. In the operation of a rotary compressor where a medium is compressed in a working chamber formed between at least one rotor and a wall surrounding the rotor, said working chamber on rotation of the rotor sucking in the medium from an inlet, after which the working chamber is closed from the inlet and decreased in volume so as to compress the medium, the working chamber thereafter being brought into communication with an outlet by an edge of the rotor together with an adjustable edge of an outlet port uncovering a passage from the working chamber to the outlet, said edge of the outlet port being displaceable to vary the built-in volume ratio of the compressor and cause the pressure in the working chamber, when it begins to open towards the outlet, to become adapted to the pressure in the outlet, the method which comprises sensing an operational quantity which is a measure of the energy supplied to the rotor for compressing the medium and transferring it to the outlet, and intermittently displacing said edge of the outlet port until said operational quantity acquires a value corresponding to a minimum of said energy.

4. In a rotary compressor, the combination of a rotor, a housing having a wall surrounding the rotor and forming therewith a working chamber, the housing having an inlet for a medium to be compressed and an outlet for the compressed medium, the rotor being operable by rotation thereof to cause the working chamber to suck in the medium from said inlet and thereafter to close the chamber from the inlet and decrease the volume of the chamber, thereby compressing the medium therein, the housing having a passage from the working chamber to said outlet and also having a port with an adjustable edge for uncovering said passage, the rotor being operable after said compressing of the medium to bring the working chamber into communication with the outlet by an edge of the rotor together with said adjustable edge uncovering said passage, said adjustable edge of the port being displaceable to vary the built-in volume ratio of the compressor and cause the pressure in the working chamber, when it begins to communicate with the outlet, to become adapted to the pressure in the

outlet, means for supplying energy to the rotor for compressing the medium and transferring it to said outlet, means for sensing an operational quantity which is a measure of said supplied energy, an adjusting motor operatively connected to said adjustable edge of said port, and a regulator connected to the sensing means for operating the motor intermittently to displace said edge of the outlet port until said operational quantity acquires a value corresponding to a minimum of said energy.

4,362,473

ROTARY COMPRESSOR FOR GAS AND LIQUID MIXTURES

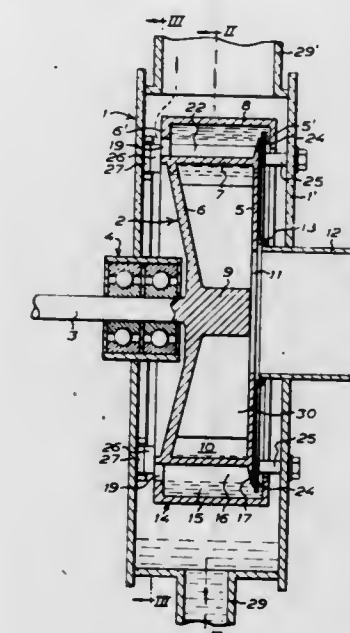
Sten O. Zeilon, Heimdalsgatan 21, S-260 14 Glumslöv, Sweden

Filed May 19, 1980, Ser. No. 151,284

Int. Cl.³ F04C 19/00

U.S. Cl. 417-68

16 Claims



1. A rotary compressor for a gas and liquid mixture and comprising a disk-like rotor (2) disposed in a fixed pump housing (1) and having an annular peripheral gas and liquid channel (14), characterized in that the channel (14) includes an annular radially outer space (15) for an entrapped liquid annulus and a radially inner, concentric annular space (16) for gas, which is defined by a liquid transforming side wall (17) which penetrates into the liquid annulus space (15); and that the gas space (16) is divided into suction and compression chambers (16a and 16b, respectively) by one or more transverse walls (18) connected to the rotor (2) and extending inwardly toward and penetrating into the liquid annulus space (15), and by planar liquid jets (31) which are deflected from the rotating liquid annulus in the space (15) therefor by means of at least one blade (22) which is fixedly anchored in the pump housing (1) and extends axially along the liquid annulus space (15).

4,362,474

CENTRIFUGAL FUEL PUMP WITH AUTOMATICALLY SWITCHED JET INJECTION

Merritt B. Andrews, Westfield, Mass., assignor to United Technologies Corp., Hartford, Conn.

Filed Dec. 20, 1979, Ser. No. 105,685

Int. Cl.³ F04B 23/14

U.S. Cl. 417-80

4 Claims

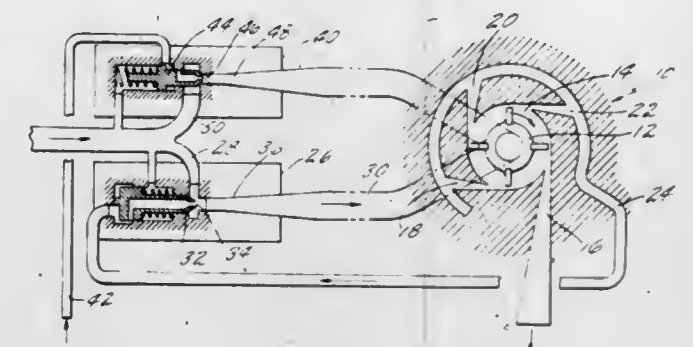
1. A fuel pump for supplying fuel from a fuel supply to an engine that has a fuel inlet and a bypass fuel flow outlet, characterized by:

a centrifugal pump having a centrifugal pump inlet, a primary centrifugal pump outlet for providing a primary fuel flow to the engine fuel inlet, and a secondary centrifugal pump outlet for providing secondary fuel flow at a flow

rate that is greater than the primary fuel flow rate at any given pump speed, and

a jet injector system connected to the fuel supply, the bypass fuel flow outlet and said secondary centrifugal pump outlet, through which fuel is supplied to the centrifugal pump inlet from the fuel supply in separately controlled mixtures of excess fuel flow and said secondary fuel flow to increase the fuel pressure in said primary outlet inversely with primary flow pressure below a certain primary flow pressure and increase fuel pressure in the centrifugal pump inlet in proportion to the pressure in the bypass outlet,

said jet injector system comprising first and second injector fuel flow circuits for connection to the supply and through which fuel is supplied to the centrifugal pump inlet, the flow through each of these circuits being con-



trolled by a corresponding jet injector assembly, each assembly including a throat connected to the centrifugal pump inlet and a movable injector nozzle for throttling the flow in the throat; one of said jet injector assemblies being connected to the centrifugal pump secondary outlet for mixing said secondary flow with fuel supplied to the centrifugal pump inlet and being controllable, in relation to the fuel pressure in said secondary outlet, to provide progressively less fuel from the fuel supply as the fuel pressure in said secondary pump outlet increases, and a second of said jet injector assemblies being connected to the engine excess flow outlet for providing a mixture of bypass fuel flow and fuel from said fuel supply, and being controllable, in relation to the pressure in said bypass fuel outlet, to provide progressively more fuel to the centrifugal pump inlet as the pressure in said excess fuel flow outlet decreases.

4,362,475

COMPRESSOR INLET VALVE

William R. Seitz, La Porte, Ind., assignor to Joy Manufacturing Company, Pittsburgh, Pa.

Filed Mar. 16, 1981, Ser. No. 243,828

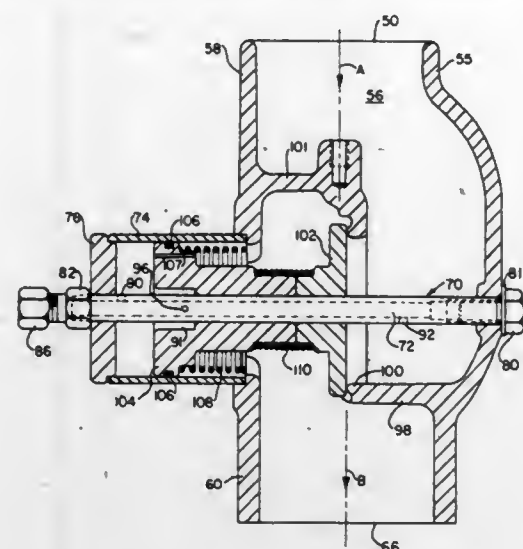
Int. Cl.³ F04B 49/00; F16K 31/143, 31/383; F15B 15/27

U.S. Cl. 417-295

30 Claims

1. A compressor inlet valve comprising a valve housing, a control tube disposed at least partially within said housing and having a first portion adapted to be in communication with a source of fluid, valve element means disposed within said housing and mounted on said control tube for relative movement thereon, valve seat means disposed within said housing for cooperating with said valve element in opening and closing said valve, piston means disposed within said housing mounted on said control tube for relative movement thereon, said piston means being interposed between said control tube first portion and said valve element, main spring means for biasing said piston generally toward said control tube first portion, and first orifice means formed in said control tube adjacent to

said piston, whereby at least a portion of the fluid introduced into said control tube first portion will emerge



through said first orifice means and urge said piston to move against the bias of said main spring means in order to move said valve element to a closed position.

4,362,476

SECURING APPARATUS FOR ELECTRIC FUEL PUMPS
Ulrich Kemmer, Sachsenheim, and Karl Ruhl, Niefern, both of
Fed. Rep. of Germany, assignors to Robert Bosch GmbH,
Stuttgart, Fed. Rep. of Germany

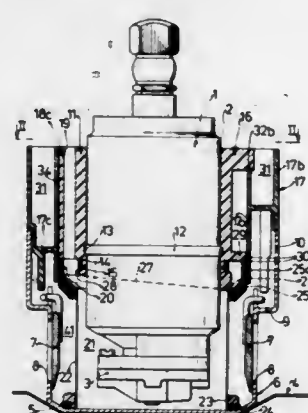
Filed May 23, 1980, Ser. No. 152,890

Claims priority, application Fed. Rep. of Germany, Jul. 14, 1979, 2928469

Int. Cl.³ F04B 17/00; F01D 5/10; F04D 29/60

U.S. Cl. 417-360

15 Claims



1. A securing apparatus for an electric fuel pump, comprising a lower pumping portion and a combined electromotor arranged for direct installation in fuel tanks of motor vehicles and the like, said apparatus further including a fuel spinner fixedly mounted in a suction area in the fuel tank, and thereby arranged to form a suction basket separated from the remaining tank area by sieve means, said fuel spinner including a lowered element an intermediate element secured on the lowered element, said intermediate element having recesses therein, a sleeve member of rubber-like or elastomeric material arranged to encompass a portion of said pump and is secured thereon, said sleeve member secured on said pump includes equally spaced radially outwardly protruding projections at the top thereof which engage and are supported by said recesses in said intermediate element of said fuel spinner whereby said sleeve member is secured on said intermediate element in such a manner that said sleeve is stressed primarily by shear and bending forces.

4,362,477 INTERNAL COMBUSTION ENGINE OR PUMPING DEVICE

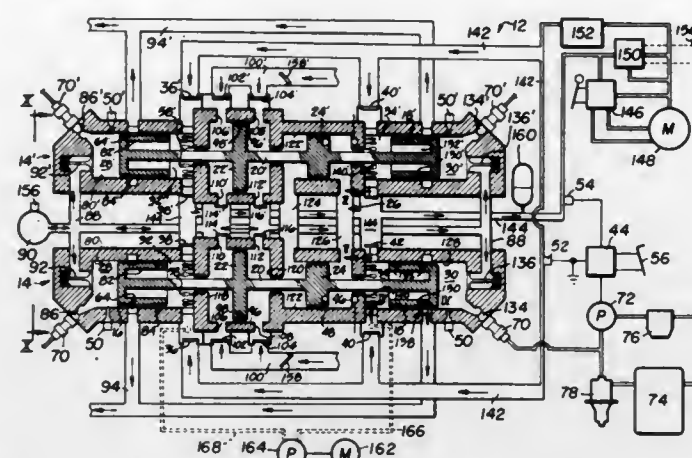
Kenneth S. Patten, 1920 Latham St., #1, Mountain View, Calif.
96040

Filed Jan. 14, 1980, Ser. No. 111,489

Int. Cl.³ F04B 17/00, 35/02; B65H 59/10

U.S. Cl. 417-364

12 Claims



1. An internal combustion engine/pumping device comprising an engine block forming a pair of elongated coaxially arranged cylinders, each cylinder including a piston arranged for reciprocation therein and dividing the cylinder into a combustion chamber and a pumping chamber, means for injecting fuel into said combustion chamber, means for admitting air into said combustion chamber, exhaust means in communication with said combustion chamber, a low pressure fluid conduit in communication with said pumping chamber, a high pressure fluid conduit in communication with said pumping chamber, means for communicating pressurized transmission drive fluid from said pumping chamber into said high pressure fluid conduit during a power stroke of said piston, means for admitting transmission drive fluid from said low pressure conduit into said pumping chamber prior to said power stroke, means for communicating said high pressure fluid conduit with work means to be driven by operation of said engine, a mechanical coupling interconnecting said two pistons for operation of said two pistons in opposition to each other, said mechanical coupling comprising a rigid shaft interconnecting the two pistons, a second pair of similar elongated cylinders each including a piston dividing the respective cylinders into a combustion chamber and a pumping chamber, said second pair of cylinders and pistons being in coaxial alignment with each other, said pistons in said second pair of cylinders being interconnected by a rigid shaft, said two pairs of opposed pistons being arranged in parallel side-by-side relation and further comprising means interconnecting said two shafts for assuring synchronized reciprocating movement thereof in opposition to each other, said means interconnecting said two shafts comprising a synchronizing piston mounted upon each shaft and disposed for reciprocation within a synchronizing cylinder, fluid passages interconnecting the opposite ends of the two synchronizing cylinders.

4,362,478

BYPASS VALVE FOR SUCKER ROD PUMPS
Leonard L. Huckaby, P.O. Box 152, Wayne, Okla. 73095

Filed Jan. 26, 1981, Ser. No. 228,064

Int. Cl.³ F04B 21/00, 39/00

U.S. Cl. 417-434

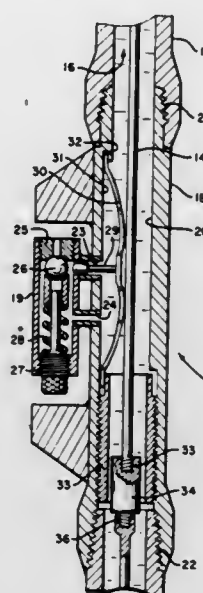
3 Claims

1. A bypass valve assembly for placing the interior of a pipe string above a pump operated by sucker rods in the string, in communication with the well annulus to thereby permit emptying of the pipe string of fluid, said assembly including, in combination:

(a) a pipe section having a central bore and upper and lower

threads for connection into a joint in the oil pipe string, said pipe section further including bore means in its side wall

- (b) a hollow valve body mounted on the exterior of said pipe section in communication with said bore means and including a valve seat and ball seated on the valve seat juxtaposed the bore means, removal of the ball from the valve seat placing the interior of the pipe string into communication with said well annulus;
- (c) adjustable means on said valve body for biasing said ball against said seat with a given force;



- (d) a laterally movable pin passing through said bore means with one end juxtaposed said ball and its opposite end extending radially into said pipe section;
- (e) a belly spring in said pipe section extending vertically along an internal side to overlie said opposite end of said pin; and
- (f) a tripping sub connected between two sucker rods below said belly spring and of a diameter such as to urge the pin radially outwardly when pulled up past the belly spring to thereby unseat the ball from said valve seat and permit fluid in the pipe string to drain to the well annulus by way of said bore means, interior of the valve body and through the valve seat.

4,362,479

ROTARY FLUID PRESSURE DEVICE AND LUBRICATION CIRCUIT THEREFOR

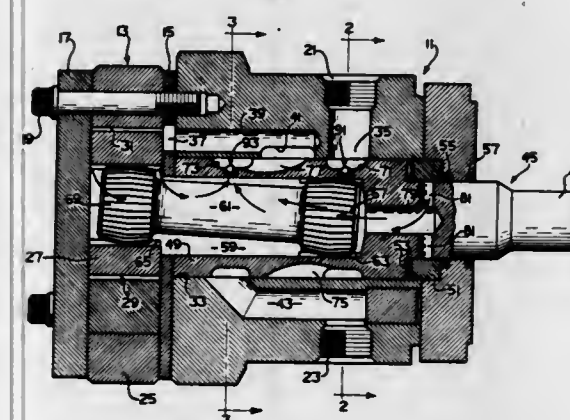
James H. Pahl, Wayzata, Minn., assignor to Eaton Corporation,
Cleveland, Ohio

Filed Mar. 25, 1981, Ser. No. 247,463

Int. Cl.³ F01C 1/02

U.S. Cl. 418-61 B

8 Claims



1. In a rotary fluid pressure device of the type including housing means defining a first fluid port, a second fluid port, and a valve bore; a gear set associated with said housing means

including an internally-toothed member and an externally-toothed member eccentrically disposed within said internally-toothed member for relative movement therebetween, the teeth of said members interengaging to define expanding and contracting volume chambers during said relative movement; output shaft means extending from said housing means and rotatably supported thereby; a valve spool rotatably disposed within said valve bore and operatively associated with said output shaft means to rotate in synchronism therewith; drive shaft means operable to transmit movement of said externally-toothed member into rotational movement of one of said output shaft means and said valve spool, said drive shaft means cooperating with said externally-toothed member to define a rearward connection means and cooperating with said one of said output shaft means and said valve spool to define a forward connection means; said valve spool defining first and second axially-spaced annular grooves on the outer periphery thereof in fluid communication with said first and second fluid ports, respectively, said first annular groove being disposed adjacent said forward connection means and said second annular groove being disposed intermediate said forward and rearward connection means; and said housing means and said valve spool cooperating to define passage means communicating between said first annular groove and one of said expanding and contracting volume chambers, and between said second annular groove and the other of said expanding and contracting volume chambers; said housing means, said valve spool and said externally-toothed member cooperating to define a lubrication fluid chamber permitting relatively unrestricted flow therethrough; the improvement comprising:

lubrication circuit means for said forward and rearward connection means including:

- (a) first check valve means disposed to permit fluid communication from said lubrication fluid chamber to said first annular groove when said second fluid port receives pressurized fluid, lubrication fluid from said gear set flowing through said rearward connection means, combining with lubrication fluid from said second annular groove, and flowing through said forward connection means to said first check valve means; and
- (b) second check valve means disposed to permit fluid communication from said lubrication fluid chamber to said second annular groove when said first fluid port receives pressurized fluid, lubrication fluid from said gear set flowing through said rearward connection means to said second check valve means, and lubrication fluid from said first annular groove flowing through said forward connection means to said second check valve means.

4,362,480

ROTARY ROLLER VANE PUMP MADE OF SPECIFIC MATERIALS

Ryozo Suzuki; Sadatoshi Murakami; Tatsumi Harada; Hiroyuki Fujiwara, and Satoru Yamasaki, all of Fukuyama, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 1, 1980, Ser. No. 136,316

Int. Cl.³ F04C 2/00, 15/00

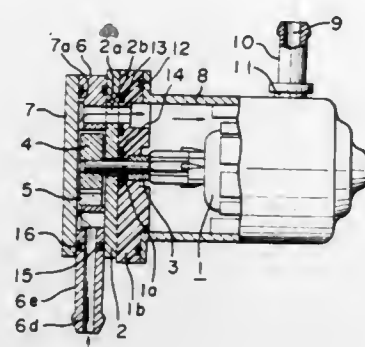
U.S. Cl. 418-152

1 Claim

1. A rotary positive displacement pump driven by a motor and comprising:

- a pump base;
- a pump case;
- a pump housing hermetically sealed with and disposed between said pump base and said pump case and forming a pump chamber with a cylindrical side wall;
- a die casted, abrasion resistance treated, zinc alloy rotor placed in said pump housing to be driven by said motor and having a plurality of grooves formed therein at the outer radial surface thereof;
- a plurality of rollers each of which is inserted into one of said plurality of grooves so as to move in the radial direction

under circumferential force by the revolution of said rotor so as to contact with an inner wall of said pump housing to thereby provide a pump operating space; intake means which further comprises means for hermetically sealing said intake port means between said pump base and said pump case and for communicating with said pump chamber wherein said rollers further comprise; fiber



reinforced polyphenylenesulfide and wherein at least said inner wall of said pump housing further comprises polytetrafluoroethylene coated aluminum alloy; wherein said abrasion resistance treated rotor further comprises one of a copper and nickel plated rotor; and wherein said fiber reinforced polyphenylenesulfide rollers further comprises one of carbon and glass fiber reinforced polyphenylenesulfide rollers.

4,362,481

ROTARY VANE MACHINE WITH RINGS RADIALLY CONSTRAINING THE VANES

Miria P. B. de Ayala, Calle Templarios, 1, Lerida, Spain
Division of Ser. No. 853,537, Nov. 21, 1977, Pat. No. 4,247,268.

This application May 27, 1980, Ser. No. 153,152

Claims priority, application Spain, Nov. 30, 1976, 453,810

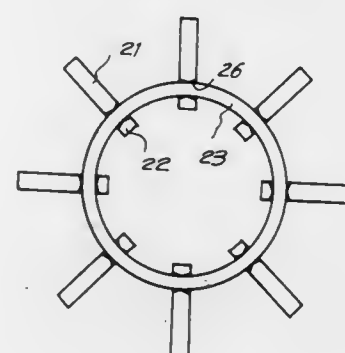
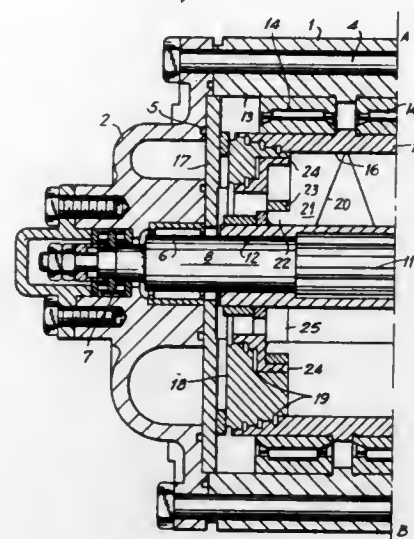
Int. Cl.³ F01C 1/00, 21/00

U.S. Cl. 418—256

12 Claims

1. A fluid displacement machine having a pair of spaced apart end walls and a substantially cylindrical wall extending between them which walls together form a substantially cylindrical hollow chamber, a rotor mounted for rotation within said chamber about an axis eccentric relative to the latter and being contiguous with said substantially cylindrical chamber wall along a generatrix thereof, said rotor having a pair of spaced apart end pieces sealingly engaging said end walls of said hollow chamber, said rotor also having vanes which extend axially between said end pieces, and which project substantially radially and which are displaceable in a substantially radial direction, said vanes having circumferential edges adapted to directly contact said substantially cylindrical chamber wall and thereby define working spaces which, during rotation of said rotor, move around said chamber while varying in volume, said vanes each having a lug at a radially inward position at both axially opposite ends thereof and projecting axially from said axially opposite ends of said vanes, each of said lugs having an edge, facing radially outwardly and providing an abutment surface spaced inwardly from said circumferential edge of said vane, and constraining members displaceable relative to said rotor and operatively associated with said vanes of said rotor to limit outward radial displacement thereof, said members determining limit positions for the vanes in which said circumferential edges of said vanes make only a desired degree of contact with said substantially cylindrical chamber wall, thereby preventing excessive contact pressure between said chamber wall and said circumferential edges, said constraining members including first and second rings each surrounding the lugs at a respective said end of said vanes, with said abutment surfaces bearing against the internal surfaces of said rings, characterized in that said end pieces form a part of said rotor so as to rotate coaxially therewith and are cup shaped and each has a cavity in the confronting end faces

thereof so that each of said first and second rings and said lugs surrounded thereby are received in said cavity in the adjacent said end pieces, each of said end pieces surrounding the adja-



cent said ring and said lug radially outwardly of and in sliding contact with said ring, and wherein said abutment surfaces each have an axially extending apex to allow said vanes to rock relative to said rings.

4,362,482

APPARATUS FOR EXTRUDING THERMOPLASTIC COMPOSITIONS

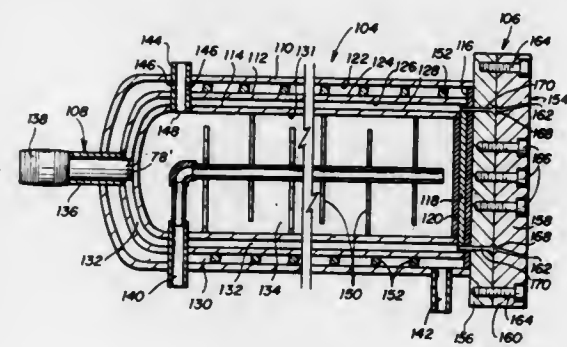
Raleigh N. Rutledge, Big Spring, Tex., assignor to Cosden Technology, Inc., Big Spring, Tex.

Continuation of Ser. No. 110,529, Jan. 9, 1980, abandoned. This application Sep. 1, 1981, Ser. No. 298,361

Int. Cl.³ B29D 7/02; B29F 3/08

U.S. Cl. 425—4 C

14 Claims



1. An apparatus for extruding a thermoplastic resinous composition, comprising:
an extruder for heat plastifying the thermoplastic resinous composition and forwarding same in an extrusion direction;
means, positioned downstream of said extruder and commu-

nicating with the outlet port of said extruder for cooling the heat plastified thermoplastic resinous composition exiting from said extruder to a uniform temperature desired for extrusion through an extrusion die, said cooling means including at least one enclosed flow path for conveying the heat plastified thermoplastic resinous composition from the inlet of said cooling means to the outlet of said cooling means, means for circulating a cooling medium about the entire circumference of each said resin flow path and means for maintaining a hydraulic balance between the inlet and the outlet of said cooling means across the entire cross-section of each said resin flow path; and

an extrusion die, including a die orifice positioned downstream of said cooling means and communicating with the outlet of said cooling means for receiving cooled, heat plastified thermoplastic resinous composition therefrom for extrusion through the die orifice, said cooling means comprising a substantially cylindrical vessel having three generally concentrically arranged axial passageways, wherein said enclosed flow path comprises the middle passageway and wherein said cooling medium circulating means comprises the inner and outer passageways and wherein said hydraulic balance maintaining means comprises a plurality of first apertures evenly spaced about the circumference of the inlet end of said middle passageway and a plurality of second apertures evenly spaced about the circumference of the outlet end of said middle passageway, said second apertures being sized in relationship to said first apertures so as to maintain said hydraulic balance.

4,362,483

HYDRAULIC SHOCK ABSORBING MECHANISM FOR THE RAM OF POWDER COMPACTING PRESSES AND THE LIKE

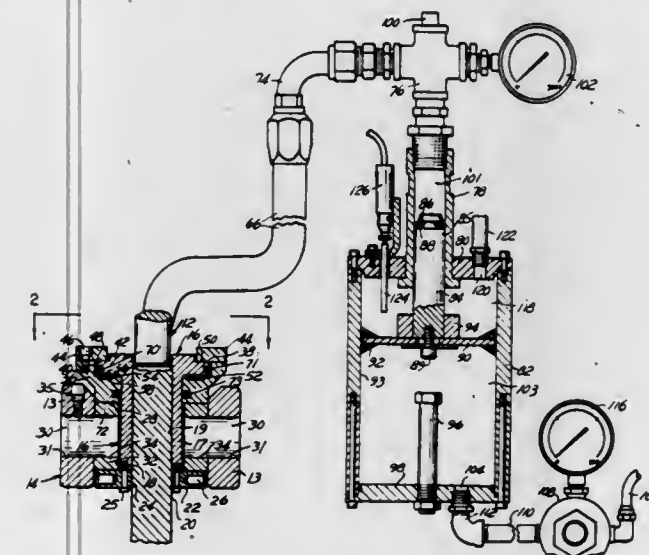
Raymond P. DeSantis, Troy, Mich., assignor to PTX-Pentronix, Inc., Lincoln Park, Mich.

Filed May 28, 1981, Ser. No. 269,512

Int. Cl.³ B30B 11/02

U.S. Cl. 425—78

10 Claims



1. In a press apparatus having a reciprocable ram, means for reciprocating said ram and means coupling said reciprocating means to said ram, an impact cushioning and shock absorbing device for said coupling means comprising a first intermediary member attached to said ram, a second intermediary member displaceable relative to said first intermediary member, a pair of abutment means each on one of said intermediary members limiting the travel of said first intermediary member away from said second intermediary member, means connecting said reciprocating means to said second intermediary member, a variable volume chamber between said intermediary members, means for introducing a non-compressible fluid in said variable volume chamber for normally holding said intermediary mem-

bers away from each other and for holding said abutment means in engagement with each other, and means connected to said introducing means for pressurizing said noncompressible fluid, said pressurizing means comprising a first cylinder, a first piston reciprocally disposed in said first cylinder, means for introducing a compressible fluid on one side of said first piston, a rod attached to said first piston and reciprocable thereby, a second cylinder, a second piston disposed on the end of said rod and reciprocable in said second cylinder for pressurizing said noncompressible fluid in said second cylinder, wherein said first piston has an area relatively larger than the area of said second piston for transmitting the pressure of said compressible fluid to said noncompressible fluid with an amplification which is proportional to the ratio of the areas of the pistons.

4,362,484

APPARATUS FOR HOT BRIQUETTING OF FERROUS OR NON-FERROUS METALLIC PARTICLES

Martin A. Stephens, St. Albans, England, assignor to Ecobric Foundry Limited, London, England

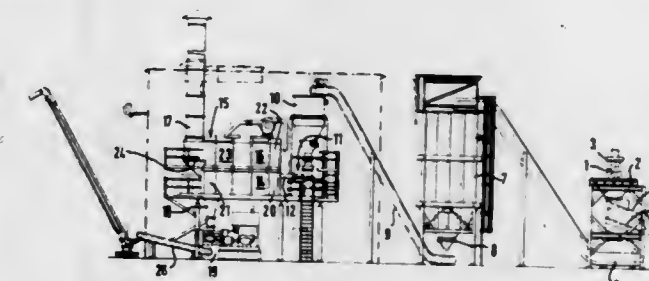
Filed Aug. 24, 1981, Ser. No. 295,538

Claims priority, application United Kingdom, Nov. 7, 1980, 8035789

Int. Cl.³ B30B 11/00; B22F 7/00, 3/12; B27D 7/00

U.S. Cl. 425—78

6 Claims



1. Hot briquetting apparatus for metallic particles comprising a furnace for heating metallic particles to the plastics range, means for supplying metallic particles to the furnace, sensing means for sensing the constituents of the combustion gases of the furnace, control means for controlling the air-to-fuel ratio of the furnace, and a briquetting press which receives heated metal particles from the furnace, said control means being connected to the output of the sensing means so as to maintain the atmosphere within the furnace as a reducing atmosphere.

4,362,485

APPARATUS FOR CONTINUOUS EXTRUSION

Harold K. Slater, and James Duckworth, both of Preston, England, assignors to United Kingdom Atomic Energy Authority, London, England

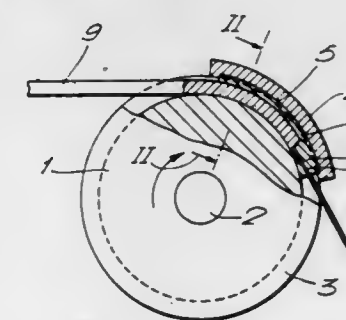
Filed May 15, 1981, Ser. No. 264,099

Claims priority, application United Kingdom, Jun. 10, 1980, 8018943

Int. Cl.³ B21C 23/21

U.S. Cl. 425—79

7 Claims



1. Continuous extrusion apparatus comprising a rotatable wheel with an endless groove therein, a relatively stationary

shoe member overlying part of said groove lengthwise and having a portion projecting part way into said groove, a die assembly removably and replaceably incorporated as an assembly in said shoe member so as to provide at least a part of the projecting portion thereof, a removable and replaceable abutment member formed by a removable and replaceable part of said die assembly, said abutment member projecting into and blocking said groove, removable and replaceable die means forming part of said die assembly, and fluid coolant passage means for effecting cooling of said die assembly and its parts, whereby feedstock material fed to the passageway formed by said shoe member projecting portion and that part of said groove into which it projects and with which it cooperates is caused by the force generated by friction between the groove floor and sides of the feedstock material on rotation of said wheel and by the presence of said abutment which blocks one end of said passageway, to become upset and to be extruded through said die means of said die assembly.

4,362,486

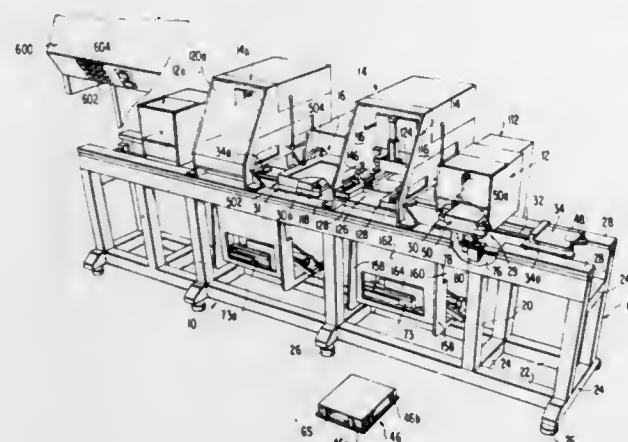
AUTOMATIC MULTILAYER CERAMIC (MLC) SCREENING MACHINE

Gordon T. Davis, Pompano Beach, Fla.; Edward H. Faulkner, Pleasant Valley, N.Y.; Angelo S. Gasparri, Coral Springs, Fla.; Robert A. Magee, Poughkeepsie, N.Y.; Lawrence P. Remsen, Stanfordville, N.Y.; Dennis L. Saylor, Lagrangeville, N.Y., and Alfred A. Stricker, Pompano Beach, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 7, 1980, Ser. No. 194,724
Int. Cl.³ B29C 27/00; B29E 6/00

U.S. Cl. 425—110

21 Claims



1. In an automatic screening machine for screening a conductive material through a stencil mask and onto an underlying ceramic green sheet, the combination comprising:
an elongated rail structure having disposed in juxtaposition therealong and in order, a first loading station, a first screening station, a common unloading station, a second screening station, and a second loading station;
first and second carriage assemblies mounted on said rail structure for movement therealong;
means for moving said carriage assemblies along said rail structure from said loading stations through said screening stations to said common unloading station in opposite directions and selectively positioned thereat;
each carriage assembly including a green sheet support fixture;
a loading mechanism located at each loading station, said loading mechanism including a pick up and placement head for picking up a green sheet at one position on said carriage assembly and for transferring it to said support fixture;
said carriage assembly further comprising alignment means for aligning the green sheet as it is deposited on said support fixture;
a screening apparatus located at each screening station, each

such screening apparatus including an assembly for fixing a stencil mask above and in alignment with a carriage assembly when at said screening station, a green sheet positioning mechanism for vertically raising said green sheet support fixture relative to said carriage assembly and into and out of a screening position in face abutment contact with said stencil mask, and an extrusion mechanism for screening conductive material through said stencil mask and onto said underlying green sheet borne by said support fixture; and

control means operatively connected to said carriage movement means, said loading mechanism and said screening apparatus for effecting sequential loading of a green sheet from a stack of such green sheets on said carriage assembly onto said green sheet support fixture and in proper alignment therewith, transport of said green sheet to said screening apparatus, screening of said green sheet and transport of said screened green sheet to said common unloading station and for effecting such operations out of phase for respective carriage assemblies such that a screened green sheet from one of said carriage assemblies is positioned at said unloading station for removal from said fixture of said one carriage assembly, while, simultaneously a second green sheet borne by the fixture of said other carriage assembly may be screened at its respective screening station, and vice versa.

4,362,487

APPARATUS FOR MANUFACTURING SLIDE FASTENER CHAINS HAVING SOLID SECTIONS

Kihei Takahashi, Uozu, Japan, assignor to Yoshida Kogyo K.K., Tokyo, Japan

Filed Aug. 13, 1981, Ser. No. 292,529
Claims priority, application Japan, Aug. 30, 1980, 55-120332; Aug. 30, 1980, 55-120333

Int. Cl.³ B29D 5/00; B29F 1/00

U.S. Cl. 425—111

3 Claims



1. An apparatus for manufacturing a fastener chain having solid sections and of the type wherein the fastener chain is manufactured by providing a tape including perforated sections having holes formed along a longitudinal edge of the tape at regular intervals, said intervals being smaller than the spacing intervals of fastener element molding cavities in a fastener element injection molding machine, and solid sections in which no holes are formed, said perforated sections and solid sections alternating along the length of the tape, supplying the tape so that a perforated section thereof is placed between a stationary mold and movable mold of the injection molding machine, tensioning the tape to stretch the same, so that the spacing intervals of the holes in said perforated section of the tape are brought into agreement with the spacing intervals of the fastener element molding cavities in the molds, and then injection molding fastener elements onto said perforated section of the tape at the holes, said apparatus comprising:
an injection molding machine having a stationary mold and a movable mold movable relative thereto, said stationary and said movable molds each having molding cavities at spaced intervals therein;

means adjacent said molds to inject moldable material into said mold cavities;
a pair of spaced hollow shafts adjacent to said molds;
a pair of freely rotatable drums, each supported for rotation on a respective one of the hollow shafts;
a pair of support shafts passed through respective ones of said hollow shafts in such a manner that said support shafts may be driven rotatively and oscillated in the radial direction thereof;
a pair of sprocket wheels each having a row of peripheral teeth and fixedly secured on respective ones of said support shafts and disposed adjacent the side of said freely rotatable drums;
guide rollers cooperating with said pair of freely rotatable drums for guiding the tape into the space between said molds;
support shaft drive means for oscillating the support shafts of said sprocket wheels within said hollow shafts when a perforated section of the tape contacts and passes over the circumferential surface of a freely rotatable drum, in such a direction that causes the teeth on one of the sprocket wheels to project beyond the circumferential surface of said freely rotatable drum, and for oscillating the support shafts of said sprocket wheels within said hollow shafts, when a solid section of the tape contacts and passes over the circumferential surface of said freely rotatable drum, in such a direction that causes the teeth on said sprocket wheel to recede below the circumferential surface of said freely rotatable drum; and
tensioning means operable, when a perforated section of the tape reaches a predetermined position between said molds and the movable mold is moved toward the stationary mold to a half-closed position with said perforated section of the tape interposed therebetween, to apply tension to the tape by rotating one of said sprocket wheels reversely through a predetermined angle, thereby to bring the spacing intervals of the holes in said perforated section into agreement with the spacing intervals of the fastener element molding cavities in said molds.

4,362,488

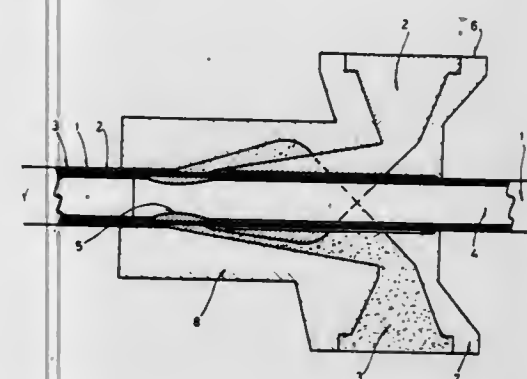
EXTRUDER FOR CONTINUOUS MANUFACTURE OF REINFORCED TUBING, ESPECIALLY HOSE

Ramon R. Casals, and Jaime R. Casals, both of Canarias, 23, Barcelona, Spain

Filed Mar. 9, 1981, Ser. No. 243,060
Claims priority, application Spain, Mar. 12, 1980, 489,439
Int. Cl.³ B29D 23/05

U.S. Cl. 425—113

6 Claims



1. An extruder for continuously manufacturing of reinforced tubing, especially hose, consisting of a tubular fabric reinforcement, an outer tubular layer of compounded polymeric material applied to and bonded to the outer surface of the tubular fabric reinforcement and an inner tubular layer of compounded polymeric material applied to and bonded to the inner surface of the tubular fabric reinforcement, said extruder comprising an elongated extruder head having a plurality of tubular means arranged to form two main annular passages extending in longitudinal direction of the head and each having an inlet end

and an outlet end, one of said main annular passages being at least in part surrounded by the other main annular passage, said one annular passage serving for the flow of compounded polymeric material therethrough forming said inner tubular layer and the other of said annular passages serving for the flow of compounded polymeric material therethrough forming said outer tubular layer, said outlet end of said one annular passage being rearwardly displaced, as considered in the direction of flow of the compounded polymeric material, from the outlet end of said other annular passage; a first hopper communicating with the inlet end of said one annular passage for feeding compounded polymeric material for forming said inner tubular layer into said one annular passage; a second hopper communicating with the inlet end of said other annular passage for feeding compounded polymeric material for forming said outer tubular layer into said other annular passage; said extruder head being further provided with a central passage of circular cross section therethrough; and a mandrel of circular cross section of a diameter smaller than that of said central passage extending coaxially through said central passage to form an annular gap with the latter for feeding the tubular fabric reinforcement through said annular gap, said outlet end of said one annular passage and said outlet end of said other annular passage terminate both at the outer periphery of said annular gap, said mandrel being provided in the region of the outlet end of said one annular passage with an annular neck at least partly overlapping said outlet end of said one annular passage.

4,362,489

EXPANDABLE MANDREL APPARATUS FOR MANUFACTURING SMOOTH-LINED CORRUGATED PIPE

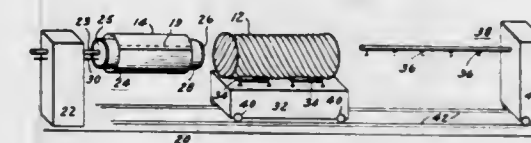
Bernard J. Bast, Bethlehem, Pa., assignor to Bethlehem Steel Corporation, Bethlehem, Pa.

Division of Ser. No. 166,426, Jul. 7, 1980, abandoned. This application May 18, 1981, Ser. No. 264,364

Int. Cl.³ B29C 6/00

U.S. Cl. 425—127

2 Claims



1. Apparatus for producing a smooth-lined corrugated pipe having a plastic foam mixture filling the voids created by the corrugations of the pipe and bonded to the internal surface of the pipe, and a plastic sheet liner bonded to the plastic foam mixture, which apparatus comprises:

- means for applying a plastic foam mixture to the internal surface of the corrugated pipe,
- means for inserting an expandable mandrel, having mounted thereon said sheet liner in the form of an expandable cylinder, into the corrugated pipe after said means of paragraph (a) has applied said plastic foam mixture to the internal surface of the corrugated pipe but before said plastic foam mixture hardens,
- means for expanding said expandable mandrel to press said sheet liner against said plastic foam mixture,
- means for maintaining said sheet liner against said plastic foam mixture until said plastic foam mixture has solidified and is bonded to the internal surface of said corrugated pipe and said sheet liner is bonded to said plastic foam mixture, and
- means to collapse said expandable mandrel and remove it from and thereby provide said smooth-lined corrugated pipe.

4,362,490

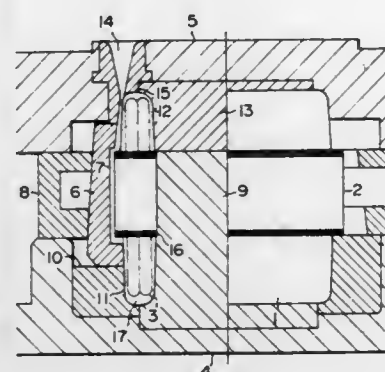
MOLDING APPARATUS FOR STATOR OF ROTARY ELECTRIC MACHINE

Yoshiro Machida, Chiba; Kenichi Nakamura, Sakura; Takao Mifune, Ichikawa, and Masayuki Sugishima, Sakura, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Jul. 10, 1981, Ser. No. 282,169

Claims priority, application Japan, Jul. 11, 1980, 55/93938
Int. Cl.³ B29C 6/00

U.S. Cl. 425—128

7 Claims



1. A molding apparatus for a stator of an electric rotary machine comprising:

- a first mold member enclosing one coil end of the stator including a stator core and a coil wound thereon with a clearance therebetween and positioned against one end surface of the stator core disposed outwardly of said one coil end;
- a second mold member set on the inner periphery of the stator core and enclosing the other coil end of the stator with a clearance therebetween while being positioned against other end surface of the stator core disposed outwardly of said the other coil end; and
- at least one runner formed on said second mold member for communicating a first space formed between said first mold member and said one coil end with a second space formed between said second mold member and said the other coil end.

4,362,491

TABLET MAKING MACHINES

David Livingstone, Royston, England, assignor to Ed Frogerais SA, France

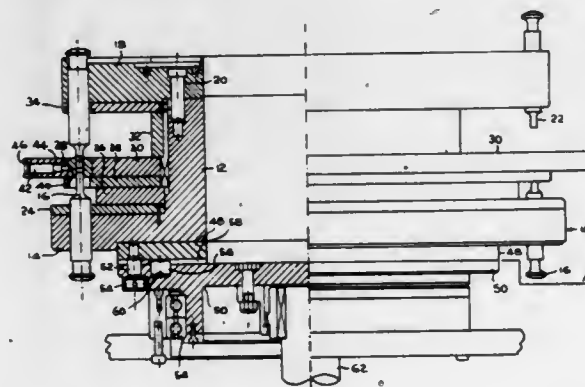
Filed Sep. 25, 1981, Ser. No. 305,609

Claims priority, application United Kingdom, Feb. 5, 1981, 8103586

Int. Cl.³ B28B 17/00; B30B 11/08

U.S. Cl. 425—186

10 Claims



1. In a tablet making machine, a rotor one end of which is adapted to be detachably secured to a rotatable member of the machine so that the rotor rotates with the rotatable member in

use of the machine; the configuration of the rotor being such that when it is detached from the rotatable member the rotor can be removed from the machine by generally horizontal sliding movement.

4,362,492

APPARATUS FOR COMPRESSION MOLDING RECORDED DISCS

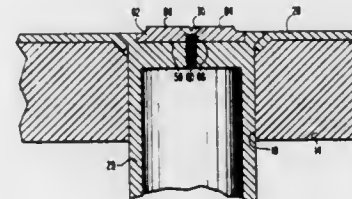
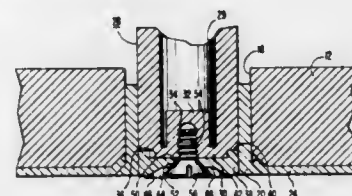
John J. Prusak, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Oct. 13, 1981, Ser. No. 310,856

Int. Cl.³ B29D 17/00

U.S. Cl. 425—309

9 Claims



1. In an apparatus for molding a recorded disc which includes a pair of mold plates adapted to form therebetween a disc mold cavity, a center hole forming pin movable in one of the mold plates toward and away from the other mold plate at the center of the mold cavity and a center plate in the other mold plate at the center of the mold cavity with each of the center hole forming pin and center plate having surfaces which mate to form the center hole in the disc, the improvement comprising:

- the portion of at least one of the center hole forming pin or center plate having its mating surface removably secured to its respective part and being of a material harder than the material of its respective part.

4,362,493

APPARATUS FOR COMPRESSING TABLETS

Wallace A. Doepel, 226 Bellino Dr., Pacific Palisades, Calif. 90272

Division of Ser. No. 167,267, Jul. 9, 1980, Pat. No. 4,292,017.

This application Apr. 27, 1981, Ser. No. 257,922

The portion of the term of this patent subsequent to Sep. 29, 1998, has been disclaimed.

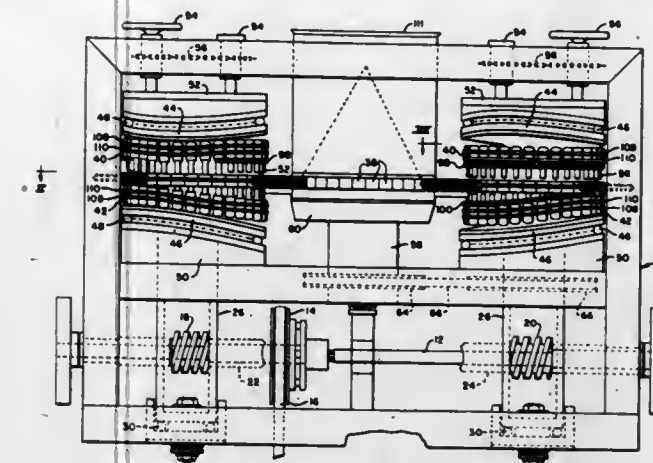
Int. Cl.³ B30B 11/08, 15/00

U.S. Cl. 425—345

5 Claims

1. In apparatus for compressing material into tablets, turntable means having means on its periphery for receiving dies which are to be filled with product material prior to compression, dies positioned in at least some of said receiving means, and apparatus for evacuating said dies as they are filled with said product, said apparatus for evacuating comprising a filter

beneath said dies carried on said turntable and having a filtering surface in contact with the bottoms of the dies, said filter-



ing surface preventing substantial product material from passing out of the dies, and means for evacuating the filter cavity.

4,362,495

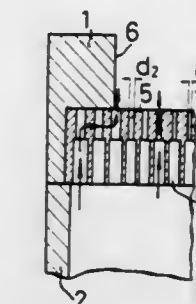
EXTRUSION DEVICE FOR FORMING A HONEYCOMB STRUCTURE

Junichiro Naito, Toyokawa; Shinichi Yamamoto, Takahama; Zituo Suzuki, Aichi, and Mitsuru Asano, Okazaki, all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan
Filed Dec. 10, 1980, Ser. No. 214,984

Claims priority, application Japan, Dec. 12, 1979, 54/162103
Int. Cl.³ B29F 3/04

U.S. Cl. 425—376 A

9 Claims



1. An extrusion device for forming a honeycomb structure provided with a large number of axially extending open passages which are separated by thin wall, out of an extrudable material, comprising:

- a die provided with a large number of disconnected feed passageways which are formed on an extrudable material inlet side thereof in the axial direction thereof, and a large number of interconnected grid-shaped extrusion slots which are formed on an extrudable material outlet side thereof and communicated with said feed passageways; and
- a cylindrical die mask disposed on said outlet side and having a central aperture coaxial with said die, said mask being disposed to cover an outer ring of extrusion slots with said aperture leaving uncovered an inner circular area of extrusion slots, the uncovered extrusion slots in the outer peripheral portion of said inner circular area having a width larger than those of the central portion of said circular area, the arrangement being such that extrudable material fed to the covered outer ring of extrusion slots is caused to flow laterally to the said uncovered wider extrusion slots via the said interconnection thereof and axially outwardly through said wider slots to aid in providing a continuous homogenous honeycomb structure.

4,362,494

AUTOMATIC PRESS

Horst Schreiner, and Bernhard Rothkegel, both of Nuremberg, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

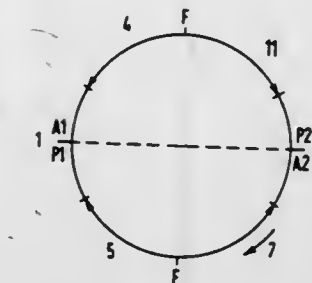
Continuation of Ser. No. 174,905, Aug. 4, 1980, abandoned. This application Oct. 13, 1981, Ser. No. 310,986

Claims priority, application Fed. Rep. of Germany, Aug. 9, 1979, 2932372

Int. Cl.³ B30B 11/10; B29C 3/00; B30B 11/06

U.S. Cl. 425—345

6 Claims



1. In an automatic press for the manufacture of molded bodies from materials in powder form, in which a rotatable circular table with a vertical axis of rotation is provided on which filling devices with filling vessels and press tools are arranged at a uniform pitch, the improvement comprising: at least two work positions being provided on the circular table at a predetermined spacing of at least 120° from each other; means for carrying out, at each work position, while said press table is stationary, a respective pressing process for pressing the powder and a respective ejecting process for ejecting the finished molded body; and respective filling devices arranged between the work positions in such a manner that the filling takes place while the table is moving and that the filling vessel of each filling device covers a wide angular region of the circular table.

4,362,496

APPARATUS FOR MAKING PLASTIC ARTICLES

Albert R. Uhlig, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Division of Ser. No. 164,664, Jun. 30, 1980, Pat. No. 4,323,340, which is a division of Ser. No. 854,555, Nov. 25, 1977, Pat. No. 4,305,902, which is a continuation of Ser. No. 670,936, Mar. 26, 1976, abandoned, which is a continuation of Ser. No. 461,361, Apr. 16, 1974, abandoned. This application Aug. 11, 1981, Ser. No. 291,714

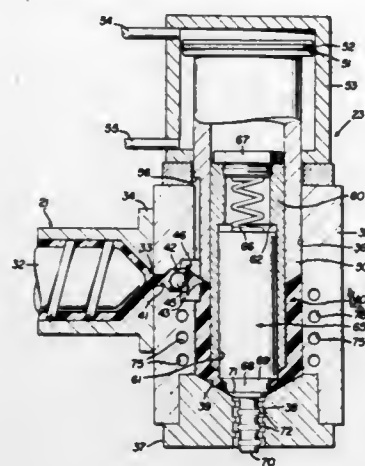
Int. Cl.³ B29F 3/08, 1/08

U.S. Cl. 425—379 R

1 Claim

1. In an apparatus for making an oriented thermoplastic article, an accumulator for containing a body of thermoplastic material of a volume at least sufficient to form the article, means for adjusting the temperature of the body of said material while in said accumulator to a temperature conducive to orientation, means defining an orifice, said accumulator being spaced from, and communicating with, said orifice by means defining a passageway, means for advancing material under pressure from said body in said accumulator toward and through said orifice communicating with said accumulator via said passageway, means in said passageway intermediate said accumulator and said orifice for shearing said material in a

non-linear shear pattern to multi-directionally orient the material prior to its issuance from said orifice, and means for chill-



ing said multi-directionally oriented material exteriorly of said orifice to form an article in which the material is multi-directionally oriented.

4,362,497

FOOD PRESS FORM

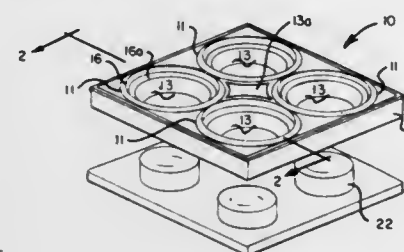
Igor Lifshitz, 1635 N. Martel Ave., Los Angeles, Calif. 90036

Filed Aug. 14, 1981, Ser. No. 293,513

Int. Cl.³ A21C 11/10; B29C 1/00

U.S. Cl. 425—510

8 Claims



1. A food form in combination, comprising: multiple separate, planar food product molds each having a shape appearing in plan view as a regular planar geometric figure, each mold having tapered mold walls and being free of a base wall, each mold having a top face and a cutting-edge knife edge terminus disposed around said top face, conforming to said shape, a holding tray shaped and sized to hold and secure said multiple food product molds in said tray, and, a one-piece pusher member having plural projections each being sized and shaped to cooperate with one of said multiple molds and to be intruded into one of said molds and to eject the molded food product therefrom.

4,362,498

BLOW MOLDING CLAMP ASSEMBLY

Ieuan L. Harry; Suppayan M. Krishnakumar, both of Nashua; Walter R. Jolly, Merrimack; Martin H. Beck, Brookline, all of N.H., and John F. E. Pocock, Neu-Isenburg, Fed. Rep. of Germany, assignors to The Continental Group, Inc., Stamford, Conn.

Filed Jul. 23, 1981, Ser. No. 286,401

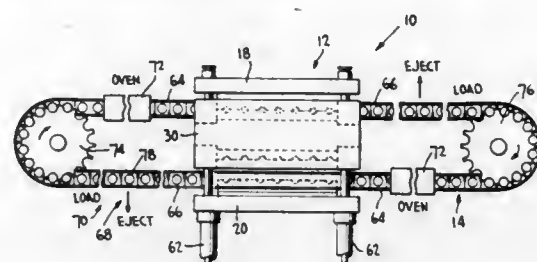
Int. Cl.³ B29C 17/07

U.S. Cl. 425—526

14 Claims

1. A blow molding clamp assembly comprising fixed remote mold half sets, companion mold half sets mounted as a unit and for movement for selected cooperation with a respective one of said fixed mold half sets wherein when one set of said mold halves is closed the other set of said mold halves is open, said clamp assembly including a track section associated with each set of mold halves for receiving preform carriers, means

mounting each of said track sections for movement between a position generally centered relative to a respective set of mold halves when open and a position centered relative to said



respective sets of mold halves in their closed positions, and the positions of said track sections when aligned with open mold halves being different.

4,362,499

COMBUSTION CONTROL SYSTEM AND METHOD

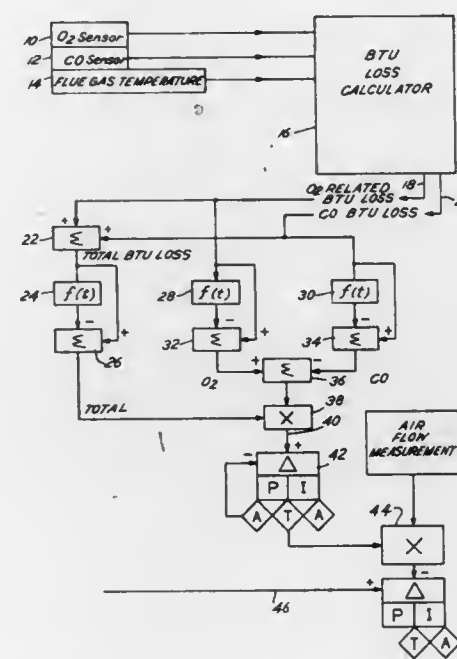
Stanton K. Nethery, Marshalltown, Iowa, assignor to Fisher Controls Company, Inc., Marshalltown, Iowa

Filed Dec. 29, 1980, Ser. No. 220,694

Int. Cl.³ F23N 5/00

U.S. Cl. 431—12

4 Claims



1. Apparatus for controlling the air supply for combustion in a combustion chamber of the type including a fuel supply to the chamber, an air supply to the chamber and a flue gas exhaust from the chamber, said apparatus designed to minimize combustion reaction energy loss and to maximize combustion efficiency, said apparatus comprising, in combination: means for continuously sensing and monitoring the concentration of oxygen in the flue gas; means for continuously sensing and monitoring the concentration of carbon monoxide in the flue gas; means for continuously sensing and monitoring temperature of the flue gas; means for calculating sensible heat loss due to unreacted oxygen and the other excessive air components associated therewith in the flue gas using the sensed and monitored temperature and concentration of oxygen in the flue gas; means for calculating the sensible and reactive heat loss due to unreacted carbon monoxide in the flue gas using the sensed and monitored temperature and concentration of carbon monoxide in the flue gas; means for summing the heat losses to determine a total heat loss; means for determining the sign of the quantitative change in heat loss for each calculated heat loss and the total heat

loss during a time increment between serial calculations of each heat loss; means for controlling air supply in response to the signs of quantitative heat loss change to minimize total heat loss and to eliminate the change in total heat loss over time.

4,362,500

UNIT FOR COMBUSTION OF PROCESS EXHAUST GAS AND PRODUCTION OF HOT AIR

Torsten L. Eriksson, Vargön; John O. Andersson, Sjuntorp, and Olle Nyström, Trollhättan, all of Sweden, assignors to Volvo Flygmotor AB, Sweden

PCT No. PCT/SE79/00164, § 371 Date Apr. 30, 1980, § 102(e)

Date Apr. 16, 1980, PCT Pub. No. WO80/00484, PCT Pub.

Date Mar. 20, 1980

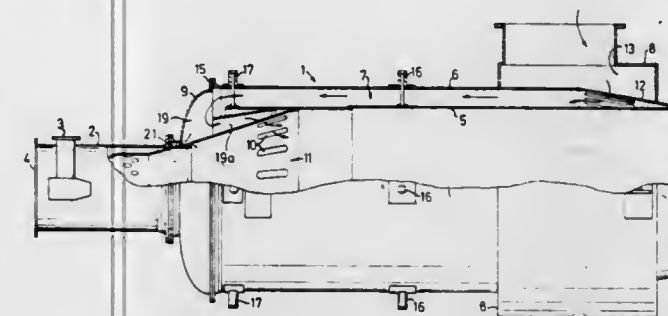
PCT Filed Jul. 31, 1979, Ser. No. 209,706

Claims priority, application Sweden, Aug. 30, 1978, 7809131

Int. Cl.³ F23G 7/06

U.S. Cl. 431—352

5 Claims



1. Unit for combustion of nonexplosive process gases containing small amounts of organic compounds and for production of hot air directly usable for drying and heating, or for the like uses, the unit comprising a combustion chamber comprised of metal, a burner for burning supplementary fuel, the burner being located at one end of the combustion chamber and outside of the combustion chamber, and the burner being adaptable for burning different types of supplementary fuel; the combustion chamber comprising a flame pipe having a front portion at the burner and including an inlet cone for the flame from the burner, the inlet cone being located at the one end of the combustion chamber at the front portion and widening away from the one end; an outer jacket extending around, at a distance from and concentric to the flame pipe for conducting the process gas into the space defined between the flame pipe and the outer jacket, whereby the process gas moving through the space may provide convective cooling of the wall of the flame pipe, the flame pipe having an outlet remote from the inlet cone, an intake for the process gas to the space, the intake being located near the outlet of the flame pipe, an annular chamber located around the outside of the inlet cone and inside the outer jacket for redirecting the process gas in a direction back toward the intake to the space, and an extension of the annular chamber between the front end of the flame pipe and the inlet cone into which the process gas is redirected for cooling the outside of the inlet cone, an inlet slot for process gas from the annular chamber into the inlet cone, the inlet slot being located at the front portion of the flame pipe and being for directing process gas for blowing over and for film-cooling of the inside of the inlet cone, outlet holes for the process gas from the annular chamber extension and located at the wider rear end of the inlet cone for mixing process gas into the flame in the inlet cone and combustion of the pollutant.

4,362,501

PROCESS AND ARRANGEMENT FOR THE ZONAL HEATING OR COOLING OF ELONGATE TREATMENT MEMBERS

Jean-Marie Welter, Aachen, Fed. Rep. of Germany, assignor to Kernforschungsanlage Julich Gesellschaft mit beschränkter Haftung, Julich, Fed. Rep. of Germany

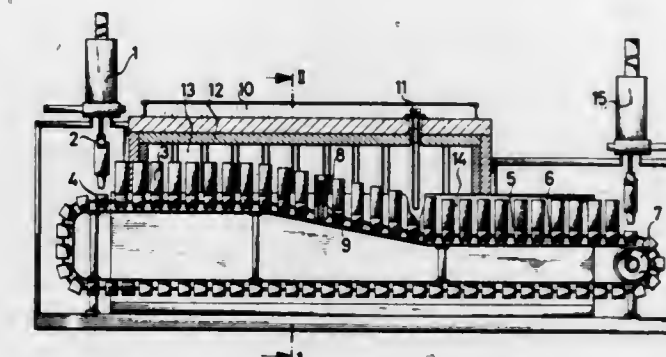
Filed Jan. 29, 1981, Ser. No. 230,111

Claims priority, application Fed. Rep. of Germany, Jan. 31, 1980, 3003429

Int. Cl.³ F27B 9/00; F27D 3/00; H05B 3/62

U.S. Cl. 432—11

24 Claims



11. An apparatus for the continual heat treatment of a filling contained within a crucible, said apparatus comprising: a. an oven having a heating means disposed therein, said heating means extending parallel to the horizontal axis of said oven whereby a horizontal heating zone is formed; b. at least one endless conveyor disposed within said oven, said conveyor having at least a portion thereof inclined relative to the horizontal axis of said heating means, said conveyor having crucible holders affixed thereto and is positioned substantially above said heating means, said conveyor further having a driving means; c. means for placing crucibles in said crucible holders; d. means for removing said crucibles from said conveyor disposed above said heating means.

4,362,502

FIXING AND HEATING DEVICE FOR ELECTROSTATIC COPYING APPARATUS

Minoru Motomura, Nara; Kiyoshi Shibata, Osaka, and Toshio Watanabe, Takatsuki, all of Japan, assignors to Mita Industrial Company Limited, Osaka, Japan

Division of Ser. No. 158,381, Jun. 11, 1980, Pat. No. 4,316,719.

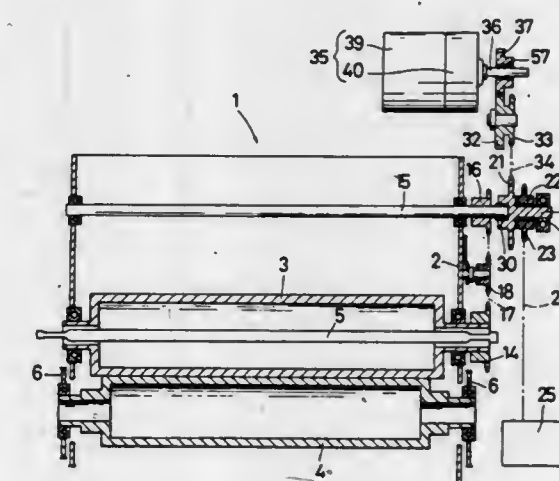
This application Sep. 2, 1981, Ser. No. 298,771

Claims priority, application Japan, Jun. 15, 1979, 54-75886; Jun. 15, 1979, 54-75887

Int. Cl.³ G03G 15/00; F27B 9/28

U.S. Cl. 432—60

1 Claim



1. A fixing and heating device for fixing a toner image on a

copy paper sheet in an electrostatic copying apparatus, said device comprising:

- a pair of fixing rollers adapted to pass therebetween a copy paper sheet having thereon a toner image;
- heating means for heating a first said fixing roller such that the surface thereof is at a temperature T_3 suitable for fixing;
- drive means for rotating at least one of said fixing rollers;
- temperature detecting means for detecting the actual temperature T_1 of said surface of said first fixing roller;
- control means, operable in response to the output of said temperature detecting means and operably connected to said driving means, for causing said drive means to stop rotation of said one fixing roller when $T_1 < T_2$, for causing said drive means to rotate said one fixing roller at a first speed less than a speed suitable for conducting a fixing operation when $T_2 \leq T_1 < T_3$, and for, when $T_1 = T_3$, causing said drive means to rotate said one fixing roller at a second speed suitable for a fixing operation during a fixing operation and at said first speed except during a fixing operation, wherein T_2 comprises a predetermined temperature less than T_3 and higher than the temperature at which the toner begins to soften;
- said drive means comprising main driving means for rotating said one fixing roller at said second speed suitable for a fixing operation, first one-way clutch means operatively connected between said main driving means and said one fixing roller for transmitting a rotational driving force from said main driving means to said one fixing roller, low speed driving means for rotating said one fixing roller at said first speed, and second one-way clutch means operatively connected between said low speed driving means and said one fixing roller for transmitting a rotational driving force from said low speed driving means to said one fixing roller; and
- said control means comprising means for, when $T_1 < T_2$, rendering both said main driving means and said low speed driving means inoperative, for, when $T_2 \leq T_1 < T_3$ and when $T_1 = T_3$ except during a fixing operation, rendering said main driving means inoperative and rendering said low speed driving means operative, and for, when $T_1 = T_3$ and during a fixing operation, rendering said main driving means operative and rendering said low speed driving means inoperative.

4,362,503

PLANETARY COOLER

Karl Eiring, Oelde, and Bernhard Löffler, Warendorf, both of Fed. Rep. of Germany, assignors to Krupp Polysius AG, Beckum, Fed. Rep. of Germany

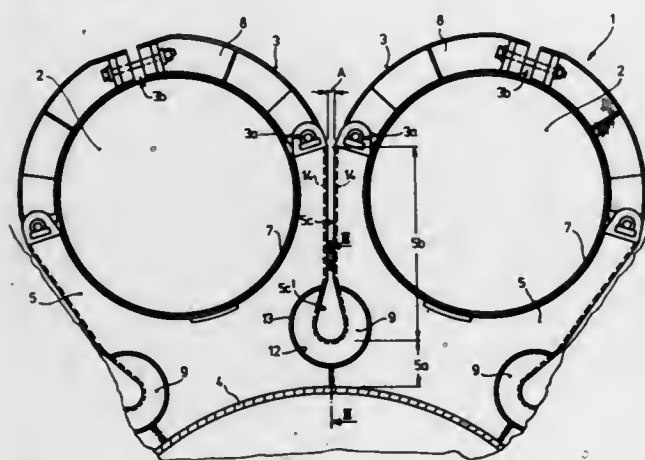
Filed Jun. 3, 1981, Ser. No. 269,538

Claims priority, application Fed. Rep. of Germany, Jul. 1, 1980, 3024802

Int. Cl.³ F27D 15/02; F27B 7/02

U.S. Cl. 432—80

8 Claims



8. In a planetary cooler having a plurality of cooling tubes

arranged around the periphery of a revolving tube furnace having a mantle, and a radially extending, circumferentially spaced bearing support for each of said tubes, each of said bearing supports comprising a pair of axially spaced plates fixed at their radially inner ends to said mantle and to the corresponding portions of the circumferentially adjacent supports, circumferentially adjacent ones of said plates being spaced from each other radially outwardly of said portions by a clearance, and each of said plates having an opening therein at the radially inner end of said clearance, the improvement comprising an insert fixed to and extending between each circumferentially adjacent pair of said plates, each of said inserts comprising a pair of spaced flanges accommodated in the openings of axially adjacent ones of said plates and fixed to the latter, each of said flanges having an opening therein in communication with said clearance, said insert including a web joining said flanges.

4,362,504

APPARATUS FOR MANUFACTURING A RAPIDLY COOLED SOLIDIFIED GAS HAVING ROTATING COOLING DRUM

Shuji Kajikawa; Kazuo Kanai; Haruo Ito; Yoshihisa Hirata; Jiro Konishi; Yasuto Takasaki; Kenji Ohkoshi, and Yoshinobu Yanagida, all of Fukuyama, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

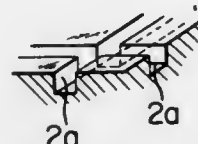
Filed May 26, 1981, Ser. No. 266,819

Claims priority, application Japan, Jun. 11, 1980, 55-77864; Jun. 11, 1980, 55-77865

Int. Cl.³ F27D 15/02

U.S. Cl. 432—83

7 Claims



1. An apparatus for manufacturing a rapidly cooled solidified slag, which comprises:
 - at least one rotating cooling drum having a peripheral surface, said cooling drum having a horizontal center axis and being cooled by a cooling medium;
 - driving means for rotating said cooling drum around said horizontal center axis thereof;
 - means defining a slag sump at the rising position of said peripheral surface of said cooling drum, and including means for depositing molten slag onto said peripheral surface of said cooling drum, part of said means defining said slag sump comprising part of said peripheral surface of said cooling drum;
 - a scraper provided so as to be in contact with the lower half of said peripheral surface of said cooling drum for peeling off solidified slag from said cooling drum; and,
 - a slag feeding means, arranged above said cooling drum, for pouring said molten slag into said slag sump;
 - whereby said molten slag poured into said slag sump is deposited onto said peripheral surface of said cooling drum, rapidly cooled through heat exchange with said cooling medium according to the rotation of said cooling drum to become a solidified slag, and peeled off from said peripheral surface of said cooling drum by said scraper; and
 - said peripheral surface of said cooling drum comprises means defining surface irregularities over substantially the entire surface of said peripheral surface, said surface irregularities including at least one of a plurality of grooves formed in said peripheral surface, a plurality of projections on said peripheral surface, a plurality of recesses in said peripheral surface and a surface roughness of said

peripheral surface expressed by a maximum height within the range of from 12 to 500 μm .

4,362,505

TREATMENT OF ARTICLES, FOR EXAMPLE, CONCRETE ARTICLES, AND AN APPARATUS FOR ACCOMPLISHING SAME

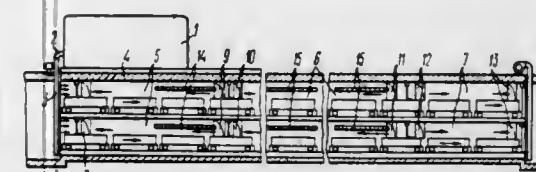
Vilya V. Bubelo, ulitsa Avdeeva, 4, kv. 110; Vitaly M. Timofeev, ulitsa Avdeeva, 67, kv. 4; Vladimir I. Ganzhara, ulitsa Avdeeva, 4, kv. 77, all of Tselinograd, and Raisa M. Froze, Chelyabinskaya ulitsa, 27, kv. 128, Moscow, all of U.S.S.R.

Filed Oct. 20, 1980, Ser. No. 198,923

Int. Cl.³ F27B 9/00

U.S. Cl. 432—148

4 Claims



1. Apparatus for treatment of concrete articles having a pre-drying chamber for receiving concrete articles and drying thereof by blowing of air thereon at a temperature of 40° C. to 100° C., a treatment tunnel having means defining a temperature-increase first zone in which the concrete articles are received for treating with a steam-air mixture for a period of 1-6 hours at a temperature and humidity gradually increased up to their permissible values corresponding to the given type of concrete articles being treated, means defining a second zone in said tunnel contiguous with the first zone and downstream thereof for treating concrete articles received from the first zone and constituting an isothermal zone for treating the concrete articles for a period of 2-6 hours with an air-steam mixture at a temperature 60°-95° C. and a relative humidity close to 100%, means defining a third zone in said tunnel contiguous with the second zone and constituting a cooling zone for cooling concrete articles received from the second zone by blowing slightly cooling air thereon for a period of 0.3 to 1.5 hours at a relative humidity of 35-95%, and for each of said first and second zones respective means therein for introducing an air-steam mixture for effecting the corresponding treatment therein.

4,362,506

SINGLE LOCATION INSULATOR LOCKING DEVICE

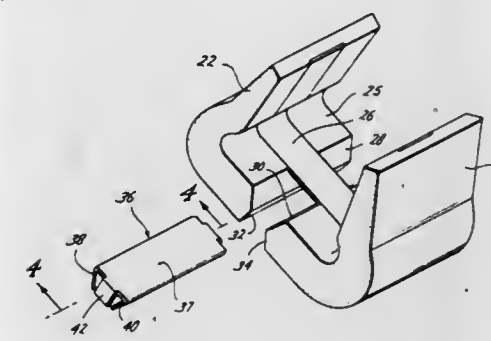
Frank Campbell, Jr., Houston, Tex., assignor to Fulbright & Jaworski, Houston, Tex.

Filed Apr. 13, 1981, Ser. No. 253,463

Int. Cl.³ F27D 3/02; D03D 49/26

U.S. Cl. 432—234

6 Claims



1. A combination of a releasably securable, self-supporting insulator covering at least a portion of the exterior of a pipe comprising:

- (a) A pair of spaced-apart, opposed insulator segments;
- (b) Each segment including an interior surface substantially conforming to a portion of the exterior of the pipe, said

interior surface terminating at one end in a locking surface;

- (c) The locking surfaces of the spaced-apart, opposed insulator segments converging in a direction away from the pipe;
- (d) An elongated, resilient brace secured to and transversely connecting the spaced-apart insulator segments and maintaining said insulator segments in spaced-apart relationship; and
- (e) A single means located within the spaced-apart, opposed locking surfaces and the transverse resilient brace to lock the upper locking surfaces apart from one another and to urge the interior surfaces of the insulator segments into intimate contact with at least a portion of the exterior of the pipe so that the insulator is secured around said pipe.

4,362,507

SUPPORT FOR CERAMIC WARE ARTICLE DURING FIRING

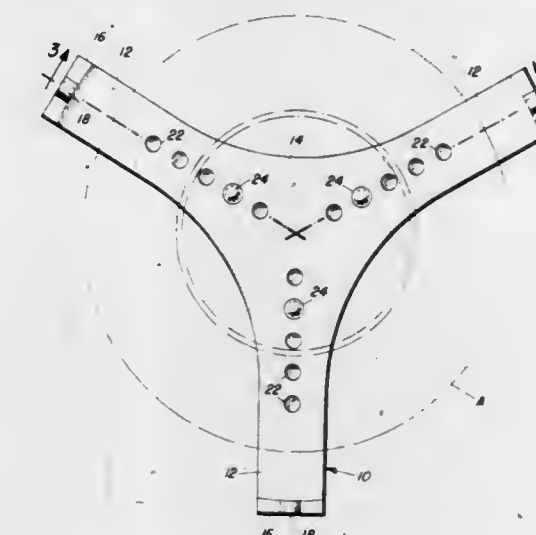
Paul Antonucci, Alden, N.Y., assignor to Buffalo China, Inc., Buffalo, N.Y.

Filed Apr. 17, 1981, Ser. No. 255,270

Int. Cl.³ F27D 5/00

U.S. Cl. 432—259

5 Claims



1. A refractory setter device for supporting glazed ceramic ware within a firing kiln comprising:
 - an open spider providing an upwardly facing surface above which a ceramic ware article is to be supported within the firing kiln;
 - a plurality of conical pockets opening outwardly of and disposed within said upwardly facing surface, at least one said conical pocket being disposed in each of three radial locations relative to the center of said spider; and
 - a spherical ball engaged within one said conical pocket at each of said three radial locations whereby a ceramic ware article when supported on said setter device has three point contact engagement with said spherical balls, each said ball having the exterior thereof in limited line contact with the conical pocket within which the ball is engaged.

4,362,508

METHOD AND AN APPARATUS FOR THE PRODUCTION OF A CORE FOR A ROOT-FILLED PREPARED TOOTH

Inge R. Söderström, Mell. Stenbocksgatan 45 a, S-252 42 Helsingborg, Sweden

Filed Mar. 3, 1981, Ser. No. 240,095

Claims priority, application Sweden, Mar. 5, 1980, 8001699

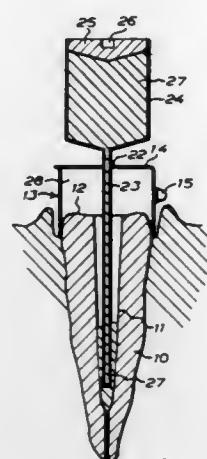
Int. Cl.³ A61C 5/02

U.S. Cl. 433—81

14 Claims

1. An apparatus for the production of a cast for a mould for a core for a root-filled prepared tooth, comprising: an injection needle, a syringe cylinder connected to an inlet end of the

injection needle, a piston movable in said cylinder for injection of an impression material in said cylinder into a reamed root canal of a tooth prepared for root filling, to make a cast thereof, the injection needle forming a reinforcing element



remaining in the impression material during and after solidification, and a mould formed as a guide for the reinforcing element and adapted to be applied to the prepared tooth for taking a simultaneous cast of the root canal and the free prepared tooth surface.

4,362,509

DENTAL ATTACHMENT STRUCTURE

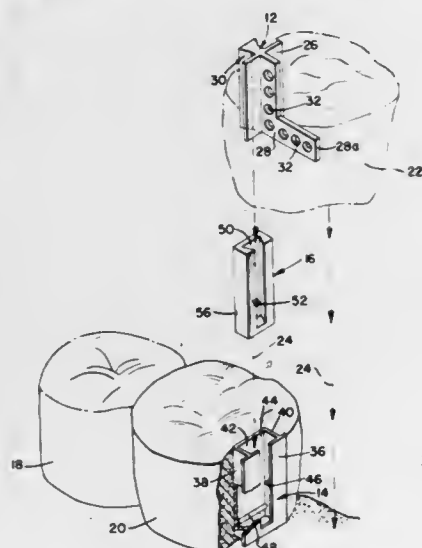
Josef M. Sulc, 14720 NE. 64th St., Redmond, Wash. 98052

Filed Nov. 20, 1980, Ser. No. 208,643

Int. Cl.³ A61C 13/22

U.S. Cl. 433—181

29 Claims



1. Dental structure for removable mounting of a dental appliance in the form of a partial denture, overdenture, bridge or similar dental appliance in an oral cavity comprising:

- a male member including an extension, means on said member for mounting the same permanently either on an abutment within said oral cavity or said dental appliance to be removably mounted in said oral cavity;
- a female member including a housing and a pocket into which said extension is adapted to be telescopically received when said dental structure is mounted in said oral cavity and from which said extension is retracted when said dental structure is removed from said oral cavity, said female member adapted to be permanently mounted to the other of said abutment and dental appliance; and
- an element including a body of resilient, non-metallic material, said element adapted to be mounted either by said extension of said male member or in said pocket of said female member whereby when said members are telescopically received said element will be disposed between and in surface-to-surface contact with both said

extension and the wall of said pocket both to cushion said member and provide a tight fitting telescopic engagement and prevent any frictional contact of members when received and retracted.

4,362,510

CEMENTITIOUS DENTAL COMPOSITIONS WHICH DO NOT INHIBIT POLYMERIZATION

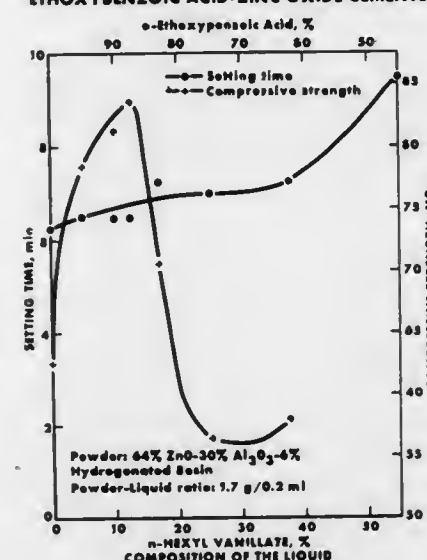
Gerhard M. Brauer, Bethesda; Harold Argentar, Rockville, and Jeffrey W. Stansbury, College Park, all of Md., assignors to The United States of America as represented by the Secretary of the Department of Health and Human Services, Washington, D.C.

Filed Dec. 10, 1981, Ser. No. 329,590

Int. Cl.³ A61K 6/08

U.S. Cl. 433—199

46 Claims

PROPERTIES OF n-HEXYL VANILLATE- α -ETHOXYBENZOIC ACID-ZINC OXIDE CEMENTS

1. A cementitious dental composition comprising a solid phase which includes a metal oxide or hydroxide of tin or a Group II metal and a liquid phase which includes a chelating compound, said chelating compound comprising an ester of a vanillic acid moiety, said ester being the product of a reaction of an alcohol and at least one of a member selected from the group consisting of vanillic acid, isomers of vanillic acid, and homologs of vanillic acid.

4,362,511

J BOLT

John Jacklich, 102 Western Ct., Santa Cruz, Calif. 95060

Filed Jul. 9, 1981, Ser. No. 281,574

Int. Cl.³ A61C 5/08

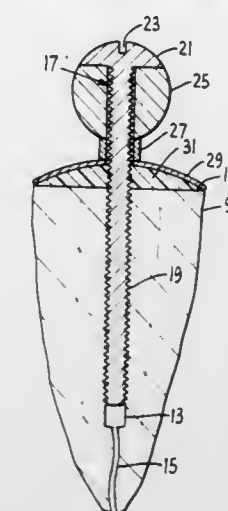
U.S. Cl. 433—220

5 Claims

1. A device for holding a dental prosthesis such as a crown comprising in combination:

- a threaded shaft adapted to screw directly into a prepared threaded hole in a tooth,
- a head on said shaft, said head being a spherical segment of less than a hemisphere,
- a thick bulbous retention ring fitting over said shaft, said retention ring having a diameter larger than said head and having a top surface complimentary to the bottom surface of said head,
- a shim mounted on said shaft under said retention ring said shim having a smaller diameter than said head,
- a coping dish having a concave side and a convex side and having a diameter larger than said head mounted on said threaded shaft,

f. said threaded shaft extending through said retension ring, shim, and coping dish whereby the concave side of said



coping dish can lie on the surface of a prepared tooth with the threaded shaft extending into said tooth.

4,362,512

ELECTRIC OUTBOARD MOTOR CONSTRUCTION

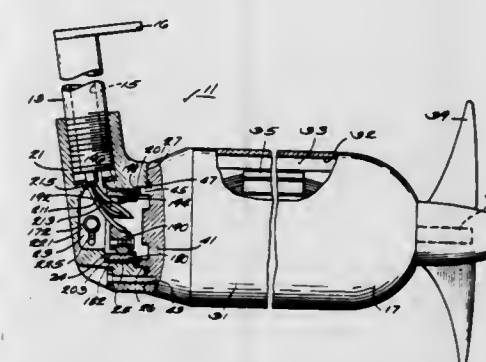
Wallace R. Johnson, Mundelein, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed Sep. 25, 1980, Ser. No. 190,588

Int. Cl.³ B63H 21/26

U.S. Cl. 440—6

8 Claims



1. An outboard motor comprising a shaft having a lower end and a hollow interior, means for connecting said shaft to a boat with said shaft extending in a generally vertical direction, a housing including a motor section incorporating an electric motor and supporting a propeller, an adaptor section connected to said shaft lower end and including an interior recess communicating with said hollow interior of said shaft, located in axially spaced relation from said motor, and being defined by a radial surface, a bore extending from said radial surface, and a counterbore extending from said bore, and means for connecting together said motor housing section and said adaptor section, a winding assembly located in said bore and comprising a bobbin having an outer surface, an inner surface, and spaced first and second ends, and a winding location on said outer bobbin surface and having a dimension affording a close fit with said bore, a member interfitting with said inner surface of said bobbin and having a radially outwardly extending flange which projects over said first end of said bobbin and into said counterbore, and a compressible member sandwiched between said flange and said motor housing section and compressed consequent to connection of said motor section to said adaptor section, whereby to force said flange against said first end of said bobbin so as to seat said second end of said bobbin tightly against said radial surface of said housing.

3. A control circuit for a permanent magnet, direct current motor incorporated in an outboard motor, said circuit comprising a source of direct current, a permanent magnet motor including an armature winding having opposed terminals, and control means including a first resistor connected to said direct

current source, a second resistor, a thermal cut-out switch connected between said one armature winding terminal and each of said first and second resistors, a shunt lead connected to said one armature winding terminal independently of said thermal cut-out switch, and a speed control switch connected to said direct current source and selectively operable between a first position connecting said direct current source to said shunt lead in parallel with said first resistor and disconnected from said second resistor, a second position connecting said direct current source to said second resistor in parallel with said first resistor and disconnected from said shunt lead, and a third position disconnected from both of said shunt lead and said second resistor.

4,362,513

DUAL PIVOT OUTBOARD MOTOR WITH TRIM AND TILT TOGGLE LINKAGE

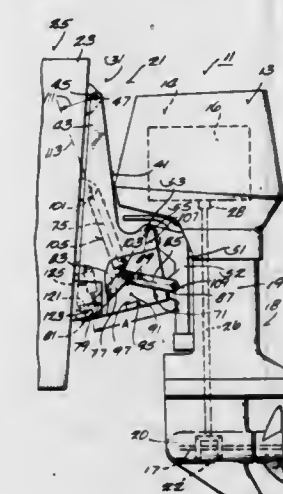
Charles B. Hall, Ingleside; Edward D. McBride, Waukegan, both of Ill., and Robert F. Young, Kenosha, Wis., assignors to Outboard Marine Corporation, Waukegan, Ill.

Filed Jul. 28, 1980, Ser. No. 173,161

Int. Cl.³ B63H 5/12

U.S. Cl. 440—61

9 Claims



1. A marine propulsion device comprising a bracket adapted means adapted to be connected to a boat transom, a propulsion unit including a power head and having, at the lower end thereof, a rotatably mounted propeller, means connecting said propulsion unit to said transom bracket means for pivotal movement of said propulsion unit relative to said transom bracket means about a first axis which is horizontal when said transom bracket means is boat mounted, and between a lower position with said propeller submerged in the water and a full tilt position with said propeller substantially out of the water; and for steering movement of said propulsion unit relative to said transom bracket means about a second axis which is transverse to said first axis, and movement effecting means including a toggle linkage connected to said propulsion unit and an extensible link connected between said transom bracket means and said toggle linkage for pivotally displacing said propulsion unit about said first axis between said lower position with said propeller submerged in the water and said full tilt position with said propeller substantially out of the water.

4,362,514

HIGH PERFORMANCE STERN DRIVE UNIT

Clarence E. Blanchard, Kenosha, Wis., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed Sep. 4, 1980, Ser. No. 183,941

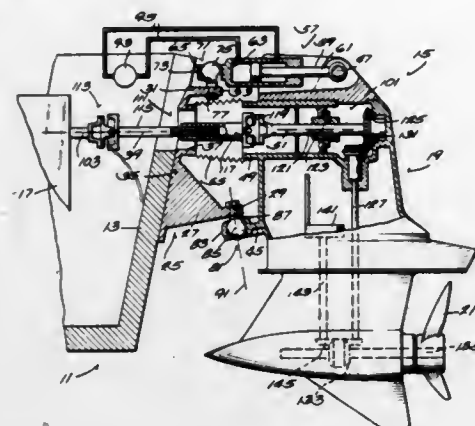
Int. Cl.³ B63H 5/13

U.S. Cl. 440—61

17 Claims

1. A marine propulsion device comprising a bracket adapted to be fixed to a boat transom and having an upper portion and a lower portion, a propulsion leg including a rotatably

mounted propeller, a first ball joint coupling connecting said propulsion leg and one of said bracket portions, an extensible and contractable rigid link having first and second ends, means pivotally connecting said first end of said rigid link to said propulsion leg about an axis which is generally horizontal



when said bracket is boat mounted, a second ball joint coupling connecting said second end of said rigid link to the other of said bracket portions, and a drive train adapted to be connected to a prime mover, extending through said bracket and said propulsion leg, and drivingly connected to said propeller.

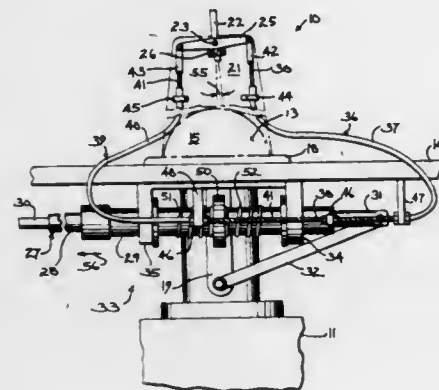
4,362,515

MARINE DRIVE VANE STEERING SYSTEM
Russell F. Ginnow, Oshkosh, Wis., assignor to Brunswick Corporation, Skokie, Ill.

Filed Apr. 10, 1980, Ser. No. 139,001
Int. Cl.³ B63H 21/26

U.S. Cl. 440—62

6 Claims



1. In a marine drive for mounting in a boat,
 - (A) an engine,
 - (B) a steerable drive unit connected to said engine,
 - (C) transom support means for attachment of said marine drive to the boat,
 - (D) a steering arm fixed to said drive unit for steering said marine drive,
 - (E) a lower gearbox attached to said drive unit,
 - (F) a horizontal propeller shaft positioned in said gearbox,
 - (G) a propeller fixed to said propeller shaft for rotation with said propeller shaft,
 - (H) an anti-cavitation plate having a substantially horizontal surface positioned above said propeller,
 - (I) a steering means connected to move said steering arm said steering means including a push-pull steering cable having an inner core supported in an outer casing,
 - (J) a vane vertically positioned behind said propeller on a substantially vertical pivot shaft rotatably supported in said anti-cavitation plate,
 - (K) vane rotating means connected to rotate said vane on said pivot shaft upon an initial movement of said steering means, said vane rotating means having an inner core

supported by an outer casing, wherein the improvement comprises a steering system including:

- (a) a guide tube fixed to the end of the outer casing of said steering cable,
- (b) a link rod connecting between said steering arm and the inner core of said steering cable,
- (c) a guide means fixed with respect to said transom support means to guide the linear movement of said guide tube,
- (d) a limiting means for limiting the range of movement of said guide tube, and
- (e) restoring means to move said steerable drive unit from the extreme range of said range of movement of said steering arm.

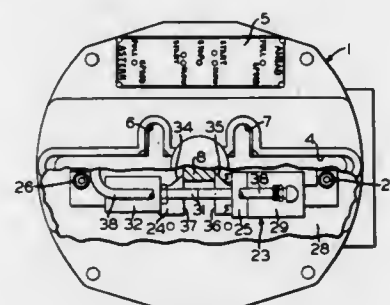
4,362,516

INHIBIT LOCKS FOR MARINE ENGINE CONTROLLER
Michael D. Lyons, Lexington, Ky., assignor to American Standard Inc., Lexington, Ky.

Filed May 8, 1981, Ser. No. 262,563
Int. Cl.³ B63H 21/12

U.S. Cl. 440—85

3 Claims



1. Inhibit lock means for a marine engine controller comprising:
 - (a) an operator's handle selectively operable in opposite directions out of a central neutral position to a plurality of control positions;
 - (b) a valve-operating shaft engageable by said handle;
 - (c) a supply valve device operably engageable by said shaft and operable by axial movement thereof, in one direction, for producing an engine-starting fluid pressure control impulse;
 - (d) spring biased latch means for locking said operator's handle in its said neutral position;
 - (e) a cylinder device operably connected to said latch means and effective, when pressurized at will by the operator, for releasing said latch means and consequently the operator's handle for operation thereof to a selected control position; and
 - (f) a piston device operable responsively to a pressure impulse, signaling a malfunctioning condition of the engine, for causing a piston rod of the piston device to be extended and engage a groove in said shaft to prevent said axial movement thereof.

4,362,517

INFLATABLE LIFERAFTS

Michael D. Martin, Liphook, England, assignor to RFD Inflatables Limited, Surrey, England

Filed Oct. 17, 1980, Ser. No. 198,174

Claims priority, application United Kingdom, Oct. 18, 1979, 7936193

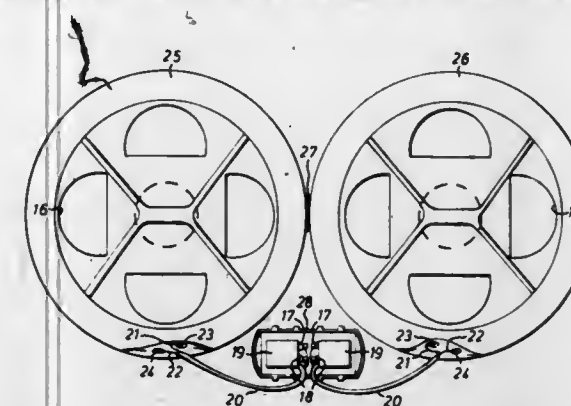
Int. Cl.³ B63C 9/22

U.S. Cl. 441—41

12 Claims

1. A survival unit, comprising:
 - a container; two inflatable liferafts coupled together on the respective peripheries thereof capable of being housed in said container in a deflated and folded condition, each of said liferafts being connected with a pressurized air or gas inflation unit; a flexible air or gas supply line or lines

connecting said inflation unit to said liferaft; an elongate flexible support means for connecting a point of attachment at said liferaft with said inflation unit, said elongate flexible support means supporting the inflation unit at a position remote from the point of attachment, supporting the flexible air or gas supply line or lines, and absorbing any tensile load which might otherwise be imposed on said supply line or lines during use of said liferafts; and



wherein upon inflation out of said container, the two liferafts take up fully inflated dispositions on the water, the length of said flexible support means and said air or gas supply line or lines and their respective points of attachment to the liferafts being such that the two liferafts take up fully inflated dispositions on the water without the need for withdrawal of the inflation units from the container.

4,362,518

COMBINED KICK BOARD AND ARM STROKE SWIMMING PRACTICE DEVICE

Guy Boissiere, Ronen, France, assignor to Adidas Fabrique de Chaussures de Sport, Landersheim, France

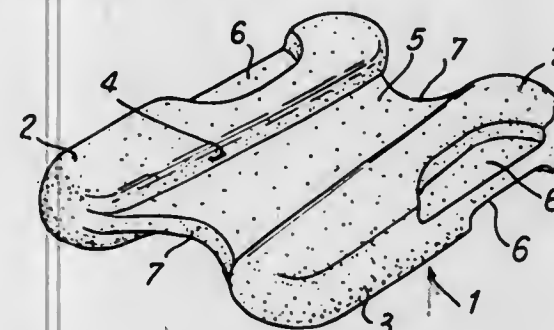
Filed Oct. 9, 1980, Ser. No. 195,497

Claims priority, application France, Oct. 12, 1979, 79 25458

Int. Cl.³ A63C 5/00, 9/00, 11/00, 15/00

U.S. Cl. 441—60

6 Claims



1. A combined kick board and leg float device for practicing swimming techniques either by holding the device at arm's length with the swimmer's hands to practice leg kicks, or holding the device between the swimmer's thighs to practice arm strokes, said device comprising a rigid elongated one piece buoyant body, having two spaced apart side portions each of transverse sections which are convex and contoured, and longitudinal sections which are symmetrical with respect to the longitudinal axis of the body, said side portions having internal flanks delimiting a central portion, of constant thickness, thinner than said side zones, the flanks defining above and below the said central portion identical continuous longitudinal hollow sections from one end of the device to the other, said side portions comprising means for gripping the buoyant body with the hands of a swimmer while the swimmer's legs are free to practice leg kicks while holding the buoyant body in front of himself, said hollow sections comprising means for holding the device between the insides of the thighs of a swimmer to practice arm swimming strokes while the swimmer's

arms are free and the swimmer's legs are buoyed and immobilized by gripping the device between his thighs.

4,362,519

BOAT HULLS

Robert Gault, 12 Ranmoor Cliffe Rd., Sheffield S10 3HB, England

Division of Ser. No. 907,199, May 18, 1978, Pat. No. 4,225,551.

This application Mar. 31, 1980, Ser. No. 135,441

Int. Cl.³ B63B 7/00

U.S. Cl. 114—353

7 Claims



1. In a foldable boat hull formed by erection and fastening of a blank of thermoplastic sheet material having formed therein a predetermined pattern of fold lines determining the folding of said blank in the erection of said hull, the improvement comprising:

a blank of a self-supporting stiffly flexible unitary sheet of polyolefin being adapted to form a hull;
plastic folds provided along selected ones of said fold lines having a fold memory tending when said blank is flat to return said sheet to its folded state about said selected fold lines;
plastic hinges provided along others of said fold lines wherein said polyolefin has undergone molecular reorientation such that said sheet hinges freely about said other fold lines; and
releasable fastening means being operatively connected to said blank for retaining said blank in an erected condition to form said hull, said hull being capable of being unfurled by releasing said releasable fastening means and flattened by opening said folds and hinges for storage and shipment;
said blank being of assistance to an assembler during erection by tending to return to its folded state when the blank is laid flat for reuse.

4,362,520

FLEXIBLE ENCLOSED SHAFT

John C. Perry, 3170 Falcon Dr., Carlsbad, Calif. 92008

Filed May 12, 1980, Ser. No. 149,254

Int. Cl.³ F16D 1/00

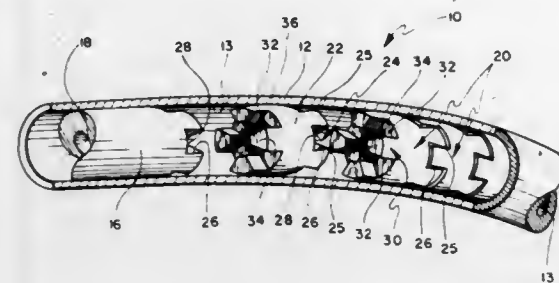
U.S. Cl. 464—149

1 Claim

1. A flexible, reversible, rotatable shaft that will accommodate for axial misalignments between input and output shafts comprising:

an outer, tubular, flexible pipe having a first and a second end, said input shaft being positioned concentrically within said first end of said pipe, said output shaft being positioned concentrically within said second end of said pipe, said flexible pipe serving as a bearing surface for said input and output shafts; and

one or more substantially cylindrically shaped shaft segments having first and second ends connected between said input and output shaft in said pipe, said first end of said segment defining crossed notch openings, each notch being substantially 90° apart, formed axially within said first end of said shaft segment, said second end of said segment defining crossed teeth extending axially from said second end of said segment, each tooth being substantially 90° apart, said notch openings formed in said first end of said segment further including diverging substantially axially aligned walls formed by said segment from a nar-



row entrance notch opening to a wider notch portion at the termination end of said notch, said crossed teeth extending axially from said second end of said segment having parallel axially aligned walls, the tooth portion of said segment interfits within said notch openings formed by an adjacent shaft segment, said crossed teeth being free to move within the confines of said diverging walls of said notch openings, thus allowing for axial and longitudinal flexibility between shaft segments within said tubular pipe while the inner portion of said crossed teeth remain in intimate contact with said entrance opening of said notch openings.

4,362,521

POWER TRANSMISSION SHAFT

Alfred Puck, Kassel, Fed. Rep. of Germany, and Peter Voirol, Binningen, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

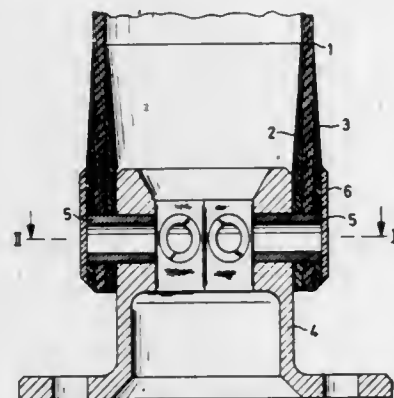
Filed Apr. 30, 1980, Ser. No. 145,077

Claims priority, application Switzerland, May 10, 1979, 4373/79

Int. Cl.³ F16D 3/26

U.S. Cl. 464—181

15 Claims



1. A power transmission shaft, comprising a plastics tube reinforced by fibres of high stiffness, fittings secured to its two ends and at each end of the tube a wall reinforcement of fibre reinforced plastics tapering towards the middle of the tube, the wall reinforcement fibre structure being similar to that of the tube so that the tube and the wall reinforcements have at least approximately the same anisotropic behaviour, and radial bolts located in the region of the wall reinforcements securing said fittings to said tube.

4,362,522
DERAILLEUR FOR A CHAINWHEEL ASSEMBLY FOR A BICYCLE

Roger H. M. Huret, Nanterre, France

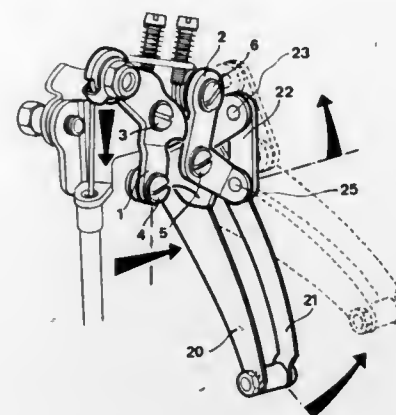
Filed Nov. 29, 1979, Ser. No. 98,384

Claims priority, application France, Dec. 4, 1978, 78 34143

Int. Cl.³ F16H 11/08; B62M 9/12

U.S. Cl. 474—82

9 Claims



1. A chainwheel derailleur for a bicycle comprising a guide fork member, having two fingers, each of said fingers lying substantially in a plane, and extending on a respective side of the traction drive run of the chain upstream of the chainwheels, the fork member being movable transversely with respect to its plane under the action of an actuating means, characterised in that one at least of the fingers of the fork member is mounted pivotally to rotate about an axis perpendicular to its plane and means is provided for rotating said one of said fingers about its axis in response to the action of the actuating means.

4,362,523

DERAILLEUR FOR A CYCLE

Roger H. M. Huret, Nanterre, France, assignor to Huret & Ses Fils, Nanterre, France

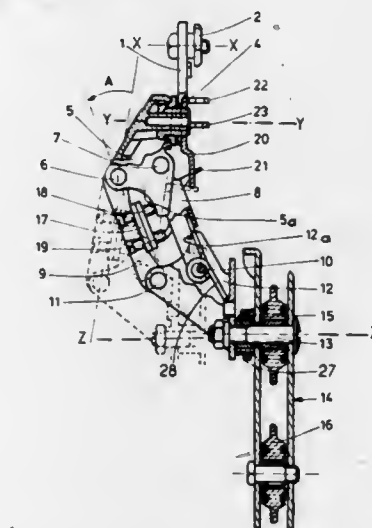
Filed Jul. 31, 1980, Ser. No. 174,345

Claims priority, application France, Aug. 8, 1979, 79 20329; Jun. 27, 1980, 80 14316

Int. Cl.³ F16H 7/22

U.S. Cl. 474—82

12 Claims



1. A derailleur for a cycle chain and sprockets on a wheel of a cycle having an axis of rotation, the derailleur comprising a support for fixing on a frame of the cycle, a deformable parallelogram structure, a traction cable connected to the parallelogram structure for deforming said structure, the parallelogram structure comprising a first side member mounted on the support to pivot about a first axis, a second side member opposed to said first side member, and a first arm and a second arm opposite the first arm, the first and second side members and

the first and second arms being pivotally interconnected so that the parallelogram structure is deformable substantially in a first plane substantially parallel to said first axis, a yoke provided with a chain guide roller and a chain tensioning roller and mounted on said second side member to pivot about a second axis substantially parallel to said first axis, means for elastically biasing the yoke relative to said second side member in a direction about said second axis for tensioning the chain, a finger member carried by one of said arms, and means defining a cam surface carried by the support and cooperative with the finger member for guiding the finger member and the parallelogram structure and causing said plane of the parallelogram structure to pivot about said first axis toward the axis of rotation of the wheel of the cycle when changing up the gear speeds.

4,362,524

BRAKE MECHANISM FOR SNOWMOBILES

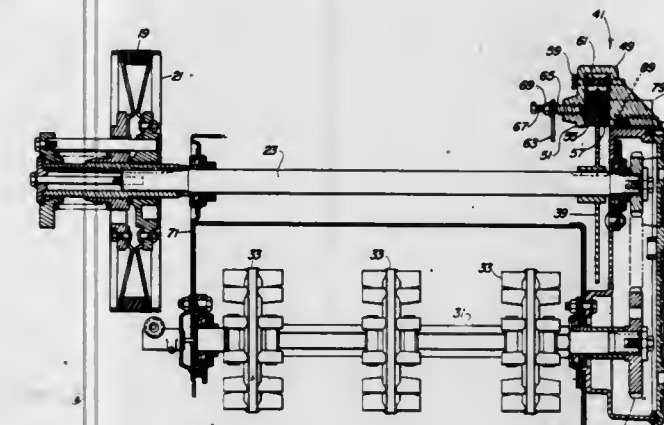
James P. Lob, Oconomowoc City, and Dean J. Tessenske, Horizon City, both of Wis., assignors to Deere & Company, Moline, Ill.

Filed Sep. 11, 1980, Ser. No. 186,278

Int. Cl.³ F16H 7/00; B62M 27/02

U.S. Cl. 474—88

3 Claims



1. In combination, a snowmobile including an engine driving a primary clutch in belted communication with a secondary clutch fixably mounted to a secondary clutch shaft, said secondary clutch shaft rotatably supported within said snowmobile and having a first wheel sprocket fixably mounted at one end, said first wheel sprocket in chained communication with a second wheel sprocket fixably mounted to one end of a drive shaft rotatably supported within said snowmobile, a chain case covering said first and second sprockets, wherein the improvement comprises: a carrier having a first and second side wall aligned opposite to each other and a support plate extending generally perpendicular from said second side wall; a first brake plate including a brake pad fixably mounted thereto; a second brake plate including a brake pad fixably mounted thereto; means for supportably suspending said first and second brake pads between said first and second carrier side wall, said first brake plate being movable toward said second brake plate; biasing means for biasing said first and second brake plates away from each other; a brake disc fixably mounted around said secondary clutch shaft; said chain case having a first and second support wall in opposite spaced-apart alignment, each support wall having cooperatively aligned grooves sized to receive the side edges of said plate section of said carrier such that a portion of said brake disc is between said brake plates in spaced-apart relationship, said carrier being slidable in said grooves of said chain case; stop means to limit the travel of said carrier in said grooves; biasing means to bias said carrier and said brake plates in a brake release condition away from said brake disc; and actuator means for moving said first brake pad against one side of said brake disc and causing said carrier to slide in said groove to cause said second brake pads to contact the other side of said disc.

4,362,525

BELT TENSIONER CONSTRUCTION

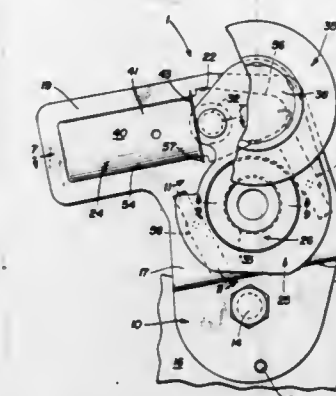
Nolte V. Sproul, Canton, Ohio, assignor to Dyneer Corporation, Canton, Ohio

Filed Aug. 8, 1980, Ser. No. 176,454

Int. Cl.³ F16H 7/08

U.S. Cl. 474—117

10 Claims



10. A belt tensioner construction for tensioning an endless drive belt of a drive system for vehicle accessories, said tensioner construction including:

- (a) bracket means adapted to be mounted on a vehicle engine adjacent the drive belt, said bracket means having an engine-mounting flange at one end and a spring-mounting flange at the opposite end;
- (b) first spring means mounted on the bracket means, said first spring means having a cup-shaped housing and a pair of compression coil springs mounted in the housing with said housing being mounted on the spring-mounting flange of the bracket means;
- (c) lever means pivotally mounted on the bracket means and biased by the first spring means in a belt tensioning direction;
- (d) rotatable pulley means mounted on the lever means and movable into tensioning engagement with the drive belt upon pivotal movement of the lever means by the first spring means;
- (e) friction means operatively engageable between the bracket means and lever means to retard pivotal movement of the lever means in a direction opposite to the belt tensioning direction; and
- (f) plunger means pivotally mounted on the lever means and operatively engaged by the coil springs which bias the plunger means and lever means in the belt tensioning direction.

4,362,526

METHOD OF MAKING PLASTIC HANDLE BAGS FROM CONTINUOUS WEB

James R. Wilson, Northport, N.Y., assignor to Equitable Bag Co., Inc., Long Island City, N.Y.

Filed Aug. 29, 1980, Ser. No. 182,799

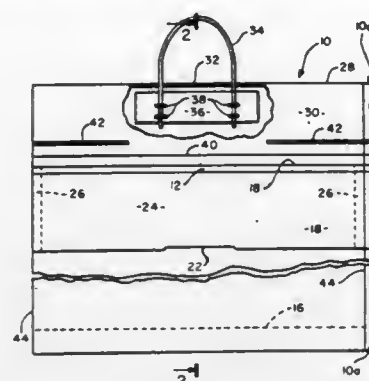
Int. Cl.³ B31B 1/86

U.S. Cl. 493—226

12 Claims

1. The method of making a bag having front and rear side-walls, the upper end of the rear sidewall being folded forward and downward at its upper end and having a slot through which a handle is inserted with a lower part of the handle longer than the slot and in contact with the inside of the fold beyond both ends of the slot to support the bag from the handle, the upper end of the rear sidewall of the bag being a continuation of the lower part of the rear sidewall, the upper part of the front sidewall being folded downward over the lower part of the front sidewall and temporarily held against the lower part of the front sidewall, and holding the folded upper end of the front panel with its folded top edge below the folded down panel of the folded rearward panel until the handle has been inserted into the folded rearward panel and pushed up through the slot in the fold at the top of the rear-

ward side of the bag, then turning the upper end of the folded front panel by pulling a temporary connection free of the lower portion of the front wall of the bag after the handle has been inserted through the slot in the top of the folded portion



of the rearward panel, and closing the bag by placing the folded front portion of the cover over the folded rearward portion of the bag with the handle extending through a slot in the top of the forward folded end of the bag to hold the bag closed.

4,362,527
RADIATION-RESISTANT FLUOROAROMATIC
CELLULOSIC ETHERS
Robert J. Harper, Jr., Metairie, La., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Jan. 4, 1982, Ser. No. 337,045
Int. Cl.³ D06M 13/08

U.S. Cl. 8—194 9 Claims

1. A process to improve the radiation resistance of cellulose fabrics comprising:

- immersing a fabric in a caustic solution;
- removing the excess solution from the fabric;
- padding said fabric using a neutralized aqueous bath of pentafluorobenzoic acid;
- curing said fabric.

3. The process of claim 1 including the following steps after step (b):

- refluxing the cured fabric in a solution containing 17 g of pentafluorobenzamide and 83 g of dimethyl formamide for 2 hours;
- rinsing the fabric in water;
- extracting the fabric with acetone;
- rinsing the fabric with water;
- drying the fabric.

4,362,528
COSMETIC COMPOSITION FOR DYEING HAIR AND
PROCESS FOR USING THE SAME

Jean F. Grollier, Paris; Christian Monnais, Neuilly sur Seine, and Lionel Peritz, Boulogne sur Seine, all of France, assignors to Societe Anonyme dite: L'Oreal, Paris, France

Continuation-in-part of Ser. No. 742,117, Nov. 15, 1976, Pat. No. 4,314,807. This application Jun. 13, 1980, Ser. No. 159,248
Claims priority, application Luxembourg, Nov. 13, 1975, 73793; Nov. 13, 1975, 73794; Nov. 13, 1975, 73795

Int. Cl.³ D06D 3/04; A61K 7/06

U.S. Cl. 8—406 10 Claims

1. A process for dyeing hair comprising applying to said hair in an amount sufficient to color said hair a hair dye formulation comprising a mixture of an effective amount of an oxidation hair dye composition containing at least one hair dye or dye precursor, and a hair dye carrier, an effective amount of an oxidizing agent and an effective amount of at least one cationic polymer, permitting said hair dye formulation to remain in contact with said hair for a time of about 5–40 minutes, rinsing said hair with water, applying to said rinsed hair an effective amount of a shampoo formulation comprising an effective amount of at least one anionic detergent and rinsing said hair with water.

4,362,529
HEAT TRANSFER PRINTING SHEET AND HEAT
TRANSFER PRINTING METHOD USING THE SAME
Shogo Mizuno, Toride, and Sumio Ishii, Inaki, both of Japan, assignors to Dai Nippon Printing Co., Ltd., Tokyo, Japan
Continuation of Ser. No. 671,066, Mar. 29, 1976, abandoned, which is a continuation of Ser. No. 452,658, Mar. 19, 1974, abandoned. This application Jun. 30, 1978, Ser. No. 920,683
Claims priority, application Japan, Mar. 20, 1973, 48-31440
Int. Cl.³ D06D 3/70

U.S. Cl. 8—471 25 Claims

1. A heat transfer printing sheet characterized in that a pattern comprising a basic dye having a poor heat transferable property, an alkaline agent having a property of increasing the heat transferable property of the basic dye and a binder is formed on a base support sheet and also a resin film through which the basic dye can be passed when the heat transfer printing is carried out, but can not be passed through when the heat transfer printing is not carried out is formed on the pattern.

4,362,530
DYEING AUXILIARIES CONTAINING MIXED
ANIONIC, CATIONIC AND NON-IONIC ETHYLENE
OXIDE ADDUCTS
Rolf Gross, Reinach, and Rene Fricker, Allschwil, both of Switzerland, assignors to Sandoz Ltd., Basel, Switzerland
Filed Mar. 19, 1981, Ser. No. 245,290

Claims priority, application Switzerland, Mar. 20, 1980, 2198/80

U.S. Cl. 8—529 17 Claims

1. A composition comprising

- 10 parts by weight of an anionic product obtained by addition of 5 to 20 mols of ethylene oxide to an aliphatic saturated or unsaturated alcohol of 10 to 24 or a mixture of such alcohols, followed by carboxymethylation of the terminal hydroxy group
- 1 to 15 parts by weight of a cationic addition product of 50 to 150 mols of ethylene oxide to a fatty amino-(C₂-3)alkylene-amine
- 1 to 10 parts by weight of a non-ionic addition product of 20 to 150 mols of ethylene oxide to castor oil, or a non-ionic sequenced addition product of 20 to 150 mols of ethylene oxide and 1 to 10 mols of propylene oxide to castor oil, and
- 1 to 20 parts by weight of a N-(β-hydroxy-(C₂-4)alkyl)-fatty acid amide.

4,362,531
AGGLUTINATION IMMUNOASSAYS CARRIED OUT
WITH AGENT TO REDUCE NON-SPECIFIC
INTERFERENCES

Floris de Steenwinkel, Brussels; Daniel Collet-Cassart, Wavre, and Pierre L. Masson, Brussels, all of Belgium, assignors to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed Apr. 14, 1981, Ser. No. 254,037
Claims priority, application United Kingdom, Apr. 15, 1980, 8012428

U.S. Cl. 23—230 B 19 Claims

1. A method of immunoassay for an analyte in a liquid sample, which comprises forming a mixture of the liquid sample with finely divided particles comprising a protein and a reagent, whereby specific agglutination or the particles occurs to an extent dependent on the amount of analyte present, and determining said extent and thereby the amount of analyte present, wherein the mixture also includes one or more agents to reduce non-specific protein interaction interferences, the amount of said agent(s) being sufficient to reduce the effect on agglutination of said interferences, wherein said agents comprise at least one compound selected from the group consisting of guanidinium hydrochloride, guanidinium thiocyanate, sodium thiocyanate, ammonium thiocyanate, sodium chloride, ethylene diamine tetraacetic acid, lithium nitrate, lithium chlorate, lithium isocyanate, lithium bromide, sodium bromide, potassium bromide, potassium thiocyanate, calcium chloride, lithium chloride and lithium iodide.

14. A particle agglutination specific binding assay composition for the non-specific protein interaction interference-free determination of an analyte in a liquid sample, which composition comprises:

- a particle to which is bound protein and a specific binding partner for said analyte; and
- an agent comprising at least one compound selected from the group consisting of guanidinium hydrochloride, guanidinium thiocyanate, sodium thiocyanate, ammonium thiocyanate, sodium chloride, ethylene diamine tetraacetic acid, lithium nitrate, lithium chlorate, lithium isocyanate, lithium bromide, sodium bromide, potassium bromide, potassium thiocyanate, calcium chloride, lithium chloride and lithium iodide.

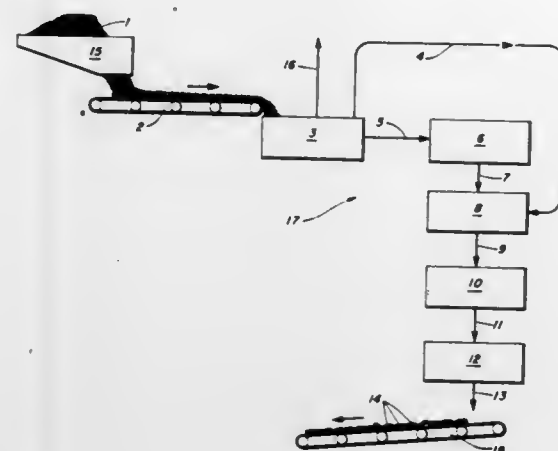
4,362,532

PRODUCTION OF BLAST FURNACE COKE VIA NOVEL BRIQUETTING SYSTEM

George E. Wasson, Eighty Four, and Frank W. Theodore, Pittsburgh, both of Pa., assignors to Conoco Inc., Stamford, Conn.
Filed Aug. 11, 1981, Ser. No. 291,752
Int. Cl.³ C10L 5/16

U.S. Cl. 44—23

11 Claims



1. A method of making high strength coke briquettes comprising the sequence of steps as follows:

- providing coal,
- heating said coal to partial carbonization temperatures at or above the softening point of said coal and below the temperature at which said coal loses a substantial portion of its caking property, to form partially carbonized char,
- cooling said partially carbonized char to below the softening point of the coal,
- mixing said cooled partially carbonized char and tar to form a mixture of tar and partially carbonized char,
- briquetting said mixture of tar and partially carbonized char at a temperature below the softening point of coal to form briquettes of tar and partially carbonized char,
- calcinating said briquettes to form high strength briquettes.

4,362,534

SAFETY FUEL ADMIXTURE APPARATUS

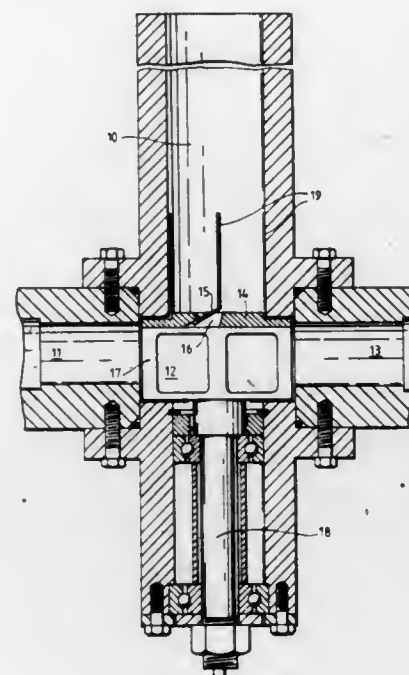
Kenneth I. W. Bird, Aldershot, and Evan S. Thomas, Farnborough, both of England, assignors to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Nov. 25, 1980, Ser. No. 210,229

Int. Cl.³ C10L 1/22

U.S. Cl. 44—62

16 Claims



- In combination with an apparatus for supplying liquid fuel to the fuel tank of a vehicle having a liquid fuel reservoir and a fuel pump, safety fuel admixing means comprising:
 - a liquid feed tube connected to an outlet from said liquid fuel reservoir,
 - a hopper for supplying polymer in solid form and attached to said liquid feed tube, and
 - a rotary mill located between said hopper and said liquid feed tube, said mill having a cutting edge protruding into said hopper for cutting swarf from the polymer, and an associated duct for conveying the polymer swarf into said fuel feed tube.

4,362,535

SINTERED METAL BONDED DIAMOND ABRASIVE ARTICLES

Eiji Isobe, Izumi Hayakawa, and Akira Emura, all of Tokyo, Japan, assignors to Mitsui Mining & Smelting Co., Ltd., Tokyo, Japan

PCT No. PCT/JP80/00242, § 371 Date Jun. 9, 1981, § 102(e) Date May 20, 1981, PCT Pub. No. WO81/00981, PCT Pub. Date Apr. 16, 1981

PCT Filed Oct. 8, 1980, Ser. No. 269,013

Claims priority, application Japan, Oct. 9, 1979, 54-130403
Int. Cl.³ B24D 3/02

U.S. Cl. 51—309

2 Claims

- A metal bonded diamond abrasive article composed of a diamond powder and of a sintered nickel base metal bond retaining the diamond powder, which is characterized in that the sintered metal bond consists essentially of 2 to 30% by weight of copper, 1 to 40% by weight of tin, 0.2 to 3% by weight of phosphorous, and the balance of nickel, the total amount of copper, tin, and phosphorous being less than 50% by weight.

4,362,533
TERPOLYMERS OF ETHYLENE, VINYL ACETATE, AND STYRENE AS POUR POINT DEPRESSANTS FOR DISTILLATE FUELS

Nash A. Kidd, Freeport, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed Dec. 13, 1976, Ser. No. 749,849

Int. Cl.³ C10L 1/22

U.S. Cl. 44—62

4 Claims

- Pour point depressant terpolymers for middle distillate fuels, consisting essentially of from about 45 to about 75 percent ethylene, at least about 5 percent vinyl acetate, and at least about 5 percent styrene, by weight, and having melt flow rate as defined from about 1 to about 50 dg/min, particularly characterized in that the terpolymers are prepared by free-radical-initiated terpolymerization of ethylene, vinyl acetate and styrene under substantially steady state terpolymerization conditions of at least 1000 atmospheres pressure and temperature of at least 200° C.

4,362,536

PULP DEGASSING

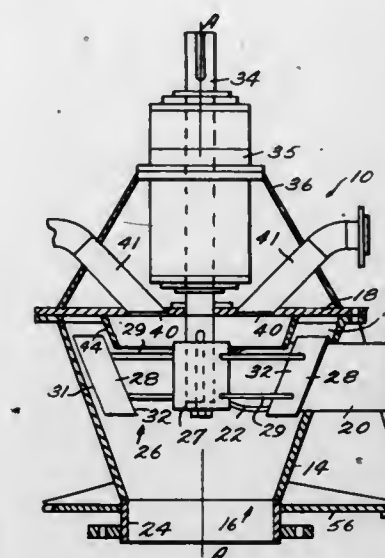
Johan E. Gullichsen, Helsinki, Finland, assignor to Kamyr, Inc., Glens Falls, N.Y.

Filed Jun. 8, 1981, Ser. No. 271,174

Int. Cl.³ B01D 19/00

U.S. Cl. 55—52

7 Claims



- A method of degassing pulp having a consistency of about 6-15%, utilizing a degasser comprising a housing tapering from a first end to a second end thereof along a central axis with a pulp inlet adjacent to the first end and a pulp outlet adjacent to the second end, and a rotatable blade assembly adjacent to the pulp inlet, and a gas outlet adjacent to the first end, comprising the steps of:

feeding the pulp into the housing through the pulp inlet with a velocity component intersecting a plane containing the central axis of the housing;

rotating the blade assembly to impart a high speed rotational velocity component to the pulp as it enters the housing; effecting movement of the pulp along the central axis of the housing toward the pulp outlet while gas within the pulp is being squeezed out; and

withdrawing gas separated from the pulp through the gas outlet adjacent the central axis and pulp inlet of the housing.

- A pulp degasser comprising
 - a housing substantially circular in cross-section and tapering inwardly from a first end thereof toward a second end thereof along a central axis;
 - means defining a pulp inlet to said housing adjacent said first end thereof, said pulp inlet extending along a line intersecting a plane containing said central axis;
 - means defining a pulp outlet adjacent said second end of said housing;

a blade assembly;

means for mounting said blade assembly adjacent said pulp inlet for rotation about an axis generally coincident with said housing central axis;

means defining a gas outlet adjacent said housing first end and adjacent said central axis;

means for preventing short-circuiting of pulp from said pulp inlet to said gas outlets, comprising a conically shaped shroud surrounding said gas outlet;

means for rotating said blade assembly about said axis of rotation thereof so that said blade assembly imparts a high velocity to the pulp;

said means for mounting said blade assembly for rotation comprising a shaft extending centrally into said housing through said first end thereof; and

said means defining a gas outlet comprising: a top plate capping off said housing first end and receiving said shaft through a central opening thereof; means defining a plurality of openings in said top plate surrounding said shaft;

and a conduit connected to each of said plurality of openings formed in said top plate surrounding said shaft.

4,362,537

METHOD FOR THE REMOVAL OF POLYMER FROM A PURGE MEDIUM IN A MONOOLEFIN ADSORPTION-DESORPTION SEPARATION PROCESS

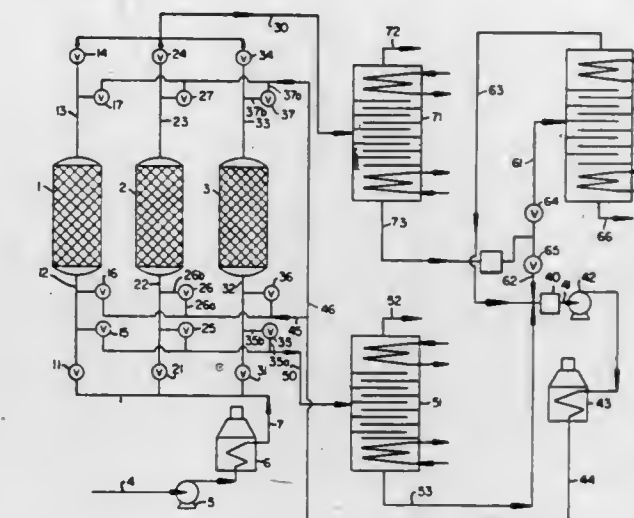
Robert G. Werner, Danbury, Conn., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Feb. 27, 1981, Ser. No. 238,843

Int. Cl.³ B01D 53/04

U.S. Cl. 55—62

7 Claims



- In a process for the separation of hydrocarbons in a vapor feed stream containing straight-chain and branched-chain monoolefin having from four to six carbon atoms inclusive comprising:

as an adsorption step,

passing said vapor feed stream into one end of an adsorber containing molecular sieve having a pore diameter of about 5 Angstroms and having adsorbed thereon a straight-chain paraffin hydrocarbon; and obtaining from the other end of said adsorber a first effluent fluid stream exiting in vapor phase comprising branched-chain monoolefin, branched-chain polyolefin, and straight-chain paraffin hydrocarbon;

as a copurge step,

passing a first vapor purge stream containing straight-chain paraffin hydrocarbon into said one end of said adsorber; and

obtaining from said other end of said adsorber a second effluent fluid stream exiting in vapor phase comprising branched-chain monoolefin, branched-chain polyolefin, and straight-chain paraffin hydrocarbon;

as a countercurrent purge step,

passing a second vapor purge stream containing a straight-chain paraffin hydrocarbon into said other end of said adsorber; and

obtaining from said one end of said adsorber a third effluent fluid stream exiting in vapor phase comprising straight-chain monoolefin, branched-chain polyolefin, and straight-chain paraffin hydrocarbon;

wherein the partial pressure of the straight-chain paraffin hydrocarbon content of said first and second vapor purge streams is greater than the partial pressure of the straight-chain monoolefin content of the vapor feed stream and wherein said molecular sieve is partially loaded with straight-chain paraffin hydrocarbon during all of said adsorption, copurge and countercurrent purge steps; and separating said branched-chain monoolefin from said branched-chain polyolefin and said straight-chain paraffin hydrocarbon in said first and second effluent fluid streams, said separation providing a fourth effluent fluid stream comprising branched-chain polyolefin and straight-chain paraffin hydrocarbon;

separating said said straight-chain monoolefin from said branched-chain polyolefin and said straight-chain paraffin hydrocarbon in said third effluent fluid stream, said separation providing a fifth effluent fluid stream comprising branched-chain polyolefin and straight-chain paraffin hydrocarbon;

the improvement in which comprises:

- (a) recycling said fifth effluent fluid stream comprising branched-chain polyolefin and straight-chain paraffin hydrocarbon for use in said first and second purge streams without separation of said branched-chain polyolefin from said straight-chain paraffin hydrocarbon in said fifth effluent fluid stream;
- (b) introducing at least a portion of said fourth effluent fluid stream into a separation unit for separating said branched-chain polyolefin from said straight-chain paraffin hydrocarbon and obtaining from said separation unit a sixth effluent fluid stream comprising straight-chain paraffin hydrocarbon and a seventh effluent fluid stream comprising branched-chain polyolefin; and
- (c) recycling said sixth effluent fluid stream comprising straight-chain paraffin hydrocarbon for use in said first and second purge streams.

4,362,538

WET ELECTROSTATIC PRECIPITATOR HAVING MEANS FOR DAMPENING THE SWAYING OF ITS DISCHARGE ELECTRODES

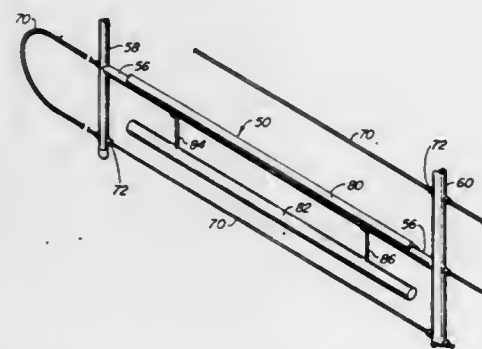
Karl Cox, Tempe, and Keith Collins, Mesa, both of Ariz., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed Aug. 25, 1981, Ser. No. 295,971

Int. Cl.³ B03C 3/16, 3/41

U.S. Cl. 55—118

6 Claims



1. A wet electrostatic precipitator comprising a housing having an inlet to receive gas to be treated and an outlet to discharge treated gas, a plurality of generally flat discharge electrode structures, means for rigidly suspending the electrode structures from their upper ends within the housing in the flow path of the gas such that the electrodes are generally parallel to each other and substantially equidistantly spaced, charging means adapted for charging the electrode structures with a high voltage, collector plate means positioned between each electrode structure and adapted when said electrode structures are charged for creating an electrostatic field for treating the gas means for providing liquid on said plate means to flush particles therefrom, each discharge electrode structure including a horizontally extending cross member adjacent its lower end, and stabilizing means pendulously suspended from the cross member of each discharge electrode structure in free-swinging frictional engagement therewith for dampening the oscillation of the respective discharge electrode structure against any incurred influence of sparking between the electrode structures, and the associated collector plate means.

4. An improved wet electrostatic precipitator including a housing having an inlet to receive gas to be treated and an outlet to discharge treated gas, a plurality of generally flat discharge electrodes, support means for rigidly suspending the electrodes from their upper ends within the housing in the flow path of the gas such that the electrodes are generally parallel to each other and substantially equidistantly spaced, charging

means adapted for charging the electrodes with a high voltage, collector plate means positioned between each electrode and adapted when said electrode structure is charged for creating an electrostatic field for treating the gas and means for providing liquid on said plate means to flush particles therefrom, wherein the improvement comprises: each discharge electrode including a frame having a cross member adjacent its lower end, said support means includes support beams made from an electrically conductive material, means for rigidly and horizontally mounting the ends of the support beams to the precipitator housing, said charging means being electrically connected to the support beams, means for rigidly connecting the upper ends of the frames of the respective discharge electrodes to the beams to thereby establish a current path from the support beams to the discharge electrodes, and oscillation dampening means pendulously attached to the cross member of each discharge electrode structure in free-swinging frictional engagement therewith for dampening any incurred oscillation of the respective discharge electrode structure that may be induced by sparking between the electrode structures and the associated collector plate means.

4,362,539

FOAM SPLITTER

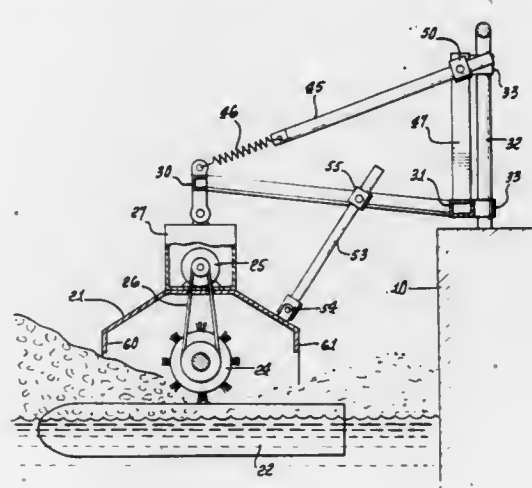
Eugene D. Nelson, 9532 La Canada Way, Sunland, Calif. 91040, and Ivan Rasovich, 2653 Timberlane Dr., La Crescenta, Calif. 91214

Filed Sep. 29, 1980, Ser. No. 191,402

Int. Cl.³ B01D 19/00

U.S. Cl. 55—178

4 Claims



1. In an apparatus for breaking foam on the surface of a liquid, the combination of:

a downward opening housing;

a splitter member mounted in said housing for rotation about a generally horizontal axis, said splitter member including a plurality of radially extending circumferential disposed fingers;

drive means for rotating said splitter member; and

suspension means for supporting said housing and splitter member at the surface of a liquid;

said suspension means including:

a frame having first and second edges;

means for pivotally mounting said frame to said housing at said first edge;

means for pivotally mounting said frame to a wall structure at said second edge;

a stabilizer bar pivotally mounted to said housing below said first edge and to said frame between said first and second edges; and

a resilient member connected between said frame at said first edge and the wall structure.

4. In an apparatus for breaking foam resting on the surface of a liquid, the combination of:

a support member;

a splitter member mounted in said support member for rotation about a generally horizontal axis, said splitter member including a plurality of radially extending circumferentially disposed fingers;

drive means for rotating said splitter member; and

suspension means for positioning said support member and splitter member at the surface of a liquid, and including a frame having first and second edges,

means for pivotally mounting said frame to said support member at said first edge,

means for pivotally mounting said frame to a wall structure at said second edge,

a stabilizer bar pivotally mounted to said support member below said first edge and to said frame between said first and second edges, and

a resilient member connected between said frame at said first edge and the wall structure.

4,362,540

APPARATUS FOR REMOVING DUST PARTICLES FROM AN AIR STREAM

Emanuel Strahner, Hangweg, Austria, assignor to Voest-Alpine Aktiengesellschaft, Vienna, Austria

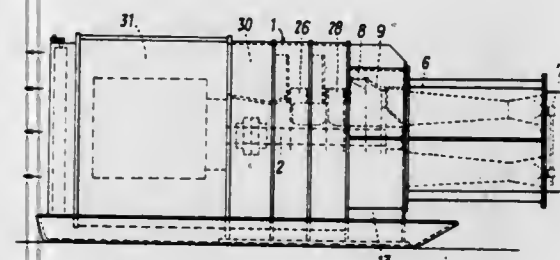
Filed Jul. 31, 1981, Ser. No. 289,075

Claims priority, application Austria, Aug. 5, 1980, 4045/80

Int. Cl.³ B01D 50/00

U.S. Cl. 55—257 C

13 Claims



1. Apparatus for removing dust particles from an air stream, particularly for the ventilation of mines, said apparatus including a centrifugal separator having an air inlet end and an air outlet end and having blade wheel sections driven via a common shaft to rotate at an approximately constant speed within a stationary housing, said blade wheel sections having blades extending in axial planes connected with their radially outer ends to co-rotating peripheral walls, the distance of which walls from the axis of rotation of the blade wheel sections increasing in the direction from the inlet end to the outlet end of the centrifugal separator, at least one of said blade wheel sections having blades radially extending approximately in axial planes, and those portions of said peripheral walls which are spaced the largest distance from the axis having passage openings opening toward the housing surrounding the blade wheel sections, a blower connected to the outlet end of said centrifugal separator for moving the air stream through the centrifugal separator, and a means which precedes the centrifugal separator in the direction of flow of the air for spraying water into the air stream entering the centrifugal separator, characterized in that said blade wheel sections are preceded at the air inlet end of the centrifugal separator by at least one blade wheel section in which those generatrices of the surface of its blades which are equidistant from the axis are inclined at an angle of incidence from lines extending in axial planes parallel to the axis, in a direction which is opposite to the direction in which the resultant vector of the axial air entry velocity vector and the mean peripheral velocity vector of the blades of said preceding blade wheel section is inclined with respect to an axial plane extending through the axis of the centrifugal separator.

4,362,541

METHOD AND APPARATUS FOR PRODUCING GLASS FIBERS OR FILAMENTS

Thomas K. Thompson, Granville, Ohio, assignor to Owens-Corning Fiberglass Corporation, Toledo, Ohio

Filed Apr. 27, 1981, Ser. No. 258,205

Int. Cl.³ C03B 37/025

U.S. Cl. 65—2

24 Claims



22. The method of forming filaments from heat-softened glass including flowing streams of glass from orifices in a feeder, attenuating the streams to filaments by winding a group of the filaments into a package, delivering streams of air from outlets of nozzles upwardly during normal attenuating operations into contact with the streams of glass and the orificed region of the feeder in an amount to convey away sufficient heat to render the glass of the streams attenuable and stabilize the temperature environment at the stream flow region, and upon interruption of an attenuating operation increasing the angularity of the nozzles and thereby increasing the angularity of the upwardly directed streams of air relative to the normal path of movement of the filaments while maintaining substantially constant the positions of the outlets of the nozzles for the delivery of the air with respect to the path of movement of the filaments attenuated from the streams.

4,362,542

METHOD OF PRODUCING A STRONG OPTICAL FIBER

Pedro B. Macedo, 6100 Highboro Dr., Bethesda, Md. 20034; Robert K. Mohr, Washington, D.C., and Prabhat K. Gupta, Columbus, Ohio, assignors to Pedro B. Macedo, Bethesda and Theodore A. Litovitz, Silver Spring, both of, Md.

Continuation of Ser. No. 76,137, Sep. 17, 1979, abandoned, which is a division of Ser. No. 755,588, Dec. 30, 1976, Pat. No. 4,181,403. This application Nov. 2, 1981, Ser. No. 317,487

The portion of the term of this patent subsequent to Jan. 1, 1997, has been disclaimed.

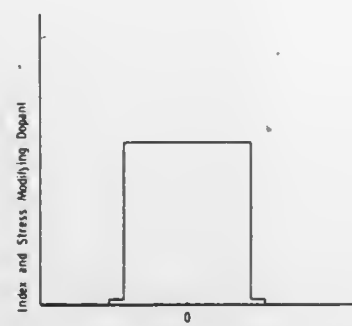
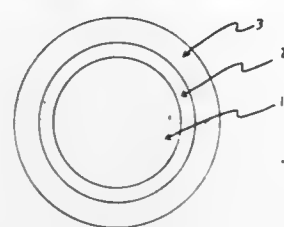
Int. Cl.³ C03B 37/075; C03C 25/02

U.S. Cl. 65—3.11

6 Claims

1. In a method of making a strong fiber waveguide in which a preform is heated and pulled to make a fiber, the improvement comprising adding to the preform at least one dopant capable of creating a mechanical stress profile in said preform and at least another dopant capable of creating an index of refraction profile in said preform, and varying the dopants added to produce a composition profile which varies radially from the center to the surface of the preform to form a core, an

intermediate clad layer having an index of refraction smaller than the core and a surface layer which is in compression



having a predetermined thickness less than 10% of the radius of the core, said compression being greater than 20,000 psig.

4,362,543

METHOD FOR CONTROLLING PARTICULATE EMISSIONS

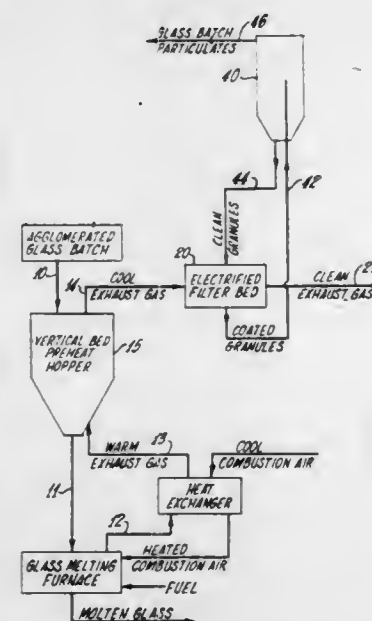
Magnus L. Froberg, Granville, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Mar. 19, 1981, Ser. No. 245,831

Int. Cl.³ C03C 1/00; C03B 3/00

U.S. Cl. 65—27

4 Claims



1. A process for producing glass by charging to a melting furnace and melting therein a boron or fluorine containing batch comprising the steps of agglomerating the batch using a liquid, charging the wet agglomerates onto the upper surface of a vertical bed preheat hopper having a lower discharge end for charging to the furnace, (2) moving the remaining agglomerates by gravity downwardly through the bed, (3) passing the hot furnace exhaust gas upwardly through the bed to heat the agglomerates therein, (4) drying the wet agglomerates on the upper surface of the bed with spent exhaust gas which has already passed through the bed, (5) electrically charging the spent exhaust gases which have passed through the bed wherein the spent exhaust gases contain glass batch particulate which are charged when step (5) is carried out, and

(6) passing the charged exhaust gases through an electrified bed of granules wherein the charged glass batch particulate is removed from the spent exhaust gases by collecting on the charged granules when step (6) is carried out and wherein the granules are limestone or calcium oxide.

4,362,544

FLUID CONTROL SYSTEM FOR GLASSWARE FORMING MACHINE

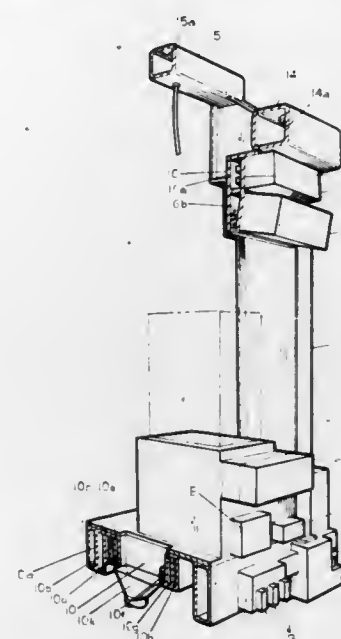
James D. Mallory, Maumee, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Jul. 24, 1981, Ser. No. 286,410

Int. Cl.³ C03B 9/40

U.S. Cl. 65—163

3 Claims



1. In a glass container forming machine of the type where a plurality of individual sections are juxtaposed and receive mold charges from a common feeder, with each section being capable of producing a completed container by itself, and the sections all rest on a common base, the improvement comprising said base having a plurality of elongated channels formed therein that extend the length thereof and are structurally part of the base, a plurality of elongated tubular housings extending parallel to said base and coextensive therewith, said housings being elevated above the sections, one said tubular housing serving as a common manifold for blow air to all of the blow-heads on all of the sections, means connecting sources of air under pressure to selected channels in said base, means providing electrical leads within others of said channels in said base, means providing ductwork for electrical leads in the supporting structure for the said tubular housing and extending parallel thereto, said channels in said base serving to provide operating air under more than one pressure to motors on all of said sections, electrically actuated valve means in the connections from the channels to said operating motors, and computer means connected to said valve means in each section for actuating said valves in a predetermined sequence.

4,362,545

SUPPORT MEMBER FOR AN OPTICAL WAVEGUIDE PREFORM

Alan C. Bailey, and Stephen B. Miller, both of Painted Post, N.Y., assignors to Corning Glass Works, Corning, N.Y.

Division of Ser. No. 165,649, Jul. 3, 1980, Pat. No. 4,289,522.

This application Feb. 25, 1981, Ser. No. 237,852

Int. Cl.³ C03B 19/06; F16L 25/00

U.S. Cl. 65—169

20 Claims

1. An article comprising a hollow tubular member defining a longitudinal aperture

and having one end thereof tapered of diminishing wall thickness for approximately the length of said taper, an outwardly extending protrusion disposed adjacent said one tapered end of said member,



means for providing a substantially gas-type connection to said member disposed at the end of said member opposite said one end whereby a gaseous medium may be flowed through said member, and means intermediate said protrusion and said opposite end for securing said member to a source of gaseous medium.

4,362,546

TETRAHYDROPHTHALAMIDE DERIVATIVES, HERBICIDAL COMPOSITIONS AND USE

Hiroshi Nagase, Kawanishi, Japan, assignor to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed May 27, 1980, Ser. No. 153,098

Claims priority, application Japan, May 28, 1979, 54-66565

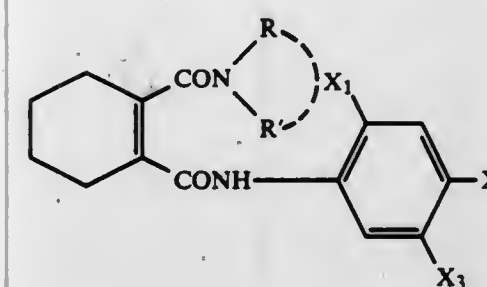
The portion of the term of this patent subsequent to May 4, 1982, has been disclaimed.

Int. Cl.³ A01N 37/22; C07C 103/737; C07D 295/18

U.S. Cl. 71—88

23 Claims

1. A tetrahydrophthalimide compound of the formula:



wherein

X₁ is hydrogen or halogen;

X₂ is halogen, C₁₋₃ alkoxy or halogen-substituted benzyloxy; at least one of X₁ and X₂ is halogen;

X₃ is hydrogen, C₁₋₃ alkoxy or alkenyloxy; R and R' are the same or different

(a) alkyl,

(b) cycloalkyl,

(c) alkenyl, or

(d) phenyl,

each of which may be substituted; or R and R' may jointly, together with the nitrogen atom adjacent to R and R', form an aliphatic heterocyclic ring containing one or two nitrogens, or nitrogen and oxygen.

2. A compound according to claim 1, wherein R and R' are alkyl.

4,362,547

IMIDES DERIVED FROM 2-THIOXO-3-BENZOX(THIA)AZOLINE ACETIC, AND PROPIONIC ACIDS

John J. D'Amico, Olivette, Mo., assignor to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 55,103, Jul. 5, 1979. This application Jan. 9, 1981, Ser. No. 223,637

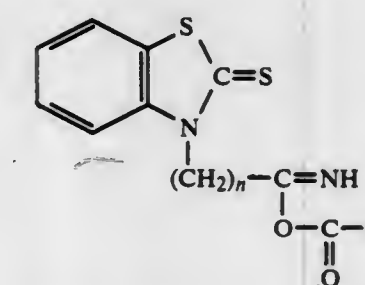
The portion of the term of this patent subsequent to Sep. 8, 1998, has been disclaimed.

Int. Cl.³ A01N 43/78

U.S. Cl. 71—90

1 Claim

1. A method for preventing the growth of undesirable plants which comprises applying to the plant locus a herbicidally effective amount of a compound having the formula



where R is a lower alkyl and n is 1 or 2.

4,362,548

HERBICIDAL AND PLANT-GROWTH-REGULATING N-SUBSTITUTED-N-(2,5-DIALKYLPIRROL-1-YL) HALOACETAMIDES

Stephen D. Ziman, San Francisco, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Division of Ser. No. 60,320, Jul. 25, 1979, Pat. No. 4,282,028.

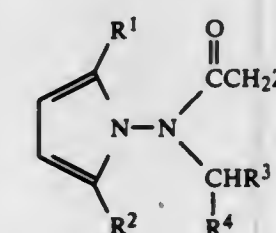
This application Jan. 29, 1981, Ser. No. 229,371

Int. Cl.³ A01N 43/80; C07D 275/02

U.S. Cl. 71—90

5 Claims

1. A compound having the formula:



wherein R¹ and R² are alkyl of 1 to 3 carbon atoms or halo; R³ is hydrogen or alkyl of 1 to 3 carbon atoms; z is halo and R⁴ is isothiazolyl optionally substituted at a ring carbon with an alkyl group having 1 to 4 carbon atoms or phenyl.

5. A method for controlling grasses which comprises applying to said vegetation or its growth environment an herbicidally effective amount of the compound of the formula defined in claim 1.

4,362,549

METHOD OF INCREASING SUGAR CONTENT IN SUGARCANE AND SORGHUM

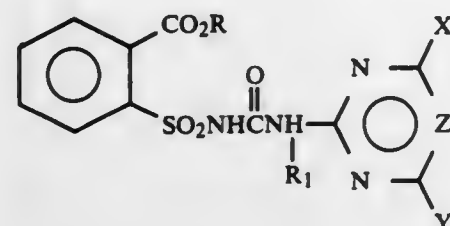
George Levitt, Wilmington, Del., and William F. Smith, III, Elkton, Md., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Feb. 13, 1981, Ser. No. 234,235
Int. Cl.³ A01N 43/54

U.S. Cl. 71-92

4 Claims

1. A method for increasing the sugar content of sugarcane and sorghum comprising: applying to the sugarcane or sorghum about 2-6 weeks prior to harvest an effective amount of a compound of the formula:



wherein

R is CH₃;

R₁ is H or CH₃;

X is CH₃, or OCH₃;

Y is CH₃ or OCH₃; and

Z is CH;

or an agriculturally suitable salt thereof.

4,362,550

HERBICIDAL TRIAZINONES

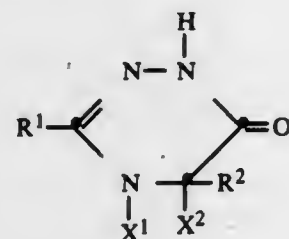
John L. Miesel, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed Dec. 21, 1981, Ser. No. 333,134
Int. Cl.³ C07D 253/06; A01N 43/64

U.S. Cl. 71-93

17 Claims

1. A compound of the formula



wherein:

R¹ represents C₁-C₆ alkyl, C₃-C₆ cycloalkyl, phenyl or phenyl monosubstituted with C₁-C₃ alkyl, C₁-C₃ alkoxy, halogen, C₁-C₃ haloalkyl or C₁-C₃ haloalkoxy;

R² represents hydrogen, C₁-C₆ alkyl or C₃-C₆ cycloalkyl; and

X¹ and X² represent hydrogen atoms or combine to form a carbon-carbon bond;

with the provisos that when R² is methyl, R¹ is other than phenyl; and when X¹ and X² combine to form a carbon-carbon bond and R² is ethyl, R¹ is other than phenyl, 4-chlorophenyl and 4-methoxyphenyl.

16. A method for controlling undesired plants which comprises applying to the plants a growth inhibiting amount of a compound of claim 1.

4,362,551

M-ALKYNYLANILIDES AND USE AS HERBICIDES

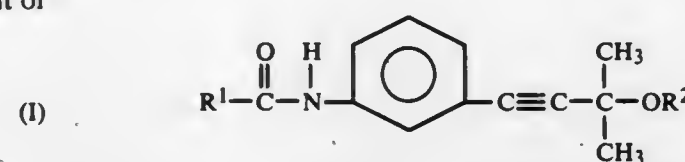
Edward T. Sabourin, Allison Park, and Charles M. Selwitz, Monroeville, both of Pa., assignors to Gulf Oil Corporation, Pittsburgh, Pa.

Division of Ser. No. 140,645, Apr. 16, 1980, Pat. No. 4,305,751.
This application Sep. 2, 1981, Ser. No. 298,706
Int. Cl.³ A01N 9/24; C07C 125/06

U.S. Cl. 71-106

6 Claims

1. Compounds having the general structural formula



in which R¹ is C₁ to C₄ lower alkylamino and R² lower N-alkylcarbonyl.

2. An agricultural composition comprising from 0.1 percent to 95 percent by weight of a compound of claim 1 and from 0.1 to 75 percent by weight of a carrier or surfactant.

4,362,552

FROTH FLOTATION OF ORES

Vojislav Petrovich, 1935, W. Schiller St., Chicago, Ill. 60622

Filed Jan. 29, 1979, Ser. No. 7,314

Int. Cl.³ B03D 1/02; C22B 3/00

U.S. Cl. 75-2

1 Claim

1. In concentrating by froth flotation of metallic ores selected from the group of molybdenum and wolfram, which includes the subjecting of such ore material when finely ground to froth flotation process which comprises; the step of oxidizing the molybdenum and wolfram mineral slurry to peroxy molybdenum and peroxy wolfram state with hydrogen peroxide or persulfate; the step of adding to the oxidized mineral slurry an amount of the order from 0.02 to 0.2 kg per ton of ore treated, oxalic acid or alkali oxalate and an amount of the order from 0.01 to 0.1 kg per ton of ore treated amines selected from the group of cocodiamine, or triethylamine; said additions to aqueous dispersion of ore produce a float product of said mineral values by continuous agitation and aeration of the aqueous dispersion of ore; and separating and recovering the mineral values as froth concentrate products.

4,362,553

TOOL STEELS WHICH CONTAIN BORON AND HAVE BEEN PROCESSED USING A RAPID SOLIDIFICATION PROCESS AND METHOD

Ranjan Ray, Waltham, Mass.; Donald E. Polk, Washington, D.C., and Bill C. Giessen, Cambridge, Mass., assignors to Marko Materials, Inc., North Billerica, Mass.

Continuation-in-part of Ser. No. 95,381, Nov. 11, 1979, Pat. No. 4,318,733. This application Jun. 22, 1981, Ser. No. 275,629
Int. Cl.³ C22C 38/22, 38/24, 38/26, 38/32

U.S. Cl. 75-0.5 BA

28 Claims

1. The iron base alloys having compositions described by the generalized formula $Fe_{80}Cr_{10-20}M_{5-20}C_{0.8-1.3}B_{0.8-1.3}$, where M is at least one of the group consisting of Mo, W, V, Nb and Ta, and where the iron may also contain incidental impurities.

4,362,554

METHOD AND APPARATUS FOR MANUFACTURING SPONGE IRON

Sven Santen, Hofors, Sweden, assignor to SKF Steel Engineering Aktiebolag, Hofors, Sweden

Filed Mar. 6, 1981, Ser. No. 241,396

Int. Cl.³ C22B 13/02; F27B 1/08

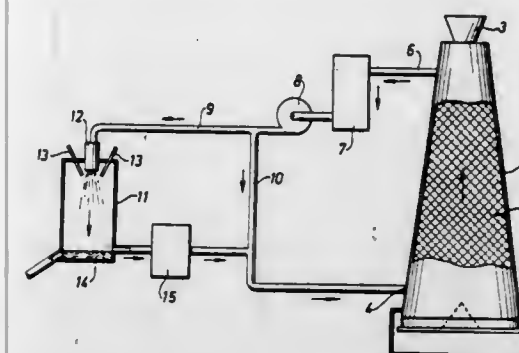
U.S. Cl. 75-11

19 Claims

1. A method of manufacturing sponge iron by the continu-

ous reduction of iron oxides in a shaft furnace comprising the steps of:

- (1) removing the reaction gas from a shaft furnace;
- (2) removing from said reaction gas substantially all CO₂ and H₂O;
- (3) dividing the reaction gas into at least two flow portions;
- (4) passing one of said flow portions to a gas generator comprising a plasma burner and means for injecting solid reducing agent and oxidant, and heating said reaction gas by said plasma burner and injecting into the heated gas solid reducing agent and oxidant so as to form an intermediate gas mixture comprised primarily of CO and H₂;



- (5) maintaining said intermediate gas mixture at a temperature such that ash contained within the solid reducing agent forms a slag;
- (6) mixing said intermediate gas with at least one of said other flow portions in such proportion that the temperature of the resulting reduction gas is suitable for the reduction of iron oxides in a shaft furnace;
- (7) injecting said reduction gas into the lower portion of a shaft furnace and passing said reduction gas upwardly through said shaft furnace so as to reduce iron oxides contained in said furnace; and
- (8) removing from said furnace the reduced iron.

4,362,555

METHOD AND APPARATUS FOR MANUFACTURING SPONGE IRON

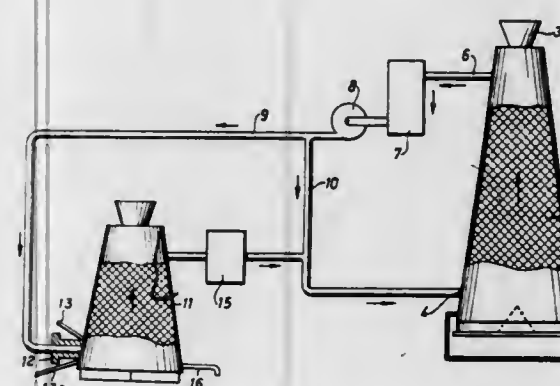
Sven Santen, and Börje Johansson, both of Hofors, Sweden, assignors to SKF Steel Engineering Aktiebolag, Hofors, Sweden

Filed Mar. 6, 1981, Ser. No. 241,397

Int. Cl.³ C22B 13/02; F27B 1/08

U.S. Cl. 75-11

21 Claims



1. A method of manufacturing sponge iron by the continuous reduction of iron oxides in a shaft furnace comprising the steps of:

- (1) removing the reaction gas from a shaft furnace;
- (2) removing from said reaction gas substantially all CO₂ and H₂O;
- (3) dividing the reaction gas into at least two flow portions;
- (4) passing one of said flow portions to a gas generator comprising a gas generating shaft substantially filled with a solid reducing agent, a plasma burner arranged in the

lower portion of said shaft, and means for injecting oxidant, and heating said reaction gas by said plasma burner and injecting into the heated gas from the plasma burner an oxidant so as to form an intermediate gas mixture comprised primarily of CO and H₂;

- (5) maintaining said intermediate gas mixture at a temperature such that ash contained within the solid reducing agent forms a slag;
- (6) mixing said intermediate gas with at least one of said other flow portions in such proportion that the temperature of the resulting reduction gas is suitable for the reduction of iron oxides in a shaft furnace;
- (7) injecting said reduction gas into the lower portion of a shaft furnace and passing said reduction gas upwardly through said shaft furnace so as to reduce iron oxides contained in said furnace; and
- (8) removing from said furnace the reduced iron.

4,362,556

ARC FURNACE STEELMAKING INVOLVING OXYGEN BLOWING

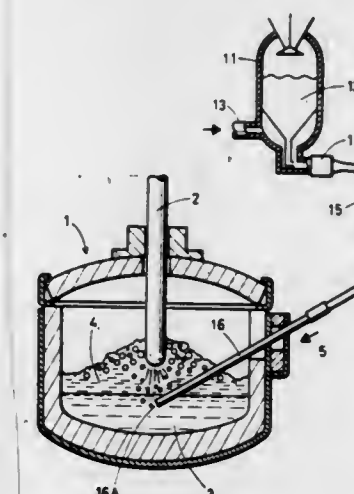
Toshio Kishida, Nagoya, Japan, assignor to Daido Tokushuko, K.K., Nagoya, Japan

Filed Dec. 19, 1980, Ser. No. 218,174

Claims priority, application Japan, Dec. 19, 1979, 54-164012
Int. Cl.³ C21C 5/52

U.S. Cl. 75-12

7 Claims



1. A method of steelmaking using an arc furnace characterized in that the method includes the steps of:

- (a) blowing oxygen into the furnace throughout a melting period and an oxidizing period in an amount of at least 10 Nm³ per charged ton calculated in terms of pure oxygen gas so as to decrease carbon content of a molten steel until it becomes 0.20% or less; and subsequently,
- (b) blowing a carbonaceous material having a carbon content of at least 60% by weight into the molten steel in the furnace by utilizing flow of a carrier gas.

4,362,557

PURIFYING TITANIUM-BEARING SLAG BY PROMOTED SULFATION

Gerald W. Elger, and Ruth A. Holmes, both of Albany, Oreg., assignors to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed Apr. 27, 1981, Ser. No. 258,075

Int. Cl.³ C22B 7/04

U.S. Cl. 75-24

3 Claims

1. A process for removing alkaline earth oxide impurities from a titania slag comprising:

- admixing the slag with a promoter consisting essentially of sodium carbonate,
- reacting the admixture with sulfur trioxide gas or a mixture of sulfur dioxide and oxygen gases at a temperature of

about 700° to 1100° C. to form a reaction product containing alkaline earth sulfates, and leaching the alkaline earth sulfates from the reaction product with water.

4,362,558

PROCESS OF UPGRADING NICKELIFEROUS OXIDE ORES OF LATERITIC ORIGIN

Andre Desnoes, Plaisir; Jean-Jacques Predali, Elancourt, and Guy Ranchin, Versailles, all of France, assignors to Societe Metallurgique le Nickel-SLN, Paris, France
Continuation of Ser. No. 933,565, Aug. 14, 1978, abandoned, which is a continuation-in-part of Ser. No. 713,434, Aug. 11, 1976, abandoned. This application Sep. 22, 1980, Ser. No. 189,134

Claims priority, application France, Aug. 14, 1975, 75 25428
Int. Cl.³ C22B 1/00; C22C 38/08; B02C 19/00; B07B 1/00
U.S. Cl. 75—40 38 Claims

1. A process for upgrading garnieritic ores to obtain an upgraded ore of higher nickel content comprising the steps of:

- (a) subjecting a garnieritic ore in which about 80% of the ore particles have a size between about 5000 and 100 microns to a controlled attrition to produce fine particles whereby a ratio d_{90}/d_{10} measured after said controlled attrition is larger by a factor of at least 2.0 than a ratio of d_{90}/d_{10} measured before said controlled attrition and whereby d_{90} measured after said controlled attrition is no more than 75% less than d_{90} measured before said controlled attrition; and

- (b) classifying the ore particles resulting from the attrition according to their size into at least two fractions and recovering the ore particles of a size below 50 microns as the upgraded ore of higher nickel content.

20. A process for upgrading garnieritic ores at least 0.5% in nickel, comprising the steps of:

- (a) subjecting a garnieritic ore to a preliminary grinding or crushing to produce an ore in which about 80% of the ore particles have a size between about 5000 and 100 microns;
- (b) subjecting the resultant ore to a controlled attrition to produce fine particles whereby a ratio d_{90}/d_{10} measured after said controlled attrition is larger by a factor of at least 2.0 than a ratio of d_{90}/d_{10} measured before said controlled attrition and whereby d_{90} measured after said controlled attrition is no more than 75% less than d_{90} measured before said controlled attrition; and
- (c) classifying the ore particles resulting from the attrition according to their size into at least two fractions and recovering the ore particles of a size below 10 microns whereby a nickel recovery of at least 70% is accomplished.

37. A process for upgrading garnieritic ores to obtain an upgraded ore of higher nickel content, comprising the steps of:

- (a) subjecting a garnieritic ore pulp in which about 80% of the ore particles have a size between about 5000 and 100 microns to a controlled attrition to produce fine particles whereby a ratio d_{90}/d_{10} measured after said controlled attrition is larger by a factor of at least 2.0 than a ratio of d_{90}/d_{10} measured before said controlled attrition and whereby d_{90} measured after said controlled attrition is no more than 75% less than d_{90} measured before said controlled attrition, said attrition being carried out in an agitating device in which the agitated volume of pulp passes through the agitating device between about 1,000 and 10,000 times per hour; and

- (b) classifying the ore particles resulting from the attrition according to their size into at least two fractions and recovering the ore particles of a size below 50 microns as the upgraded ore of higher nickel content.

4,362,559

METHOD OF INTRODUCING ADDITION AGENTS INTO A METALLURGICAL OPERATION

Jesus W. Perez, Stamford, and Samuel S. Wang, Cheshire, both of Conn., assignors to American Cyanamid Company, Stamford, Conn.

Filed Mar. 9, 1981, Ser. No. 241,958
Int. Cl.³ C21C 7/00

U.S. Cl. 75—53

11 Claims

1. A method of introducing addition agents into a metallurgical operation which comprises:

- (a) blending the addition agents under hot melt conditions with a modified tall oil pitch binder having a tensile strength greater than 25 psi and a deflection index greater than 1;

- (b) compacting the blend into a unitary structure; and

- (c) feeding the compacted structure into an appropriate stage in the metallurgical operation to effect the desired composition or property.

4,362,560

PROCESS FOR PRODUCING HIGH-PURITY GALLIUM

Vladimir N. Abrjutin, ulitsa V. Maslovka, 7, kv. 63, Moscow; Vyacheslav P. Ezhkov, ulitsa Lenina, 47, kv. 73, Svetlovodsk Kirovogradskoi oblasti; Raisa V. Ivanova, ulitsa Udaltsova, 14, kv. 181, Moscow; Oleg N. Kalashnik, ulitsa Lenina, 53, kv. 87; Vyacheslav A. Kirichenko, ulitsa Lenina, 37, kv. 53, both of Svetlovodsk Kirovogradskoi oblasti; Alexandr V. Perederiev, M. Filevskaya ulitsa 40, kv. 25, Moscow; Jury G. Pukhov, ulitsa Boguna, 9, kv. 36, Svetlovodsk Kirovogradskoi oblasti; Arkady A. Belsky, Komsomolsky prospekt, 48/22, kv. 20, Moscow; Vladimir V. Kozhemyakin, Sovetsky prospekt, 13, kv. 52, Ivanteevka Moskovskoi oblasti, and Galina E. Masjuk, ulitsa Egorova, 17, kv. 3, Svetlovodsk Kirovogradskoi oblasti, all of U.S.S.R.

Filed Nov. 28, 1980, Ser. No. 211,441
Int. Cl.³ C22B 7/00, 30/04, 58/00

U.S. Cl. 75—63

7 Claims

1. A process for producing high-purity gallium from gallium-arsenic-containing wastes resulting from the manufacture of semiconductors comprising:

- a. decomposing said wastes in a vacuum-thermal process under a residual pressure of from 1.10^{-1} to 1.10^{-2} mm Hg and at a temperature rising from 25° to 1,150° C. on heating at a rate in the range of from 0.5° to 20° C./min, accomplishing sublimation of arsenic and the formation of a melt of gallium containing impurities resulting from the decomposition of said wastes;
- b. condensing said sublimated arsenic;
- c. cooling the melt of gallium obtained by said decomposition of wastes to a temperature of from 50° to 100° C. at a variable rate of from 0.05° to 15° C./min;
- d. filtering said gallium melt at the cooling temperature of said melt;
- e. hydrochemically treating said filtered melt of gallium;
- f. fractionally crystallizing said melt in a multi-stage crystallization to crystallize said gallium;
- g. the melt residues enriched with impurities being recycled from each process step to each preceding process step, and

whereby from 60 to 95%, by mass, of the starting gallium in each stage is recovered.

4,362,561

METHOD FOR THE SMELTING OF MATERIAL SUCH AS ORE CONCENTRATES

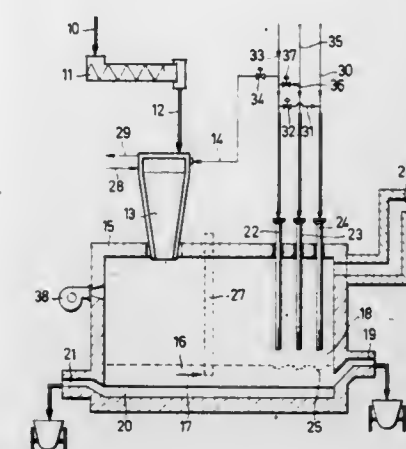
Horst Weigel, and Gerhard Melcher, both of Cologne, Fed. Rep. of Germany, assignors to Klockner-Humboldt-Deutz AG, Fed. Rep. of Germany

Filed May 23, 1980, Ser. No. 152,592
Claims priority, application Fed. Rep. of Germany, May 31, 1979, 2922189

U.S. Cl. 75—92

Int. Cl.³ C22B 15/00

7 Claims



1. In a method for smelting an ore concentrate or the like in which said concentrate is first melted in an oxidizing atmosphere and the smelt is aftertreated with reducing gases to recover the metal values, the improvement which comprises: melting said concentrate in substantially pure oxygen at a temperature of from 1500° to 2000° C.,

conducting the aftertreatment by blowing reducing gases containing a mixture of a hydrocarbon fuel gas and oxygen, said oxygen being present in less than stoichiometric proportions, onto the smelt by means of a plurality of separate lances under conditions of high kinetic energy to create a blow impression under each lance, the reduction potential of the gases blown by each lance varying from one lance to the next, thereby producing a lighter slag phase and a heavier metal containing phase and separately withdrawing said slag phase and said metal-containing phase.

4,362,562

METHOD FOR TAKING SAMPLES FROM PIG-IRON MELTS

Jacques J. P. Plessers, Helchteren, Belgium, assignor to Electro-Nite, Philadelphia, Pa.

Filed Feb. 20, 1981, Ser. No. 236,087
Claims priority, application Fed. Rep. of Germany, Feb. 20, 1980, 3006281

U.S. Cl. 75—130 R

Int. Cl.³ G01N 25/02

8 Claims

1. A method of preparing a molten pig-iron sample for spectrometric analysis comprising:

- inserting a sample-taking means into a pig-iron melt, said sample-taking means containing a quantity of misch metal; removing said sample-taking means; solidifying said molten pig-iron sample; and analyzing said solidified sample.

4,362,563

PROCESS FOR THE PRODUCTION OF METALLIC FORMED MEMBERS

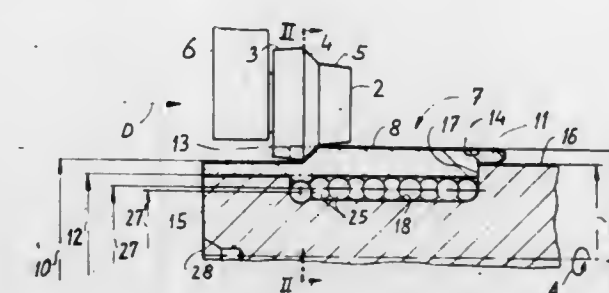
Jörg Stadler, Rückersdorf; Max Rentzsch, Schnaittach, and Siegfried Rhau, Nuremberg, all of Fed. Rep. of Germany, assignors to Diehl GmbH & Co., Nuremberg, Fed. Rep. of Germany

Filed Nov. 19, 1979, Ser. No. 95,530
Claims priority, application Fed. Rep. of Germany, Dec. 6, 1978, 2852659

U.S. Cl. 419—5

Int. Cl.³ F42B 13/48

2 Claims



1. In a process for the production of formed member, including discrete particles embedded in a metallic matrix, the improvement comprising: arranging said particles intermediate a metallic basic support member and a metallic outer casing; embedding said particles in said basic support member and said outer casing through cold pressure rolling of said outer casing; and having pressure rollers work the material of the outer casing and the metallic basic support member during at least one roll pass into the interspaces between said particles.

4,362,564

METHOD FOR PRODUCING MICROPOROUS METAL BODIES

Joseph C. Danko, Danville, Calif., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Sep. 12, 1967, Ser. No. 668,744
Int. Cl.³ B22F 3/00

U.S. Cl. 75—222

1 Claim

1. A process for producing a microporous tungsten body adapted for use as cladding for the emitter in a thermionic converter containing fissile fuel, and which functions to permit the flow of fission product gases, but prevents the release of fissile fuel particles outside the emitter cladding, comprising the steps of: vapor-depositing, to a thickness of about 0.020 to 0.040 inch, on a suitable support surface, impure tungsten having a fluorine content of from about 40 to 100 ppm by hydrogen reduction of tungsten hexafluoride (WF_6); removing the support surface from the deposited tungsten; and heating said impure vapor-deposited tungsten in a vacuum environment of about 10^{-6} torr at a temperature of about 2500° C. for about 25 to 50 hours, so that grain boundary porosity occurs and becomes interconnected.

4,362,565

COLOR FORMER COMPOSITION

Reginald N. Pineger, Stockport, and Malcolm C. Clark, Cheadle, both of England, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Oct. 16, 1980, Ser. No. 197,446
Claims priority, application United Kingdom, Oct. 26, 1979, 7937264

U.S. Cl. 106—21

Int. Cl.³ C09D 11/00

5 Claims

1. A solid colour former composition comprising a colour former and from 0.1 to 10% by weight, based on the weight of the colour former, of an organic hydrophobic liquid which

does not react with the colour former selected from the group consisting of kerosene, partially hydrogenated terphenyl and mixtures thereof.

4,362,566

ONE-COMPONENT HARDENABLE SUBSTANCES STABLE TO STORAGE AND ACTIVATABLE BY MECHANICAL AND/OR PHYSICAL FORCES AND METHOD OF PRODUCING, ACTIVATING AND APPLYING SAME

Rudolf Hinterwaldner, Dachsberg 19, 8019 Moosach, Fed. Rep. of Germany

Filed Mar. 8, 1978, Ser. No. 884,395

Claims priority, application Fed. Rep. of Germany, Mar. 10, 1977, 2710548

The portion of the term of this patent subsequent to Jul. 18, 1995, has been disclaimed.

Int. Cl.³ C08J 9/32

U.S. Cl. 106—85

21 Claims

1. A hardenable composition comprising a hardenable monomeric, oligomeric, or polymeric component, a hardening agent therefore, wherein the hardenable component or hardening agent is contained in a reaction-hindering protective casing which can be ruptured by the usual pressure normally used in applying such compositions, and microhollow spheres which are of sufficient strength to withstand rupture by said normal pressure, the amount of said spheres being at least 1% by weight based on the weight of the hardenable component.

4,362,567

TISSUE ADHESIVE

Otto Schwarz; Yendra Linnau; Franz Löblich, and Thomas Seelich, all of Vienna, Austria, assignors to Immuno Aktiengesellschaft für chemisch-medizinische Produkte, Vienna, Austria

Filed Feb. 4, 1980, Ser. No. 118,529

Claims priority, application Austria, Feb. 15, 1979, 1189/79

Int. Cl.³ A61K 3/14; C09J 3/24

U.S. Cl. 106—157

9 Claims

1. A lyophilized tissue adhesive of mammalian protein origin which comprises fibrinogen, albumin, factor XIII, cold-insoluble globulin and plasminogen-activator inhibitor or plasmin inhibitor wherein the fibrinogen is present in at least 33% by weight, the ratio of factor XIII to fibrinogen, expressed in units of factor XIII per gram of fibrinogen is at least 80; and fibrinogen and albumin are present in a ratio of 33 to 90:5 to 40.

4,362,568

PETROLEUM DISTILLATE FREE PRIME COAT MATERIAL

Larry F. Ostermeyer, West Lafayette, Ind., assignor to K. E. McConnaughay, Inc., Lafayette, Ind.

Filed Oct. 6, 1980, Ser. No. 194,385

Int. Cl.³ C08L 93/00, 95/00

U.S. Cl. 106—232

20 Claims

1. An essentially petroleum distillate-free prime coat emulsion, comprising 0 to about 40% asphalt cement, about 5% to about 45% tall oil, tall oil fractions, or mixtures thereof, the tall oil, fractions, or mixtures thereof being present in sufficient quantity that it comprises at least 20%, by weight, of the combined weight of the asphalt cement and tall oil, fractions or mixtures, about 40% to about 65% water, and about 0.2% to about 3% of a strong base, the tall oil, fractions, or mixtures thereof and the strong base functioning as an emulsifier or emulsifying agent.

4,362,569

SULFIDED CARBONACEOUS MATERIALS AND VULCANIZED AND VULCANIZABLE RUBBER COMPOSITIONS REINFORCED WITH SUCH CARBONACEOUS MATERIALS

Jon W. Martin, Los Alamitos, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Jun. 29, 1981, Ser. No. 278,275

Int. Cl.³ C09C 1/44

U.S. Cl. 106—307

11 Claims

1. Sulfided carbonaceous material comprising carbon in an amount of about 80% to about 99% by weight; sulfided iron dispersed in, intimately associated with and at least partially bonded to the carbon, in an amount of about 1% to about 15% by weight; and hydrogen in an amount of about 0.1% to about 1.5% by weight.

4,362,570

SOLVENT MIXTURE FOR REMOVING POLYSULFIDE AND SILICONE RUBBER COATINGS

John J. Elwell, Hooper, Utah, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Oct. 13, 1981, Ser. No. 310,689

Int. Cl.³ C09K 3/00

U.S. Cl. 106—311

1 Claim

1. A solvent solution for effectively removing a cured, polysulfide or silicone rubber, protective coating formulation from a substrate, said solvent solution consisting essentially of a mixture of about 94 volume percent dichloromethane and about 6 volume percent chlorotrimethylsilane.

4,362,571

METHOD FOR REFINING SUGAR SOLUTIONS

Yoshikatsu Ikari, Abiko; Shiyoichiro Yokoyama, Yatabemachi; Keisuke Katoh, Matsudo; Ryutaro Itaya, Noboribetsu, and Toshio Kaga, Chiba, all of Japan, assignors to Agency of Industrial Science & Technology; Sumitomo Jukikai Envirotech, Inc., both of Tokyo; Hokkaido Soda Co., Ltd., Sapporo and Mitsui Sugar Co., Ltd., Tokyo, all of Japan

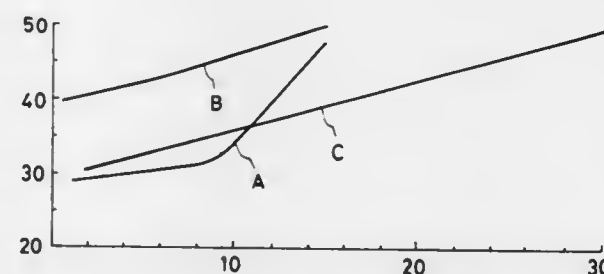
Filed May 27, 1981, Ser. No. 267,588

Claims priority, application Japan, May 27, 1980, 55/070628

Int. Cl.³ C13D 3/02, 3/12

U.S. Cl. 127—55

2 Claims



1. A method for refining sugar solutions, which comprises refining a sugar solution with magnesia to remove impurities, separating the used magnesia from the sugar solution, calcining the used magnesia together with pearlite and/or diatomaceous earth at least in an amount of the same weight as that of the magnesia, said calcining being at time and temperature sufficient to remove organic substances adsorbed on the magnesia during the refining, while retaining the adsorbing capacity of the magnesia, and using the resulting calcined mixture repeatedly for refining sugar solutions, with said calcining being performed after each refining.

4,362,572

METHOD AND APPARATUS FOR CLEANING INK JET PRINTER HEADS

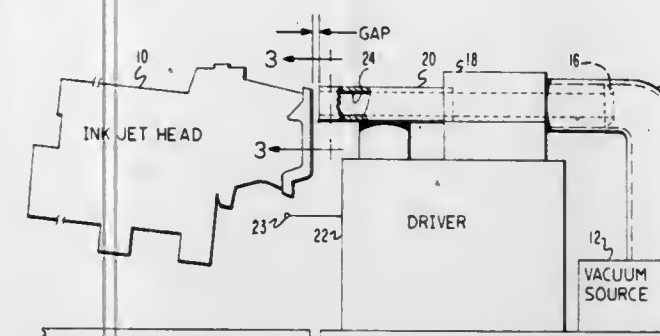
Harry L. Wallace, Livonia, Mich., assignor to Burroughs Corporation, Detroit, Mich.

Filed Jun. 25, 1981, Ser. No. 277,276

Int. Cl.³ B08B 7/04; G01D 15/18

U.S. Cl. 134—18

4 Claims



4. A method for cleaning an ink jet head and orifices in the head where the head and the orifices are contaminated by dust and ink from documents moved along a track of a document processing machine and the orifices contain air bubbles from ink provided from a hydraulic system, comprising: providing a source of vacuum pressure; coupling a first end of a conduit to said source of vacuum pressure and a second end of the conduit to the vicinity of the ink jet head and orifices to be cleaned; determining when a vacuum should be applied by counting the documents passing along the track until a selected count is reached; and when the determination is made, applying said vacuum pressure through said conduit to remove dust, ink and air bubbles from the ink jet head and orifices, whereby the ink jet head is cleaned as required.

4,362,573

STABILIZED CHLORINATED SOLVENTS

William C. Mackrodt, Hale; Richard B. Jones, Weaverham, and Neil Winterton, Chester, all of England, assignors to Imperial Chemical Industries Limited, London, England

Filed Jul. 28, 1980, Ser. No. 172,974

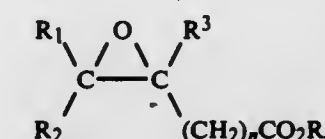
Claims priority, application United Kingdom, Aug. 7, 1979, 7927414

Int. Cl.³ B08B 5/00; C07C 17/42; C23G 5/02

U.S. Cl. 134—31

12 Claims

1. A solvent composition comprising 1,1,1-trichloroethane and a stabilising amount ranging from 0.05% to 5% by weight based on the weight of 1,1,1-trichloroethane of a stabilising agent, characterized in that the stabilising agent is an epoxide of the formula:



wherein R_1 , R_2 and R_3 , which may be the same or different, represent a hydrogen atom or an alkyl group having 1 to 4 carbon atoms, and wherein R_1 or R_2 may also be a phenyl group or a benzyl group, n is 0 or 1, and R_4 is an alkyl group having 1 to 2 carbon atoms.

12. A method of degreasing articles which comprises bringing the articles into contact with a solvent composition as claimed in any one of claims 1 to 10, or the vapour thereof.

4,362,574

INTEGRATED CIRCUIT AND MANUFACTURING METHOD

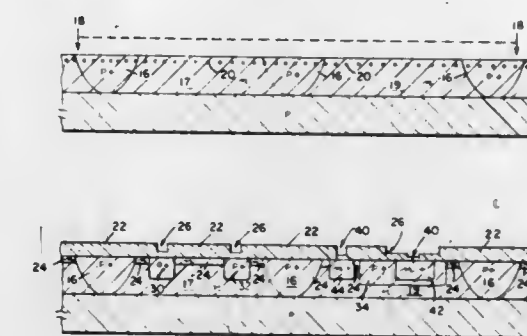
Ara Gevondyan, Sunnyvale, Calif., assignor to Raytheon Company, Lexington, Mass.

Filed Jul. 9, 1980, Ser. No. 167,176

Int. Cl.³ H01L 7/54, 29/78

U.S. Cl. 148—1.5

1 Claim



1. A method for forming a field effect device having source and drain regions formed in a first region of a semiconductor material and a bipolar device having base, collector and emitter regions formed in a second, different region of the same semiconductor material, such field effect device having a buried channel region formed in the semiconductor material and spaced from a surface of such semiconductor material, such buried channel region having a conductivity type opposite the conductivity type of the semiconductor material, comprising the steps of:

- forming a doped layer in the semiconductor material extending from the surface of the semiconductor material to the buried channel region, such doped layer extending laterally along the surface of the semiconductor material through the source and drain regions of the field effect device and the emitter and base regions of the bipolar device, such doped layer having the same conductivity type as the conductivity type of the semiconductor material; and,
- forming a gate electrode electrically connected to both the formed doped layer and the semiconductor material.

4,362,575

METHOD OF MAKING BURIED CHANNEL CHARGE COUPLED DEVICE WITH MEANS FOR CONTROLLING EXCESS CHARGE

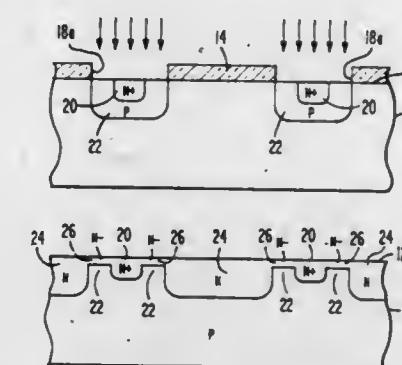
Lloyd F. Wallace, Coatesville, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 27, 1981, Ser. No. 297,055

Int. Cl.³ H01L 27/10, 21/263

U.S. Cl. 148—1.5

9 Claims



1. A method of making a buried channel CCD on a body of semiconductor material of one conductivity type, said method comprising: forming an oxide layer over a surface of the body and applying a mask over the surface of said oxide layer;

forming openings through said mask and said oxide layer to expose surface regions of the body where drains are to be formed and implanting ions of the opposite conductivity type through said openings into the exposed surface regions of said body to form drains extending into said body a predetermined distance from said surface;
enlarging the size of said openings to expose an additional area of said surface around each of said drains and implanting ions of said one conductivity type through said enlarged openings into the exposed surface of said body to form channel stops extending into said body around and below said drains;
exposing the surface of said body and implanting ions of said opposite conductivity type into said surface to form buried channel regions on each side of said channel stops and to convert a thin layer thereof adjacent said surface to lightly doped compensation regions of said opposite conductivity type.

4,362,576

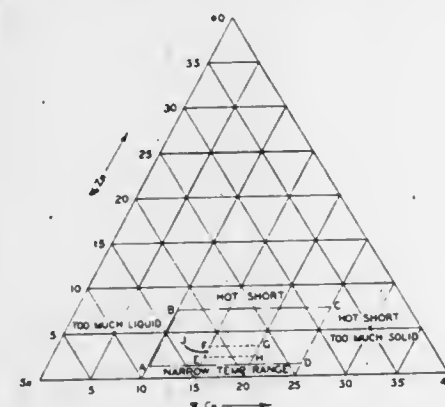
METHOD OF MAKING TIN-BASE BODY SOLDER AND PRODUCT

Douglas J. Harvey, Sterling Heights, Mich., assignor to General Motors Corporation, Detroit, Mich.
Division of Ser. No. 113,559, Jan. 21, 1980, Pat. No. 4,248,905.
This application Jun. 16, 1980, Ser. No. 160,135

Int. Cl.³ C22F 1/16

U.S. Cl. 148—2

5 Claims



1. A method of manufacturing a tin-base alloy suitable for use in filling a depression in a fabricated steel surface, said tin-base alloy consisting essentially of about 15 to 20 weight percent copper, about 2 to 3 weight percent zinc and the balance tin, said method comprising
casting a homogeneous melt of the alloy,
cooling said casting at a rate sufficient to form in the alloy microstructure a dendrite secondary arm spacing between about 1 to 10 microns, and
working said casting to an extent equivalent to reducing a cross-sectional diameter by at least 4:1.

4,362,577

SEALING OF PHOSPHATED COATINGS

John P. Jones, Long Beach, Calif., assignor to Purex Corporation, Lakewood, Calif.

Filed Oct. 13, 1981, Ser. No. 310,660

Int. Cl.³ C23C 1/10

U.S. Cl. 148—6.15 R

21 Claims

1. The process of sealing a phosphate coating on a metal that includes
(a) wetting the phosphate coated metal with a composition consisting essentially of an aqueous acidic solution containing at least one member selected from the group consisting of hypophosphorous acid and sodium hypophosphite,
(b) and then drying the thus wetted phosphate coated metal.

4,362,578

METHOD OF HOT WORKING METAL WITH INDUCTION REHEATING

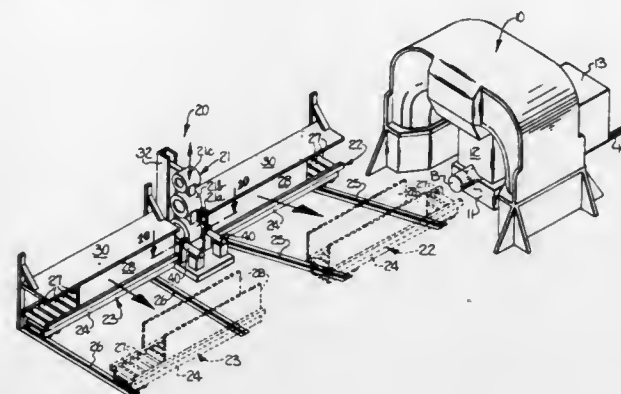
Gary L. Mills, Monroe, and B. Dean Bowen, Matthews, both of N.C., assignors to Teledyne Industries, Inc., Monroe, N.C.

Filed Oct. 16, 1980, Ser. No. 197,493

Int. Cl.³ C21D 8/00

U.S. Cl. 148—11.5 N

10 Claims



1. In a process for hot working a workpiece formed of a metal having an optimum hot working temperature range, said process comprising initially heating the workpiece throughout to an elevated temperature within said optimum hot working temperature range and thereafter hot working the heated workpiece by deformation until outer portions of the workpiece become chilled, thereby necessitating reheating prior to further hot working, the combination with said hot working process of an improvement for producing finer and more uniform grain size in said workpiece, said improvement comprising subjecting the chilled workpiece to electric induction heating at a frequency preselected to concentrate the induced heat in the chilled outer portions of the workpiece to thereby rapidly reheat the workpiece to the optimum hot working temperature throughout so that continued hot working can be reinitiated before appreciable grain growth can occur.

4,362,579

HIGH-STRENGTH-CONDUCTIVITY COPPER ALLOY

Masahiro Tsuji, Urawa, Japan, assignor to Nihon Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 24, 1980, Ser. No. 219,617

Claims priority, application Japan, Dec. 25, 1979, 54-167517

Int. Cl.³ C22F 1/08

U.S. Cl. 148—11.5 C

2 Claims

1. A method of producing electrical parts such as switches, terminals and connectors, which comprises forming said electrical parts from a copper alloy having high strength and excellent electrical conductivity, corrosion resistance, and spring qualities, said alloy consisting of about 0.4–8 weight % nickel, about 0.1–3 weight % silicon, about 10–35 weight % zinc, concomitant impurities and the remainder copper.

4,362,580

FURNACE AND METHOD WITH SENSOR

William T. Kane, and William P. Whitney, II, both of Big Flats, N.Y., assignors to Corning Glass Works, Corning, N.Y.

Division of Ser. No. 118,479, Feb. 4, 1980, Pat. No. 4,290,586.

This application Apr. 6, 1981, Ser. No. 251,535

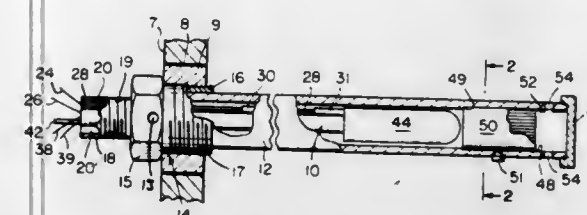
Int. Cl.³ C21D 1/48

U.S. Cl. 148—16

6 Claims

1. A method of heat treating metal workpieces in a non-oxidizing gas atmosphere containing platinum group metal contaminants, which method comprises
heat treating the workpieces in the atmosphere,
during the heat treatment, passing sequential portions of the atmosphere into contact with a platinum group metal contaminant getter consisting essentially of platinum

group metal and thereby effecting gettering of the contaminants from those portions, thereafter passing those portions into contact with an electrode portion of an oxygen sensor comprising a solid oxygen-ion-conductive electrolyte with a film electrode



of the same platinum group metal as in the getter and attached on a surface of the electrolyte and exposed to those portions whereby the oxygen potential of the atmosphere is monitored for undesirable change in that potential.

4,362,581

MAGNETIC ALLOY

Hiroshi Kimura, Kenji Abiko, Takashi Sato, Isamu Yoshii, Sadao Watanabe, and Yutaka Takei, all of Miyagi, Japan, assignors to Sony Corporation, Tokyo, Japan
Continuation-in-part of Ser. No. 91,033, Nov. 5, 1979, Pat. No. 4,299,622. This application Jan. 30, 1981, Ser. No. 229,990

Claims priority, application Japan, Feb. 5, 1980, 55-12710

Int. Cl.³ C04B 35/00

U.S. Cl. 148—31.55

2 Claims

1. A magnetic alloy sheet containing not less than 0.03 weight percent but not more than 5.0 weight percent of P, not less than 0.01 weight percent but not more than 5.0 total weight percent of at least one element of Ti, Nb, and Zr, not less than 2.5 weight percent but not more than 10.0 weight percent of Si, and the remaining part consisting mainly of Fe, said alloy having been slow cooled after casting to cause P to be present on the grain boundaries thereof in an amount of more than 0.5 weight percent of the atoms which form said grain boundaries.

4,362,582

METHOD OF PRODUCING MICROPOROUS JOINTS IN METAL BODIES

Joseph C. Danko, Danville, Calif., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Sep. 12, 1967, Ser. No. 668,743

Int. Cl.³ B22F 5/00

U.S. Cl. 148—127

3 Claims

1. A process for making a microporous vent at the interface of a joint between two metals having different diffusion coefficients comprising the steps of:
forming an intimate contact interface joint between two metals, one of the two metals having a higher diffusion coefficient than the other of the two metals and selected from the group consisting of molybdenum, tantalum, niobium, vanadium, rhenium, molybdenum-50 weight % rhenium, and niobium-vanadium, the other metal of the two metals having a lower diffusion coefficient being selected from the group consisting of tungsten and tungsten-25 weight % rhenium,
heating the thus joined metals to a temperature below their melting point but high enough to cause atoms of the one of the two metals having the higher diffusion coefficient to migrate into the other of the two metals having the lower diffusion coefficient, and
maintaining the joint metals in the heated condition for a period of time sufficient for voids resulting from the migration of atoms to become interconnected, thereby pro-

ducing microporous vents at the interface of the joint between the two metals.

4,362,583

1,9-DIAZIDO-2,4,6,8-TETRAZANO-2,4,6,8-TETRAZANO-NANE

Ronald A. Henry, China Lake, and William P. Norris, Ridgecrest, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 21, 1981, Ser. No. 256,230

Int. Cl.³ C06B 25/34; C07C 117/00

U.S. Cl. 149—92

2 Claims

2. An energetic composition comprising 80% by weight of cyclotetramethylenetetranitramine and 20% by weight of 1,9-diazido-2,4,6,8-tetranitro-2,4,6,8-tetrazanonane.

4,362,584

METHOD FOR BINARY PROPELLANT

Michael K. Levenson, Tempe, Ariz., assignor to Pyrodex Corporation, Shawnee Mission, Kans.

Filed Sep. 3, 1980, Ser. No. 183,856

Int. Cl.³ D03D 23/00

U.S. Cl. 149—109.6

1 Claim

1. A method for preparing a binary propellant having reduced sensitivity which comprises subjecting a mixture of a powdered oxidizing component and a powdered fuel component to mild shear action for a period of time sufficient to produce a heterogeneous propellant composition having an unconfined critical propagation diameter of greater than one-sixteenth inch.

4,362,585

UNIAXIALLY ORIENTED NYLON FILM AS CARRIER WEB FOR FIBER REINFORCED PLASTICS

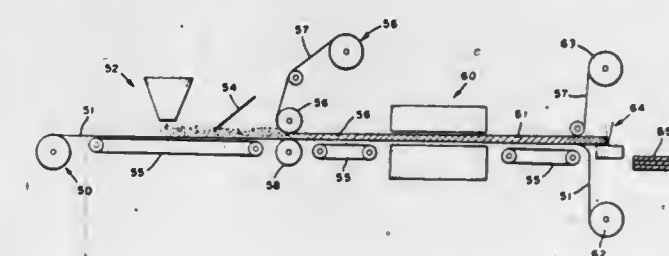
Ferdinand A. de Antonis, Fogelsville, and Alfieri Degrazi, Pottsville, both of Pa., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Aug. 31, 1981, Ser. No. 297,647

Int. Cl.³ B29J 5/00; B32B 17/00, 31/00

U.S. Cl. 156—62.2

22 Claims



1. In a method of manufacturing fibrous reinforced resin sheet, of the type wherein a composition comprising a resin and fibrous reinforcement is fed onto a carrier web, the composition is formed into a sheet, the improvement comprising the carrier web being a uniaxially drawn polyamide film.

4,362,586

POLYAMIDE AS A PRIMER FOR USE WITH ASPHALTIC MEMBRANES

William E. Uffner, Newark, and Robert N. White, Etna, both of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Nov. 7, 1980, Ser. No. 205,032

Int. Cl.³ E04B 2/00; E01C 7/06

U.S. Cl. 156—71

9 Claims

1. In a method comprising applying a primer to a cementitious substrate and applying an asphaltic membrane to said primer, the improvement wherein said primer is a polyamide.

4,362,587

PROCESS OF FORMING A MULTI-PLY LAMINATE

Pol Baudin, Fontaine l'Eveque; Pierre Collignon, and Claude Gillieaux, both of Charleroi, all of Belgium, assignors to BFG Glassgroup, Paris, France

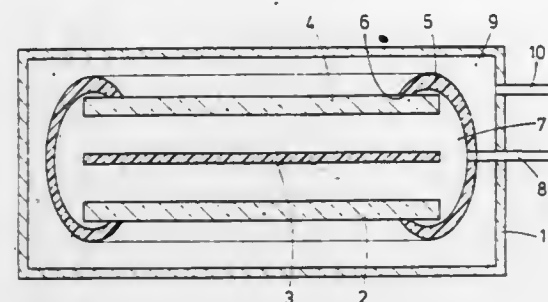
Filed Nov. 24, 1980, Ser. No. 209,972

Claims priority, application United Kingdom, Nov. 27, 1979, 7940865

Int. Cl.³ B32B 31/00

U.S. Cl. 156—87

13 Claims



1. A process of forming a multi-ply laminate which comprises at least one thermoplastic structural ply forming an outer ply of the laminate, said process comprising degassing and bonding steps during which gas is removed from between assembled structural plies of the laminate and the plies are heated to cause them to bond together while a moulding plate is in contact with the or each exposed thermoplastic ply, characterised in that during the degassing step, the assembled plies are subjected to a sub-atmospheric environmental pressure having an absolute value of 150 mm Hg or less while the inter-ply space or spaces is or are subjected to a sub-atmospheric pressure at the edges of the assembly (hereinafter called "edge pressure") to degas the assembly, said edge pressure and said environmental pressure being maintained at such values as to give rise to a separation of the plies of the assembly which is attributable to the mean inter-ply gas pressure being higher than the environmental pressure while the assembly of plies is heated to a temperature below that at which effective adherence commences between the thermoplastic material and a said adjacent ply, in that the degassed assembly remains subject to sub-atmospheric edge pressure while its temperature is increased past the temperature at which said effective adherence commences and in that the assembly is then subjected to a bonding step in which heat and pressure conditions are such as to cause the plies to bond firmly together.

4,362,588

METHOD OF FABRICATING A DUCTED BLANKET FOR A ROTOR SPAR

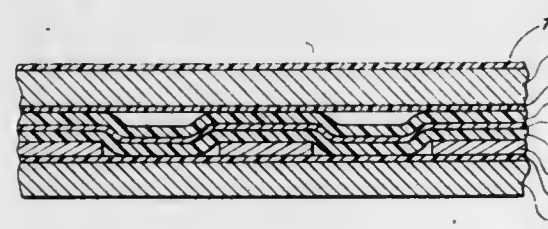
John C. Anton, Trumbull, and Edward J. Bush, Easton, both of Conn., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Continuation-in-part of Ser. No. 169,590, Jul. 17, 1980, abandoned. This application Aug. 31, 1981, Ser. No. 297,643

Int. Cl.³ B23P 15/04; B32B 31/20

U.S. Cl. 156—219

3 Claims



1. In the fabrication of impervious fiberglass blankets for spars of rotor blades which are hollow and pressurized with a gas which passes through any flaw in the spar, resulting in an internal pressure drop to indicate the flaw, wherein the blankets are molded with slots on the inner side thereof forming

venting ducts for said gases, the improvement whereby spar-to-blanket adhesion is enhanced, comprising, for vacuum forming between a base plate and a caul plate, preparing over a grid of spaced-apart strips a plurality of sheets of flexible fiberglass pre-impregnated with a thermosetting resin, the grid when removed forming the slots in the molded blanket, inserting between the grid and the base plate and between the fiberglass and the caul plate planar films of peelable material, under vacuum forming conditions heat setting the thermosetting resin, causing the blanket material to conform substantially to the grid so that the strips of the grid provide the spaced-apart slots on the inner side of the cured blanket material, and causing the planar film between the fiberglass and the caul plate to adhere to the top of the resulting blanket and the planar film between the fiberglass in the slots of the grid and the base plate to adhere to the bottom blanket surfaces, protecting said surfaces from mold release and from outside contamination until the blanket is bonded to the spar and internal rotor blade surfaces when the planar films, being sacrificial, are removed, thereby maximizing the bond between the spar and the blanket and between the blanket and rotor blade internal surfaces.

4,362,589

METHOD OF MANUFACTURE OF TAPERED WOOD I-BEAM

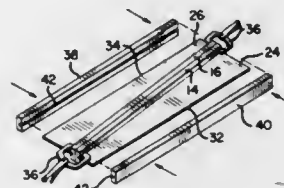
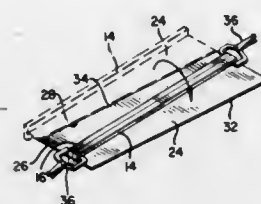
Joe Smith, Boise, and Stanley J. Willmorth, Eagle, both of Id., assignors to Trus Joist Corporation, Boise, Id.

Filed Nov. 27, 1981, Ser. No. 325,132

Int. Cl.³ B32B 31/00; E04B 7/02, 1/32

U.S. Cl. 156—254

20 Claims



1. A method of manufacture of tapered wood beams, comprising the steps of: forming a substantially I-shaped beam with a wood web member of substantially uniform width secured at its opposite sides to a first pair of flange members; cutting said uniform width web member longitudinally into a pair of tapered width web members each with one of said first pair of flange members secured thereto; fastening said first pair of flange members together to position the two cut edges of said pair of tapered web members outwardly of said first flange members and substantially parallel to each other to provide a web and flange assembly; securing a second pair of flange members to the cut edges of said pair of tapered web members; and unfastening said first pair of flange members to disassemble the assembly and to provide a pair of tapered beams.

4,362,590

HYBRID PISTON PIN

Howard D. Driver, Raleigh, N.C., assignor to Exxon Research and Engineering Co., Florham Park, N.J.

Division of Ser. No. 51,682, Jun. 25, 1979, Pat. No. 4,311,406.

This application Jul. 6, 1981, Ser. No. 280,947

Int. Cl.³ B29C 19/00

U.S. Cl. 156—294

7 Claims



1. A method of making a pin for a pin-jointed reciprocating mechanism comprising: forming a fiber-reinforced resin core member having at least 50% of continuous fibers therein, said fibers being oriented at a predetermined angle of orientation of between about 0° to about $\pm 25^\circ$ with respect to the longitudinal axis of said core; inserting said core in a tubular metal sleeve, said sleeve and core being of predetermined dimensions to provide a prestressed, snug fit of said core in said sleeve; heating said core and sleeve at elevated temperatures and for a time sufficient to post-cure said resin of said core and to relieve said stress of said snug fit.

4,362,591

LARGE POSTER APPARATUS AND METHOD OF CONSTRUCTING FOR BACK-LIGHTED SIGNBOARD

Charles H. Tracy, 16515 Kingswood Dr., Lakeville, Minn. 55044

Continuation-in-part of Ser. No. 99,071, Nov. 30, 1979, Pat. No. 4,244,769. This application Aug. 19, 1980, Ser. No. 179,490

The portion of the term of this patent subsequent to Jan. 13, 1998, has been disclaimed.

Int. Cl.³ G09F 15/00

U.S. Cl. 156—300

5 Claims



1. A method of constructing a large poster from a plurality of sheets containing image portions, for use on a back-lighted signboard, comprising the steps of

- immersing the plurality of poster sheets in a liquid solution of a type which renders said sheets light translucent, and removing the sheets from said solution and drying them;
- aligning a first group of adjacent image sheets in abutting image edge alignment;
- overlaying the edge-aligned sheets with a clear film layer having adhesive surfaces;
- overlaying the clear film layer with a second group of matching image sheets and aligning said sheets in image registration with said first group of sheets; and

(e) forming a laminated whole from said first group, said clear film layer, and said second group.

4,362,592

PLY TURN-UP MEANS IN A TIRE BUILDING MACHINE

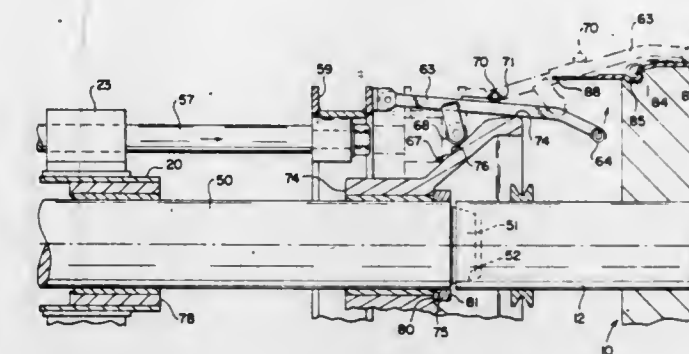
Donald B. Ruppel, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Filed Apr. 9, 1981, Ser. No. 252,637

Int. Cl.³ B29H 17/22

U.S. Cl. 156—402

6 Claims



1. In a tire building machine, a tire building drum having axially disposed support ends, a pair of support members on either side of said machine, a spindle mounted in each of said support members, one of said spindles moveable axially in one of said support members, the other one of said spindles being secured to the other one of said support members, ply turn-up means mounted on each of said support members for axial movement to and from said tire building drum, a first bracket means connected to said one spindle for movement therewith, a second bracket connected to said other one of said spindles, power operated means mounted on each of said brackets and operatively connected to said ply turn-up means for moving said ply turn-up means, cam means journaled on each of said spindles for movement axially on said spindles to and from said tire drum, power drive means interconnecting said one support member to said first bracket means for selective actuation for moving said first bracket means and said one spindle to chuck up said tire drum in cooperation with said other stationary spindle, a plurality of circumferentially spaced arms pivotally mounted on said ply turn-up means, said arms extending axially outwardly around each of said cam means to define a set of arms, each set of arms having an annular expandable and rollable member on the outboard end thereof, a cam follower on each of said arms and contacting said cam means, a spring member encompassing each set of arms for biasing said arms radially inwardly and being operative to move said cam means axially to and from said drum with said tire ply stock turn-up means, each of said cam means being moveable axially relative to said turn-up means, each of said spindles having stop means for limiting the axial movement of said cam means during axial movement of said turn-up means, and said power operated means operative upon actuation for moving said turn-up means axially toward said tire drum and operative to effect a predetermined radial movement to said expandable and rollable member and a stitching of the edge of ply stock on said drum upon contact of said cam means with said stop means.

4,362,593

WALKING-BEAM BAND SEALER

John J. Grevich, Star Prairie, Wis., assignor to Nordson Corporation, Amherst, Ohio

Filed Nov. 17, 1980, Ser. No. 207,148

Int. Cl.³ B30B 15/34

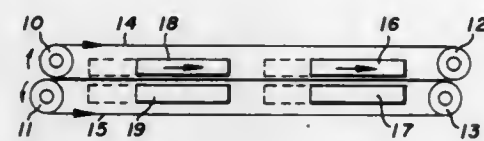
U.S. Cl. 156—498

9 Claims

1. Apparatus for sealing layers of thermoplastic film together, comprising:

- conveyor means for transporting at least two juxtaposed

- layers of thermoplastic film along a first path from an inlet site to a discharge site;
- (b) motor means for causing continuous operation of said conveyor means in a first direction at a predetermined velocity;
- (c) sealing and cooling heat transfer members disposed in normally spaced relation proximate said conveyor means so that said film moves in the space between said members;
- (d) carriage means connected to said motor means for causing reciprocating motion of said heat transfer members



- along a second path aligned with said first path, said motion including a portion having the direction and velocity of said conveyor means;
- (e) a drive shaft driven by said motor means;
- (f) a cam affixed to said shaft for rotation therewith;
- (g) a cam follower arm coupling said cam to said carriage means; and
- (h) means on said carriage means for moving said heat transfer members reciprocally in a direction transverse to said first path at predetermined points in said reciprocating motion of said carriage member along said second path.

4,362,594

APPARATUS FOR STICKING LABELS TO CONTAINERS
Yasuaki Nagano, Kanazawa, and Toshiaki Naka, Tatsunokuchi, both of Japan, assignors to Shibuya Kogyo Co., Ltd., Ishikawa, Japan

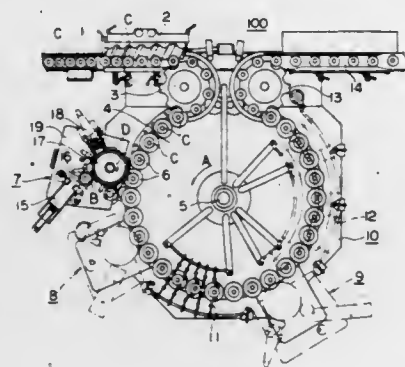
Filed Mar. 19, 1981, Ser. No. 245,452

Claims priority, application Japan, Jun. 2, 1980, 55-74112

Int. Cl.³ B31F 1/00

U.S. Cl. 156—567

8 Claims



1. A label sticking apparatus for sticking labels to containers such as bottles and cans comprising:
- a main body;
- transporting means provided on said main body for transporting said containers along a predetermined path;
- driving means for driving said transporting means, said driving means including a driving gear formed integrally with said transporting means; and
- at least one label application device detachably mounted on said main body for applying labels to said containers transported by said transporting means, said label application device including a timing gear and lock means which is engageable with said timing gear, said lock means setting said timing gear in an unrestrained condition to bring said timing gear into mesh with said driving gear when said label application device is mounted on said main body; whereas, said lock means setting said timing gear in a restrained condition when said label application device is dismounted from said main body.

4,362,595 **SCREEN FABRICATION BY HAND CHEMICAL BLANKING**

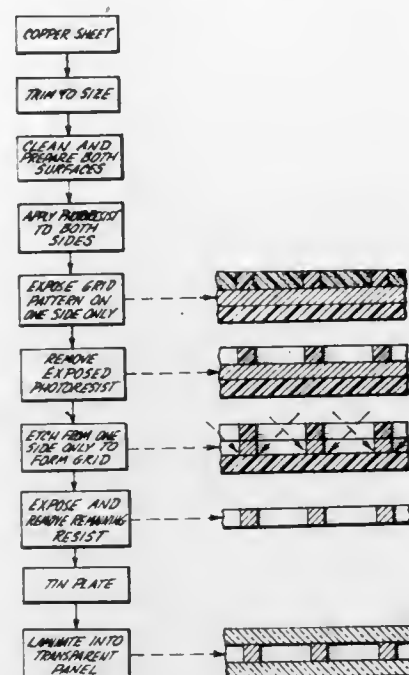
Jack E. Skog, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed May 19, 1980, Ser. No. 150,735

Int. Cl.³ C23F 1/02; B44C 1/22; C03C 15/00, 25/06

U.S. Cl. 156—626

11 Claims



1. A method of preparing a screen from a thin metal foil having thin wire strands with uninterrupted electrical conductivity in all directions comprising the steps of:

- (a) applying photosensitive coatings to first and second sides of said foil to form an adherent, etchant resistant coating thereon;
- (b) exposing a pattern in said coating on said first side to light and removing solubilized exposed areas of said coating whereby a grid pattern of an unexposed, protective, etchant resistant coating corresponding to the desired screen pattern remains on said first side of said foil with areas of said foil exposed;
- (c) applying by hand under visual observation a chemical etchant to said exposed areas of said foil on said first side when said foil is in an approximately vertical position;
- (d) observing the action of said chemical etchant to identify areas of uneven etching;
- (e) rinsing selected areas of said first side with a neutralizing fluid when necessary to prevent further etching;
- (f) rotating said foil into a new orientation while maintaining the foil in the approximately vertical position;
- (g) repeating steps (c), (d), (e) and (f) until said screen has been properly etched from said foil by removing exposed areas of said foil;
- (h) rinsing said chemical etchant from said grid;
- (i) removing all remaining coating on said first and said second sides of said foil; whereby a screen grid remains having unimpeded conductivity in all directions.

4,362,596

ETCH END POINT DETECTOR USING GAS FLOW CHANGES

Brian H. Desilets, Wappingers Falls, and Thomas A. Gunther, Hopewell Junction, both of N.Y., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Jun. 30, 1981, Ser. No. 279,127

Int. Cl.³ H01L 21/306

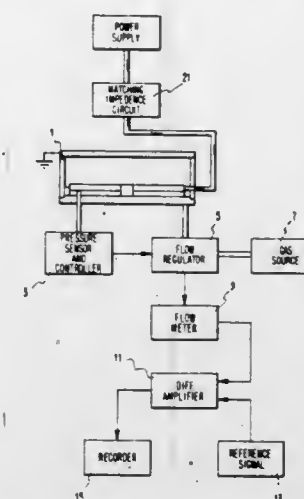
U.S. Cl. 156—627

11 Claims

1. A method of detecting etch end point in reactive ion etching, comprising the steps of,
- monitoring the rate of flow of etchant species into a reactive ion etching reaction chamber wherein said rate of flow of

etchant species into said chamber is a function of gas species pressure within said chamber; and

detecting etch end point by monitoring changes in the rate of flow of etchant species into said chamber with said



changes in the rate of flow of etchant species into said chamber being indicative of changes in the partial pressure of constituent species within said chamber caused by changes in the material being etched.

4,362,597

METHOD OF FABRICATING HIGH-CONDUCTIVITY SILICIDE-ON-POLYSILICON STRUCTURES FOR MOS DEVICES

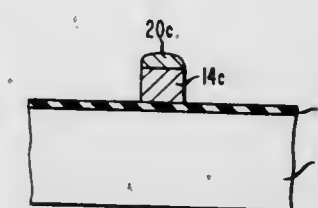
David B. Fraser, Berkeley Heights; Eliezer Kinsbron, Highland Park, and Frederick Vratny, Berkeley Heights, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jan. 19, 1981, Ser. No. 226,104

Int. Cl.³ H01L 21/308, 21/314

U.S. Cl. 156—643

7 Claims



1. A method of fabricating high-conductivity silicide-on-polysilicon structures in an MOS device, said method comprising the steps of

forming a high-resolution pattern overlying a polysilicon layer of said device to define selected regions of said layer,

depositing a metal-containing layer on top of said pattern and on said selected regions, the metallic constituent in said layer being selected from the group consisting of titanium, tantalum, molybdenum, tungsten, nickel and cobalt, which metal-containing layer is of the type that, upon sintering, will form a silicide,

lifting off said pattern thereby leaving on said device only the metal-containing layer deposited on said selected regions,

sintering said remaining metal-containing deposits to form composite silicide-on-polysilicon structures in said selected regions,

and, utilizing said sintered metal-containing deposits as an etch-resistant mask, anisotropically etching said polysilicon layer to remove all portions thereof except said silicide-on-polysilicon structures.

4,362,598 **METHOD OF PATTERNING A THICK RESIST LAYER OF POLYMERIC PLASTIC**

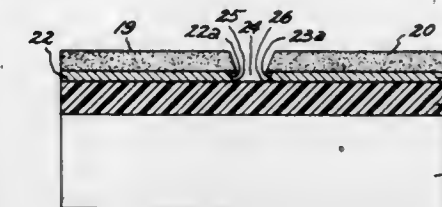
Bruce F. Griffing, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Oct. 26, 1981, Ser. No. 314,619

Int. Cl.³ B44C 1/22; C03C 15/00, 25/06; C23F 1/02

U.S. Cl. 156—643

1 Claim



1. A method of forming in a first thick layer of a polymeric plastic overlying a surface of a substrate, an opening having a pair of opposed sides spaced apart by a predetermined distance comprising:

providing said first thick layer of polymeric plastic on said surface of said substrate,

forming a second thin layer of titanium on said first layer,

forming a third thin layer of a resist having a pair of retained portions and a removed portion on said second layer, the adjacent edges of said pair of retained portions spaced apart by said predetermined distance,

etching said second layer through said removed portion of said third layer to form an opening in said second layer exposing the surface of said first thick layer of polymeric plastic, the walls of said opening underlying said third layer and spaced from said adjacent edges of said retained portions of said third layer, adjacent edges of the exposed portion of said surface of said first thick layer being spaced apart by substantially said predetermined distance, said second layer of titanium being plasma etched in carbon tetrachloride and immediately thereafter etched in a mixture of fluoroboric acid and water in a ratio of 1 part of fluoroboric acid to 10 parts of water by volume,

reactive ion etching in oxygen said first layer of polymeric plastic through said opening in said second layer to form an opening in said first layer extending to said substrate, opposed walls of said opening in said first layer being spaced apart by substantially said predetermined distance.

4,362,599

METHOD FOR MAKING SEMICONDUCTOR DEVICE
Ichiro Imaizumi, Hinodemachi; Masatoshi Kimura, Hachioji, and Keijiro Uehara, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Division of Ser. No. 950,671, Oct. 12, 1978, Pat. No. 4,278,987.

This application Feb. 23, 1981, Ser. No. 236,841

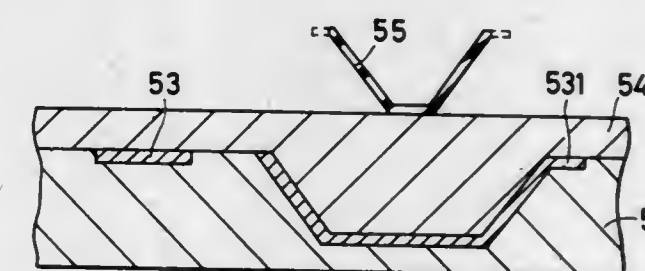
Claims priority, application Japan, Oct. 17, 1977, 52-123474;

Dec. 26, 1977, 52-173999; Aug. 28, 1978, 53-103944

Int. Cl.³ H01L 21/306

U.S. Cl. 156—647

10 Claims



1. A method for preparing semiconductor devices, which comprises the steps of forming a layer of a substance acting as

an etching mask on a substrate having a surface on the (100) crystal plane or on a plane inclined within 5° against the (100) crystal plane, opening on said substrate layer a window having a polygonal shape having main sides parallel to at least one specific direction selected from the direction of the <100> crystal axis and directions inclined within 25° against the <100> crystal axis, thereby forming an etching mask, etching the interior of said window with an anisotropic etching solution, thereby forming a substrate having a dent, removing said etching mask, epitaxially growing a semiconductor layer on the entire surface of said substrate while filling up said dent, masking a secondary dent formed by transfer of said dent of the substrate on said epitaxially grown semiconductor layer with a layer of a substance acting as an etching mask, and etching said semiconductor layer with an anisotropic etching solution to flatten the surface thereof.

4,362,600

USE OF POLYALKYLENE OXIDES FOR THE SEPARATION OF CELLULOSE FIBRES

Tom S. C. Lindström, Sollentuna, and Lennart H. Westman, Saltsjö-Boo, both of Sweden, assignors to AB CASCO and Svenska Traforskningsinstitutet, both of Stockholm, Sweden
PCT No. PCT/SE80/00347, § 371 Date Aug. 12, 1981, § 102(e) Date Aug. 12, 1981, PCT Pub. No. WO81/02030, PCT Pub. Date Jul. 23, 1981

PCT Filed Dec. 23, 1980, Ser. No. 293,212

Claims priority, application Sweden, Dec. 23, 1980, 8000141
Int. Cl. 3 D21C 9/00

U.S. Cl. 162—55

5 Claims

1. A method of separating unbleached sulphate fibers from an aqueous suspension of fibre mixtures including unbleached sulphate fibres, which method comprises adding to the suspension a polyalkylene oxide having a molecular weight above 50,000 in an amount sufficient to essentially selectively flocculate said unbleached sulphate, whereby said unbleached sulphate fibres may be subsequently removed.

4,362,601

METHOD FOR DISTILLING ETHYL ALCOHOL BY ADDING SALT OR SALTS

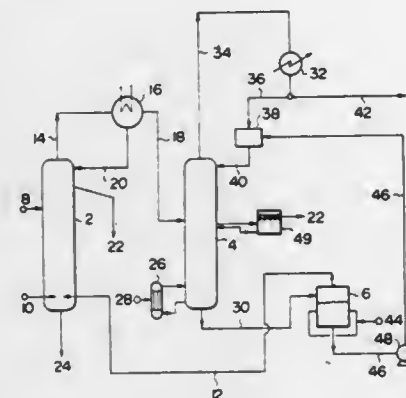
Minoru Morita, Kodaira, Japan, assignor to Tsukishima Kikai Co., Ltd., Tokyo, Japan

Filed Dec. 8, 1980, Ser. No. 213,797

Claims priority, application Japan, Dec. 22, 1979, 54-166301
Int. Cl. 3 B01D 3/38

U.S. Cl. 203—19

11 Claims



1. A method for recovering substantially pure ethyl alcohol from a liquid, fermentation mash feed containing ethyl alcohol, comprising the steps of:

- feeding the liquid fermentation mash feed into a steam-heated mash column so that said feed flows downwardly in said mash column and simultaneously flowing steam directly upwardly through said mash column in contact with said feed to remove the ethyl alcohol from said feed, discharging from the top of the mash column an overhead fraction consisting essentially of ethyl alcohol and water, and discharging from the bottom of the mash column less

volatile impurities initially present in said feed which would otherwise hinder recovery of a regenerated salt solution usable in the following step (b);

- feeding said overhead fraction into a rectifying column, simultaneously feeding into said rectifying column near the top thereof one or more salts effective to improve the vapor-liquid equilibrium and to cause the ethyl alcohol-water azeotrope to disappear, discharging substantially pure alcohol vapor from near the top of said rectifying column, condensing said vapor to obtain liquid ethyl alcohol and feeding a portion of said liquid ethyl alcohol to the top of the column as reflux, recovering from the bottom of the rectifying column a bottom component consisting essentially of water and said salt or salts;
- evaporating water from said bottom component to obtain separately (1) steam and (2) a regenerated, concentrated salt solution;
- recycling said regenerated salt solution for use in step (b); and
- using the steam produced in step (c) as a part of the steam used for direct heat exchange in step (a).

4,362,602

PROCESS FOR THE TREATMENT OF HEAVY PRODUCTS RESULTING FROM THE MANUFACTURE OF CHLOROHYDROCARBONS

Roland Hembertin, Jemeppe-sur-sambre, and Remy Nicaise, Nalinnes, both of Belgium, assignors to Solvay & Cie., Brussels, Belgium

Continuation of Ser. No. 127,260, Mar. 4, 1980, abandoned. This application Jul. 14, 1981, Ser. No. 283,188

Claims priority, application France, Mar. 12, 1979, 79 06674
Int. Cl. 3 B01D 3/38

U.S. Cl. 203—59

7 Claims

1. In a process for the treatment of the heavy products resulting from the manufacture of chlorohydrocarbons, which products consist essentially of high-boiling chlorohydrocarbons found in the stills of distillation columns used for the separation and purification of chlorohydrocarbons, in which the heavy products are subjected to steam distillation to form a top fraction comprising light chlorinated products and a bottom fraction comprising high boiling chlorohydrocarbons, the improvement comprising carrying out the distillation in the presence of a water-insoluble surface-active agent having a solubility in water of less than 1 gram per liter when the water is in equilibrium with a solution containing 10 grams per liter of surface-active agent in 1,2-dichloroethane at 20° C.; said solubility being sufficiently low to substantially preclude formation of an emulsion between said high boiling chlorohydrocarbons and water.

4,362,603

CONTINUOUS ACETONITRILE RECOVERY PROCESS

Robert D. Presson, Bedford; Hsin-Chih Wu, Parma, both of Ohio, and Edward J. Sockell, Port Lavaca, Tex., assignors to The Standard Oil Company, Cleveland, Ohio

Filed Jan. 2, 1981, Ser. No. 222,196

Int. Cl. 3 B01D 3/36

U.S. Cl. 203—75

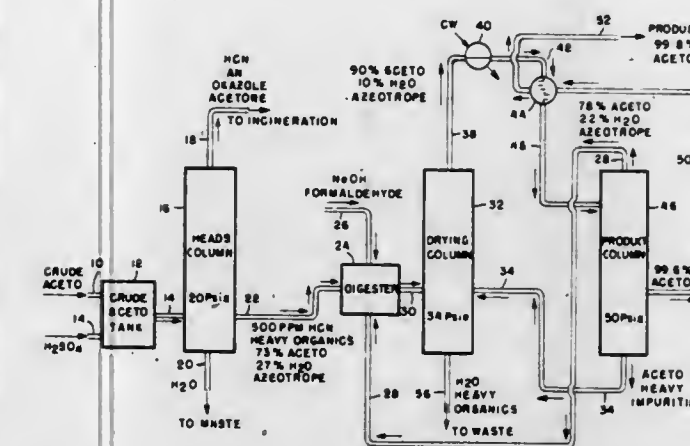
12 Claims

1. A continuous process for recovering highly pure acetonitrile from crude acetonitrile by-produced during amoxidation of propylene containing acetonitrile, water, HCN and heavy organics, said process comprising:

- distilling said crude acetonitrile in a first distillation zone at a first pressure at or above 1 atmosphere to remove HCN therefrom and produce a first acetonitrile/water azeotrope and a first bottoms product containing water,
- distilling said first azeotrope in a second distillation zone at a second pressure less than 1 atmosphere to separate said first azeotrope into a second bottoms product containing water and a second acetonitrile/water azeotrope

having a greater acetonitrile concentration than said first azeotrope, and

- distilling said second acetonitrile/water azeotrope in a third distillation zone at a third pressure above 1 atmosphere to produce a third acetonitrile/water azeotrope containing substantially all of the water in said second azeotrope, third bottoms product comprising acetonitrile and heavy organics and a sidestream comprising said highly pure acetonitrile of at least 95%.
12. A process for recovering highly pure acetonitrile from a first acetonitrile/water mixture by-produced during amoxidation of propylene containing about 15 weight percent or more water comprising:



- distilling said first mixture in a first distillation zone at a first pressure below 1 atmosphere to produce a water-containing bottoms product and a second acetonitrile/water mixture comprising an azeotrope of acetonitrile and water more concentrated in acetonitrile than said first mixture,
- distilling said second mixture at a second pressure above 1 atmosphere to produce a third acetonitrile/water mixture comprising an azeotrope of acetonitrile and water less concentrated in acetonitrile than said second mixture and said highly pure acetonitrile of at least 95%, and
- recycling said third mixture so that said third mixture is distilled along with said first mixture.

4,362,604

PROCESS FOR THE PREPARATION OF PYROCATECHOL AND HYDROQUINONE

Christoph Jope, Cologne; Helmut Waldmann, Leverkusen; Jürgen Baumert, Cologne, and Günther Schümmer, Stommeln, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Aug. 14, 1981, Ser. No. 292,854

Claims priority, application Fed. Rep. of Germany, Aug. 22, 1980, 3031736

Int. Cl. 3 B01D 3/14

U.S. Cl. 203—75

13 Claims

1. In a process for the recovery of pyrocatechol and hydroquinone from a reaction mixture obtained by reacting phenol with a percarboxylic acid having 1 to 4 carbon atoms at a molar ratio of phenol to percarboxylic acid, before the reaction, of 5 to 50:1 in which the reaction mixture comprising unreacted phenol, carboxylic acid corresponding to the percarboxylic acid, pyrocatechol and hydroquinone is worked up in a plurality of rectification apparatuses, the improvement wherein:

- the reaction mixture is continuously fed to a first rectification column at a point between the stripping section and the rectifying section, the rectification column having up to 20 separation stages in the stripping section and 5 to 30 separation stages in the rectifying stage, the column being operated at a pressure between 0.01 and 2 bars, between 20 and 95% by weight of the top product or the same quantity by weight of phenol or a product stream containing phenol from the process or the same quantity by weight of

a mixture of top product and phenol and/or product stream containing phenol, from the process, being condensed and returned to the first rectification column as liquid reflux, withdrawing a top product comprising phenol and carboxylic acid corresponding to the percarboxylic acid employed in the reaction, withdrawing a bottom product comprising pyrocatechol, hydroquinone and phenol, recovering pyrocatechol and hydroquinone from the bottom products; and

- feeding the top product of the first rectification column continuously into a second rectification column at a point between the stripping section and the rectifying section, the second rectification column having 5 to 35 separation stages in the rectifying section and 8 to 35 separation stages in the stripping section, said second rectification column being operated under a pressure between 0.02 and 2 bars, 20 to 95% by weight of the product collecting at the head of said second rectification column being condensed as liquid reflux and recycled to the top of the column, withdrawing a top product, substantially free of phenol and comprising carboxylic acid corresponding to the percarboxylic acid and taking off substantially pure phenol from the stripping section and/or the bottom of the column, whereby high boiling oxidation products of the phenol remain dissolved and blockages are avoided.

13. In a process for the recovery of pyrocatechol and hydroquinone from a reaction mixture obtained by reacting phenol with a percarboxylic acid having 1 to 4 carbon atoms at a molar ratio of phenol to percarboxylic acid, before the reaction, of 5 to 50:1 in which the reaction mixture comprising unreacted phenol, carboxylic acid corresponding to the percarboxylic acid, pyrocatechol and hydroquinone is subjected to a further treatment and then worked up in a plurality of rectification apparatuses, the improvement wherein:

- the reaction mixture is continuously fed to a first rectification column at a point between the stripping section and the rectifying section, the rectification column having up to 20 separation stages in the stripping section and 5 to 30 separation stages in the rectifying stage, the column being operated at a pressure between 0.01 and 2 bars, between 20 and 95% by weight of the top product or the same quantity by weight of phenol or a product stream containing phenol from the process or the same quantity by weight of a mixture of top product and phenol and/or product stream containing phenol, from the process, being condensed and returned to the first rectification column as liquid reflux, withdrawing a top product comprising phenol and carboxylic acid corresponding to the percarboxylic acid employed in the reaction, withdrawing a bottom product comprising pyrocatechol, hydroquinone and phenol, recovering pyrocatechol and hydroquinone from the bottom products; and
- feeding the top product of the first rectification column continuously into a second rectification column at a point between the stripping section and the rectifying section, the second rectification column having 5 to 35 separation stages in the rectifying section and 8 to 35 separation stages in the stripping section, said second rectification column being operated under a pressure between 0.02 and 2 bars, 20 to 95% by weight of the product collecting at the head of said second rectification column being condensed as liquid reflux and recycled to the top of the column, withdrawing a top product, substantially free of phenol and comprising carboxylic acid corresponding to the percarboxylic acid and taking off substantially pure phenol from the stripping section and/or the bottom of the column.

4,362,605

SENSOR FOR MEASURING THE OXYGEN CONTENT IN THE EXHAUST GAS OF COMBUSTION ENGINES AND METHOD THEREOF

Alfred Bozon, Erlensee; Edgar Koberstein, Alzenau; Hans-Dieter Pletka, Freigericht, and Herbert Voelker, Hanau, all of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Sep. 3, 1980, Ser. No. 183,774

Claims priority, application Fed. Rep. of Germany, Sep. 19, 1979, 2937802

Int. Cl.³ G01N 27/58

U.S. Cl. 204—1 T

6 Claims



1. In a sensor for the measurement of the oxygen content in the exhaust gas of internal combustion engines, wherein the solid substance electrolyte sensor element which serves as a producer of electrical sensor signals is fitted with a catalytically active gas permeable wrapping spaced apart from and not in contact with said sensor element, the improvement wherein the wrapping consists of at least one layer of wire gauze of an alloy containing iron, chromium and aluminum surrounding a perforated protection tube surrounding said sensor element, said wire gauze being coated with an intermediate layer of metal oxide promoting catalysis and said intermediate layer being impregnated with a metal of the platinum group or with a combination of at least one platinum group metal and at least one base metal.

6. A method for the production of a voltage corresponding to the residual oxygen concentration in the exhaust gases of internal combustion engines as a value for adjustment of the composition of the air/fuel ratio, comprising inserting into the exhaust line of an internal combustion engine, the probe as defined in claim 1, and thereby causing a voltage to be generated which imparts a signal to the controller of the fuel/air mixture for control thereof.

4,362,606

PROCESS FOR SIMULTANEOUS RECOVERY OF VANADIUM, MOLYBDENUM AND GALLIUM FROM ALUMINA FACTORY ALUMINATE LIQUORS

Gabor Sinka; Mihaly Miskei, both of Budapest; Ferenc Toth; Laszlo Revesz, both of Almasfuzito, and Miklos Schlegel, Tata, all of Hungary, assignors to Magyar Aluminiumipari Troszt, Budapest, Hungary

Filed Nov. 6, 1980, Ser. No. 204,536

Int. Cl.³ C25F 11/04; C25C 1/22

U.S. Cl. 204—105 R

1 Claim

1. An electrolytic process for recovering vanadium and molybdenum in the form of a precipitate of their alkali-insoluble lower valent oxides and for recovering gallium in the form of an alloy from an alumina factory aluminate liquor containing vanadium, molybdenum and gallium in solution, said electrolytic process comprising the steps of immersing in the alumina factory aluminate liquor which forms an electrolyte, a low-melting alloy cathode containing at least two elements selected from the group which consists of bismuth, lead, tin and cadmium, capable of alloying with gallium, and an anode

comprising an alkali-insoluble metal surrounded by an alkali-proof diaphragm; and electrolyzing the alumina factory aluminate liquor forming the electrolyte at a temperature exceeding 70° C. with a current density of 400 to 1200 A/m² while mechanically agitating the cathode to form the precipitate and to alloy the gallium into the cathode.

4,362,607

RECOVERY OF COPPER AND ZINC FROM COMPLEX CHLORIDE SOLUTIONS

Gordon M. Ritcey, Nepean; Kenneth T. Price, Ottawa, and Bernard H. Lucas, Nepean, all of Canada, assignors to Canadian Patents and Development Limited, Ottawa, Canada

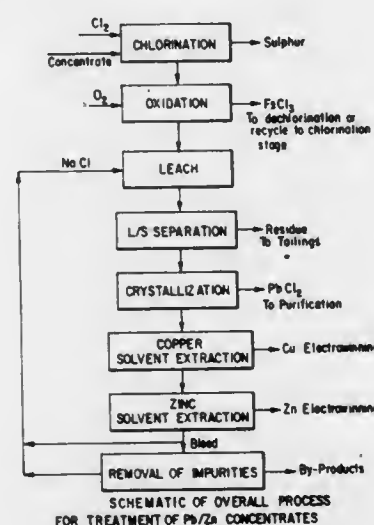
Filed Jul. 17, 1981, Ser. No. 284,580

Claims priority, application Canada, Jul. 29, 1980, 358800

Int. Cl.³ C25C 1/12, 1/16, 1/18

U.S. Cl. 204—108

16 Claims



1. A process for separating and recovering copper and zinc from aqueous chloride solutions containing lead, copper, zinc and impurities, comprising:

- separating lead from the aqueous chloride solution by at least one of crystallization, precipitation, and solvent extraction;
- solvent extracting the resulting aqueous solution with a first water-immiscible organic liquid comprising a copper-chelating extractant reagent to load copper into the organic phase;
- scrubbing the Cu-loaded organic phase with at least one aqueous liquid selected from water and Na₂SO₄ solution to remove impurities;
- stripping the Cu from this first organic phase with aqueous CuSO₄-H₂SO₄ solution and passing the Cu-containing sulphate strip solution to a Cu electro-winning stage;
- scrubbing this stripped organic phase with water to remove sulphate, and recycling this organic liquid to extraction stage (b);
- solvent extracting the remaining aqueous chloride solution with a second water-immiscible organic liquid comprising tributylphosphate to load zinc thereon;
- scrubbing the Zn-loaded organic phase with aqueous ZnCl₂-NaCl solution to remove impurities;
- stripping the Zn from this second organic phase with aqueous ZnCl₂-HCl solution and passing the Zn-containing chloride strip solution to a Zn electro-winning stage; and
- separating impurities from the residual aqueous phase sufficiently to avoid detrimental build-up thereof, and recovering chloride solution for recycle.

4,362,608

SILVER RECOVERY METHOD

Don L. Biles, Chamblee, and A. Alan Richardson, Lilburn, both of Ga., assignors to Silver Systems, Ltd., Atlanta, Ga.

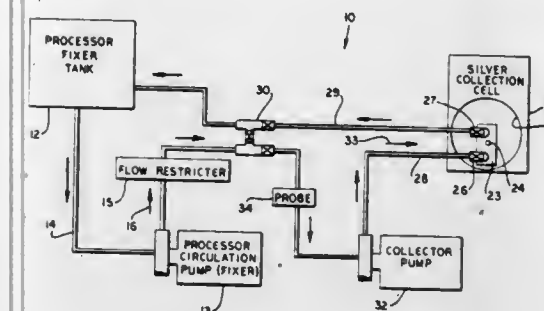
Division of Ser. No. 135,674, Mar. 31, 1980, Pat. No. 4,287,044.

This application May 22, 1981, Ser. No. 266,303

Int. Cl.³ C25C 1/20

U.S. Cl. 204—109

5 Claims



1. A method of recovering silver from a solution containing silver ions comprising the steps of:

- introducing said solution into an electroplating cell including an anode and a cathode;
- measuring the potential between said cathode and a controlled potential electrode in contact with said solution to determine the presence or absence of silver ions adjacent to said cathode;
- responsive to presence of silver ions adjacent to said cathode, applying a plating potential across said anode and cathode to drive a plating current between said anode and said cathode;
- terminating said plating potential after discrete period of time; and
- repeating steps (b), (c) and (d).

4,362,609

OXYGEN CONCENTRATION SENSOR

Hiromi Sano, Nagoya; Masatoshi Suzuki; Masahiro Hamaya, both of Anjo, and Masami Ouki, Nagoya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

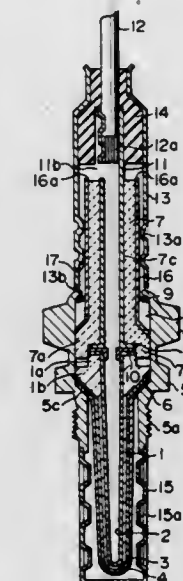
Filed Mar. 23, 1981, Ser. No. 246,435

Claims priority, application Japan, May 29, 1980, 55-72282

Int. Cl.³ G01N 27/58

U.S. Cl. 204—195 S

9 Claims



1. An oxygen concentration sensor comprising: a solid electrolyte member including two portions, one portion being exposed to a gas of interest and the other portion being exposed to the atmosphere; an inner cover member formed with a first space communi-

cating portion arranged to communicate with said other portion of said solid electrolyte member; a water-proof cover member enclosing said inner cover member and defining with said inner cover member a ventilating passage, said water-proof cover member being formed with a second space communicating portion for maintaining the first space communicating portion of said inner cover member in communication with the atmosphere through said ventilating passage, said second space communicating portion of said water-proof cover member being axially spaced apart from said first space communicating portion of said inner cover member; and means, disposed in said ventilating passage between said first and second space communicating portions and spaced axially from said first space communicating portion, for impeding the flow of water through said ventilating passage.

4,362,610

APPARATUS FOR RECOVERY OF HYDROCARBONS FROM TAR-SANDS

Neil L. Carpenter, 175 Nimitz Rd., Kerrville, Tex. 78208

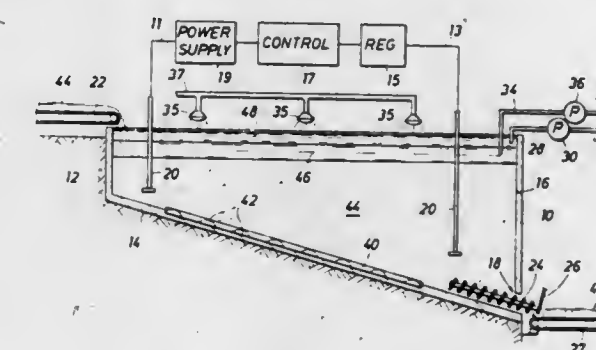
Division of Ser. No. 913,629, Jun. 8, 1978, Pat. No. 4,204,923.

This application May 19, 1980, Ser. No. 151,181

Int. Cl.³ C25B 9/00; C10G 1/00; B01D 43/00

U.S. Cl. 204—263

26 Claims



1. Apparatus for recovering the bitumen component of a mined earth aggregate including a naturally occurring electrolyte dispersed therein, retaining means for receiving and retaining a preselected volume of the mined earth aggregate containing the bitumen and an electrolyte dispersed therein, said retaining means further providing electrical insulation for the mined earth aggregate from substantially all other earth (formation) materials adjacent thereto, a plurality of electrodes inserted into said mined earth aggregate and in electrical contact with said electrolyte dispersed therein, an AC electrical current source interconnected to each of said electrodes for establishing an AC current flow through said electrolyte for electrochemically breaking the molecular bond of the bitumen and electrolyte from the earth aggregate and releasing the bitumen and electrolyte therefrom in a liquid form, recovering means cooperating with the upper levels of said retaining means for recovering said released bitumen in a liquid form from said retaining means, means for removing said released electrolyte from said retaining means, and means for removing the remaining earth aggregate material from said retaining means from the bottom of said retaining means.

4,362,611

QUADRUPOLE R.F. SPUTTERING SYSTEM HAVING AN ANODE/CATHODE SHIELD AND A FLOATING TARGET SHIELD

Joseph S. Logan, Poughkeepsie; Steve I. Petvai, Wappingers Falls, and Cornel Rosu, Woodstock, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jul. 27, 1981, Ser. No. 287,452
Int. Cl.³ C23C 15/00

U.S. Cl. 204—298

12 Claims

1. A quadrupole sputtering system comprising:
a chamber adapted to be evacuated and to maintain a low pressure ionizable gas therein;
a cathode electrode, disposed in said chamber, with a source target surface therein;
an anode electrode, in said chamber, adapted for mounting work piece substrates thereon, with said anode electrode disposed in face-to-face sputtering relationship with said target surface of said cathode electrode;
a spaced ground shield circumscribing said cathode electrode; an electrically floating shield circumscribing said target surface; and
means for applying an operating potential between said cathode and anode electrodes for sputtering of material from said target surface on said substrates.

4,362,612

ISOELECTRIC FOCUSING APPARATUS

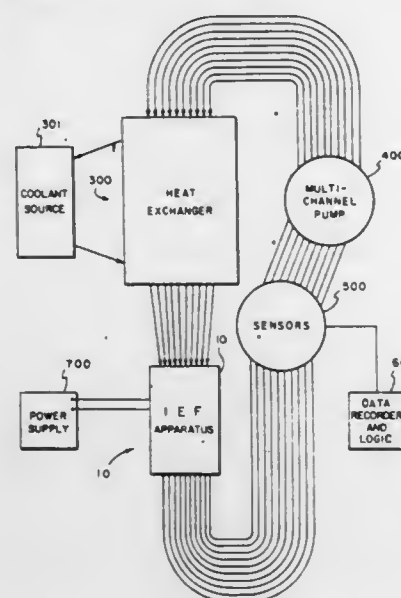
Milan Bier, Tucson, Ariz., assignor to University Patents, Inc., Norwalk, Conn.

Division of Ser. No. 897,261, Apr. 18, 1978, Pat. No. 4,204,924.
This application Dec. 3, 1979, Ser. No. 99,499

Int. Cl.³ B01D 13/02; G01N 27/26

U.S. Cl. 204—301

6 Claims



1. Apparatus for isoelectric focusing, comprising, in combination:

an enclosure having a plurality of inlet ports and a plurality of associated outlet ports opposing said inlet ports;
a plurality of recirculation paths, each coupling an outlet port to a respective inlet part;
a fluid within said enclosure and said recirculating paths, said fluid containing buffering components capable of establishing a pH gradient in an electric field;
inlet and outlet separator means for respectively separating the flow of fluid which enters at said inlet ports and exists at said outlet ports;
a plurality of ion non-selective permeable membranes disposed between respective ones of said inlet and outlet separator means and oriented generally parallel to the direction of flow of said fluid so as to streamline the flow of fluid as between said inlet and outlet separator means

while allowing interchange of fluid constituents therebetween;
means for applying an electrical potential transverse the direction of flow of said fluid in said enclosure to establish a gradient of pH steps as between successive channels defined by said membranes;
a multichannel pump for pumping the fluid in said recirculation paths;
a heat exchanger coupled to said recirculation paths for cooling the fluid therein; and
sensing means coupled to said recirculation paths for sensing the properties of the fluid in said recirculation paths.

4,362,613

HYDROCRACKING PROCESSES HAVING AN ENHANCED EFFICIENCY OF HYDROGEN UTILIZATION

Donald L. MacLean, Raleigh, N.C., assignor to Monsanto Company, St. Louis, Mo.

Filed Mar. 13, 1981, Ser. No. 243,273

Int. Cl.³ C10G 47/00, 49/22

U.S. Cl. 208—108

1 Claim

1. A process for catalytically hydrocracking a hydrocarbonaceous feed comprising:
(a) cracking in a hydrocracking zone the hydrocarbonaceous feed in the presence of hydrogen and a hydrocracking catalyst under hydrocracking conditions comprising a temperature of at least about 250° C. and a pressure of at least about 45 atmospheres absolute wherein said hydrocracking zone has a hydrocracking vapor phase and a hydrocracking liquid phase wherein said hydrogen is provided by a hydrogen feed gas to produce a hydrocrackate, and wherein the hydrogen feed gas is provided in an amount sufficient to maintain a concentration of hydrogen in the hydrocracking vapor phase of at least about 65 volume percent;
(b) separating the hydrocrackate into at least one liquid phase and a separated vapor phase, said separated vapor phase being at a temperature less than about 70° C. and a pressure of at least about 0.5 times the pressure in the hydrocracking zone, the separated vapor phase has a concentration of hydrogen of at least 65 volume percent;
(c) bringing at least a portion of said separated vapor phase into contact with a feed side of a polymeric membrane selective to the permeation of hydrogen as compared to methane;
(d) maintaining the opposite side of the polymeric membrane at a pressure of at least about 20 atmospheres below the pressure at the feed side of the polymeric membrane to permeate hydrogen to the opposite side of the polymeric membrane and provide a hydrogen permeate having a concentration of hydrogen of at least about 90 volume percent;
(e) withdrawing non-permeate from the feed side of the polymeric membrane;
(f) removing the hydrogen permeate from said opposite side of the polymeric membrane;
(g) compressing the removed hydrogen permeate to a sufficient pressure for passage to the hydrocracking zone; and
(h) then recycling the hydrogen permeate to the hydrocracking zone as a portion of the hydrogen feed gas.

4,362,614

MERCAPTAN EXTRACTION PROCESS WITH RECYCLED ALKALINE SOLUTION

George Asdigian, Arlington Heights, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Apr. 30, 1981, Ser. No. 259,296

Int. Cl.³ C10G 19/02, 19/08

U.S. Cl. 208—235

7 Claims

1. In a process for the removal of mercaptans from a hydrocarbon stream in which the feed stream is contacted with an

alkaline solution comprising water and an alkaline reagent in an extraction zone to effect transfer of mercaptans from the feed stream to the alkaline solution; the resultant mercaptan-containing alkaline solution is contacted with oxygen in an oxidation zone in the presence of an oxidation catalyst to effect oxidation of mercaptans to disulfides; the resultant disulfides are separated from the alkaline solution by decantation; and a portion of the decanted alkaline solution is contacted with a gas stream under conditions which promote transfer of water into the gas stream; the improvement which comprises passing the portion of the alkaline solution which has been contacted with the gas stream directly into the oxidation zone.

4,362,615

FROTH FLOTATION OF RUTILE

Thomas O. Llewellyn, Tuscaloosa, and Gerald V. Sullivan, Northport, both of Ala., assignors to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed Oct. 15, 1981, Ser. No. 311,487

Int. Cl.³ B03D 1/14

U.S. Cl. 209—167

7 Claims

1. A froth flotation process for recovery of rutile from copper ore tailings comprising:
(a) flotation of sulfides and carbonates at a pH of about 9 to 10, using sodium isopropyl xanthate and sodium oleate as collectors, and dextrin as rutile depressant, and
(b) flotation of rutile from the tailings of step (a) at a pH of about 2 to 3, using hydrofluoric acid as a rutile selectivity-assisting agent and water-soluble petroleum sulfonate as rutile collector.

4,362,616

APPARATUS FOR MOVING THE FILTER PLATES OF A FILTER PRESS

Gerd-Peter Gehrman, Gerlafingen, and Peter Spiegel, Oberbuchsiten, both of Switzerland, assignors to Von Roll AG, Gerlafingen, Switzerland

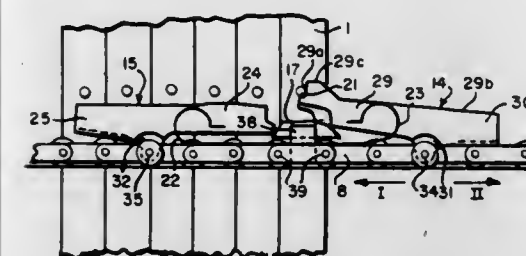
Filed Mar. 27, 1981, Ser. No. 248,045

Claims priority, application Switzerland, Apr. 30, 1980, 3351/80

Int. Cl.³ B01D 25/12

U.S. Cl. 210—225

7 Claims



1. In a filter press having a plurality of plates adapted to be arranged in abutting relationship in an operating position and to be separated from said position for cleansing, replacement or the like, each of said plates being provided with a pin extending laterally from two opposite side edges thereof, apparatus for separating the plates one at a time comprising a pair of first and a pair of second reciprocable link chain conveyors arranged with one each of said first and second reciprocable link chain conveyors respectively along said opposite side edges of said plates, said first conveyors carrying first engaging means comprising a driving lever and a stop lever, said levers being two-armed, pivotable and spring-biased and having a cam mounted between them, and said second conveyors carrying a second engaging means comprising a retaining lever having a pin engageable with said cam, said conveyors and their associated engaging means for providing that when moved in one direction, each of said first conveyors and first engaging means act to move the first of said plates from said operating position by

engagement of said driving levers with the pins attached to said first plate while each of said second conveyors and second engaging means when moved in an opposite direction act to retain the second of said plates in the operating position by engagement of said retaining levers with the pins attached to said second plate.

4,362,617

LIQUID FILTERING APPARATUS

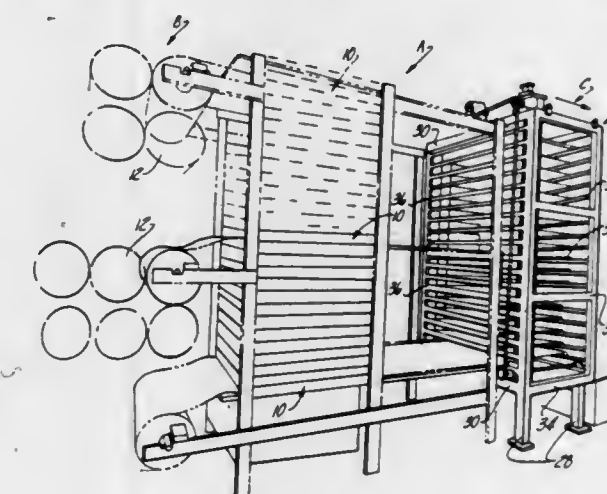
Constant L. Klepper, Troy, Mich., assignor to Micronic Filtration Inc., Warren, Mich.

Filed May 6, 1981, Ser. No. 261,252

Int. Cl.³ B01D 25/14

U.S. Cl. 210—225

25 Claims



1. In a liquid filtering apparatus of the type comprising a plurality of vertically stacked plates which are vertically separable and which form filtering chambers having an inlet for liquid to be filtered and an outlet for the filtered liquid and a plurality of supply rolls of filter media in sheet form at one side of said plates and from which a continuous strip of filter media extends to between the separable plates, an apparatus for extracting the used filter media sheet from between the plates when the latter are separated and for simultaneously feeding a fresh, unused section of the filter sheet downstream from each of said supply rolls to the spaces between the separated plates comprising a rigid frame on the opposite downstream side of said plates, a plurality of vertically spaced and generally parallel spaced filter sheet supports on said frame each forming a generally flat surface onto which the used portion of the filter sheet is adapted to be advanced from between the separated filter plates, said support surfaces being narrower than the filter sheet and aligned therewith so that the opposite edges of the filter sheet extend laterally outwardly beyond the opposite longitudinal edges of said support surfaces, a vertically extending carriage mounted on said frame for linear movement in a path generally parallel to said support surfaces, a plurality of vertically spaced clamps on opposite sides of said carriage aligned generally with said support surfaces, said clamps being located laterally outwardly of the opposite longitudinal edges of said support surfaces and in alignment with the opposite longitudinal edges of the filter sheets, said clamps having vertically separable jaws thereon adapted, when closed, to positively grip the sheets along the opposite side edge portions thereof and means for opening and closing said clamps and for reciprocating the carriage lengthwise of the frame such that when the carriage is in its retracted position adjacent the downstream side of said plates the clamps close to engage and grip the opposite edge portions of the filter sheets, the carriage then advances in a downstream direction to extract a section of each used filter sheet from between the separated plates and advances it along said supporting surface and simultaneously fresh sections of the filter sheets are unwound from the supply rolls and drawn into the space between the separated plates.

4,362,618

WATER FILTER

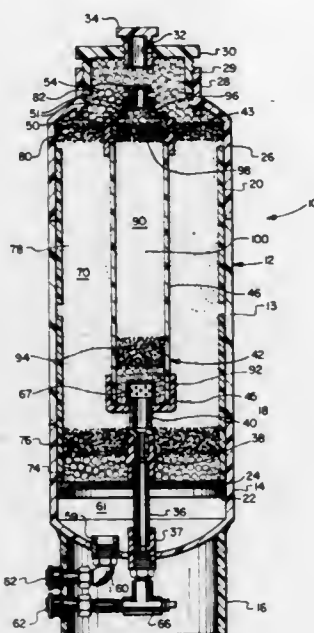
Don E. Cook, and Dorothy M. Cook, both of P.O. Box 452, Greenville, Tex. 75401

Continuation-in-part of Ser. No. 125,584, Feb. 29, 1980, Pat. No. 4,301,009. This application May 27, 1981, Ser. No. 267,470

Int. Cl.³ B01D 23/10

U.S. Cl. 210-275

14 Claims



1. A water filter apparatus comprising: a first elongated housing forming an interior area defining an inlet chamber and a primary filter chamber; foraminous wall means disposed in said housing and forming a common wall between said chambers; an inlet conduit in communication with said inlet chamber; a second elongated housing disposed within said primary filter chamber, said second housing forming a secondary filter chamber; an outlet conduit extending from said second housing to the exterior of said first housing, said outlet conduit being in communication with said secondary filter chamber; a first member forming a screen between said outlet conduit and said secondary filter chamber; and a plurality of layers of filter media in said primary and secondary chambers for filtering water flowing through said filter between said conduits.

4,362,619

CONTINUOUS CENTRIFUGAL MACHINE

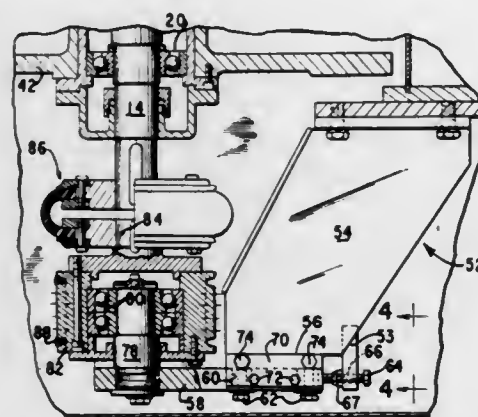
Joseph B. Bange, Hamilton, Ohio, assignor to The Western States Machine Company, Hamilton, Ohio

Filed Jan. 21, 1980, Ser. No. 113,980

Int. Cl.³ B04B 9/00

U.S. Cl. 210-360.1

3 Claims



1. In a continuous centrifugal machine including a rigid base structure, a bearing housing, a normally vertical basket shaft

journalled for rotation on bearings in said bearing housing, a basket secured to the upper end of said shaft for rotation therewith, a stationary curb wall surrounding said basket, means for resiliently mounting said bearing housing on said base structure so as to permit gyration of said basket about a point on the axis of said shaft, and rotary drive means including a motor mounted to one side of said curb wall and means connecting said motor with the lower end of said shaft for rotating said basket continuously at high speed, the improvement wherein said connecting means comprises:

- a non-rotary support shaft mounted in adjustably fixed position beneath and substantially aligned with said basket shaft;
- anti-friction rotary bearing means mounted on said support shaft and a driven belt pulley supported on said support shaft through said bearing means for rotation about the axis of said support shaft;
- driving belt means connecting said driven pulley with a driving pulley driven by said motor;
- a stub shaft fixed to said driven belt pulley for rotation coaxially therewith;
- mounting means constantly positioning and sustaining the loads on said support shaft, said mounting means being displaceable to and settable in a position thereof in which the axis of the driven pulley and stub shaft is held aligned with the rest position of the axis of the lower end of the basket shaft; and
- flexible coupling means interconnecting said stub shaft and the lower end of said basket shaft for directly transmitting torque yet permitting angular and parallel misalignment therebetween; whereby moment loads are removed from said bearing housing mounting means and gyration of said basket shaft is unrestrained by and does not alter the driving moment of said belt means.

4,362,620

PARTITIONED CENTRIFUGE

Robert E. High, 358^b Monavale Rd., St. Ives, New South Wales, 2075, Australia

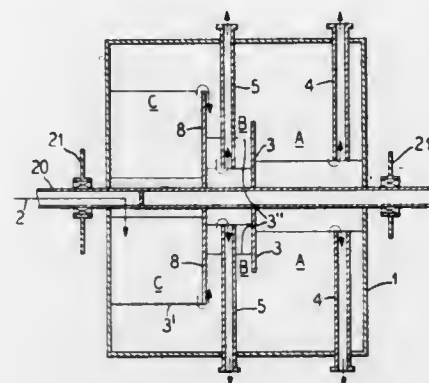
Filed Mar. 11, 1980, Ser. No. 129,390

Claims priority, application Australia, Mar. 15, 1979, PD8035; May 2, 1979, PD8612

Int. Cl.³ B01D 45/14

U.S. Cl. 210-378

21 Claims



1. A centrifuge for the continuous separation of solid-liquid mixtures and mixtures of liquid with different densities, said centrifuge having a drum with end walls, said drum being rotatable about a hollow stationary centrally disposed shaft, said centrifuge comprising:
 - a first disc mounted on said shaft inside said drum and radially extending a first distance from said shaft and terminating in an outer edge beyond the boundary layer between the phases to be separated;
 - a second disc mounted on said shaft inside said drum and radially extending a second distance from said shaft and terminating in an outer edge, said second distance being less than said first distance, and

said first and second discs dividing the interior of said drum into a first chamber between one end wall of said drum and said first disc, a second chamber between said first and second discs, and a third chamber between said second disc and another end wall of said drum;

a means for charging said first chamber with a mixture to be separated,

whereby a lighter of said phases flows from said first chamber around said first disc upon rotation of said centrifuge and is collected in said second chamber, and a heavier of said phases is collected in said third chamber; and

a discharge means for each of said second and third chambers for respectively discharging said lighter and said heavier phases therefrom to an exterior of said centrifuge.

13. A solid-sleeve worm centrifuge for the continuous separation of solids-liquids mixtures and mixtures of liquids of varying densities comprising:

a generally cylindrical vessel having a vertical wall at one end thereof and a conical taper at an opposite end thereof;

a means for rotating said vessel;

a spiral carried on the interior surface of said vessel, said spiral extending along the entire length of said vessel in a direction of liquid flow therein;

an inlet means for charging said vessel with a mixture to be separated;

a first partition mounted in the interior of said vessel substantially parallel to said vertical wall of said vessel and extending a first distance into the mixture to be separated;

a second partition mounted in the interior of said vessel downstream of said first partition and substantially parallel thereto, said second partition extending a second distance into the mixture to be separated,

said second distance being less than said first distance;

whereby said first and second partitions in combination with said vessel form a first chamber for the hydrostatic collection of a light phase and a second chamber for the hydrostatic collection of a heavy phase in substantially pure form,

a discharge means extending into said first chamber for removal of said light phase therefrom;

a discharge means extending into said second chamber for removal of said heavy phase therefrom; and

a discharge means disposed near an apex of said conical taper for discharging sediment collected and carried by said spiral.

4,362,621

RADIAL FLOW CELL

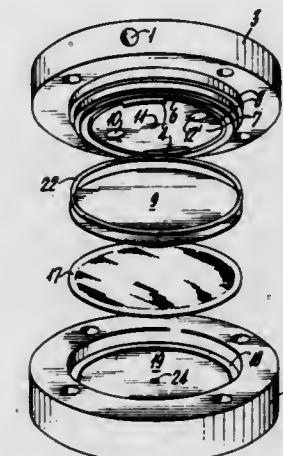
Robert W. Dobna, Rahway; B. Allen Mayles, Manalapan, and Thomas H. Stoudt, Westfield, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Apr. 27, 1981, Ser. No. 258,109

Int. Cl.³ B01D 35/22

U.S. Cl. 210-450

2 Claims



1. An improved radial flow cell of the type having

(a) a feeding plate with means for feeding a heterogeneous broth;

(b) a filter plate with means for filtration; and

(c) a sealing means for securing the feeding plate and the filtrate plate together so as to form a leak-proof cell, wherein the improvement comprises means for feeding which further comprises

(1) two or more circumferentially located inlet ports for feeding a heterogeneous broth;

(2) a circular groove for receiving via connecting orifices the broth from the inlet ports and thereby generating a radial flow of broth;

(3) a dam attached to the periphery of the bottom surface of the feeding plate and facing the connecting orifices for enlarging the radius of the radial flow from the circular groove; and

(4) two or more outlet ports with enlarged openings to facilitate the exit of the concentrated process stream.

4,362,622

FILTER

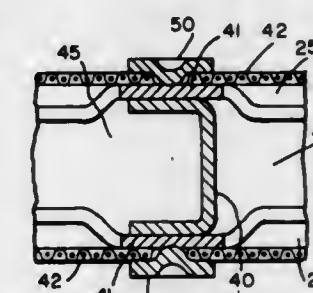
Burton W. Urquhart, Nashua, N.H., assignor to Ingersoll-Rand Company, Woodcliff, N.J.

Filed Mar. 30, 1981, Ser. No. 248,700

Int. Cl.³ B01D 33/26

U.S. Cl. 210-486

4 Claims



1. A filter for removing liquid from a slurry comprising: a metal filter screen support; a metal filter screen on the metal filter screen support, said filter screen support having openings adjacent the filter screen for the flow of filtrate into the support, and at least one drainage duct for draining the filtrate from the support; and a plurality of metal members on top of the filter screen, each metal member being welded through the screen and attached to the support.

4,362,623

COFFEE FILTER SYSTEM

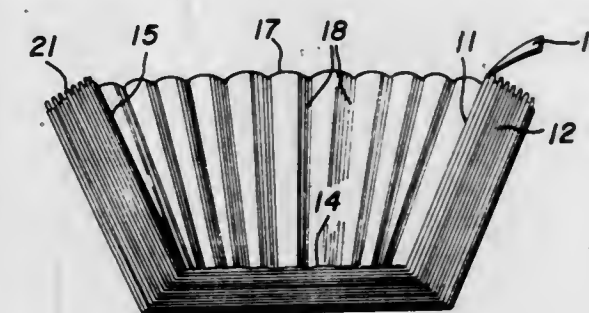
Vaino J. Holopainen, Cross Rd., P.O. Box 49, East Sullivan, N.H. 03445

Continuation of Ser. No. 77,568, Sep. 21, 1979, abandoned. This application Oct. 23, 1981, Ser. No. 314,217

Int. Cl.³ B01D 35/02

U.S. Cl. 210-493.5

3 Claims



1. Coffee filter system, comprising:
 - (a) a plurality of cup-like disposable filters, each filter having a generally circular bottom wall and a generally frusto-

conical side wall, said filters being arranged in a nested stack, and

- (b) a continuous elongated tab element that is threaded sinusously from one side to another of the plurality of filters to form a tab associated with the innermost filter and which is accessible for grasping by the fingers of a user, so that, as the tab is pulled upwardly, the element lifts the filters one at a time from the remaining filters in the stack.

4,362,624

PAINT STRAINER

Yoshiaki Ueda, 33-3, Numa-cho, Kishiwada-shi, Osaka-fu, Japan

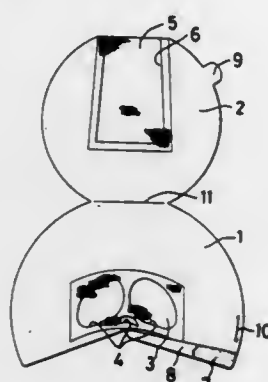
Filed Jun. 30, 1981, Ser. No. 279,216

Claims priority, application Japan, Feb. 23, 1981, 56-25742[U]

Int. Cl.³ B01D 29/10

U.S. Cl. 210-497.2

6 Claims



1. A strainer for paints or the like comprising a main body portion formed with at least one hole and having a first or lower filter means attached thereto so as to cover said hole and adapted to be folded into a funnel shape and a filter plate portion connected to said main body portion and formed with a notch and a second or upper filter means attached thereto so as to cover said notch and adapted to be folded into said main body already brought to a funnel shape so that some space will be left between said first filter means and said second filter means.

4,362,625

WASTE WATER CLARIFIER

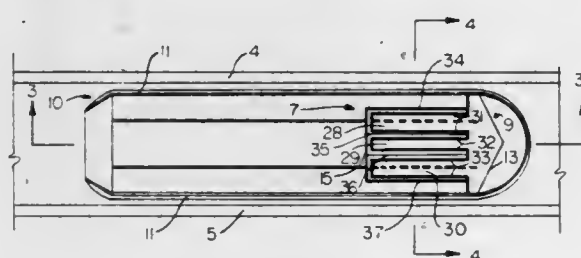
Harold Beard, P.O. Box 3838, Baton Rouge, La. 70821

Filed Oct. 29, 1981, Ser. No. 316,112

Int. Cl.³ B01D 21/00

U.S. Cl. 210-521

7 Claims



1. A clarifier for removing solids from waste water in a waste water flow channel comprising:
(a) a forward section connected to a rear section by side walls, said forward section and side walls rising above said waste water, said rear section having an opening below the waste water level to allow said waste water to enter a cavity formed by the forward section, the rear section and the side walls,
(b) a bottom panel attached to said side walls below said waste water level, said bottom panel having rows of vertically inclined baffle plates separated by openings to allow

said solids to flow from said cavity back to said channel; and,

- (c) an effluent launder attached to said side walls and positioned in said forward section, said launder comprising a trough having means to allow said waste water located in said cavity to enter said trough.

4,362,626

ION EXCHANGER OF HYDRATED OXIDE OF TI, ZR, OR SN AND CURED POLYESTER, AND EXCHANGE METHOD

Tatsuro Takeuchi, Oumihachiman; Masaki Sokukawa, Takatsuki, and Ryuzo Kimoto, Ibaraki, all of Japan, assignors to Takeda Chemical Industries, Ltd., Japan

Filed Aug. 12, 1980, Ser. No. 177,508

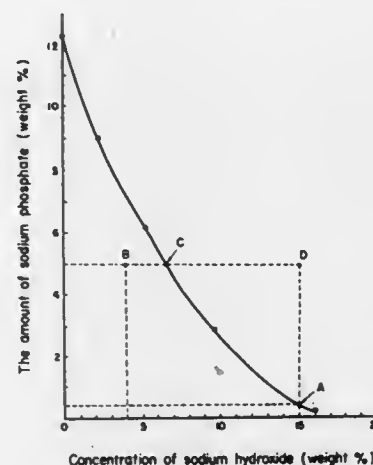
Claims priority, application Japan, Aug. 16, 1979, 54-104710;

May 30, 1980, 55-72947

Int. Cl.³ B01J 39/18; C08J 5/24; C08K 3/22

U.S. Cl. 210-670

10 Claims



1. An adsorbent, which is prepared by subjecting to curing a mixture consisting of (a) one part by weight of at least one member selected from the group consisting of metal oxide hydrate represented by the general formula:



wherein M is titanium, zirconium or tin and

n is a positive number of 0.5 to 2.0

and (b) about 1/10 to 3 parts by weight of unsaturated polyester resin in a vinyl showing resistance to acids and alkalis.

4,362,627

CELLULAR FLOW SYSTEM AND METHOD

Anderson B. Fly, and Charles B. Fly, both of 1406 N. Roosevelt, Amarillo, Tex. 79107

Filed Sep. 13, 1978, Ser. No. 941,782

Int. Cl.³ B01D 15/04

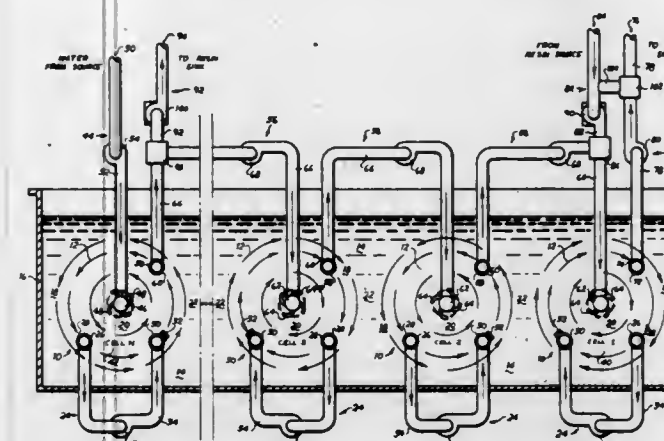
U.S. Cl. 210-676

10 Claims

1. The improved structure for contacting matter physically distinct from a fluid with said fluid comprising: a matter physically distinct from a fluid,

- at least two adjacent vortices with diffusion boundaries therebetween, the vortices fluidly existing within and fluidly connected with a body of said fluid,
- matter injection means for introducing said matter into at least one of said vortices, and
- matter removal means for withdrawing said matter from at least one of said vortices,
- at least two vortex cells,
- each of said vortex cells having at least one of said vortices therein,
- each of said vortex cells having
 - a rotational center,
 - a direction of rotation,

- a perimeter distal of the center, and
 - each of said vortex cells being adjacent at least one other vortex cell,
- h. fluid injection means including
- a fluid discharge point in a mechanism proximate the center of at least one of said vortex cells, and
 - injection pump means connecting the fluid discharge point with a source of additional fluid for pumping said



- fluid from said source of additional fluid to said fluid discharge point, and
- j. fluid removal means including
- a fluid removal point in a mechanism proximate the perimeter of at least one of said vortex cells, and
 - removal pump means connecting said fluid removal point with a sink of processed fluid for pumping said fluid from at least one of said vortex cells to said sink of processed fluid.

4,362,628

METHOD AND APPARATUS FOR CLEANING BASINS

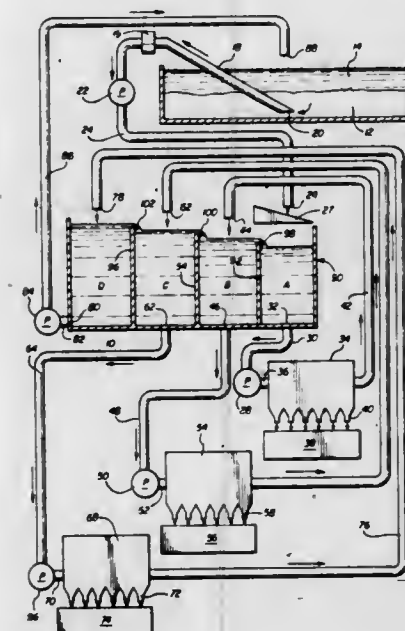
Alvin B. Kennedy, Alvin, and Bertram M. Leecraft, Houston, both of Tex., assignors to Methods Engineering, Inc., Angleton, Tex.

Continuation-in-part of Ser. No. 171,362, Jul. 23, 1980, abandoned, which is a continuation-in-part of Ser. No. 36,345, May 7, 1979, abandoned. This application Mar. 4, 1981, Ser. No. 240,418

Int. Cl.³ C02F 1/52

U.S. Cl. 210-712

44 Claims



1. A method for cleaning a cooling tower basin to remove particulate matter and debris from the water thereof, said method comprising:
transporting water and sediment from the bottom of said basin;

subjecting said water to primary solid separation to remove sand and debris and most of the silt and sludge therefrom; transporting said primarily separated water to receiving vessel; withdrawing water from the bottom of said receiving vessel; subjecting said withdrawn water to secondary solid separation to remove substantially all of said silt and sludge therefrom; transporting said secondarily separated water back to said cooling tower basin; depositing water and sediment in a catch vessel; withdrawing water and sediment from the lower portion of said catch vessel prior to said primary solid separation; introducing flocculent material into said sediment-laden coolant water prior to primary solid separation; separating any debris from said coolant water prior to said primary solid separation; and further clarification of coolant water being returned to said cooling tower basin, said further clarification being accomplished by any one of a number of further clarification processes including settling, electrostatic precipitation and vacuum conveying.

4,362,629

METHOD FOR PROCESSING SOLUTION INCLUDING HEAVY METAL

Atsuo Senda, Ootsu; Tohru Kusanami, and Takuji Nakagawa, both of Kyoto, all of Japan, assignors to Murata Manufacturing Co., Ltd., Japan

Filed Oct. 8, 1980, Ser. No. 194,981

Int. Cl.³ C02F 1/62

U.S. Cl. 210-714

10 Claims

1. A method of processing a plating solution containing a reducing agent, and at least one copper or nickel heavy metal salt or complex, comprising the steps of:
adding heavy metal powder to said solution and applying ultrasonic vibration to said solution.
10. A method of processing a plating solution containing a reducing agent, and a copper salt or complex, comprising the step of:
applying ultrasonic vibration to said solution.

4,362,630

SIDE STREAM MONITORING

Dale A. Young, Basking Ridge, N.J., assignor to Exxon Research and Engineering Co., Florham Park, N.J.

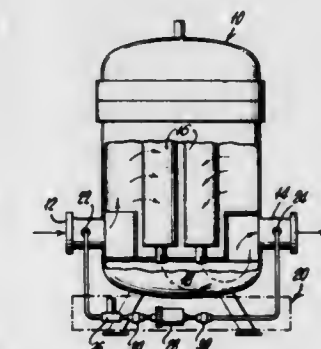
Continuation of Ser. No. 58,301, Jul. 17, 1979, abandoned, which is a continuation of Ser. No. 818,154, Jul. 22, 1977, abandoned.

This application Jan. 12, 1981, Ser. No. 224,597

Int. Cl.³ B01D 35/14

U.S. Cl. 210-745

2 Claims



1. A method of monitoring the performance of a clay filter in a main unit having an inlet and outlet for the passage of a main hydrocarbon fuel stream therethrough, comprising the steps of:

- providing a bypass line externally of said main unit between said inlet and said outlet;
- duplicating in said bypass line geometrical and dynamic

- characteristics of said clay filter of said main unit by including in said bypass line a monitor device including reduced scale replica of said clay filter of said main unit which has at least proportionate flow velocity and residence time of said main stream through a predetermined section of said clay filter in main unit;
- (c) passing substantially continuously a predetermined sample portion of said main hydrocarbon fuel stream through the replica clay filter in said monitor device when said main hydrocarbon fuel stream passes through said main unit;
- (d) removing said monitor device from said bypass line without disturbing operation of said main unit and passing a reference fuel containing a known amount of surfactant through said monitor device at a flow rate which is greater than the normal rated flow capacity of said clay filter; and
- (e) collecting a sample amount of reference fuel which passes through said monitor device and measuring the water shedding ability of said reference fuel to determine the effectiveness of said monitor clay filter which is an indication of the continued effectiveness of the main stream clay filter.

4,362,631

SPECIAL TRAWL NET FOR COLLECTING FLOATING PRODUCTS

Christian Bocard, Orgeval, and Maurice Lemesre, Wervicq-Sud, both of France, assignors to Institut Français du Pétrole, Rueil-Malmaison and Societe Anonyme Cousin Freres, Wervicq-Sud, both of, France

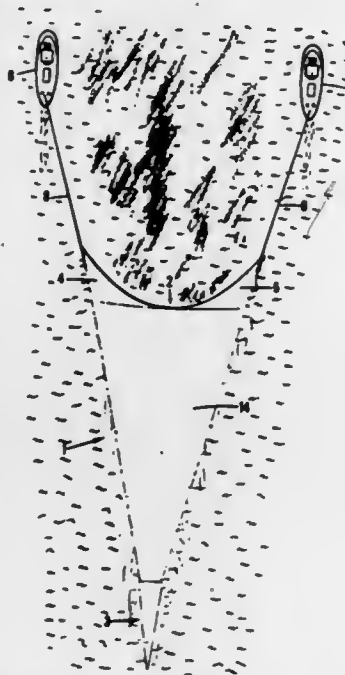
Filed Mar. 20, 1981, Ser. No. 245,770

Claims priority, application France, Mar. 21, 1980, 80 06419

Int. Cl.³ E02B 15/04

U.S. Cl. 210—776

14 Claims



1. A special trawl type net, adapted for collecting floating products dispersed throughout the surface of a body of water, such as hydrocarbon agglomerates resulting from the action of natural elements on a hydrocarbon layer spread over the water surface, or from the treatment of such a layer by spreading a binding agent thereon, said net comprising a flattened pocket adapted for being towed by means of two wing sections held in spaced relationship from each other and connected to said pocket at the level of an inlet opening thereof, said pocket having a funnel-shaped leading portion with a flattened cross-section which progressively decreases from said inlet opening, said leading portion having a dorsal or upper face and a ventral or lower face, and connected to a trailing portion of the trawl net, said dorsal face and the rear portion of the trawl net having mesh openings of a size comprised between 2 and 10 millimeters, to define a close-mesh netting capable of permitting

water to discharge therethrough and said close mesh netting also covering the upper part of said trawl net wing sections and overlapping the lower part of said wing sections and said ventral face, and wherein said close-mesh netting defines on said ventral face, two lateral strips separated by a central net zone of wider-mesh netting to facilitate water discharge therethrough.

4,362,632

GAS DISCHARGE APPARATUS

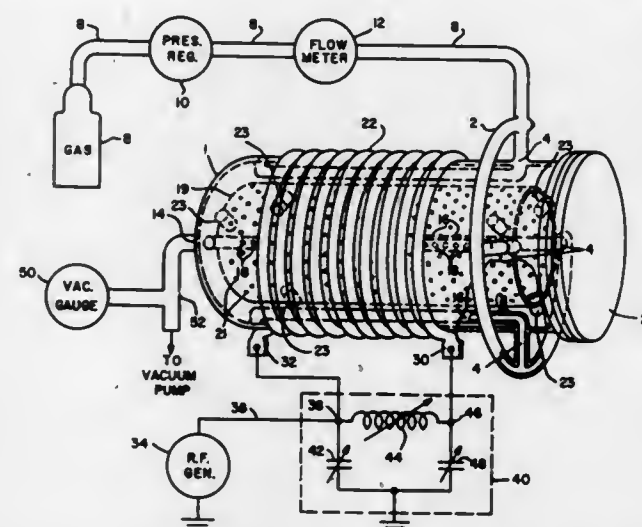
Adir Jacob, Framingham, Mass., assignor to LFE Corporation, Clinton, Mass.

Filed Aug. 2, 1974, Ser. No. 494,024

Int. Cl.³ C23F 1/00; C23C 15/00

U.S. Cl. 422—183.04

10 Claims



- Apparatus for reacting a gas with a material comprising: an evacuable reaction chamber adapted to receive and expel a gas, means external of said chamber for forming a gaseous plasma within said chamber, means for introducing material to be modified by reaction into said chamber and for removing modified material from said chamber, and a metallic shielding structure having a multiplicity of openings therein disposed within said chamber adapted to provide a glow-free material-placement zone within the confines of said metallic structure containing neutral active species and substantially void of nonuniformly distributed and field-perturbed gaseous ionized species formed within said chamber external of said shielding structure.
- The apparatus of claim 1 wherein said reaction chamber has a generally cylindrical shape and wherein said metallic structure comprises a cylinder coaxial with said chamber and having perforations therethrough.

4,362,633

MOLYBDENUM-CONTAINING AMINATED SULFURIZED OLEFIN LUBRICATING OIL ADDITIVES

J. Ronald Spence, Bartlesville, Okla., and C. Thomas West, Naperville, Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Oct. 10, 1980, Ser. No. 196,055

Int. Cl.³ C10M 1/54

U.S. Cl. 252—46.4

11 Claims

1. A multifunctional lubricant additive composition providing friction reduction, oxidation resistance and dispersancy, which comprises the product of the process of reacting at a temperature of from 50°–500° C. an olefin having 10–10,000 carbon atoms with about 0.1 to about 20 moles of sulfur or a sulfur-yielding compound per mole of the olefin to form a sulfurized olefin; reacting the sulfurized olefin at a temperature of from 50°–400° C. with 0.1 to 20.0 moles of a polyamine to form an aminated sulfurized olefin and reacting the aminated sulfurized olefin at a temperature of from 50°–300° C. with

about 0.1 to 10.0 moles of a molybdenum compound per mole of the olefin to form the additive composition.

3. A multifunctional lubricant additive composition providing friction reduction, oxidation resistance, and dispersancy, which comprises the reaction product of (a) an olefin having from 10 to 10,000 carbon atoms; (b) a polyamine having the formula $\text{NH}_2[(\text{CH}_2)_z\text{NH}]_x\text{H}$, wherein z is an integer from 2 to 12 and x is an integer from 1 to 10, and wherein z is from 2 to 6 when x is from 2 to 10; (c) sulfur or a sulfur-yielding compound and (d) a molybdenum compound; wherein the olefin is reacted with said sulfur or sulfur-yielding compound at a temperature of from 50°–500° C. to form a sulfurized olefin, the sulfurized olefin is reacted with the polyamine at a temperature of from 50°–400° C. to form an aminated sulfurized olefin, and the aminated sulfurized olefin is reacted with the molybdenum compound at a temperature of from 50°–300° C.

11. A lubricant comprising a major portion of a lubricating oil and about 0.01 to 10.0 wt% based on the oil of the product of claim 1 or 3.

4,362,634

METAL WORKING LUBRICANT AND LUBRICANT EMULSION

George Berens, Bardonia; Frank L. Padovani, Pleasantville, and Peter E. Timony, Valley Cottage, all of N.Y., assignors to Stauffer Chemical Company, Westport, Conn.

Filed Mar. 19, 1980, Ser. No. 131,620

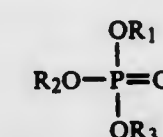
Int. Cl.³ C10M 1/06, 1/10

U.S. Cl. 252—49.5

13 Claims

1. A metal working lubricant comprising:

- about 60 to about 90 weight percent of a polyol ester derived from the esterification of aliphatic polyol with aliphatic carboxylic acid, wherein said aliphatic carboxylic acid is (i) an aliphatic monocarboxylic acid of 4 to 18 carbon atoms; or (ii) a mixture of an aliphatic monocarboxylic acid of 4 to 18 carbon atoms and an aliphatic dicarboxylic acid of 3 to 12 carbon atoms, with the proviso that the proportion of dicarboxylic acid in said mixture is such that on the average not more than one of the average number of hydroxyl groups in the polyol is esterified by said dicarboxylic acid;
- about 1 to about 10 weight percent of a triaryl phosphate represented by the formula:



wherein R_1 , R_2 , and R_3 may be the same or different radical selected from the group consisting of phenyl, cresyl, xylyl, tolyl, isopropylphenyl, tertiary butylphenyl, tertiary nonylphenyl and secondary butylphenyl; and (c) about 5 to about 30 weight percent of a carboxylic ester nonionic surfactant selected from the group consisting of the anhydrosorbitol ester type and the glycerol ester type.

4,362,635

LACTONE-MODIFIED ESTER OILS

Rolf Dhein; Karl-Heinz Hentschel, both of Krefeld; Karl Nützel, Neulussheim; Klaus Morche, Mannheim, and Wolfgang Schüle, Ketsch, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 80,279; Oct. 1, 1979, abandoned. This application Oct. 29, 1980, Ser. No. 201,775

Claims priority, application Fed. Rep. of Germany, Oct. 5, 1978, 2843473

Int. Cl.³ C10M 1/26

U.S. Cl. 252—56 S

8 Claims

1. Esterification products of

- aliphatic C_1 – C_{14} alcohols containing one or more alcoholic hydroxyl groups;
- aliphatic C_4 – C_{18} mono- or di-carboxylic acids which may

- optionally be replaced by up to 55 mole percent of cycloaliphatic C_6 – C_{12} carboxylic acids and up to 5 mole percent of aromatic C_7 – C_{12} carboxylic acids, and
- 6 to 9-membered lactones of aliphatic C_5 – C_{12} hydroxycarboxylic acids,

wherein:

- the units derived from the lactones make up from 5 to 45% by weight of the esters;
- the ratio of carbon to oxygen atoms is greater than 4.1 and either monoalcohols (a) and dicarboxylic acids (b) or polyhydric alcohols (a) and monocarboxylic acids (b) are used for producing the ester oils.

4,362,636

CRANKCASE LUBRICANT AND METHOD FOR IMPROVING FUEL ECONOMY OF INTERNAL COMBUSTION ENGINES UTILIZING SAME

Vernon R. Small, Jr., Rodeo, Calif., assignor to Chevron Research Company, San Francisco, Calif.

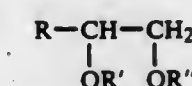
Filed Dec. 12, 1980, Ser. No. 215,954

Int. Cl.³ C10M 1/26

U.S. Cl. 252—56 R

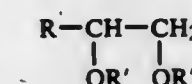
8 Claims

1. In a lubricating oil formulated for use in the crankcase of an internal combustion engine, the improvement of including in said formulated oil about 0.10% to 5.0% by weight of at least one hydroxyalkyl alkanoate of the formula:



wherein R is alkyl containing from 4 to 28 carbon atoms, one of R' and R'' is hydrogen and the other is alkanoyl containing 1 to 30 carbon atoms.

5. A method for reducing fuel consumption in an internal combustion engine by treating the moving surfaces thereof with a composition comprising a major amount of an oil of lubricating viscosity containing a fuel-reducing amount of at least one hydroxyalkyl alkanoate of the formula:



wherein R is alkyl containing from 4 to 28 carbon atoms, and one of R' and R'' is hydrogen and the other is alkanoyl of 1 to 30 carbon atoms.

4,362,637

GRAIN BOUNDARY LAYER DIELECTRIC CERAMIC COMPOSITIONS

Yoshihiro Matsuo, Neyagawa; Gen Itakura, Hirakata; Sholchi Ikebe, Miyazaki, and Tatsuya Wada, Moriguchi, all of Japan, assignors to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

Filed Apr. 1, 1981, Ser. No. 249,885

Claims priority, application Japan, Apr. 11, 1980, 55/48366

Int. Cl.³ H01B 3/12; C04B 35/46

U.S. Cl. 252—62.3 BT

3 Claims

1. A grain boundary layer dielectric ceramic composition comprising semiconductive ceramic grains having a composition of 50.23 to 49.47 mol% of SrO , 49.72 to 50.23 mol% of TiO_2 , and 0.05 to 0.3 mol% of Nb_2O_5 , substantially each of said grains being surrounded by a grain boundary layer of dielectric material formed by grain boundary diffusion of a mixture consisting of 93.5 to 8.5 mol% of Bi_2O_3 , 4.5 to 45 mol% of Cu_2O , 0.5 to 4 mol% of MnO_2 , 1 to 8.5 mol% of B_2O_3 , 0.5 to 17 mol% of La_2O_3 , and less than 17 mol% of TiO_2 , characterized in having a temperature coefficient of capacitance lower than said composition recited above absent La_2O_3 in said grain boundary diffusion mixture.

4,362,638

GELLED LAUNDRY PRE-SPOTTER

Michele M. Caskey, and John A. Sramek, both of Racine, Wis., assignors to S. C. Johnson & Son, Inc., Racine, Wis.

Continuation-in-part of Ser. No. 172,613, Jul. 28, 1980, abandoned. This application Sep. 4, 1981, Ser. No. 299,457

Int. Cl.³ C11D 1/70, 1/825, 3/44, 17/00

U.S. Cl. 252—90

3 Claims

1. A laundry pre-spotting composition comprising from about 13–17% by weight of an ethoxylated nonyl phenol having 8 moles of ethylene oxide; from about 13–17% by weight of an ethoxylated nonyl phenol having 6 moles of ethylene oxide; from about 22–28% by weight of an isoparaffinic hydrocarbon solvent having a boiling range of 97°–206° C.; from about 8–12% by weight of d-Limonene; from about 4–6% by weight of n-butoxy propanol; and from about 25–35% by weight of water.

2. The composition of claim 1 wherein the composition is pressurized in an aerosol container utilizing from 5–20% by weight of a hydrocarbon propellant selected from the group consisting of propane, isobutane and butane and mixtures thereof.

4,362,639

CLEANSER WITH IMPROVED AFTERODOR AND TARNISH RESISTANCE

Anthony B. J. Eoga, Boonton, N.J., assignor to Warner-Lambert Company, Morris Plains, N.J.

Continuation-in-part of Ser. No. 251,030, Apr. 3, 1981. This application Aug. 31, 1981, Ser. No. 297,892

Int. Cl.³ C11D 3/395, 7/10, 7/18, 17/00

U.S. Cl. 252—99

57 Claims

1. A cleansing composition comprising:

- (a) an oxidizing agent containing a monopersulfate salt in an amount of from 35% to 60% by weight;
- (b) a bleaching promoter selected from alkali metal and alkaline earth metal halides, in an amount up to about 20% by weight;
- (c) a perborate salt present in amounts sufficient to inhibit tarnish and corrosion of metal; and
- (d) a compound providing ammonium ion in an amount effective to inhibit evolution from said cleansing composition of chlorine-like odor and taste.

10. The composition of either claims 1 or 9, wherein said compound providing ammonium ion is selected from ammonium chloride, ammonium sulfate, ammonium citrate, ammonium phosphate and mixtures thereof.

4,362,640

METHOD FOR RETARDING GELATION OF CRUTCHER SLURRIES CONTAINING BICARBONATE, CARBONATE AND SILICATE

Ronald S. Schreiber, Highland Park, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

Continuation-in-part of Ser. No. 81,799, Oct. 4, 1979, Pat. No. 4,298,493. This application Sep. 16, 1981, Ser. No. 302,528

Int. Cl.³ C11D 7/12, 7/14, 11/02, 17/06

U.S. Cl. 252—135

12 Claims

1. A method of retarding or preventing the gelation of a miscible and pumpable crutcher slurry containing from 40 to 70% of solids and 60 to 30% of water, of which solids content, on a 100% solids basis, 40 to 80% is sodium bicarbonate, 5 to 40% is sodium carbonate and 5 to 25% is sodium silicate of Na₂O:SiO₂ ratio within the range of 1:1.6 to 1:3, with the ratio of sodium bicarbonate:sodium carbonate being within the range of 2:1 to 8:1 and the ratio of sodium carbonate:sodium silicate being within the range of 1:3 to 3:1, which comprises preparing an aqueous crutcher slurry of the sodium bicarbonate and sodium carbonate, and admixing with such aqueous slurry carbon dioxide and an aqueous solution of the sodium silicate, said carbon dioxide being added in an amount sufficient to prevent said gelation of the slurry.

12. A method of making a particulate base material in bead

form, suitable for absorbing nonionic detergent to make a built heavy duty synthetic organic detergent composition, which comprises making a miscible and pumpable crutcher slurry containing from 40 to 70% of solids and 60 to 30% of water, of which solids content, on a 100% solids basis, 40 to 80% is sodium bicarbonate, 5 to 40% is sodium carbonate and 5 to 25% is sodium silicate of Na₂O:SiO₂ ratio within the range of 1:1.6 to 1:3, with the ratio of sodium bicarbonate:sodium carbonate being within the range of 2:1 to 8:1 and the ratio of sodium carbonate:sodium silicate being within the range of 1:3 to 3:1, by preparing in a crutcher a slurry of the sodium bicarbonate and sodium carbonate in water, admixing with such slurry an aqueous solution of the sodium silicate and admixing carbon dioxide with the slurry during the admixing of the sodium silicate solution, so as to maintain the pH of the slurry within the range of 9.7 to 10.1 during the addition of the sodium silicate solution and thereby prevent gelation of said slurry, pumping the slurry out of the crutcher in ungelled and readily pumpable state and spray drying the slurry to particulate bead form, during which spray drying a portion of the sodium bicarbonate is converted to sodium carbonate.

4,362,641

COMPOSITION OF AN STPP PRODUCT FOR DISHWASHER DETERGENT FORMULATIONS AND METHOD OF PREPARATION

John A. Peterson, Niagara Falls, N.Y., assignor to Occidental Chemical Corporation, Niagara Falls, N.Y.

Continuation of Ser. No. 129,761, Mar. 12, 1980, abandoned.

This application Sep. 16, 1981, Ser. No. 302,934

Int. Cl.³ C11D 3/06, 7/16, 11/00, 17/06

U.S. Cl. 252—135

4 Claims

1. A process for preparing a STPP composition having an apparent density of 0.7 gm/cm³ to 0.9 gm/cm³, comprising blending equal parts by weight of

- a. a granular anhydrous STPP having a maximum of 25% Phase I, at least 80% being —50 mesh, with
- b. a granular anhydrous STPP having a minimum of 45% Phase I, at least 80% being +50 mesh, to obtain a STPP composition which contains about 30% to about 40% Phase I STPP with not more than 5% of the +50 mesh STPP being less than 25% STPP Phase I, with less than 10% being +20 mesh and less than 10% being —100 mesh.

4,362,642

ALKYL PHOSPHORIC ACID POLYVALENT SALTS-MINERAL OIL LATHER CONTROLLED DETERGENT COMPOSITIONS

Malcolm N. A. Carter, Bromborough, England, and Peter R. Garrett, Northop, Nr. Mold, Wales, assignors to Lever Brothers Company, New York, N.Y.

Continuation of Ser. No. 757,165, Jan. 6, 1977, abandoned, which is a continuation of Ser. No. 55,714, Jul. 9, 1979,

abandoned, which is a continuation of Ser. No. 162,987, Jun. 25, 1980, abandoned. This application Jul. 7, 1981, Ser. No. 280,973

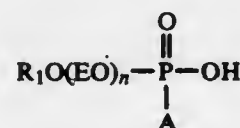
Claims priority, application United Kingdom, Jan. 23, 1976, 2670/76

Int. Cl.³ C11D 3/36, 11/00

U.S. Cl. 252—174.16

18 Claims

1. A solid detergent composition for fabric washing in water comprising about 1% to about 90% by weight of an anionic, nonionic, amphoteric or zwitterionic detergent active compound and about 0.05% to about 20% by weight of a polyvalent salt of an alkyl phosphoric acid having the general formula:



where A is —OH or R₂O, n is 0 and R₁ and R₂ are the same or different C₁₆₋₂₂ straight or branched chain, saturated or unsaturated alkyl groups, and containing about 0.05% to about 20% by weight of a mineral oil.

4,362,643

AQUEOUS BASIC POLYALUMINUM-IRON HALIDE SOLUTIONS

Vincent H. S. Kuo, Liverpool, and Christian A. Wamser, Camillus, both of N.Y., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Continuation of Ser. No. 55,416, Jul. 6, 1979, abandoned. This application Dec. 22, 1980, Ser. No. 218,984

Int. Cl.³ C02F 1/20

U.S. Cl. 252—175

6 Claims

1. An aqueous basic polyaluminum iron halide solution, useful for turbidity reduction in waste water treatment consisting essentially of a composition of the formula



wherein Hal is chlorine, bromine, iodine or mixtures thereof; $x+y/1-x$ is about 0.2 to 1.5; $3+2y-z/3+2y$ is about 0.24 to 0.67; and z is less than $3+2y$; x/y is about 0 to 1; and wherein the concentration of the metal ions is from about 1.35 to 4.5 moles/liter.

4,362,644

ARYLALKYL SILICONE SULFONATE-SILICATE COPOLYMERS

Pauls Davis, Gibraltar, and Joe C. Wilson, Woodhaven, both of Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Apr. 1, 1981, Ser. No. 250,087

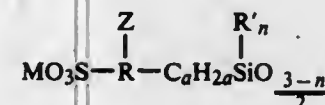
Int. Cl.³ C07F 7/08

U.S. Cl. 252—389 R

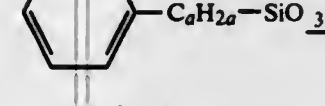
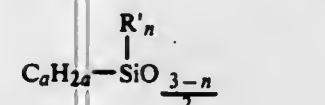
13 Claims

1. A copolymer consisting essentially of from 0.1 to 99.9 parts by weight of at least one

group member selected from the group consisting of at least one silicone sulfonate group member derived from silicone sulfonates having the formula:

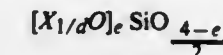


wherein Z is selected from the group consisting of at least one of an hydrogen atom, an alkyl group, an aryl group and a group having any of the formulas:



wherein each of the groups represented by the above formulas are monovalent groups connected to R through a carbon to carbon linkage, R is a divalent or trivalent aryl

group containing up to and including 10 carbon atoms, R' is an alkyl group, a is an integer of from 2 to 4, n is an integer of from 0 to 2, and M is a monovalent, divalent, or trivalent cation; and from 0.1 to 99.9 parts by weight of at least one silicate group member represented by the formula:



wherein X is a cation that forms a water-soluble silicate; d is the valence of the cation represented by X and has a value of at least one; and e has a value from 1 to 3 inclusive; said parts by weight of said groups in said copolymer being based upon 100 parts by weight of said copolymer.

4,362,645

TEMPERATURE INDICATING COMPOSITIONS OF MATTER

Craig R. Hof, Hopatcong, and Roy A. Ulin, Wyckoff, both of N.J., assignors to Akzona, Inc., Asheville, N.C.

Continuation of Ser. No. 946,935, Sep. 28, 1978, Pat. No. 4,232,552, which is a continuation-in-part of Ser. No. 895,422, Apr. 13, 1978, abandoned, which is a continuation-in-part of Ser. No. 844,334, Oct. 21, 1977, abandoned, which is a

continuation-in-part of Ser. No. 796,492, May 12, 1977, abandoned. This application Nov. 10, 1980, Ser. No. 205,079 The portion of the term of this patent subsequent to Nov. 11, 1997, has been disclaimed.

Int. Cl.³ G01K 11/06, 11/08, 11/12, 11/16; C09K 3/00

U.S. Cl. 252—408.1

140 Claims

1. A composition of matter exhibiting a sharp color change upon transition from a liquid state to a solid state or from a solid state to a liquid state, capable of being supercooled for at least several minutes, and substantially free of impurities, to form a solid solution when the composition is in a solid state, consisting essentially of:

- (a) a solvent adapted to change from a solid state at substantially a predetermined temperature to a liquid state; and
- (b) an effective amount of an indicator material selected from the group consisting of pinacyanol iodide, thionin, methylene blue, cresol red, neutral red iodide, neutral red chloride, crystal violet, acridin orange, Orasol Orange RLN TM, Orasol Navy Blue TM, Irgalith Red PR TM, Fat Red BS TM, Xylene Cyanol FF TM, Rhodamine B TM, Rhodamine 6G TM, Irgalith Magenta TCB TM, Irgalith Pink TYNC TM, Toluidine Blue O TM, Savinyl Green B TM, Savinyl Blue RS TM, purpurin, 3,3'-diethylthiadiazocyanine iodide, cryptocyanine, Dicyanine A TM, Merocyanine 540 TM, 4-(p-ethoxyphenylazo)-m-phenylene diamine hydrochloride, Yellow Orange S TM, Chrysoidan G TM, fuchsin, aurintricarboxylic acid (ammonium salt), Victoria Blue R TM, Pyronin G TM, gallein, Erythrosin Yellow Blend TM, chlorophenol blue, bromophenol blue, bromocresol purple, Coriphosphine O TM, acriflavine, acridine orange, rhoduline violet, Alizarin Cyanine 2R TM, Alizarin Red S TM, alcanin, Aurantia, Direct Green G TM, Fast Salt Red 3GL TM, Fast Salt Blue BB TM, Fast Garnet Salt GBC TM, Carta Yellow G 180 O/O TM, murexide, Savinyl Blue GLS TM, Irgalith Blue GLSM TM, phthalocyanine, Di Amingreen B TM, Alizarin Blue S TM, Celliton Blue Extra TM, neocyanine, Janus Green TM, dimethyl yellow, Fast Yellow TM, methyl red sodium salt, Alizarin Yellow R TM, Eriochrome Black T TM, Chromotrope 2R TM, Ponceau 6R TM, Brilliant Ponceau G/R/2R TM, chromolan yellow, Sudan Red B TM, Bismark brown G TM, Fat Black TM, Resorcin Brown TM, Benzofast Pink 2BL TM, Oil Red EGN TM, Euroglauca, Fuchsin NB TM, para-fuchsin, Patent Blue TM, Irgalith Blue TNC TM, Phloxin B TM, fluorescein sodium salt, Rhodamine B base TM, Eosin Scarlet, Eosin Yellowish, Erythrosin extra bluish,

4,5-dibromofluorescein, ethyleosin, Phloxin TM, Cyanovin B TM, chlorocresol green, pinacyanol bromide, 2-(p-dimethylaminostyryl)-1-ethylpyridinium iodide, ethyl red, nigrosine, Savinyl Blue B TM, Orasol Blue BLN TM, Safranin O TM, Azocarmum G TM, Phenosafranine TM, Azocarmine BX TM, Solophenyl Brilliant Blue BL TM, Nile Blue A TM, galloxyaniline, gallamine blue, celestine blue, methylene green Azure A/B/C TM, Blue VIF Organol TM, Alizarin, Nitrofast Green GSB TM, quinalizarine, Oil Blue N TM, Solvay purple, Ciba Blue TM, Indigo Synthetic TM, Chromophthal Bordeaux RS TM, Acid Alizarin, Red B TM, 5-amino-fluorescein, Rose Bengal TM, Martius Yellow TM, Chicago Blue 6B TM, Alcian Blue 8GX TM, cresyl violet, 4,4-bis(dimethylamino)-benzylhydrozinc phthalocyanine, Sudan III TM, Pyronin Y TM, Toluylene Blue TM, cresyl violet perchlorate, Mendola's Blue TM, Phosphine Dye, Nitron TM, cresyl violet acetate, Ceres Orange R TM, 4-phenylazo-1-naphthyl-amine, 4-(4-dimethylamino-1-naphthylazo)-3-methoxybenzene sulfonic acid, Bindschedler's Green TM, and p-(p-dimethylaminophenylazo)-benzoic acid dissolved in and inert towards said solvent and adapted to change color of the composition visible to the naked eye upon the change in state at substantially the predetermined temperature when so dissolved.

4,362,646

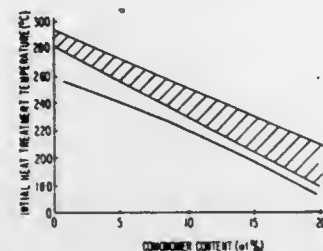
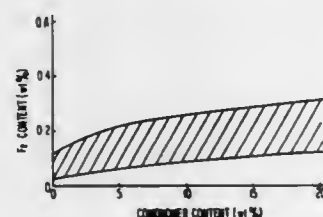
PROCESS FOR THE PRODUCTION OF FIBROUS ACTIVATED CARBON

Shigeru Ikegami, Mishima; Minoru Hirai, and Kazuo Izumi, both of Shizuoka, all of Japan, assignors to Tobo Beslon Co., Ltd., Tokyo, Japan

Filed Sep. 29, 1980, Ser. No. 191,616

Claims priority, application Japan, Sep. 28, 1979, 54-124891

Int. Cl.³ C01B 31/10; B01J 20/20; D01F 9/22, 9/12
U.S. Cl. 252-422 17 Claims



1. A process for producing a fibrous activated carbon which comprises
 - (1) spinning a dope of a polyacrylonitrile or a copolymer thereof comprising at least about 60 wt% acrylonitrile to thereby obtain an acrylonitrile-based fiber having a diameter of from 1.5 to 15 denier,
 - (2) treating the acrylonitrile-based fiber with a solution of an iron compound to thereby obtain an acrylonitrile-based fiber containing the iron compound in the range satisfying the equation (1)

$$0.02 \sqrt{X} + 0.02 \leq y \leq 0.05 \sqrt{X} + 0.10$$

wherein X is the wt% content of comonomer in the acrylonitrile-based fiber and y is the wt% iron content,

- (3) preoxidizing the acrylonitrile-based fiber containing the

iron compound at an initial heat-treatment temperature satisfying the equation (2)

$$280 - 5X \leq Z \leq 290 - 4X$$

wherein X has the same meaning as in equation (1) and Z is the initial heat-treatment temperature (°C.), the iron compound preventing substantial coalescence during preoxidizing, and

- (4) then gas activating the preoxidized acrylonitrile-based fiber.

12. A process as in claim 1, wherein said acrylonitrile-based fiber is preoxidized until the equilibrium water content of said fiber reaches from 8 to 13%.

16. A process as in claim 1, wherein after preoxidation at said initial heat-treatment temperature the fiber is preoxidized at a higher temperature which is less than about 400° C.

4,362,647

ELECTRODE AND THE METHOD FOR PRODUCING THE SAME

Eiichi Torigai, Yao; Noboru Wakabayashi, Ikeda; Yoji Kawami, Kawachinagano; Eiji Kamiyo, Takatsuki; Tatsuya Nishimoto, Kawanishi, and Katsuhito Tani, Toyonaka, all of Japan, assignors to Agency of Industrial Science & Technology, Tokyo and Sumitomo Electric Industries, Osaka, both of Japan

Filed May 28, 1981, Ser. No. 267,854

Claims priority, application Japan, Jun. 5, 1980, 55-77038

Int. Cl.³ C25B 11/04; H01M 4/32, 4/02

U.S. Cl. 252-425.3 5 Claims



1. A method for producing an electrode characterized in that electrode material consisting of nickel or nickel alloy or electrode material of multiple layers comprising said electrode material coated with nickel or nickel alloy powder is subjected to oxidation treatment in a high temperature oxidizing atmosphere, said electrode material being then subjected to reduction treatment in a reducing atmosphere at a temperature lower than said oxidation temperature.

4,362,648

POLYMERIZATION OF OLEFINS

Richard E. Dietz, and Oscar D. Nowlin, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Continuation-in-part of Ser. No. 3,439, Jan. 15, 1979, Pat. No. 4,240,929. This application Dec. 4, 1980, Ser. No. 212,968

The portion of the term of this patent subsequent to Dec. 23, 1997, has been disclaimed.

Int. Cl.³ C08F 4/64

U.S. Cl. 252-429 B 30 Claims

1. A catalyst composition obtained by gently milling a magnesium alkoxide with a milled mixture of a magnesium halide compound and a titanium tetrahalide said gently milling being characterized by up to about 300 shaking, rocking or rotating movements per minute of a receptacle containing grinding elements, said magnesium alkoxide and said milled mixture.

4,362,649

CATALYST COMPOSITION FOR BODY TEMPERATURE OF LIQUID POLYTHIOPOLYMERCAPTAN POLYMERS FOR MAKING ELASTOMERIC DENTAL IMPRESSIONS

Melvin L. Larson, Ann Arbor, Mich., assignor to Sybron Corporation, Rochester, N.Y.

Filed Mar. 25, 1981, Ser. No. 247,231

Int. Cl.³ B01J 31/02, 31/26

U.S. Cl. 252-430 5 Claims

1. A catalyst composition in the form of a paste suitable for body temperature cure of liquid polythiopolymercaptan polymers which comprises in weight percent about 40 to 60 percent organic acid-treated, submicron zinc oxide, about 5 to 20 percent benzothiazyl disulfide having a purity of at least 92 percent by weight, and where the ratio of zinc oxide to benzothiazyl disulfide is at least about 2 to 1, and about 20 to 50 percent plasticizer.

4,362,650

CATALYST AND PROCESS FOR OLEFIN OLIGOMERIZATION

Yves Chauvin, Le Pecq; Dominique Commereuc, Meudon; Gerard Leger, Saint Genis les Ollieres; Jean Gaillard, Lyons, and Nhu H. Phung, Antony, all of France, assignors to Institut Francais du Pétrole, Rueil-Malmaison, France

Filed May 8, 1981, Ser. No. 261,819

Claims priority, application France, May 8, 1980, 80 10359

Int. Cl.³ B01J 31/04, 31/14

U.S. Cl. 252-431 C 13 Claims

1. In a catalyst composition obtained by contacting, in any order, at least one bivalent nickel compound with at least one hydrocarbyl aluminum halide and at least one Bronsted organic acid whose pKa at 20° C. is at most equal to 3,

the improvement wherein said hydrocarbyl aluminum halide has 1.5-2 halogen atoms per atom of aluminum; and wherein said contacting is effected in the further presence of at least one carboxylic acid anhydride having the formula (R₃CO)₂O, wherein each R₃ is independently an unsubstituted or halogen-substituted C₁₋₂₀ hydrocarbyl group.

4,362,651

HIGH POROSITY CATALYSTS

Eugene F. Schwarzenbek, 3 Seacrest Dr., Lavallette, N.J. 08735

Continuation-in-part of Ser. No. 22,853, Mar. 22, 1979,

abandoned. This application Jun. 9, 1980, Ser. No. 157,437

Int. Cl.³ B01J 27/02, 35/06, 29/02, 21/04

U.S. Cl. 252-440 13 Claims

1. A method of increasing the BET micro pore volume and pore diameter of a catalytic material prepared from an inorganic oxide gel by incorporating into the catalyst mix, before drying and without subsequent removal, a calcium sulfate whisker fiber having a diameter less than about 5 microns, a length less than about 100 microns, and having a length to diameter ratio of at least about 3.

2. Method of claim 1 in which the amount of whisker fiber in the final catalyst is between 5 and 50%.

3. Method of claim 1 in which the whisker fiber is calcium sulfate anhydrite.

4,362,652

CRACKING CATALYSTS CONTAINING SILICA-ALUMINA GELS

Dennis Stamires, Newport Beach, and Hamid Alafandi, Woodland Hills, both of Calif., assignors to Filtrol Corporation, Los Angeles, Calif.

Continuation-in-part of Ser. No. 81,655, Oct. 4, 1979, Pat. No. 4,310,441, which is a continuation-in-part of Ser. No. 3,879, Jan. 16, 1979, Pat. No. 4,238,360, which is a continuation-in-part of Ser. No. 935,628, Aug. 21, 1978, Pat. No. 4,239,651, which is a continuation-in-part of Ser. No. 874,755, Feb. 3, 1978, Pat. No. 4,198,319, which is a continuation-in-part of Ser. No. 769,118, Feb. 16, 1977, Pat. No. 4,142,995. This application Jul. 8, 1981, Ser. No. 281,403

Int. Cl.³ B01J 21/12, 23/10, 37/02

U.S. Cl. 252-453 5 Claims

1. A method of producing silica-alumina catalyst which comprises mixing in a reaction mixture sodium silicate with a combination of anionic and cationic aluminum salts in such amounts as to provide an SiO₂/Al₂O₃ mole ratio in the mixture in the range of about 1 to 3 moles of SiO₂ per mole of Al₂O₃ based on the total Al₂O₃ content of the combination of anionic and cationic aluminum salts; of the total quantity of Al₂O₃ provided by the combination of aluminum salts, less than 95% by weight and more than 50% by weight is selected from anionic aluminum salts, the balance from cationic aluminum salts; adding ammonium hydroxide to the said mixture and adjusting the pH in the mixture to a range of about 9 to about 10, thereby forming an ammoniated silica-alumina gel, separating said gel and mixing said gel with a water solution of a polyvalent or a monovalent cation other than alkali metal cation, subjecting said solution to hydrothermal treatment at superatmospheric pressure and reducing the NH₄ content associated with said ammoniated gel to substantially less than 0.3 equivalents of NH₄ per mole of Al₂O₃, separating and drying said gel.

5. The process of claim 1, wherein the water solution of the polyvalent cation is an aqueous rare earth metal solution.

4,362,653

HYDROCARBON CONVERSION CATALYST

Delmar W. Robinson, Palatine, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Apr. 27, 1981, Ser. No. 257,690

Int. Cl.³ B01J 21/12

U.S. Cl. 252-455 R 2 Claims

1. A catalyst composite comprising from about 5 weight percent to about 95 weight percent of a silica polymorph consisting of crystalline silica, said silica polymorph after calcination in air at 600° C. for one hour, having a mean refractive index of 1.39±0.01 and a specific gravity at 25° C. of 1.70±0.05 g/cc and at least 5 weight percent to about 95 weight percent Ziegler alumina.

2. The catalytic composite of claim 1 which comprises a component selected from Group IV-A, V-B, V-A, VI-B, VII-A, VII-B and VIII.

4,362,654

CHROMIUM-CONTAINING CATALYSTS FOR POLYMERIZING OLEFINS

Fred L. Vance, Jr.; Rafael E. Guerra, and Christopher P. Christenson, all of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed May 14, 1981, Ser. No. 263,642

Int. Cl.³ B01J 21/06, 23/22, 23/26, 23/86

U.S. Cl. 252-469 6 Claims

1. In an inorganic oxide supported chromium-containing catalyst wherein said catalyst has been prepared by contacting said inorganic oxide support with zero valent chromium in the vapor state followed by activation in an oxidizing atmosphere at an elevated temperature for a time sufficient to activate the catalyst.

4,362,655

CATALYST OR CATALYST SUBSTRATE

John W. Jenkins, Chalkhouse Green near Reading, England, assignor to Johnson, Matthey & Co., Limited, London, England

Filed Dec. 10, 1980, Ser. No. 214,983

Claims priority, application United Kingdom, Dec. 18, 1979, 7943484

Int. Cl.³ B01J 23/40, 23/50, 23/52, 23/72

U.S. Cl. 252—474

14 Claims

1. A catalyst or catalyst substrate comprising at least one metal and/or alloy body wherein said body comprises silver or an alloy containing silver and is made by a melt spun or melt extraction process, said body being in the form of an elongate element.

4,362,656

THICK FILM RESISTOR COMPOSITIONS

Jacob Hormadaly, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

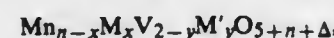
Filed Jul. 24, 1981, Ser. No. 286,558

Int. Cl.³ H01B 1/06

U.S. Cl. 252—518

11 Claims

1. A resistor composition consisting essentially of an admixture of finely divided particles of (a) 4–75% wt. ruthenium oxide-based conductive materials; (b) 96–25% wt. nonconductive glass; and (c) 0.05–15% wt. of a manganese vanadate compound corresponding to the formula:



wherein M is a metal cation having an ionic radius of 0.4 to 0.8; M' is a metal cation having a valence of 4 to 6;

n is 1 to 2

x is 0 to 0.5;

y is 0 to 0.5; and

Δ is varied to achieve electrical neutrality, the admixture being dispersed in an organic medium.

4,362,657

USE OF CYCLOHEXYL PHENETHYLETHER DERIVATIVE IN AUGMENTING OR ENHANCING THE AROMAS OF PERFUMES AND COLOGNES

Jacob Kiwala, Brooklyn, N.Y.; Richard J. Tokarzowski, Keyport, N.J.; Frederick L. Schmitt, Holmdel, N.J., and Mark A. Sprecker, Sea Bright, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

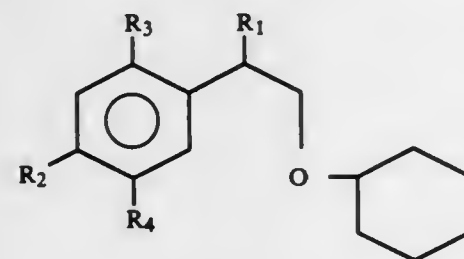
Division of Ser. No. 235,844, Feb. 19, 1981, Pat. No. 4,324,923, which is a continuation-in-part of Ser. No. 192,238, Sep. 30, 1980, Pat. No. 4,306,096. This application Sep. 25, 1981, Ser. No. 305,538

Int. Cl.³ A61K 7/46

U.S. Cl. 252—522 R

2 Claims

1. A perfume composition comprising an aroma augmenting quantity of at least one cyclohexyl phenylether derivative defined according to the structure:



wherein R₁, R₂, R₃ and R₄ are the same or different and each represents methyl or hydrogen with the proviso that one of R₂, R₃ and R₄ is methyl and the other two of R₂, R₃ and R₄ are hydrogen and intimately admixed therewith at least one adjuvant compatible with said cyclohexyl phenylether derivative from an organoleptic standpoint which is selected from the group consisting of alcohols, aldehydes, ketones, nitriles,

ethers other than said cyclohexyl phenylether derivative, lactones, natural essential oils, synthetic essential oils and hydrocarbons.

4,362,658

PROCESS FOR PREPARING A FLAME RETARDANT COMPOSITION FROM SODIUM ANTIMONATE AND COMPOSITION THEREBY PRODUCED

Fulvio Contin, Wilrijk, Belgium, assignor to Metallurgie Hoboken-Overpelt, Brussels, Belgium

Filed Sep. 4, 1980, Ser. No. 184,009

Claims priority, application Luxembourg, Sep. 5, 1979, 81649 Int. Cl.³ C09K 3/28; C08F 6/00

U.S. Cl. 252—609

7 Claims

1. A process for preparing a flame retardant composition from sodium antimonate, comprising

(a) contacting sodium antimonate, resulting from the alkaline refining of molten antimony-bearing lead, with such an amount of a 1–5 N aqueous solution of at least one acid selected from the group consisting of hydrochloric, sulfuric, and nitric acid that the amount of acid ranges from 1 to 1.35 times the stoichiometric amount, between the freezing point and the boiling point of the acid solution and for at least 1 hour so as to dissolve at least 60% of the sodium contained in the antimonate, thereby leaving most of the antimony contained in the antimonate in a solid phase;

(b) separating the solid phase from the solution; and

(c) drying and pulverizing the solid phase.

4,362,659

FIXATION OF RADIOACTIVE MATERIALS IN A GLASS MATRIX

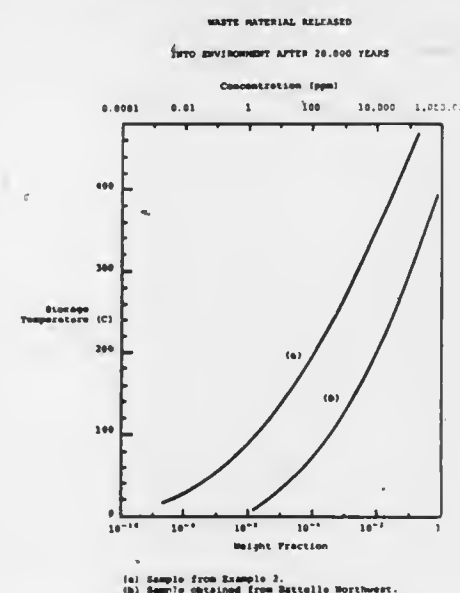
Pedro B. Macedo, 6100 Highboro Dr., Bethesda, Md. 20034; Joseph H. Simmons, Potomac, Md., and Theodore A. Litovitz, 904 Devere Dr., Silver Spring, Md. 20903, assignors to Pedro B. Macedo, Bethesda and Theodore A. Litovitz, Silver Spring, both of, Md.

Continuation of Ser. No. 884,371, Mar. 9, 1978, Pat. No. 4,224,177, and a continuation-in-part of Ser. No. 836,778, Sep. 24, 1977, abandoned, which is a continuation-in-part of Ser. No. 784,437, Apr. 4, 1977, abandoned. This application Sep. 17, 1979, Ser. No. 76,444

Int. Cl.³ G21F 9/02

U.S. Cl. 252—629

12 Claims



1. A glass composition containing radioactive gas dissolved, encapsulated and immobilized in the glass matrix, said composition being characterized by: (a) containing at least 75 mol percent SiO₂, (b) having high chemical durability to aqueous solution, and (c) containing radioactive gas selected from the

group consisting of krypton, iodine, bromine, xenon, radon, and mixtures thereof dissolved and fixed in the silica structure of said glass composition whereby leakage of said radioactive gas to the environment at environmental temperature is prevented for extremely long periods of time.

4,362,660

MERCURIC IODATE PRECIPITATION FROM RADIOIODINE-CONTAINING OFF-GAS SCRUBBER SOLUTION

Jerry A. Partridge, and Gail P. Bosuego, both of Richland, Wash., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jul. 14, 1980, Ser. No. 168,979

Int. Cl.³ G21F 9/04, 9/02

U.S. Cl. 252—631

4 Claims

1. A process for reducing the volume of a radioiodine containing mercuric nitrate-nitric acid off-gas scrubber solution comprising:

(a) first placing 15 to 16 molar nitric acid in a vessel;

(b) heating said nitric acid to boiling temperature; and then continuously and simultaneously

(c) introducing said scrubber solution into said vessel and mixing with nitric acid; and

(d) further heating the resultant mixture effecting evaporation of said mixture, oxidation by said nitric acid of said iodine to non-volatile iodate, and precipitation of said iodate as insoluble mercuric iodate;

wherein said introduction of said scrubber solution and said evaporation occur at rates continuously maintaining said mixture at a nitric acid concentration of about 15 to 16 molar.

4,362,661

IMMUNOGLOBULIN COMPOSITION HAVING A HIGH MONOMER CONTENT, AND PROCESS FOR PRODUCTION THEREOF

Syoji Ono, Kodaira; Yuji Fukumoto, Kumamoto, and Tsunemasa Yoshida, Hachioji, all of Japan, assignors to Teijin Limited, Osaka and The Chemo-Sero-Therapeutic Research Institute, Kumamoto, both of, Japan

Filed Aug. 6, 1980, Ser. No. 175,739

Claims priority, application Japan, Aug. 9, 1979, 54-100757; Aug. 9, 1979, 54-100758

Int. Cl.³ C07G 7/00

U.S. Cl. 260—112 B

3 Claims

1. A method for producing a native immunoglobulin composition having a high monomer content, which comprises contacting a native immunoglobulin in aqueous solution with about 10 to about 600% by weight, based on the weight of the native immunoglobulin, of a water-soluble acid addition salt of a basic amino acid having a pK_b at 25° C. of not more than 7 at a temperature between about 0° and about 50° C. in the absence of freezing and at a pH between about 5 and about 8, thereby to prevent aggregation of the monomer of the native immunoglobulin in the aqueous solution, and when the native immunoglobulin contains aggregated molecules, dissociating the aggregated molecules in the aqueous solution into monomers.

4,362,662

HETEROFULVALENE GEMINAL DITHIOLATE COMPOUNDS AND THEIR SELENIUM AND TELLURIUM ANALOGS AND A METHOD OF FABRICATING THE SAME

Edward M. Engler, Wappingers Falls; Vishnubhai V. Patel, Yorktown Heights, both of N.Y., and Robert R. Schumaker, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 38,050, May 10, 1979, Pat. No. 4,312,991. This application Aug. 17, 1981, Ser. No. 293,565

Int. Cl.³ C07D 421/04

U.S. Cl. 260—239 R

1 Claim

1. A new composition of matter diselenomethyl-(4,5-dicyano-1,3-diselenoliden-2-yl)-methylene.

4,362,663

MAYTANSINOID COMPOUND

Makoto Kida, Kawanishi; Motowo Izawa, Amagasaki, and Kazuo Nakahama, Muko, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Sep. 17, 1980, Ser. No. 188,239

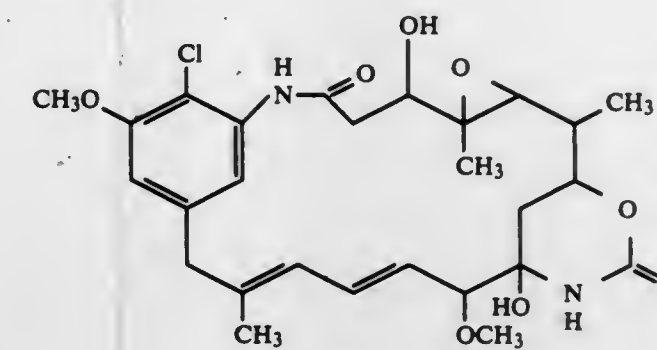
Claims priority, application Japan, Sep. 21, 1979, 54-122217

Int. Cl.³ C07D 498/18

U.S. Cl. 260—239.3 P

1 Claim

1. A compound of the formula:



4,362,664

VINBLASTINE OXAZOLIDINEDIONE DISULFIDES AND RELATED COMPOUNDS

Koert Gerzon, and Jean C. Miller, both of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Dec. 29, 1980, Ser. No. 220,472

Int. Cl.³ C07D 519/04; A61K 31/475

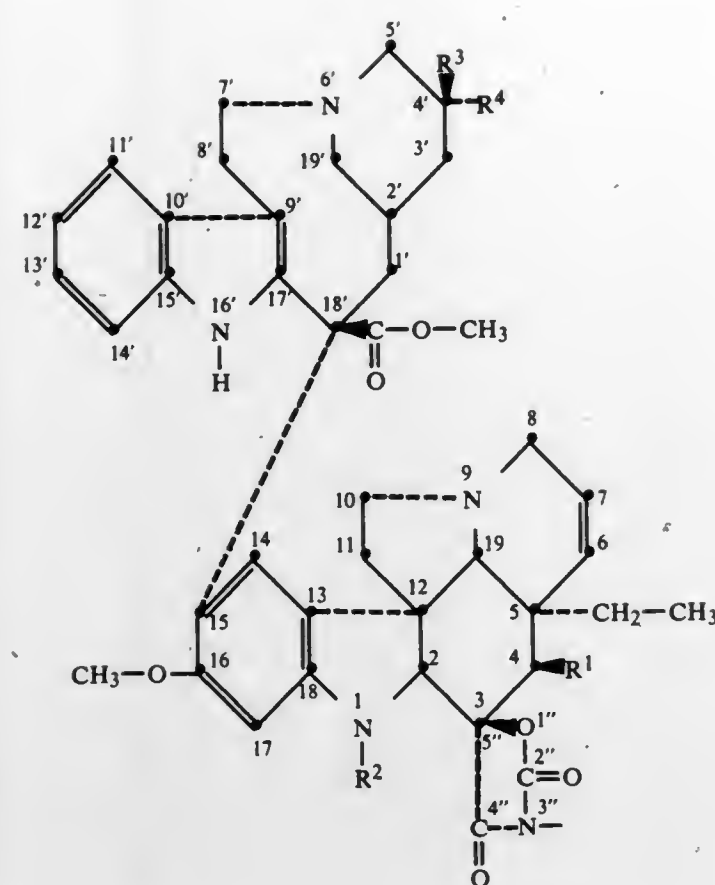
U.S. Cl. 260—244.4

6 Claims

1. A compound of the formula



wherein Q is a 3'-oxazolidindionyl radical of the formula:



wherein

R² is CHO or CH₃; one of R³ and R⁴ OH or H and the other is ethyl; and
Z is Q, NCO or NH—CO₂—(C₁—C₃)alkyl.

4,362,665

ANTIBIOTIC PA-39504-X₁ AND PRODUCTION THEREOF

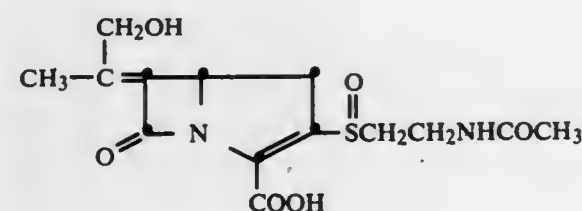
Kentaro Tanaka, Suita; Eiji Kondo, Ikeda; Kouichi Matsumoto, Toyonaka; Jun'ichi Shoji, Hirakata, and Naoki Tsuji, Ashiya, all of Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan
Filed Dec. 1, 1980, Ser. No. 211,715

Claims priority, application Japan, Dec. 12, 1979, 54-161170
Int. Cl.³ C07D 487/04

U.S. Cl. 260—245.2 T

2 Claims

1. An antibiotic PA-39504-X₁ of the formula:



or a pharmaceutically acceptable salt thereof.

4,362,666

DIAZEPINOPYRROLOBENZODIAZEPINES

Jan W. F. Wasley, Chatham, N.J., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.
Division of Ser. No. 68,827, Aug. 22, 1979, Pat. No. 4,316,900, which is a continuation-in-part of Ser. No. 933,358, Aug. 14, 1978, abandoned, which is a continuation-in-part of Ser. No. 839,696, Oct. 5, 1977, abandoned. This application Oct. 13, 1981, Ser. No. 310,666

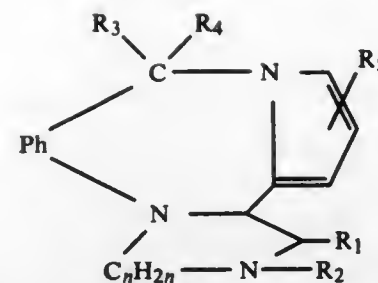
Int. Cl.³ A61K 31/55; C07D 487/16

U.S. Cl. 260—245.7

2 Claims

1. A compound of the formula

III



wherein R₁, R₃, R₄, R₅ is hydrogen; R₂ is hydrogen or lower alkyl; Ph is 1,2-phenylene unsubstituted or substituted by one member selected from lower alkyl, lower alkoxy, lower alkylthio, halogeno and trifluoromethyl; C_nH_{2n} is lower alkylene separating both nitrogen atoms by 3 carbon atoms; or pharmaceutically acceptable acid addition salts thereof.

4,362,667

OPTICAL ISOMERS OF 4-AMINO-N-(1-CYCLOHEXYL-3-PYRROLIDINYL)-N-METHYLBENZAMIDE

Albert D. Cale, Jr., Mechanicsville, and Charles A. Leonard, Richmond, both of Va., assignors to A. H. Robins Company, Inc., Richmond, Va.

Continuation of Ser. No. 128,692, Mar. 10, 1980, abandoned, which is a continuation of Ser. No. 914,833, Jun. 13, 1978, abandoned, which is a continuation-in-part of Ser. No. 658,989, Feb. 18, 1976, abandoned, which is a continuation-in-part of Ser. No. 518,125, Oct. 25, 1974, abandoned, which is a continuation of Ser. No. 340,417, Mar. 12, 1973, abandoned, which is a continuation-in-part of Ser. No. 240,840, Apr. 30, 1972, abandoned. This application Jan. 21, 1981, Ser. No. 226,868
Int. Cl.³ C07D 207/14; A61K 31/40

U.S. Cl. 548—557

8 Claims

2. A pharmaceutically acceptable acid addition salt of (+)-4-amino-N-(1-cyclohexyl-3-pyrrolidinyl)-N-methylbenzamide.
4. (+)-4-Amino-N-(1-cyclohexyl-3-pyrrolidinyl)-N-methylbenzamide fumarate.

4,362,668

SUBSTITUTED ORTHO-QUINONE DIMER

Richard J. Lee, Downers Grove, Ill., assignor to Standard Oil Company (Indiana), Chicago, Ill.

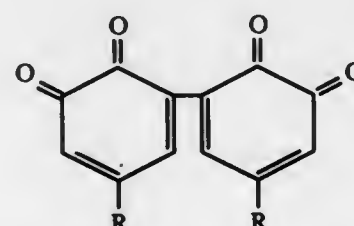
Division of Ser. No. 955,930, Oct. 30, 1978, Pat. No. 4,208,340. This application Jul. 31, 1979, Ser. No. 62,333

Int. Cl.³ C07C 50/00

U.S. Cl. 260—396 R

1 Claim

1. A dimer of alkylated ortho-quinone having the structure:



wherein R is an alkyl chain of at least 12 carbon atoms or a polymer of an olefin of at least 3 carbon atoms.

4,362,669

URANYL COMPOUNDS EMPLOYING A STRONG BASE

George M. Kramer, Berkeley Heights; Donald M. Cox, Watchung, both of N.J.; Martin B. Dines, Santa Ana, Calif., and Edward T. Maas, Jr., Batavia, Ill., assignors to Exxon Research and Engineering Co., Florham Park, N.J.

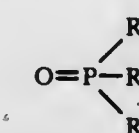
Filed Feb. 25, 1980, Ser. No. 124,306

Int. Cl.³ C07F 5/00; B01D 59/34

U.S. Cl. 260—429.1

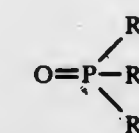
21 Claims

1. A composition of matter having the formula UO₂AA'L_n, wherein A and A' are anions whose conjugate acids having boiling points of less than about 200° C. and pK_a values of 4.8 or less, and which form chelate rings having more than four members, L is a neutral ligand having a boiling point of greater than about 200° C. and an equilibrium constant for its exchange reaction with the complex of UO₂AA' with tetrahydrofuran of greater than about 10⁻³, said neutral ligand being selected from the group consisting of primary, secondary and tertiary amines, alkylamineoxides, amides, aldehydes, ketones, lactones, ethers, esters, imides, alkenyl carbonates and phosphorous compounds having the formula



wherein R₁, R₂ and R₃ are selected from the group consisting of ethyl, N-alkylamino, and N,N-dialkylamino groups, and n is an integer from 1 to 4; said composition forming a monomeric species in solution and exhibiting an infrared band at about 950 cm⁻¹ having a bandwidth of less than about 10 cm⁻¹.

13. A composition of matter having the formula UO₂AA'L_n, wherein A and A' are anions whose conjugate acids have boiling points of less than about 200° C. and pK_a values of 4.8 or less, and which form chelate rings having more than four members, L is a neutral ligand having an equilibrium constant for its exchange reaction with the complex of UO₂AA' with tetrahydrofuran of greater than about 10⁻³, said neutral ligand being selected from the group consisting of primary, secondary and tertiary amines, alkylamineoxides, amides, aldehydes, ketones, ethers, esters, imides, alkenyl carbonates, lactones, dialkylsulfides wherein said alkyl groups include from 2 to 3 carbon atoms, and phosphorous compounds having the formula



wherein R₁, R₂ and R₃ are selected from the group consisting of alkyl, N-alkylamino, and N,N-dialkylamino groups and n is an integer from 1 to 4, said composition forming a monomeric species in solution and exhibiting an infrared band at about 950 cm⁻¹ having a bandwidth of less than about 10 cm⁻¹.

4,362,670

ALLYLATION OF CARBON COMPOUNDS

Edmund P. Woo, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Sep. 3, 1981, Ser. No. 297,661

Int. Cl.³ C07C 121/70, 49/203, 69/593, 79/06

U.S. Cl. 260—465 K

10 Claims

1. A process for allylating a carbon acid comprising reacting the carbon acid with allyl carbonate in the presence of a palladium catalyst.

4,362,671

SELECTIVE HYDROGENATION OF DINITRILE TO OMEGA-AMINONITRILE CATALYZED BY RHODIUM ORGANONITROGEN COMPLEX CATALYST

Steven E. Diamond, New Providence; Frank Mares, Whippany, both of N.J., and Andrew Szalkiewicz, New York, N.Y., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Oct. 26, 1981, Ser. No. 314,635

Int. Cl.³ C07C 120/00, 121/43

U.S. Cl. 260—465.5 R

11 Claims

1. A process for selectively producing an omega-aminonitrile which comprises reacting at a temperature of between about 20° C. and about 200° C. a dinitrile of the formula N≡C—(CH₂)_n—C≡N with n being an integer from 1 to 10 with hydrogen at a partial pressure of at least about one atmosphere in the presence of:

(a) a solvent, and
(b) a rhodium-containing catalyst prepared by reacting with a strong hydroxide base and then hydrogenating a rhodium complex of the formula (RR'Rh)A wherein R is derived from a non-allylic hydrocarbon diene of at least 4 carbons, R' is an aromatic heterocyclic with at least one aromatic ring nitrogen and only C, N and H and A is a complex monovalent anion which serves as a counteranion for the cation RR'Rh with rhodium being at valence +1;

and recovering the omega-aminonitrile of the formula N≡C—(CH₂)_n—CH₂—NH₂ as the major product.

4,362,672

PROCESS FOR PRODUCING DIFLUOROHALOACETYL FLUORIDE

Masaaki Yamabe, Machida; Seiji Munekata, and Shunichi Samejima, both of Tokyo, all of Japan, assignors to Asahi Glass Company, Ltd., Tokyo, Japan

Filed Jul. 27, 1981, Ser. No. 286,974

Claims priority, application Japan, Aug. 26, 1980, 55-116403

Int. Cl.³ C07C 51/58

U.S. Cl. 260—544 F

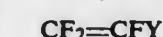
11 Claims

1. A process for producing a difluorohaloacetyl fluoride which comprises the steps of:

(a) producing an intermediate having a group of the formula



wherein X is I or Br, Y is F, Cl, Br or I; by reacting a polyfluoroethylene of the formula



with a reagent obtained by mixing sulfur trioxide with a halogen selected from iodine and bromine; and
(b) decomposing said intermediate into said product.

4,362,673

MOUNTING A PISTON IN AN ACCELERATOR PUMP OF A CARBURETOR AND ASSOCIATED METHOD

Walter Schauer, Neuss, Fed. Rep. of Germany, assignor to Pierburg GmbH & Co. KG, Fed. Rep. of Germany

Filed Jul. 24, 1981, Ser. No. 286,700

Claims priority, application Fed. Rep. of Germany, Aug. 21, 1980, 3031546

Int. Cl.³ F02M 7/08

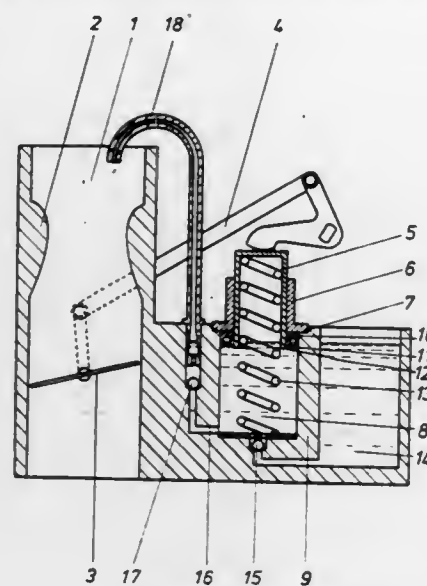
U.S. Cl. 261—34 A

13 Claims

1. In a carburetor having a housing with an inlet passage and an accelerator pump including a working chamber containing fuel, a piston displaceable in said working chamber to discharge fuel therefrom, and a conduit connected to the working chamber for conveying the discharged fuel to said inlet passage, the improvement comprising a sleeve secured to said housing at one end of said working chamber, said piston being slidably guided by said sleeve for movement into and out of

said chamber, and a sealing ring adjoining said sleeve and including a free sealing lip directed into said chamber and sealingly bearing against said piston.

12. A method of controlling the amount of fuel discharged by an accelerator pump of a carburetor comprising displacing a piston in a working chamber of an accelerator pump to discharge fuel from the working chamber into an intake passage of the carburetor, the piston being part of a replaceable



unit and having a diameter corresponding to a particular amount of fuel to be discharged for a given stroke for the piston, said unit being sealably mounted in the working chamber to provide a desired amount of fuel to be discharged, and removing said unit from the working chamber and inserting another with a different piston diameter into the working chamber to change the amount of fuel discharged from the accelerator pump to the intake passage of the carburetor.

4,362,674

PROCESS FOR MAKING RADIATION CURED SILICONE RUBBER ARTICLES

John G. DuPont, Reading, Mass., and Paul A. Goodwin, Amherst, N.H., assignors to High Voltage Engineering Corporation, Burlington, Mass.

Filed Nov. 28, 1980, Ser. No. 211,252

Int. Cl.³ C08G 77/38; B29C 25/00

U.S. Cl. 264—22

8 Claims

1. A process for making radiation cured silicone rubber articles comprising the steps of:

- forming into a desired shape a mixture of (i) silicone gum which includes a substantial amount of one or more hydroxyl-terminated polysiloxanes having a molecular weight from about 50,000 to about 2,000,000 and (ii) about 10 to about 70 parts per hundred of rubber of a finely divided silica filler with a particle size in the reinforcing range;
- treating the mixture so formed with a precuring agent selected from the group consisting of ammonia gas, ammonium hydroxide, vapors of a volatile amine, or a solution of a volatile amine; and
- irradiating with high energy ionizing radiation the precured shape.

4,362,675

METHOD OF DELAYING HARDENING OF INORGANIC BINDERS

Richard F. Shannon, Lancaster, Ohio, assignor to Owens-Corning Fiberglass Corporation, Toledo, Ohio

Continuation of Ser. No. 51,641, Jun. 25, 1979, abandoned. This application Jan. 26, 1981, Ser. No. 228,409

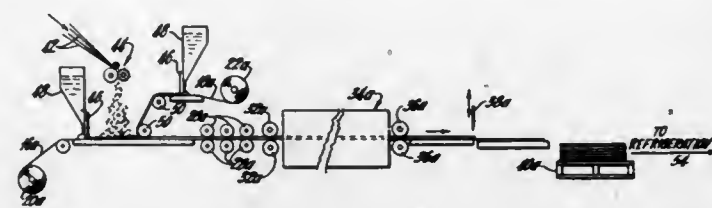
Int. Cl.³ B05B 3/00

U.S. Cl. 264—28

11 Claims

1. A method of making rigid articles from cements containing the hydrated reaction products of magnesia and a magne-

sium salt, said method comprising: mixing magnesium salt, water and magnesia with or without inhibitors to form a slurry having a solids ratio from between 25% and 75% at a temperature between approximately 1° C. and approximately 20° C. and at which temperature the slurry will have a normal period of time before set; subjecting the mixture to a temperature below approximately -20° C. during approximately the first



two thirds of said normal period of time before set to freeze the water of the slurry, storing the mixture in a frozen condition for a period of time, thawing the frozen mixture, and molding the partially set mixture using sufficient pressure to reshape the partially set mixture into the final shape of the desired rigid article before five-sixths of said normal period of time before set occurs.

4,362,676

SEAL FOR HEATED ENCLOSURE

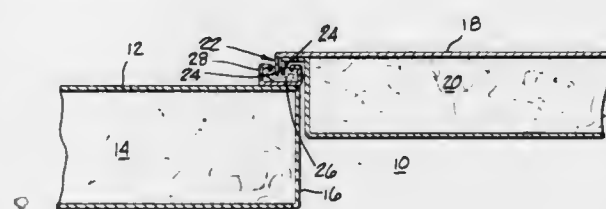
James A. Swaidner, and Wendell C. Holzhauser, both of Bowling Green, Ohio, assignors to Manville Service Corporation, Denver, Colo.

Filed Mar. 20, 1981, Ser. No. 245,862

Int. Cl.³ F27D 1/18

U.S. Cl. 264—35

3 Claims



1. A method of providing a seal between a planar surface surrounding an access opening of a heated enclosure and a non-planar peripheral edge of a door which closes said access opening and is subject to repeated openings and closings, comprising:

- securing a resilient fibrous insulating material about the periphery of said access opening to said planar surface; intermixing an uncured, but curable, thermosetting material with said fibrous insulating material;
- forcing the non-planar peripheral edge of said door into contact with said fibrous insulating material causing the latter to adopt a configuration compatible with the former;
- subjecting said fibrous insulating material and intermixed thermosetting material to sufficient heat to cure said thermosetting material, such that said fibrous insulating material permanently adopts said configuration which is compatible with the non-planar peripheral edge of the door so that a seal is formed between said planar surface and said non-planar peripheral edge of the door each time said door is closed, following said repeated openings.

4,362,677

METHOD OF PRODUCING ETHYLENE-VINYL ALCOHOL COPOLYMER HOLLOW FIBER MEMBRANES

Shuzo Yamashita; Taku Tanaka; Hirokuni Tanii, all of Kurashiki; Akira Kubotsu, Soja, and Syuji Kawai, Kurashiki, all of Japan, assignors to Kuraray Co., Ltd., Kurashiki, Japan

Division of Ser. No. 142,227, Apr. 21, 1980, Pat. No. 4,317,729.

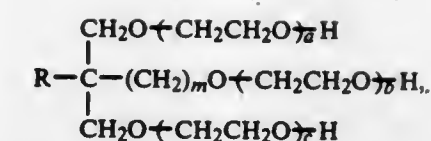
This application Jun. 4, 1981, Ser. No. 270,503

Claims priority, application Japan, Apr. 27, 1979, 54-53031

Int. Cl.³ B29D 27/00

U.S. Cl. 264—41

8 Claims



wherein m is 0 or 1, R is hydrogen, hydroxyl, lower alkyl or a radical having the formula:



the sum of a+b+c+d is between 2.0 and 8.0, and the equivalent ratio of A:B is 2:1 to 6:1;

(C) a catalyst;

(D) a blowing agent; and

(E) a surfactant; and

(II) foaming said foam-forming mixture.

4,362,679

METHOD OF CASTING CONCRETE

Roman Malinowski, Svealiden 3 D, 431 39 Mölndal, Sweden

PCT No. PCT/SE78/00107, § 371 Date Sep. 4, 1979, § 102(e)

Date Sep. 4, 1979, PCT Pub. No. WO79/00473, PCT Pub.

Date Jul. 26, 1979

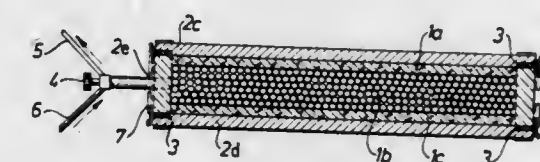
PCT Filed Dec. 28, 1978, Ser. No. 154,391

Claims priority, application Sweden, Jan. 3, 1978, 7800077

Int. Cl.³ C04B 15/14

U.S. Cl. 264—82

15 Claims



1. A method of carbonation-hardening a concrete mass, which has already been formed, without using a special curing chamber or autoclave comprising the steps of:

- subjecting the formed mass to a vacuum under a hermetic seal simultaneously to dewater the mass and to compact the mass by the action of atmospheric pressure, thereby creating in the mass a capillary system under pressure; and thereafter, directly introducing carbon dioxide gas into the mass and simultaneously releasing the vacuum, whereby the pressure is removed so that the gas is efficiently and autogenously absorbed into the mass quickly to harden the mass.

4,362,680

PROCESS FOR PRODUCTION OF MOLDED ARTICLES OF ACETYLENE POLYMER

Yukio Kobayashi; Masaaki Kira, both of Yokohama, and Kinya Yamaguchi, Tokyo, all of Japan, assignors to Showa Denko K.K., Tokyo, Japan

Filed Jan. 5, 1981, Ser. No. 222,905

Claims priority, application Japan, Mar. 21, 1980, 55/34686; Mar. 21, 1980, 55/34687; Mar. 21, 1980, 55/34689; Jun. 4, 1980, 55/74401

Int. Cl.³ H01B 1/12; B29C 3/00

U.S. Cl. 264—83

8 Claims

3. A process for producing a molded article of a high polymer of acetylene having a high electrical conductivity, which comprises press-forming a gel-like material or swollen material composed of 5 to 95% by weight of a high polymer of acetylene having a cis content of at least 50% and a fibrous microcrystal structure and 95 to 5% by weight of an organic solvent at a temperature of not more than 50° C. and a pressure of 10 to 1,000 kg/cm², thereafter calendering or monoaxially stretching the resulting molded article and thereafter treating

4,362,678

METHOD OF MAKING POLYISOCYANURATE FOAM LAMINATE

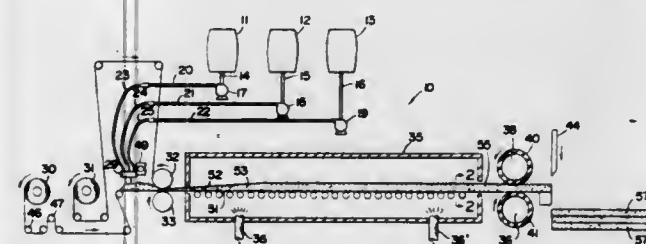
Michael J. Skowronski, Clearwater, and Alberto DeLeon, St. Petersburg, both of Fla., assignors to The Celotex Corporation, Tampa, Fla.

Division of Ser. No. 113,436, Jan. 18, 1980, Pat. No. 4,311,801, which is a division of Ser. No. 911,502, Jun. 1, 1978, Pat. No. 4,212,917. This application Oct. 19, 1981, Ser. No. 312,584

Int. Cl.³ B32B 3/26, 5/20, 31/14; B29D 7/14

U.S. Cl. 264—46.3

13 Claims



1. A process for producing a laminate comprising:

- contacting at least one facing sheet with a polyisocyanurate foam-forming mixture comprising:
 - a polymethylene polyphenylisocyanate;
 - a polyol having the formula:

the molded article further with an electron acceptor or donor substance.

4,362,681

PROSTHETIC DEVICES HAVING COATINGS OF SELECTED POROUS BIOENGINEERING THERMOPLASTICS

Myron Spector, Charleston, S.C.; George T. Kwiatkowski, Greenbrook, N.J.; Walter H. Smarook, Somerville, N.J., and Michael J. Michno, Jr., Somerville, N.J., assignors to Union Carbide Corporation, Danbury, Conn.

Continuation of Ser. No. 377, Dec. 29, 1978, abandoned, which is a division of Ser. No. 787,531, Apr. 14, 1977, Pat. No. 4,164,794.

This application Jan. 18, 1980, Ser. No. 113,317

Int. Cl.³ D04H 1/20

U.S. Cl. 264—112

15 Claims



1. A process for the preparation of a prosthetic device comprised of a load-bearing functional component and over at least a portion thereof, a porous coating of an engineering thermoplastic material which is biocompatible with, and conducive for, the ingrowth of bone spicules, said process comprising contacting at least a portion of the surface of said load-bearing functional component with a particulate bioengineering thermoplastic material selected from the group consisting of polysulfones, polyphenylenesulfides, polyacetals, thermoplastic polyesters, polycarbonates, aromatic polyamides, aromatic polyamideimides, thermoplastic polyimides, polyaryletherketones, polyarylethernitriles and aromatic polyhydroxyethers, said thermoplastic material having at least one fraction of a bimodal distribution of average particle diameters within the range from about 7:1 to about 5:1, by heating said particulate thermoplastic material at a temperature and time sufficient to sinter said material to provide a porous coating having a porosity, pore diameter and pore interconnections which enables such device to become firmly and permanently anchored into a musculoskeletal system in which it is employed by tissue ingrowth into the coating.

4,362,682

CHIP-FREE STAPLE FIBER PROCESS

Gerald A. Berg, Lake Jackson, Tex.; Hermann Buchert, Williamsburg, Va.; Steve R. Duffy, Clute, Tex.; Richard E. Harder, Anderson, S.C.; E. R. Higgs, Clute, Tex.; Louis D. Hoblit; James R. Ryffel, both of Lake Jackson, Tex.; Walter P. Smith, Anderson, S.C., and Edwin L. Stenzel, Morristown, N.J., assignors to Badische Corporation, Williamsburg, Va.

Filed Aug. 21, 1980, Ser. No. 179,583

Int. Cl.³ D01D 9/10

U.S. Cl. 264—143

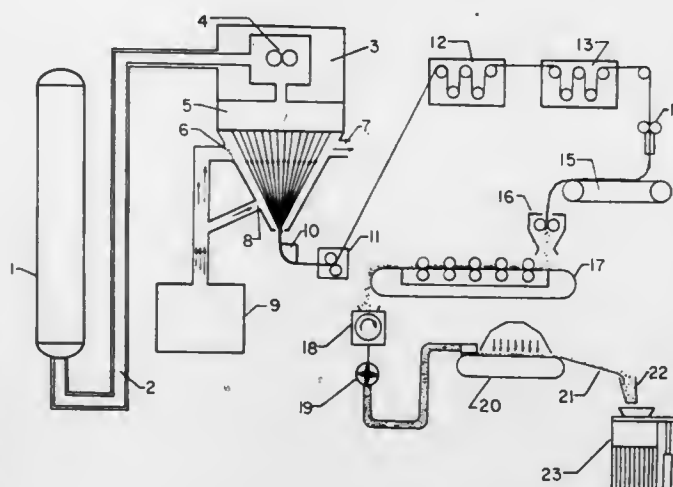
7 Claims

1. A continuous process for the production of a staple fiber product, which process comprises:

A. Spinning an equilibrium melt from a standard hydrolytic or anionic polymerization of caprolactam, the equilibrium melt containing methanol-extractable material including monomeric and oligomeric substances, the equilibrium melt being spun at a temperature of between about 230° and 270° C. through a spinnerette, the spinning take-away speed being less than about 250 meters/minute; the spinnerette having a multiplicity of holes spaced from each

other in an asymmetric arrangement wherein the space between adjacent holes increases from each side of the spinnerette to the center thereof and from the front to the back thereof, the front being defined as that section proximate to the first entrance of quench gas, as set forth below, and the back being defined as that section proximate to the exhaust of quench gas, as set forth below;

B. Quenching the molten polycaprolactam in two phases: (1) Directing gas at a temperature of less than 20° C. at a flow rate of between 200 and 500 cubic feet/minute for a polycaprolactam throughput of between about 0.25 to 1 gram/minute/spinnerette hole, to impinge upon the face of the spinnerette and molten polycaprolactam stands immediately adjacent thereto from a first entrance which is proximate to the section of the spinnerette referred to as the front thereof, and to be exhausted proximate to the section of the spinnerette referred to as the back thereof; and (2) Directing gas at a temperature of less than about 20° C. in an essentially countercurrent flow from a second entrance downstream from the first entrance with respect



to the direction of movement of the filamentary polycaprolactam, at a rate which results in reducing the surface temperature of the polycaprolactam to a value between about 30° and 70° C. before drawing thereof as hereinafter defined;

C. Applying a drawing and crimping lubricant and antistatic agent to the surface of the filamentary polycaprolactam; D. Drawing the filamentary polycaprolactam by conventional means at a total draw ratio between about 3 and 5; E. Crimping the drawn filamentary polycaprolactam by essentially conventional means; F. Cutting the crimped filamentary polycaprolactam into staple lengths by conventional means; G. Subjecting the filamentary polycaprolactam staple to a multiple stage washing procedure for removal of extractables; H. Drying the washed filamentary polycaprolactam staple by conventional means; and I. Packaging the dried filamentary polycaprolactam staple for subsequent use or sale.

4,362,683

APPARATUS AND METHOD FOR PRODUCING A CONTINUOUS NIB ROD FOR A WRITING INSTRUMENT

Katsumi Otsuka, Funabashi, and Tetsuo Shimoishi, Hamamatsu, both of Japan, assignors to Teibow Company Limited, Shizuoka and Toplan Manufacturing Inc., Saitama, both of Japan

Filed Apr. 8, 1981, Ser. No. 252,043

Claims priority, application Japan, Apr. 14, 1980, 55-48880

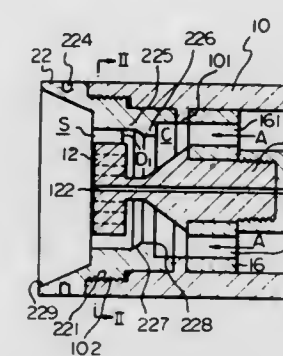
Int. Cl.³ B29D 23/04

U.S. Cl. 264—167

5 Claims

1. A die apparatus for producing a writing nib made of a synthetic material, said writing nib being comprised, in cross-section, of at least one base portion and rib portions extending

in cantilever fashion from the base portion so as to produce a capillary in the nib therebetween, said apparatus comprising: a die body of substantially tubular shape through which a flow of molten synthetic plastic material may pass; a die core arranged in the die body, said die core having a plurality of angularly spaced radial slits extending along the length of the die core; a nozzle member arranged around the die core so that at least one orifice having a cross-sectional shape corresponding to that of the nib is formed between the nozzle member and the die core, said orifice having in cross-section at least one first section and a plurality of second sections corresponding to the base portion and the rib portions, respectively, of the nib; and an integral throttle portion extending from the inner surface of the nozzle member toward the outer periphery of the die core, said throttle portion being arranged adjacent to the inlet of the orifice so as to act on plastic material flow in the first section and the second sections of the orifice; said nozzle member being movably connected to the die body for controlling the minimum distance between the throttle portion and the die core to provide a desired flow rate of plastic material passing through the first section and the second sections, thereby producing a writing nib of desired capillary area.



5. A method for assembling a die apparatus for producing a writing nib made from synthetic plastic material of a desired capillary area, said writing nib being comprised in cross-section by at least one base portion and a plurality of rib portions, said method comprising the steps of:

providing a die body of substantially tubular shape; arranging a die core in the die body, the die core having a plurality of angularly spaced slits extending along the length of the die core therethrough; arranging a nozzle member around the die core so that at least one orifice having a cross-sectional shape corresponding to that of the nib is formed only between the nozzle member and the die core, said orifice having in cross-section at least one first section and a plurality of second sections corresponding to the base portion and the rib portions, respectively, of the nib; providing a throttle portion on the inner surface of the nozzle member at a position adjacent to the inlet of the orifice; introducing a pressurized flow of melted plastic material into the inlet of the orifice; taking out a continuous nib rod from the orifice; and moving the nozzle member along the length of the die body so that the throttle portion is located on a position with respect to the inlet of the orifice, thereby obtaining a desired length of the rib, i.e., a desired capillary area in the nib.

4,362,684

PROCESS AND APPARATUS FOR MAKING A WELDING SLEEVE

Alfred Thalman, Uhwiesen, Switzerland, assignor to George Fischer Aktiengesellschaft, Switzerland

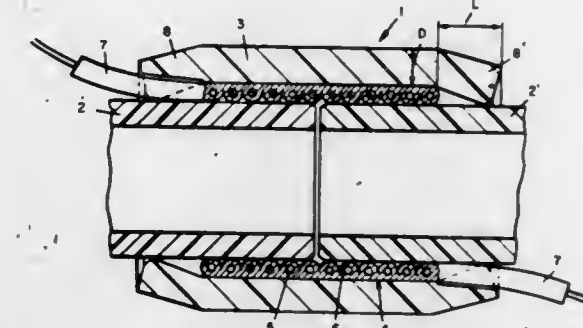
Filed Mar. 27, 1981, Ser. No. 248,543

Claims priority, application Switzerland, Mar. 31, 1980, 2531/80

Int. Cl.³ B29C 27/00; H05B 3/58

U.S. Cl. 264—230

11 Claims



1. A process for producing a welding sleeve, comprising the steps of:

forming a helical coil having a resistance wire in a casing of thermoplastic material with adjacent windings thereof secured together; mounting the coil on a mandrel; heating a tubular body of thermoplastic material and pushing the body onto the mandrel to widen and stretch the body over the coil while the body is at a temperature between about 20° and about 40° C. below the temperature of the crystallite melting region of the body thermoplastic material such that ends of the body project axially beyond the coil; partially cooling and contracting the body about the coil, and shrinking each body end to a conical shape; and stripping the body off the mandrel with the coil secured on the inside surface thereof and with substantial residual radial contraction strains in the body.

5. An apparatus for forming a welding sleeve having a tubular body of thermoplastic material with a helical coil of a resistance wire encased in thermoplastic material, comprising: a mandrel having means for receiving a coil thereon and having a conical widening surface, said mandrel including first and second portions separable in a plane substantially transverse to its axial direction, said portions having opposed shoulders for axially retaining the coil and being releasably coupled by a first centering means and first locking means;

at least one pressure member disposed coaxially relative to said mandrel, said mandrel second portion being releasably coupled to said pressure member by a second centering means and a second locking means; and means for moving said pressure member in said axial direction toward and away from said mandrel.

4,362,685

METHOD OF PRODUCING ARTICLES FROM THERMOSETTING RESIN

Francesco Simioni, Padua, Italy, assignor to Safflo S.p.A., Piazza Tiziano, Italy

Filed Jun. 7, 1979, Ser. No. 46,505

Claims priority, application Italy, Jun. 30, 1978, 25185 A/78

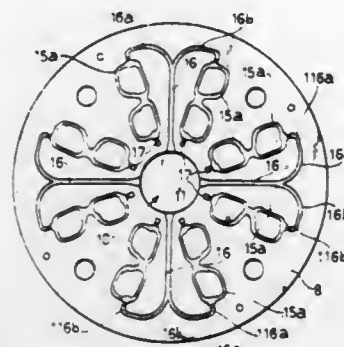
Int. Cl.³ B29C 5/04

U.S. Cl. 264—297

17 Claims

1. A method for molding a resin material in a mold having at least one article impression wherein said article impression is disposed in a centrifugal field about an axis of rotation comprising the steps of:

- (a) introducing said resin into said mold at about the axis of rotation thereof;
 (b) causing said resin to flow in a centrifugal field toward the periphery of said mold; and



- (c) supplying said resin to be molded to a radially outward portion of said article impression and filling said article impression in a centrifugal field from said outward portion in a direction substantially toward said axis of rotation.

4,362,686

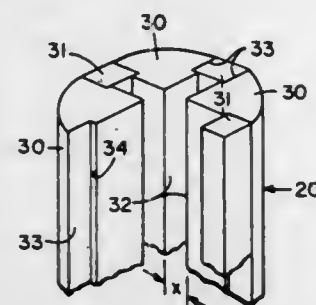
COLLAPSIBLE CORE AND METHOD OF USING SAME
 Thomas A. Clissem, Louisville, Ky.; Melvin L. Neville, Jeffersonville, Ind., and Leonard W. Pokallus, Louisville, Ky., assignors to Corning Glass Works, Corning, N.Y.

Filed Dec. 22, 1980, Ser. No. 218,667

Int. Cl.³ B28B 1/14, 7/20

U.S. Cl. 264—317

11 Claims



1. In the process of fusion casting refractory comprising casting molten refractory into the mold cavity of a mold having at least one thermally collapsible core extending into the mold cavity from a surface of the mold at least partially defining the cavity and then solidifying the cast molten refractory therein to form a fusion-cast refractory article with a hollow portion formed by the core, wherein the improvement comprises providing, as the thermally collapsible core, the core of claim 6 said casting being at a temperature sufficient to melt said spacers, and causing the segments to move so that all of the mating edges converge toward the collapse axis to permit removal of the segments from the cast refractory.

4,362,687

METHOD AND APPARATUS FOR CASTING OR INJECTION-MOLDING OF CAGES OF CYLINDRICAL ROLLING ELEMENTS

Armin Olschewski, Schweinfurt; Manfred Brandenstein, Eusenhelm; Lothar Walter; Heinrich Kunkel, both of Schweinfurt; Herbert Dobhan, Bergtheinfeld; Peter Horling, Mainberg, and Norbert Klüpfel, Hambach, all of Fed. Rep. of Germany, assignors to SKF Kugellagerfabriken GmbH, Schweinfurt, Fed. Rep. of Germany

Filed Nov. 25, 1980, Ser. No. 210,217

Claims priority, application Fed. Rep. of Germany, Dec. 7, 1979, 2949251

Int. Cl.³ B29C 7/00

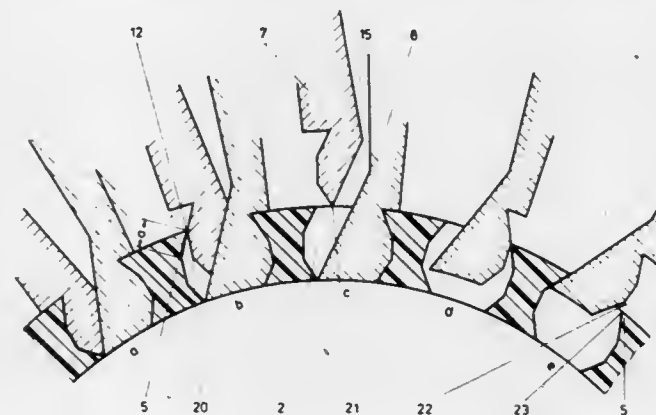
U.S. Cl. 264—318

6 Claims

1. In a method for casting or injection-molding cages for retaining cylindrical rolling elements by cage projections, the

projections being provided on both the inside and outside of the cage along the lateral surfaces of the webs located between the cage pockets, the method using two mold slides per pocket; the slides being retractable from the pockets and, when in the inserted position, engaging one another along a partition edge inclined to the radial direction of the cage, the slides having lateral surfaces facing away from one another that have shapes equivalent to the shape of the corresponding lateral surfaces of the webs; the improvement wherein, after the cage has been cast or injection-molded, first one slide is pushed out in a slanted direction along the partition edge, until the retaining projection formed by this slide is free, whereupon this slide is further retracted from the cage, in a radial direction; and in that, simultaneously or subsequently, the second slide is retracted from the pocket.

2. In a method for casting or injection molding an annular cage having radially extending pockets therethrough with



circumferential directed projections at their radial inner and outer edges for retaining cylindrical rolling elements in said pockets, each said pocket being formed by a first and second mold slide, the mold slides having oppositely directed faces for forming opposite slides of the respective pockets and having planar abutting surfaces inclined to the radial direction of the cage when in the casting or molding position, the planar abutting surface of the second mold slide decreasing its circumferential width radially outwardly; the improvement in removing the mold slides following casting or molding, comprising first moving said first slide radially outwardly to slide along the inclined planar abutting surface of the second slide until it no longer lies radially under the radially outer projection of the corresponding side of the pocket, then secondly moving the first slide outwardly in the radial direction until it is positioned outside of the respective pocket, and simultaneously or following said second moving step, moving said second slide radially outwardly from said pocket.

4,362,688

METHOD FOR MOLDING A PLASTIC PIPE

Tatsuya Nakagawa, Matsudo, Japan, assignor to Excell Corporation, Tokyo, Japan

Continuation-in-part of Ser. No. 53,210, Jun. 29, 1979, Pat. No. 4,239,474. This application Sep. 15, 1980, Ser. No. 187,369

Int. Cl.³ B29C 17/07

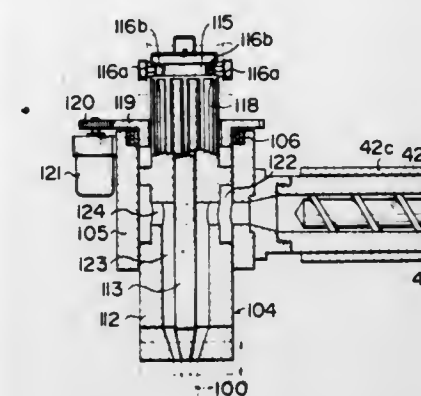
U.S. Cl. 264—503

5 Claims

1. A method for molding a plastic pipe comprising the steps of:

- positioning a parison discharged out of a parison extruder having a nozzle into and along a first groove provided on a top surface of a bottom mold half and having at least one portion curved relative to a longitudinal axis of said first groove;
- maintaining a predetermined distance between said extruder and said first groove during said positioning;
- providing relative movement between said first groove and said nozzle along said longitudinal axis during said positioning;

rotating said nozzle over a predetermined angle about a nozzle center axis while positioning said parison along said curved portion such that said rotating is in a direction commensurate with a curvature direction of said curved portion;



placing a top mold half provided with a second groove on said bottom mold half, said first groove being in registry with said second groove to define a mold cavity; and injecting pressurized gas into the parison in the mold cavity for shaping as defined by the mold cavity.

4,362,689

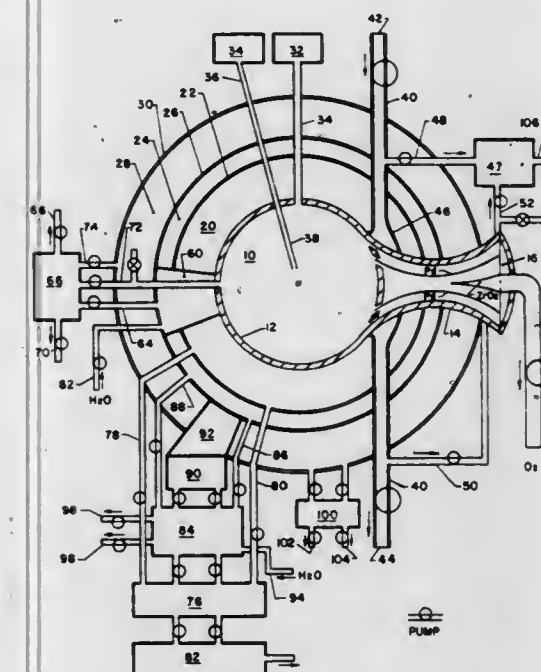
PRODUCTION OF HYDROGEN-BASED GASEOUS FUEL
 Theodor Teichmann; Henry J. Gomberg, and Robert J. Teitel, all of Ann Arbor, Mich., assignors to Texas Gas Transmission Corporation, Owensboro, Ky.

Continuation of Ser. No. 414,367, Nov. 9, 1973. This application Aug. 26, 1976, Ser. No. 718,026

Int. Cl.³ G21B 1/00; G21G 1/06

U.S. Cl. 376—148

10 Claims



1. The process of disassociating chemical materials to produce output combustible gases with D-T fusion reaction energy, comprising in combination,

- establishing a fusion reaction chamber and producing therein a D-T reaction producing heat and neutron radiation,
- placing about said reaction chamber at least two additional chambers, a first and a second chamber, isolated from the central chamber and D-T fuel but placed to receive heat and neutron radiation from said D-T reaction passing out of the reaction chamber,
- exposing by introduction in additional first chamber carbon containing material which will chemically react by

- heat and radiation energy from said D-T reaction to produce an output combustible gaseous component,
- exposing by introduction in said second additional chamber water which will decompose by heat and radiation energy from said D-T reaction to produce hydrogen, and
- removing said gaseous component from said reactor for use in outside systems requiring expenditure of said combustible gaseous component in a chemical process,
- placing a lithium blanket surrounding substantially said reaction chamber and said first additional chamber, passing the lithium from said blanket through a heat exchanger.

4,362,690

PYROCHEMICAL PROCESSES FOR THE DECOMPOSITION OF WATER

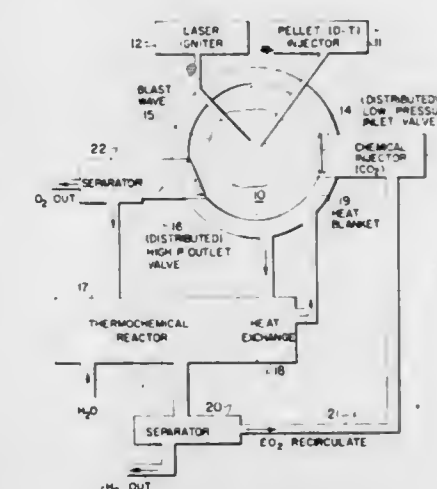
Ralph H. Kummier, Birmingham, and Richard J. Leite, Ann Arbor, both of Mich., assignors to Texas Gas Transmission Corporation, Owensboro, Ky.

Continuation-in-part of Ser. No. 548,231, Feb. 10, 1975, abandoned. This application Sep. 21, 1976, Ser. No. 725,339

Int. Cl.³ G21B 1/00

U.S. Cl. 376—148

4 Claims



1. The pyrochemical process of decomposition of a chemical raw material which includes water or CO₂ into at least one constituent element in a high energy process in a single thermal step comprising the step of introducing the chemicals into a central reactor chamber with a deuterium-tritium nuclear fuel pellet, irradiating the pellet to produce a deuterium-tritium nuclear reaction of which a fraction of the energy released appears in an expanding blast wave front over a small fraction of a second, chemically decomposing said chemicals in the high temperatures and high pressures introduced by said blast wave, driving the reaction elements wherein the step of removing the constituent element from the reaction chamber comprises opening a distributed valve(s) in said central reactor by said blast wave front to expel said element from said central chamber as a part of the kinetic drive action performed by said blast wave outwardly in the reactor chamber toward an enclosure wall by nuclear reaction, and removing the reaction products from said chamber thereby to produce said constituent element.

4,362,691

PROCESS OF OPERATING A NUCLEAR REACTOR TO MINIMIZE PRODUCTION OF U-232

Linton W. Lang, Richland, Wash., and Robert L. Stetson, Moraga, Calif., assignors to Pacific Nuclear Fuels, Inc., Richland, Wash.

Division of Ser. No. 861,285, Jan. 20, 1978. This application Jan. 14, 1980, Ser. No. 97,108

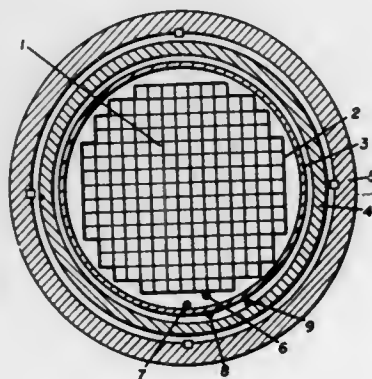
Int. Cl.³ G21C 19/00

U.S. Cl. 376—267

1 Claim

1. The method of operating a light-water cooled nuclear

power reactor containing both fissile fuel elements and fertile fuel elements in predetermined arrangements, said arrangements comprising a central core having a plurality of first fuel elements therein, each said first fuel element comprising a central section of fissile uranium oxide pellets, outer sections of hollow, thin walled thorium oxide pellets, plenum sections interposed between said central and outer sections, spring and spacer means positioned within said plenum sections, a moderating material positioned on at least one side of each of said plenum sections, cladding enclosing said pellets, a core barrel spaced from and surrounding said central core, a second set of fuel elements spaced from and surrounding said central core and positioned between said central core and said core barrel in spaced relation thereto, a third set of fuel elements surrounding said core barrel in spaced relation thereto, the fuel in said second and third sets of fuel elements consisting of fertile thorium, each of the fuel elements in said second and third sets comprising a plurality of stacked thorium oxide pellets within a cladding wherein all of said thorium oxide pellets are hollow, said hollow thorium oxide pellets having inner diameters which vary axially from a maximum at the radial center of the



fuel element to a minimum at each end of the fuel element, and characterized by minimum production of U-232 due to $n,2n$ reactions on thorium comprising the steps:

- initially charging said light-water nuclear power reactor with said first, second and third sets of fuel elements in said predetermined arrangements;
- irradiating said first, second and third sets of fuel elements at an average driver fuel rod power output of approximately 7 kw thermal per foot, annually removing and replacing preselected ones of said first fuel elements such that the amount of U-232 mixed with the U-233 in the removed irradiated thorium initially averages 300 to 500 parts per million;
- continuing said irradiation of said second and third sets of fuel elements for a period of two to three years at a core power density of 50 to 100 kw thermal per liter;
- thereafter removing and replacing the fuel elements in said second and third sets such that the amount of U-232 mixed with the U-233 in the removed irradiated thorium initially averages 300 to 500 parts per million;
- further continuing steps (B) through (D).

4,362,692

REACTOR COMPONENT AUTOMATIC GRAPPLE

Paul R. Greenaway, Bethel Park, Pa., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Nov. 3, 1980, Ser. No. 203,307

Int. Cl.³ G21C 19/00

U.S. Cl. 376—268

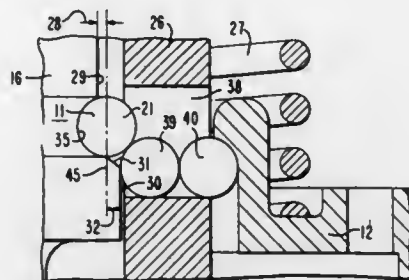
6 Claims

1. A grapple for releasably seizing a reactor component, said grapple comprising:

- means for seizing said component;
- an impelled actuating stem for actuation of said seizing means having a circumferential stem groove;
- means for releasably locking said actuating stem by mechanical intercourse with said stem groove, said stem locking means having a plurality of detent-ball sets, each

of said detent-ball sets having three balls adapted to cause one of said balls to roll into said stem groove thereby locking said actuating stem;

- a mechanical trigger adapted to sense proper alignment with and seating on said component by said grapple and thereupon unlocking said locking means by withdrawal of said locking means from said stem groove, thereby initiating impelled action of said actuating stem thereby automatically triggering the seizing action of said seizing means, and further adapted to serve in cooperation with said locking means as a mechanical logic which disallows grapple seizure in the absence of proper grapple alignment with and seating on said component;



- a grapple subassembly surrounding a lower portion of said actuating stem and surrounding and adapted to support said seizing means, said stem locking means, and said trigger, having at one end means for alignment and having at another end means for grapple subassembly attachment; and

- a rising stem subassembly surrounding an upper portion of said actuating stem having at one end means for rising stem subassembly attachment adapted to mate with and releasably attach to said grapple subassembly attachment means.

4,362,693

SYSTEM FOR MITIGATING CONSEQUENCES OF LOSS OF COOLANT ACCIDENT AT NUCLEAR POWER STATION

Anatoly M. Bukrinsky, prospekt Vernadskogo, 119, kv. 19; Julian V. Rzhiznikov, Michurinsky prospekt, 16, kv. 35; Jury V. Shvyryayev, Dnepropetrovskaya ulitsa, 23, korpus 3, kv. 117; Viktor P. Tatarnikov, ulitsa Chusovskaya, 11, korpus 8, kv. 24; Alexandr L. Lapshin, Yasenevo, Mikroraion 17, korpus 161-B, kv. 121, all of Moscow; Vladimir I. Sanovich, Bolshaya Porokhovskaya, 45, kv. 64; David A. Zlatin, Zanevsky prospekt, 43, kv. 132, both of Leningrad; Jury A. Kuznetsov, Tverskaya ulitsa, 25/15, kv. 25, Gorky, and Evgeny A. Babenko, Inzhenernaya ulitsa, 32, kv. 12, Sverdlovsk, all of U.S.S.R.

Filed Oct. 3, 1979, Ser. No. 81,526

Int. Cl.³ G21C 9/00

U.S. Cl. 376—298

18 Claims

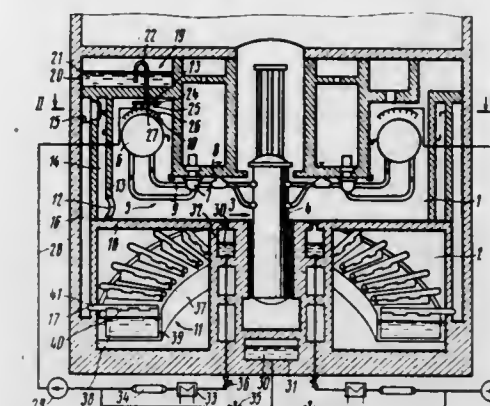
1. A system for mitigating the consequences of a loss of coolant accident at a nuclear power station, comprising:

- a first room confined within a hermetically sealed envelope and having walls and a floor;
- a second room confined within a hermetically sealed envelope having walls and a floor;
- said first room accommodating therein a reactor plant liable to an accidental loss of coolant and an active-type sprinkler means intended to condense the steam released by the boiling coolant after an accident;
- said second room, accommodating a basin-type condenser to condense steam;
- an intermediate chamber positioned between the said first room and the said second room within the said hermetically sealed envelope;
- holes provided in said walls of said first room in immediate

proximity to said floor of said first room and spaced at a maximum distance from one another along the perimeter of said walls;

said intermediate chamber communicating with said first room through said holes so that most of the air contained in said first room is forced therefrom as a result of the rising pressure following an accident;

a plurality of vertical channels located within said envelope on the exterior of said intermediate chamber having inlets and outlets and communicating through their inlets with



the upper edge of said intermediate chamber wherefrom air is forced through said inlets into said channels and through their outlets to said basin-type condenser, so that steam released as a result of an accident is condensed and air forced through said outlets of said channels is discharged into said second room;

the length of said channels being selected so as to form a water lock to prevent the backflow of air from the second room to the first and thus produce rarefaction in said first room.

4,362,694

LIQUID METAL-COOLED NUCLEAR REACTOR

Gaston Kayser, Aix en Provence, France, assignor to Commissariat à l'Energie Atomique, Paris, France

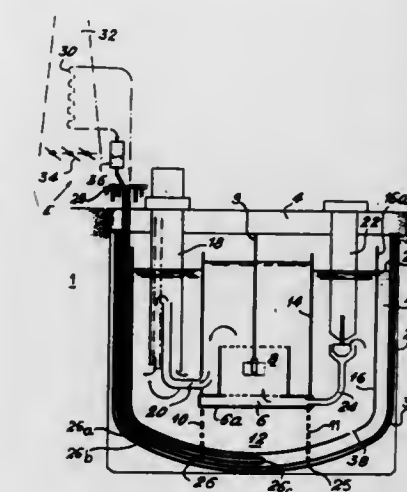
Filed Jul. 11, 1980, Ser. No. 167,703

Claims priority, application France, Jul. 17, 1979, 79 18452

Int. Cl.³ G21C 9/00

U.S. Cl. 376—298

6 Claims



1. A nuclear reactor cooled by a primary liquid metal and comprising: a main vessel having a bottom wall and a side wall, a slab sealing said main vessel, a core, an inner vessel within said main vessel and containing said core, a support for positioning and supplying said core with said primary liquid metal, a supporting structure bearing on said bottom wall and supporting said support, at least one main exchanger and at least one primary pump suspended from said slab, said reactor further comprising a baffle located in the main vessel and cladding said side wall and said bottom wall to define with said main

vessel an intermediate space filled with said primary liquid metal, tubes located within said intermediate space for supplying from an auxiliary exchanger a cooling liquid metal to a part of said space defined between said baffle and said bottom wall of the reactor vessel, and tubes located within said intermediate space for returning said cooling liquid metal to said auxiliary exchanger, in order to remove heat from said intermediate space.

4,362,695

FISSION PRODUCT FILTER FOR HOT REACTOR COOLANT

Siegfried Förster, Alsdorf; Nicolaos Ionitakis, Jülich, and Peter Quell, Aachen, all of Fed. Rep. of Germany, assignors to Kernforschungsanlage Jülich GmbH, Jülich, Fed. Rep. of Germany

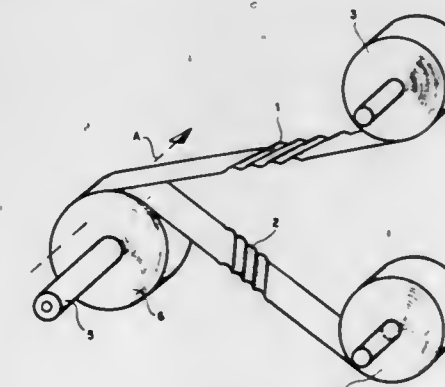
Filed Sep. 10, 1980, Ser. No. 185,886

Claims priority, application Fed. Rep. of Germany, Sep. 14, 1979, 2937209

Int. Cl.³ G21C 17/00

U.S. Cl. 376—314

9 Claims



1. In a fission product filter for a hot reactor coolant gas, especially helium, comprising a gas-tight chamber traversed by said gas during circulation thereof along a path and containing a filter element composed of a material capable of retaining fission products from said gas by material-exchange interaction of said gas with said filter element, said filter element being formed with passages traversed by said gas, the improvement wherein said filter element comprises at least one coil body composed of two corrugated metal strips having crests in direct contact with one another and coiled together upon a core, the corrugations of the two strips mutually crossing where said strips contact one another in adjacent turns so that a zig-zag pattern of flow is established for said gas through said coil body and the passages are formed around the mutually contacting crests of adjacent turns.

4,362,696

CORROSION-RESISTANT FUEL CLADDING ALLOW FOR LIQUID METAL FAST BREEDER REACTORS

William F. Brehm, Jr., Richland, and Richard P. Colburn, Pasco, both of Wash., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed May 21, 1979, Ser. No. 41,273

Int. Cl.³ G21C 3/06

U.S. Cl. 376—417

3 Claims

1. A LMFBR coated nuclear fuel element cladding tube comprising:

- a stainless steel alloy containing at least 10% nickel; a means for reducing radially outward diffusion of a radionuclide formed in said stainless steel alloy during irradiation; wherein said radionuclide is ⁵⁴Mn; a means for reducing liquid sodium wastage of said tube; an aluminide coating of about 1 to 1.5 mils in thickness formed by diffusing aluminum into a surface of said tube; said aluminide coat-

ing comprising said means for reducing radially outward diffusion and said means for reducing liquid sodium wastage of said tube; and wherein said aluminide coating comprises nickel aluminide phases and is substantially free of silicon.

4,362,697

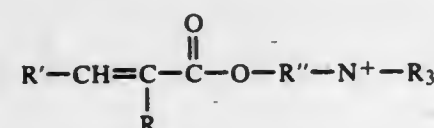
HOMOGENEOUS SPECIFIC BINDING ASSAY TEST DEVICE HAVING COPOLYMER ENHANCING SUBSTANCE

David L. Tabb, and Richard J. Tybach, both of Elkhart, Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.
Filed Apr. 20, 1981, Ser. No. 255,759
Int. Cl.³ G01N 33/52, 33/54

U.S. Cl. 422-56

5 Claims

1. A test device for determining the presence of a ligand in, or the ligand binding capacity of a liquid sample, comprising:
 - (a) reagents for a homogeneous specific binding assay system capable of producing a detectable response which is a function of the presence of the ligand in or the ligand binding capacity of the sample;
 - (b) an enhancer substance comprising a quaternized copolymer of vinylpyrrolidone and a comonomer having the structure



- in which R, same or different, is lower alkyl, R' is H or lower alkyl and R'' is lower alkylene; and
(c) a carrier matrix incorporated with said reagents and enhancer substance.

4,362,698

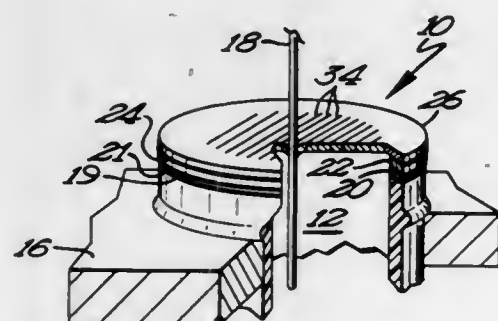
CLOSURES FOR FLUID SAMPLE CUPS
Nicholas T. Boosalis, and George E. Sherman, both of Minneapolis, Minn., assignors to Sherman-Boosalis Corporation, Minneapolis, Minn.

Filed Mar. 7, 1980, Ser. No. 128,075

Int. Cl.³ B01L 3/00; B65D 51/00, 41/00

U.S. Cl. 422-102

28 Claims



1. A multilayer cap for use in connection with blood sample cups used in a blood analyzer including a pipette which enters the blood sample cups through the open end of the sample cup and extends past the rim of the cup into the interior of the cup to thereby remove a sample of the blood from the cup, comprising, in combination: a first layer; a second, rigidifying layer adhered to the first layer; and a third, adhesive layer adhered to the second layer having exposed adhesive allowing the multilayer cap to be adhesively adhered to the rim of the open end of the blood sample cup, with the second and third layers each having a removed portion for allowing the pipette to pass therethrough; means formed in the first layer for allowing the pipette of the blood analyzer to forgivably extend through the first layer without piercing it and to pass through the removed portions of the second and third layers and into the interior of the sample cup to thereby remove a sample of blood and for

insuring the automatic operation of the blood analyzer even though the location where the pipette of the blood analyzer extends into the sample cup varies and the placement of the cap on the sample cup may vary between the sample cups of the blood analyzer, with the forgivably extend allowing and automatic operation insuring means comprising an area of slits, with the first layer being formed of material having elastic characteristics allowing sealing of the first layer between the slits before and after entry and withdrawal of the pipette and between the pipette and the slits during and while entry and withdrawal of the pipette, with the slit area being substantially equal to but smaller than the removed portion of the second and third layers to insure that the pipette of the blood analyzer extends into the slit area and not the remaining area of the first layer located outside the slit area, and with the dimensions of the cap allowing placement of the cap on the rim of the blood sample cup to thereby effectively seal the blood sample cup against evaporation from within the cup and against contamination from without the cup.

4,362,699

APPARATUS FOR HIGH PRESSURE PEPTIDE SYNTHESIS

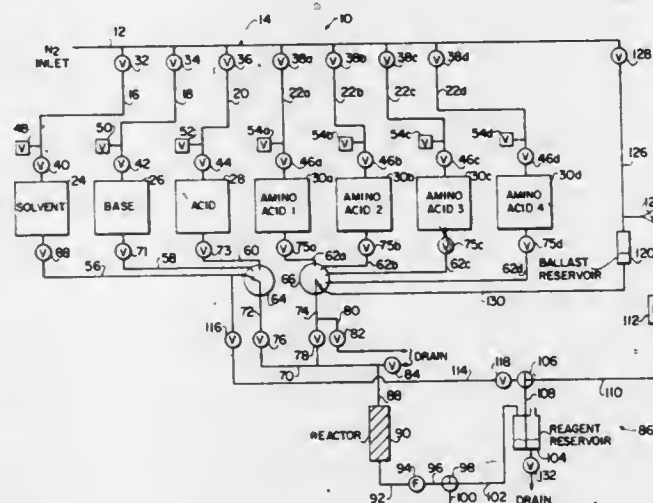
Michael S. Verlander, Del Mar; William D. Fuller, San Diego, and Murray Goodman, La Jolla, all of Calif., assignors to Bio Research, Inc., La Jolla, Calif.

Filed Mar. 10, 1981, Ser. No. 242,232

Int. Cl.³ B01J 8/02; C07C 103/52; G05D 16/00

U.S. Cl. 422-131

9 Claims



1. An apparatus for synthesizing a polypeptide chain on an insoluble solid support by performing a series of stepwise coupling reactions under high pressure, the apparatus comprising:

- means defining a supply of deprotecting agent thereby forming a deprotecting agent reservoir;
- means defining a supply of solvent thereby forming a solvent reservoir;
- means defining a supply of neutralizing agent thereby forming a neutralizing reservoir;
- means defining a supply of at least one amino acid thereby forming at least one amino acid reservoir;
- a continuous flow high pressure reactor substantially packed with an insoluble support;
- means to selectively couple each said reservoir fluidly to said reactor;
- a high pressure pumping means for transferring the fluids contained in said reservoirs through said reactor under high pressure;
- a recycle loop means for recycling back through said reactor the amino acid which is delivered to said reactor, said recycle loop means including means defining a reagent reservoir in which the fluid being recycled is accumulated, a recycle pump means for transferring the fluid accumulated in said reagent reservoir back to said reactor, and

a means for maintaining said reactor under high pressure during recycling such that the synthesis of the polypeptide chain occurs in said reactor under a pressure of at least about 40 psi.

4,362,700

CATALYTIC CONVERTER

Tadayoshi Hayashi, Fujimi; Ikuro Kajitani, Hanno; Katsusuke Ueno, and Yutaka Noritake, both of Kawagoe, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

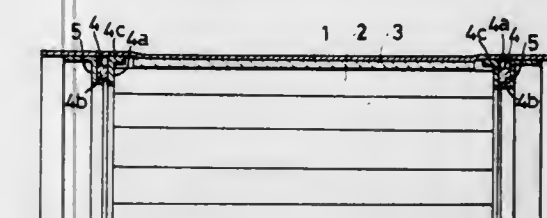
Filed Mar. 10, 1981, Ser. No. 242,286

Claims priority, application Japan, Mar. 12, 1980, 55-30349

Int. Cl.³ F01N 3/10

U.S. Cl. 422-179

5 Claims



1. In a catalytic converter including a casing having an inner circumferential surface, a catalyst carrier located within the casing and having opposite ends and end edges, support members located within the casing at the respective ends of the catalyst carrier, annular metal rings engaged with the respective ends of the catalyst carrier, and an annular cushion member supported by each support member and compressively engaged by the adjacent annular metal ring, the improvement comprising:

at least one of said annular metal rings being comprised by a second cushion member having a bulk density which is higher than that of said first mentioned cushion member; said second cushion member being L-shaped in transverse cross-section including a radial flange engaged between said catalyst carrier and said first cushion member, and a radially outer axial flange engaged with said inner surface of said casing and having an inner periphery sized so as to form a gap between said end edge of said catalyst carrier and said inner periphery of said axial flange.

4,362,701

ROTATING APPARATUS FOR MANUFACTURING HYDROGEN FLUORIDE

Jörg Krüger, Schwandorf; Roland Thome, Bonn; Dieter Moritz, Lünen; Hubert Bings, Lünen, and Herbert Losert, Lünen, all of Fed. Rep. of Germany, assignors to Vereinigte Aluminium-Werke Aktiengesellschaft, Bonn, Fed. Rep. of Germany
Division of Ser. No. 198,217, Oct. 17, 1980, Pat. No. 4,294,816.
This application Mar. 27, 1981, Ser. No. 248,522

Claims priority, application Fed. Rep. of Germany, Oct. 20, 1979, 2942439

Int. Cl.³ B01J 4/00, 8/10, 19/28

U.S. Cl. 422-194

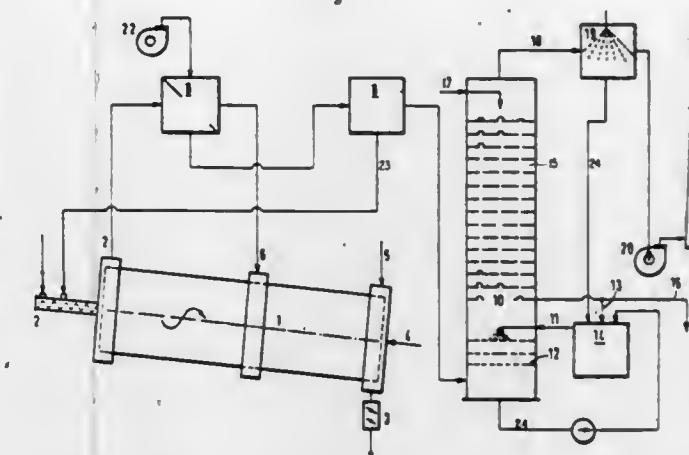
7 Claims

1. Apparatus for the manufacture of hydrogen fluoride from carbon and fluoride containing solid materials, which comprises:

- a relatively hollow, cylindrical enclosure;
- means for rotating said enclosure about its longitudinal axis; said enclosure having an inlet for solid material reactants, an outlet for gaseous products and an outlet for solid products;
- a sleeve mounted coaxially within said enclosure at a first end of said enclosure, said sleeve provided with a series of radially extending heat-exchange plates, said plates having outer edges in spaced relation with the enclosure, said first end of said enclosure opposed to said inlet for said reactants;

means for injecting steam circumferentially within said sleeve;

means at said first end of said enclosure for injecting steam between said sleeve and said cylindrical enclosure;



means for tangentially injecting oxygen into said cylindrical enclosure; said means disposed at an interior face of said enclosure, and positioned between said sleeve and said inlet.

4,362,702

HYDROMETALLURGICAL PROCESS FOR THE TREATMENT OF A RAW MATERIAL WHICH CONTAINS OXIDE AND FERRITE OF ZINC, COPPER AND CADMIUM

Jussi K. Rastas; Jens R. Nyberg, both of Pori; Kauko J. Karpale, Ulvila, and Lars-Göran Björkqvist, Espoo, all of Finland, assignors to Outokumpu Oy, Helsinki, Finland

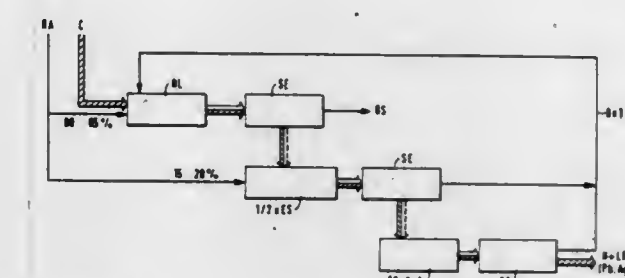
Filed Sep. 29, 1981, Ser. No. 306,705

Claims priority, application Finland, Sep. 30, 1980, 803097

Int. Cl.³ C22B 3/00; C01G 49/06

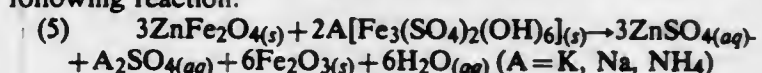
U.S. Cl. 423-41

4 Claims



LEGEND:
RA RETURN ACID
C CALING
E NEUTRAL LEACH
H HEAT TREAT
1/2 CS SEMI-CONVERSION
WS RETURN SOLUTION
RS RAW SOLUTION
SE SEPARATION OF SOLID AND SOLUTION
CS-4-A CONVERSION TO HEMATITE IN AUTOCLAVE
H HEAT TREAT
LEACH RESIDUE
S SOLID PHASE
SOLUTION PHASE

1. A hydrometallurgical process for the treatment of a raw material which contains an oxide and a ferrite of at least one element selected from the group comprising zinc, copper and cadmium, comprising: neutral leaching the raw material by means of a sulfuric-acid-bearing solution in order to leach the oxide without substantial dissolving of ferrite; separating a ferrite-bearing residue; mixing a sulfuric-acid-bearing or ferrisulfate-bearing solution or a mixed solution with the residue in such a quantity that approximately 50-60% of the ferrite dissolves and its iron is precipitated as jarosite in the presence of alkali or ammonium ions under atmospheric conditions at 80°-105° C.; separating a solid phase from the solution; and treating a slurry of the solid phase at such elevated pressure and temperature that the zinc of the solid phase is converted to zinc sulfate and the iron to hematite in accordance with the following reaction:



4,362,703

PROCESS FOR PREPARING CRYOLITE FROM FLY ASH
Mustafa Boybay, and Turgut Demirel, both of Ames, Iowa, assignors to Iowa State University Research Foundation, Inc., Ames, Iowa

Filed Mar. 1, 1982, Ser. No. 353,066
Int. Cl.³ C01F 7/54

U.S. Cl. 423—116 10 Claims
1. The process of preparing cryolite (Na_3AlF_6) from a coal fly ash containing aluminum oxide as one of the principal constituents, comprising:

- reacting aqueous phosphoric acid (H_3PO_4) with said fly ash to convert a substantial portion of the aluminum of said fly ash to aluminum phosphate (AlPO_4), thereby obtaining a first reaction mixture containing a substantial amount of AlPO_4 ;
- adding aqueous sodium hydroxide (NaOH) to said first reaction mixture and reacting said NaOH therewith to form a second reaction mixture, the amount of NaOH added being sufficient to convert said AlPO_4 to sodium aluminate (Na_3AlO_3);
- separating the undissolved solids from said second reaction mixture to obtain a solution containing said Na_3AlO_3 ;
- adding hydrogen ions (H^+) and fluoride ions (F^-) to said Na_3AlO_3 containing solution to form cryolite as a precipitate, said addition being continued to a final pH below 9.0; and
- separating the precipitated cryolite from the residual solution.

4,362,704

COBALT LEACHING PROCESS

Patrick R. Taylor, 838 Truman, Moscow, Id. 83843, and Jonathan P. Vanderloop, 16885 Crestview Dr., Victorville, Calif. 92392

Continuation of Ser. No. 98,350, Nov. 29, 1979, abandoned. This application Dec. 8, 1980, Ser. No. 214,657
Int. Cl.³ C01G 51/10

U.S. Cl. 423—150 13 Claims

- The process for separating cobalt from cobalt arsenic sulfide-containing ore or concentrate which comprises contacting said ore or concentrate with an aqueous solution consisting essentially of about 10 to 300 grams per liter of sulfuric acid and at least about 10 grams per liter of ferric sulfate, at a temperature of from about ambient to the boiling temperature of said aqueous solution and at substantially atmospheric pressure, and thereby solubilizing and extracting said cobalt.

4,362,705

PROCESS FOR THE PREPARATION OF PHOSPHORIC ACID AND CALCIUM SULPHATE ANHYDRITE AS WELL AS PHOSPHORIC ACID AND CALCIUM SULPHATE ANHYDRITE OBTAINED BY THIS PROCESS

Cornelis A. M. Weterings, Stein, Netherlands, assignor to Stamicarbon, B.V., Geleen, Netherlands

Filed Jul. 15, 1981, Ser. No. 283,723

Claims priority, application Netherlands, Jul. 15, 1980, 8004058

Int. Cl.³ C01F 1/00, 5/00, 11/00; C01B 25/6

U.S. Cl. 423—167 6 Claims

- A process for the preparation of phosphoric acid and calcium sulphate anhydrite comprising the steps of,
 - digesting phosphate rock with a digesting liquor comprising sulphuric acid from the sulphuric and phosphoric acid liquor of step (d) and the acid recrystallization liquor of step (j) to form a resultant mixture comprising phosphoric acid and calcium sulphate dihydrate.
 - separating out said calcium sulphate dihydrate from said phosphoric acid.
 - discharging said phosphoric acid.
 - washing said separated calcium sulphate of step (b) with a wash liquid comprising water and an acid wash liquor

from step (h) and passing the resultant sulphuric and phosphoric acid liquor to the phosphate digestion of step (a).

- separating said washed calcium sulphate dihydrate of step (d), into a fine fraction and a coarse fraction.
- discharging said fine fraction.
- removing at least a portion of the entrained liquor from said coarse fraction.
- washing said coarse fraction dihydrate of step (g) with a wash liquor containing sulphuric acid from step (k) and passing the resultant acid wash liquor to step (d).
- recrystallizing said washed coarse fraction of step (h) with concentrated sulphuric acid at elevated temperature into calcium sulphate anhydrite.
- separating said anhydrite from the acid recrystallization liquor and passing said acid recrystallization liquor to the phosphate digestion of step (a).
- washing said separated anhydrite of step (j) with water and passing the wash liquid containing sulfuric acid to step (h).
- discharging said calcium sulphate anhydrite.

4,362,706

STABILIZER SYSTEM FOR COMMERCIAL HYDROGEN PEROXIDE

Paul E. Willard, Skillman, N.J., assignor to FMC Corporation, Philadelphia, Pa.

Filed Nov. 20, 1981, Ser. No. 323,168

Int. Cl.³ C01B 15/37, 15/01

U.S. Cl. 423—273 6 Claims

- A composition comprising an aqueous hydrogen peroxide solution and a stabilizing amount of an organic phosphonic acid and a stabilizing amount of a compound selected from the group consisting of benzene phosphonous acid, 2,2'-dithiobenzoic acid, 1-allyl-2-thiourea, thiocarbonyl, and salts thereof.

4,362,707

PREPARATION OF CHLORINE DIOXIDE WITH PLATINUM GROUP METAL OXIDE CATALYSTS

Kenneth L. Hardee, Middlefield; Arnold Z. Gordon, Lyndhurst; Charles B. Pyle, Chardon, and Rajat K. Sen, Cleveland Heights, all of Ohio, assignors to Diamond Shamrock Corporation, Dallas, Tex.

Filed Apr. 23, 1981, Ser. No. 256,969

Int. Cl.³ C01B 11/02

U.S. Cl. 423—478 18 Claims

- A process for the generation of ClO_2 comprising the steps of:
 - providing a chlorate containing feedstock selected from a group consisting of aqueous solutions of alkali metal chlorates and alkaline earth metal chlorates;
 - providing an acid feedstock;
 - providing a catalyst comprising a mixture of a valve metal oxide and at least one of ruthenium oxide, iridium oxide, palladium oxide, rhodium oxide and platinum oxide;
 - combining the feedstocks and reacting the combined feedstocks in contact with the catalyst at a temperature greater than 20°C .; and
 - stripping and recovering ClO_2 from the combined feedstocks.

4,362,708

PREPARATION OF ACICULAR GAMMA-IRON(III) OXIDE OF HIGH COERCIVE FORCE

Manfred Ohlinger; Hans Reichert, both of Frankenthal; Guenter Vaeth, Limburgerhof; Friedrich R. Faulhaber, Mutterstadt; Horst Autzen, Freinsheim; Peter Rudolf, Neuhofen, and Joachim Werther, Weisenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany
Filed Nov. 10, 1981, Ser. No. 320,014
Int. Cl.³ C01G 49/06

U.S. Cl. 423—634 3 Claims

- A process for the preparation of highly coercive acicular gamma-iron(III) oxide from acicular iron(III) oxide hydroxide at a temperature of from 190° to 700°C . comprising: continuously passing the iron(III) oxide hydroxide into a first zone of a furnace having two or more heating zones, the temperature of the first zone being maintained at from 190° to below 250°C ., said iron(III) oxide hydroxide being dehydrated to acicular α -iron(III) oxide; conveying the α -iron(III) oxide into the remaining heating zone or zones which zone or zones are at a temperature of from 300° to 700°C . and reducing the α -iron(III) oxide to magnetite in said remaining zone or zones by means of a gaseous mixture of an inert gas and an organic substance that is decomposable at a temperature above 250°C . in the presence of iron oxide and which has a boiling point above 250°C .; and thereafter oxidizing the magnetite to acicular gamma-iron(III) oxide with an oxygen containing gas at from 150° to 400°C ., wherein the gaseous mixture acting as the reducing agent is produced by passing a stream of inert gas heated to above 250°C . through said organic substance which is also heated to above 250°C ., said inert gas being heated to a temperature not less than the temperature to which the organic substance is heated, and the gaseous mixture on introduction into the furnace is first brought into contact with the α -iron(III) oxide entering said remaining heating zone or zones.

4,362,709

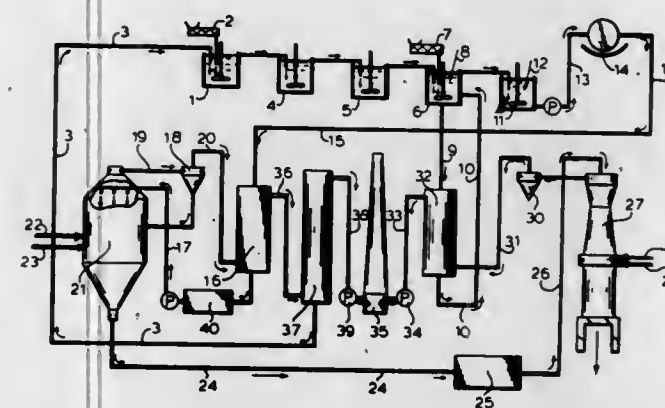
PROCESS OF PREPARING SINTER MAGNESIA

Helmut Grohmann, Bruck an der Mur, and Peter Stadler, St. Jakob bei Mixnitz, both of Austria, assignors to Veitscheer Magnesitwerke-Actien-Gesellschaft, Vienna, Austria
Filed Nov. 2, 1981, Ser. No. 318,970

Claims priority, application Austria, Nov. 7, 1980, 5492/80

Int. Cl.³ C01F 5/06

U.S. Cl. 423—636 8 Claims



- A process of preparing sinter magnesia from magnesium oxide in a sintering kiln evolving flue gases including hydrochloric acid and sulfur dioxide during sintering, the magnesium oxide being prepared by the thermal decomposition of a magnesium chloride sol derived from a slurry of a magnesium-containing starting material dissolved in hydrochloric acid to form a magnesium chloride slurry and subsequent treatment of the slurry to precipitate and remove impurities therefrom, comprising the steps of washing said flue gases before removal thereof from the kiln to the atmosphere with a portion of the magnesium chloride slurry formed during the preparation of the magnesium oxide, and recycling the magnesium chloride

slurry used for washing the flue gases to the slurry wherefrom the magnesium sol is derived.

4,362,710

FEEDS FOR BABY PIGS, PROCESS FOR PREPARING THE SAME AND METHOD OF BREEDING BABY PIGS
Yoshiko Watanabe, Yokohama, Japan, assignor to Nissan Gosei Kogyo Co., Ltd., Tokyo, Japan

Filed Jun. 26, 1981, Ser. No. 277,975

Claims priority, application Japan, Jul. 4, 1980, 55-94461[U]; Dec. 2, 1980, 55-169855

Int. Cl.³ A61K 9/20, 31/295, 33/26

U.S. Cl. 424—14 12 Claims

- A process for preparing a feed for baby pigs, which comprises:

- preparing a mixture of an edible iron salt selected from at least one member of the group consisting of ferrous fumarate, iron citrate, iron DL-threonine, sodium iron citrate succinate, and iron sulfate, in an amount corresponding to 3.2 to 16.4% by weight as iron; an additional edible organic acid selected from at least one member of the group consisting of citric acid, succinic acid, gluconic acid, malic acid and fumaric acid or a salt thereof in an amount of 1 to 10% by weight, which is in solid form at room temperature; small amounts of a sweetener, a flavoring and, if desired, vitamins; and an oligosaccharide-containing base as the balance of the mixture;
- shaping the mixture into pellets having desired shapes; and
- heating the mixture at a temperature of at least 70°C . to produce a product having a water content of not more than 7%.

4,362,711

BLOOD CHOLESTEROL LEVEL REDUCING AGENT AND METHOD

Anthony Cerami, Flanders, N.J., assignor to Evreka Inc., Flanders, N.J.

Filed Jul. 11, 1980, Ser. No. 167,706

Int. Cl.³ A01N 25/28; A61K 9/50; B01J 13/02

U.S. Cl. 424—33 18 Claims

- An agent for reducing the cholesterol level in the blood of a warm blooded animal comprising a plurality of vesicles prepared from a non-toxic, non-biodegradable, semi-permeable material and a quantity of a bile acid sequestrant provided in liquid form,

wherein said sequestrant is selected from the group consisting of tetra heptylammonium chloride, poly N,N dimethyl-3,5-dimethylene piperidinium chloride, 1,5 dimethyl-1,5-diazoundecamethylene polymethylbromide, polyvinylamine HCl, polyvinylbenzyl trimethylammonium chloride, iron dextran complex and saccharated iron oxide.

4,362,712

CARBOXYLATED NAPHTHALENE FORMALDEHYDE CONDENSATION POLYMERS AS DENTAL PLAQUE BARRIERS

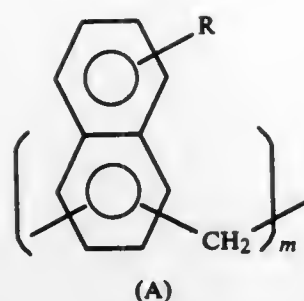
Carl J. Buck, Berkeley Heights, N.J., assignor to Johnson & Johnson Products, Inc., New Brunswick, N.J.

Filed Jul. 25, 1980, Ser. No. 172,494

Int. Cl.³ A61K 7/16, 31/765; C08G 6/00, 2/00

U.S. Cl. 424—49 4 Claims

- An oral hygiene composition comprising an effective amount for preventing deposition of dental plaque on teeth of a condensation polymer of formaldehyde with a naphthalene compound selected from the group consisting of 1-naphthoic acid, 2-naphthoic acid, 1-naphthylacetic acid and 2-naphthylacetic acid, said polymer having repeating units of structure (A),



wherein R is selected from the group consisting of $-\text{COOM}$ and $-\text{CH}_2\text{COOM}$, n is such that the molecular weight of said polymer is from about 500 to about 10,000, and M is selected from the group consisting of lithium, sodium, and potassium, in a pharmaceutically acceptable oral hygiene vehicle compatible with said polymer.

4,362,713

SALTS OF MALEIC ACID COPOLYMERS AS DENTAL PLAQUE BARRIER AGENTS

Carl J. Buck, Berkeley Heights, N.J., assignor to Johnson & Johnson Products Inc., New Brunswick, N.J.

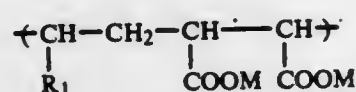
Filed Jul. 25, 1980, Ser. No. 172,496

Int. Cl.³ A61K 7/22, 31/74, 31/19; C08F 30/04

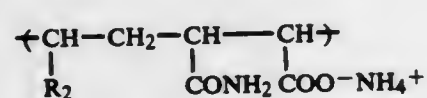
U.S. Cl. 424—54

6 Claims

1. An oral hygiene composition comprising an effective amount for preventing deposition of dental plaque on teeth of a maleic acid copolymer having repeating units selected from the group consisting of structure (A),



and structure (B),



wherein R₁ is a linear alkyl group of 4 to 12 carbon atoms, R₂ is a linear alkyl group of 4 to 16 carbon atoms or a phenyl group, and M is sodium, potassium, or an ammonium ion derived from ammonia, the maleic acid comonomer concentration in each of said structures (A) and (B) being about 50 mole percent, the molecular weight of said copolymer being from about 10,000 to about 50,000, in a pharmaceutically acceptable oral hygiene vehicle compatible with said polymer.

4,362,714

TENSIO-ACTIVE POLYPOD COMPOUNDS, PROCESS FOR PREPARING THEM AND COMPOSITIONS CONTAINING THEM

Henri Sebag, Paris, and Guy Vanlerberghe, Claye-Souilly, both of France, assignors to L'Oreal, Paris, France

Division of Ser. No. 56,204, Jul. 10, 1979, Pat. No. 4,290,956.

This application May 26, 1981, Ser. No. 266,992

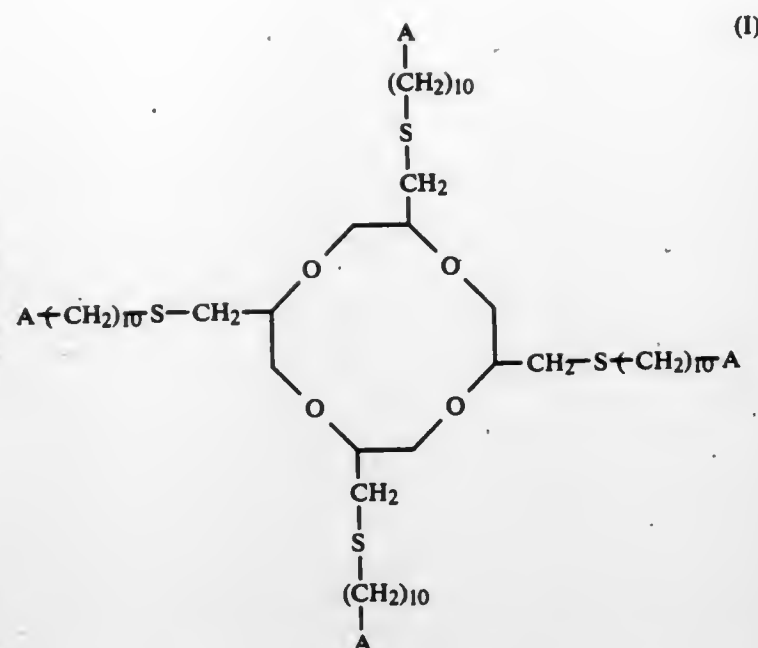
Claims priority, application France, Jul. 13, 1978, 78 21081

Int. Cl.³ A61K 7/06

U.S. Cl. 424—70

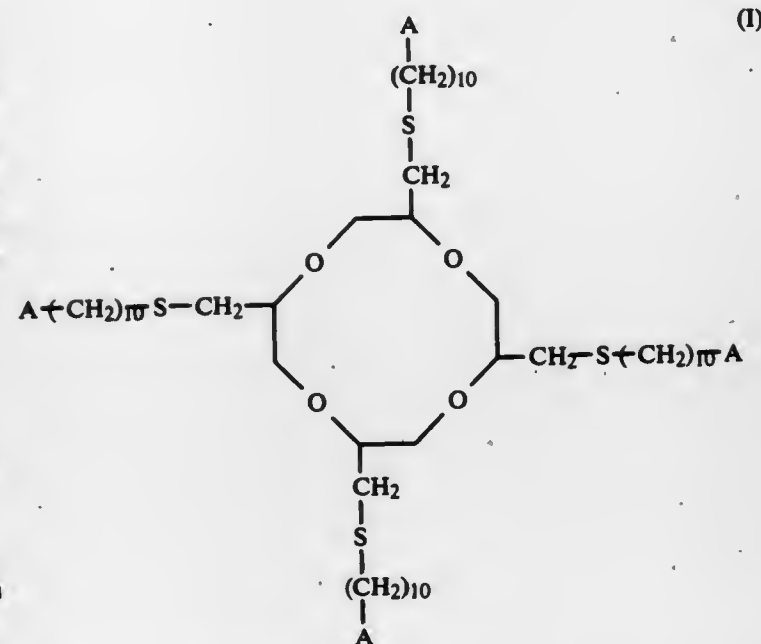
8 Claims

5. Cosmetic shampoo and conditioner composition for the treatment of hair, comprising a cosmetically effective quantity of one or several compounds of the general formula:



wherein A refers to a cationic, anionic, zwitterionic or non-ionic hydrophilic block which includes one or more groupings, identical or different, selected from the group consisting of amine, ammonium, ammonio alkyl carboxylate, ammonio alkyl sulfonate, carboxylic amide, ether, thioether, hydroxyl, carboxylic ester and carboxylic acid groupings.

8. Process for the shampoo and conditioning treatment of the hair consisting of application on human hair of an effective quantity of a composition containing, as a solution in a solvent chosen from a group formed by water and a hydroalcoholic solution, a cosmetically effective quantity of one or several tensio-active cyclic polyethers of the general formula:



wherein A refers to a cationic, anionic, zwitterionic or non-ionic hydrophilic block which comprises one or more groupings, identical or different, selected from the group consisting of amine, ammonium, ammonio alkyl carboxylate, ammonio alkyl sulfonate, carboxylic amide, ether, thioether, hydroxyl, carboxylic ester and carboxylic acid groupings.

4,362,715

COSMETIC VEHICLE

Sabbat J. Strianse, Caldwell; Howard S. Sherry, Cherry Hill, both of N.J., and Elliot P. Hertzberg, Wilmington, Del., assignors to PQ Corporation, Valley Forge, Pa.

Continuation-in-part of Ser. No. 145,514, May 1, 1980, abandoned. This application Dec. 5, 1980, Ser. No. 213,262

Int. Cl.³ A61K 7/02, 7/32, 7/48, 9/06, 31/74, 31/78, 47/00

U.S. Cl. 424—78

13 Claims

1. A cosmetic vehicle comprising a carboxyvinyl polymer with active carboxyl groups and a zeolite having the formula:



wherein x and y are integers greater than 6, the molar ratio of x to y is 0.1 to 1.1, z varies from 8 to 250 and M is a metal of valence n, said polymer-zeolite composition being a creamy gel with a pseudoplastic viscosity and having a pH of 5.5 to 8.5.

4,362,716

DIPEPTIDES, THEIR PREPARATION AND COMPOSITIONS CONTAINING THEM

Jean Bouchaudon, Morsang-sur-Orge; Daniel Farge, Thiais, and Claude James, Paris, all of France, assignors to Rhone-Poulenc Industries, France

Filed Jun. 27, 1980, Ser. No. 163,877

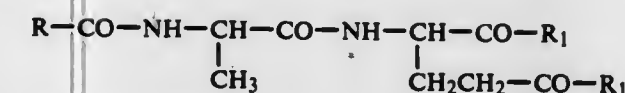
Claims priority, application France, Jun. 29, 1979, 79 16843

Int. Cl.³ A61K 37/00; C07C 103/52

U.S. Cl. 424—177

24 Claims

1. A dipeptide of the formula:



in which R-CO represents a fatty acid residue and the symbols R₁, which are identical or different, represent a hydroxyl or amino radical or an alkoxy radical of 1 to 4 carbon atoms, which is unsubstituted or substituted by a phenyl or nitrophenyl radical, the alanine residue being in the L form and the residue of glutamic acid or derivative thereof being in the D form, and the metal salts and addition salts with nitrogen-containing bases of the said dipeptide.

4,362,717

BIOLOGICALLY ACTIVE AMIDES

Samuel Wilkinson, Beckenham, England, assignor to Burroughs Wellcome Co., Research Triangle Park, N.C.

Division of Ser. No. 927,271, Jul. 24, 1978, Pat. No. 4,244,944.

This application Sep. 28, 1980, Ser. No. 192,071

Claims priority, application United Kingdom, Nov. 24, 1977, 48980/77

Int. Cl.³ A61K 37/00

U.S. Cl. 424—177

2 Claims

1. A method for the treatment or prophylaxis of a cough in a mammal comprising administering to the mammal a non-toxic, anti-tussive effective dose of Tyr-D-Met.Gly.Phe(4-NO₂).ProNH₂ or a pharmaceutically acceptable acid addition salt thereof.

4,362,718

AGENT FOR CURING PERIPHERAL CIRCULATION INSUFFICIENCY

Hiroshi Maeda, and Katsuhide Nishi, both of Kumamoto, Japan, assignors to Yamanouchi Pharmaceutical Co., Ltd., Tokyo, Japan

PCT No. PCT/JP80/00158, § 371 Date Mar. 13, 1981, § 102(e)

Date Mar. 13, 1981, PCT Pub. No. WO81/00208, PCT Pub.

Date Feb. 5, 1981

PCT Filed Jul. 8, 1980; Ser. No. 245,651

Claims priority, application Japan, Jul. 13, 1979, 54-89074

Int. Cl.³ A61K 37/00

U.S. Cl. 424—177

2 Claims

1. A method of curing peripheral circulation insufficiency comprising administering a therapeutically effective amount of α₁-acid glycoprotein to a patient suffering from the same.

4,362,719

THERAPEUTIC METHOD AND COMPOSITIONS FOR THE TREATMENT OF JUVENILE DIABETES MELLITUS

Claudio Cavazza, 35, Via Marocco, Rome, Italy (00144)

Filed May 15, 1981, Ser. No. 264,044

Claims priority, application Italy, May 15, 1980, 48692 A/80

Int. Cl.³ A61K 31/26, 31/205

U.S. Cl. 424—178

4 Claims

1. A sterile injectable pharmaceutical composition comprising:

- insulin in a concentration of from about 20 to about 30 U/ml of composition;
- at least one member selected from the group consisting of L-carnitine and the acetyl, propionyl, butyryl or hydroxybutyryl ester of L-carnitine in a concentration providing from about 0.2 to about 1 g/ml of composition; and
- a pharmaceutically acceptable and injectable liquid carrier.

4,362,720

SYNTHESIS OF 2-AMINO-2-DEOXYGLYCOSES AND 2-AMINO-2-DEOXYGLYCOSIDES FROM GLYCALLS

Raymond U. Lemieux, and R. Murray Ratcliffe, both of Edmonton, Canada, assignors to Chembiomed Ltd., Edmonton, Canada

Division of Ser. No. 894,366, Apr. 7, 1978, Pat. No. 4,195,174.

This application Sep. 19, 1979, Ser. No. 77,012

The portion of the term of this patent subsequent to Mar. 25, 1997, has been disclaimed.

Int. Cl.³ A61K 35/14; C07H 13/06

U.S. Cl. 424—180

15 Claims

10. The process which comprises attaching 8-methoxycarbonyloctyl-3-O-(2-acetamido-2-deoxy-α-D-galactopyranosyl)-2-O-(α-L-fucopyranosyl)-β-D-galactopyranoside through an amide linkage of the carbonyl group of the 8-methoxycarbonyloctyl bridging arm to an insoluble aminated solid immunoabsorbent-type support to form an immunoabsorbent.

4,362,721

PENICILLANIC AND CEPHALOSPORANIC DERIVATIVES, PREPARATION THEREOF, AND PHARMACEUTICAL COMPOSITIONS CONTAINING SAME

Giorgio Ferrari, and Vittorio Vecchieletti, both of Milan, Italy, assignors to Simes S.p.A., Italy

Continuation-in-part of Ser. No. 205,332, Nov. 10, 1980,

abandoned. This application Dec. 3, 1981, Ser. No. 327,058

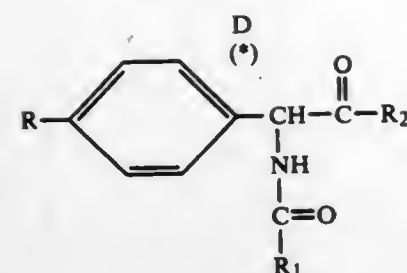
Claims priority, application Italy, Nov. 9, 1979, 27147 A/79

Int. Cl.³ A61K 31/70; C07H 15/26

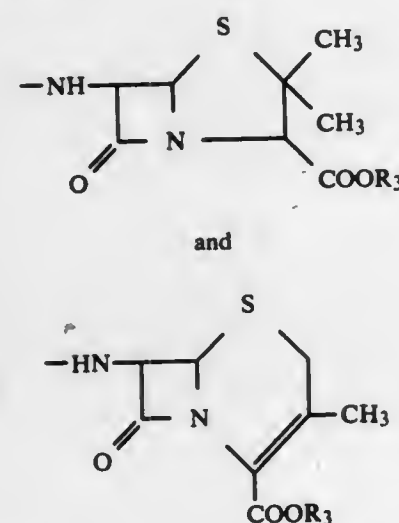
U.S. Cl. 424—180

29 Claims

1. A penicillanic and cephalosporanic derivative of the formula (I):



wherein R is H or —OH; R_1 is a hexose carbohydrate radical selected from the group consisting of 3-O-glucose, 6-O-galactose, 3-O-glucose acetals, 3-O-glucose ketals, 6-O-galactose acetals, and 6-O-galactose ketals, R_2 is a member selected from the group consisting of



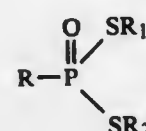
and R_3 is H or an alkali or earth-alkaline metal.

4,362,722
SYNERGISTIC TICKICIDAL COMPOSITIONS CONTAINING ORGANOPHOSPHORUS COMPOUNDS AND CYCLOPROPANE CARBOXYLATES
 Vincent K. Stubbs, Caboolture, Australia, assignor to ICI Australia Limited, Melbourne, Australia
 Filed May 12, 1980, Ser. No. 148,586
 Claims priority, application Australia, May 11, 1979, PD8767
 Int. Cl.³ A01N 57/12, 57/14, 57/16
 U.S. Cl. 424—219 **10 Claims**

1. A composition of matter comprising as a tickicidally effective active ingredient a mixture comprising as a first component a compound selected from the group consisting of (a) $(\pm)\text{-}\alpha\text{-cyano-3-phenoxybenzyl}$ $(\pm)\text{-cis/trans-3-(2-chloro-3,3,3-trifluoro-prop-1-en-1-yl)-2,2-dimethylcyclopropane carboxylate}$ (CPC-I) and (b) $(\pm)\text{-}\alpha\text{-cyano-3-phenoxybenzyl}$ $(\pm)\text{-cis-3-(2-chloro-3,3,3-trifluoroprop-1-en-1-yl)-2,2-dimethylcyclopropane carboxylate}$ (CPC-II); and as a second component at least one insecticidal organophosphorus compound selected from the group consisting of cis/trans 2-chloro-1-(2,4-dichlorophenyl)-vinyl diethyl phosphate, O-(4-bromo-2,5-dichlorophenyl) O,O-diethyl phosphorothioate (bromophos-ethyl), O,O-diethyl O-(3,5,6-trichloro-2-pyridyl) phosphorothioate, and O,O,O',O'-tetraethyl-S,S'-methylene di(phosphorodithioate) (ethion), and wherein the weight ratio of the said first component to the said second component is in the range from 1:2 to 4:1 when the first component is CPC II and the second component is bromophos-ethyl or ethion and the said weight ratio is 1:2 for the remaining combinations.

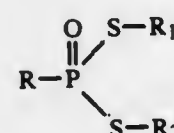
4,362,723
S-ARYL S-(TERTIARY ALKYL) ALKYLPHOSPHONODITHIOATE INSECTICIDES AND NEMATOCIDES
 Mohamed A. Fahmy, Princeton, N.J., assignor to Rhone-Poulenc Agrochimie, Lyons, France
 Filed Dec. 31, 1980, Ser. No. 221,643
 The portion of the term of this patent subsequent to Aug. 18, 1998, has been disclaimed.
 Int. Cl.³ A01N 57/022; C07F 9/40
 U.S. Cl. 424—222 **16 Claims**

1. A method for controlling insects or nematodes which comprises applying thereto or to their habitat, in an amount pesticidal to said insects or nematodes, a compound of the formula



in which

R is alkyl of 1 to 8 carbon atoms, haloalkyl of 1 to 8 carbon atoms, alkenyl of 2 to 8 carbon atoms, haloalkenyl of 2 to 8 carbon atoms, alkynyl of 2 to 8 carbon atoms or haloalkynyl of 2 to 8 carbon atoms;
 R_1 is phenyl or phenyl substituted with 1 or more members selected from the group consisting of alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, alkylthio of 1 to 4 carbon atoms, alkylsulfinyl of 1 to 4 carbon atoms, alkylsulfonyl of 1 to 4 carbon atoms, Cl, Br, F, nitro, cyano, and trifluoromethyl; and
 R_2 is tertiary alkyl of 4 to 8 carbon atoms.
 7. A compound of the formula

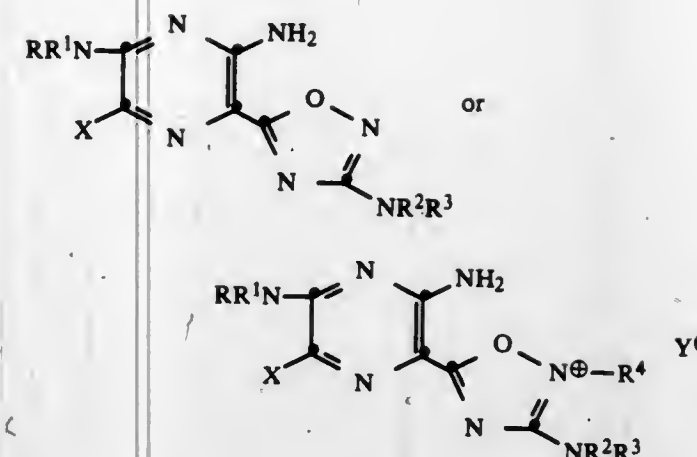


in which

R is alkyl of 1 to 8 carbon atoms, haloalkyl of 1 to 8 carbon atoms, alkenyl of 2 to 8 carbon atoms, haloalkenyl of 2 to 8 carbon atoms, alkynyl of 2 to 8 carbon atoms or haloalkynyl of 2 to 8 carbon atoms;
 R_1 is phenyl or phenyl substituted with 1 or more members selected from the group consisting of alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, alkylthio of 1 to 4 carbon atoms, alkylsulfinyl of 1 to 4 carbon atoms, alkylsulfonyl of 1 to 4 carbon atoms, Cl, Br, F, nitro, cyano, and trifluoromethyl; and
 R_2 is tertiary alkyl of 4 to 8 carbon atoms.

4,362,724
METHOD OF TREATING EDEMA AND HYPERTENSION AND PHARMACEUTICAL COMPOSITION THEREFOR IN WHICH THE ACTIVE INGREDIENT COMPRISES A NOVEL SUBSTITUTED PYRAZINYL-1,2,4-OXADIAZOLE AND A KALIURETIC DIURETIC
 Mark G. Bock, Hatfield; Edward J. Cragoe, Jr., and Robert L. Smith, both of Lansdale, all of Pa., assignors to Merck & Co., Inc., Rahway, N.J.
 Continuation-in-part of Ser. No. 151,494, May 19, 1980, Pat. No. 4,309,540. This application Mar. 16, 1981, Ser. No. 244,509
 Int. Cl.³ A61K 31/50
 U.S. Cl. 424—246 **6 Claims**

1. A pharmaceutical composition useful in the treatment of edema and hypertension which comprises a pharmaceutically acceptable carrier, a kaliuretic diuretic, and a compound of the formula:

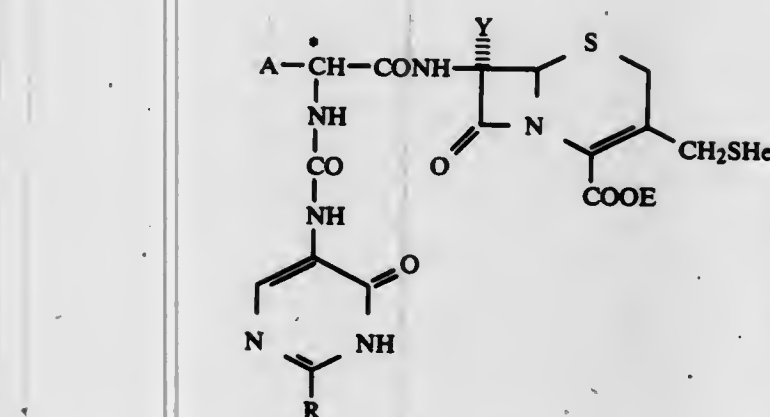
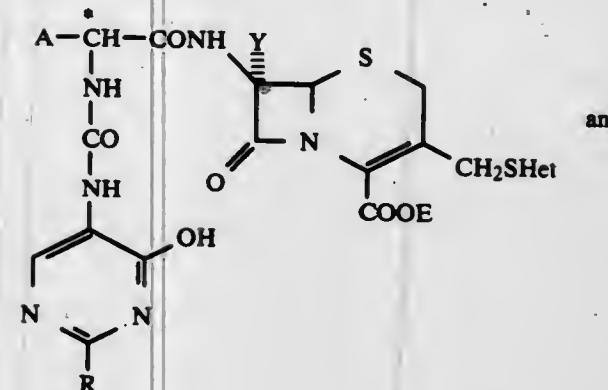


wherein:

R_1 is hydrogen or methyl;
 R^1 is hydrogen or methyl;
 R^2 is hydrogen or methyl;
 R^3 is hydrogen or methyl;
 R^4 is methyl;
 X is halo;
 Y is chloride, bromide or iodide.

4,362,725
CEPHALOSPORINS
 Bernd Wetzel; Eberhard Woltun, both of Biberach an der Riss; Wolfgang Reuter, Laupertshausen; Roland Maier, Biberach an der Riss; Uwe Lechner, Ummendorf, and Hanns Goeth, Biberach an der Riss, all of Fed. Rep. of Germany, assignors to Dr. Karl Thomae Gesellschaft mit beschränkter Haftung, Biberach, Fed. Rep. of Germany
 Filed Sep. 28, 1981, Ser. No. 305,953
 Claims priority, application Fed. Rep. of Germany, Oct. 11, 1980, 3038501
 Int. Cl.³ A61K 31/545; C07D 501/56
 U.S. Cl. 424—246 **14 Claims**

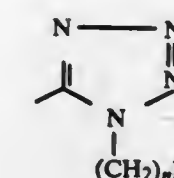
1. A compound of the tautomeric formulas



wherein

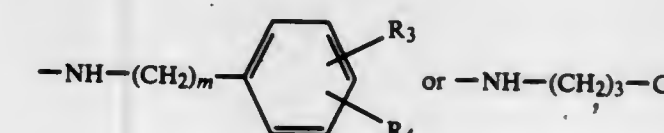
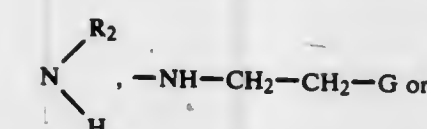
A is phenyl, 4-hydroxy-phenyl, 2-thienyl, 2-furyl or 3,4-dihydroxy-phenyl;
 Y is hydrogen or methoxy;
 Het is 4H-5,6-dioxo-1,2,4-triazin-3-yl, 4-methyl-5,6-dioxo-

1,2,4-triazin-3-yl, 2-methyl-5,6-dioxo-1,2,4-triazin-3-yl, 1-vinyl-tetrazol-5-yl, 1-allyl-tetrazol-5-yl or



where

n is an integer from 1 to 3, inclusive;
 R_1 is hydroxyl, amino, dimethylamino, acetyl amino, aminocarbonyl, aminocarbonylamino, aminosulfonyl, aminosulfonylamino, methylcarbonyl, methylsulfonylamino, cyano, hydroxysulfonylamino, methylsulfonyl, methylsulfinyl, a carboxylic acid group or a sulfonic acid group, and
 $(\text{CH}_2)_n\text{R}_1$ may also be alkyl of 2 to 4 carbon atoms or 2,3-dihydroxy-propyl;
 R is cyclopropyl, 4'-hydroxycyclohexyl-amino,

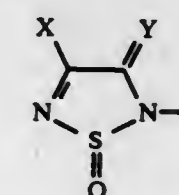


where

R_2 is straight or branched, saturated or unsaturated hydrocarbyl of 1 to 4 carbon atoms or cycloalkyl of 3 to 6 carbon atoms;
 G is hydroxyl, aminocarbonyl, aminosulfonyl, aminocarbonylamino, acetyl amino, methylsulfonylamino, methylsulfinyl or methylsulfonyl;
 m is 0 or 1; and
 R_3 and R_4 are each hydrogen, chlorine, fluorine, hydroxyl, methoxy, acetyl amino, aminocarbonylamino, nitro, acetyl, methylcarbonyloxy, methoxycarbonyl, aminocarbonyl, cyano, methylsulfinyl, methylsulfonyl, aminosulfonyl, methylaminosulfonyl or methyl; and
 E is hydrogen or a protective group which is easily removable in vitro or in vivo;
 or, when E is hydrogen, a non-toxic, pharmacologically acceptable salt thereof formed with an inorganic or organic base.
 13. An antibiotic pharmaceutical composition consisting essentially of an inert pharmaceutical carrier and an effective antibiotic amount of a compound of claim 1.

4,362,726
SUBSTITUTED-1,2,5-THIADIAZOLE-1-OXIDE COMPOUNDS, COMPOSITIONS AND USE
 Joseph S. Amato, Brooklyn, N.Y.; Sandor Karady, Mountain-side, and Leonard M. Weinstock, Belle Mead, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.
 Filed Apr. 24, 1981, Ser. No. 257,062
 Int. Cl.³ C07D 413/04, 417/04; A61K 31/425, 31/535
 U.S. Cl. 424—248.51 **20 Claims**

1. Compounds having the formula:



wherein:

- (a) Y is either O or NH; and
 (b) X is a 6-membered nitrogen containing heterocyclic ring which may also contain an oxygen or N-R'' heteroatom, said heterocyclic ring selected from morpholine, piperidine, piperazine and N-lower-alkyl piperazine, wherein R'' is hydrogen or lower-alkyl; and
 (c) R is alkyl, benzyl, monohalogen-substituted-benzoyl, lower-alkyl-substituted anilino carbonyl, N-lower-alkyl carbamoyl, lower-alkoxy carbonyl, lower-alkylcarbonyl-lower-alkyl, phenylcarbonyllower-alkyl, monohalogen-substituted phenylcarbonyllower-alkyl and lower-alkoxy-carbonyllower-alkyl.
20. A method of inhibiting uncontrolled amounts of elastase in a patient which comprises administering an effective amount of a compound of claim 1.

4,362,727

5-SUBSTITUTED

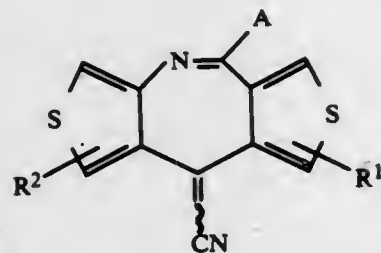
9-CYANOMETHYLENE-DITHIENO[3,4-B:4,3-E]-AZEPINES AND THERAPEUTIC AGENTS WHICH CONTAIN THESE COMPOUNDS

Gerd Steiner, Kirchheim; Hans-Juergen Teschendorf, Ludwigs-hafen; Horst Kreiskott, Wachenheim, and Hans P. Hofmann, Limburgerhof, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany
 Filed Sep. 29, 1981, Ser. No. 306,940
 Int. Cl.³ A61K 31/55; C07D 495/14

U.S. Cl. 424-248.51

12 Claims

1. A 5-substituted 9-cyanomethylene-dithieno[3,4-b:4,3'-e]azepine of the formula I



where R¹ and R² are hydrogen or halogen, and A is -NR³R⁴, where R³ and R⁴, together with the nitrogen atom linking them, are a 5-membered to 7-membered saturated ring, which may contain nitrogen or oxygen as a further hetero-atom, an additional nitrogen present being unsubstituted or substituted by alkyl of 1 to 3 carbon atoms, hydroxyalkyl of 2 or 3 carbon atoms, alkoxyalkyl, where alkyl and alkoxy are of 1 to 3 carbon atoms, cycloalkyl or cycloalkylmethyl, where cycloalkyl is of 3 to 7 carbon atoms or alkynyl of 2 to 5 carbon atoms, and may additionally be substituted by oxygen in the form of an N-oxide, or A is -NHR⁵, where R⁵ is aminoalkyl of 2 to 7 carbon atoms, the amine nitrogen being unsubstituted or substituted by lower alkyl of 1 to 5 carbon atoms or being a constituent of a 5-membered to 7-membered saturated ring, which may contain nitrogen or oxygen as a further hetero-atom, a nitrogen present being substituted by lower alkyl of 1 to 3 carbon atoms or hydroxyalkyl of 2 or 3 carbon atoms, and its physiologically tolerated acid addition salts.

12. A therapeutic composition contains, in addition to conventional carriers and diluents, a compound of the formula I as claimed in claim 1, or a pharmacologically tolerated acid addition salt thereof, as the active compound.

4,362,728

HALOGUANIDINE COMPOUNDS, PHARMACEUTICAL COMPOSITIONS AND METHODS OF USE

Tobias O. Yellin, Wallingford, Pa.; Philip N. Edwards, Bram-hall, and Michael S. Large, Congleton, both of England, as-signors to ICI Americas Inc., Wilmington, Del. and Imperial Chemical Industries Ltd., London, England

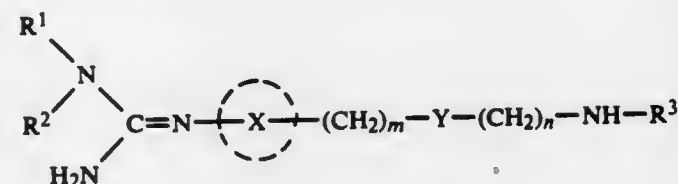
Filed Nov. 12, 1980, Ser. No. 206,005

Claims priority, application United Kingdom, Nov. 13, 1979, 7939232; Apr. 18, 1980, 8012789; Aug. 13, 1980, 8026420
 Int. Cl.³ C07D 239/24; A61K 31/495, 31/505

U.S. Cl. 424-249

12 Claims

1. A guanidine derivative of the formula:



in which

R¹ and R², which may be the same or different, are hydro-gen atoms or branched or unbranched alkyl radicals of 1 to 10 carbon atoms, cycloalkyl radicals of 3 to 8 carbon atoms or cycloalkylalkyl radicals in which the alkyl part is of 1 to 6 carbon atoms and the cycloalkyl part is of 3 to 8 carbon atoms, each of the alkyl, cycloalkyl and cycloalkyl-alkyl radicals being optionally substituted by one or more halogen atoms selected from fluorine, chlorine and bromine atoms, provided that at least one of R¹ and R² is a halogen substituted alkyl, cycloalkyl or cycloalkylalkyl radical and provided that there is no halogen substituent on the carbon atom of the alkyl, cycloalkyl or cycloalkyl-alkyl radical which is directly attached to the nitrogen atom;

ring X is a pyridine, pyrimidine, pyrazine, pyridazine or triazine ring which may, where possible, carry a single optional substituent, the optional substituents on ring X being selected from fluorine, chlorine, bromine and iodine atoms and alkyl, alkoxy and alkylthio radicals of 1 to 6 carbon atoms, trifluoromethyl, hydroxy and amino radicals;

Y is an oxygen or sulphur atom, a direct bond, a methylene, cis or trans vinylene or sulphonyl radical or a radical of the formula NR⁴ in which R⁴ is a hydrogen atom or an alkyl radical of 1 to 6 carbon atoms;

m is 0 to 4 and n is 1 to 5, provided that when Y is an oxygen atom, a sulphonyl radical or a radical of the formula NR⁴, n is 2 to 5;

R³ is a radical of the formula -A-B in which A is a 3,4-dioxocyclobuten-1,2-diyl radical or a radical of the formula C=Z in which Z is an oxygen or sulphur atom or a radical of the formula NCN, NNO₂, CHNO₂, NCONH₂, C(CN)₂, NCOR⁵, NCO₂R⁵, NSO₂R⁵ or NR⁶ in which R⁵ is an alkyl or haloalkyl radical of 1 to 6 carbon atoms, a phenyl or alkylphenyl radical of 6 to 10 carbon atoms or a pyridyl radical and R⁶ is a hydrogen atom, an alkyl or haloalkyl radical of 1 to 6 carbon atoms or a phenyl or alkylphenyl radical of 6 to 10 carbon atoms;

B is an alkyl, alkoxy or alkylthio radical of 1 to 6 carbon atoms or a radical of the formula NR⁷R⁸ in which R⁷ and R⁸, which may be the same or different, are hydrogen atoms, alkyl, phenyl, haloalkyl or alkoxyalkyl radicals of 1 to 6 carbon atoms, alkenyl or alkynyl radicals of 3 to 6 carbon atoms in which the double or triple bond respectively is separated from the nitrogen atom of NR⁷R⁸ by at least one carbon atom, (primary hydroxy)alkyl or (pri-mary amino)alkyl radicals of 2 to 6 carbon atoms, alkyl-aminoalkyl or dialkylaminoalkyl radicals of up to 8 carbon atoms in which the nitrogen atom is separated from the nitrogen atom of NR⁷R⁸ by at least two carbon atoms or cycloalkyl radicals of 3 to 8 carbon atoms, or R⁷ and R⁸

are joined to form, together with the nitrogen atom to which they are attached, a 5- or 6-membered saturated ring which optionally contains an oxygen atom or an NR⁹ radical in which R⁹ is a hydrogen atom or an alkyl radical of 1 to 6 carbon atoms; and the pharmaceutically-accepta-ble acid-addition salts thereof.

4,362,729

ALKOXYALKANOATE ESTERS OF CYCLARADINE
Robert Vince, St. Paul, Minn., assignor to The Regents of the University of Minnesota, Minneapolis, Minn.

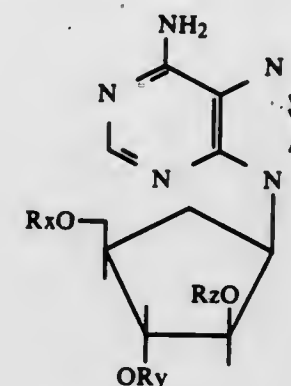
Filed Jun. 23, 1980, Ser. No. 162,097

Int. Cl.³ C07D 239/70; A61K 31/52

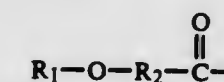
U.S. Cl. 424-253

12 Claims

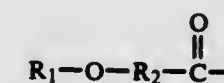
1. An antiviral alkoxyalkanoate ester of cyclaradine:



wherein Rx, Ry and Rz are



or hydrogen and at least one of Rx, Ry and Rz is



where R₁ and R₂ are lower alkyl radicals having from 1 to 6 carbons.

4,362,730

VINCAMINE SACCHARINATE AND A PHARMACEUTICAL COMPOSITION CONTAINING IT DISSOLVED THEREIN

Kurt Räder, Ochsenhausen, and Peter Stoss, Illertissen, both of Fed. Rep. of Germany, assignors to Heinrich Mack Nachf. Chem-Pharm. Fabrik, Illertissen, Fed. Rep. of Germany

Filed Jul. 16, 1981, Ser. No. 283,706

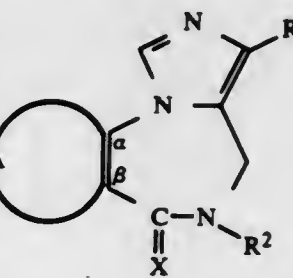
Claims priority, application Fed. Rep. of Germany, Aug. 25, 1980, 3031953

Int. Cl.³ A61K 31/435; C07D 461/00

U.S. Cl. 424-256

4 Claims

1. Vincamine saccharinate.
2. Vincamine saccharinate in a pharmaceutically acceptable carrier or diluent.
3. A pharmaceutical composition comprising 0.5 to 3% (w/w) of vincamine saccharinate dissolved in a solvent consist-ing of from 10 to 90 parts by weight of glycerol and from 90 to 10 parts by weight of anhydrous ethanol.



wherein A together with the two carbon atoms denoted as α and β is a pyridine ring, X is an oxygen or sulphur atom, R¹ is hydrogen, halogen, lower alkyl, lower alkoxyethyl or a group of the formula -COOR³ and R² and R³ each are lower alkyl, and pharmaceutically acceptable acid addition salts thereof.

11. A method of antagonizing, in a patient; the central-depressant, muscle relaxant, ataxic, blood pressure lowering and respiratory-depressant properties of 1,4-benzodiazepines which have tranquillizing activity which comprises daily ad-ministration to said patient of from about 0.2 mg to about 500 mg of a compound of the formula

4,362,731

MYOTONOLYTIC USE OF 4,5,6,7-TETRAHYDROISOXAZOLO [5,4-C] PYRIDIN-3-OL AND DERIVATIVES THEREOF
Ronald C. Hill, Muttentz, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

Filed Aug. 26, 1981, Ser. No. 296,327

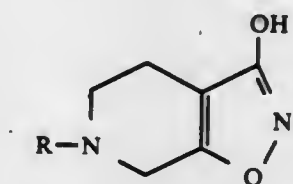
Claims priority, application United Kingdom, Sep. 1, 1980, 8028199

Int. Cl.³ A61K 31/44, 31/435

U.S. Cl. 424-256

8 Claims

1. A method of treating myotonic conditions in a subject in need of such treatment, which method comprises administer-ing to said subject a myotonolytically effective amount of a compound of formula I



wherein R is hydrogen, acetyl or a group of formula II



II

wherein R' is alkyl(C₁₋₈); phenyl; phenyl substituted in the 4-position with halogen, alkoxy (C₁₋₄) or alkyl(C₁₋₄); phenyl-alkyl; or phenylalkyl in which the phenyl group is substituted in the 4-position with halogen, alkoxy(C₁₋₄) or alkyl(C₁₋₄).

4,362,732

DIAZEPINE DERIVATIVES AND THEIR USE

Walter Hunkeler, Magden, and Emilio Kyburz, Reinach, both of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Feb. 18, 1982, Ser. No. 349,749

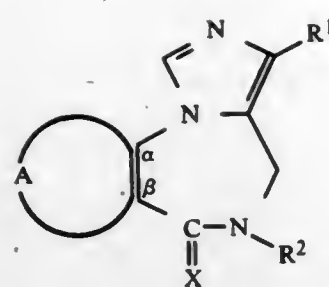
Claims priority, application Switzerland, Feb. 27, 1981, 1342/81

Int. Cl.³ A61K 31/55; C07D 471/14

U.S. Cl. 424-256

12 Claims

1. A compound of the formula



wherein A together with the two carbon atoms denoted as α and β signifies a pyridine ring, X signifies an oxygen or sulphur atom, R^1 signifies hydrogen, halogen, lower alkyl, lower alkoxy, or the group $-\text{COOR}^3$ and R^2 and R^3 each signify lower alkyl and the pharmaceutically acceptable acid addition salts thereof.

4,362,733

N-CYCLOPROPYLMETHYL-14-ETHOXYMORPHINAN-6-ONE COMPOUNDS EXHIBITING MIXED ANALGESIC/NARCOTIC ANTAGONIST ACTIVITY AND PRECURSORS THEREFORE

Anil C. Ghosh, Lexington, and Raj K. Razdan, Belmont, both of Mass., assignors to Miles Laboratories, Inc., Elkhart, Ind.
Filed Jun. 29, 1981, Ser. No. 278,759

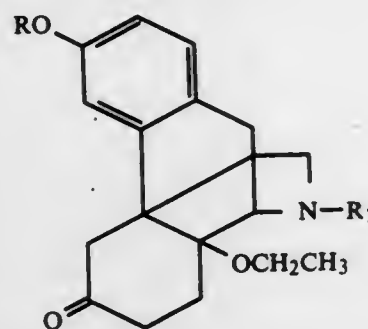
The portion of the term of this patent subsequent to Jun. 9, 1998, has been disclaimed.

Int. Cl.³ A61K 31/485; C07D 221/28

U.S. Cl. 424-260

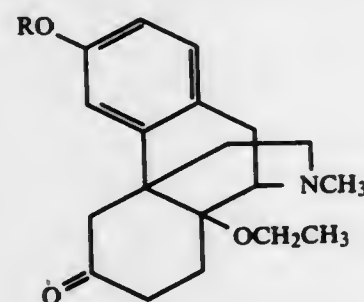
10 Claims

1. 14-ethoxy substituted-3-hydroxy or 3-methoxy-6-one morphinans characterized by the formula:



wherein R is H or methyl and R_1 is methyl or cyclopropylmethyl.

7. A therapeutic method for treating pain in an individual for whom such therapy is indicated, which method comprises administering to the individual an effective analgesic amount of a compound characterized by the formula:



where R is H or methyl.

4,362,734
2-(SUBSTITUTED-AMINO)-5-(PYRIDINYL-NICOTINONITRILES, AND THEIR CARDIOTONIC USE
George Y. Leshner, Chester J. Opalka, Jr., both of Schodack, and Donald F. Page, East Greenbush, all of N.Y., assignors to Sterling Drug Inc., New York, N.Y.

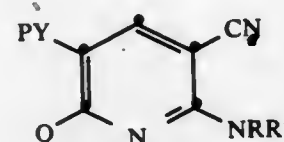
Filed Aug. 26, 1981, Ser. No. 296,300

Int. Cl.³ A61K 31/455, 31/44; C07D 213/85

U.S. Cl. 424-263

12 Claims

1. A 2-RR'-N-5-PY-6-Q-nicotinonitrile having the formula



where R is methyl or ethyl, R' is hydrogen or methyl, PY is 4- or 3-pyridinyl or 4- or 3-pyridinyl having one or two lower-alkyl substituents, and Q is hydrogen or methyl, the latter only when R' is hydrogen, or pharmaceutically acceptable acid-addition salt thereof.

4,362,735

3-[(3-OXO-1-BUTENYL)AMINO]-5-(PYRIDINYL)-2(1H)-PYRIDINONES AND THEIR CARDIOTONIC USE

George Y. Leshner, Schodack, and Ruth P. Brundage, East Greenbush, both of N.Y., assignors to Sterling Drug Inc., New York, N.Y.

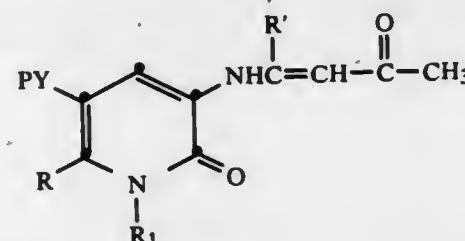
Filed Aug. 31, 1981, Ser. No. 297,828

Int. Cl.³ A61K 31/44; C07D 213/74

U.S. Cl. 424-263

11 Claims

1. A compound having the formula



or acid-addition salt thereof, where R' is hydrogen or methyl, R_1 and R are each hydrogen or lower-alkyl, PY is 4-pyridinyl or 3-pyridinyl, or 4-pyridinyl or 3-pyridinyl having one or two lower-alkyl substituents.

4,362,736

GUANIDINOTHIAZOLE COMPOUNDS, AND MEDICAL COMPOSITIONS CONTAINING THEM

Yasufumi Hirata, Omiya; Isao Yanagisawa, Tokyo; Yoshio Ishii, Omiya, and Masaki Takeda, Urawa, all of Japan, assignors to Yamanouchi Pharmaceutical Co., Ltd., Tokyo, Japan

Filed Mar. 6, 1980, Ser. No. 127,902

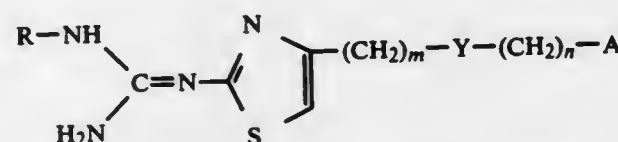
Claims priority, application Japan, Mar. 6, 1979, 54-25745; Jun. 23, 1979, 54-79508

Int. Cl.³ C07D 277/20; A61K 31/425

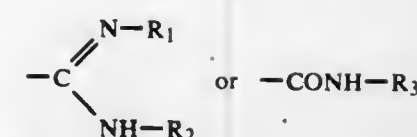
U.S. Cl. 424-270

9 Claims

1. A guanidinethiazole compound of the formula



wherein R represents a hydrogen atom or a lower alkyl group, Y represents a sulfur atom or a methylene group, m and n each represent an integer of 1-3, A represents the group



wherein R_1 represents a member selected from the group consisting of a hydrogen atom, a cyano group, a carbamoyl group, a ureido group, a hydroxyl group, a lower alkoxy group, a lower alkylcarbonyl group of a straight or branched carbon chain having 1-5 carbon atoms, a lower alkylcarbonylamino group of straight or branched carbon chain having 1-5 carbon atoms, a benzoylamino group, a naphthoylamino group, a $-\text{NH}-\text{SO}_2$ -phenyl group, a $-\text{NH}-\text{SO}_2$ -naphthyl group, a benzyl group, a phenethyl group, and a carboxymethyl group, R_2 represents a member selected from the group consisting of a hydrogen atom, a lower alkyl group, a lower alkenyl group, a lower alkynyl group, a cyano group, and a lower alkylcarbonyl group of a straight or branched carbon chain having 1-5 carbon atoms, and R_3 represents a member selected from the group consisting of a hydrogen atom, a lower alkyl group, a hydroxyl group, and a sulfamoyl group, and the pharmacologically acceptable acid addition salts thereof.

4,362,737

TRANSDERMAL CARRIER MATERIALS

Rolf Schäfer, Grabenmattstrasse 37, 4133 Pratteln BL; Werner Schäfer, Auf der Wacht 33, 4104 Oberwil BL, and Doris Schäfer, Neue Blauenrainstrasse 9, 4411 Arisdorf BL, all of Switzerland

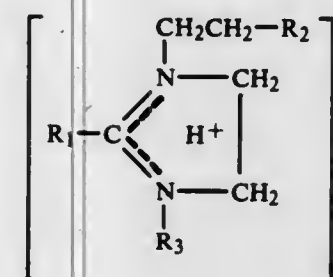
Filed Apr. 13, 1981, Ser. No. 253,876

Int. Cl.³ A61K 31/415; C07D 233/18

U.S. Cl. 424-273 R

11 Claims

1. An amphoteric-dissociating complex having (a) a cationic radical having the formula:



wherein:

R_1 is an aliphatic alkyl group having 6 to 22 carbons, R_2 is a member of the group consisting of $-\text{R}_4-(\text{CH}_2)_n-\text{COOH}$, $-\text{R}_4-(\text{CH}=\text{CH})\text{COOH}$ and $-\text{O}-\text{PO}_3\text{H}_2$, wherein R_4 is $-\text{NH}-$, $-\text{NH}-\text{CO}-$, or $-\text{O}-\text{CO}-$, and

R_3 is hydrogen, $-\text{CH}_2-\text{COOH}$ or $-\text{CH}_2-\text{CH}_2-\text{COOH}$; and

(b) an anionic group having the formula $-\text{OOC}-\text{CH}_2-(\text{O}-\text{CH}_2-\text{CH}_2)_x-\text{OC}_n\text{H}_{2n+1}$

wherein:

n is 8 to 22 and x is 1 to 10; and Z is 1.

2. An aqueous based pharmaceutical or cosmetic composition comprising a complex of claim 1 and an active ingredient.

1025 O.G.—10

4,362,738
ESTERS AND AMIDES CONTAINING THE 1-(4-CHLOROBENZOYL)-5-METHOXY-2-METHYL-1H-INDOLE-3-ACETYL MOIETY

Johannes Keck; Gerd Krüger; Helmut Pieper, all of Biberach; Klaus Noll, Warthausen; Günther Engelhardt; Norbert Promberger, both of Biberach, and Rainer Zimmermann, Mittelbiberach, all of Fed. Rep. of Germany, assignors to Dr. Karl Thomae GmbH, Biberach, Fed. Rep. of Germany

Filed Jun. 11, 1980, Ser. No. 158,587

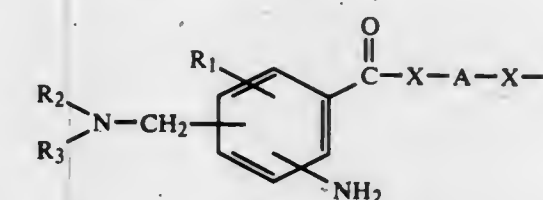
Claims priority, application Fed. Rep. of Germany, Jun. 30, 1979, 2926472

Int. Cl.³ C07D 279/18; A61K 27/00

U.S. Cl. 424-274

7 Claims

1. A compound of the formula

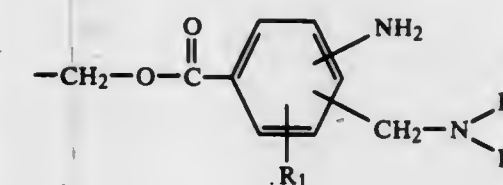


wherein each X, which may be identical to or different from the other X, is oxygen or imino;

R_1 is hydrogen, fluorine, chlorine or bromine;

R_2 and R_3 are each hydrogen; unsubstituted or monosubstituted alkyl of 1 to 6 carbon atoms, where the substituent is phenyl or dialkylamino with 1 to 3 carbon atoms in each alkyl moiety; or cycloalkyl of 5 to 7 carbon atoms;

A is cycloalkylene of 5 to 7 carbon atoms; unsubstituted or substituted alkylene of 2 to 10 carbon atoms, where the substituents are one to two alkyls of 1 to 3 carbon atoms each, one to two carbalkoxys of 2 to 4 carbon atoms each, one to two phenyls, one to four hydroxyls, one halo-methyl, one hydroxymethyl, one alkanoyloxy of 1 to 18 carbon atoms, one alkanoyloxymethyl of 1 to 18 carbon atoms in the alkanoyl moiety or one



where R_1 , R_2 and R_3 have the meanings previously defined; or alkylene of 2 to 10 carbon atoms interrupted by oxygen, sulfur, sulfoxide, sulfonyl, phenyl, cyclohexyl, or unsubstituted or substituted imino, where the substituent on the imino group is alkyl of 1 to 6 carbon atoms, phenyl or phenylalkyl of 1 to 3 carbon atoms in the alkyl moiety; and

B is 1-(4-chlorobenzoyl)-5-methoxy-2-methyl-1H-indole-3-acetyl;

or a non-toxic, pharmacologically acceptable acid addition salt thereof.

7. The method of counteracting inflammation in a warm-blooded animal, which comprises perorally, parenterally, rectally or topically administering to said animal an effective anti-inflammatory amount of a compound of claim 1.

4,362,739

PYRROLO(2,3-d)CARBAZOLE DERIVATIVES, COMPOSITIONS AND USE

Martin E. Kuehne, Burlington, Vt., assignor to S.A. Omnicem, Louvain-la-Neuve, Belgium

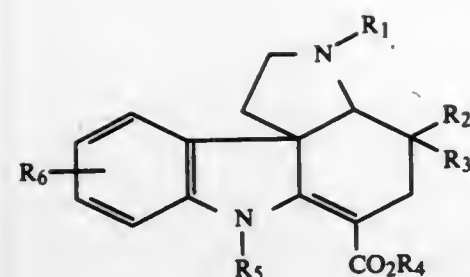
Filed May 4, 1981, Ser. No. 260,415

Int. Cl.³ C07D 487/10; A61K 31/40

U.S. Cl. 424-274

19 Claims

1. A compound of the formula



wherein

R₁ and R₅ each represents hydrogen, lower alkyl, or benzyl;
R₂ and R₃ each represents hydrogen or lower alkyl or, together, lower alkylene;
R₄ is lower alkyl;
R₆ is hydrogen, nitro, lower alkoxy, halo or hydroxy; or an addition salt of said compound.

18. In the therapeutic treatment of epileptic, cerebralvascular or cardio-circulatory afflictions, the improvement comprising the administration to or ingestion by the afflicted of a therapeutically effective amount of a compound or salt as claimed in claim 1-12, or 13.

4,362,740

SPIRO COMPOUNDS, THEIR PRODUCTION AND USE
Isuke Imada; Hirosada Sugihara, both of Osaka, and Mitsuru Kawada, Amagasaki, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

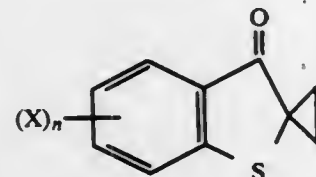
Filed Sep. 19, 1980, Ser. No. 188,834

Claims priority, application Japan, Sep. 25, 1979, 54/123433
Int. Cl.³ A61K 31/38; C07D 333/64

U.S. Cl. 424-275

12 Claims

1. A compound of the formula:



wherein

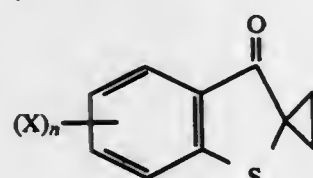
n is an integer of 1 to 4, and
X is halogen, C₁-alkyl, nitro, amino, hydroxyamino, mono- or di-C₁-alkylamino, C₂-alkanoylamino, C₁-alkylsulfonfylamino, hydroxyl, C₁-alkoxy, phenoxy, phenyl-C₁-alkyloxy, C₂-alkanoyloxy, benzoyloxy, C₂-alkanoyl, benzoyl, carboxyl, C₂-alkoxycarbonyl, carbamoyl, C₁-alkylcarbamoyl, sulfamoyl, C₁-alkylsulfamoyl, piperidiniosulfonyl, morpholiniosulfonyl, C₁-alkylthio or C₁-alkylsulfonyl,

said C₁-alkoxy being unsubstituted or substituted by carboxyl, C₂-alkoxycarbonyl or carbamoyl which is unsubstituted or substituted by C₁-alkyl and/or C₅-cycloalkyl, or

two of X at the 5- and 6-positions together form —CH=CH—CH=CH—,

or a pharmaceutically acceptable salt thereof.

9. A pharmaceutical composition suitable for the prophylaxis or treatment of thrombosis, which comprises as an active ingredient an antithrombotically effective amount of a compound of the formula:



wherein

n is an integer of 1 to 4, and

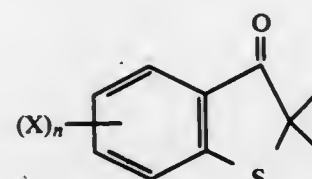
X is halogen, C₁-alkyl, nitro, amino, hydroxyamino, mono- or di-C₁-alkylamino, C₂-alkanoylamino, C₁-alkylsulfonfylamino, hydroxyl, C₁-alkoxy, phenoxy, phenyl-C₁-alkyloxy, C₂-alkanoyloxy, benzoyloxy, C₂-alkanoyl, benzoyl, carboxyl, C₂-alkoxycarbonyl, carbamoyl, C₁-alkylcarbamoyl, sulfamoyl, C₁-alkylsulfamoyl, piperidiniosulfonyl, morpholiniosulfonyl, C₁-alkylthio or C₁-alkylsulfonyl,

said C₁-alkoxy being unsubstituted or substituted by carboxyl, C₂-alkoxycarbonyl or carbamoyl which is unsubstituted or substituted by C₁-alkyl and/or C₅-cycloalkyl, or two of X at the 5- and 6-positions together form —CH=CH—CH=CH—,

or a pharmaceutically acceptable salt thereof,

in association with a pharmaceutically acceptable carrier or excipient thereof.

10. A method for the prophylaxis or treatment of thrombosis in a mammal which comprises administering to said mammal an antithrombotically effective amount of a compound of the formula:



wherein

n is an integer of 1 to 4, and

X is halogen, C₁-alkyl, nitro, amino, hydroxyamino, mono- or di-C₁-alkylamino, C₂-alkanoylamino, C₁-alkylsulfonfylamino, hydroxyl, C₁-alkoxy, phenoxy, phenyl-C₁-alkyloxy, C₂-alkanoyloxy, benzoyloxy, C₂-alkanoyl, benzoyl, carboxyl, C₂-alkoxycarbonyl, carbamoyl, C₁-alkylcarbamoyl, sulfamoyl, C₁-alkylsulfamoyl, piperidiniosulfonyl, morpholiniosulfonyl, C₁-alkylthio or C₁-alkylsulfonyl,

said C₁-alkoxy being unsubstituted or substituted by carboxyl, C₂-alkoxycarbonyl or carbamoyl which is unsubstituted or substituted by C₁-alkyl and/or C₅-cycloalkyl, or

two of X at the 5- and 6-positions together form —CH=CH—CH=CH—,

or a pharmaceutically acceptable salt thereof.

4,362,741

THERAPEUTIC COMPOSITION FOR PREVENTING THE AGGREGATION OF PLATELETS

Francesco della Valle, Padua, Italy, assignor to FIDIA, S.p.A., Padua, Italy

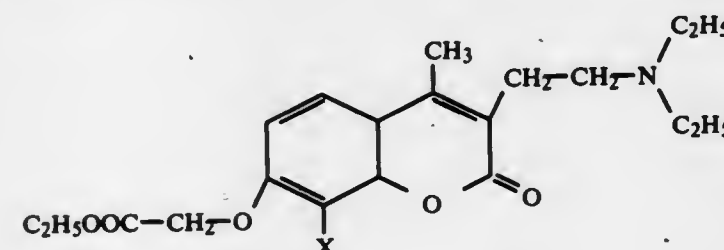
Continuation-in-part of Ser. No. 101,005, Dec. 6, 1979, abandoned. This application Jan. 12, 1981, Ser. No. 224,452

Claims priority, application Italy, Dec. 19, 1978, 30992 A/78
Int. Cl.³ A61K 31/37

U.S. Cl. 424-281

6 Claims

1. A method for preventing the aggregation of platelets in mammals which comprise administering thereto an effective platelets anti-aggregative amount of a compound having the formula:



wherein X is chlorine or bromine, or a pharmaceutically acceptable salt thereof.

4,362,742

METHOD FOR TREATING SKIN DISORDERS

Thomas J. Sullivan, 25 Old Gate Rd., Thruxington, Leicestershire, England

Continuation of Ser. No. 530,853, Dec. 9, 1974, Pat. No. 4,271,182. This application Apr. 6, 1981, Ser. No. 251,177

Claims priority, application United Kingdom, Dec. 19, 1973, 58986/73

The portion of the term of this patent subsequent to Jun. 2, 1998, has been disclaimed.

Int. Cl.³ A61K 31/35

U.S. Cl. 424-283

1 Claim

1. A method for treating drug eruptions, psoriasis, dermatitis herpetiformis, pemphigus or chronic skin ulcers in man which comprises externally applying a therapeutically effective amount of the compound, 1,3-bis(2-carboxychromon-5-yloxy)-2-hydroxypropane or a pharmaceutically acceptable salt, ester or amide thereof to afflicted areas of the skin.

4,362,743

ANTIBACTERIAL MONIC ACID ESTERS

Norman H. Rogers, Horsham; Peter J. O'Hanlon, Redhill, and Graham Walker, Guildford, all of England, assignors to Beecham Group Limited, England

Filed Jul. 31, 1981, Ser. No. 289,103

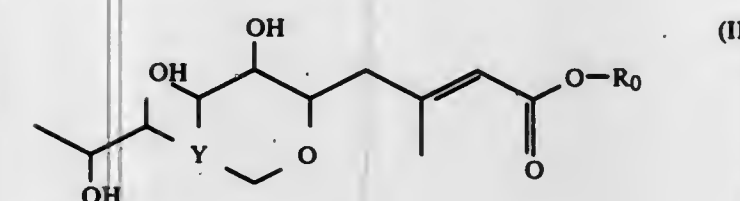
Claims priority, application United Kingdom, Aug. 2, 1980, 8025400

Int. Cl.³ A61K 31/35; C07D 309/06

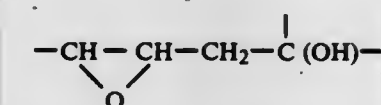
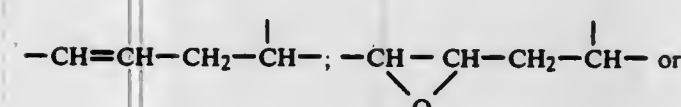
U.S. Cl. 424-283

7 Claims

1. A compound of formula (II)



in which Y represents



and R₀ represents C₂₋₂₀ alkyl, C₃₋₈ cycloalkyl, C₄₋₂₀ alkenyl, phenylalkyl, cycloalkylalkyl, heterocyclyl or heterocyclalkyl wherein said heterocyclyl is a five or six-membered heterocyclic ring containing oxygen, sulfur or nitrogen as the sole heteroatom, said heterocyclic ring being unsubstituted or substituted by lower alkyl, which is substituted by a hydroxyimino-, hydrazono- or semicarbazono group.

6. A method for treating humans or animals which comprises administering an antibacterially or antimycoplasmally effective non-toxic amount of a compound of formula (II) as defined in claim 1 to a human or animal suffering from a bacterial or mycoplasmal infection.

4,362,744
TRANS-3-SUBSTITUTED-1-INDANOL INSECTICIDAL ESTER DERIVATIVES

Ernest L. Plummer, North Tonawanda, N.Y., assignor to FMC Corporation, Philadelphia, Pa.

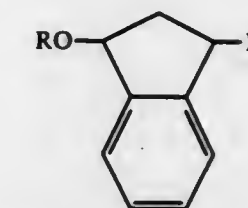
Filed Mar. 19, 1981, Ser. No. 245,484

Int. Cl.³ C07C 69/743, 69/747; A01N 53/00

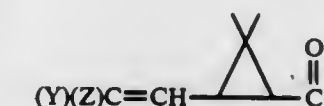
U.S. Cl. 424-305

18 Claims

1. A 3-substituted-1-indanyl ester of the formula



wherein R² is phenylmethyl which may be substituted on the phenyl ring with lower alkyl or halogen; R is 2,2,3,3-tetramethylcyclopropanecarbonyl, 1-(4-chlorophenyl)-2-methylpropyl-1-carbonyl, 1-(4-ethoxyphenyl)-2,2-dichlorocyclopropanecarbonyl, or an ethenylcyclopropanecarbonyl group of the formula



wherein Y and Z, the same or different, are hydrogen, halogen, lower alkyl, perhaloalkyl, phenyl which may be substituted with halogen or lower alkyl, or phenylthio which may be substituted with halogen or lower alkyl, with the proviso that one of Y and Z is other than hydrogen; and, with respect to the substituents on the indanyl moiety, the 1,3-trans isomer is present in an isomeric excess over the 1,3-cis isomer of at least 50%.

4,362,745

MEDICAL PROCESS AND PREPARATION

Frederick B. Johnston, 10901 Carrollwood Dr., Tampa, Fla. 33618

Continuation-in-part of Ser. No. 208,286, Nov. 19, 1980, abandoned. This application Nov. 23, 1981, Ser. No. 324,106

Int. Cl.³ A61K 31/195

U.S. Cl. 424-319

12 Claims

1. A method of reducing tissue trauma, neuro-muscular spasms, and musculo-skeletal disorders in an animal, by administering to said animal an effective amount of a compound which comprises one or more N-monoalkyl and/or N,N, dialkyl derivatives of the following amino acids:

aspartic acid;
glutamic acid;
hydroxyglutamic acid;
alpha amino adipic acid;
serine;
threonine;
physiologically acceptable salt or salts of the above.

4,362,746

ANTIVIRAL

1,2,3,4-TETRAHYDRO-1,4-METHANONAPHTHALENE DERIVATIVES

Kekhusroo R. Bharucha, Toronto; Kam C. Tin, Etobicoke; Iva Ajdukovic, and Djordje Ajdukovic, both of Beaconsfield, all of Canada, assignors to Canada Packers Inc., Ontario and The Institute of Microbiology and Hygiene of the University of Montreal, Quebec, both of, Canada

Filed Jan. 21, 1981, Ser. No. 226,640

Int. Cl.³ A61K 31/135; C07C 87/453

U.S. Cl. 424—330

8 Claims

1. Endo-3-dimethylaminomethyl-endo-2-amino-1,2,3,4-tetrahydro-1,4-methanonaphthalene and its pharmaceutically acceptable acid addition salts.

5. A composition of matter comprising an anti-viral effective amount of a compound selected from the group consisting of endo-3-dimethylaminomethyl-endo-2-amino-1,2,3,4-tetrahydro-1,4-methanonaphthalene, endo-2-dimethylaminomethyl-1,2,3,4-tetrahydro-1,4-methanonaphthalene and their pharmaceutically acceptable acid addition and a pharmaceutically acceptable carrier.

8. A method for treating viral infections in a patient comprising administering to the patient an effective daily dose of a compound selected from the group consisting of endo-3-dimethylaminomethyl-endo-2-amino-1,2,3,4-methanonaphthalene, endo-2-dimethylaminomethyl-1,2,3,4-tetrahydro-1,4-methanonaphthalene and their pharmaceutically effective acid addition salts.

4,362,747

COSMETIC CREAM PACK FORMULATION

Lawrence J. Coursen, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed Aug. 3, 1981, Ser. No. 289,654

Int. Cl.³ A61K 47/00

U.S. Cl. 424—358

1 Claim

1. A cosmetic cream pack formulation consisting essentially of, in percent by weight:

Ingredients	Percent
Propylene glycol	2.90
polyoxyethylene (20) sorbitan monopalmitate	4.00
glyoxyldiureide	0.50
85% mineral oil/15% lanolin alcohol	5.00
white beeswax	3.00
sorbitan monopalmitate	4.00
polyoxyethylene (5) C-16/18 alcohol	6.00
dimethicone copolyol	1.00
glyceryl monostearate/polyoxyethylene (100) stearate	3.00
zinc oxide	6.00
corn starch	10.00
preservative	q.s.
deionized water	q.s. to 100%

4,362,748

METHOD FOR FORMING SHAPED PRODUCTS FOR HUMAN AND/OR ANIMAL CONSUMPTION OR AS MARINE BAIT AND PRODUCTS PRODUCED THEREBY

James P. Cox, Lynden, Wash., assignor to Loyal Wells, Thiensville, Wis. and Cox Family Laboratories, Inc., a part interest

Filed Oct. 3, 1980, Ser. No. 193,434

Int. Cl.³ A23L 1/04; A23K 1/18

U.S. Cl. 426—1

38 Claims

1. The method of forming a shaped edible product comprising the steps of:

(a) forming a first aqueous solution including at least water and algin;

- (b) forming a second aqueous solution including at least water and a metal salt dissolved therein;
- (c) introducing a sterilant into one of the first and second aqueous solutions;
- (d) introducing a sterilant neutralizing agent into the other of the first and second aqueous solutions; and,
- (e) depositing a discrete quantity of the first solution into the second solution whereupon
- (i) the interaction between the algin in the first solution and the metal ions released by the metal salt in the second solution serves to set the constituent ingredients of the first solution in the particular shape occupied thereby upon introduction into the second solution,
- (ii) the sterilant serves to sterilize the constituent ingredients of the product thus formed,
- and (iii) the neutralizing agent serves to slowly neutralize the sterilant.

4,362,749

SPREADABLE CHEESE HAVING CHARACTERISTICS OF CRESCENZA CHEESE

Tomaso Sozzi, Lausanne, Switzerland, assignor to Societe D'Assistance Technique pour Produits Nestle S.A., Lausanne, Switzerland

Filed Apr. 3, 1981, Ser. No. 250,561

Claims priority, application Switzerland, Apr. 25, 1980, 3192/80

Int. Cl.³ A23C 19/02

U.S. Cl. 426—36

7 Claims

1. A process for the production of a spreadable cheese having substantially all the traditional characteristics of crescenza cheese, which comprises forming a curd from milk by coagulation with lactic acid at a pH-value of from 5 to 5.3, draining the curd to a dry matter content of from 30 to 50%, thereafter adding salt to the drained curd in an amount from 0.5 to 1% of the total weight of the drained curd and allowing the salted curd to ripen until it is complete.

4,362,750

PRODUCTION OF FERMENTED TYPE SAUSAGE

William E. Swartz, Upper St. Clair, Pa., assignor to Stauffer Chemical Company, Westport, Conn.

Continuation of Ser. No. 88,244, Oct. 25, 1979, abandoned. This application Jan. 19, 1981, Ser. No. 226,262

Int. Cl.³ A22C 11/00; A23L 1/22, 1/31

U.S. Cl. 426—59

16 Claims

1. A process for preparing an encased meat product having an acidic taste selected from the group consisting of fermented sausage, dry sausage, semi-dry sausage, fresh sausage, cooked sausage, brown and serve sausage, luncheon loaf and meat sticks which comprises adding to the meat during the preparation of said meat product an effective amount of a dry cultured dairy product prepared by a culturing process using *L. bulgaricus*, *S. thermophilus*, *L. acidophilus*, *P. cerevisiae*, *L. plantarum* and mixtures thereof sufficient to provide at least some of said acidic taste.

4,362,751

PASTRY PRODUCT AND METHOD OF MAKING SAME

Amilcare Dogliotti, Alba, Italy, assignor to Ferrero S.p.A., Alba, Italy

Division of Ser. No. 820,184, Jul. 29, 1977, Pat. No. 4,159,348. This application Sep. 27, 1978, Ser. No. 946,275

Claims priority, application Italy, Aug. 17, 1976, 69028 A/76; Jun. 7, 1977, 68308 A/77

The portion of the term of this patent subsequent to Jun. 26, 1996, has been disclaimed.

Int. Cl.³ A21D 13/08

U.S. Cl. 426—94

12 Claims

1. A pastry product of pocket size preservable in a sealed package for extended periods of time without degradation in consistency and taste comprising:

- (a) a portion of baked sweet bread impregnated with a spirituous sugar-containing liqueur in a proportion of at least 1 part by weight liqueur to 1 part by weight bread;
- (b) a coating of chocolate completely enveloping said portion of bread;
- (c) the said liqueur providing at least 35 ml ethyl alcohol and at least 25 grams sugar in each 100 grams bread;
- (d) said chocolate containing at least 30 wt.% of edible fat;
- (e) the said bread having prevalently a cellular structure in which the total area of the eventual apertures through which a cell communicates with its adjacent cells does not exceed 30% of the total internal area of the cell.

4,362,752

SIMULATED SHRIMP MEAT AND PROCESS FOR PREPARING SAME

Yoshito Sugino, and Norihiko Yamamoto, both c/o Sugiyo Co., Ltd. 27, Ingai, Fuchu-machi, Nanao, Ishikawa, Japan

Filed Apr. 7, 1981, Ser. No. 251,889

Claims priority, application Japan, Apr. 7, 1980, 55-46087; Apr. 19, 1980, 55-51939

Int. Cl.³ A23J 3/00; A23L 1/04, 1/325

U.S. Cl. 426—104

18 Claims

14. A process for preparing an edible product simulating the meat of shrimp, prawn or lobster comprising the steps of:

- (a) preparing a fish meat paste;
- (b) preparing an edible fibrous material having an average size of less than about 0.5 mm in diameter, said fibrous material having a three-dimensional reticulate structure and selected from the group consisting of polysaccharides, vegetable proteins and vegetable fibrous material;
- (c) admixing 1 part by weight of said fish meat paste with from 0.4 to 2.0 parts by weight of said fibrous material;
- (d) kneading said mixture;
- (e) shaping said kneaded mixture into pieces of predetermined size and shape; and
- (f) coagulating said pieces by heat application thereto.

4,362,753

MEAT CARCASS SANITIZING PROCESS

Kent S. Barta, 801 Monroe, Jefferson City, Mo. 65101

Continuation-in-part of Ser. No. 199,195, Oct. 21, 1980, abandoned, which is a continuation-in-part of Ser. No. 144,030, Apr. 28, 1980, abandoned. This application Sep. 29, 1981, Ser. No. 306,695

The portion of the term of this patent subsequent to Jan. 13, 1998, has been disclaimed.

Int. Cl.³ A23B 4/08

U.S. Cl. 426—332

3 Claims

1. The process of avoiding proliferation of bacteria on freshly slaughtered meat carcass surfaces, selected from the group consisting of beef, pork, lamb and veal carcass surfaces, comprising the steps of:

- forming an aqueous solution of chlorine dioxide in a concentration of 0.5 to 4.0 ppm,
- said concentration being substantially sub-bactericidal yet great enough to substantially suppress bloom development of such bacteria on said meat carcass surfaces, and
- applying said solution to said meat carcass surfaces by intermittent spraying during chilling.

4,362,754

METHOD OF FORMING SHAPED POTATO PRODUCTS

David R. Wenger, Grand Rapids, and Kenneth R. Walsh, Saranac, both of Mich., assignors to Werner Lehara, Inc., Grand Rapids, Mich.

Division of Ser. No. 75,757, Sep. 14, 1979, abandoned. This application Oct. 27, 1980, Ser. No. 200,972

Int. Cl.³ A21D 6/00

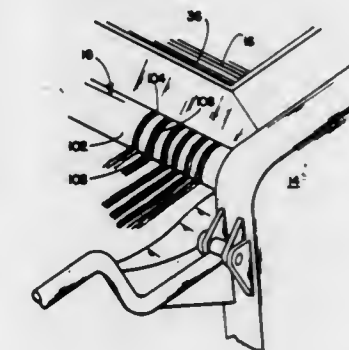
U.S. Cl. 426—503

4 Claims

1. A method of forming mutually segregated elongated

narrow strips of food product from a potato dough, comprising the steps of:

- supplying a flowable potato dough material, including potatoes and a binder mixed together, into a nip area defined by a die roll and a feed roll, the die roll defining a plurality of generally parallel laterally adjacent annularly-extending cavities;
- said cavities each having a bottom wall and opposed side-walls forming circumferentially-extending grooves, and said opposed sidewalls of said grooves being disposed in plan to define an alternating laterally zig-zag excursion, so that strips of dough shaped therein have a crinkle configuration;



rotating the die roll and the feed roll in opposite directions to force the potato dough into said zig-zag grooves;

compacting and shaping the dough within said zig-zag grooves, and restricting the dough from forming a continuous sheet or layer between adjacent grooves, by placing an endless belt in contact with a portion of the periphery of the die roll and applying pressure against the die roll and belt with a resilient pressure roll; and

extracting the mutually separate crinkle-shaped strips of dough from the zig-zag grooves and depositing the shaped dough strips upon the belt in side-by-side mutually spaced and generally parallel dispositions, said extracting step being accomplished as the belt separates from the die roll.

4,362,755

PROCESS FOR MODIFYING STARCH WITH SODIUM OR CALCIUM STEAROYL-2-LACTYLATE

William A. Mitchell, Lincoln Park, N.J., and William C. Seidel, Monsey, N.Y., assignors to General Foods Corporation, White Plains, N.Y.

Division of Ser. No. 960,218, Nov. 13, 1978, Pat. No. 4,260,642. This application Oct. 17, 1980, Ser. No. 198,078

Int. Cl.³ A23L 1/187

U.S. Cl. 426—579

21 Claims

1. A process for producing a dry pregelatinized starch suitable for use in instant puddings comprising:

- forming an aqueous slurry containing an ungelatinized starch and a modifier chosen from the group consisting of sodium stearyl-2-lactylate and calcium stearyl-2-lactylate, the modifier being present at levels effective to form light porous agglomerates and to impart the resultant dry pregelatinized starch when rehydrated with a smoother, creamier mouthfeel and a higher sheen without appreciable loss of viscosity or body than a starch pregelatinized without said modifier;
- heating the slurry to a temperature and for a period of time sufficient to gelatinize the starch and under conditions to shatter the starch granules; and
- drying the slurry.

gen, water-emulsifiable salt-forming cations and fluoroalkyl radicals of the formula $-(CH_2)_b-(C_xF_2)_n-CF_2E$, and wherein A is hydrogen or lower alkyl (C_1 to C_5), B is oxygen or NH, D and E are hydrogen or fluorine, m and n are integers from 0 to 4 inclusive, and totalling not more than 4, x and y are integers from 1 to 18 inclusive, and a and b are integers from 1 to 3 inclusive:

said fluorochemical being applied to said cast bandage as an aqueous dispersion containing from 2% to 30% by weight of said fluorochemical said aqueous dispersion containing a cationic or nonionic surfactant to maintain said fluorochemical in said dispersion, and allowing the cast to dry at room temperature.

4,362,763

METHOD OF MAKING FISHING LINE CONTROL DEVICE

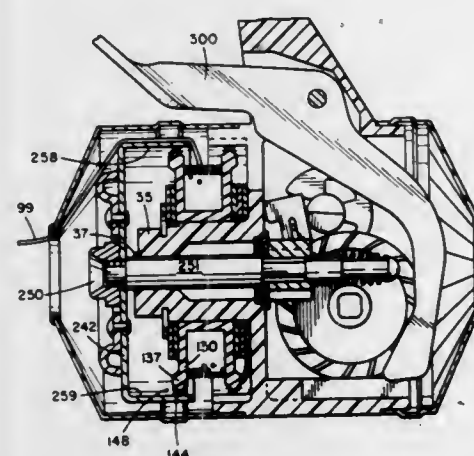
John W. Puryear, and Arthur D. Callan, both of Tulsa, Okla., assignors to Brunswick Corporation, Skokie, Ill.

Filed Jan. 17, 1980, Ser. No. 112,917

Int. Cl.³ B05D 1/04

U.S. Cl. 427-14.1

12 Claims



1. A method of fiber flocking the rim of a fishing reel spool comprising the steps of:

- (1) providing a fishing reel spool having a flange with a rim wherein the rim is thinner than the flange;
- (2) positioning the spool on a mandrel;
- (3) coating only the rim with an adhesive;
- (4) electrostatically depositing relatively short fibers on the rim;
- (5) dislodging the fibers not adhered to the rim by the adhesive; and,
- (6) curing the adhesive.

4,362,764

ELECTROSTATIC PRINTING OF MARKERS FOR CUTTING FABRIC INVOLVES IMAGE TRANSFER AND TWO TONERS

Josef Matkan, Malvern, and Robert J. Wright, Blackwood, both of Australia, assignors to Better Methods, Inc., Secaucus, N.J.

Filed Jul. 14, 1981, Ser. No. 283,205

Claims priority, application Australia, Jul. 24, 1980, PE4678/80

Int. Cl.³ B05D 1/06

U.S. Cl. 427-14.1

21 Claims

1. A method for the production of markers for the cutting of fabric or material in the garment and allied industries comprising the steps of

forming an electrostatic latent image on the surface of a dielectric recording member defining the shape of fabric pieces to be cut,

toning said electrostatic latent image with a primary toner which is capable of holding an electrostatic charge when fused to a surface,

transferring said primary toner deposit from said dielectric recording member to a receiving member the surface of

which is relatively incapable of holding an electrostatic charge in comparison with said primary toner deposit, fixing said primary toner deposit to said receiving member surface to form an electrostatic master,

electrostatically charging said fixed primary toner deposit on said electrostatic master,

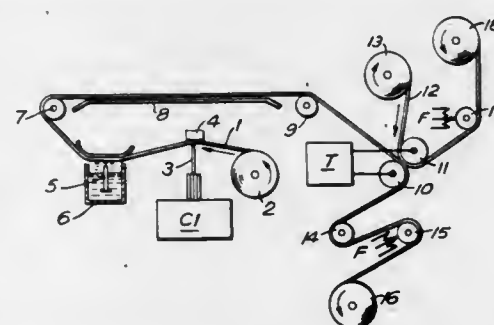
toning said primary toner deposit on said electrostatic master with a secondary toner, and

transferring electrostatically said secondary toner to a surface while simultaneously retaining said fixed primary toner deposit on said electrostatic master whereby to mark the said surface with the said secondary toner but retaining said master for forming further copies.

9. The method for the production of markers as defined generally in claim 1 characterised by the steps of

(a) feeding the said dielectric recording member past recording nibs and applying an electrical signal thereto to establish a marking pattern,

(b) passing the said dielectric recording member through a first



developer station to apply a primary insulating toner to areas conditioned by the said signal,

(c) passing the said dielectric recording member through a first transfer station between rollers while maintaining a transfer field between the said rollers,

(d) feeding the said recording member forward to also pass through the said first transfer station in close contact with the said dielectric recording member to receive the said primary insulating toner,

(e) passing the said receiving member over heating means to fuse the said primary toner to the said receiving member, to form a said master,

(f) feeding the said electrostatic duplicating master through a charging station to charge the said primary toner on the said electrostatic duplicating master,

(g) passing the said electrostatic duplicating master through a second developer station to apply the said secondary toner, and using the said electrostatic duplicating member so formed to produce multiple copies of the said marking pattern.

4,362,765

METHOD OF MANUFACTURING A GAS SENSING DEVICE

Atsushi Abe, Ikoma; Hisahito Ogawa, Katano; Masahiro Nishikawa, Amagasaki; Satoshi Sekido, Yahata, and Shigeru Hayakawa, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Division of Ser. No. 66,332, Aug. 14, 1979, Pat. No. 4,313,338. This application Jun. 19, 1981, Ser. No. 275,254

Claims priority, application Japan, Aug. 18, 1978, 53-101100; Aug. 18, 1978, 53-101101; Aug. 23, 1978, 53-103026

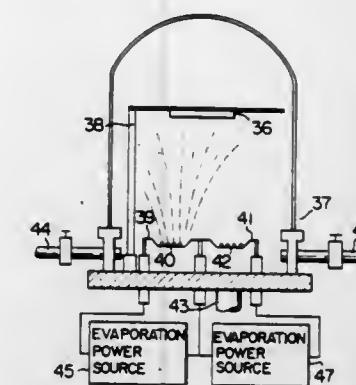
Int. Cl.³ G01N 27/12

U.S. Cl. 427-38

9 Claims

1. A method of manufacturing a gas sensing device comprising the step of evaporating a material including at least one of a metal and its oxide in an atmosphere containing oxygen gas at a reduced pressure of an atmosphere containing an inert gas at a reduced pressure, thereby depositing a gas-sensitive resistive film of ultrafine particles having a mean diameter of between

10 and several hundred angstroms of said material on one of the major surfaces of a substrate of an electrical insulating



material formed with electrodes to provide a gas sensing element.

4,362,766

METHOD FOR PREPARING A PROTECTIVE AMORPHOUS SILICON PASSIVATING FILM ON A SEMICONDUCTOR DEVICE

Friedrich Dannhäuser; Karl Kempter, both of Munich; Jürgen Krause, Baldham, and Manfred Schnöller, Halmhausen, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

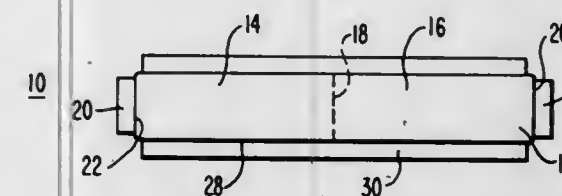
Filed Jul. 1, 1981, Ser. No. 279,345

Claims priority, application Fed. Rep. of Germany, Aug. 23, 1978, 2836911

Int. Cl.³ H01L 21/314

U.S. Cl. 427-39

8 Claims



1. Process for depositing a passivating film of amorphous silicon on a body of silicon semiconductor material, comprising disposing a semiconductor body in a glow discharge path within a reaction chamber maintained under vacuum, conducting a flow of gaseous silicon-hydrogen compound into said reaction chamber to effect decomposition of the compound by the glow discharge energized by voltage from an external source of electrical power and deposition of a passivating film of amorphous silicon on the semiconductor body maintained in the range of 150° to 350° C., and regulating the operating conditions in the reaction chamber, namely, gaseous silicon-hydrogen pressure, flow rate of gaseous silicon-hydrogen, power in the glow discharge and temperature of the semiconductor body to obtain a content of hydrogen in the amorphous silicon between 5 and 40 atom-percent and a resistivity between 10⁸ and 10¹⁰ ohm/cm.

4,362,767

MAGNETIC THIN FILM AND METHOD OF MAKING IT
Norimoto Nouchi, Katano; Kenji Kanai, Neyagawa; Nobuyuki Kaminaka, Moriguchi, and Noboru Nomura, Kyoto, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan

Filed Nov. 21, 1979, Ser. No. 96,562

Claims priority, application Japan, Nov. 22, 1978, 53-144836

Int. Cl.³ G11B 5/64, 5/84

U.S. Cl. 427-130

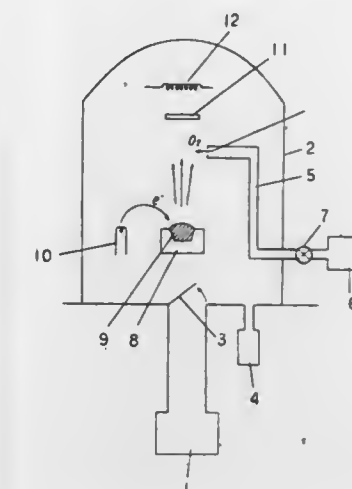
3 Claims

1. A method of making a magnetic thin film consisting essentially of the steps of:

(a) preparing a deposition material including at least one of Fe_xCo_yCu_z alloys and oxides of said alloys, wherein x, y

and z represent the respective atomic ratios, x+y+z=1, 0.50≤x<0.95, 0.05<y≤0.30 and 0<z≤0.20;

(b) in a container, vapor depositing a film of said deposition material into a substrate held at a temperature between 200° and 500° C. under oxygen pressure in the range above 10⁻⁴ Torr, but below 10⁻³ Torr; and,



(c) annealing said deposited film for at least 18 minutes under an oxygen pressure above 10⁻⁴ Torr, but below 760×(1/5) Torr, with said substrate being held at a temperature between 200° and 500° C.

4,362,768

TREATMENT OF GLASS FOR HIGH TEMPERATURE RESISTANCE

George W. Ritter, II, Newark, Ohio, assignor to Owens-Corning Fiberglass Corporation, Toledo, Ohio

Filed Aug. 14, 1981, Ser. No. 293,035

Int. Cl.³ B05D 3/10

U.S. Cl. 427-307

10 Claims

1. A method of treating glass fibers to improve their resistance to high temperatures which comprises:

- a. contacting said fibers with tetrahydrofuran-2, 3, 4, 5-tetracarboxylic acid to produce leached fibers;
- b. contacting said leached fibers with colloidal silica; and
- c. contacting the fibers from step b. with an aqueous solution of the salt of a refractory metal to deposit said refractory metal salt thereon.

4,362,769

METHOD OF NEUTRALIZING THE CORROSIVE SURFACE OF AMINE-CURED EPOXY RESINS

Sheng Y. Lee, Silver Spring, Md., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Aug. 14, 1981, Ser. No. 293,412

Int. Cl.³ B05D 3/00

U.S. Cl. 427-322

8 Claims

1. A process for making a cured epoxy resin polymer, with a corrosion free surface area including:

- forming said polymer with a mixture of an epoxy resin prepolymer and an aliphatic amine, said aliphatic amine acting as a curing agent;
- applying a liquid layer of a mono-isocyanate or mono-isothiocyanate reagent to said surface area of said polymer; and
- rinsing said reagent from said surface area.

4,362,770

NITROCELLULOSE-FREE PRIMER-SURFACER

John Mathai, and Larry J. Morrison, both of Chicago, Ill., assignors to The Sherwin-Williams Company, Cleveland, Ohio
Filed Apr. 2, 1981, Ser. No. 250,442
Int. Cl.³ B05D 1/36, 7/00

U.S. Cl. 427-409

20 Claims

1. In a coated substrate wherein the substrate is selected from a group consisting of ferrous and non-ferrous metals and plastics, and the coating comprises a preliminary primer-surfacer coat and a finish coat selected from a group consisting of acrylic lacquer, enamel and urethane coating applied over said primer, the improvement which comprises said primer-surfacer comprising 35-67 percent by weight inert solvent and 65-33 percent by weight of an acrylic polymer vehicle having an acid value of 25-35 and a viscosity ranging from 16-50 poise at about 40% polymer solids as measured in a toluene/isopropanol, 95%/5%, solvent at 25° C., said acrylic polymer vehicle consisting essentially of the polymerization reaction product of methyl methacrylate, butyl methacrylate and methacrylic acid with a free radical initiator.

4,362,771

LIQUID CRYSTAL DISPLAY ELEMENT WITH GAP CONTROLLING MATERIAL AND PROCESS FOR PRODUCTION THEREOF

Takao Umeda, Hitachi; Tatsuo Igawa, Kitaibaraki; Yuzuru Simazaki, Hitachi; Takao Miyashita, Mito, and Fumio Nakano, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 16, 1981, Ser. No. 311,971

Claims priority, application Japan, Oct. 20, 1980, 55-145809

Int. Cl.³ C09K 3/34

U.S. Cl. 428-1

28 Claims



15. In a liquid crystal display element comprising a pair of transparent substrates at least one of which is a flexible thin plate, electrodes formed on the individual surfaces thereof facing each other, a liquid crystal material layer held between the substrates, and a gap controlling material for keeping the gap between said substrates, the improvement wherein said gap controlling material contains a polymer solid and an insulating material having a higher softening point and rigidity than does the polymer solid and is dispersed and fixed in an insulating coating film formed on the surface of at least one of the substrates.

4,362,772

VIBRATORY ELEMENTS FOR AUDIO EQUIPMENT

Tsunehiro Tsukagoshi; Shinichi Yokozeki; Sumio Hagiwara; Masataka Uchidoi; Toshikazu Yoshino, and Yasuyuki Arai, all of Tokorozawa, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Mar. 18, 1981, Ser. No. 244,895

Claims priority, application Japan, Mar. 31, 1980, 55-40267;

Mar. 31, 1980, 55-40268; Mar. 31, 1980, 55-40269

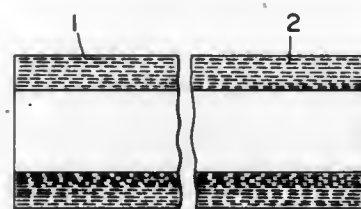
Int. Cl.³ B32B 1/08, 5/00, 9/00

U.S. Cl. 428-36

12 Claims

1. An acoustic vibratory element fabricated from a kneaded mixture comprising polypropylene, polymethyl methacrylate

and flaky graphite powder, the graphite flakes being oriented substantially parallel to the surface of the element.



12. The acoustic vibratory element according to claim 1 wherein said element is a cantilever.

4,362,773

FLOCKED FOAM WITH EMBOSSED PATTERN

Yasuo Shikinami, Osaka, Japan, assignor to Takiron Co., Ltd., Osaka, Japan

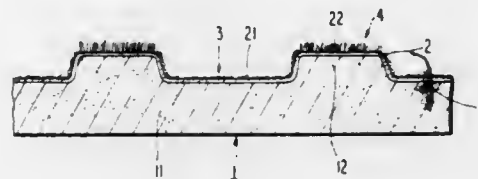
Filed Jun. 26, 1980, Ser. No. 163,138

Claims priority, application Japan, Jun. 26, 1979, 54-88128[U]; Nov. 9, 1979, 54-156060[U]; Nov. 21, 1979, 54-162385[U]

Int. Cl.³ B32B 3/26; B05D 1/06

U.S. Cl. 428-90

10 Claims



1. A flocked foam having an embossed pattern provided by a high-frequency welder, said foam comprising a partially cross-linked foam substrate, having from 10 to 75% gel fraction in boiling toluene for 15 hours formed from (I) a (A) 1,2-polybutadiene resin or (B) a polymer blend, the polymeric components of which are a 1,2-polybutadiene resin as one component thereof and, as a second component thereof, a polymer selected from the group consisting of vinyl acetate/olefinic, vinyl alcohol/olefinic, and acrylic ester/olefinic copolymers containing more than about 10 mol% of polar component, and (II) modacrylic pile fibers consisting of 35% to 85% acrylonitrile and 65% to 15% vinyl chloride flocked on the surface of the foam substrate.

4,362,774

DRAPERY FABRIC FOAM BACKING

William A. Brandon, Jr., and William D. Bailey, both of Burlington, N.C., assignors to Burlington Industries, Inc., Greensboro, N.C.

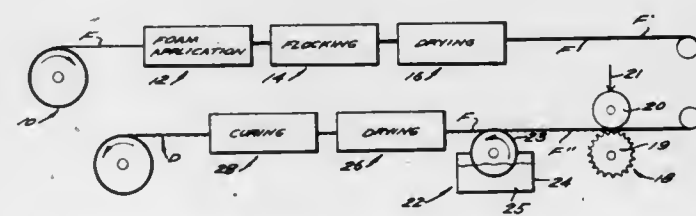
Continuation of Ser. No. 107,636, Dec. 27, 1979, abandoned.

This application Jun. 16, 1981, Ser. No. 274,200

Int. Cl.³ B05D 1/14, 1/16, 3/10; B32B 5/18

U.S. Cl. 428-159

11 Claims



1. A drapery fabric having desirable textile properties and produced by applying a wet, cross-linking foam backing to the moving web of fabric; at least partially drying, without significantly curing, the wet foam backing; embossing the foam

4,362,775

NONWOVEN SHEETS OF FILAMENTS OF ANISOTROPIC MELT-FORMING POLYMERS AND METHOD THEREOF

Philip E. Miller, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jan. 19, 1982, Ser. No. 340,638

Int. Cl.³ D03D 3/00

U.S. Cl. 428-224

10 Claims

1. A strong dimensionally stable high-melting nonwoven sheet comprised of filaments from an optically anisotropic melt-forming polymer, the filaments being disposed in multiple directions within the plane of the sheet and being self-bonded at a plurality of cross-over points, the filaments between bond points being substantially undeformed, the fibrous sheet having a tensile strength in at least one direction of at least 1.0 N/cm²/g/m² and having a tensile strength in a direction perpendicular to that direction which is at least 25% of the strength in that direction.

4,362,775

POLYESTER FILM-HEAT-BONDED METAL SHEET AND CONTAINER MADE THEREOF

Kenji Yabe, Shiga; Masayoshi Asakura, Kusatsu; Hiroki Sano, Yokosuka, and Masanori Aizawa, Yokohama, all of Japan, assignors to Toray Industries, Inc. and Toyo Seikan Kaisha, Ltd., both of Japan

Filed Jul. 1, 1980, Ser. No. 165,192

Claims priority, application Japan, Jul. 5, 1979, 54/85289

Int. Cl.³ B32B 15/08, 27/36; C09J 13/14, 13/16

U.S. Cl. 428-213

17 Claims

1. A polyester film-heat-bonded metal sheet, which comprises a biaxially oriented polyester film or films, heat-bonded to a metal sheet by means of an adhesive layer interposed therebetween, said adhesive layer is made of a polyblend comprised of, based on the weight of the polyblend, 5 to 80% by weight of at least one high melting point polyester having a melting point of at least 200° C. and 20 to 95% by weight of at least one low melting point polyester having a melting point of at least 100° C., but not higher than a temperature which is 5° C. lower than the melting point of the high melting point polyester.

17. A polyester film-heat-bonded metal sheet according to claim 1 or 2, wherein the total thickness of the biaxially oriented film and the adhesive layer is in the range of 5 to 500 microns, the adhesive layer has a thickness of at least 2 microns and the ratio in thickness of the biaxially oriented polyester film to the adhesive layer is in the range of 1/0.05 to 1/5.

4,362,776

SIEVE BELT WITH FILLER MATERIAL

Johannes Lefferts, LM Enschede, and Roelof Roelofs, LT-Hengelo, both of Netherlands, assignors to Siteg Siebtechnik GmbH, Ahaus-Alstätte, Fed. Rep. of Germany

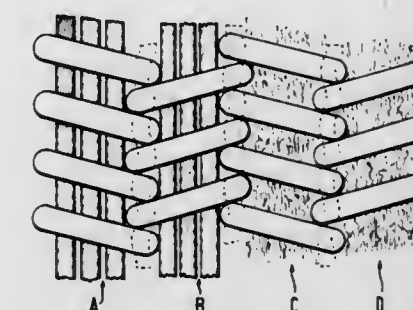
Filed Oct. 14, 1981, Ser. No. 311,228

Claims priority, application Fed. Rep. of Germany, Oct. 22, 1980, 3039873

Int. Cl.³ D04H 3/02

U.S. Cl. 428-222

10 Claims



1. A sieve belt comprised of a plurality of helices made from thermoset synthetic resin material with adjacent helices intermeshed so that the windings of one helix enter between the windings of the adjacent helix, a pintle wire disposed in each of the respective channels formed by the intermeshed windings of adjacent helices and a filler material within the hollow interior of each of the helices, said filler material being comprised of crimped or undulating filaments.

4,362,779

PROCESS OF SILVERING ARTICLES HAVING A BASE OF POLYAMIDES

Andre Arsac, Vernaison, France, assignor to Rhone-Poulenc-Textile, France

Continuation of Ser. No. 876,664, Feb. 10, 1978, abandoned, which is a continuation of Ser. No. 686,401, May 14, 1976, abandoned, which is a continuation of Ser. No. 493,456, Jul. 31, 1974, abandoned. This application May 8, 1981, Ser. No. 262,210

Claims priority, application France, Aug. 1, 1973, 73 28614

Int. Cl.³ B32B 7/00; B05D 3/10

U.S. Cl. 428-263

8 Claims

1. A process for improving the antistatic properties of an article made of a polyamide polymer by covering at least one surface of said polyamide article with a layer of silver consisting essentially of

treating at least one surface of said article with an aqueous bath of a polyhydroxy benzene reducing agent which is a swelling agent for said polyamide, with a concentration of about 1% to about 30% by weight at a temperature between room temperature and 90° C. to permit said polyhydroxy benzene reducing agent to swell said polyamide, and then treating the resulting product with an ammoniacal silver nitrate solution.

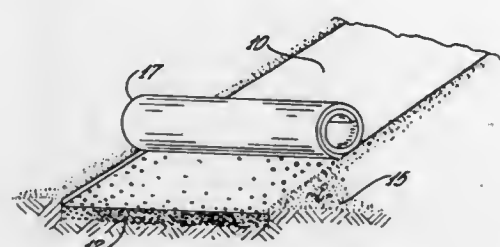
4,362,780 FIBER REINFORCED MEMBRANE PAVING CONSTRUCTION

Alfred Marzocchi, Newark, and Richard F. Shannon, Lancaster, both of Ohio, assignors to Owens-Corning Fiberglass Corporation, Toledo, Ohio

Continuation of Ser. No. 903,413, May 8, 1978, abandoned. This application May 7, 1980, Ser. No. 147,436
Int. Cl.³ B32B 5/16, 11/02

U.S. Cl. 428—283

3 Claims



1. A prefabricated unitary section of membrane construction for use in paving comprising a sheet-like body of unbonded fibers, said body being impregnated with heated asphalt material, flake glass in the impregnated sheet-like body in an amount in a range of one percent and ten percent by weight, said section being cooled to set the asphalt material.

4,362,781 FLUSHABLE PREMOISTENED WIPER

Ralph L. Anderson, Boothwyn, Pa., assignor to Scott Paper Company, Philadelphia, Pa.

Filed Sep. 21, 1981, Ser. No. 303,935
Int. Cl.³ B32B 9/00; B08B 1/00

U.S. Cl. 428—291

6 Claims

1. A water-dispersible pre-moistened wiper comprising a non-woven web having a majority of papermaking fibers, said web being impregnated with a modified guar gum, and an aqueous, alkaline lotion containing borate ions.

4,362,782 LOW TEMPERATURE CURE INTERLAMINAR COATING

Norman M. Pavlik, Plum Boro, and John Sefko, Monroeville, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Sep. 25, 1980, Ser. No. 190,693
Int. Cl.³ B32B 15/04, 13/06; C08K 3/10

U.S. Cl. 428—336

3 Claims

1. An article of manufacture comprising a substrate steel suitable for use in a magnetic circuit and an at least 0.05 mil coating on said substrate, the coating consisting essentially of the reaction products of a composition containing by weight 2% to 6% zinc, from about 0.1% to about 1% nickel, from about 4% to about 8% phosphorus, from about 0.1% to about 1% of a wetting agent, and from about 5% to about 15% of magnesium silicate as an interlaminar resistance improving agent, from about 3% to about 10% of an agent for improving the smoothness of the coating selected from the group consisting of boric acid and aluminum nitrate, and the balance essentially water.

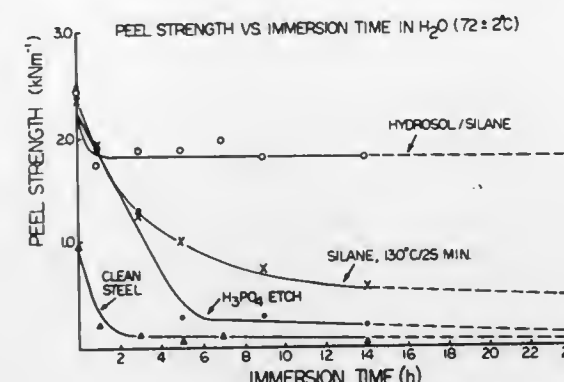
4,362,783 POLYMER COATINGS AND METHODS OF APPLYING SAME

Lionell Graham, Falls Township, Lower Bucks County, Pa., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Aug. 26, 1980, Ser. No. 181,512
Int. Cl.³ B32B 15/18, 15/08

U.S. Cl. 428—338

16 Claims



1. In combination, a substrate and a polymer adhesion enhancing layer thereon comprises the substrate, a wetting hydrosol having a cationic constituent on at least one surface of the substrate and adherent thereto and a coupling agent on the hydrosol and adherent thereto, the cationic constituent of the wetting hydrosol being dissimilar to any metallic constituent of the underlying substrate.

11. A coated metal comprising a base metal, a monolayer of a hydrous oxide wetting hydrosol thereon having a cationic constituent different from the base metal, and a compatible coupling agent over the hydrosol.

13. A printed circuit board comprises a base metal, a hydrous oxide wetting hydrosol on at least one surface of the base metal, the hydrosol having a cationic constituent which is different from the base metal, a coupling agent therefor and a compatible polymeric coating thereover.

4,362,784 PACKING MATERIALS FOR MOLTEN CONTENTS

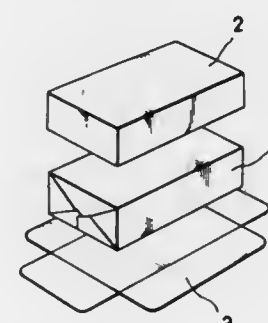
Takeo Kato, Ohmiya, and Nobuyoshi Fukuda, Tokyo, both of Japan, assignors to Toppan Printing Co., Ltd., Tokyo, Japan

Filed Apr. 24, 1980, Ser. No. 143,467

Int. Cl.³ B32B 9/00

U.S. Cl. 428—340

5 Claims



1. A packing material for molten contents at a temperature of 75° to 95° C. comprising a base material film on which is extrusion-coated with 20 to 45 g/m² of a resin (C) comprising an ethylene-vinyl acetate copolymer (A) having a vinyl acetate content of approximately 5 to 40 percent by weight and a copolymer (B) of ethylene or an alpha-olefin with an unsaturated carboxylic acid or its anhydride, said copolymer (B) having a molecular weight of approximately 2,000 to 20,000 and a melting point of 70° to 80° C., and having the following general formula:



(wherein R stand for a hydrogen atom or an alkyl group having between 1 and 98 carbon atoms, inclusive, and X stands for a residue of an unsaturated carboxylic acid or its anhydride), in an (A) to (B) ratio between approximately 99:1 and 60:40 by weight.

4,362,785 POLYMERS CONTAINING 2,5-OXOLANYLENE SEGMENTS

William J. Schultz, White Bear Lake, Minn., and Alan R. Kartzky, Norwich, England, assignors to Minnesota Mining and Manufacturing Co., St. Paul, Minn.

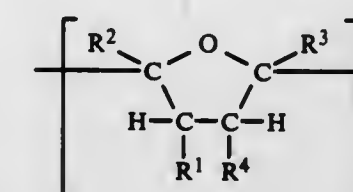
Division of Ser. No. 803,207, Jun. 3, 1977, Pat. No. 4,309,516, which is a continuation-in-part of Ser. No. 740,661, Nov. 10, 1966, abandoned, which is a continuation-in-part of Ser. No. 692,602, Jun. 2, 1976, abandoned. This application Jul. 17, 1981, Ser. No. 284,229

Int. Cl.³ B32B 27/06, 27/36

U.S. Cl. 428—480

2 Claims

1. As an article of manufacture, a normally hydrophobic substrate which has been rendered hydrophilic by application thereto of a coating of a water-insoluble polymer containing recurring 2,5-oxolanylene units of the formula:



wherein at least 60 percent of said units are joined directly to one another so as to provide segments consisting of at least six of said units; and wherein R¹, R², R³ and R⁴ are, individually, hydrogen or alkyl groups containing up to 8 carbon atoms each.

4,362,786 APPARATUS AND PRODUCT USEFUL IN MANUFACTURE AND HANDLING OF CABLE SEALS

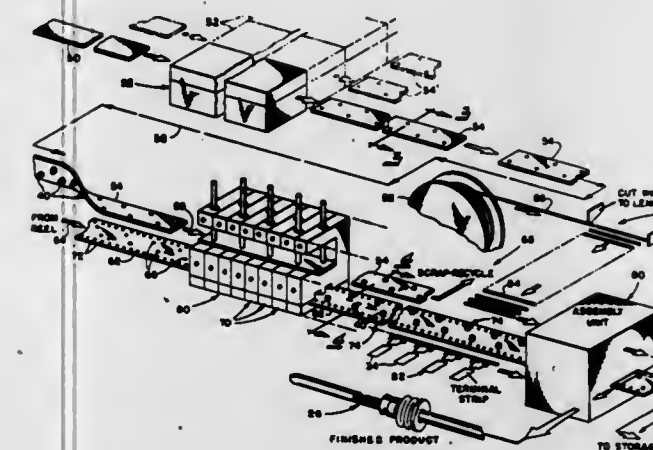
Myles N. Murray, Chargin Falls, Ohio, assignor to Industrial Electronic Rubber Company, Twinsburg, Ohio

Division of Ser. No. 8,914, Feb. 2, 1979, Pat. No. 4,255,479. This application Feb. 27, 1981, Ser. No. 238,971

Int. Cl.³ B32B 9/04; B26F 1/00

U.S. Cl. 428—36

13 Claims



1. A product useful in automatic cable termination assembly machinery comprising: a flexible carrier strip having a plurality of seal receiving openings spaced along the length thereof; and cable seals inserted in such openings, said cable seals being

of tubular configuration and having their axes extending substantially at right angles to the planer extent of said carrier strip.

4. A punch and die apparatus for punching cable seals from an integral belt and for inserting simultaneously the cable seals into a flexible carrier strip, comprising: alignment means for aligning at least one cable seal in the belt with a seal receiving opening in the flexible carrier strip, and punch means for shearing such one cable seal from the belt and simultaneously inserting the sheared cable seal into such seal receiving opening in the flexible carrier strip.

4,362,787 FLAG STRIP FOR USE IN PRINT HAMMERS

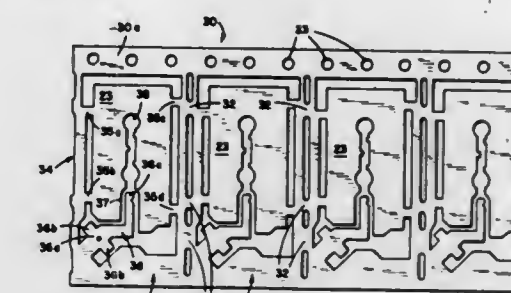
Val K. Jezbera, Thousand Oaks, Calif., assignor to Dataproducts Corporation, Woodland Hills, Calif.

Division of Ser. No. 968,278, Dec. 11, 1978, Pat. No. 4,269,118. This application Nov. 3, 1980, Ser. No. 203,159

Int. Cl.³ B21C 37/00; B41J 9/02; H01F 41/02

U.S. Cl. 428—572

6 Claims



1. A flag strip for use in the fabrication of print hammers, comprising: an elongated, unitary, planar thin strip of metal having a plurality of identical flag panels formed therein, each flag panel including: a generally rectangular flag region, a frame substantially surrounding said flag region, a plurality of links connecting said frame to said flag region, and a connector arm extending from said frame at one side of a centerline through said flag region.

4,362,788 FUEL CELL SYSTEM WITH ANODE AND CATHODES OPERATING AT DIFFERENT PRESSURES

Hansraj C. Maru, and Bernard S. Baker, both of Brookfield Center, Conn., assignors to Energy Research Corporation, Danbury, Conn.

Filed Mar. 11, 1981, Ser. No. 242,671

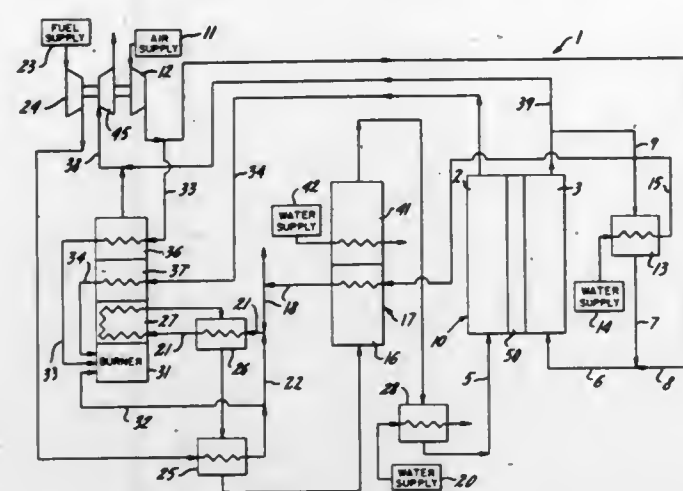
Int. Cl.³ H01M 8/04

U.S. Cl. 429—13

10 Claims

1. A method for operating a fuel cell system which includes a fuel cell provided with anode and cathode sections, the method comprising supplying oxidant process gas to said cathode section at a

first pressure; and supplying fuel process gas to said anode section at a second pressure which is less than said first



pressure such that the difference between said first and second pressures is greater than about 1 psi.

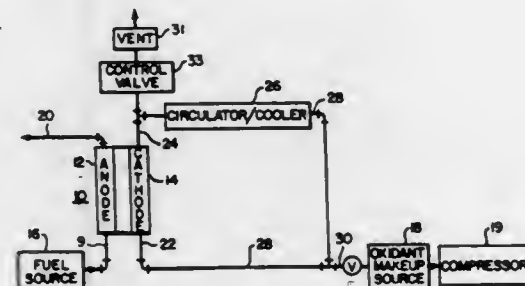
4,362,789

FUEL CELL COOLING AND RECIRCULATION SYSTEM
Shyam V. Dighe, Bombay, India, assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Sep. 21, 1981, Ser. No. 303,808
Int. Cl.³ H01M 8/04

U.S. Cl. 429—17

9 Claims



1. A fuel cell system comprising:
a fuel cell stack including an anode and a cathode;
means for supplying a hydrogen-containing fuel to said anode;
means for supplying an oxygen-containing oxidant to said cathode in an amount in excess of the stoichiometric amount relative to said fuel;
means for conducting reaction products including excess oxidant and water vapor from said cathode;
means for cooling and flowing said products through a flow constriction, said cooling and flow means including a liquid coolant injector;
means disposed downstream of said flow constriction for separating said coolant, oxidant and water into a vaporous portion having a large oxidant and small coolant and water content and a liquid portion having a large coolant and water content and a small oxidant content, said separating means including an outlet for said vapor portion; and
a conduit interconnecting said outlet and said cathode;
said cooling and flow means providing sufficient pressure head to flow said vaporous portion through said interconnecting conduit to said cathode.

4,362,790

POROUS ELECTRODE

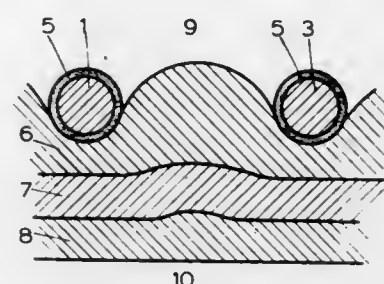
Alain P. O. Blanchart, Balen; Gilbert J. L. Van Bogaert, Mol; Constantine W. M. V. A. De Brandt, Itterbeek, and Gustaaf J. F. Spaepen, Dessel, all of Belgium, assignors to Electrochemische Energieconversie, N.V., Geleen, Netherlands
Continuation of Ser. No. 113,029, Jan. 15, 1980, abandoned, which is a continuation-in-part of Ser. No. 968,812, Dec. 12, 1978, abandoned. This application Feb. 12, 1981, Ser. No. 235,157

Claims priority, application Netherlands, Dec. 28, 1977, 7714464

Int. Cl.³ H01M 4/92

U.S. Cl. 429—42

12 Claims



1. A porous electrode comprising at least a porous catalytic layer containing a catalytically active noble-metal, carbon and a polymeric binder and a porous metallic collector, which is situated on the electrode-side of the porous catalytic layer, wherein the catalytic layer has a thickness of less than 80 μm and a catalytically active noble-metal content of at most about 250 μg/cm², and wherein the noble-metal particles in the layer are situated on the surface and/or in the pores of part of the carbon particles, while the rest of the carbon particles contain no noble-metal particles.

4,362,791

REDOX BATTERY

Hiroko Kaneko, Sakuramura, and Ken Nozaki, Ibaragi, both of Japan, assignors to Agency of Industrial Science & Technology and Ministry of International Trade & Industry, both of Tokyo, Japan

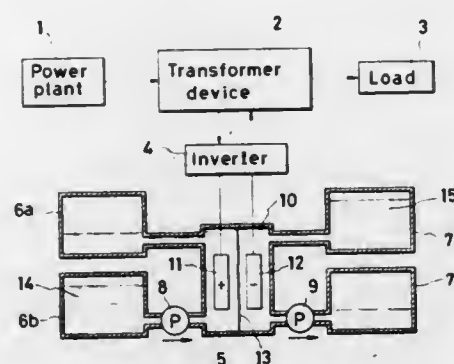
Filed Mar. 23, 1981, Ser. No. 246,255

Claims priority, application Japan, Jun. 17, 1980, 55-81940; Jun. 17, 1980, 55-81941

Int. Cl.³ H01M 8/20

U.S. Cl. 429—101

5 Claims



1. A redox battery comprising an anode, an anode chamber containing an anode electrolyte, a cathode and a cathode chamber containing a cathode electrolyte, said anode electrolyte and said cathode electrolyte each containing a redox couple, wherein said redox couple in said anode electrolyte is a Mn 3-2 redox couple and said anode electrolyte contains at least a stoichiometric amount of a complexing agent or chelating agent whereby the standard electrode potential of said redox couple in said anode electrolyte is shifted to a more negative value.

4,362,792

CONDUCTOR SEAL ASSEMBLY

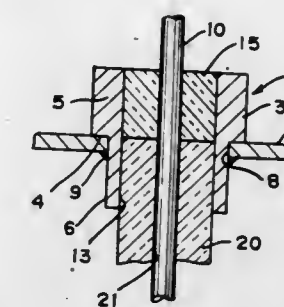
Benjamin Bowsky, Maineville; Allen E. Siegel, Loveland, and Richard F. Kerber, Cincinnati, all of Ohio, assignors to Emerson Electric Co., St. Louis, Mo.

Filed Dec. 1, 1980, Ser. No. 211,503

Int. Cl.³ H01M 2/30

U.S. Cl. 429—181

1 Claim



1. A pass-through conductor capsule mounted in an external wall of a container, comprising an elongated cylindrical metal sleeve having an axial cylindrical passage through it defined by an inner wall of uniform diameter through its entire length, said sleeve having a thick-walled section and a thin-walled section, defining between them an external step, said thick-walled section projecting outwardly from said container and said thin-walled section extending a substantial distance within the container beyond said wall, an electrical conductor extending through and mounted in said passage, a glass seal bonded to said conductor and to said passage-defining wall wholly within said thick-walled section, and a cylindrical ceramic baffle plug mounted on and around said conductor, of a diameter to fit closely within said passage, one end of said plug being fused to said glass seal, said plug extending through and beyond the end of said passage in said thin-walled section of said sleeve along said conductor, said capsule being welded to said container wall on the inside surface thereof around the outside of said thin-walled section, intermediate the length of the said ceramic plug.

4,362,793

GALVANIC CELL WITH SOLID ELECTROLYTE

Rainer Bittihn, Kelkheim; Armin Wagner, Laubach, both of Fed. Rep. of Germany; Jean-Paul Randin, Cortaillod, and Jean-Daniel Rosset, Fenin, both of Switzerland, assignors to Varta Batterie Aktiengesellschaft, Hanover, Fed. Rep. of Germany

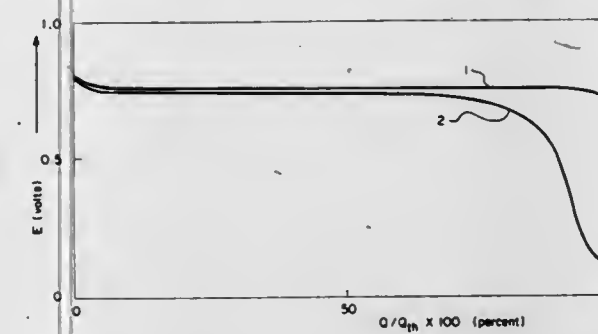
Filed May 14, 1981, Ser. No. 263,429

Claims priority, application Fed. Rep. of Germany, Jul. 10, 1980, 3026141

Int. Cl.³ H01M 6/18

U.S. Cl. 429—191

6 Claims



1. A galvanic cell with solid electrolyte, having a negative lithium or sodium electrode, a solid positive electrode and a solid electrolyte between the electrodes and dischargeable at room temperature, wherein the positive electrode consists, in the charged state, either

individually or intermixed, of metallic Sb, Bi or oxides and chalcogenides of these metals, and in the discharged state, of a reversible intermetallic combination of the Sb or, Bi, or Sh and Bi with the alkali metal of the negative electrode, and the electrolyte is Li₃N when the negative electrode is a lithium electrode and is Na₃Zr₂Si₂PO₁₂ when the negative electrode is a sodium electrode.

4,362,794

ELECTROLYTE

Kuzhikalail M. Abraham, Needham Heights, Mass., assignor to EIC Corporation, Newton, Mass.

Filed Oct. 2, 1980, Ser. No. 193,118

Int. Cl.³ H01M 6/14

U.S. Cl. 429—196

5 Claims

1. An electrolyte composition comprising an electrolyte salt having the formula MZSX₂, wherein M is an alkali metal, Z is selected from the group consisting of boron, aluminum, gallium, indium, and thallium, and X is a halogen, dissolved in a fluid oxyhalide solvent electropositive with respect to lithium.

4,362,795

PROCESS FOR FORMING PHOTOGRAPHIC IMAGES AND PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL FOR USE THEREIN

Junkichi Ogawa, Minoru Yamada, and Tsutomu Hamaoka, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Aug. 29, 1980, Ser. No. 182,545

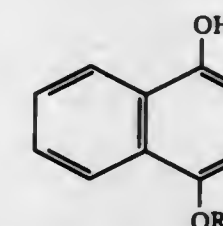
Claims priority, application Japan, Aug. 29, 1979, 54-110002

Int. Cl.³ G03C 7/00

U.S. Cl. 430—9

42 Claims

36. In an image-wise exposed and developed silver halide photographic light-sensitive material comprising a support having coated thereon one or more hydrophilic layer(s), the improvement wherein the image resulting from said development has improved granularity and comprises both a dye and silver and wherein at least one of said layer(s) prior to development contains a 4-alkoxy-1-naphthol represented by the formula (I)



(I)

wherein R represents an alkyl group, an alkoxy-alkoxy group, or a hydroxyalkyl group, and the number of carbon atoms in the substituent represented by R is from 1 to 4.

4,362,796

PROCESS OF MAKING PHOTOGRAPHIC PRINTS SIMULATING DEPTH AND RESULTANT ARTICLE

Robert Monroe, 255 W. 90th St., New York, N.Y. 10024

Continuation-in-part of Ser. No. 73,666, Sep. 10, 1979, abandoned, which is a continuation-in-part of Ser. No. 922,821, Jul. 10, 1978, abandoned. This application Jun. 11, 1981, Ser. No. 272,552

Int. Cl.³ G03C 7/00, 5/26

U.S. Cl. 430—12

7 Claims

1. The method of making a photographic reproduction which provides an illusion of depth which comprises the steps of providing a film which includes a transparent backing and a silver halide containing emulsion having a textured facing

surface, exposing said emulsion to a source of actinic energy through an energy transmitting medium having superposed areas of energy blocking, energy transmitting and partial energy transmitting material, subjecting said exposed emulsion to a developer solution, thus to reduce the halides in said emulsion to colloidal silver in proportion to the amount of actinic energy received thereon, and thereafter subjecting said partially developed emulsion to an ammoniacal silvering reducer bath formulated to produce a mirror surface of pure silver in situ in areas of unreduced silver halide.

4,362,797

ELECTROPHOTOGRAPHIC PROCESS TO RELEASE TRAPPED CHARGES BY CHARGING AND ULTRAVIOLET EXPOSURE

Akira Shimizu, Fuchu, Japan, assignor to Olympus Optical Company Limited, Tokyo, Japan

Continuation of Ser. No. 961,033, Nov. 15, 1978, abandoned.

This application Nov. 26, 1980, Ser. No. 211,413

Claims priority, application Japan, Nov. 22, 1977, 52-140260 Int. Cl.³ G03G 5/14, 13/24

U.S. Cl. 430—55

3 Claims

1. In an electrophotographic process by the Carlson method, said method employing a composite photosensitive member including an electrically conductive supporting body, an intermediate layer of organic insulator for preventing charges from being injected from said supporting body, a photoconductive semiconductor layer having a charge generating function, and a transparent photo semiconductor layer having charge retentive and transporting functions, said layers being in the form of a stack in the recited order; and including the steps of uniformly charging said composite photosensitive member in one polarity; projecting a visible light image of a document to be copied to form an electrostatic latent image on the composite photosensitive member; developing the latent image with toners to form a toner image; transferring the toner image onto a record medium to form a copy; and erasing said electrostatic latent image after a plurality of copies have been formed from the same and single electrostatic latent image by repeating said developing and transferring, the improvement comprising:

uniformly charging the composite photosensitive member in an opposite polarity and irradiating the composite photosensitive member with ultraviolet rays simultaneously with or immediately after said charging step to release charges trapped in the photoconductive semiconductor layer and the photo semiconductor layer of said composite member, said charges having been generated in the photoconductive semiconductor layer and the photo semiconductor layer during a duplication of a plurality of copies.

4,362,798

HYDRAZONE AND PYRAZOLINE OR ACETOSOL YELLOW CONTAINING CHARGE TRANSPORT LAYER, PHOTOCONDUCTOR AND ELECTROPHOTOGRAPHIC PROCESS USING THE SAME

Howard W. Anderson, and Robert B. Champ, both of Boulder, Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 18, 1981, Ser. No. 264,737

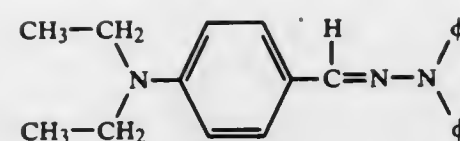
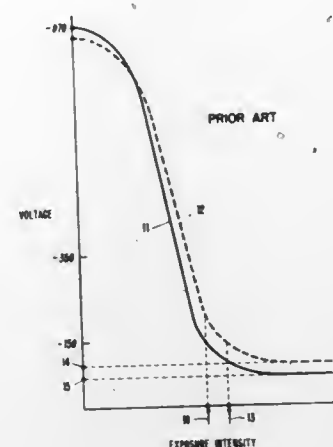
Int. Cl.³ G03G 5/06, 5/09

U.S. Cl. 430—59

2 Claims

1. In an electrophotographic element comprising: an electrically conductive layer; a charge generation layer responsive to actinic radiation to generate an electron-hole pair; and a p-type charge transport layer adjacent the charge generation layer, the charge transport layer comprising a hydra-

zone of the composition p-diethylaminobenzaldehyde(diphenylhydrazine), i.e.:



and a polymeric binder;

whereby holes generated by photoelectric phenomenon in the charge generation layer may be transported through the charge transport layer to facilitate localized selective discharge of charged surfaces of the element, the improvement comprising:

the addition of [DEASP or Acetosol Yellow] 1-phenyl-3-[p-diethylaminostyryl]-5-[p-diethylaminophenyl]-pyrazoline to said charge transport layer in an amount which is effective to produce the result that the photosensitivity of the photoconductor is not appreciably affected by exposure to limited amounts of ambient light.

4,362,799

IMAGE-HOLDING MEMBER WITH A CURABLE EPOXYACRYLATE RESIN INSULATING LAYER

Hideyo Kondo, Ibaraki, and Yuichi Yashiki, Toride, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 27, 1979, Ser. No. 34,024

Claims priority, application Japan, Apr. 28, 1978, 53-51840; Apr. 28, 1978, 53-51841; Nov. 8, 1978, 53-137725

Int. Cl.³ G03G 5/10, 5/14

U.S. Cl. 430—67

7 Claims

1. An electrophotographic image-holding member for holding electrostatic images and/or toner images comprising a support layer, a photoconductive layer overlying the support layer and an insulating layer on the surface of the member comprising (i) a curable epoxyacrylate resin having as a polymerization unit, bisphenol A diglycidyl ether diacrylate, and (ii) a silicone leveling agent.

4,362,800

SENSITIZED PHOTOCONDUCTIVE COMPOSITIONS AND ELECTROPHOTOGRAPHIC PHOTOSENSITIVE LAYERS USING SUCH

Masaaki Takimoto, Kenichi Sawada, and Kouichi Kawamura, all of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Sep. 4, 1981, Ser. No. 299,424

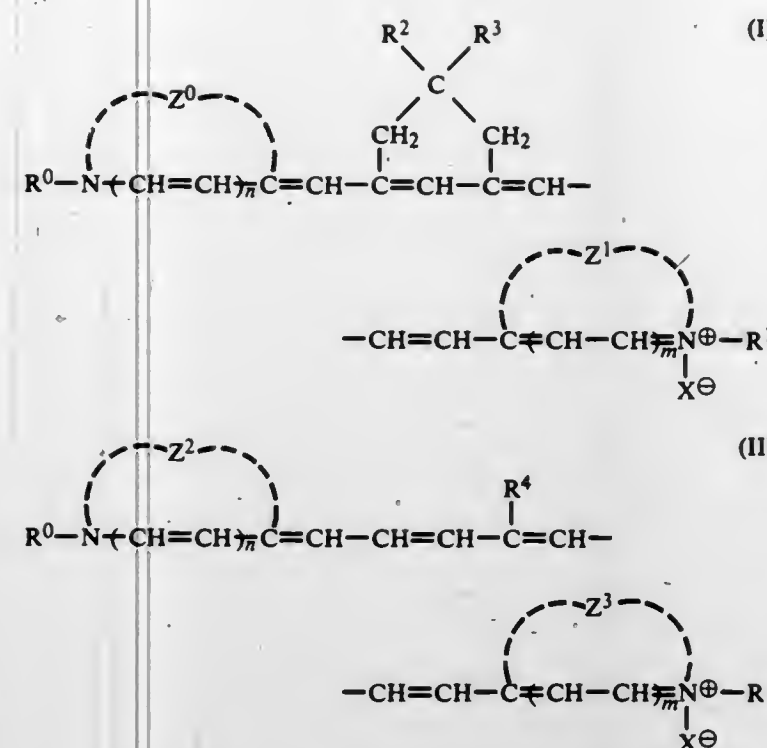
Claims priority, application Japan, Sep. 5, 1980, 55-123067

Int. Cl.³ G03G 5/04

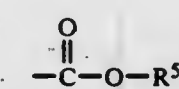
U.S. Cl. 430—83

8 Claims

1. An electrophotographic composition comprising: (a) a photoconductor; (b) a sensitizing dye represented by the following general formula (I) or (II):

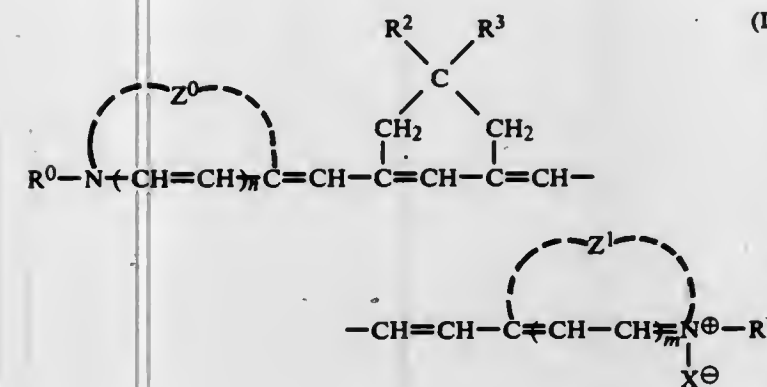


wherein R⁰ and R¹, which may be the same or different, each represents an alkyl group, a hydroxyalkyl group, an alkoxyalkyl group, an aralkyl group, a carboxyalkyl group, a carboxylatoalkyl group linked to an alkali metal cation, a sulfoalkyl group, or a sulfonatoalkyl group linked to an alkali metal cation; R² and R³ each represents a hydrogen atom, or an alkyl group having 1 to 5 carbon atoms; R⁴ represents a hydrogen atom, a halogen atom, a hydroxy group, a carboxy group, an alkyl group having 1 to 5 carbon atoms, an unsubstituted or substituted aryl group, or an acyloxy group shown by

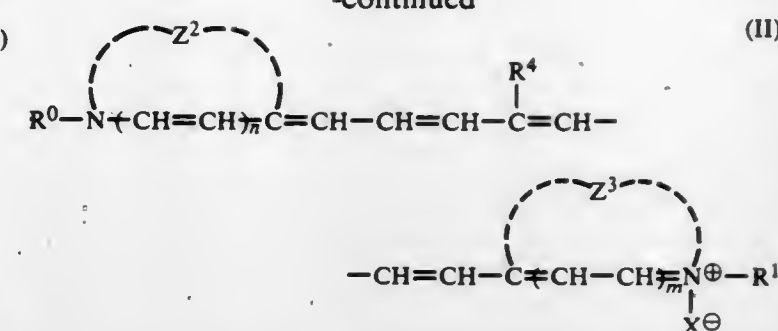


wherein R⁵ represents an alkyl group having 1 to 5 carbon atoms, a phenyl group, or a substituted phenyl group; Z⁰ and Z¹ each represents an atomic group necessary for forming a 5-membered or 6-membered heterocyclic ring or a condensed ring including a 5-membered or 6-membered heterocyclic ring; Z² and Z³ each represents an atomic group necessary for forming a 3,3-dialkylindole ring or a 3,3-dialkylbenzo[e]indole ring; m and n each represents 0 or 1; and X⁻ represents an acid anion; and (c) a film-forming high molecular weight binder.

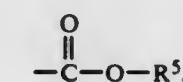
5. An electrophotographic photosensitive layer comprising a layer of a photoconductive composition containing: (a) a photoconductor; (b) a sensitizing dye represented by general formula (I) or (II):



-continued



wherein R⁰ and R¹, which may be the same or different, each represents an alkyl group, a hydroxyalkyl group, an alkoxyalkyl group, an aralkyl group, a carboxyalkyl group, a carboxylatoalkyl group linked to an alkali metal cation, a sulfoalkyl group, or a sulfonatoalkyl group linked to an alkali metal cation; R² and R³ each represents a hydrogen atom, or an alkyl group having 1 to 5 carbon atoms; R⁴ represents a hydrogen atom, a halogen atom, a hydroxy group, a carboxy group, an alkyl group having 1 to 5 carbon atoms, a substituted or unsubstituted aryl group, or an acyloxy group, shown by



wherein R⁵ represents an alkyl group having 1 to 5 carbon atoms, a phenyl group, or a substituted phenyl group; Z⁰ and Z¹ each represents a 5-membered or 6-membered heterocyclic ring or an atomic group necessary for forming a condensed ring including a 5-membered or 6-membered heterocyclic ring; Z² and Z³ each represents a 3,3-dialkylindole ring or an atomic group necessary for forming a 3,3-dialkylbenzo[e]indole ring; m and n each is 0 or 1; and X⁻ represents an acid anion; and (c) a film-forming high molecular weight binder.

4,362,801

COPPER PHTHALOCYANINE PHOTSENSITIVE MATERIAL FOR ELECTROPHOTOGRAPHY WITH BINDER AND AN OXADIAZOLE

Teruo Yagishita, Yokohama; Seiji Okada, Kawasaki; Toshiaki Narusawa, and Hirofumi Okuyama, both of Sagami-hara, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Oct. 9, 1981, Ser. No. 310,277

Claims priority, application Japan, Oct. 16, 1980, 55-144988

Int. Cl.³ G03G 5/06

U.S. Cl. 430—83

2 Claims

1. A photosensitive material for electrophotography, which comprises copper phthalocyanine as a photoconductor, 2,5-bis(4'-diethylaminophenyl)-1,3,4-oxadiazole as a charge transport material and a binder resin in which said photoconductor and charge transport material are dispersed, wherein the content of the binder resin is 50 to 70% by weight based on the total amount of the photosensitive material and the weight ratio of copper phthalocyanine to 2,5-bis(4'-diethylaminophenyl)-1,3,4-oxadiazole is in the range of from 2.5 to 6.5.

4,362,802

POWDERY DEVELOPING MATERIAL FOR ELECTROPHOTOGRAPHIC REPRODUCTION

Susumu Tanaka, Sakai; Koji Nagai, and Sanzi Inagaki, both of Itami, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 18,677, Mar. 8, 1979, abandoned. This application Nov. 10, 1980, Ser. No. 205,593

Claims priority, application Japan, Mar. 17, 1978, 53-31204
Int. Cl.³ G03G 9/14

U.S. Cl. 430—106.6

4 Claims

1. A dry developing powder composition for use in a rotating magnetic brush developing apparatus consisting essentially of (A) 85 to 98 wt% of a magnetic toner capable of functioning as a developer comprising a mixture of a styrene-acrylic resin, magnetite in a finely divided state, and a coloring agent; and (B) 2% to 15% of a non-magnetic toner comprising a mixture of a styrene-acrylic resin and a coloring agent, said percentages being based on the total weight of the composition, said magnetic toner (A) and non-magnetic toner (B) being produced by mixing together the components making up each individual mixture (A) and (B), kneading the mixture by use of a heating roll, cooling the mixture and pulverizing each of said magnetic toner mixtures (A) and non-magnetic toner (B) thus-produced so that said magnetic toner has an average particle size within the range of 35 to 50 microns and said non-magnetic toner has an average particle size within the range of 5 to 30 microns.

4,362,803

ONE-COMPONENT TYPE MAGNETIC DEVELOPER FOR DEVELOPMENT AND TRANSFER OF POSITIVELY CHARGED IMAGES

Nobuhiro Miyakawa, Suita, and Takashi Teshima, Amagasaki, both of Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed Jan. 8, 1981, Ser. No. 223,264

Claims priority, application Japan, Jan. 16, 1980, 55-2606
Int. Cl.³ G03G 13/09

U.S. Cl. 430—122

4 Claims

1. In an electrostatic photographic reproduction process which includes the steps of forming a positively charged latent image on a photosensitive plate having a p-type photoconductive layer on an electrically conductive substrate, contacting a magnetic brush of a dry one-component magnetic developer with the surface of the plate carrying the latent image thereon to form a visible image of the developer, contacting the developer image with a transfer sheet and applying corona discharge with the same polarity as that of the electrostatic latent image to transfer the developer image onto the transfer sheet, and fixing the transferred image on the transfer sheet, the improvement comprising using as said magnetic brush a dry one-component magnetic developer which comprises a finely divided magnetic material dispersed in a medium, said medium consisting essentially of (A) a vinyl aromatic polymer or acrylic polymer in an amount of 45 to 95% by weight based on the magnetic material, (B) an aliphatic carboxylic acid or metal salt thereof having a total carbon number (inclusive of the carbon atom of the carboxyl group) of at least 14 per carboxyl group in an amount of 0.2 to 4% by weight based on said magnetic material and (C) a negative charge controlling agent consisting of an alcohol-soluble complex salt azo dye containing chromium, iron or cobalt in an amount of 0.5 to 5% by weight based on said polymer, said magnetic material being triiron tetroxide having a bulk density of at least 0.42 g/ml, a number average maximum size of at least 0.35 μ m as measured by an electron microscope and a maximum size/minimum size ratio of 1.0 to 5.5.

4,362,804

METHOD OF TONER TRANSFER WITH PULSE BIAS

Phillip E. Staples, Warradale, Australia, assignor to Coulter Systems Corporation, Bedford, Mass.

Filed Jun. 3, 1981, Ser. No. 269,775

Claims priority, application Australia, Jun. 3, 1980, PE3859
Int. Cl.³ G03G 13/16

U.S. Cl. 430—126

13 Claims

1. A method of electrically transferring an image deposit formed from a liquid developer comprising electroscopic toner particles dispersed in an electrically insulating carrier liquid, from a smooth image-bearing photoconductor surface of a recording member to a smooth surface of an image-receiving member having a non-conductive side and in which the image-bearing surface of the recording member is placed into contact with the image-receiving surface of the non-conductive side of the said image-receiving member, the image-recording and image-receiving members being impervious to the carrier liquid of the liquid developer and an electrical transfer bias voltage is applied through the interface between the said surfaces in a direction normal to the said surfaces, characterised in that the said electrical transfer bias voltage is applied intermittently by successive pulses of opposite polarity and with successively increasing voltage gradually progressively to remove excess liquid from the interfaced surfaces, while the final pulse being of an electrical polarity and magnitude sufficient to transfer the said image deposit to the said receiving member.

4,362,805

METHOD FOR MANIPULATING AND TRANSPORTING IMAGE MEDIA

Robert M. Landsman, Annandale, Va., assignor to Logescan Systems Inc., Springfield, Va.

Division of Ser. No. 972,628, Dec. 22, 1978, Pat. No. 4,262,594.
This application Jul. 7, 1980, Ser. No. 166,434

Int. Cl.³ B41B 15/32; G03F 7/02

U.S. Cl. 430—200

10 Claims

1. A method of transporting an image receiving medium and forming it to a precise curvature, and exposing an image thereon, said method comprising:

- (a) positioning an image receiving medium on the surface of a flat flexible carrier, said carrier defining a pair of reference strips,
- (b) engaging said flexible carrier in a gripping means attached to a pair of spaced cylindrical discs, said discs defining a precise cylindrical reference plane therebetween,
- (c) drawing a vacuum through said carrier to exhaust the air from between said image receiving medium and the surface of said carrier,
- (d) rotating said discs sufficiently to draw said flexible carrier around the periphery of said discs with each of said reference strips contacting one of said discs, said strips also defining a neutral axis of curvature for said combined carrier and image receiving medium whereby said image receiving medium is supported by said carrier in a precise cylindrical plane,
- (e) exposing said image receiving medium to a scanning beam of modulated radiant energy focussed on said medium from within said precise cylindrical reference plane, to record an image on said medium.

4,362,806

IMAGING WITH NONPLANAR SUPPORT ELEMENTS

Keith E. Whitmore, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 8,819, Feb. 2, 1979, abandoned.
This application Sep. 8, 1980, Ser. No. 184,714

Int. Cl.³ G03C 1/76, 5/54

U.S. Cl. 430—202

120 Claims

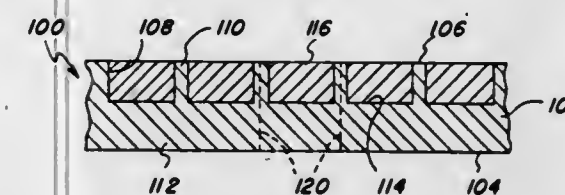
1. In an element comprising a support means having first and second major surfaces and, on said support means, radiation-

sensitive imaging means capable of undergoing as a function of at least one of photographic exposure and processing a change in the optical density or mobility of said imaging means, said imaging means being comprised of an imaging dye or imaging dye precursor which permits visibly detectable lateral image spreading to occur when said imaging means is coated as a continuous layer on a planar support surface,

the improvement comprising

said support means defining microvessels which individually open toward one of said first and second major surfaces, a plurality of the microvessels opening toward said first major surface of said support means to form a predetermined, ordered planar array, next adjacent of the microvessels forming the planar array being laterally spaced by less than the width of adjacent microvessels opening toward either of said first and second major surfaces, and said imaging dye or imaging dye precursor of said imaging means being present at least in part in a plurality of the micro-vessels of said planar array.

42. In a silver halide photographic element comprising a support having first and second major surfaces and, on said support, radiation-sensitive means which produces visually detectable lateral image spreading in translating an imaging exposure pattern to a viewable form, said radiation-sensitive means including a first component comprised of a radiation-sensitive silver halide emulsion of the developing out type capable of being developed in an aqueous alkaline processing solution in which said radiation-sensitive silver halide emulsion contains a development inhibitor releasing coupler and a second component comprised of a surface fogged silver halide



emulsion for producing a viewable image in response to silver halide development,

the improvement comprising

said support being comprised of a plurality of lateral walls and an underlying portion defining a predetermined, ordered planar array of reaction microvessels which open toward one major surface of said support, said microvessels having widths in the range of from 7 to 100 microns and depths in the range of from 5 to 20 microns, at least one of said first and second components being present in said reaction microvessels, and said support being substantially impermeable to the aqueous alkaline processing solution and said lateral walls providing a barrier to radiation scattering between adjacent reaction microvessels, so that lateral image spreading is limited.

43. In a photographic element comprising a support means having first and second major surfaces and, on said support means, radiation-sensitive imaging means for translating an imaging exposure pattern into a viewable form, said imaging means being comprised of at least one component which permits visibly detectable lateral image spreading to occur when said imaging means is coated on a planar support surface, said one component being capable of undergoing as a function of at least one photographic exposure and processing a change in optical density or mobility,

the improvement comprising

said support means defining first and second planar arrays of microvessels which open toward said first and second major surfaces respectively of said support means, next adjacent of the microvessels being laterally spaced by

less than the width of adjacent microvessels opening toward either major surface, at least said one component being coated in the microvessels of at least said first planar array, and said support means providing a barrier between adjacent microvessels of said first planar array to limit lateral image spreading.

4,362,807

PHOTOMASK-FORMING PHOTOGRAPHIC MATERIAL AND METHOD FOR PRODUCING PHOTOMASK USING SAME

Masamichi Sato, Asaka, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 513,439, Oct. 9, 1974, abandoned. This application Apr. 19, 1977, Ser. No. 788,945

Claims priority, application Japan, Oct. 9, 1973, 48-113629

Int. Cl.³ G03C 5/00

U.S. Cl. 430—276

2 Claims



1. A photomask-forming photographic material which consists of a transparent support which has thereon (1) an etchable masking layer, (2) a subbing layer comprising a thin layer of polyvinyl acetate located directly on the masking layer, and (3) a silver halide emulsion layer located directly on the subbing layer and said masking layer comprises a layer of a metal, a metal oxide, a semi-metal or a chalcogen glass having a thickness ranging from 0.05 to 3 microns and not transmitting ultraviolet light and the subbing layer being by definition a layer the sole function of which is to ultimately adhere the silver halide emulsion layer to the masking layer.

4,362,808

PRINT SCREEN STENCIL AND ITS PRODUCTION

Jacob A. Otthofer, Jr., Lancaster, Pa., assignor to Armstrong World Industries, Inc., Lancaster, Pa.

Division of Ser. No. 60,456, Jul. 25, 1979, Pat. No. 4,286,518.
This application Mar. 9, 1981, Ser. No. 241,697

Int. Cl.³ G03C 5/00

U.S. Cl. 430—308

2 Claims

1. A method of producing a print screen stencil for printing with corrosive printing compositions comprising:

- (a) coating an open mesh print screen fabric with a photoactive plastisol resist coating composition comprising a vinyl resin, a vinyl resin plasticizer, a cross-linking acrylic monomer, and a photoinitiator;
- (b) imagewise exposing the coated screen fabric to actinic light through a film positive to cross-link the acrylic monomer in those areas of the coating struck by actinic light;
- (c) treating the exposed coated screen fabric to remove the plastisol resist coating composition from the non-actinic light struck areas and thereby form open mesh areas which will permit the passage of a printing composition; and,
- (d) heating the treated screen fabric to fuse the plastisol resist coating composition which remains on the screen fabric in the actinic light struck areas and thereby form filled or closed mesh areas which will prevent the passage of a printing composition.

4,362,809

MULTILAYER PHOTORESIST PROCESS UTILIZING AN ABSORBANT DYE

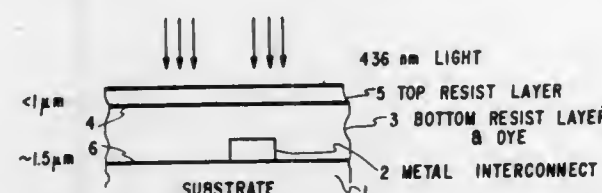
Mung Chen, Los Altos; William R. Trutna, Jr., Palo Alto; Michael P. C. Watts, Sunnyvale, all of, CA; Keith G. Bartlett, and Gary Hillis, Ft. Collins, both of Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Mar. 30, 1981, Ser. No. 248,761

Int. Cl.³ G03F 7/02; G03C 1/76

U.S. Cl. 430—312

8 Claims



1. An improved process of photoetching a substrate, of the portable-conformable-mask type wherein a first resist is deposited on the substrate to produce a bottom resist layer having a substantially planar top surface, a second resist is deposited as a top resist layer producing a multilayer substrate coating having the bottom resist layer sandwiched between the substrate and the top resist layer, the top resist layer is exposed to light in a range in which the second resist is insensitive, said light having been passed through a mask to expose only selected portions of the top resist layer, the top layer is developed to produce a portable-conformable-mask, and the layers of the substrate coating other than the top resist layer are processed to replicate the pattern of this portable-conformable-mask into such layers, the improvement comprising: selecting a dye which strongly absorbs light at the wavelengths used to expose the top resist;

dissolving the dye in a layer of resist which is sandwiched between the substrate and the top layer; and replicating the pattern of the portable-conformable-mask into the layer of resist containing the dye by exposing this layer through an associated portable-conformable-mask which has been produced in a layer of resist above the layer of resist containing the dye and then developing the layer of resist containing the dye, said exposure of the layer of resist containing the dye being at a wavelength at which the associated portable-conformable-mask is opaque and at which the layer containing the dye is photosensitive.

4,362,810

METHOD FOR FORMING A CYAN DYE IMAGE

Yasushi Usagawa, Hino; Wataru Fujimatsu, Hachioji; Osamu Sasaki, Hino, and Katsumi Matsuura, Hachioji, all of Japan, assignors to Konishiroku Photo Industry Co., Ltd., Japan

Filed Jan. 9, 1981, Ser. No. 223,696

Claims priority, application Japan, Jan. 11, 1980, 55-2305

The portion of this patent subsequent to Nov. 10, 1998, has been disclaimed.

Int. Cl.³ G03C 7/00

U.S. Cl. 430—384

6 Claims

1. A method for forming a cyan dye image which method consists developing an imagewise exposed silver halide emulsion layer with an aromatic primary amine color developing agent in the presence of a 2,5-diacylamino phenol cyan coupler containing a substituted alkylsulfonylamino terminal moiety or a substituted alkylaminosulfonyl terminal moiety in the 2- or 5-position of the molecule.

4,362,811

PROCESSING SOLUTION COMPOSITION FOR SILVER COMPLEX DIFFUSION TRANSFER PROCESS

Shigeru Iguchi, and Shoji Oka, both of Nagaokakyo, Japan, assignors to Mitsubishi Paper Mills Ltd., Tokyo, Japan

Continuation of Ser. No. 102,104, Dec. 7, 1979, abandoned. This application Jul. 10, 1981, Ser. No. 282,152

Claims priority, application Japan, Dec. 11, 1978, 53-153369

Int. Cl.³ G03C 5/54, 5/38, 5/30

U.S. Cl. 430—455

15 Claims

1. A silver complex diffusion transfer processing solution composition containing substantially no developing agent which comprises:

- (1) an alkaline substance,
- (2) an alkali metal sulfite,
- (3) a solvent for silver halides which is other than sulfite,
- (4) 1.7×10^{-3} to 1.7×10^{-2} mole/liter of a bromide,
- (5) a content of potassium ion of 2.0 to 12.0 mol % based on the total cations of the salts contained in the composition, and
- (6) water.

4,362,812

PHOTOGRAPHIC MATERIALS

Junji Minamizono; Shinzo Kishimoto; Shigeki Yokoyama, all of Kanagawa, and Takayuki Inayama, Shizuoka, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jul. 10, 1981, Ser. No. 282,349

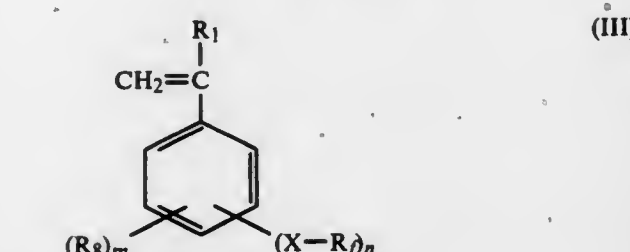
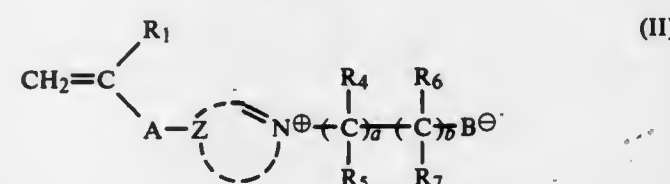
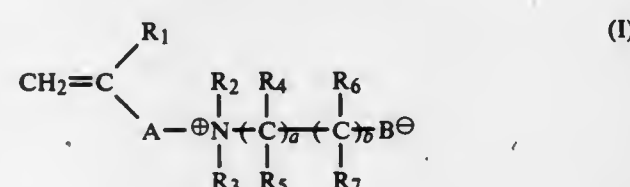
Claims priority, application Japan, Jul. 10, 1980, 55/94406

Int. Cl.³ G03C 1/76

U.S. Cl. 430—528

15 Claims

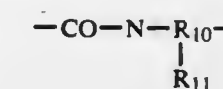
1. A silver halide photographic material comprising a support and at least one layer of the photographic material containing a copolymer including, as copolymerizable components, a betaine-containing polymerizable monomer represented by formula (I) or (II) and a fluorine-containing polymerizable monomer represented by formula (III)



wherein

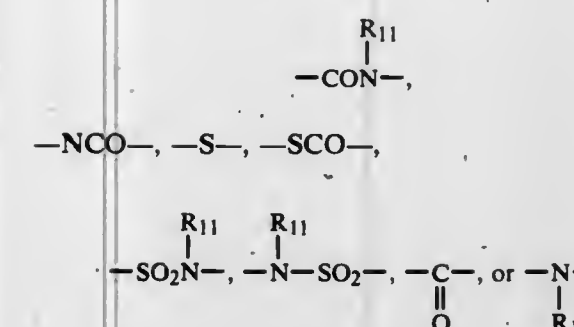
R₁ represents hydrogen, a halogen atom, an alkyl group, or a substituted alkyl group;
R₂, R₃, R₄, R₅, R₆, and R₇ each represents hydrogen, an alkyl group, or a substituted alkyl group;
R₈ represents a hydroxy group, a nitro group, a halogen atom, a substituted or unsubstituted alkyl group having 1 to 6 carbon atoms or a substituted or unsubstituted acyl group having from 1 to 6 carbon atoms, or when m > 1 said R₈s may combine with each other to form a ring;
A represents a chemical bond, a substituted or unsubstituted alkylene group having from 1 to 8 carbon atoms, a substi-

tuted or unsubstituted aralkylene group having from 6 to 11 carbon atoms, —COO—R₁₀—, —O—CO—R₁₀—,



wherein R₁₀ represents a chemical bond, an alkylene group having from 1 to 8 carbon atoms, an aralkylene group having from 6 to 11 carbon atoms or an arylene group; and R₁₁ represents a hydrogen atom, an alkyl group having from 1 to 8 carbon atoms which may be substituted, or an atomic group necessary for forming together with R₂, R₃ or R₆ a heterocyclic ring.

X represents —R₁₂—Y—R₁₃—, W where Y and W represents —O—, —COO—, —OCO—,



in which R₁₁ has the same meaning as defined above, R₁₂ and R₁₃ represent a chemical bond, an alkylene group having from 1 to 8 carbon atoms; an aralkylene group having from 6 to 11 carbon atoms, or an arylene group; and x and y are 0 or 1; and

Z represents a 5-membered or 6-membered ring including a quaternary nitrogen atom which may contain an oxygen atom or a non-quaternary nitrogen atom.

4,362,813

SILVER HALIDE PHOTOGRAPHIC EMULSIONS

Yuji Mihara; Tadashi Ikeda; Haruo Takei; Masaki Okazaki, and Yasuo Aotsuka, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jun. 29, 1981, Ser. No. 278,031

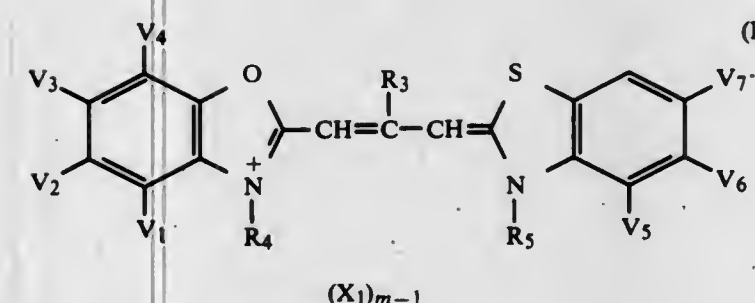
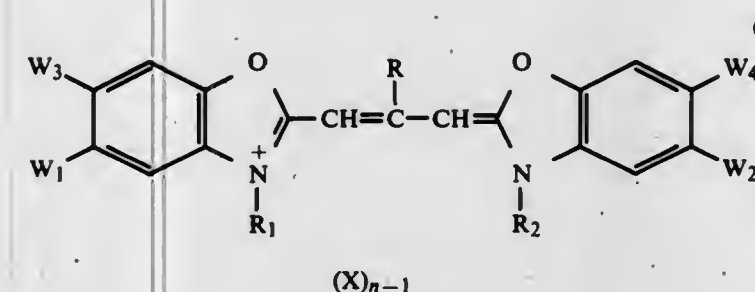
Claims priority, application Japan, Jun. 30, 1980, 55-89618

Int. Cl.³ G03C 1/40, 1/18

U.S. Cl. 430—550

30 Claims

1. A light-sensitive silver halide photographic emulsion comprising a sensitizing dye represented by formula (I) and a sensitizing dye represented by formula (II):



wherein

R₁ and R₂ are each a substituted or unsubstituted alkyl

group, and at least one of R₁ and R₂ is a sulfoalkyl group or a carboxyalkyl group;

R is an alkyl group or an aralkyl group;

W₁, W₂, W₃ and W₄ are each a hydrogen atom, a halogen atom, an aryl group, an alkyl group, a substituted alkyl group, an alkoxy group, an alkoxy carbonyl group, a carboxy group or a hydroxy group, and W₁ and W₂ are not phenyl groups at the same time;

X is an acid anion;

n is 1 or 2, and when the sensitizing dye forms an intramolecular salt, n is 1;

R₄ and R₅ are each a substituted or unsubstituted alkyl group, and at least one of R₄ and R₅ is a sulfoalkyl group or a carboxyalkyl group;

R₃ is an ethyl group, a propyl group or an aralkyl group;

V₁, V₂, V₃, V₄, V₅, V₆ and V₇ are each a hydrogen atom, a halogen atom, an aryl group, an alkyl group, a substituted alkyl group, an alkoxy group, an alkoxy carbonyl group, a carboxy group or a hydroxy group, and V₁ and V₂, V₃ and V₄, V₅ and V₆ or V₆ and V₇ may combine together to form a benzene ring;

X₁ is an acid anion;

m is 1 or 2, and when the sensitizing dye forms an intramolecular salt, m is 1; and

the number of carbon atoms contained in the alkyl group or alkyl radical is 1 to 4 wherein the sensitizing dyes of formula (II) and formula (I) are present in a molar ratio of 1:2 to 10:1.

12. The light-sensitive silver halide photographic emulsion as claimed in claim 1 further comprising a color coupler.

4,362,814

PROCESS FOR PREPARING

1-CARBA-2-PENEM-3-CARBOXYLIC ACID

Richard B. Sykes, Belle Mead; Jerry S. Wells, Ringoes, and William L. Parker, Pennington, all of N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Dec. 18, 1981, Ser. No. 332,056

Int. Cl.³ C12P 17/18

U.S. Cl. 435—119

2 Claims

1. A process for the preparation of 1-carba-2-penem-3-carboxylic acid which comprises culturing aerobically *Serratia* sp. SC 11, 482 A.T.C.C. No. 39006 in a culture medium containing assimilable carbon and nitrogen sources until 1-carba-2-penem-3-carboxylic acid is accumulated, and then recovering the 1-carba-2-penem-3-carboxylic acid from the medium.

4,362,815

PROCESS FOR THE PREPARATION OF DEFECTIVE MUTANTS OF MICROORGANISMS

Frank F. Hill, Mettmann-Obschwarzbach; Joachim Schindler, Hilden; Rolf Schmid, Dusseldorf; Wolfgang Preuss, Monheim, and Alfred Struve, Hilden, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Dusseldorf, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 29,415, Apr. 12, 1979, Pat. No. 4,320,195. This application Mar. 7, 1980, Ser. No. 128,223

Claims priority, application Austria, Mar. 7, 1979, 1709/79

Int. Cl.³ C12N 15/00, 1/20; C12P 33/16

U.S. Cl. 435—172

12 Claims

1. A process for the production of biologically pure microorganism defective mutants which are capable of producing 17-C-steroid- α -propionic acid compounds including 3-oxo-pregna-4-ene-20-carboxylic acid and 3-oxo-1,4-diene-20-carboxylic acid and mixtures thereof from 17-C-side chain steroid substrates by selective side chain degradation under aerobic conditions without substantial steroid ring degradation in the absence of ring degradation inhibitors, where the biologically pure microorganism defective mutants are obtained from a population of mutants containing undesired accompanying mutant strains wherein

(a) a microorganism wild strain which is capable of growing

- on sterol compounds as a sole source of carbon is isolated and cultivated,
- the wild strain is treated by a known mutation treatment, to give the mutant population,
 - the mutant population obtained from (b) is cultivated on separation medium on which the mutants capable of degrading the sterol compounds only to the C-17-steroid-alpha-propionic acid do not substantially grow, and
 - the mutant microorganisms capable of growing in (c) are killed off due to their growth or through the use of antibiotics or radioactive media thereby giving the biologically pure defective mutant strain and,
 - the biologically pure mutant strains that do not substantially grow are isolated and preserved.

4,362,816

HYBRID PLASMID AND PROCESS OF MAKING SAME
Fritz Reusser, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed Nov. 13, 1980, Ser. No. 206,210

Int. Cl.³ C12N 15/00, 1/20, 1/00; C12R 1/19

U.S. Cl. 435-172

6 Claims



3. A process for preparing hybrid plasmid pUC1031 which comprises:

- linearizing plasmid pBR322 with HindIII to obtain linear plasmid DNA;
- obtaining chromosomal DNA from *Streptomyces* sp. 3022a NRRL B-11441
- digesting said chromosomal DNA with HindIII; and
- ligating said digested linear plasmid DNA from pBR322 and said digested chromosomal DNA from *Streptomyces* sp. 3022a NRRL B-11441, to obtain hybrid plasmid pUC1031.

4,362,817

HYBRID PLASMID AND PROCESS OF MAKING SAME
Fritz Reusser, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed Mar. 2, 1981, Ser. No. 239,258

Int. Cl.³ C12N 15/00, 1/20, 1/00; C12R 1/19

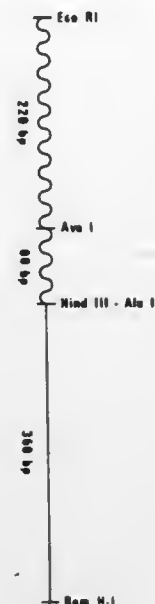
U.S. Cl. 435-172

6 Claims

3. A process for preparing hybrid plasmid pUC1060 which comprises:

- linearizing plasmid pBR322 with EcoRI, and HindIII to obtain linear plasmid DNA;
- obtaining chromosomal DNA from *Streptomyces* sp. 3022a NRRL B-11441.

- digesting said chromosomal DNA; with Eco RI and Hind III and



- ligating said digested linear plasmid DNA from pBR322 and said digested chromosomal DNA from *Streptomyces* sp. 3022a NRRL B-11441, to obtain hybrid plasmid pUC1060.

4,362,818

ACYLATION OF MUCOR PUSILLUS MICROBIAL RENNIN ENZYME

Dennis A. Cornelius, Elkhart, Ind.; Clifford V. Asmus, Niles, Mich., and Moshe M. Sternberg, Oakland, Calif., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Filed Feb. 17, 1981, Ser. No. 235,103

Int. Cl.³ C12N 9/58, 9/96; A23C 19/032

U.S. Cl. 435-223

2 Claims

1. A method for increasing the milk coagulating activity of microbial enzyme obtained from *Mucor pusillus* microorganisms comprising acylating in an aqueous medium said enzyme by contacting the *Mucor pusillus* microbial rennet enzyme at a temperature of about 0° to 25° C. and a pH of about 5.10 with from 0.1 to 2 percent (w/v) based on enzyme volume of an acylating agent selected from the group consisting of maleic, citraconic, phthalic, cis-1,2-cyclohexanedicarboxylic, 1,2,4-benzenetricarboxylic, homophthalic, 3-nitrophthalic, bromomaleic and dichloromaleic anhydride for a time sufficient to obtain said desired increase.

4,362,819

MOLDABLE FLUOROALUMINOPHOSPHATE GLASSES
Anthony R. Olszewski, Bath; Paul A. Tick, Corning, both of N.Y., and Leon M. Sanford, deceased, late of Campbell, N.Y. (by Michele R. Sanford, administratrix), assignors to Corning Glass Works, Corning, N.Y.

Continuation-in-part of Ser. No. 248,002, Mar. 26, 1981, abandoned, which is a continuation-in-part of Ser. No. 124,924, Feb. 26, 1980, abandoned. This application Dec. 7, 1981, Ser. No. 327,915

Int. Cl.³ C03C 3/16, 3/18

U.S. Cl. 501-44

8 Claims

1. An essentially dry alkali metal (R¹) aluminofluorophosphate glass exhibiting a relatively high viscosity at the liquidus, a low crystallization rate at the liquidus, a transition temperature below 350° C., at least a "B" rating in a weathering test procedure comprising exposure for one week in an atmosphere of 98% relative humidity at 50° C., a weight loss of less than 2 mg/cm² after immersion for one hour in distilled water at a temperature of 95° C., and demonstrating a viscosity no greater than about 10⁹ poises at temperatures below 400° C., thereby displaying the capability of being molded at temperatures below 400° C. into complex shapes, which consists essentially, as analyzed on an atomic basis, between about R¹AlP₂O₆F₂O₆

and R¹_{3.75}AlP_{3.0}F_{4.0}O₉, and wherein said components are present in the following atomic ratios:

- F:Al > 2 but < 4
P:Al > 2 but < 3
R¹:P > 0.5 but < 1.25

5. An essentially dry alkali metal (R¹) aluminofluorophosphate glass also containing at least one divalent metal oxide (R²) selected from the group of PbO, ZnO, CdO, MgO, CaO, SrO, and BaO which exhibits a relatively high viscosity at the liquidus, a low crystallization rate at the liquidus, a transition temperature below 350° C., at least a "B" rating in a weather-

process is carried out for a period of time at a temperature and pressure which cause the carbon monoxide and hydrogen to react to produce, ethylene glycol, methanol, and derivatives thereof.

4,362,821

PROCESS FOR PREPARING ALKANOLS FROM SYNTHESIS GAS

Jiang-Jen Lin, Round Rock, Tex., assignor to Texaco Inc., White Plains, N.Y.

Filed Oct. 29, 1981, Ser. No. 316,194

Int. Cl.³ C07C 27/06

U.S. Cl. 518-700

24 Claims

1. A process for making alkanols which comprises reacting a mixture of CO and H₂ at a pressure of about 500 psig or greater and at a temperature of at least 150° C. in the presence of a catalyst system comprising a ruthenium-containing compound, a material selected from the group consisting of a rhenium-containing compound and a manganese-containing compound and a quaternary phosphonium or ammonium base or salt in the presence of an inert, oxygenated solvent.

4,362,822

PROCESS FOR PREPARING ACETIC AND PROPIONIC ACIDS AND THEIR ESTERS

John F. Knifton, Austin, Tex., assignor to Texaco Inc., White Plains, N.Y.

Filed Oct. 29, 1981, Ser. No. 316,196

Int. Cl.³ C07C 27/06

U.S. Cl. 518-700

32 Claims

1. A process for making acetic and propionic acids and their esters which comprises contacting a mixture of CO and H₂ at a pressure of about 500 psig or greater and at a temperature of at least about 150° C. with a catalyst system comprising a ruthenium-containing compound and a material selected from the group consisting of a halogen-containing titanium salt and a halogen-containing zirconium salt dispersed in a low melting quaternary phosphonium or ammonium base or salt.

4,362,823

METHOD AND COMPOSITION FOR CLOSED CELL FOAM FORMATION

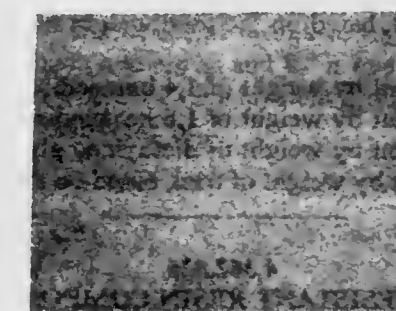
David G. Wernsing, Littleton, Colo., assignor to Manville Service Corporation, Denver, Colo.

Filed Aug. 21, 1981, Ser. No. 295,057

Int. Cl.³ C08G 18/14, 18/32

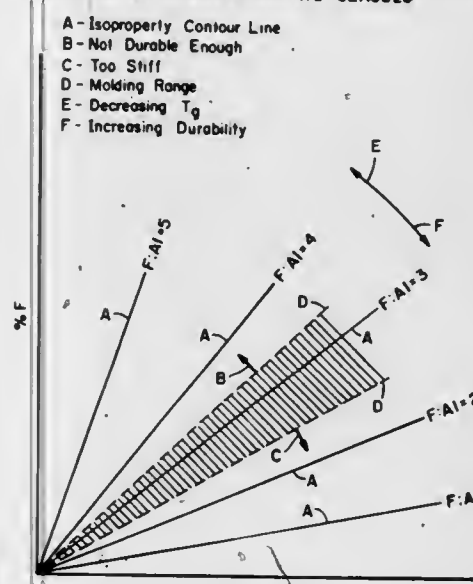
U.S. Cl. 521-116

4 Claims



1. A process for producing rigid foam from the reaction of a polyol and an organic polyisocyanate including the step of incorporating into at least one of said polyol and said polyisocyanate an effective amount of an ethoxylated (propoxylated propylene glycol) to sufficiently emulsify the reactants during mixing to produce small, uniform cell sizes in said rigid foam produced thereby, said ethoxylated (propoxylated propylene glycol) having an HLB value of less than about 4 and incapable of producing, on standing, a visible reaction product such as a skin or other indications of solids formation, gas evolution or

SCHEMATIC BEHAVIOR OF ALKALI METAL-ALKALINE EARTH METAL-ALUMINOPHOSPHATE GLASSES



ing test procedure comprising exposure for one week in an atmosphere of 98% relative humidity at 50° C., a weight loss of less than 2 mg/cm² after immersion for one hour in distilled water at a temperature of 95° C., and demonstrates a viscosity no greater than about 10⁹ poises at temperatures below 400° C., thereby displaying the capability of being molded at temperatures below 400° C. into complex shapes, which consists essentially, as analyzed on an atomic basis, between about R¹_{0.75}R²_{0.25}AlP₂O₆F₂O₆ and R¹_{1.25}R²_{0.75}AlP₂O₆F₂O₆, and wherein said components are present in the following atomic ratios:

- F:Al > 2 but < 5
P:Al > 1 but < 5.5
R¹:P > 0.25 but < 1.25
Pb:Al < 1.25
Zn:Al < 1.25
Mg and/or Ca and/or Sr and/or Ba and/or Cd:Al < 1.25
Pb and/or Zn + (Mg and/or Ca and/or Sr and/or Ba and/or Cd):Al > 0.25 but < 2.5
(R¹ + R²):P < 1

4,362,820

PROCESS FOR PRODUCING ETHYLENE GLYCOL AND METHANOL

Leonard Kaplan, Dunbar, W. Va., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Jun. 29, 1981, Ser. No. 278,900

Int. Cl.³ C07C 27/06

U.S. Cl. 518-700

15 Claims

1. The process for making the products ethylene glycol, methanol, and derivatives thereof directly from the reaction of hydrogen and carbon monoxide which comprises reacting a mixture comprising oxides of carbon and hydrogen in the homogeneous liquid phase containing an effective amount of a cobalt-containing compound and an organosilicon compound having at least one hydrogen bonded to silicon wherein said

an increase in the viscosity of said isocyanate when mixed with said polyisocyanate independently of said polyol.

4,362,824

METHOD FOR MAKING RIM POLYURETHANE ELASTOMERS USING AS THE CATALYST SYSTEM DIMETHYLETHANOLAMINE, DIBUTYLIN DILAURATE AND AN ALKYLIN MERCAPTIDE

Richard J. G. Dominguez, and Doris M. Rice, both of Austin, Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed May 29, 1981, Ser. No. 268,528

Int. Cl.³ C08G 18/14

U.S. Cl. 521-118

4 Claims

1. In a method for making a polyurethane elastomer of significantly improved properties wherein an aromatic polyisocyanate, a polyol of above about 500 equivalent weight, a chain extending agent comprising a low molecular weight active hydrogen containing compound of at least 2 functionality and a catalyst system is injected via a RIM machine into a mold cavity of the desired configuration the improvement which comprises

using as the catalyst system dimethylethanolamine, dibutyltin dilaurate and an alkyltin mercaptide.

4,362,825

PROCESS FOR THE PREPARATION OF FLEXIBLE POLYURETHANE FOAMS WITH IMPROVED RESISTANCE TO HYDROLYSIS AND GOOD DIE CUTABILITY

Herbert Grabhoefer, Ludwigshafen, and Peter Weyland, Frankfurt, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Dec. 24, 1981, Ser. No. 334,157

Claims priority, application Fed. Rep. of Germany, Jan. 10, 1981, 3100523

Int. Cl.³ C08G 18/14

U.S. Cl. 521-172

4 Claims

1. A process for the preparation of flexible polyurethane foams by reacting organic polyisocyanates, polyhydroxyl compounds in the presence of catalysts and blowing agents as well as optionally chain extenders, auxiliaries, and additives wherein liquid polyester polyols having hydroxyl numbers of 40 to 80 and molecular weights of 1500 to 5000 are used as polyhydroxyl compounds said polyols produced by the polycondensation of organic dicarboxylic acids with polyol mixture A, based on the total weight of polyol consisting of:

- 5 to 50 percent by weight of 1,4 butanediol
- 20 to 60 percent by weight of 1,5 pentanediol
- 8 to 35 percent by weight of 1,6-hexanediol
- 2 to 15 percent by weight of triol, and
- 0 to 65 percent by weight of diethylene glycol or polyol mixture B, based on the total weight of polyol consisting of:
- 10 to 50 percent by weight of 1,4 butanediol
- 15 to 45 percent by weight of 1,6 hexanediol
- 15 to 65 percent by weight of diethylene glycol, and
- 2 to 25 percent by weight of triol, based on the total weight.

4,362,826

HEAT-RESISTANT RESIN COMPOSITION

Kazuya Yonezawa, and Hirosaku Nagano, both of Kobe, Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed May 14, 1981, Ser. No. 263,512

Claims priority, application Japan, May 17, 1980, 55-65529

Int. Cl.³ C09D 3/70

U.S. Cl. 525-426

10 Claims

1. A heat-resistant resin composition characterized in that the composition comprises a varnish of polyamide acid which is the precursor of polyimide heat-resistant resin having active hydrogen in the molecule and a bismaleimide compound or a derivative thereof admixed with the varnish.

4,362,827

MANUFACTURE OF CHIPBOARD

Arie Tinkelenberg, Limbricht; Henricus W. L. M. Vaessen, Wijnandsrade, and Kwai W. Suen, Geleen, all of Netherlands, assignors to Methanol Chemic Nederland V.O.F., Delfzijl and Stamicarbon B.V., Geleen, both of, Netherlands

Filed Sep. 3, 1980, Ser. No. 183,409

Claims priority, application Netherlands, Sep. 11, 1979, 7906751

Int. Cl.³ C08L 1/02, 61/24, 61/34

U.S. Cl. 524-9

10 Claims

1. A method for manufacturing chipboard or shaped objects by hardening at elevated temperatures and pressures lignocellulose-containing chip material with a polyisocyanate and aminoplast resin bonding agents, wherein an aminoplast resin having between 0.25 to 0.625 mole of formaldehyde per mole equivalent of amino groups is used in a quantity between 3% and 14% by weight relative to said chip material in combination with a polyisocyanate, which polyisocyanate is used in a quantity between 0.5% and 3.0% by weight relative to said chip material.

4,362,828

HOT MELT ADHESIVE COMPOSITIONS

Pawan K. Agarwal, Westfield, and Warren A. Thaler, Aberdeen, both of N.J., assignors to Exxon Research and Engineering Co., Florham Park, N.J.

Filed Nov. 20, 1981, Ser. No. 323,420

Int. Cl.³ C08L 95/00

U.S. Cl. 524-66

11 Claims

1. A hot melt adhesive composition which comprises:

- (a) a neutralized sulfonated EPDM terpolymer having about 5 to about 50 meq. of neutralized sulfonated groups per 100 grams of said neutralized sulfonated EPDM terpolymer;
- (b) about 25 to about 250 parts by weight of a hydrocarbon resin of a petroleum or coal tar distillate per 100 parts by weight of said neutralized sulfonated EPDM terpolymer; and
- (c) about 25 to about 250 parts by weight of a neutralized sulfonated 1,2-syndiotactic polybutadiene resin per 100 parts of said sulfonated EPDM terpolymer, said sulfonated 1,2-syndiotactic polybutadiene resin having about 5 to about 50 meq. of neutralized sulfonate groups per 100 grams of said neutralized sulfonated 1,2-syndiotactic polybutadiene resin.

4,362,829

POLYCARBONATES STABILIZED WITH SULFOLANE DERIVATIVES

Stephen M. Cooper; Sheldon J. Shafer, both of Pittsfield, Mass., and John A. Tyrell, Mt. Vernon, Ind., assignors to General Electric Company, Mt. Vernon, Ind.

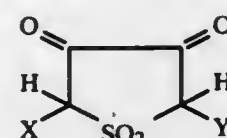
Filed Aug. 26, 1981, Ser. No. 296,542

Int. Cl.³ C08K 5/45

U.S. Cl. 524-84

5 Claims

1. A composition which comprises an aromatic carbonate polymer in admixture with an effective amount of a thermal stabilizing compound of the formula



Formula I

wherein X and Y are the same or different and are phenyl or naphthyl unsubstituted or substituted with one to three members of the group consisting of alkyl of one to three carbon atoms, inclusive, alkoxy of one to three carbon atoms, inclusive, chlorine and bromine.

4,362,830

HINDERED BIS-PHENOL PHENYL PHOSPHITES AND SYNTHETIC RESIN COMPOSITIONS HAVING ENHANCED STABILITY TO HEAT AND LIGHT

Motonobu Minagawa, Koshigaya, and Yutaka Nakahara, Iwatsuki, both of Japan, assignors to Adeka Argus Chemical Co., Ltd., Urawa, Japan

Filed Dec. 29, 1980, Ser. No. 220,406

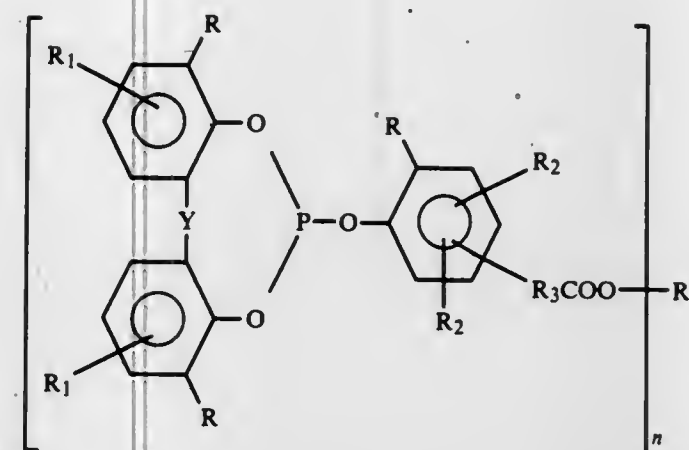
Claims priority, application Japan, Jan. 10, 1980, 55-1542

Int. Cl.³ C08K 5/52; C07D 251/34, 69/90

U.S. Cl. 524-101

26 Claims

1. Hindered bis-phenol phenyl phosphites having the structure:



wherein:

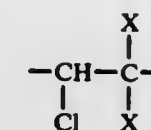
R is selected from the group consisting of alkyl having from one up to about eighteen carbon atoms; and cycloalkyl having from three up to about twelve carbon atoms, alkaryl and aryl having from six to about eighteen carbon atoms;

R1 and R2 are each selected from the group consisting of hydrogen and alkyl having from one to about eighteen carbon atoms; cycloalkyl having from three up to about twelve carbon atoms; alkaryl and aryl having from six to about eighteen carbon atoms;

R3 is alkylene having from one to about six carbon atoms; R4 is selected from the group consisting of monovalent alkyl, cycloalkyl and aralkyl and polyvalent alkylene, cycloalkylene and aralkylene and monovalent and polyvalent 2-ethylene isocyanurate having from one to about eighteen carbon atoms, and from none to three hydroxyl groups;

Y is selected from the group consisting of a direct carbon to carbon bond, thio sulfur—S—; oxy oxygen —O—; alkylidene having from one to about six carbon atoms; and cycloalkylidene having from four to about eight carbon atoms; and

n is 2, 3 or 4, according to the valence of R4.
17. A polyvinyl chloride resin composition having improved resistance to deterioration when heated at 350° F., comprising a polyvinyl chloride resin formed at least in part of the recurring group



and having a chlorine content in excess of 40%, where X is either hydrogen or chlorine; and a phosphite in accordance with claim 1.

4,362,831

SYNERGISTIC LIGHT AND HEAT STABILIZER COMPOSITIONS FOR SYNTHETIC RESINS AND RESIN COMPOSITIONS CONTAINING THE SAME

Toshio Ohzeki, Urawa; Mitsuo Akutsu, Tokyo, and Takanori Semba, Matsudo, all of Japan, assignors to Adeka Argus Chemical Co., Ltd., Urawa, Japan

Filed Dec. 7, 1979, Ser. No. 101,306

Claims priority, application Japan, Dec. 8, 1978, 53-152229

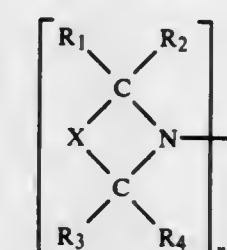
Int. Cl.³ C08K 5/34, 5/36; C09K 15/10, 15/18

U.S. Cl. 524-102

24 Claims

1. A light and heat stabilizer composition for synthetic resins comprising:

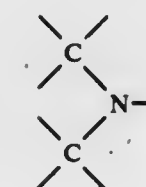
(1) at least one hindered and heterocyclic amine having the formula:



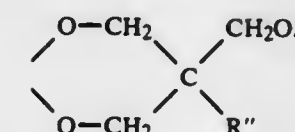
(1)

wherein:

X is a bivalent linking radical including at least one up to four ring carbon atoms completing the ring structure

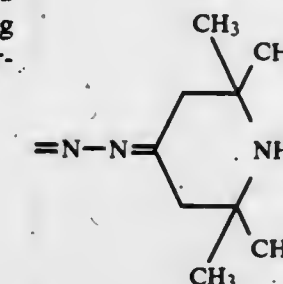


as a heterocyclic ring having from five to seven ring atoms of which at least one is nitrogen and from three to six are carbon; and a substituent selected from the group consisting of Z, O—Z, NH—Z, and

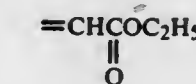


wherein

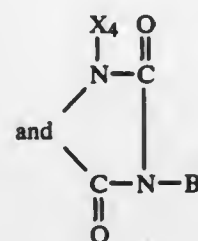
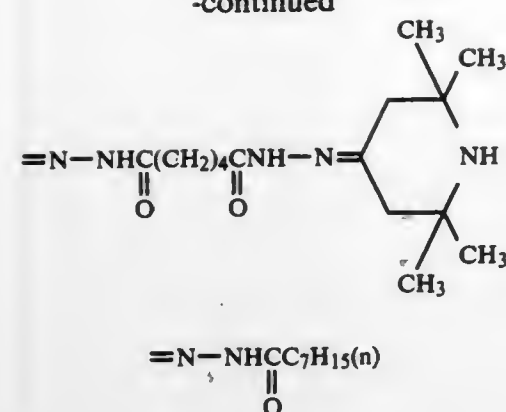
Z is the residue of an acid selected from the group consisting of carboxylic acids having from one to thirty carbon atoms, carbonic acid and inorganic oxyacids of phosphorus, silicon and boron and R'' is hydrogen or lower alkyl; =Z4 wherein Z4 is a bivalent group selected from the group consisting of:



=N—OH



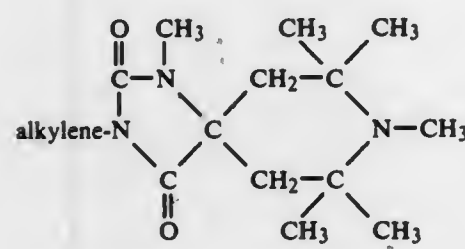
-continued



wherein

X₄ is hydrogen or methyl; and

B is selected from the group consisting of alkyl, epoxy alkyl, alkenyl and cycloalkyl having from one to about eighteen carbon atoms, and



in which the alkylene has from one to about ten carbon atoms;

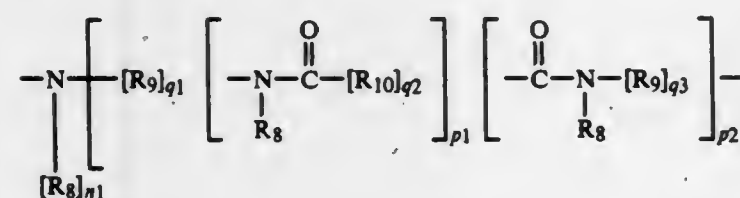
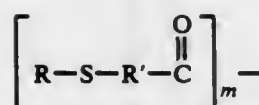
R₁ and R₂ are each selected from the group consisting of lower alkyl, and R₁ and R₂ taken together as pentylene (CH₂)₅;R₃ and R₄ are each selected from the group consisting of lower alkyl and R₃ and R₄ taken together as one of butylene-(CH₂)₄, pentylene-(CH₂)₅, and CH₂-C(CH₃)₂-NH-C(CH₃)₂-CH₂-;

n is 1 or 2; and

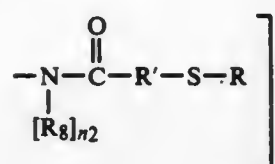
when n is 1, Y is selected from the group consisting of hydrogen, O, OH, alkyl, alkenyl, alkynyl, aralkyl and acyl having from one to about thirty carbon atoms; and

when n is 2, Y is selected from the group consisting of alkylene, alkenylene, alkynylene, cycloalkylene and aralkylene having from one to about thirty carbon atoms; together with

(2) at least one alkyl thioalkanoic acid amide having the formula:



-continued



wherein:

R is alkyl having from about four to about fifty carbon atoms;

R' is alkylene having from one to about three carbon atoms;

R₈ is selected from the group consisting of hydrogen, alkyl and aryl having from about one to about eighteen carbon atoms; and when n is 2 and p is 0, bivalent alkylene and oxyalkylene linked to N at two positions;R₉ is selected from the group consisting of alkylene, dialkylene, cycloalkylene, and arylene having from about one to about twelve carbon atoms; and isocyanurate;R₁₀ is selected from the group consisting of alkylene, alkenylene, thiodialkylene and arylene having from about one to about eighteen carbon atoms;

m is 1, 2 or 3;

n₁ and n₂ are 0, 1 or 2;p, p₁ and p₂ are 0 or 1;

and when p is 1, and n and m are each 1, the sum of m, n and p is three; and

q₁, q₂ and q₃ are each 0 or 1;

the alkyl thioalkanoic acid amide synergizing the stabilizing effectiveness of the hindered heterocyclic amine.

21. An olefin polymer composition having improved resistance to deterioration comprising an olefin polymer selected from the group consisting of polymers of alpha-olefins having from two to six carbon atoms and polystyrene, and a compound in accordance with claim 1.

4,362,832

THERMOPLASTIC POLYMER/GLASS

FIBER/BIS-MALEIMIDE MOLDING COMPOSITIONS

Jean-Louis Locatelli, Vienne, France, assignor to Rhone-Poulenc Industries, Paris, France

Continuation of Ser. No. 72,622, Sep. 5, 1979, abandoned. This application May 29, 1981, Ser. No. 268,152

Claims priority, application France, Sep. 5, 1978, 78 25592

Int. Cl.³ C08L 25/12, 67/02, 77/06

U.S. Cl. 524-102

10 Claims

1. A composition of matter comprising (i) a thermoplastic polymer selected from the group consisting of a styrene polymer, nylon-6 and polyethylene terephthalate; (ii) glass fibers in an amount ranging from 1 to 50% by weight based upon the total weight of the thermoplastic polymer and said glass fiber; and (iii) a bis-maleimide in an amount ranging from 0.01 to 10% by weight of the thermoplastic polymer and the glass fibers.

4,362,833

COMPOSITION FOR FORMING A RELEASE COATING LAYER

Isao Mune; Kihachi Suzuki, and Toshimitsu Okuno, all of Ibaraki, Japan, assignors to Nitto Electric Industrial Co., Ltd., Osaka, Japan

Filed May 18, 1981, Ser. No. 264,524

Claims priority, application Japan, May 16, 1980, 55-65565

Int. Cl.³ C08K 5/54

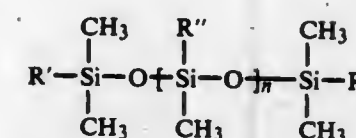
U.S. Cl. 524-265

11 Claims

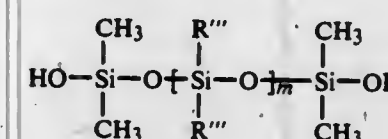
1. An aqueous composition for forming a release coating layer on a substrate comprising:

100 parts by weight (solids basis) of a mixture of (A) 100 parts by weight (solids basis) of an aqueous component of an organohydrogen polysiloxane containing at least three

silicon-bonded hydrogen atoms represented by the formula (I):



wherein R' is hydrogen or a methyl group, R'' is hydrogen, an alkyl, aryl, or alkenyl group, and n is an integer of from 5 to 500, and (B) from about 100 to 2,000 parts by weight (solids basis) of an aqueous component of a diorganopolysiloxane containing a silicon-bonded hydroxy group at both terminals thereof, represented by the formula (II):



wherein R''' is a univalent hydrocarbon group which may be substituted, and m is an integer of from 100 to 15,000; and

from about 20 to 100 parts by weight (solids basis) of an aqueous resin having a film-forming ability bearing hydroxyl and/or carboxyl functional groups, wherein the solids content of the aqueous compositions is from about 1 to 60% by weight.

4,362,834

EXTRUSION-GRADE VINYLIDENE CHLORIDE COPOLYMER COMPOSITIONS AND FILMS PREPARED THEREFROM

Lloyd E. Lefevre, Bay City, and Fred Stevenson, Beaverton, both of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 106,202, Dec. 26, 1979, abandoned. This application Dec. 3, 1980, Ser. No. 212,645

Int. Cl.³ C08L 91/00

U.S. Cl. 524-297

15 Claims

1. A high-cling thin film which comprises an extrudable copolymer resin having a major proportion of vinylidene chloride monomer with at least one other comonomer, and at least an effective cling-enhancing proportion of less than 10 weight percent of a grease copolymer having a peak molecular weight within the range from about 500 to about 7,500 as determined by gel permeation chromatography.

4,362,835

COMPOSITION OF PELLETIZED AND POWDERY LLDPE AND LIQUID POLYOLEFIN FOR THE PRODUCTION OF FILM

Martin A. Phillips, Jr., Stow, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Dec. 8, 1980, Ser. No. 213,806

Int. Cl.³ C08J 3/18; C08L 23/04; C08K 5/01

U.S. Cl. 524-317

8 Claims

1. A blend of a pelletized linear low density polyethylene containing from 0 to about 15 mol percent of a comonomer of a mono-olefin having 3 to 12 carbon atoms, 0 to about 20 mol percent of a pelletized low density polyethylene, 20 to 25 mol percent of a powdery linear low density polyethylene containing from 0 to about 15 mol percent of a comonomer of a mono-olefin having from 3 to 12 carbon atoms and 1 to 10 mol percent of a liquid polyolefin.

4,362,836

THERMOPLASTIC COPOLYESTER ELASTOMERS MODIFIED WITH SALTS OF ALIPHATIC POLYCARBOXYLIC ACID

(I) Guenther K. Hoeschele, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

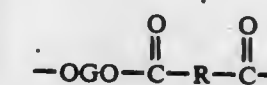
Filed Oct. 24, 1980, Ser. No. 200,193

Int. Cl.³ C08G 63/02; C08K 5/09

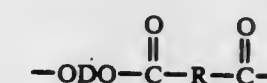
U.S. Cl. 524-322

16 Claims

1. A thermoplastic copolyester elastomer composition comprising (A) a copolyester consisting essentially of a multiplicity of long-chain ester units and short-chain ester units joined through ester linkages, said long-chain ester units being represented by the formula



and said short-chain ester units being represented by the formula



where G is a divalent radical remaining after the removal of hydroxyl groups from at least one long-chain glycol having a melting point of less than about 55° C. and a number average molecular weight of from about 400-4000, R is a divalent radical remaining after removal of carboxyl groups from at least one dicarboxylic acid having a molecular weight of less than about 300, and D is a divalent radical remaining after the removal of hydroxyl groups from at least one aliphatic diol having a molecular weight of less than about 250, with the proviso that at least about 70 mole percent of the short-chain ester units are either ethylene terephthalate units or 1,4-butylene terephthalate units, said short-chain ester units being present in an amount of 15-95% by weight of said copolyester; and (B) from about 0.1 to 10% by weight based on said copolyester of at least one alkali metal salt of an aliphatic polycarboxylic acid containing at least 20 carbon atoms and having a molecular weight of less than about 1500.

4,362,837

PROCESS FOR PREPARING PRODUCTS CONTAINING POLYMER CHAINS HAVING IONIC LINKS AND THEIR USE

Philippe T. Teyssie, Neuville en Condroz; Robert J. Jerome, Tilff-Esneux, and Guy J. Broze, Hay, all of Belgium, assignors to Unibra Societe Anonyme, Brussels, Belgium

Filed Mar. 23, 1981, Ser. No. 246,771

Claims priority, application Luxembourg, Mar. 21, 1980, 82286

Int. Cl.³ C08F 8/44

U.S. Cl. 524-400

13 Claims

1. A process for preparing viscous, homogeneous and thermoreversible gels containing polymer chains, in which a solution of a prepolymer or polymer which contains a free acid group only at each chain end in a non polar solvent selected among the aliphatic, alicyclic and aromatic hydrocarbons having a dielectric constant of less than about 3 is reacted, at room temperature, with a stoichiometric amount based on the acid group content of the polymer of a metal aliphatic alkoxide, so as to neutralize all the free acid groups and a sufficient fraction of the non polar solvent is distilled for removing, in a substantially quantitative manner, the aliphatic alcohol formed by said reaction.

4,362,838

SOLVENT RESIN EMULSION GLOSS COATING COMPOSITION

Gus W. Leep, Elgin, and Gary L. Bolt, Malta, both of Ill., assignors to Seymour of Sycamore, Inc., Sycamore, Ill.

Filed Jun. 11, 1981, Ser. No. 272,508

Int. Cl.³ C08L 57/00, 67/06

U.S. Cl. 524—444

17 Claims

1. An improved gloss coating composition, said coating composition being a water-in-oil emulsion, said coating composition comprising: (a) a continuous phase, said continuous phase including at least two evaporable organic solvents, from about 45% to about 67% of a first solvent having a boiling range of from 100° to 300° F., from about 30% to about 45% of a second solvent having a boiling range of from 300° to 400° F., said solvents being of aliphatic or aromatic or combined aliphatic and aromatic hydrocarbon composition; (b) a dispersed phase, said dispersed phase including water; (c) a film-forming resin dissolvable in said solvents, said continuous phase further including an effective amount of said resin for forming a substantially sag-free film on a workpiece, said film registering a gloss value of no less than sixty units when applied to a non-horizontal surface of said workpiece; and (d) an emulsifier, said gloss coating composition including an effective amount of said emulsifier for maintaining homogeneity of said dispersed phase throughout said continuous phase, said emulsifier having an HLB value of from 2 to about 6, said gloss coating composition having as much as 80% water, said gloss coating composition being dryable to form said film on said workpiece, whereupon substantially all of said water and said solvents evaporate from said coating composition and do not thereby alter substantially said gloss value of said film.

4,362,839

MODIFIED POLYALKYLENE TEREPHTHALATE COMPOSITION

Satoshi Tonoki; Kazushi Hirobe; Tadashi Osawa, and Masahiko Nishigaki, all of Kobe, Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Sep. 5, 1980, Ser. No. 184,463

Claims priority, application Japan, Sep. 7, 1979, 54-115368

Int. Cl.³ C08F 20/42

U.S. Cl. 524—513

15 Claims

1. A modified polyalkylene terephthalate composition comprising

- (A) 100 parts by weight of a polyester consisting substantially of polyalkylene terephthalate, with the alkylene unit thereof having from 2 to 15 carbon atoms;
- (B) a polyoxyalkylene compound having the general formula:



wherein R¹ is hydrogen or an organic group of valence "m," R² is an aliphatic hydrocarbon group having 2 to 4 carbon atoms, 1 is zero or a positive integer and at least 2 for 1 molecule, R³ is a group containing an alkali metal salt or an alkali earth metal salt of carboxylic acid, or partially hydrogen, and "m" is an integer of 1 to 6, and in an amount so that the amount of said alkali metal is 0.001 to 2.0 weight percent of said polyester; and

- (C) 0 to 200 weight parts of a filler.

4,362,840

SOFT, HEAT AND FATIGUE RESISTANT ELASTOMERIC ARTICLES

Ronald J. Tabar, Amherst, Mass.; Paul C. Killgoar, Jr., Livonia, and Marvin A. Lemieux, Southfield, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Oct. 1, 1980, Ser. No. 192,781

Int. Cl.³ C08K 3/04

U.S. Cl. 524—525

11 Claims

1. A soft, heat and fatigue resistant vulcanizate adapted for

transmitting a load between moving mechanical parts comprising (a) 100 parts by weight crosslinked elastomer consisting essentially of (i) natural or synthetic polyisoprene rubber, and (ii) elastomeric polybutadiene made from monomers consisting essentially of butadiene at a weight ratio of (i) to (ii) of about 1:10-10:1, (b) about 10-75 parts by weight of substantially internally uncrosslinked, substantially linear polymer that (i) is made from monomers consisting essentially of isobutylene, (ii) is a strain crystallizable, elastic solid at 20° C. and (iii) has a viscosity average molecular weight (Flory) above about 1.3 million, said elastomer being crosslinked with (c) a curative comprising a curing agent selected from the group consisting of (i) a sufficient amount of sulfur to provide an efficient or semi-efficient vulcanization of said elastomer, (ii) isocyanate or blocked isocyanate in an amount sufficient to crosslink said elastomer and (iii) isocyanate or blocked isocyanate and sulfur in an amount sufficient to crosslink said elastomer and (d) 5-200 reinforcing particulate parts by weight particulate comprising carbon black wherein said polymer of (b) is dispersed throughout said elastomer of (a) in a discrete microscopic phase.

8. A suspension bushing having a Shore A hardness below about 60; which comprises (a) 100 parts by weight crosslinked elastomer consisting essentially of (i) natural or synthetic polyisoprene rubber, and (ii) elastomeric cis-polybutadiene at a weight ratio of (i) to (ii) of about 1:4-4:1, (b) about 15-35 parts by weight of substantially internally saturated, terminally unsaturated and substantially linear polyisobutylene that is a strain crystallizable, elastic solid at 20° C. and has a viscosity average molecular weight (Flory) above about 1.5 million, said elastomer being crosslinked with (c) a curative comprising a curing agent selected from the group consisting of (i) a sufficient amount of sulfur to provide an efficient or semi-efficient vulcanization of said crosslinkable elastomer, (ii) isocyanate or blocked isocyanate in an amount sufficient to crosslink said crosslinkable elastomer and (iii) isocyanate or blocked isocyanate and sulfur in an amount sufficient to crosslink said crosslinkable elastomer and (d) reinforcing particulate comprising about 20-80 parts by weight carbon black reinforcing particulate, wherein said polymer of (b) is dispersed throughout said elastomer of (a) in a discrete microscopic phase.

4,362,841

HYDROUS GEL

Shobu Minatono, and Hideo Takamatsu, both of Ibaraki, Japan, assignors to Kuraray Co., Ltd., Kurashiki, Japan

Filed Feb. 12, 1980, Ser. No. 120,829

Claims priority, application Japan, Feb. 13, 1979, 54/15586

Int. Cl.³ C08L 9/00, 13/00

U.S. Cl. 524—531

13 Claims

1. A hydrous gel consisting essentially of a water-in-oil dispersion cured with a crosslinking agent, said dispersion comprising a rubber component in which water is dispersed in the form of droplets in the presence of a surfactant, said rubber component being selected from the group consisting of liquid polyisoprene rubber having a cis-1,4 content of not less than 70% and a molecular weight of 8,000 to 120,000, and modified liquid polyisoprene rubber which is an adduct of said liquid polyisoprene rubber and maleic anhydride or a derivative thereof.

4,362,842

COMPOSITE FILLER AND DENTAL COMPOSITION CONTAINING THE SAME

Eiichi Masuhara, Tokyo; Nobuo Nakabayashi, Matsudo; Katsuhisa Nagata, Yachiyo, and Morio Takeyama, Tokyo, all of Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Filed Jul. 22, 1980, Ser. No. 171,032

Claims priority, application Japan, Jul. 27, 1979, 54/94897

Int. Cl.³ A61K 6/08; C08F 291/06; C08K 3/36

U.S. Cl. 524—854

5 Claims

1. A composite filler obtained by:

- (1) precurcuring the acrylate or methacrylate of a polyhydric alcohol having at least three ethylenically unsaturated groups in the molecule thereof at a temperature from 40° to 250° C. under a pressure of from 10 to 300 kg/cm²G by using a free-radical initiator in the presence of silica as an inorganic filler such that a portion of the ethylenically unsaturated groups in the acrylate or methacrylate remains; and thereafter
- (2) grinding the resultant prepolymer into a powder.

4,362,843

PROCESS FOR PRODUCING A POLYMERIZED, HEAT-RESISTANT LACQUER

Dietrich J. Bahr, Herrenberg; Marian Briska, Böblingen, and Klaus Schackert, Herrenberg, all of Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 11, 1981, Ser. No. 262,251

Claims priority, application Fed. Rep. of Germany, Aug. 2, 1980, 3029428

Int. Cl.³ C09D 3/14, 3/76; B41M 5/24; G01D 15/34

U.S. Cl. 525—54.23

10 Claims

1. A process for producing a polymerized, heat-resistant, cellulose acetate based lacquer of a high carbon black compatibility and a high pigment absorption, preferably for record carriers coated with aluminum, characterized in that:

- initially, a higher melting polymer is homogenized by kneading at about softening temperature, whereby the quantity of plasticizer added is such that the mechanical energy of the kneading process is still transferred to the polymer, in that subsequently, a lower melting polymer is added and this mixture is kneaded up to homogenization at about the means softening temperature, and
- in that the copolymerizate thus obtained is processed to form a lacquer, adding pigments when desired.

4,362,844

BIAXIALLY STRETCHED POLYPROPYLENE-BASED PLASTIC PRODUCTS, AND PROCESS FOR MAKING SUCH PRODUCTS

Pieter J. Lemstra, Brunssum, and Marcellus J. P. Houben, Geleen, both of Netherlands, assignors to Stamicarbon, B.V., Geleen, Netherlands

Filed May 26, 1981, Ser. No. 267,422

Claims priority, application Netherlands, May 31, 1980, 8003192

Int. Cl.³ C08L 23/10, 23/26

U.S. Cl. 525—57

9 Claims

1. Plastic product based on polypropylene, biaxially stretched below the melting point, wherein the plastic consists substantially of a mixture of 60-95% by weight of a substantially crystalline propylene polymer and 5-40% by weight of an ethylene-vinylalcohol copolymer, characterized in that the ethylene-vinylalcohol copolymer has a melting point which is at most equal to that of the propylene polymer.

4,362,845

POLYVINYL CHLORIDE-BASE RESIN AND MULTISTAGE GRAFT RESIN COMPOSITION

Kazumasa Kamata; Kazuo Kishida; Kazuo Ueda, all of Ohtake, and Norihisa Osaka, Nagoya, all of Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan

Filed Dec. 9, 1981, Ser. No. 329,070

Claims priority, application Japan, Dec. 18, 1980, 55-179501

Int. Cl.³ C08L 27/06, 51/04

U.S. Cl. 525—57

8 Claims

1. A composition with high impact resistance and little fish eyes content, comprising 97 to 60 parts by weight of a polyvinyl chloride-base resin and 3 to 40 parts by weight of a graft copolymer obtained by the 3-stage graft-polymerization of 65 to 25 parts by weight of a monomer combination (B) comprising 12 to 57% by weight of methyl methacrylate, 1 to 24% by weight of at least one of alkyl acrylates having a C₁₋₈-alkyl group, 80 to 40% by weight of styrene and 0 to 3% by weight of at least one of polyfunctional crosslinking agents having one or more allyl groups in the molecule onto 35 to 75 parts by weight of a butadiene-base elastomer (A) containing 30% by weight or more of 1,3-butadiene units, said 3-stage graft polymerization being carried out in the following way: at first at least one member selected from the group consisting of electrolytes and carboxyl-containing polymer latices is added to the butadiene-base elastomer (A), then, in the first stage monomer mixture consisting of major amount of methyl methacrylate and minor amount of an alkyl acrylate or acrylates, which has a proportion of 50 to 90% by weight based on total weight of methyl methacrylate and alkyl acrylate or acrylates, and, if included in said monomer combination, a polyfunctional crosslinking agent are graft-polymerized; in the second stage, styrene is graft-polymerized; and in the third stage, the remaining 10 to 50% by weight of methyl methacrylate or methyl methacrylate and an alkyl acrylate or acrylates are graft-polymerized.

4,362,846

POLYAMIDE MOULDING COMPOUNDS HAVING HIGH IMPACT STRENGTH

Helmut Korber, Odenthal; Peter Tacke, Krefeld; Friedrich Fahnler, Krefeld; Dieter Neuray, Krefeld, and Frieder Heydenreich, Ratingen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany Continuation of Ser. No. 155,776, Jun. 2, 1980, abandoned, which is a continuation of Ser. No. 971,385, Dec. 20, 1978, abandoned. This application Apr. 16, 1981, Ser. No. 254,621

Claims priority, application Fed. Rep. of Germany, Dec. 29, 1977, 2758568; Jan. 14, 1978, 2801585

Int. Cl.³ C08L 77/00, 51/06

U.S. Cl. 525—66

10 Claims

- 1. A polymer blend consisting of
- I. from 60 to 99% by weight of a polyamide;
- II. from 1 to 40% by weight of a graft product consisting of
 - (a) from 70 to 99% by weight of a graft substrate of polyethylene and/or a copolymer of ethylene and a vinyl ester containing up to 50% by weight of the vinyl ester, and
 - (b) from 1 to 30% by weight of grafted units of
 - (α) from 0 to 100% by weight, based on the total weight of grafted units, of (meth) acrylic acid,
 - (β) from 0 to 100% by weight, based on the total weight of grafted units, of an ester of (meth) acrylic acid formed from an alcohol having from 1 to 8 carbon atoms,
 - (γ) from 0 to 30% by weight, based on the total weight of grafted units, of acrylamide and
 - (δ) from 0 to 30% by weight, based on the total weight of grafted units, of maleic acid anhydride, the sum total of grafted units (α) and (δ) being 100% by weight of the total grafted units of said graft product and said products having been prepared by a process of graft polymerization which comprises bringing a

solvent free melted polymer used as a graft substrate into contact with oxygen or an oxygen-containing gas at a pressure of from 1 to 150 bar and at a temperature of from 80° to 300° C. under conditions of vigorous mixing for a maximum of 10 minutes, adding immediately thereafter the monomers which are to be grafted under conditions of vigorous mixing in the absence of oxygen and oxygen-containing gas, and removing the residual monomers after polymerization; and

III. from 0 to 20% by weight of polyethylene.

4,362,847

HEAT-CURABLE THERMOSETTING RESIN BINDER COMPOSITIONS COMPRISING A NON-ACIDIC RESINOUS COMPOUND, A NON-ACIDIC POLYESTER CROSS-LINKING AGENT, AND A TRANSESTERIFICATION CATALYST

Petrus G. Kooijmans; Werner T. Raudenbusch; Adrianus M. C. Van Steenis; Wolfgang Kunze, and Josepha M. E. Seelen-Kruijsen, all of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed Apr. 20, 1981, Ser. No. 255,196

Claims priority, application United Kingdom, May 22, 1980, 8016916

Int. Cl.³ C08L 67/02, 63/00

U.S. Cl. 525—172

12 Claims

1. A thermosetting binder composition, heat-curable to give an insoluble infusible coating, comprising:

(I) a mixture or precondensate of:

- (1) a non-acidic resinous compound essentially free of ethylenical unsaturation, having a molecular weight of at least 900 and a hydroxyl content of at least 0.2 equivalents per 100 g, and
- (2) a cross-linking agent comprising a non-acidic polyester of a polycarboxylic acid having more than one beta-hydroxyl ester group per molecule, at least one of components (1) and (2) having a hydroxyl functionality of more than 2, and
- (II) a curing catalyst comprising a transesterification-promoting metal compound which is insoluble in liquid hydrocarbons.

4,362,848

CYCLOALIPHATIC ACRYLATE COMPOSITIONS

Hans R. Friedli; Donald L. Nelson, and John L. Massingill, Jr., all of Lake Jackson, Tex., assignors to The Dow Chemical Co., Midland, Mich.

Division of Ser. No. 951,416, Oct. 13, 1978, Pat. No. 4,319,009, which is a continuation-in-part of Ser. No. 866,679, Jan. 3, 1978, abandoned. This application May 29, 1981, Ser. No. 268,444

Int. Cl.³ C08F 8/00

U.S. Cl. 525—193

1 Claim

1. A thermosetting composition which comprises
 - (A) an unsaturated monomer selected from the acrylates, vinyl aromatics, allyl compounds, olefins and diolefins, and
 - (B) a cycloaliphatic acrylate composition comprising,
 - (1) about 60 to 95 percent by weight of dicyclopentadiene acrylate, methacrylate, or mixtures thereof
 - (2) about 2 to 15 percent by weight of a mixture of polycyclopentadienyl acrylates of the formula



where

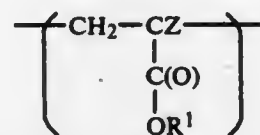
R is $\text{CH}_2=\text{CZ}-\text{C}(\text{O})-\text{O}-$
Z is H, or methyl

n is 1 or 2

m is 0 or 1 and when m is 0 there is a double bond present

(3) about 1 to about 21 percent by weight of a mixture of the copolymers of methacrylic acid or acrylic acid with adducts of cyclopentadiene with isoprene, piperylene, or mixtures thereof,

(4) about 0.05 to about 10 percent by weight of a mixture of poly acrylates having the repeating unit



where R¹ is hydrogen or



R² is $\text{CH}_2=\text{CZ}-\text{C}(\text{O})-\text{O}-$

Z is H or methyl

n is 0, 1, or 2, and

m is 0 or 1 and when m is 0 there is a double bond present.

4,362,849

PREPARATION OF ALKENYL AROMATIC MONOMER BUTADIENE RUBBER AND PREPARATION OF IMPACT RESISTANT RESIN THEREFROM

Lu H. Tung; Larry L. Kirkby, and Charles E. Lyons, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 58,704, Jul. 18, 1979, abandoned. This application Nov. 19, 1980, Ser. No. 208,210

Int. Cl.³ C08F 236/10

U.S. Cl. 525—316

8 Claims

1. A process for the preparation of an alkenyl aromatic-butadiene polymer, the steps of the method comprising providing a solution comprising 80 to 30 parts by weight of alkenyl aromatic monomer 20 to 70 parts by weight of butadiene, and up to 50 weight percent based on the total weight of the solution of a solvent which is generally inert under conditions of polymerization, initiating polymerization with a lithium based polymerization initiator at a temperature of from about 10° to 70° centigrade until about 5 to about 30 weight percent of the combined weight of alkenyl aromatic monomer and butadiene has been converted to form a rubbery alkenyl aromatic monomer-butadiene polymer containing from about 2 to 25 weight percent alkenyl aromatic monomer, terminating the polymerization and separating unreacted butadiene therefrom and initiating free radical polymerization of the alkenyl aromatic monomer present.

4,362,850

PROCESS FOR THE CONTINUOUS POLYMERIZATION OF POLYBLEND

Raymond D. Burk, North Wilbraham, Mass., assignor to Monsanto Company, St. Louis, Mo.

Continuation of Ser. No. 18,388, Mar. 7, 1979, abandoned. This application Jul. 17, 1981, Ser. No. 284,040

Int. Cl.³ C08F 279/02

U.S. Cl. 525—316

2 Claims

1. An improved process for the continuous mass polymerization of a solution comprising an alkenyl aromatic monomer having a diene rubber dissolved therein comprising the steps:

- A. continuously charging said solution of an alkenyl aromatic

matic monomer having a diene rubber dissolved therein to a first flow through reaction zone,

- B. continuously polymerizing said solution under back mixed agitation and steady state conditions, said monomer being polymerized to an average conversion of about 15 to 50%, said diene rubber being dispersed as diene rubber particles having present grafted and occluded polymers of said monomer in amounts of about 1 to 5 parts per 100 part of said diene rubber, said solution becoming a partially polymerized solution,
- C. continuously withdrawing said partially polymerized solution from said first reaction zone,
- D. continuously charging said partially polymerized solution to a second flow through reaction zone and further polymerizing said partially polymerized solution to about 20 to 95% conversion under substantially linear flow,
- E. continuously removing an effluent from said second reaction zone and continuously separating a polyblend from said effluent, said polyblend having a matrix phase comprising said polymerized monomer having dispersed therein said diene rubber particles,
- F. the improvement comprising: said solution having present a styrene-acrylonitrile polymer have a weight ratio of styrene to acrylonitrile of about 90:10 to 50:50 in an amount sufficient to control the size of said rubber particles being dispersed in step (B).

4,362,853

RESINOUS SALTS, THEIR PREPARATION, AND THEIR USE IN COATINGS

Christopher G. Denamer, Cambridge, England, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Oct. 13, 1981, Ser. No. 310,710

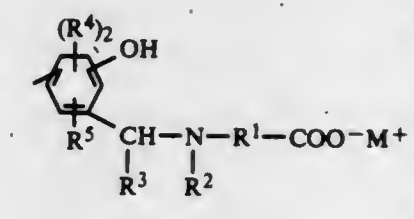
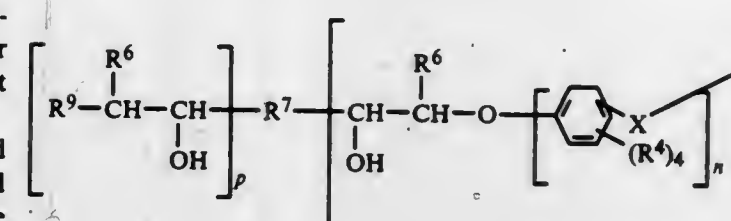
Claims priority, application United Kingdom, Oct. 24, 1980, 8034886; Jun. 18, 1981, 8118830

Int. Cl.³ C08G 8/20, 8/32, 14/06, 59/14

U.S. Cl. 525—533

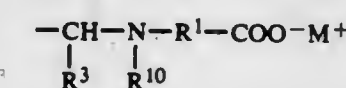
13 Claims

1. Carboxylate salts of the general formula



where

R¹ represents an aliphatic, aromatic, or araliphatic divalent group of 1 to 10 carbon atoms or a said divalent group substituted by a further $-\text{COO}-\text{M}^+$,
R² represents a hydrogen atom, a group of formula



II

an alkyl group of from 1 to 6 carbon atoms, a said alkyl group substituted by a further group $-\text{COO}-\text{M}^+$, a said alkyl group substituted by a group of formula $-\text{CH}(\text{R}^3)\text{OH}$, or a said alkyl group substituted by a group of formula $-\text{CH}(\text{R}^3)\text{OR}^8$,

with the proviso that R¹ and R² contain together not more than one group of formula $-\text{COO}-\text{M}^+$,

R³ represents a hydrogen atom or an alkyl group of 1 to 4 carbon atoms,

each R⁴, which may be the same or different, represents a hydrogen atom, a halogen atom, an alkyl group of 1 to 4 carbon atoms, or an alkenyl group of 2 to 4 carbon atoms,

R⁵ represents an atom or a group bonded to a ring carbon atom which is ortho or para to the indicated phenolic hydroxyl group and is a hydrogen atom, a halogen atom, an alkyl group of 1 to 4 carbon atoms, an alkenyl group of 2 to 4 carbon atoms, a group of formula $-\text{CH}(\text{R}^3)\text{OH}$, a group of formula $-\text{CH}(\text{R}^3)\text{OR}^8$, or a group of formula II,

R⁶ either represents a hydrogen atom, in which case R⁷ represents the residue of a polyepoxide after removal of (m+p) 1,2-epoxide groups, or it represents a covalent bond linked to the group R⁷, in which case R⁷, together with the indicated hydroxyethylene group, forms a cycloaliphatic ring,

R⁸ represents an alkyl group of from 1 to 6 carbon atoms or an alkoxyalkyl group wherein the alkoxy group and the alkyl group each have from 1 to 6 carbon atoms,

R⁹ represents the residue of a monohydric phenol, a secondary monoamine, or a monocarboxylic acid after removal of the hydrogen atom of the phenolic hydroxyl group, the carboxylic acid group, or the secondary amino group,

m represents 1, 2, 3, or 4,

n represents zero or 1,

4,362,851

ADDUCTS OF POLYAMIDE AND PERFLUORO-DICARBOXYLIC ACID

Shaul M. Aharoni, Morris Plains, and Edel Wasserman, Summit, both of N.J., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Aug. 25, 1980, Ser. No. 180,754

Int. Cl.³ C08G 69/46, 69/48

U.S. Cl. 525—420

12 Claims

1. A crystalline adduct of a polyamide having aminocarboxylic acid moieties and a perfluorodicarboxylic acid, in which the number of carbon and nitrogen atoms in one monomeric unit chain of an aminocarboxylic acid moiety of said polyamide is the same as the sum of the carbon atoms in one chain of said perfluorodicarboxylic acid plus 2, within ± 1 .

4,362,852

DEVOLATILIZING MOLTEN POLYMER WITH A ROTARY DISK PROCESSOR

David Pendlebury, Chester, Va.; Hugh H. Rowan, Chapel Hill, N.C., and Edward J. Buylas, Chester, Va., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Sep. 16, 1981, Ser. No. 302,907

Int. Cl.³ C08G 63/76; C08F 283/00; C08L 67/00

U.S. Cl. 525—437

9 Claims

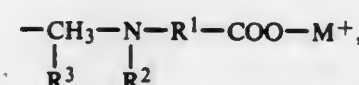
1. In a process to remove volatiles from molten synthetic, relatively high viscosity polymers the improvement comprising

passing the molten polymer through a rotary disc polymer processor at a temperature of between about 260° C. and 300° C., at a rate of between about 10 and 75 pounds per hour per square foot (48.9 to 367 kg/hr/m²) of processor filming area, at a rotational rate of between about 5 and 75 rpm of the disks, and said processor having between about one and twenty stages.

p represents zero or 1, such that (m+p) is at least 2 and at most 4,

X represents an alkylene or alkylidene group of 1 to 3 carbon atoms, a carbonyl or sulfonyl group, an oxygen or sulfur atom, or a valence bond,

M⁺ represents a hydrogen ion or a monovalent cation derived from an alkali metal, ammonia, or an amine, including quaternary ammonium cations, with the proviso that at least 25% of the ions M⁺ are a said monovalent cation, the indicated phenolic hydroxyl group being ortho or para to the indicated group



wherein R¹⁰ denotes a hydrogen atom, a group —COO—M⁺, an alkyl group of 1 to 6 carbon atoms, a said alkyl group substituted by a further group —COO—M⁺, a said alkyl group substituted by a group of formula —CH(R³)OH, or a said alkyl group substituted by a group of formula —CH(R³)OR⁸.

4,362,854

POLY(P-METHYLSTYRENE) WITH BROAD MOLECULAR WEIGHT DISTRIBUTION AND PROCESS FOR PREPARATION

Aristotle G. Prapas, Edison, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Dec. 30, 1981, Ser. No. 335,778

Int. Cl.³ C08F 2/18, 4/38, 212/12

U.S. Cl. 526—228

8 Claims

1. Poly(methylstyrene) having a molecular weight distribution (MWD) of at least about 4.0 and a melt index of at least 5.0, said polymethylstyrene comprising the polymerization product of methylstyrene isomers in the following proportions:

p-methylstyrene at least 90 weight percent;
m-methylstyrene 0 to 10 weight percent;
o-methylstyrene less than 0.1 weight percent.

4. A process for polymerizing a methylstyrene isomer mixture which is predominantly the para-isomer comprising the steps of mixing substantially all of the methylstyrene isomer mixture to be polymerized with polymerization initiators including a high temperature initiator and a low temperature initiator and reacting the mixture at a temperature sufficient to effect polymerization to obtain a product having a MWD of at least 4.0 and a melt index of at least 5.0.

4,362,855

POLYMERIZATION OF POLYSILOXANES

Claude Millet, Saint-Priest, and Gerard Soula, Meyzieu, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Filed Apr. 27, 1981, Ser. No. 257,711

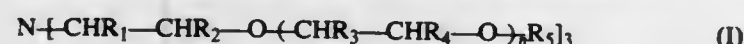
Claims priority, application France, Apr. 29, 1980, 80 10118

Int. Cl.³ C08G 77/06

U.S. Cl. 528—14

15 Claims

1. In a process for the preparation of high molecular weight organopolysiloxanes by the catalyzed polymerization and rearrangement of lower molecular weight organopolysiloxanes, the improvement which comprises conducting said process in the presence of a catalytically effective amount of an alkali metal catalyst or an alkaline earth metal catalyst, and a tris-(oxaalkyl)-amine accelerator having the formula (I):



wherein n is a number greater than or equal to 0 and less than or equal to 10; R₁, R₂, R₃, R₄, which may be identical or different, each represents a hydrogen atom or an alkyl radical having from 1 to 4 carbon atoms; and R₅ represents a hydrogen atom, an alkyl or cycloalkyl radical having up to 12 carbon atoms, a phenyl radical or a radical of the formula —C_mH_{2m}—φ, and at least one epoxy resin curing agent of the formula:

or C_mH_{2m+1}—φ, with m ranging from 1 to 12 and φ being phenyl.

4,362,856

POLY-(2-AMINOALKYL)POLYAMINES

Edward W. Kluger, Pauline, S.C., assignor to Milliken Research Corporation, Spartanburg, S.C.

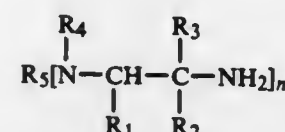
Filed Sep. 16, 1981, Ser. No. 302,931

Int. Cl.³ C08G 59/50; C07C 93/04

U.S. Cl. 528—111

17 Claims

1. Poly-(2-aminoalkyl)polyamine compounds of the formula:



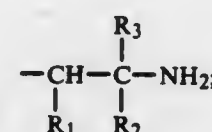
wherein:

n is an integer of from 3 to about 12;

R₁ is selected from H and an alkyl group containing from 1 to about 10 carbon atoms;

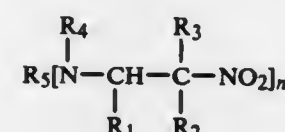
R₂ and R₃ are each independently selected from H and a lower alkyl group containing from 1 to about 6 carbon atoms;

R₄ is selected from H and



and R₅ is selected from an amine terminated polyol moiety having a molecular weight of from about 150 to about 5,000, from about 2 to about 80 ether linkages, and a valence of from about 2 to about 12.

7. Poly-(2-nitroalkyl)polyamine compounds useful as intermediates in the preparation of poly-(2-aminoalkyl)polyamines of the formula:



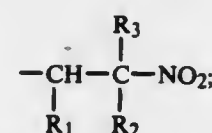
wherein:

n is an integer of from 3 to about 12;

R₁ is selected from H and an alkyl group containing from 1 to about 10 carbon atoms;

R₂ and R₃ are each independently selected from H and a lower alkyl group containing from 1 to about 6 carbon atoms;

R₄ is selected from H and



and

R₅ is selected from an amine terminated polyglycol moiety having a molecular weight of from about 150 to about 5,000, from about 2 to 80 ether linkages, and a valence of from about 2 to about 12.

12. An epoxy resin composition comprising an epoxy resin and at least one epoxy resin curing agent of the formula:

4,362,858

PROCESS FOR PRODUCING AN AROMATIC POLYESTER COPOLYMER

Senzo Shimizu, Odawara; Isao Nomura, Hiratsuka; Motohachi Usui, Odawara, and Mashahiro Harada, Hiratsuka, all of Japan, assignors to Mitsubishi Gas Chemical Co., Inc., Tokyo, Japan

Filed Dec. 3, 1981, Ser. No. 327,038

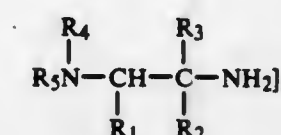
Claims priority, application Japan, Dec. 4, 1980, 55-171344

Int. Cl.³ C08G 62/24, 6/28

U.S. Cl. 528—179

5 Claims

1. A process for producing an aromatic polyester copolymer wherein the alternating configuration of the components making up the copolymer is highly regular, said process comprising a first step of reacting a dihydric phenolic compound with an aromatic dicarboxylic acid dichloride A in a reaction medium consisting of water and a water-immiscible solvent in the presence of a basic inorganic compound to give a phenolic hydroxyl-terminated aromatic oligoester containing predominantly an oligomer having a degree of polymerization of 1-2, and a second step of reacting the aromatic dihydroxy oligoester obtained in the first step with an aromatic dicarboxylic acid dichloride B in the presence of a basic inorganic compound in an amount at least sufficient to neutralize the free phenolic hydroxyl groups remaining in the reaction product mixture obtained in the first step.



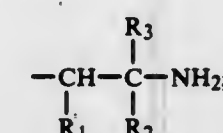
wherein:

n is an integer of from 3 to about 12;

R₁ is selected from H and an alkyl group containing from 1 to about 10 carbon atoms;

R₂ and R₃ are each independently selected from H and a lower alkyl group containing from 1 to about 6 carbon atoms;

R₄ is selected from H and



and

R₅ is selected from an amine terminated polyol moiety having a molecular weight of from about 150 to about 5,000, from about 2 to about 80 ether linkages, and a valence of from about 2 to about 12.

4,362,857

METHOD OF PRODUCING POLYETHER RESINS USING PHASE TRANSFER CATALYSTS

Kazuya Yonezawa; Junichi Ishizu, both of Kobe, and Miyuki Matsuura, Nishinomiya, all of Japan, assignors to Kanagafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Oct. 22, 1980, Ser. No. 199,421

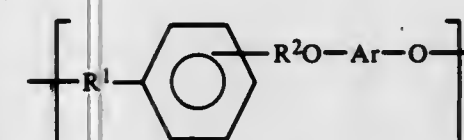
Claims priority, application Japan, Oct. 29, 1979, 54-140367

Int. Cl.³ C08G 65/40

U.S. Cl. 528—174

7 Claims

1. A method of manufacturing polymers having the repeating units of the formula:



which method comprises reacting alkali metal salts of bifunctional phenols of the formula:



wherein M and M' are alkali metals and Ar is a divalent aromatic group having 6 to 30 carbon atoms, with an alkylene dihalide having the formula:



wherein X and Y are halogens, and R¹ and R² are divalent aliphatic hydrocarbon groups having from 1 to 4 carbon atoms and Ar is a divalent aromatic group having 6 to 30 carbon atoms, in the presence of a phase transfer catalyst.

4,362,859

POLYIMIDES FROM BICYCLO[4.2.0]OCTANE-7,8-DIMETHYL-3,4,7,8-TETRACARBOXYLIC ACID DIANHYDRIDE (I) AND BICYCLO[4.2.0]OCTANE-2,5-DIPHENYL-7,8-DIMETHYL-3,4,7,8-TETRACARBOXYLIC DIANHYDRIDE

Tayseer S. Nimry, Wheaton, and Ellis K. Fields, River Forest, both of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

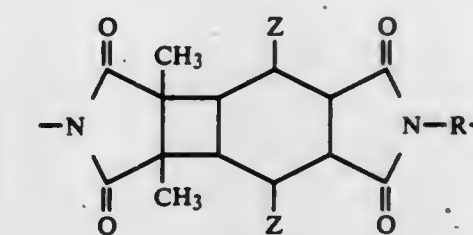
Filed Aug. 19, 1981, Ser. No. 294,345

Int. Cl.³ C08G 73/10

U.S. Cl. 528—188

41 Claims

1. A polyimide consisting essentially of the following recurring structure:



wherein R is a divalent aliphatic, cycloaliphatic, araliphatic or aromatic hydrocarbon radical and Z is hydrogen or benzene radical.

4,362,860

ADDITION CURING POLYSTYRYL PYRIDINE

Joseph J. Ratto, Thousand Oaks, and Charles L. Hamermesh, Westlake Village, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Nov. 2, 1981, Ser. No. 317,629

Int. Cl.³ C08G 2/00, 12/02, 75/00

U.S. Cl. 528—248

7 Claims

1. A prepolymer which comprises the condensation products of a methylated pyridine, an aromatic dialdehyde, and a methyl vinyl pyridine.

4,362,868

PLASTICIZED CELLULOSE POLYMERS

Michael Burnup, Swindon; Gerard F. Hayes, Broxbourne, and Norman C. Paul, Hoddesdon, all of England, assignors to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Sep. 19, 1980, Ser. No. 188,663

Claims priority, application United Kingdom, Sep. 24, 1979, 7932970

Int. Cl.³ C08G 18/10

U.S. Cl. 536-66

17 Claims

1. An inhibitor-coated rocket motor propellant wherein the inhibitor comprises a cellulose ether ester polymer consisting essentially of a base polymer, having a chain of β -anhydroglucose units joined by ether linkages and having ether substituents wherein at least one of the β -anhydroglucose units in the chain of the base polymer is additionally substituted, by esterification of at least one hydroxyl group on the chain, by at least one organic group which contains at least two carbon atoms and is selected from the group consisting of ester groups which contain no functional groups and ester groups which contain non-cross-linking functional groups that do not react with each other or with the cellulose ether ester polymer chain.

4,362,869

PROCESS FOR THE PREPARATION OF 4,1',6'-TRICHLORO-4,1',6'-TRIDEOXYGALACTOSUCROSE

Michael R. Jenner, Pangbourne; David Waite; Graham Jackson, both of Reading, and John C. Williams, Wokingham, all of England, assignors to Talres Development (N.A.) N.V., Curaçao, Netherlands Antilles

Filed Dec. 4, 1980, Ser. No. 212,898

Claims priority, application United Kingdom, Dec. 2, 1907, 7943933; Mar. 28, 1980, 8010629; Apr. 2, 1980, 8011086; May 20, 1980, 8016668; Nov. 14, 1980, 8036711

Int. Cl.³ C07H 1/00

U.S. Cl. 536-122

12 Claims

1. In a process for the production of 4,1',6'-trichloro-4,1',6'-trideoxygalactosucrose including the steps of (a) isomerising 2,3,4,3',4'-penta-O-acetyl sucrose to 2,3,6,3',4'-penta-O-acetyl sucrose; (b) chlorinating the isomerised acetate at the 4,1', and 6'-positions and (c) deacetylating the chlorinated product, the improvement comprising effecting the isomerisation step (a) by treating a solution of 2,3,4,3',4'-penta-O-acetyl-sucrose in an inert solvent with a weak acid having an acid strength on the same order as acetic acid at an elevated temperature of at least about 80° C.

4,362,870

SELECTIVE OPIOID RECEPTOR ALKYLATING AGENTS

Phillip S. Portoghesi, St. Paul, Minn., assignor to Regents of the University of Minnesota, Minneapolis, Minn.

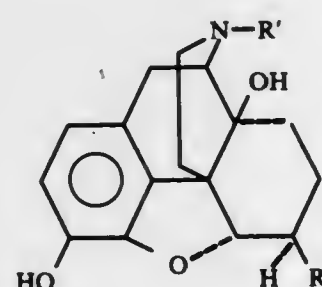
Continuation-in-part of Ser. No. 112,556, Jan. 16, 1980, abandoned. This application Mar. 19, 1981, Ser. No. 245,052

Int. Cl.³ C07D 489/08; A61K 31/485

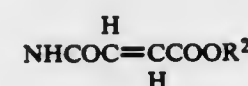
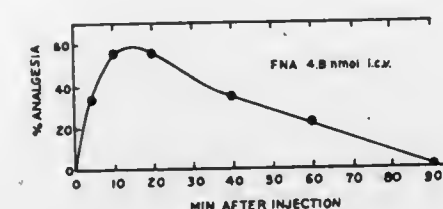
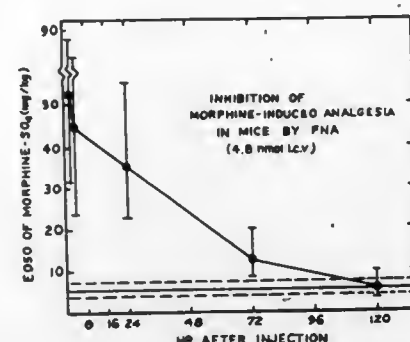
U.S. Cl. 542-403

4 Claims

1. A selective opioid receptor alkylating agent having the formula:

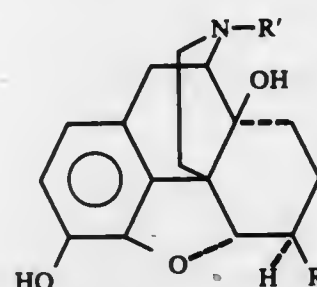


wherein R is an ester having the general formula:



wherein R² is (CH₂)_nH or (CH₂)_nAr and n is 1 to 5, wherein Ar is phenyl, furane, naphthyl, thiophene or substituted phenyl, the substituent being halogen, hydroxy, nitro, methoxy, methyl, trifluoromethyl or amino, and R' is selected from the group consisting of cyclopropylmethyl, allyl and substituted allyl, the substituent being methyl, ethyl, propyl or halogen, and pharmaceutically acceptable salts thereof.

4. A selective opioid receptor alkylating agent having the formula:



wherein R is isothiocyanate, and R' is selected from the group consisting of cyclopropylmethyl, allyl and substituted allyl, the substituent being methyl, ethyl, propyl or halogen, and pharmaceutically acceptable salts thereof.

4,362,871

POLYCARBOXYLIC ACID GLYCIDYL ESTERS AND PROCESS FOR PREPARING THE SAME

Teruaki Higashiguthi, Kashiwara, and Mithio Ishioka, Nara, both of Japan, assignors to Okamura Oil Mill Limited, Japan

Filed Oct. 21, 1980, Ser. No. 199,281

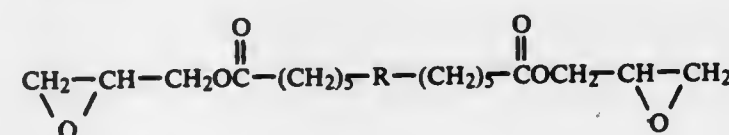
Claims priority, application Japan, Oct. 26, 1979, 54-138935

Int. Cl.³ C07D 303/27, 303/16

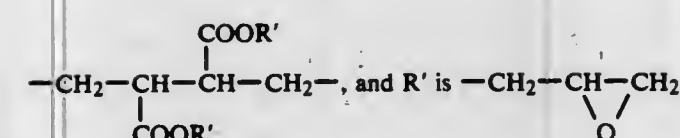
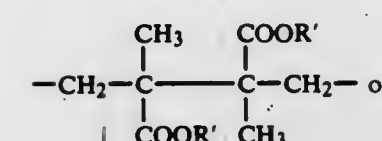
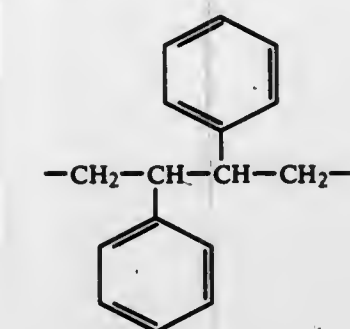
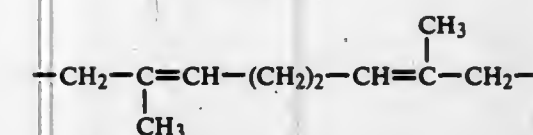
U.S. Cl. 542-427

5 Claims

1. A polycarboxylic acid glycidyl ester represented by the formula



-continued
wherein -R- is



4,362,872

6,6-DIFLUORO-5-HYDROXY-4-(3-OXOALK-1-ENYL)-HEXAHYDRO CYCLOPENTA[B] FURAN-2-OLS

Jerome L. Moniot, Richboro, Pa.; Rita T. Fox, Princeton, N.J.; Peter W. Sprague, Pennington, N.J., and Martin F. Haslanger, Lambertville, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Division of Ser. No. 230,133, Jan. 30, 1981, Pat. No. 4,311,644.

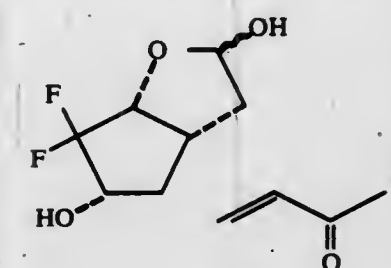
This application Sep. 24, 1981, Ser. No. 305,053

Int. Cl.³ C07D 307/935

U.S. Cl. 542-429

2 Claims

1. A prostacyclin intermediate having the structure:



wherein R is lower alkyl, lower alkenyl or aralkyl wherein the aryl part consists of unsubstituted or substituted monocyclic or bicyclic aromatic groups containing from 6 to 10 carbon atoms in the ring portion wherein the substituent is selected from the group consisting of lower alkyl, halogen or lower alkoxy.

4,362,873

PROCESS FOR THE PREPARATION OF BASIC OXAZINE DYESTUFFS

Gerard L. A. Belfort, Oisiel, France, assignor to P C U K Produits Chimiques Ugine Kuhlmann, Courbevoie, France

Filed Mar. 24, 1981, Ser. No. 246,979

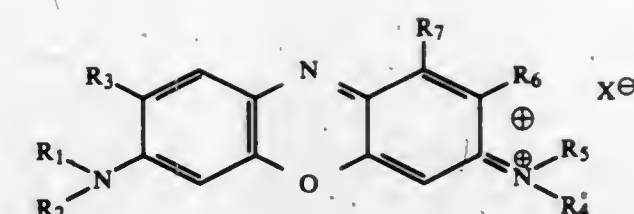
Claims priority, application France, Apr. 18, 1980, 80 06723

Int. Cl.³ C09B 19/00

U.S. Cl. 544-103

17 Claims

1. Process for the preparation of a basic oxazine dyestuff of the formula:



in which

R₁ represents:

hydrogen,
unsubstituted alkyl, alkenyl or aralkyl,
alkyl substituted by halogen, hydroxy, cyano, carbamoyl, alkoxy or alkoxycarbonyl, or
aralkyl substituted by halogen, alkyl, trifluoromethyl, cycloalkyl, hydroxy, alkoxy, aralkoxy, cycloalkoxy, aryloxy, carboxy, acyl, acyloxy, acylamino, acylalkoxycarbonyl, nitro, cyano, carbamoyl, sulfamoyl, amino, alkylamino, dialkylamino, arylamino, mercapto, alkylmercapto, arylmercapto, alkylsulfonyl or arylsulfonyl;

R₂ represents:

unsubstituted alkyl, alkenyl, cycloalkyl, aryl or aralkyl, alkyl substituted by halogen, hydroxy, cyano, carbamoyl, alkoxy or alkoxycarbonyl, or
aryl or aralkyl substituted by halogen, alkyl, trifluoromethyl, cycloalkyl, hydroxy, alkoxy, aralkoxy, cycloalkoxy, aryloxy, carboxy, acyl, acyloxy, acylamino, acylalkoxycarbonyl, nitro, cyano, carbamoyl, sulfamoyl, amino, alkylamino, dialkylamino, arylamino, mercapto, alkylmercapto, arylmercapto, alkylsulfonyl or arylsulfonyl;

R₃ represents hydrogen, alkyl or alkoxy;R₄ represents:

hydrogen,
unsubstituted alkyl, aryl or aralkyl, alkyl substituted by halogen, hydroxy, cyano, carbamoyl, alkoxy or alkoxycarbonyl, or
aryl or aralkyl substituted by halogen, alkyl, trifluoromethyl, cycloalkyl, hydroxy, alkoxy, aralkoxy, cycloalkoxy, aryloxy, carboxy, acyl, acyloxy, acylamino, acylalkoxycarbonyl, nitro, cyano, carbamoyl, sulfamoyl, amino, alkylamino, dialkylamino, arylamino, mercapto, alkylmercapto, arylmercapto, alkylsulfonyl or arylsulfonyl;

R₅ represents hydrogen, unsubstituted alkyl or alkyl substituted by halogen, hydroxy, cyano, carbamoyl, alkoxy or alkoxycarbonyl;

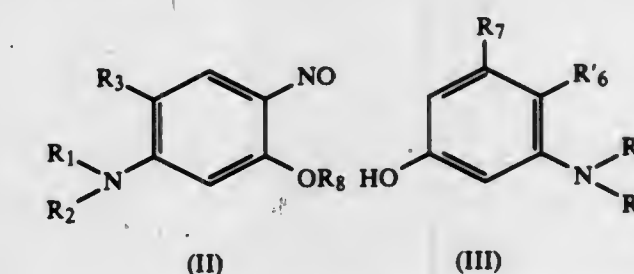
R₆ represents hydrogen, alkyl or alkoxy;

R₇ represents hydrogen or alkyl or forms with R₆ a fused benzene ring; and

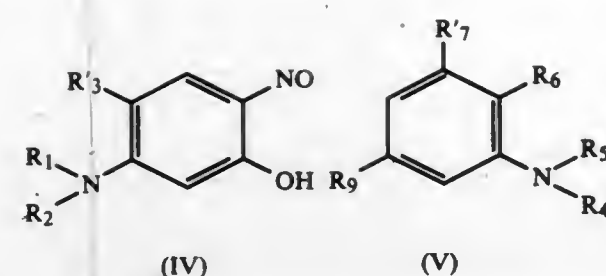
X[⊖] represents an anion,

which process comprises reacting in aqueous medium, organic medium or mixture thereof;

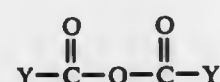
(a) a nitroso compound of formula (II) with an aminophenol of formula (III):



in which R₁ to R₅ and R₇ have the same meanings as above, R₆ represents hydrogen or alkyl, and R₈ represents unsubstituted alkyl or alkyl substituted by hydroxy, or
(b) a nitroso compound of formula (IV) with a compound of formula (V):



in which R₁, R₂, R₄, R₅ and R₆ have the same meanings as above, R₃ and R₇ each represents hydrogen or alkyl, and R₉ represents alkoxy, unsubstituted amino or amino substituted by one or two alkyl, said reaction being effected without its being necessary to raise the temperature above the ambient temperature and in the presence of an anhydride of a carboxylic acid of the formula:



in which Y represents unsubstituted linear or ramified alkyl containing 1 to 6 carbon atoms, linear or ramified halogeno-substituted alkyl containing 1 to 6 carbon atoms, unsubstituted phenyl or phenyl carrying up to three substituents selected from the halogen atoms and the nitro, alkyl and alkoxy groups, Y' is hydrogen or has the same significance as Y, said anhydride being used in a quantity at least equal to the stoichiometry.

4,362,874

QUATERNARY REACTIVE COMPOUNDS

Walter Kalk; Karl H. Schindelhütte, and Manfred Söll, all of Leverkusen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Division of Ser. No. 14,565, Feb. 23, 1979, which is a continuation of Ser. No. 804,858, Jun. 4, 1977, abandoned. This application Jun. 5, 1980, Ser. No. 156,829

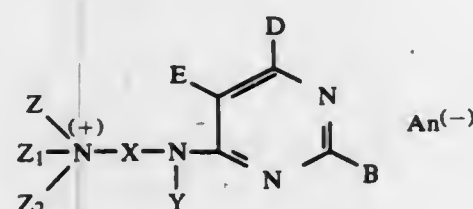
Claims priority, application Fed. Rep. of Germany, Jun. 12, 1976, 2626495

Int. Cl.³ C07D 239/30, 239/38, 239/42, 251/50

U.S. Cl. 544—317

9 Claims

1. A compound of the formula



wherein

E is hydrogen, halogen, methyl, ethyl, phenyl, cyano, nitro, methylsulphonyl, ethylsulphonyl, or phenylsulphonyl;

B is halogen, methylsulphonyl, ethylsulphonyl, phenylsulphonyl, or also is hydrogen when D is a halogen, methylsulphonyl, ethylsulphonyl or phenylsulphonyl,

D is hydrogen, halogen, methyl, ethyl, methylsulphonyl, ethylsulphonyl, phenylsulphonyl, trifluoromethyl, C₁-C₄-alkoxy, halo-C₁-C₄-alkoxy, cyano-C₁-C₄-alkoxy or hydroxy-C₁-C₄-alkoxy, and D and B are not chlorine at the same time;

X is C₂-C₃-alkylene, o-phenylene, m-phenylene, or p-phenylene;

Y is C₁-C₄-alkyl, and

Z₁ and Z₂ independently of one another are C₁-C₄-alkyl, cyclohexyl, phenyl, benzyl or phenylethyl, which are unsubstituted or substituted by 1-3 halogen, amino, hydroxy, C₁-C₄-alkyl;

Z and Z₁, together with N, are pyrrolidine, piperidine morpholine or piperazine, which is unsubstituted or substituted

tuted by C₁-C₄-alkyl; or Z, Z₁ and Z₂, together with N, are pyridine which is unsubstituted or substituted by C₁-C₄-alkyl; An⁽⁻⁾ is an anion.

4,362,875

PROCESS FOR PREPARING (1-ACYLAMINOMETHYL)-1,2,3,4-TETRAHYDROISOQUINOLINES

Jürgen Seubert, Darmstadt, Fed. Rep. of Germany, assignor to Merck Patent Gesellschaft mit beschränkter Haftung, Darmstadt, Fed. Rep. of Germany

Division of Ser. No. 877,436, Feb. 13, 1978, abandoned, which is a continuation of Ser. No. 651,856, Jan. 23, 1976, abandoned.

This application Dec. 6, 1978, Ser. No. 967,046

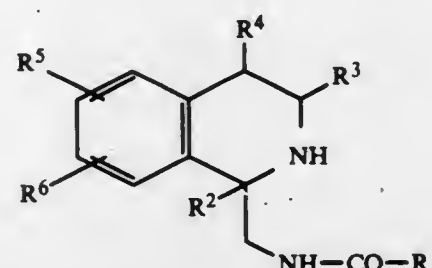
Claims priority, application Fed. Rep. of Germany, Feb. 1, 1975, 2504250

Int. Cl.³ C07D 217/16; A61K 31/47

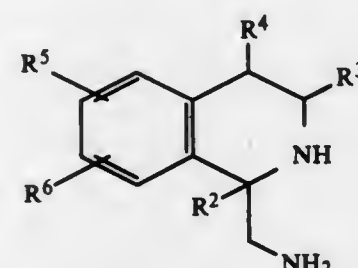
U.S. Cl. 546—146

6 Claims

1. A process for the production of a compound of the formula



wherein R¹ is alkyl of 1-6 carbon atoms; cycloalkyl or cycloalkenyl each having 4-7 ring carbon atoms and the cycloalkyl optionally being substituted by one of methyl, hydroxyl and oxo; phenyl; phenyl substituted by 1-3 amino, carboxylic acylamino of up to 4 carbon atoms, Hal, hydroxyl, methoxy and nitro, wherein Hal is fluorine, chlorine, bromine or iodine; R², R³ and R⁴ each are H or methyl; R⁵ and R⁶ each are H, methyl or methoxy; which comprises monoacylating, with a compound of the formula R¹-CO-Y wherein Y is halogen and R¹ has the values given above, a monoacid addition salt of a compound of the formula



wherein R² through R⁶ have the values given above wherein the monoacylation is carried out in the presence of a base which is more weakly basic than the monoacid salt and wherein the reaction temperature is 0°-100° C. and the reaction time is 24-0.5 hours.

4,362,876

PREPARATION OF DIHYDROXYQUINOLINE AND CERTAIN DERIVATIVES

Labomir Vacek, Toledo, Ohio, assignor to The Sherwin-Williams Company, Cleveland, Ohio

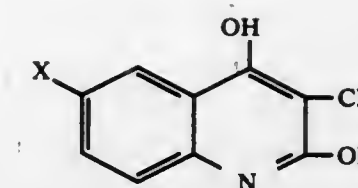
Filed Aug. 11, 1978, Ser. No. 932,912

Int. Cl.³ C07D 215/54, 215/22

U.S. Cl. 546—155

3 Claims

1. A process for preparing 3-cyano-2,4-dihydroxyquinolines having the formula



where X is Cl, Br, I, NO₂, or H, which process comprises the steps of (a) reacting isoic anhydride or the corresponding chloro, bromo, iodo or nitro derivative thereof with a C-1 to C-5 alkyl ester of cyanoacetic acid in the presence of a base which is not reactive with the anhydride to form a 2-(2'-amino-benzoyl) cyanoacetate as an intermediate compound, and (b) cyclizing the intermediate cyanoacetate to form the 3-cyano-2,4-dihydroxyquinoline.

4,362,877

2,4-DISUBSTITUTED-1,2,5-THIADIAZOL-3(2H)-ONE ANTIMICROBIALS

Richard A. Dybas, Somerville; Bruce E. Witzel, Rahway, and Nathaniel Grier, Englewood, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

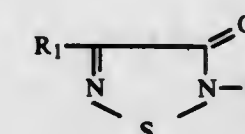
Filed Apr. 21, 1980, Ser. No. 142,193

Int. Cl.³ A01N 43/82; C07D 285/10, 405/06

U.S. Cl. 548—135

6 Claims

1. A compound of the formula:



where R is C₁ to C₁₈ alkyl linear or branched; phenyl—C₁ to C₁₀ alkyl, phenyl, and phenyl independently mono- or disubstituted with bromine, chlorine, fluorine and iodine, alkyl containing from C₁ to C₁₂ carbon atoms or alkoxy having the same number of carbon atoms; and R¹ is C₁ to C₁₈ alkyl, linear or branched; loweralkoxyalkyl wherein the alkoxy group contains from one to six carbon atoms and the alkyl moiety from one to four carbon atoms, tetrahydrofuran-2-ylmethyl, and phenyl-C₁ to C₁₀ alkyl; ring substituted or disubstituted phenyl C₁ to C₁₀ alkyl where said substituent is the same or different and said substituent is bromine, chlorine, fluorine or iodine, C₁ to C₁₂ alkyl or C₁ to C₁₂ alkoxy.

4,362,878

SUBSTITUTED 1,2,4-TRIAZOLES AS DIR COMPOUNDS AND THEIR USE IN PHOTOGRAPHIC MATERIALS

Terence C. Webb, Witham, England, assignor to Ciba-Geigy AG, Basel, Switzerland

Division of Ser. No. 72,735, Sep. 5, 1979, Pat. No. 4,259,437.

This application Jun. 12, 1980, Ser. No. 158,979

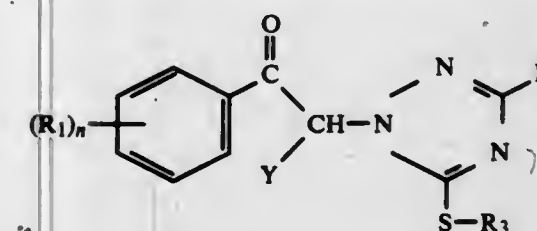
Claims priority, application United Kingdom, Sep. 18, 1978, 37260/78

Int. Cl.³ C07D 249/12, 403/06

U.S. Cl. 548—253

7 Claims

1. A compound of the general formula:



wherein:

R₁ is hydrogen, hydroxy, halogen or alkoxy of 6 to 18 carbon atoms, and n is 1 or 2,

R₂ is hydrogen or alkyl having 1 to 4 carbon atoms, R₃ is alkyl of 4 to 12 carbon atoms and Y is hydrogen, halogen, phenyl or a 1, 2, 4-triazole, benzimidazole, tetrazole, urazole, pyrazole, phthalimido or succinimido group, substituted by alkyl of one to four carbon atoms, alkylmercapto of 1 to 8 carbon atoms, nitro, phenyl and/or benzyl.

4,362,879

ISOTHIUREIDO ISOINDOLE-1,3-DIONES AND USE AS PLANT GROWTH REGULATORS

Joel L. Kirkpatrick, Washington Crossing, Pa.; Natu R. Patel, Overland Park, Kans., and Jerry L. Rutter, Mentor, Ohio, assignors to Gulf Oil Corporation, Pittsburgh, Pa.

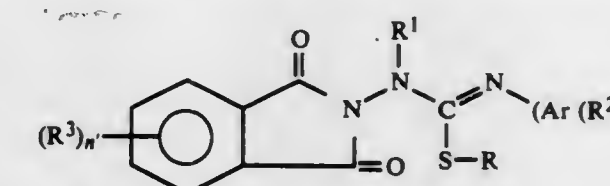
Division of Ser. No. 133,888, Apr. 10, 1980, Pat. No. 4,292,071, which is a continuation-in-part of Ser. No. 35,875, May 3, 1979, abandoned. This application Mar. 13, 1981, Ser. No. 243,297

Int. Cl.³ C07D 209/48

U.S. Cl. 548—473

71 Claims

1. A compound which has the structural formula:



in which R is cyano, C₁ to C₄ alkyl, C₃ to C₅ alkenyl or fluoroalkenyl, propenyl, phenylallyl or C₁ to C₃ alkyl to which is attached a phenyl, bromophenyl, chlorophenyl, methylphenyl, benzoyl, trimethylacetyl, phenoxy, chlorophenoxy, methylthio, fluorobenzoyl, N-lower alkyl-N-phenylcarbamyl, carboxy or carbethoxy substituent,

R¹ is H, acetyl, C₁ to C₃ alkyl, alkenyl or alkynyl to which may be attached phenyl, halophenyl, carbethoxy, vinylloxy or phenoxy groups;

Ar is phenyl or benzoyl;

R² is C₁ to C₄ alkyl, alkoxy, alkylamino or alkylthio; phenoxy, benzyloxy, carbalkoxy, acetyl, methylenedioxy, trifluoromethyl, nitro, halo or cyano and n represents the number of points of attachment, which may be zero or an integer from 1 to 4 except when R² is methylenedioxy or nitro n is 0 or 1, with the provision that at least one position ortho to the point of attachment of a phenyl ring of the Ar structure to the remainder of the molecule must be unsubstituted;

R³ is lower alkyl or halo and n' may be zero or an integer from 1 to 4.

4,362,880

CHEMICAL PROCESS

Kenneth T. Veal, Effingham, and Trevor J. Grinter, Fetcham, nr. Leatherhead both of England, assignors to Beecham Group Limited, England

Filed Mar. 30, 1981, Ser. No. 249,004

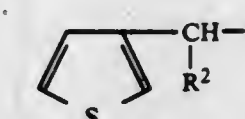
Claims priority, application United Kingdom, Apr. 11, 1980, 8012077

Int. Cl.³ C07D 333/24, 239/00, 211/20, 403/00

U.S. Cl. 549—79

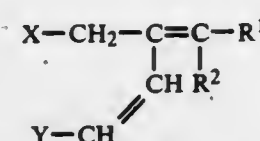
9 Claims

1. A process for the preparation of a thiophene of formula (I):



wherein R¹ represents a carboxylic acid group or an ester or amide derivative thereof or a nitrile group; and R² represents hydrogen, a hydrocarbon or heterocyclic group, a carboxylic

acid group or an ester of amide derivative thereof; or an acyl, nitrile, isonitrile or optionally substituted imine group of formula $-\text{CH}=\text{NZ}$ or $-\text{N}=\text{CHZ}$ where Z represents hydrogen, alkyl or aryl, or a sulphonyl, $-\text{SR}^a$, sulphoxide $-\text{SO}_2\text{R}^a$ or sulphonate $-\text{SO}_3\text{OR}^a$ group wherein R^a represents C_{1-6} alkyl, or aryl, which process comprises treating a compound of formula (II):



wherein R^1 and R^2 are as defined with respect to formula (I) above; X represents a halogen atom, a hydroxyl group or a functionalised hydroxyl group; Y represents a halogen atom, a hydroxyl group, or an alkoxy group; under basic conditions with a source of nucleophilic sulphur ionically bound to a polymeric support which is insoluble in the reaction solution.

4,362,881 TYLACTONE

Robert L. Hamill, Greenwood; Gerald L. Huff; Richard H. Baltz, both of Indianapolis, all of Ind., and Eugene T. Seno, Norwich, England, assignors to Eli Lilly and Company, Indianapolis, Ind.

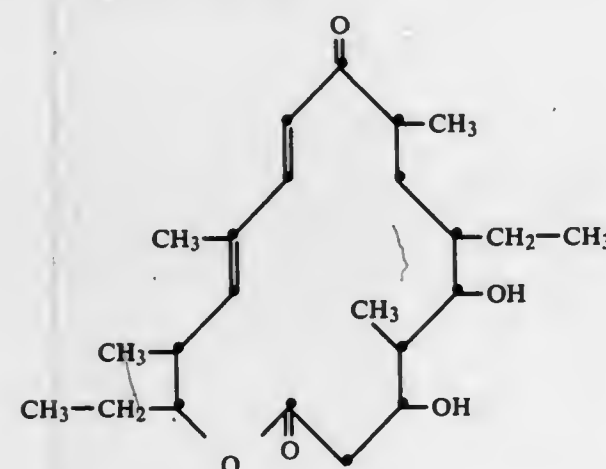
Continuation of Ser. No. 162,976, Jul. 2, 1980, abandoned. This application Jan. 15, 1982, Ser. No. 339,343

Int. Cl.³ C07D 313/00

U.S. Cl. 549-271

8 Claims

1. Tylactone which has the structure:



and the diacyl ester derivative of tylactone wherein each is an ester of a monocarboxylic acid or a hemi-ester of a dicarboxylic acid, each of 1 to 18 carbon atoms.

4,362,882

4-METHYL-2,5-DIOXABICYCLO-[4,4,0]-DECAN-3-ONE, ITS PREPARATION AND USE IN PERFUME COMPOSITIONS AND AS AN ODORANT

Ulf-Armin Schaper, Düsseldorf, and Klaus Bruns, Krefeld-Traar, both of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holthausen, Fed. Rep. of Germany

Filed Aug. 14, 1980, Ser. No. 178,082

Claims priority, application Fed. Rep. of Germany, Sep. 5, 1979, 2935749

Int. Cl.³ C07D 317/06

U.S. Cl. 549-274

1 Claim

1. 4-Methyl-2,5-dioxabicyclo-[4,4,0]-decan-3-one.

4,362,883 PREPARATION OF DIBENZOFURAN

Robert J. Harvey, Teaneck, N.J., assignor to The Halcon SD Group, Inc., New York, N.Y.

Filed Oct. 28, 1981, Ser. No. 315,784

Int. Cl.³ C07D 307/91

U.S. Cl. 549-460

3 Claims

1. A process for producing dibenzofuran which comprises reacting diphenyl ether in the presence of a palladium carboxylate catalyst, a carboxylic acid and a copper carboxylate promoter or co-catalyst.

4,362,884

SILACROWN ETHERS, METHOD OF MAKING SAME, AND USE AS PHASE-TRANSFER CATALYSTS

Barry C. Arkles, Orelana, Pa., assignor to Petrarch Systems, Inc., Levittown, Pa.

Filed Nov. 23, 1981, Ser. No. 323,629

Int. Cl.³ C07F 7/08, 7/18

U.S. Cl. 556-446

12 Claims

1. Compounds of the structure:



wherein n is an integer from 4 to 10 inclusive, and R^1 and R^2 are selected from the group consisting of alkyl, unsaturated alkyl, alkoxy, aryl and hydrogen.

4,362,885

PROCESS FOR THE MANUFACTURE OF (IODOORGANYL)ALKOXY-SILANES

Peter Panster, Rodenbach; Alfons Karl, Hanau; Wolfgang Buder, Rodenbach, and Peter Kleinschmitt, Hanau, all of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Dec. 14, 1981, Ser. No. 330,355

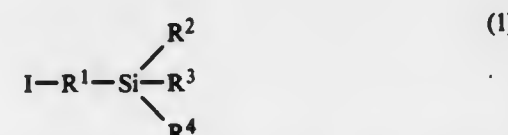
Claims priority, application Fed. Rep. of Germany, Dec. 12, 1980, 3047995

Int. Cl.³ C07F 7/08, 7/18

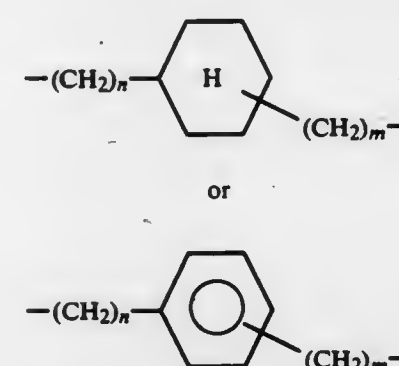
U.S. Cl. 556-446

6 Claims

1. Process for the manufacture of an (iodoorganyl)alkoxysilane of the formula:



in which R^1 represents straight or branched chain alkylene having 1 to 20 carbon atoms, cycloalkylene having 5 to 8 carbon atoms or a unit of the type:



wherein n is a number between 1 and 6 of methylene groups in the chain attached to the halogen and m is a number from 0 to 6, R^2 represents alkoxy having 1 to 5 carbon atoms, methoxyethoxy or ethoxyethoxy, R^3 and R^4 may be the same or different

and have the same meaning as R^2 or represent branched or linear alkyl having 1 to 10 carbon atoms, phenyl or phenyl substituted with halogen, which process comprises reacting the corresponding chlorine or bromine silane compound with stoichiometric to double molar quantities of alkali, alkaline earth or ammonium iodide in the presence of 0.01 to 5 mol % of a quaternary ammonium, phosphonium, arsonium, antimony or tertiary sulfonium salt with alkyl, aryl or aralkyl substituents and an organic or inorganic anion or a crown ether, in an organic liquid or mixture of organic liquids which is substantially inert towards the silane and is able to dissolve at least partly the iodide or silane component.

4,362,886

PREPARATION OF LINEAR POLYALKYLENE POLYAMINES USING METAL CATALYST

Michael E. Ford, Trexlertown, and Thomas A. Johnson, Orefield, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

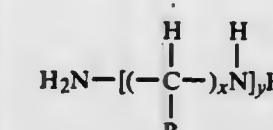
Filed Jan. 5, 1981, Ser. No. 222,817

Int. Cl.³ C07C 85/06; C07D 241/04, 403/12

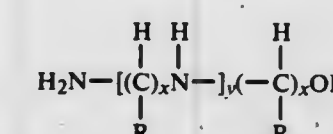
U.S. Cl. 564-479

8 Claims

1. A process for preparing a noncyclic polyalkylene polyamine comprising the steps of: contacting an alkyleneamine compound having two primary amino groups of the formula:



wherein R is hydrogen or a lower alkyl, X is a number from 2 to about 6, and Y is a number from 1 to about 4 with a hydroxy compound having primary or secondary hydroxyl groups of the general formula:



wherein R is hydrogen or a lower alkyl, X is a number from 2 to about 6; and Y is a number from 0 to about 3; said contacting being performed in the presence of a catalytically effective amount of a compound containing bismuth, arsenic or antimony at temperatures sufficient to effect reaction between said alkyleneamine and said hydroxy compound under a pressure sufficient to maintain the reaction mixture essentially in liquid phase.

4,362,887

SYNERGISTIC ANTIOXIDANT MIXTURES

Richard H. Kline, Silver Lake, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

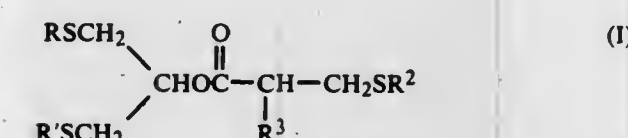
Filed Apr. 10, 1981, Ser. No. 252,778

Int. Cl.³ C07C 149/40, 149/26, 149/20

U.S. Cl. 560-152

5 Claims

1. A compound of the formula:



wherein R, R^1 and R^2 are alkyl radicals having 1 to 20 carbon atoms, phenyl radicals which may be substituted by 1 or 2 alkyl groups having 1 to 8 carbon atoms, aralkyl radicals having 7 to 12 carbon atoms or cycloalkyl radicals having 5 to 12 carbon

atoms and R^3 is hydrogen or an alkyl radical having 1 to 4 carbon atoms.

4,362,888

ADDUCTS OF

1,4-BIS[3-METHACROYL-2-HYDROXYPROPOXY]- METHYL CYCLOHEXANE AND DERIVATIVES

THEREOF WITH ISOCYANATES

Jan A. Orlowski, Altadena; David V. Butler, West Covina, and Patrick D. Kidd, San Dimas, all of Calif., assignors to Scientific Pharmaceuticals, Inc., Duarte, Calif.

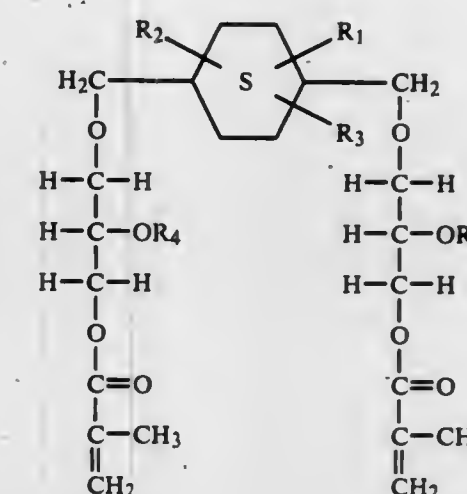
Filed Sep. 15, 1980, Ser. No. 187,407

Int. Cl.³ C07C 125/06

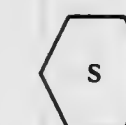
U.S. Cl. 560-162

12 Claims

1. A dimethacrylate of the following chemical structure:

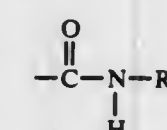


where

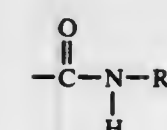


is a saturated, 6 membered, monocyclic, hydrocarbyl ring system;

R_1 , R_2 and R_3 are the same or different and are hydrogen or alkyl or alkoxy groups having 1 to 12 carbon atoms; and R_4 and R_5 are the same or different and are hydrogen or groups of the formula:



where R_6 is an aliphatic, aromatic or cycloaliphatic group having 1 to 14 carbon atoms, provided that at least one of the groups R_4 and R_5 is a group of the formula:



4,362,889

USE OF A POLYFUNCTIONAL SURFACE-ACTIVE
COMONOMER AND OTHER AGENTS TO IMPROVE
ADHESION BETWEEN A RESIN OR COMPOSITE
MATERIAL AND A SUBSTRATE

Rafael L. Bowen, Gaithersburg, Md., assignor to The American
Dental Association Health Foundation, Washington, D.C.

Division of Ser. No. 10,803, Feb. 9, 1979, Pat. No. 4,251,565.

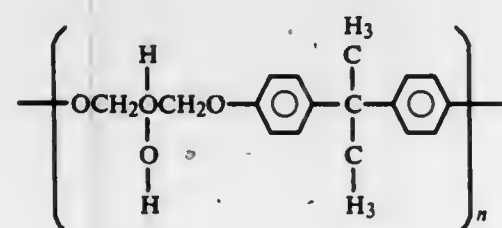
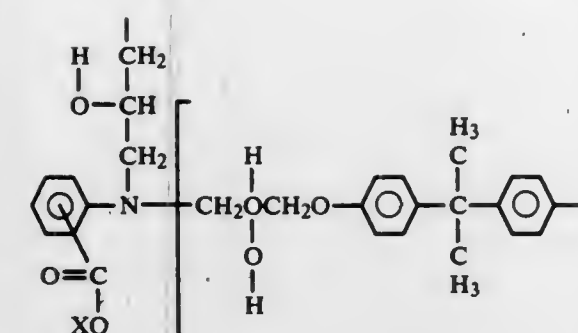
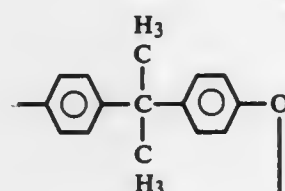
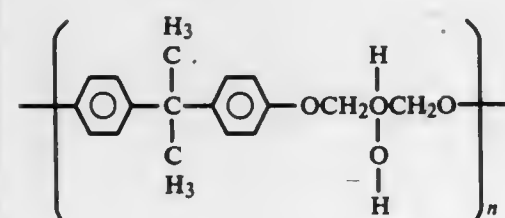
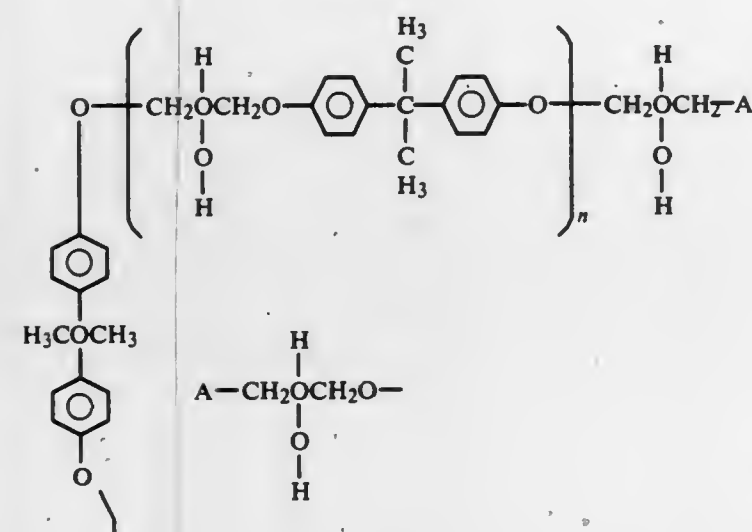
This application Oct. 27, 1980, Ser. No. 200,989

Int. Cl.³ C07C 69/587

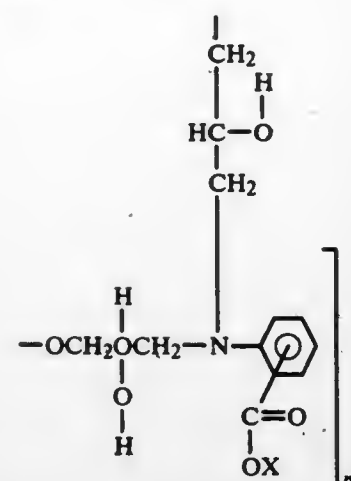
U.S. Cl. 560—221

17 Claims

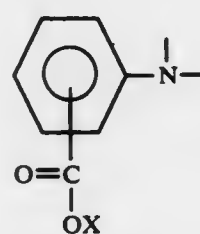
1. A compound, useful as an adhesive between a resin or composite material and a solid surface capable of binding polyvalent cations, of the formula



-continued



where A is a monomer polymerizable by free radical polymerization, X is a univalent metal cation, m is an integer which may vary between 0 and 10, n is an integer which may vary between 0 and 2, and the aminobenzoate structure



represents ortho-, meta- or para-aminobenzoate.

4,362,890

PROCESS FOR THE PREPARATION OF UNSATURATED
QUATERNARY AMMONIUM SALTS

Iwao Ohshima, and Yasutaka Nakashima, both of Yokohama,
Japan, assignors to Nitto Chemical Industry Co. Ltd. and
Mitsubishi Rayon Co., Ltd., both of Tokyo, Japan

Filed Dec. 5, 1980, Ser. No. 213,331

Claims priority, application Japan, Dec. 27, 1979, 54-169314

Int. Cl.³ C07C 67/52

U.S. Cl. 560—222

11 Claims

1. A process for preparing an unsaturated quaternary ammonium salt represented by the general formula (I):



where R₁ is —H or —CH₃, R₂ and R₃ are —CH₃ or —C₂H₅, R₄ is —CH₃ or —C₂H₅, and X is Cl, Br, or I, by reacting an unsaturated tertiary amine represented by the general formula (II):



wherein R₁, R₂ and R₃ are as defined above, with a halogenated hydrocarbon in an aqueous medium, characterized in that:

(i) the reaction is carried out at a concentration of the unsaturated tertiary amine in the aqueous medium of 78 to 91% by weight to produce the unsaturated quaternary ammonium salt at a concentration in the aqueous medium of 82–93% by weight, and the reaction temperature is elevated so that it reaches 65° to 90° C. at the time of completion of the reaction and so controlled that no precipitation of the crystals of the unsaturated quaternary ammonium salt occurs and

(ii) the reaction product solution obtained is cooled by attaching it, either immediately or after mixing with the reaction product solution which has already been cooled to a temperature lower than that of said reaction product solution, in the form of a thin film onto a cooled glass-

lined or chromium-plated solid surface to precipitate the unsaturated quaternary ammonium salt crystals to form the desired slurry.

4,362,891

ALKANOIC ACID DERIVATIVES

Alfredo Guerrato, and Michele Perchinunno, both of Verona,
Italy, assignors to Glaxo Group Limited, London, England

Filed Jun. 17, 1980, Ser. No. 160,426

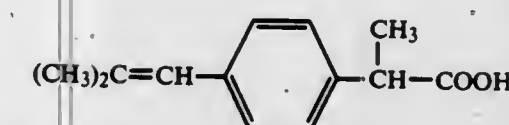
Claims priority, application United Kingdom, Jun. 18, 1979,
7921083

Int. Cl.³ C07C 63/64, 69/76

U.S. Cl. 562—495

12 Claims

1. 2-(4-Dimethylvinylphenyl)propionic acid of formula (II):



and physiologically acceptable salts thereof selected from the group consisting of alkali metal salts, alkaline earth metal salts, lysine, arginine and N-methyl-glucamine salts, and physiologically acceptable esters selected from the group consisting of C₁₋₄ alkyl esters and C₂₋₅ alkanoyloxy methyl esters.

4,362,892

HYPOLIPIDAEMIC COMPOUNDS

Richard M. Hindley, Reigate, and Keith H. Baggaley, Redhill,
both of England, assignors to Beecham Group Limited, En-
gland

Division of Ser. No. 763,563, Jan. 28, 1977, abandoned. This
application Dec. 12, 1977, Ser. No. 859,379

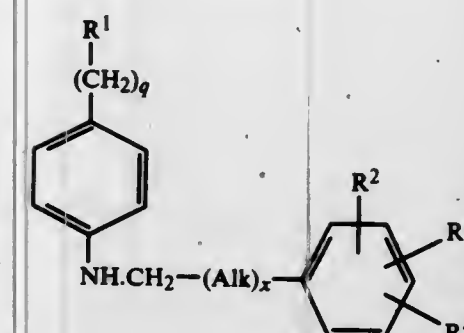
Claims priority, application United Kingdom, Feb. 11, 1976,
5287/76

Int. Cl.³ C07C 87/28, 91/00

U.S. Cl. 564—374

2 Claims

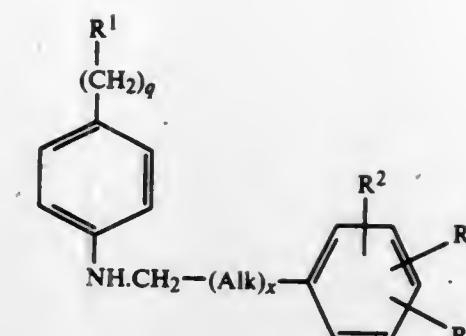
1. A compound of the formula:



wherein

R¹ is C₁₋₁₀ hydroxyalkyl;
q is zero or an integer from 1–12;
Alk is a straight or branched chain alkylene group; x is zero or one;
R² and R³ are the same or different and each is hydrogen, halogen, C₁₋₈ alkyl or C₁₋₈ alkoxy; and R⁴ is halogen in the 4-position.

2. A compound of the formula:



wherein

R¹ is C₁₋₁₀ hydroxyalkyl;
q is zero or an integer from 1–12;
Alk is a straight or branched chain alkylene group; x is zero or one;
R² and R³ are the same or different and each is hydrogen, halogen, C₁₋₈ alkyl or C₁₋₈ alkoxy; and R⁴ is chlorine in the 4-position.

4,362,893

PREPARATION OF C-NITROSODIARYLAMINES FROM
DIARYLAMINES

Paul R. Kurek, Schaumburg, Ill., assignor to UOP Inc., Des
Plaines, Ill.

Continuation-in-part of Ser. No. 112,761, Jan. 17, 1980,
abandoned. This application Jun. 3, 1981, Ser. No. 270,037

Int. Cl.³ C07C 85/145, 85/18, 85/20

U.S. Cl. 564—410

11 Claims

1. A single stage process for the preparation of a C-nitrosodiaryllamine from its diaryllamine comprising adding from about 2 to about 6 molar proportions of a solution of a mineral acid in an anhydrous alcohol below the surface of a stirred mixture of 1 molar proportion of the diaryllamine and an excess of a nitrite ion source in an organic liquid containing from about 0.2 to about 18 grams of water per mole of the diaryllamine at a temperature less than about 60° C., and recovering said C-nitrosodiaryllamine.

4,362,894

POLY-(2-AMINOALKYL)POLYAMINES

Edward W. Kluger, Pauline, S.C., assignor to Milliken Research
Corporation, Spartanburg, S.C.

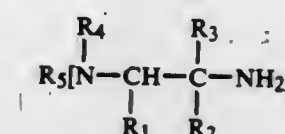
Filed May 4, 1981, Ser. No. 260,148

Int. Cl.³ C07C 87/20; C08G 59/50

U.S. Cl. 564—512

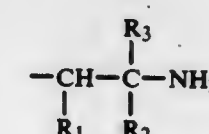
9 Claims

1. Poly-(2'-aminoalkyl)polyamine compounds of the formula:



wherein:

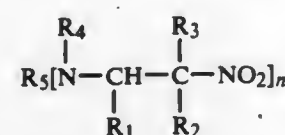
n is an integer of from 3 to about 12;
R₁ is selected from H and an alkyl group containing from 1 to about 10 carbon atoms;
R₂ and R₃ are each independently selected from H and a lower alkyl group containing from 1 to about 6 carbon atoms;
R₄ is selected from H and



and

R₅ is an alkyl group containing from about 6 to about 25 carbon atoms.

6. Poly-(-2-nitroalkyl)polyamine compounds of the formula



wherein:

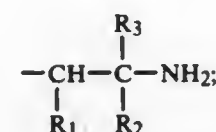
n is an integer of from 3 to about 12;

R₁ is selected from H and an alkyl group containing from 1 to about 10 carbon atoms;

R₂ and R₃ are each independently selected from H and a

lower alkyl group containing from 1 to about 6 carbon atoms;

R₄ is selected from H and



and

R₅ is selected from an alkyl group containing from about 6 to about 25 carbon atoms.

ELECTRICAL

4,362,895

ULTRAVIOLET ABSORBING COPOLYMERS

Amitava Gupta, Pasadena, and Andre H. Yavrouian, La Crescenta, both of Calif., assignors to California Institute of Technology, Pasadena, Calif.

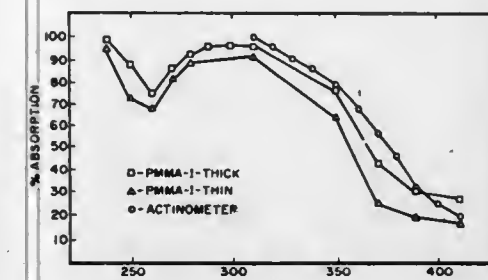
Division of Ser. No. 126,580, Mar. 3, 1980, Pat. No. 4,310,650.

This application Sep. 21, 1981, Ser. No. 303,969

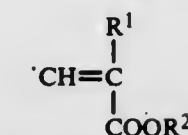
Int. Cl.³ H01L 31/04; B32B 27/30; C08F 216/02

U.S. Cl. 136—256

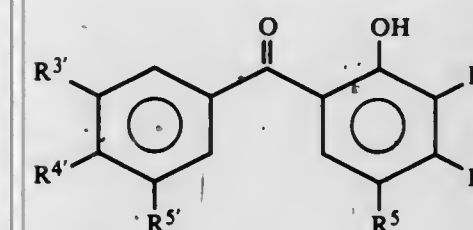
6 Claims



1. A coated article comprising a photolabile substrate containing a coating of an addition polymerized copolymer of a monomer mixture comprising:
an acrylic ester of the formula:



where R¹ is hydrogen, alkyl of 1 to 6 carbon atoms and R² is alkyl of 1 to 6 carbon atoms; and
0.1 to 5% of hydroxy-benzophenone of the formula



where R³, R⁴, R⁵, R^{3'}, R^{4'}, R^{5'} are individually selected from H, OR⁶ or Z where R⁶ is methyl, ethyl or propyl and Z is —CH₂—CH=CH₂ where m is 1 or 2 and at least one but no more than two of R³, R⁴, R⁵, R^{3'}, R^{4'} or R^{5'} are Z.

2. An article according to claim 1 in which the coating has a thickness from 1 mm to 1 cm.

4,362,896

POLYCRYSTALLINE PHOTOVOLTAIC CELL

Vijay P. Singh, El Paso, Tex., assignor to Photon Power, Inc., El Paso, Tex.

Filed Oct. 28, 1980, Ser. No. 201,588

Int. Cl.³ H01L 31/06

U.S. Cl. 136—258

15 Claims

1. A photovoltaic cell formed in a backwall configuration on a transparent vitreous substrate and over a transparent electrically conductive film, comprising:

a crystalline film containing cadmium and sulfur and having crystals with at least one dimension greater than 0.5 micron formed to a first thickness in the range of 1–6 microns, and

a film of Cu₂S forming a substantially planar heterojunction with said crystalline film containing cadmium and sulfur and having a thickness in the range of 0.5–1.0 microns, said first thickness being effective to maintain a depletion layer formed from and adjacent said heterojunction from contacting said electrically conductive film.

4,362,897

HIGH-VOLTAGE BUSHING WITH LAYERS OF PRESHRUNK EMBOSSED INSULATING FOILS

Günther Matthäus, Spardorf; Joachim Ruffer, Erlangen, and Andreas Diller, Hallstadt, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

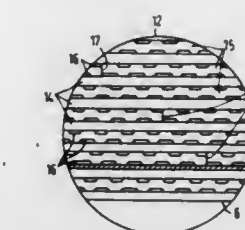
Filed Dec. 30, 1980, Ser. No. 221,256

Claims priority, application Fed. Rep. of Germany, Jan. 18, 1980, 3001779

Int. Cl.³ H01B 17/28; H01G 4/22, 4/32

U.S. Cl. 174—31 R

5 Claims



1. A high voltage insulator bushing of the type having at least one conductor part at a high voltage with respect to at least a second conductor part at a reference potential, the insulator bushing further having an insulator body disposed between said first and second conductor parts which is formed of at least one wound, smooth insulating foil with electrically conductive potential control inserts disposed within: preselected windings of the insulating foil in the insulator body, the insulator body being impregnated with a liquid insulating medium, the insulator bushing further comprising as at least one layer of the insulator body, an embossed insulating foil formed of a polypropylene material which is embossed with between 300 and 700 dimples per square centimeter, said polypropylene material being of the type which shrinks above a predetermined temperature, said embossed insulating foil having a predetermined smooth thickness in an unstretched state prior to embossing, and a predetermined overall embossed thickness after embossing, said embossed foil having been entirely subjected to a thermal shrinking treatment after embossing and prior to being wound into said insulator body so as to have an overall thickness after said thermal shrinking treatment which is at least 20 percent larger than said predetermined smooth thickness.

4,362,898

FLUSH MOUNTED LOW IMPEDANCE GROUNDING CONE

Bernard Zandle, Adelphi, and Marcella Petree, Silver Spring, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 9, 1980, Ser. No. 214,545

Int. Cl.³ H05K 9/00

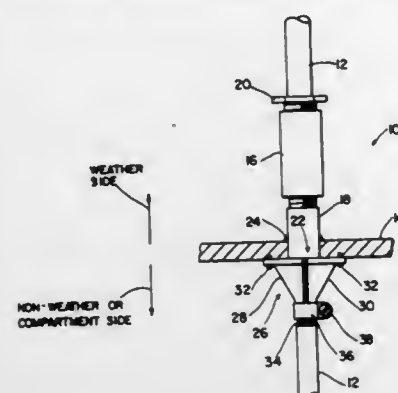
U.S. Cl. 174—35 R

4 Claims

1. A grounding device for forming a grounding connection between a ship's hull or bulkhead and a coaxial cable extending from the weather or external side of the bulkhead through an opening therein to the non-weather or compartment side thereof, the grounding device comprising:

a metallic cone having a slant height and being split or formed into two halves lengthwise, each half of the metallic cone including a flanged top portion, a flared bottom portion and a slant body portion integral and intermediate each of the flanged top and flared bottom portions; means for flush mounting and securing the flanged top por-

tion of each half of the cone to the non-weather side of the ship's hull about a bared shield of the coaxial cable and overlying the opening; and means for gripping the flared bottom portion of each half of the metallic cone to the bared shield, thereby forming a substantially continuous 360° electrical grounding connection between the ship's hull and the bared shield, the



slant height from the top and bottom portions of each half of the cone being configured short enough, for a particular dimensioned coaxial cable, to present a low inductance and overall low impedance path for currents induced by an EMP or any electromagnetic interference source having a similar frequency range in an external length of the coaxial cable.

4,362,899

PRINTED CIRCUIT BOARD

Paul L. Borrell, Cranleigh, England, assignor to University College London, London, England

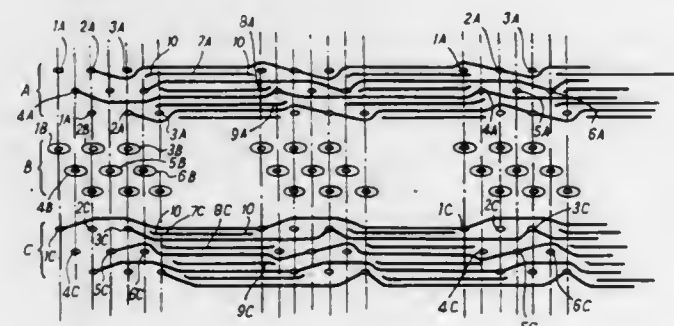
Filed Oct. 2, 1980, Ser. No. 193,109

Claims priority, application United Kingdom, Oct. 5, 1979, 7934603

Int. Cl.³ H01B 11/08

U.S. Cl. 174-36

3 Claims



1. A multilayer printed circuit board comprising: at least two layers each having an array of linear parallel conductor tracks; at least one layer having a conductor area forming a ground plane, said ground plane layer being disposed between said two conductor track layers; a plurality of terminal arrays extending generally transversely to the longitudinal axes of said conductor tracks, said terminal arrays being spaced apart in the direction of the linear axes of said conductor tracks; electrically conductive means extending through the multiple layers of the printed circuit board for each terminal of each array, whereby each individual terminal of each array is electrically connected to a corresponding individual terminal of all other arrays, and all the terminals of each array are individually electrically connected to corresponding ones of the linear conductor tracks; each conductor track layer further having a plurality of arrays of linear parallel conductive shielding tracks, each shielding track being arranged between two adjacent

conductor tracks and between two adjacent arrays of said terminals such that the opposite ends of each shielding track terminate adjacent terminal areas of said conductor tracks associated with respective ones of two adjacent terminal arrays; and

electrically conductive means for connecting each of the shielding tracks of said two adjacent conductor track layers in common to the intermediate ground plane, said electrically conductive means extending between the respective layers of the circuit board in the regions of the two opposite ends of the shielding tracks.

4,362,900

AIR CYLINDER-TYPE VIBRATION ABSORBER FOR SUSPENDED CABLES AND SUSPENDED CABLE IN COMBINATION THEREWITH

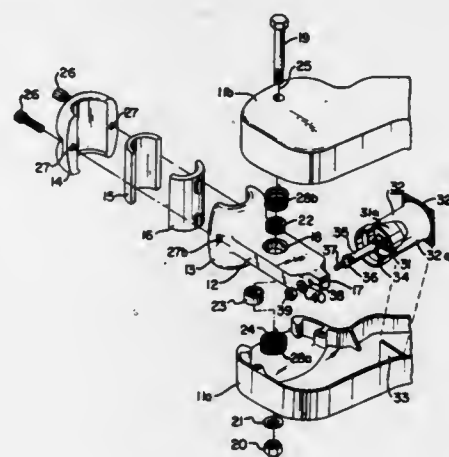
Olaf Nigol, Etobicoke, and Herbert J. Houston, Oakville, both of Canada, assignors to Slater Steel Industries Limited, Hamilton, Canada

Continuation-in-part of Ser. No. 249,488, Mar. 31, 1981, abandoned. This application Sep. 10, 1981, Ser. No. 300,752

Int. Cl.³ H02G 7/14, 7/12

U.S. Cl. 174-42

11 Claims



1. An air cylinder-type vibration absorber for suspended cables, comprising:

a frame having two opposed portions, at least one of said portions having an air cylinder support wall;

a shaft extending between said portions;

a clamp body having a first portion for engaging a cable in a predetermined position and a second portion including (i) a fulcrum part mounted to said shaft for rotation of said clamp body about an axis generally parallel to a predetermined position of a cable, and (ii) an end part adjacent said fulcrum part on the side thereof remote from said first portion;

an air cylinder having an orifice and coupled between said end part of said clamp body and said wall for forcing air through said orifice to produce viscous frictional losses in response to rotational movement of said clamp body about said axis; and

resilient means coaxial with said shaft for restoring said clamp body to an initial angular orientation thereof with respect to said frame,

said orifice being adjustable to vary said viscous frictional losses, said losses substantially exceeding any hysteresis losses within said vibration absorber, so that said viscous frictional losses provide dissipative damping for both a cable and said resilient means.

4,362,901
BELLOWS-TYPE VIBRATION ABSORBER FOR
SUSPENDED CABLES AND SUSPENDED CABLE IN
COMBINATION THEREWITH

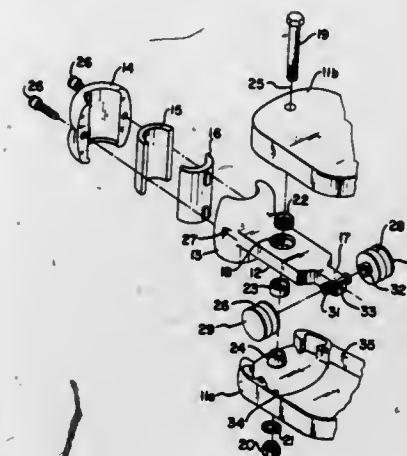
Olaf Nigol, Etobicoke, and Herbert J. Houston, Oakville, both of Canada, assignors to Slater Steel Industries Limited, Hamilton, Canada

Continuation-in-part of Ser. No. 249,425, Mar. 31, 1981, abandoned. This application Sep. 10, 1981, Ser. No. 300,926

Int. Cl.³ H02G 7/14, 7/12

U.S. Cl. 174-42

12 Claims



1. A bellows-type vibration absorber for suspended cables comprising:

a frame having two opposed portions, said portions cooperating to provide first and second spaced parallel side walls;

a shaft extending between said portions;

a clamp body having a first portion for engaging a cable in a predetermined position and a second portion including (i) a fulcrum part rotatably mounted to said shaft for rotation of said clamp body about an axis generally parallel to a predetermined position of a cable, and (ii) an end part adjacent said fulcrum part on the side thereof remote from said first portion;

orifice means;

a first bellows coupled between said end part of said clamp body and said first side wall for forcing air through said orifice means to produce viscous frictional losses in response to rotational movement of said clamp body about said axis;

a second bellows coupled between said end part of said clamp body and said second side wall for forcing air through said orifice means to produce viscous frictional losses in response to rotational movement of said clamp body about said axis;

each of said bellows having a resilient part for restoring said clamp body to an initial angular orientation thereof with respect to said frame; and

means for adjusting said orifice means to vary said viscous frictional losses, said losses substantially exceeding any hysteresis losses within said vibration absorber, so that said viscous frictional losses provide dissipative damping for both a cable and said resilient parts of said bellows.

4,362,902

CERAMIC CHIP CARRIER

Dimitry G. Grabbe, Lisbon Falls, Me., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Mar. 27, 1981, Ser. No. 248,604

Int. Cl.³ H01L 23/48; H05K 5/02

U.S. Cl. 174-52 FP

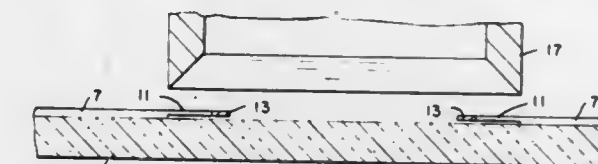
4 Claims

1. A ceramic chip carrier which comprises:

(a) a ceramic substrate,

(b) a lead frame bonded directly to said ceramic substrate, said lead frame having a copper surface and including a

plurality of leads extending from the edge of said substrate toward a center region of said substrate, and (c) a rim connecting together the ends of said leads extending toward the center of said substrate, said rim being



coplanar with said lead frame and being disposed in non-contacting relation with said substrate, said rim having a thickness which is less than the thickness of said lead frame.

4,362,903

ELECTRICAL CONDUCTOR INTERCONNECT PROVIDING SOLDERABLE CONNECTIONS TO HARD-TO-CONTACT SUBSTRATES, SUCH AS LIQUID CRYSTAL CELLS

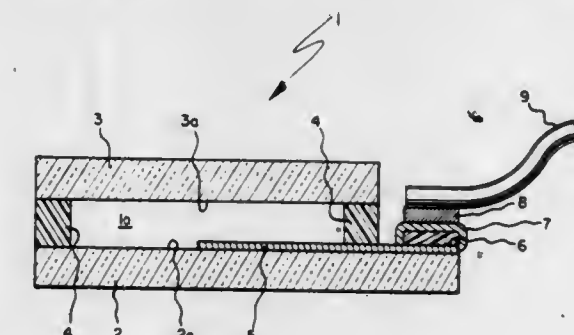
Charles W. Eichelberger, Schenectady; Wesley K. Waldron, Scotia, and Robert J. Wojnarowski, Clifton Park, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 29, 1980, Ser. No. 220,331

Int. Cl.³ B23K 1/20; G02F 1/13

U.S. Cl. 174-94 R

35 Claims



1. An electrical conductor interconnect, comprising: a first conductor; a formation of a cured polymer containing a finely divided first metallic composition and a second metal, said formation being positioned in electrical contact to said first conductor; and a contiguous layer of said second metal, wherein said second metal is below the metal of said first metallic composition in the activity series and wherein both said formation and said contiguous layer are electrically conductive and in electrical contact.

4,362,904

PRINTED CIRCUIT BOARD COMPONENT MOUNTING SUPPORT AND SPACER

Richard E. Schneider, Amherst, and Stephen L. Majesky, Wellington, both of Ohio, assignors to Reliance Electric Company, Cleveland, Ohio

Filed Jan. 18, 1982, Ser. No. 340,480

Int. Cl.³ H05K 7/00

U.S. Cl. 174-138 G

8 Claims

1. A printed circuit board component mounting support and spacer comprising:

(a) a base with an essentially rectangular configuration having two long edges and two short edges;

(b) at least four essentially rectangular feet extending downwards from said base;

(c) two essentially rectangular sides each extending in a direction substantially upwards from the base, each of said sides being associated with a respective one of said long edges; and

said turn-off pressure receiving surface, said finger button, and said pivot being positioned such that as projected on said contacting element the finger button and the turn-off pressure receiving surface lie on the same side of the pivot.

7. A gang of serially adjacent switches for switching household appliances and the like, each switch comprising in combination

- a supporting case of insulating material,
- a contacting post affixed to said case and providing means for connecting to electrical circuitry and a contact area for making contact,
- a contacting element of generally elongated shape attached to said case and providing means near a first end for connecting to electrical circuitry and contacting area for making contact near its second end, said element having a flexing region near its first end permitting said contacting area to move into contact with the contact area of said post or away therefrom,
- a biasing spring attached to said contacting element and directly or indirectly to said case and arranged to bias the position of said contacting area into contact with said contact area when said contacting element is in a first portion of its range of rotation around its flexing region and to bias said contacting area away from said contact area when said contacting element is in a second portion of its range,

an actuating structure of non-conductive material having a pivot portion, a finger button for receiving pressure from a finger tip, a turn-on bearing portion for driving, when pressure from a finger is applied to said finger button, said contacting element around its pivot from said second portion of its range to said first portion of its range, a turn-off pressure surface for receiving a pressure to open said contact area and said contacting area, a turn-off bearing portion for driving said element from said first portion of its range to said second portion, said pivot portion being positioned adjacent to the flexing region of said contacting element, said turn-on and turn-off bearing portions being positioned near said contacting area, and said finger button being situated intermediate between said pivot and said contacting area,

including between adjacent switches of said gang a slide element moving in a raceway of said case and having surfaces bearing on said release pressure areas of actuating structures of adjacent switches of said gang and shaped and arranged so that the movement of one of said actuating structures to close its associated contact forces a slide element against the release pressure area of the actuating structure of any closed switch of said gang causing it to open.

10. An electrical switch for switching household appliances and the like comprising in combination

- a supporting case of insulating material,
- a contacting post affixed to said case and providing means for connecting to electrical circuitry and a contact area for making contact,
- a contacting element of generally elongated shape attached to said case and providing means near a first end for connecting to electrical circuitry and contacting area for making contact near its second end, said element having a flexing region near its first end permitting said contacting area to move into contact with the contact area of said post or away therefrom,
- a biasing spring attached to said contacting element and directly or indirectly to said case and arranged to bias the position of said contacting area into contact with said contact area when said contacting element is in a first portion of its range of rotation around its flexing region and to bias said contacting area away from said contact area when said contacting element is in a second portion of its range,
- an actuating structure of non-conductive material having a pivot portion, a finger button for receiving pressure from a finger tip, a turn-on bearing portion for driving, when pressure from a finger is applied to said finger button, said

contacting element around its pivot from said second portion of its range to said first portion of its range, a turn-off pressure surface for receiving a pressure to open said contact area and said contacting area, a turn-off bearing portion for driving said element from said first portion of its range to said second portion, said pivot portion being positioned adjacent to the flexing region of said contacting element, said turn-on and turn-off bearing portions being positioned near said contacting area, and said finger button being situated intermediate between said pivot and said contacting area,

wherein said finger button is situated in an aperture in said case and said aperture is sealed with a flexible membrane passing over said finger button to permit pressure to be applied to said finger button through said membrane while sealing the interior of said case from entry of foreign material,

wherein said membrane is resilient, returning to its upward position when not pressed, and has a transparent window above the finger tip portion of said actuating structure, and said finger button is given a distinctive color and positioned so that it touches said window and displays its distinctive color though said window when said switch is open but is spaced from said window so that its distinctive color is not displayed when said switch is closed, thus giving a visible indication of the state of the switch.

4,362,911

MEMBRANE KEYBOARD SWITCH ASSEMBLY HAVING SELECTABLE TACTILE PROPERTIES

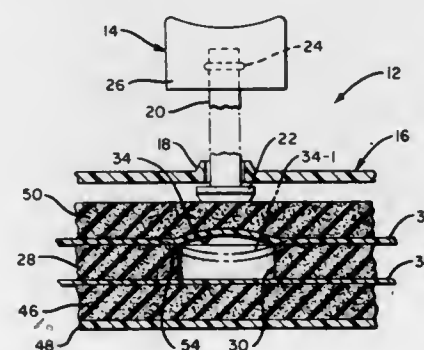
Ronald J. Sears, Middletown, and Jack R. Gross, Waynesville, both of Ohio, assignors to NCR Corporation, Dayton, Ohio

Filed Sep. 17, 1980, Ser. No. 187,904

Int. Cl.³ H01H 13/70

U.S. Cl. 200—5 A

7 Claims



1. An electrical switch array comprising:

- a layer of dielectric, resilient material having a plurality of holes arranged in a pattern therein;
 - a first, flexible, dielectric sheet having first and second sides and also having a plurality of dome-shaped areas therein with the convex sides of said dome-shaped areas being located on said second side and said dome-shaped areas being aligned with said holes in said layer so that said first side faces said layer; and
 - a second dielectric member having first and second sides with said first side facing said layer;
- said first sides of said first sheet and second member having first and second electrode means arranged, respectively, thereon for completing an electrical connection represented by a said dome-shaped area when a said dome-shaped area is moved into its associated hole to enable said first electrode means to contact said second electrode means;
- said layer of dielectric resilient material being made of flexible foam, such as urethane, and said first dielectric sheet being made of plastic material;
- each said dome-shaped area having a size to enable it to be depressed by a user's finger; and

said layer of dielectric resilient material being substantially thicker than said first dielectric sheet;

each said dome-shaped area being designed for snap action and also having a perimeter, with each said dome-shaped area having its perimeter aligned with respect to an associated said hole so as to be resiliently supported by a portion of said layer surrounding said hole.

4,362,912

SLIDER TYPE PUSH BUTTON SWITCH WITH SAFETY LOCKOUT FEATURE

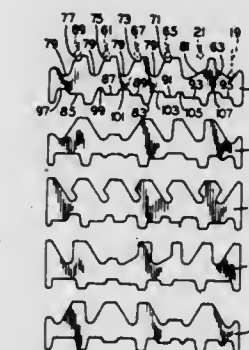
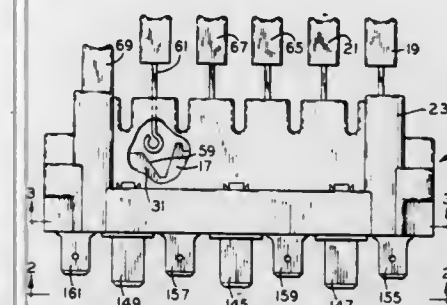
Stewart A. Woodward, Morrison, Ill., assignor to General Electric Company, Fort Wayne, Ind.

Filed Mar. 16, 1981, Ser. No. 243,859

Int. Cl.³ H01H 9/26

U.S. Cl. 200—5 B

16 Claims



10. An electrical switch adapted to control a plurality of circuits therethrough comprising a plurality of operator actuable push buttons reciprocally movable to effect the control of the circuits, said push buttons including an "off" push button operable generally upon the depression thereof to open all of the circuits, means responsive to the depression of said "off" push button for precluding direct depression of certain of the other of said push buttons, and means actuable by an operator for rendering ineffective said precluding means including one of said "off" push button and another of said push buttons.

4,362,913

COLLISION DETECTING DEVICE

Norio Kumita, Kariya; Takaaki Ori, Nagoya, and Seichi Narita, Chiryu, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Jun. 1, 1981, Ser. No. 269,254

Claims priority, application Japan, Jun. 5, 1980, 55-78249[U]

Int. Cl.³ H01H 35/10

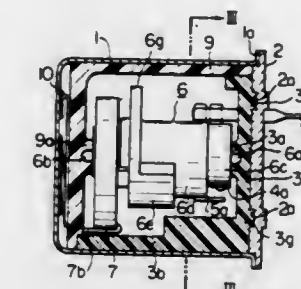
U.S. Cl. 200—61.45 R

4 Claims

- 1. A collision detecting device comprising:
- a substantially cylindrical housing having an open end;
- an end plate for closing the open end of said housing;
- a pair of terminals fixed to said end plate;
- a block disposed in said housing and having a longitudinally extending tab;
- a cylindrical lid disposed in said housing opposite said block, said cylindrical lid defining a notched portion registrable with said longitudinally extending tab;
- a wheel rotatably supported by said block and lid within said

housing and having a cylindrical surface and a cam surface;

a pair of leaf springs fixed to said block, one end of each of said leaf springs being electrically connected to a respective one of said terminals and each of the other ends of said leaf springs being urged against and slidable on said cylindrical surface and said cam surface, respectively, said other ends of said leaf springs being normally spaced away from each other;



a spiral spring disposed in said housing and connected at one end of said wheel and at the other end to said longitudinally extending tab for biasing said wheel in a direction to move said other ends of said leaf springs away from each other; and

a weight member fixed to said wheel for rotating said wheel in a direction to cause said other ends of said leaf springs to engage each other when the force produced by said weight member in the event of a collision becomes greater than the spring force of said spiral spring thereby producing an electrical signal in response to the collision.

4,362,914

ELECTRICAL SWITCH APPARATUS

Erich Adolph, Frankfurt am Main; Ünal Bayrak, Bischofsheim; Robert Prohl, Nidderau, and Walter Stecker, Heusenstamm, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

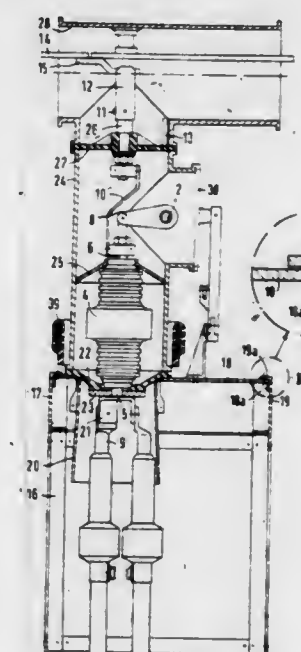
Filed Jun. 24, 1980, Ser. No. 162,433

Claims priority, application Fed. Rep. of Germany, Jul. 6, 1979, 2927466

Int. Cl.³ H01H 33/66

U.S. Cl. 200—144 B

12 Claims



1. An electrical switch apparatus comprising a substructure common to all phases; an attachment common to all phases having sidewalls and a top supported by the substructure at the top thereof, a feedthrough plate supported over an opening in the top of the attachment, a tank forming part of a metal encapsulation filled with an insulating gas supported by the feedthrough plate, at least one vacuum switching tube per phase

disposed in the tank, the vacuum switching tube including an axially stationary terminal at one end thereof, a cable termination coupled to the stationary terminal and extending into the attachment, the improvement comprising means on the top of the attachment for detachably connecting the top of the attachment to the sidewalls of the attachment.

4,362,915

ELECTRIC ARC CONFINING DEVICE

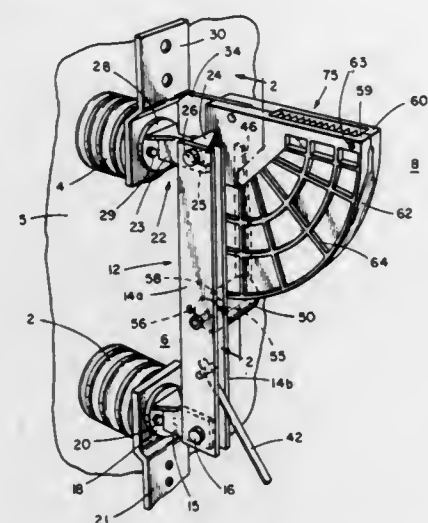
David L. Swindler, Franklin, Ohio, assignor to Square D Company, Palatine, Ill.

Continuation-in-part of Ser. No. 879,013, Feb. 17, 1978, which is a continuation of Ser. No. 684,052, May 6, 1976. This application Jul. 13, 1981, Ser. No. 282,361

Int. Cl.³ H01H 33/08

U.S. Cl. 200—144 R

9 Claims



1. An electric arc confining and extinguishing device for a high voltage load interrupter switch including a pivotable arcing blade having a contact end lying along a radial line extending from the pivot of said blade for completing a circuit to a portion of a contact member in response to the engagement of said end with said contact member portion and generating an arc between said contact end and said member in response to the pivoting of said blade to disrupt said circuit with the contact end of said arcing blade following a circumferential blade path about said axis and extending from said contact member,

the device comprising an insulating arc chute having side walls of insulating material with each wall extending from said member in closely spaced relation to a respective side of said arcing blade and said contact end in said path to form a narrow arc chamber for said member and said blade,

a closed boundary portion between said walls, said boundary portion extending from said member and spaced from said blade end and from said circumferential blade path, said chute having an open end intersecting said circumferential path and extending over a selected angle having an apex at said member for receiving said arcing blade for engagement with said contact member and movement therethrough along said circumferential path with said open end spaced intermediate said contact member and pivot axis and to which expanding arc gases flow in response to the movement of said contact end from said member to disrupt said circuit,

each of the side walls having an elongated first vortex generating groove defined by elongate end edges located between said contact member and said open end extending over an angle substantially equal to the selected angle of said open end and intersecting said circumferential path and the flow of expanding arc gases to said open end and substantially parallel to said open end for directing a first portion of said expanding arc gases in a direction intersect-

ing another portion of said expanding arc gas to impede the flow of said expanding gases.

4,362,916

MINIATURE PRECISION SNAP ACTION SWITCH HAVING OPERATING LEVER PROVIDING LARGE OVERTRAVEL

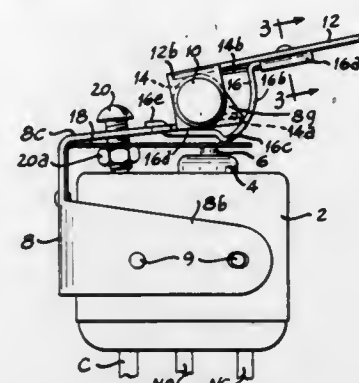
Harry B. Anderson, Bradenton, Fla., assignor to Eaton Corporation, Cleveland, Ohio

Filed Sep. 23, 1981, Ser. No. 305,005

Int. Cl.³ H01H 3/04

U.S. Cl. 200—153 T

12 Claims



1. In a miniature switch having a housing enclosing switch contacts and an actuating element extending through the housing for movement to actuate the switch contacts, the improvement comprising:

operating means providing large overtravel comprising; a mounting bracket secured to said switch housing; support means on said mounting bracket extending from one side of said housing above and beyond said actuating element; a pivot on said support means substantially over said actuating element; an operating lever secured to said pivot for pivotal movement and having a cam member extending generally between said support means and said actuating element; said cam member comprising a nib for moving said actuating element to actuate the switch contacts and a cam extending from said nib having a constant radius relative to said pivot to provide for large overtravel when said operating lever is pivoted in the turn-on-direction; and means for biasing said operating lever in the turn-off direction.

4,362,917

FERRITE HEATING APPARATUS

George Freedman, Wayland, and Robert F. Bowen, Burlington, both of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Dec. 29, 1980, Ser. No. 220,531

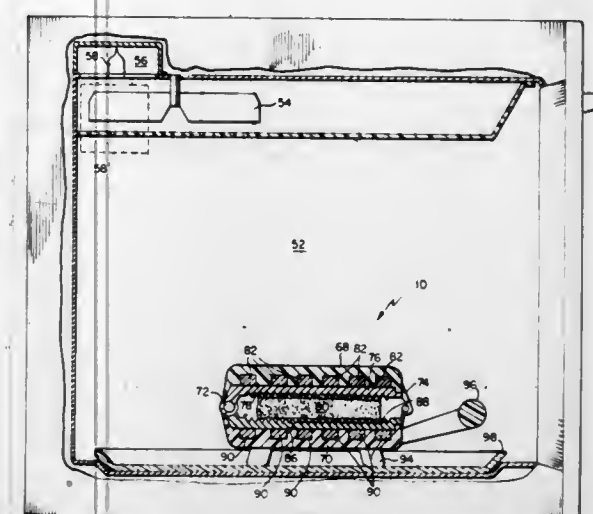
Int. Cl.³ H05B 6/80

U.S. Cl. 219—10.55 E

5 Claims

1. A microwave heating appliance comprising: a metallic container for holding a food body, said container having a substantially vertical lip, said container reflecting microwave energy incident from underneath; a microwave transparent base for supporting said container; a corrugated metallic cover pivotally movable with respect to said base, said cover being supported by said food body, said cover further having substantially vertical sides spaced from and substantially parallel to said lip of said container for forming a microwave choke to shield the interior of said container from microwave energy; and a microwave energy absorber comprising ferrite material bonded to the upper surface of said cover for absorbing

microwave energy at a substantial rate at temperatures below the Curie point region of said ferrite material while



absorbing microwave energy at a substantially lower rate at temperatures above said Curie point region.

4,362,918

RADIATION ABSORBING APPARATUS

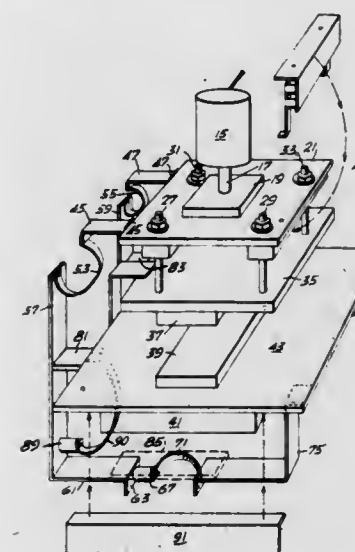
Simon Rabin, 1140 NE. 178th Ter., North Miami Beach, Fla. 33162

Filed Oct. 30, 1980, Ser. No. 202,338

Int. Cl.³ H05B 6/54

U.S. Cl. 219—10.81

22 Claims



1. In combination with radio frequency (RF) dielectric heating equipment of the type having a supporting frame, RF power source, control circuits and timers, movable and stationary tools, means to move at least one tool, RF power conductive connections among the tools and the RF power source, an improvement therein by addition thereto of apparatus for absorbing unwanted radiation comprising:

at least one movable RF conductor conductively connected to a movable tool of the RF dielectric heating equipment; a first stationary RF conductor conductively connected to a first point on a stationary tool work table; a second stationary RF conductor conductively connected to a second point on the stationary tool work table; RF conducting means to permit RF conduction between the movable conductor and the stationary conductors; a first capacitor conductively interposed between the movable conductor and stationary conductors; and a second capacitor and an inductor electrically interposed between the first stationary RF conductor and the second stationary RF conductor.

4,362,919

METHOD OF WELDING USING A COVERED TUNGSTEN ELECTRODE

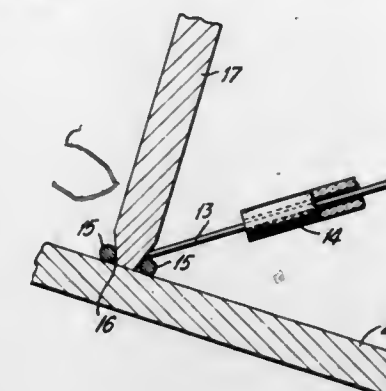
Alan H. Miller, Philadelphia, Pa., and Ira W. Reese, Yardville, N.J., assignors to Transamerica Delaval, Inc., Lawrenceville, N.J.

Filed Feb. 18, 1981, Ser. No. 235,642

Int. Cl.³ B23K 9/225

U.S. Cl. 219—137 R

7 Claims



1. A method for welding a plurality of blades of a centrifugal compressor impeller to the hub of said impeller, which comprises the steps of:

(a) preplacing a welding wire in the welding kerf formed on both sides of each impeller blade of said plurality of blades; (b) tacking the welding wire so that the wire abuts the surface of the impeller blade and the hub; (c) guiding a metal core electrode rod encased in a pre-sintered ceramic sleeve over the welding wire the bore of said sleeve being sized so as to prevent slippage on the core while allowing for sufficient clearance for the core to expand during torching and the working end portion of said core extends beyond said sleeve; and (d) torching the welding wire as the encased electrode is guided over the wire so that a uniform weld deposit is formed, thereby welding said impeller blade to said hub.

4,362,920

DOUBLE POINT RESISTANCE WELDING MACHINE

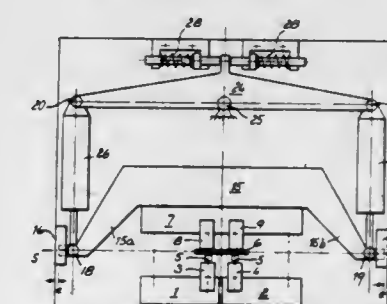
Hans Gött; Gerhard Ritter; Klaus Ritter, and Josef Ritter, all of Graz, Austria, assignors to EVG Entwicklungs- u. Verwertungs-Gesellschaft m.b.H., Graz, Austria

Filed Apr. 2, 1981, Ser. No. 250,232

Int. Cl.³ B23K 11/32

U.S. Cl. 219—56

4 Claims



1. In a double point welding machine with a current bridge arrangement having, on one side of a welding plane, at least one pair of active electrodes which are spaced from one another to provide the double point welding interval and are adapted to be connected to a secondary side of a welding transformer; a current bridge carrying passive counter-electrodes for operative association with said active electrodes whereby welding pressure may be applied to a workpiece in

said welding plane between said active electrodes and said passive counter-electrodes; and means pivotally mounting said current bridge; an improved current bridge arrangement comprising a pressure beam supporting said current bridge; end portions of said pressure beam projecting substantially into said welding plane; guides running normally to said welding plane and cooperating with said pressure beam end portions for relative sliding thereof and tilting thereof in the plane of said pressure beam; two pressure members each having first and second ends; means pivotally connecting said first end of each of said pressure members to a respective one of said pressure beam end portions adjacent to said welding plane; a second beam extending substantially parallel with the line joining said pivotal connections between said pressure member first ends and said pressure beam end portions, and having first and second ends; means pivotally supporting said second beam at the centre thereof; and means pivotally connecting said second end of each of said pressure members to a respective one of said first and second ends of said second beam.

4,362,921

WELDING OF FINS TO TUBING

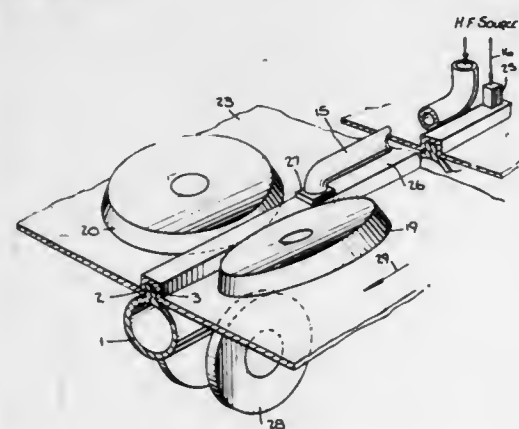
Wallace C. Rudd, New Canaan, Conn., assignor to Thermatool Corp., Stamford, Conn.

Filed Nov. 17, 1980, Ser. No. 207,467

Int. Cl.³ B23K 31/06

U.S. Cl. 219—61.2

11 Claims



1. A method of manufacturing a panel element comprising fluid-tight, metal tubing secured along its length to metal sheet or sheets by metal which has been heated and cooled, said metal sheet or sheets being long and narrow, having the length thereof extending in the length direction of the tubing, having a width larger than the cross-sectional size of the tubing, and having a thickness which is small relative to the cross-sectional size of the tubing, said tubing being secured to the sheet or sheets intermediate lateral side edges of the sheet or sheets, said method comprising:

forming said tubing with a pair of abutting lips which extend radially outwardly from the tubing;
pressing the metal sheet or sheets into contact with said lips with lateral side edges of the metal sheet or sheets spaced from the tubing;
by heating means, heating the metal of both said lips and said sheet or sheets to welding temperature at least where they are in contact;
maintaining the pressing of the sheet or sheets against the lips when the metal thereof reaches welding temperature to cause the lips to become welded together and to cause the sheet or sheets to become welded to the lips; and
producing relative movement between the heating means, on the one hand, and the tubing and the sheet or sheets, on the other hand, in a direction longitudinally of the tubing and during the heating of the contacting metal of the tubing and the sheet or sheets to provide a substantially continuous weld between the tubing and the sheet or sheets which extends longitudinally of the tubing.

4,362,922

AIR MAKE-UP UNIT

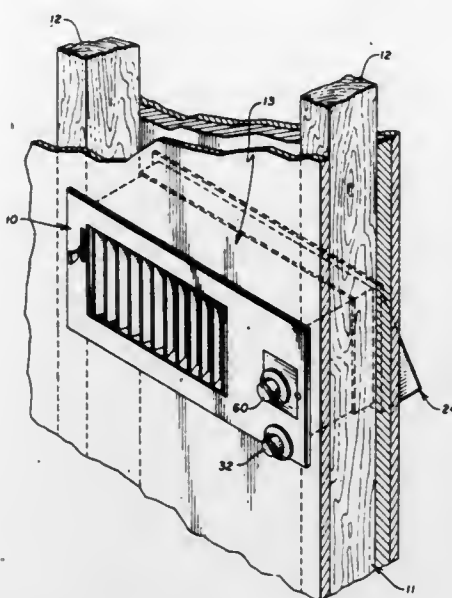
Leroy E. Anderson, Detroit Lakes, Minn., assignor to Standex International Corporation, Salem, N.H.

Filed Nov. 26, 1980, Ser. No. 210,269

Int. Cl.³ F24F 7/013; F24H 3/04

U.S. Cl. 219—369

22 Claims



1. An air make-up system comprising:
 - (a) a frame building having a standard exterior wall with vertical studs having standard horizontal distances therebetween, said wall being of standard or greater thickness;
 - (b) an elongated metal casing mounted in an opening in said exterior wall between a pair of said studs and having a depth no greater than the thickness of said wall;
 - (c) an air intake housing having a tubular forward portion surrounding said casing and extending inwardly in close sliding telescoping relation and having an imperforate shielding wall outside said exterior wall and extending downwardly and outwardly from the upper portions of said housing;
 - (d) said housing including a generally horizontal screen member extending inwardly thereacross from the lower portions of said imperforate wall toward said tubular portion of said housing to admit outside air into the interior thereof;
 - (e) side, top and bottom wall structure within said casing defining an interior air chamber within said casing and open at the front and rear thereof;
 - (f) a rotary blower mounted within said air chamber and having an air-intake in communication with the interior of said housing and having a tangential discharge throat extending horizontally and inwardly therefrom;
 - (g) at least one electrical heating element mounted within said blower throat to warm the air driven thereacross by said blower;
 - (h) a vertical wall extending longitudinally of said casing and across the interior of said chamber and around said blower throat and sealing the interior of said housing from the interior of said building except for through said blower throat;
 - (i) insulation within said vertical wall completely surrounding and insulating the portions of said throat in which said heating element is mounted and insulating the interior of said housing and the outside air from the interior of said building;
 - (j) insulation within said side, top and bottom wall structure defining said chamber and completely insulating the outer surfaces of said walls and their surrounding wall structure from the heat generated by said heating element;
 - (k) a controllable electric motor mounted within said chamber and connected to said rotary blower in driving relation for driving the same and thereby causing a positive air pressure to be built up within said frame building; and

(l) means for energizing said heating element as desired.

4,362,923

RICE COOKER

Terutaka Aoshima, Toyohashi, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

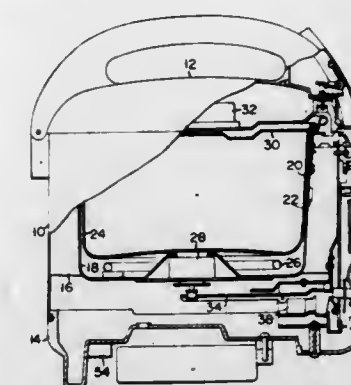
Filed Mar. 20, 1981, Ser. No. 245,975

Claims priority, application Japan, Mar. 27, 1980, 55-41198[U]

Int. Cl.³ F27D 11/02

U.S. Cl. 219—441

4 Claims



1. An electric rice cooker comprising:
 - a pot for containing rice and water;
 - a lid removably covering the top of said pot;
 - means for heating said pot;
 - thermally insulating frame means for supporting and enclosing said pot and said heating means;
 - means for detecting temperature of said pot to produce a detecting signal when the temperature of said pot reaches a predetermined value;
 - timer means for producing a first timing signal during a first predetermined period from the start of a rice cooking operation and then a second timing signal during a second predetermined period; and
 - drive means which responds to said first timing signal to drive said heater so as to provide a rated caloric value, to drive said heating means to provide a caloric value smaller than said rated caloric value in response to said second timing signal, and subsequently to drive said heating means so as to provide the rated caloric value until said detecting means produces the detecting signal.

4,362,924

TEMPERATURE ACHIEVEMENT CONTROLLER

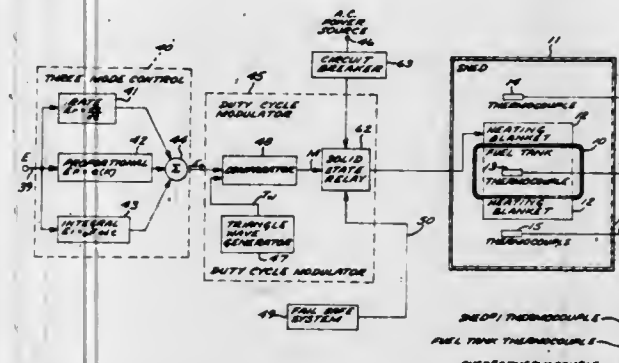
Gene F. Story, Westminster, and John T. La Belle, Long Beach, both of Calif., assignors to Automotive Environmental Systems, Inc., Westminster, Calif.

Filed Feb. 15, 1980, Ser. No. 121,817

Int. Cl.³ H05B 1/02

U.S. Cl. 219—497

14 Claims



1. A temperature achievement controller for controlling the temperature of a device which is heated by a heating unit in

accordance with a predetermined temperature versus time curve, said controller comprising:

temperature sensing means for producing an achieved temperature signal which corresponds to an achieved temperature of the device;
generating means for generating a desired temperature signal which varies with time in accordance with said predetermined temperature versus time curve;
initiating means responsive to said achieved temperature signal for causing said generating means to commence generating said desired temperature signal when said achieved temperature reaches a predetermined value;
error detecting means for producing an error signal proportional to the difference between said achieved temperature signal and said desired temperature signal;
differentiating means for generating a first signal proportional to the derivative with respect to time of said error signal;
integrating means for generating a second signal proportional to the integral with respect to time of said error signal;
proportioning means for generating a third signal proportional to said error signal; and
summing means for generating a control signal which comprises the sum of said first, second and third signals;
duty cycle modulating means for switching power supplied to the heating unit on and off with the ratio of the power on time period to the power off time period being proportional to said control signal;
whereby when said achieved temperature is less than said desired temperature, said power on/power off time ratio increases and when said achieved temperature is greater than said desired temperature said ratio decreases thereby maintaining said achieved temperature substantially at said desired temperature level.

4,362,925

VOTING MACHINE

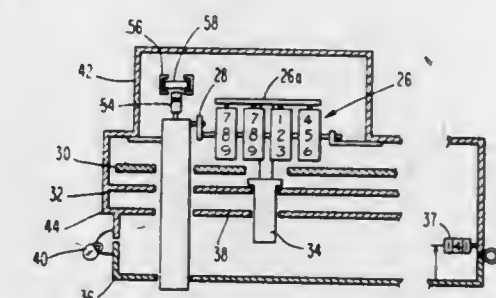
Michael D. Paloian, Babylon, and Peter D. George, Mount Sinai, both of N.Y., assignors to Ransom F. Shoup & Company, Inc., Bryn Mawr, Pa.

Filed Sep. 3, 1981, Ser. No. 299,015

Int. Cl.³ G07C 13/00

U.S. Cl. 235—51

3 Claims



1. A voting machine of the type in which first locking means are provided to prevent resetting of counter means for counting the number of votes cast for a candidate except by authorized persons, additional counter means being provided to count the number of times said locking means are opened to permit said resetting, whereby security of said machine is enhanced.

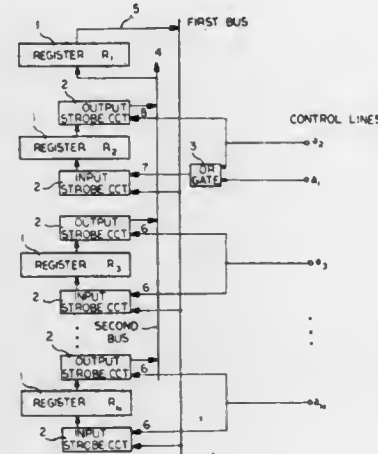
4,362,926

BUS-REGISTER DEVICE FOR INFORMATION PROCESSING

Lyudmil G. Dakovski, and Nikola K. Kassabov, both of Sofia, Bulgaria, assignors to V M E I "Lenin", Sofia, Bulgaria
 Filed Oct. 19, 1979, Ser. No. 86,428
 Claims priority, application Bulgaria, Nov. 8, 1978, 41322
 Int. Cl.³ G06M 3/08

U.S. Cl. 235—92 CC

1 Claim



1. An information processing device comprising:
 - N, n-digit registers in a sequence $R_1, R_2, R_3, \dots, R_N$, each of said registers having an input and an output;
 - a respective input strobe circuit connected to the input of each register of said sequence from the second register R_2 to the last register R_N thereof, and a respective output strobe circuit connected to the output of each register of said sequence from the second register R_2 to the last register R_N thereof;
 - a first information bus connected directly to the output of said first register R_1 and to each of the input strobe circuits, and a second information bus connected directly to the input of said first register R_1 of the sequence and to each of said output strobe circuits, each of said input strobe circuits transferring information signals to the respective register $R_2 \dots R_N$ from said first bus and each of said output strobe circuits transferring information signals from the respective registers $R_2 \dots R_N$ to said second bus upon the application of a control signal to a respective control input of the respective strobe circuit;
 - respective first control lines to each of said registers of said sequence from the third register R_3 to the last register R_N of said sequence, each of said first control lines being connected to the control inputs of both the input and output strobe circuits of the respective register $R_3 \dots R_N$ for direct control of transfer of information to and from the registers $R_3 \dots R_N$;
 - a second control line connected directly to the control input of the output strobe circuit of the second register R_2 ;
 - an OR-gate having its output connected to the control input of the input strobe circuit of the second register R_2 and a first input connected to said second control line; and
 - a third control line connected to a second input of said OR-gate whereby a signal applied to said third control line transfers the contents of said first register R_1 to said second register R_2 through said buses and signals applied to the respective lines effect parallel transfer of information between said registers.

4,362,927

PRESELECTION COUNTER WITH CONTINUOUS DISPLAY AND AUTOMATIC REPETITION OF A PRESET VALUE

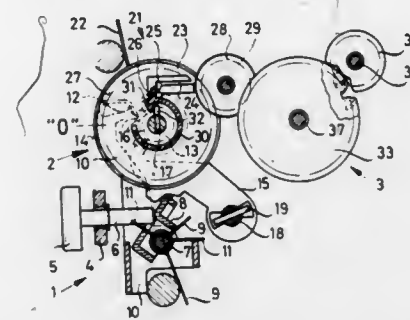
Lothar Herrmann, Hornberg, and Helmut Müller, St. Georgen, both of Fed. Rep. of Germany, assignors to Klenzle Apparate-GmbH, Villingen, Fed. Rep. of Germany
 Filed Mar. 9, 1981, Ser. No. 241,613

Claims priority, application Fed. Rep. of Germany, Mar. 8, 1980, 3009018

Int. Cl.³ G06F 15/18

U.S. Cl. 235—132 R

5 Claims



1. A preselection counter adapted to effect automatic repetition of a preset value and capable of maintaining a continuous display of said preset value during operation thereof comprising: switch-off counter means adapted to actuate a desired function when a quantity of said function determined by said preset value has been reached; presettable indicating means including number rollers adapted to be set at said preset value and to retain said setting until reset, said presettable indicating means being adapted to display said retained preset value; sensing wheel means operably interposed between said switch-off counter means and said presettable indicating means adapted to be placed in transmitting engagement therebetween to transmit the preset value on said indicating means to said switch-off counter means and to be removed from transmitting relationship therebetween during operation of said switch-off counter means to actuate said desired function; and means for resetting said sensing wheel means in accordance with the preset value on said presettable indicating means without altering the setting of said presettable indicating means.

4,362,928

UNIVERSAL DOCUMENT FORMAT SYSTEM

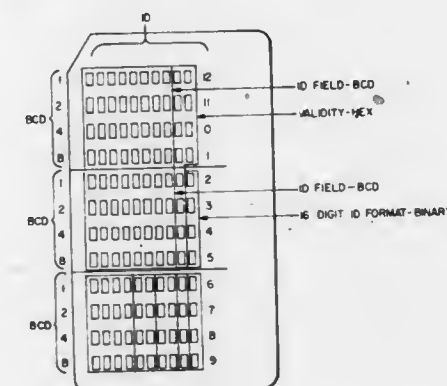
James R. Sheldon, Phoenix, Ariz., assignor to Engineered Systems, Inc., Tempe, Ariz.

Filed Jan. 12, 1981, Ser. No. 223,982

Int. Cl.³ G06K 5/00

U.S. Cl. 235—375

3 Claims



1. A document controlled utilization system for use with encoded data entry documents having a predetermined number of data characters located thereon in a fixed location with the data characters representing at least two different groups of information characters and having a format code character encoded therein in a predetermined position, said format code

character signifying which data characters are in each of such groups, said system including in combination;
 document reading means for reading said data characters and said format code character from documents inserted therein;
 utilization means for utilizing data encoded on said data entry documents and read by said document reading means and responsive to the data in each of said groups of data characters;
 data processing means coupled with said document reading means for receiving data read thereby and including means responsive to the reading of said format code character by said document reading means for inserting a predetermined character in a predetermined location between two of said data characters to establish those data characters in each of said two groups of information characters, said predetermined location of said predetermined character being variable in accordance with the encoding of said format code character; and
 means for supplying said data with said inserted predetermined character therein from said data processing means to said utilization means.

4,362,929

METHOD OF PREPARING INDEXES

Vincent M. Gevers, 96, Wouwstraat, Hove-Antwerp, Belgium
 Continuation of Ser. No. 46,657, Jun. 16, 1970. This application
 May 16, 1972, Ser. No. 253,864

Int. Cl.³ G06F 7/12

U.S. Cl. 235—432

4 Claims



1. A machine process for making directories of word marks, comprising the steps of:
 - (a) recording each word mark on a data processing support in the form of a first series of machine readable indicia;
 - (b) feeding the thus obtained supports into a machine programmed to add to said first series of indicia a second series of machine readable indicia, each of said first and second series of machine readable indicia representing alphabetic characters, said second series of machine readable indicia corresponding to the word marks as transformed according to a predetermined objective alphabetic translation code which is applied to the letters of said word marks in a manner such that there is only one possible transformation permissible from the indicia of said first series to the indicia of said second series and a plurality of different first series indicia can be transformed to the same second series indicia, said alphabetic translation code applying at least the following rules to the letters of said word mark as represented by said first series of indicia:
 - (1) a double letter equals a single letter;
 - (2) CY equals SI;
 - (3) Y equals I;
 - (c) recording said second series of indicia on said supports;
 - (d) feeding the thus completed supports into a sorting machine programmed to classify the supports according to the indicia of the second series; and
 - (e) printing by means of the thus classified supports the word marks corresponding to the indicia of the first series.

4,362,930

DATA CARRIER CARD

Kurt Ehrat, Steinmaur, Switzerland, assignor to Zeag Systems A.G., Schlieren, Switzerland

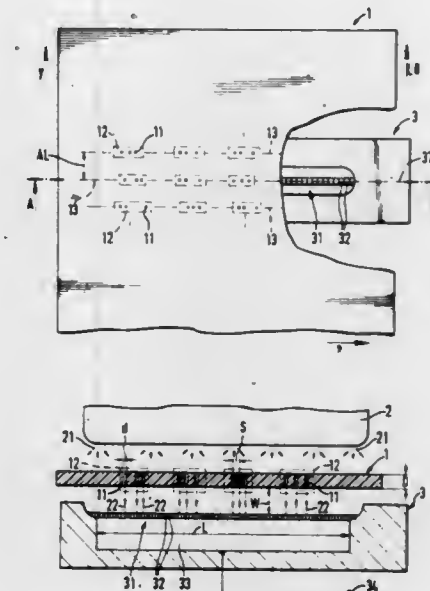
Filed Jan. 9, 1981, Ser. No. 223,848

Claims priority, application Switzerland, Jan. 10, 1980, 155/80

Int. Cl.³ G06K 21/04

U.S. Cl. 235—487

33 Claims



1. A data carrier comprising:
 - (a) a body of predetermined thickness having a layer which is opaque to radiation of a predetermined wavelength; and
 - (b) a plurality of conductors of said radiation extending through said layer, said conductors having a geometric distribution representing encoded information decipherable by a reader and being arranged in discrete groups, and the distance between neighboring conductors of a group being less than about twice said predetermined thickness, each of said conductors having a cross-sectional area at most equaling the square of said predetermined thickness.

4,362,931

SUN FOLLOWING-UP DEVICE FOR SOLAR HEAT UTILIZATION APPARATUS

Saburo Maruko, Yamato, and Kenji Yamada, Matsudo, both of Japan

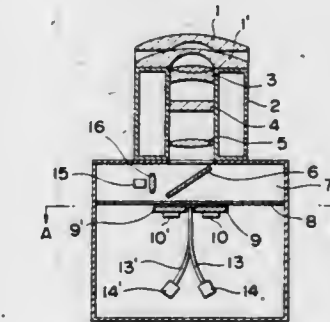
Filed Dec. 4, 1980, Ser. No. 213,120

Claims priority, application Japan, Dec. 7, 1979, 54/158183

Int. Cl.³ G01J 1/20

U.S. Cl. 250—203 R

2 Claims



1. A sun following-up device for a solar heat utilization apparatus having a framework, a sunlight reflector rotatably supported on said framework, a pair of horizontal rotary shafts rotatably supporting said reflector on said framework and a vertical rotary shaft extending through the center of said reflector, said sun following-up device comprising a fish eye lens unit having the optical axis parallel to the optical axis of said reflector.

reflector, a series of vertically spaced lenses positioned below said fish eye lens unit, a screen glass positioned below said series of spaced lenses for forming an image thereon, a pair of spaced diffusion glasses positioned on the undersurface of said screen glass with a slit defined between the opposing faces of the diffusion glasses, photosensitive cells positioned on the undersurface of said diffusion glasses as sensor means for said vertical rotary shaft, optical fibers having one ends received in said slit leaving a clearance between the ends of the fibers and photosensitive cells secured to the other ends of said optical fibers as sensors for said horizontal rotary shafts, whereby said sensors control the vertical and horizontal rotary shafts to always align the optical axis of the reflector with the optical axis of the sunlight.

4,362,932

WIDE BAND DATA PROCESSING TECHNIQUE

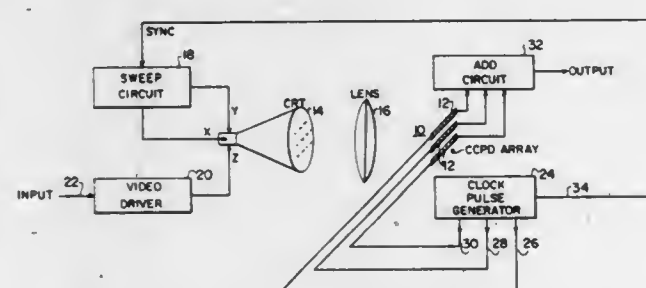
Bernard L. Lewis, Oxon Hill, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 22, 1981, Ser. No. 227,568

Int. Cl.³ G01J 1/20

U.S. Cl. 250—203 CT

7 Claims



1. A wide-band clock-controlled delay line having a high speed read-in and low speed read-out characteristic comprising:

- an array of charge coupled devices;
- energy scanning means for scanning said array of charge coupled devices with a beam of energy capable of modulating the charge in each charge coupled device in said array in accordance with the energy intensity of said beam during the dwell time of said beam on said charge coupled device, said scanning means having a scanning rate sufficient to operate on short pulses from a wide band system; means for applying an input signal to said energy scanning means to control the intensity of said energy beam in accordance therewith;
- signal processing means; and
- clock pulse generator means coupled to said array of charge coupled devices for generating clock pulses for stepping out the charges stored in said array of charge coupled devices into said signal processing means.

4,362,933

MULTISTAGE VACUUM X-RAY IMAGE INTENSIFIER
Ulrich Kroener, Forchheim; Walter Greschat, Dormitz, and Peter Roemer, Erlangen, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jan. 22, 1981, Ser. No. 227,472

Claims priority, application Fed. Rep. of Germany, Feb. 6, 1980, 3004351

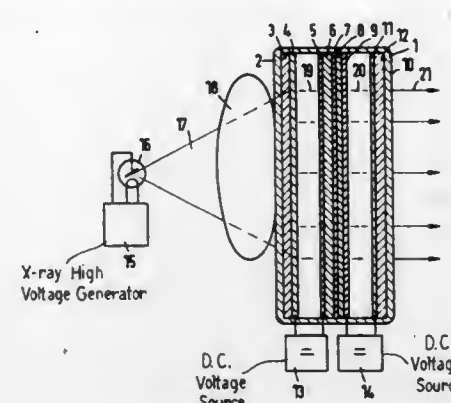
Int. Cl.³ H01J 31/50

U.S. Cl. 250—213 VT

6 Claims

1. A multistage x-ray image intensifier, comprising an inlet screen responsive to an x-ray image and producing an electron image which is intensified in an electrical acceleration field, and an outlet screen for supplying a corresponding visible image, an intermediate screen disposed between the end of the acceleration field and the outlet screen with at least one additional electric acceleration field commencing with the interme-

mediate screen, and the intermediate screen comprising a light-transmissive carrier, a cathodoluminescent layer on the side of the carrier facing the inlet screen, and a photocathode layer on the opposite side of said carrier, said intermediate screen fur-



ther comprising a coating (8) applied to said opposite side of the carrier (7), said coating (8) being resistant with respect to contamination of the photocathode layer (9) and having the photocathode layer (9) thereon.

4,362,934

VELOCITY SENSING DEVICE USING OPTO-ELECTRONIC SWITCHES

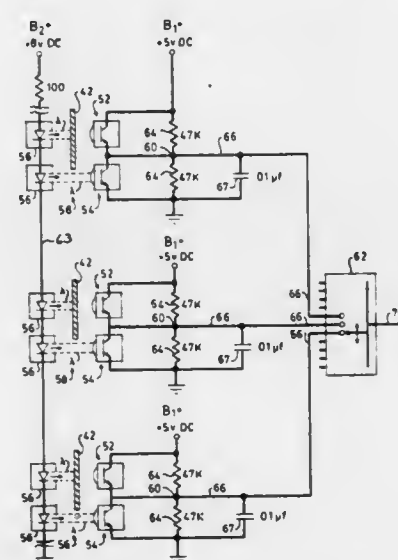
David M. McLay, Scarborough, Canada, assignor to Syntronics Music Corporation, Toronto, Canada

Filed Apr. 8, 1981, Ser. No. 252,143

Int. Cl.³ G10C 3/12; G01D 5/34

U.S. Cl. 250—229

10 Claims



1. Keyboard for production of musical notes, comprising: a plurality of keys,

a pair of optical detectors corresponding to each key, each key being reversibly movable along a locus relative to said keys, from one end of said locus past a first location on said locus, past a second location to the other end of said locus,

cooperating means associated with each key and one of said corresponding detectors to cause a change of state of said one of said detectors when said corresponding key moves past a first location on said locus,

cooperating means associated with each key and the other of said corresponding detectors to cause a change of state of said other of said detectors when said corresponding key moves past a second location on said locus.

4,362,935

FIELD PORTABLE ELEMENT ANALYSIS UNIT

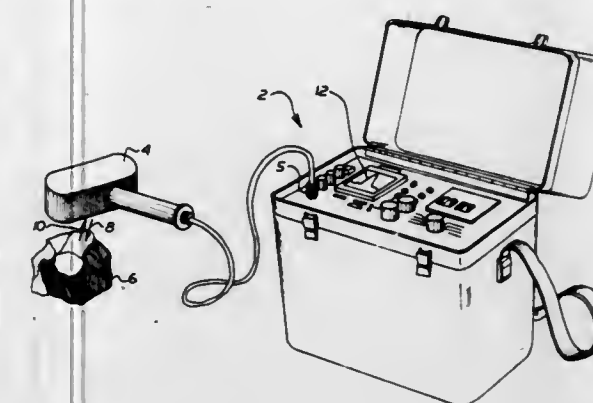
Benton C. Clark, III, Littleton, Colo., assignor to Martin Marietta Corporation, Bethesda, Md.

Continuation of Ser. No. 10,716, Feb. 9, 1979, abandoned. This application Sep. 18, 1980, Ser. No. 188,594

Int. Cl.³ G01N 23/20; G21K 1/00

U.S. Cl. 378—48

27 Claims



1. An element analysis unit comprising:

sensor means including radiation means for irradiating a material to be analyzed, detector means for detecting radiation returned by said irradiated material and providing signals representative of said returned radiation, and means for providing an indication as to the type of said radiation means and said detector means included in said sensor means;

means for interconnecting said sensor means to a processing means; and

processing means for processing said signals representative of said returned radiation and responsive to said indication for adapting said processing in accordance with the type of said radiation means and said detector means included in said sensor means interconnected with said processing means, whereby sensor means having different said radiation means and/or different said detector means may be interconnected with said processing means and said processing means will be automatically adapted for operation therewith.

4,362,936

APPARATUS FOR MONITORING AND/OR CONTROLLING PLASMA PROCESSES

Dieter Hofmann, and Reiner Wechsung, both of Cologne, Fed. Rep. of Germany, assignors to Leybold-Heraeus GmbH, Cologne, Fed. Rep. of Germany

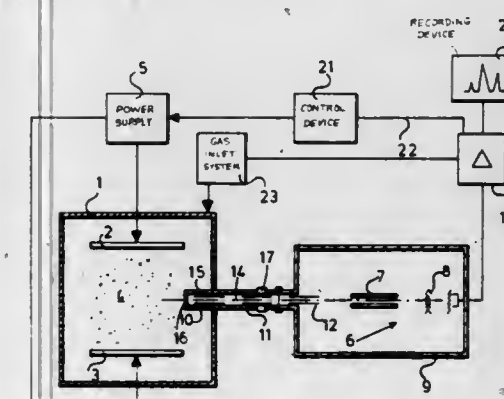
Filed Nov. 26, 1980, Ser. No. 210,596

Claims priority, application Fed. Rep. of Germany, Nov. 26, 1979, 2947542

Int. Cl.³ B01D 59/44

U.S. Cl. 250—292

4 Claims



1. Apparatus for monitoring a plasma process in which a plasma is formed to occupy a specified region between two

electrodes spaced a predetermined distance from each other, said apparatus comprising, in combination:

mass spectrometer means including a mass analyzer having an ion inlet and an ion outlet and an ion detector disposed in operative association with said ion outlet;

output means connected to said detector for providing an output signal representative of the mass spectrum of ions observed by said mass spectrometer means;

ion-optical means oriented approximately at right angles to a line interconnecting the two electrodes, having an inlet opening located in the vicinity of the specified region and disposed for extracting ions from the plasma and focussing the ions thus extracted onto said ion inlet of said analyzer; and

a housing carrying said ion-optical means and having an open rear end facing said spectrometer means and a front end directed toward the specified region and provided with said inlet opening, wherein said housing is cylindrical and has a diameter which is less than one-fourth the distance between said electrodes.

4,362,937

ALPHA-RAY RADIATION SOURCE PHOTOGRAPHING DEVICE

Katsuaki Nakajima, Tokai, Japan, assignor to Doryokuro Kaku-nenryo Kaihatsu Jigyodan, Tokyo, Japan

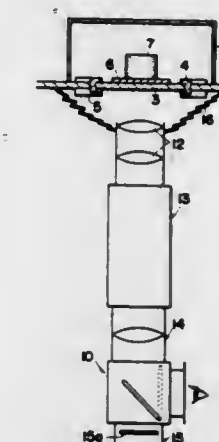
Filed Nov. 25, 1980, Ser. No. 210,391

Claims priority, application Japan, Dec. 10, 1979, 54-170698

Int. Cl.³ G01N 23/00

U.S. Cl. 250—306

6 Claims



1. An alpha-ray radiation source photographing device comprising a glove box, an optical window formed in a part of a wall of said glove box, an alpha-ray radiation scintillator, on which an alpha-ray radiation source-containing sample is placed, disposed within said glove box and adjacent to said optical window, and a photographing mechanism disposed outside said glove box such as to oppose said scintillator, said photographing mechanism including an optical multiplier tube, a close-up lens system and a camera, whereby alpha-ray radiation from said sample impinges upon said scintillator to emit light, and the emitted light advances through said optical window to the outside of said glove box and is amplified by said optical multiplier tube and photographed by said camera via said close-up lens system.

4,362,938

INFRARED VIEWING SYSTEM

David A. Bosserman, Alexandria, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Nov. 14, 1980, Ser. No. 206,913

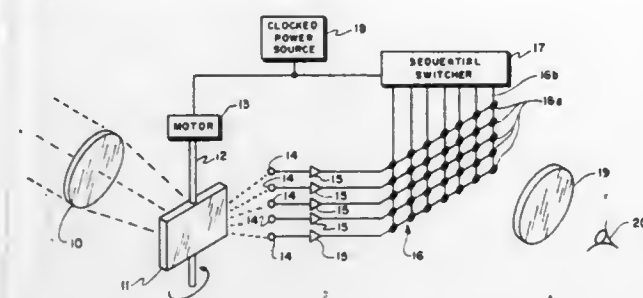
Int. Cl.³ H01J 31/50

U.S. Cl. 250—332

2 Claims

1. An infrared viewing system including: a column of infrared detectors each having an output;

means for scanning said column with respect to an infrared image;
a display matrix having a plurality of columns of light emitters, each column having emitters corresponding to respective detectors; and



means for sequentially connecting the outputs of the columns of detectors to successive columns of the matrix whereby respective detector outputs of the column of detectors are connected to corresponding light emitters in the columns of light emitters as the scanning of the infrared image occurs.

4,362,939

METHOD AND APPARATUS FOR MEASUREMENT OF MOISTURE

Shoichi Horiuchi, and Yoshihiro Sase, both of Katsuta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

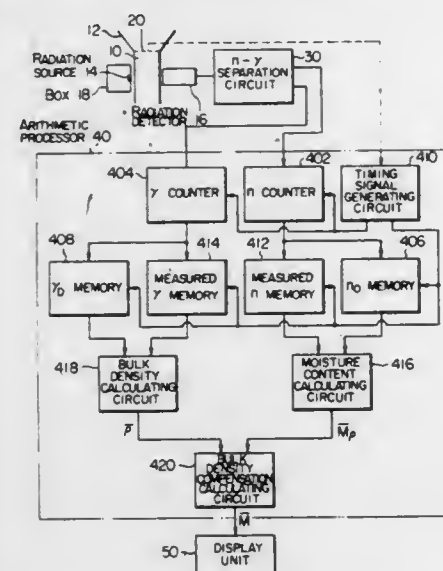
Filed Jul. 30, 1980, Ser. No. 173,600

Claims priority, application Japan, Aug. 1, 1979, 54-97346

Int. Cl.³ G01N 23/00; G01T 3/00

U.S. Cl. 250—358.1

6 Claims



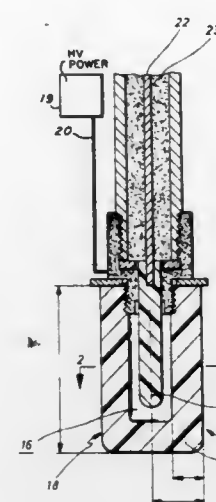
1. A method of measuring the moisture content of a bulk material comprising the steps of emitting fast neutrons and gamma radiation at a point on one side of the bulk material, detecting both the fast neutrons and the gamma radiation at the same point on the other side of the bulk material opposite to the point of emission of said radiation, separating and counting the fast neutrons and gamma radiation transmitted through the bulk material, and calculating the moisture content of the bulk material on the basis of the counted values of the fast neutrons and gamma radiation.

4,362,940 ZERO DISPLACEMENT IONIZATION CHAMBER

Peter R. Almond, Houston, Tex., assignor to Board of Regents, University of Texas Systems, Austin, Tex.
Filed Apr. 29, 1980, Ser. No. 144,840
Int. Cl.³ H01J 39/28

U.S. Cl. 250—374

13 Claims



1. A displacement-free ionization chamber comprising:
a thimble chamber comprising:
a first electrode;
a second electrode spaced from said first electrode by a predetermined air gap, each of said first and second electrodes electrically connected to a voltage power supply;
said first and second electrodes comprising a material density balanced with said air gap density for producing an overall thimble chamber density substantially the density of water, whereby said chamber has an effective zero displacement when submerged in water; and
means for electrically connecting said first and second electrodes to a voltage power supply.

4,362,941

APPARATUS AND A METHOD FOR DETECTING AND MEASURING TRACE GASES IN AIR OR OTHER GASEOUS BACKGROUND

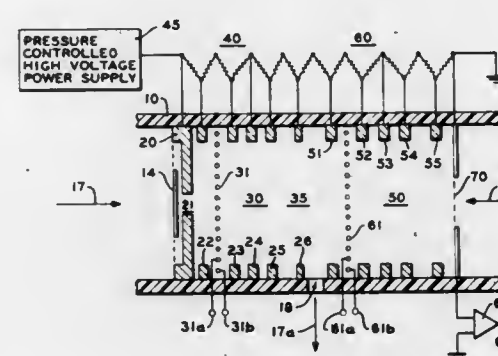
B. Wayne Castleman, Kenneth City, and Robert F. Donehoo, Clearwater, both of Fla., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Jan. 26, 1981, Ser. No. 228,407

Int. Cl.³ G01T 1/18

U.S. Cl. 250—381

6 Claims



1. An apparatus for detecting trace amounts of vapors or gases in air or other gaseous backgrounds, said apparatus comprising:
a housing defining a passage for flow of gas through a drift region;
a source of ionizing radiation positioned in said passage near a first end of said drift region for creating ions in said gas;
a collector electrode mounted within said passage near a second end of said drift region;

means for establishing a substantially linear drift potential in said housing for causing said ions to move through said drift region from said source of ionizing radiation toward said collector electrode;
means for varying said drift potential as a function of atmospheric pressure;
means for gating discrete packets of ions into said drift region; and
means for detecting the ions reaching said collector electrode.

4,362,942

ELECTRON BEAM EXPOSURE SYSTEM AND AN APPARATUS FOR CARRYING OUT THE SAME

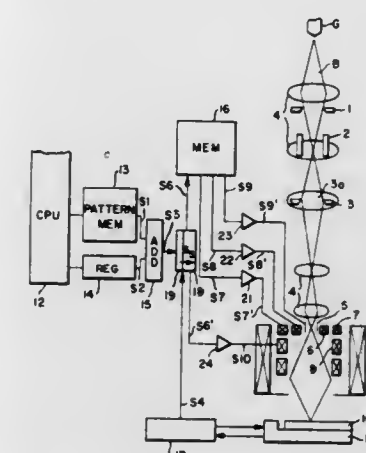
Hiroshi Yasuda, Yokohama, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Dec. 5, 1980, Ser. No. 213,681

Int. Cl.³ H01J 37/00, 3/26

U.S. Cl. 250—398

23 Claims



1. An electron beam exposure system in which a rectangular electron beam is radiated to a medium placed on a continuously moving stage comprising:
a processor for providing a deflection data of said electron beam;
means for providing a position data of said medium on said continuously moving stage;
means for providing a beam deflection amount data in accordance with both of said deflection data and said position data;
a correction memory for storing electron beam correction data for at least one of a field curvature, an astigmatism and a distortion corresponding to the deflection amount data of the electron beam; and
control means for adjusting said electron beam in accordance with said electron beam correction data corresponding to said deflection amount data read out from said correction memory.

4,362,943

METHOD OF MEASURING THE REFRACTIVE INDEX PROFILE AND THE CORE DIAMETER OF OPTICAL FIBERS AND PREFORMS

Herman M. Presby, Highland Park, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sep. 8, 1980, Ser. No. 185,202

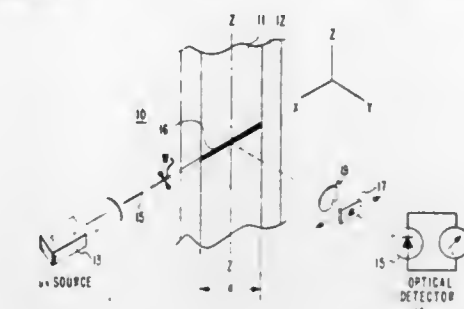
Int. Cl.³ G01N 21/64

U.S. Cl. 250—459.1

6 Claims

1. A method of measuring an optical fiber/preform, comprising an inner core region containing an index-modifying dopant surrounded by an outer cladding, including the steps of:
illuminating a portion (16) of said fiber/preform with a beam (15) of ultraviolet radiation having a beam width at least

an order of magnitude smaller than the diameter of said core region;



and measuring (14) the intensity of the fluorescence induced along said illuminated portion (16) by said ultraviolet radiation.

4,362,944

RADIOGRAPHIC INTENSIFYING SCREEN

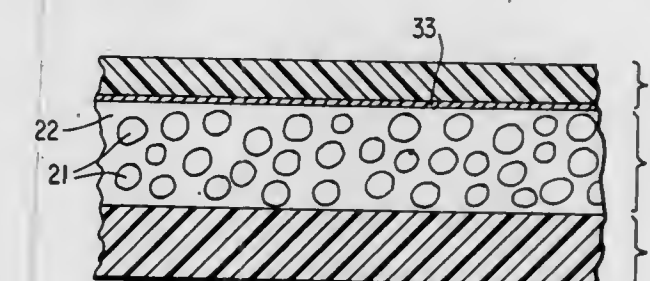
Yujiro Suzuki, Odawara; Norio Mirua, Isehara, and Keiji Shi-miya, Hiratsuka, all of Japan, assignors to Kasei Optonix Ltd., Tokyo, Japan

Continuation of Ser. No. 11,538, Feb. 12, 1979, abandoned. This application Mar. 10, 1981, Ser. No. 242,377

Int. Cl.³ G01J 1/58

U.S. Cl. 250—483.1

4 Claims



1. A radiographic intensifying screen composed of a support, a fluorescent layer and a protective layer disposed in this order wherein said protective layer has a fluorescent layer side surface adjacent the fluorescent layer and an outer surface oppositely disposed from the fluorescent layer side surface and said fluorescent layer comprises one or more phosphors selected from the group consisting of a terbium activated rare earth oxysulfide phosphor, a divalent europium activated alkali earth metal fluorohalide phosphor and a silver activated sulfide phosphor, wherein light absorption material has been coated onto or dyed into the portion of the protective layer adjacent the fluorescent layer side surface thereof where said light absorption material absorbs a part of the light emitted by said fluorescent layer and where the portion of the protective layer adjacent said outer surface thereof is free of said light absorption material.

4,362,945

CHROMATICALLY CORRECTED DEFLECTING DEVICE FOR PARTICLE-BEAM EQUIPMENT

Wolfgang D. Riecke, Baden-Baden, Fed. Rep. of Germany, assignor to Fraunhofer-Gesellschaft Zur Förderung der angewandten Forschung e.v., Munich, Fed. Rep. of Germany

Filed Aug. 19, 1980, Ser. No. 179,398

Claims priority, application Fed. Rep. of Germany, Sep. 13, 1979, 2937004

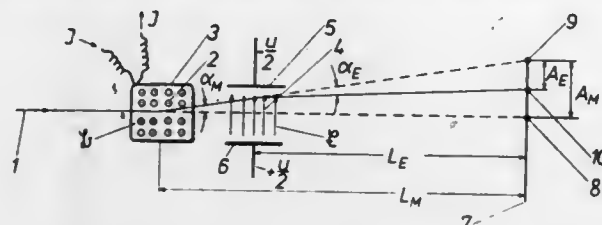
Int. Cl.³ H01J 3/26

U.S. Cl. 250—396 R

7 Claims

1. A chromatically corrected deflecting device for particle-beam equipment, particularly electron-beam equipment arranged to irradiate locations lying in or in close proximity to a common or working plane which is oriented perpendicular to

the axis of said equipment, wherein an electric deflecting field and a magnetic deflecting field are simultaneously employed for the deflection of a beam, the two deflecting fields being normal to each other and being oriented relative to each other in such a manner that the beam deflections due to the associated deflecting fields occur in one and the same plane, namely in the plane containing the undeflected beam, and wherein the electric deflection is at the same time directed in opposition to the magnetic deflection, and wherein the ratio of the magnitude of the electric deflection angle to the magnitude of the



magnetic deflection angle remains at a constant value which is independent of the resulting total deflection angle and is chosen such that the chromatic aberrations affecting the deflections due to the individual fields exactly compensate each other with reference to their effect on the beam position in said working plane, the constant value of the ratio of the magnitudes of the deflection angles being uniquely determinable as a function of at least one of (1) the distance of the deflecting fields from the working plane and (2) the energy and rest mass of the particles to be deflected by particle-optical means.

4,362,946

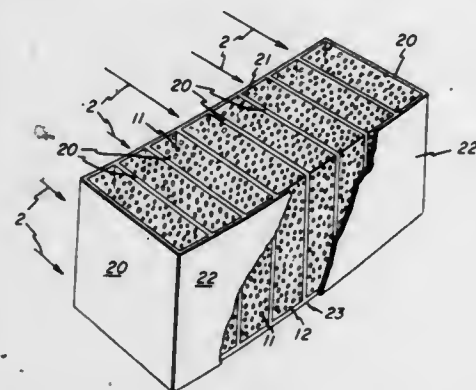
DISTRIBUTED PHOSPHOR SCINTILLATOR STRUCTURES

Dominic A. Cusano, and Jerome S. Prener, both of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 166,075, Jul. 7, 1980, abandoned, which is a division of Ser. No. 853,086, Nov. 21, 1977, Pat. No. 4,230,510. This application Jun. 11, 1981, Ser. No. 272,636 Int. Cl.³ G01T 1/164; C09K 11/08

U.S. Cl. 250—483

14 Claims



1. A method of manufacturing a detector array useful in computerized tomography, said detector employing dispersed phosphor scintillator bodies to increase detectable output at optical wavelengths when said bodies are excited by supra-optical radiation, said method comprising the steps of:

- mixing suitable phosphor particles with a nonreactive liquid matrix substance to form a suspension, said liquid matrix substance being hardenable, and transparent to optical and supra-optical radiation after hardening;
- transferring a portion of said suspension into each of a plurality of detector array compartments, said detector array being composed of a housing having a front wall section substantially transparent to said supra-optical radiation, and a rear wall section, said detector array compartments being defined by a plurality of sidewall members extending orthogo-

nal to said front wall section, said side wall members being opaque to said supra-optical radiation; and then (C) causing said liquid matrix substance to harden, thereby fixing the position of said phosphor particles in said matrix, whereupon a greater fraction of optical wavelength photons, generated by said supra-optical radiation exciting the resulting scintillator bodies after passing through said front wall section, escapes to the exterior of said scintillator bodies for detection by a photoelectrically responsive detector.

4,362,947

IRRADIATION APPARATUS USING RADIOACTIVE SOURCES

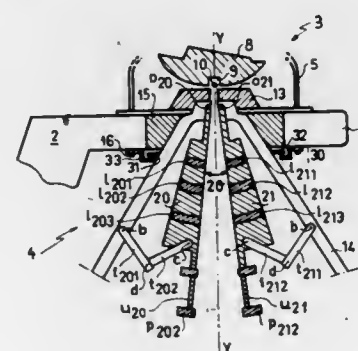
Claude Perraudin, Meudon; Edmond Amarge, Pringy; Jean P. Guiho, Le Mesnil St. Denis; Jean C. Horiot, St. Jullien; Gerard Taniel, Les Essarts Le Roi; Georges Viel, and Jean P. Brethon, both of Orsay, all of France, assignors to C.G.R.-MeV, Commissariat a l'Energie Atomique, Paris, France

Filed Jan. 9, 1981, Ser. No. 223,725

Claims priority, application France, Jan. 11, 1980, 80 00614 Int. Cl.³ G21F 3/02; G21K 1/04

U.S. Cl. 378—150

6 Claims



1. An irradiation apparatus using at least one radioactive source and comprising a fixed support with which there is associated an arm movable about an axis X—X, an irradiation head comprising an enclosure made from a material impermeable to the radiation of the source and, in said enclosure, a first biological protection screen surrounding at least partially a second biological protection screen, said second screen having a housing for receiving the radioactive source, a primary collimator and a secondary collimation device comprising a conical pot made from a material impermeable to the irradiation beam and, integral with said conical pot with axis Y—Y, two pairs of frames, each of the frames, movable about a shaft fixed to said conical pot, being associated with a mechanical moving system, each frame having collimating plates disposed substantially perpendicularly to the frame on which they are fixed, each frame of the secondary collimation device is connected to the conical pot by means of a compass system formed from two legs hinged together about a shaft dd, one of the legs being rotatable about a shaft bb fixed to the conical pot and the other leg being rotatable about a shaft cc fixed to the frame considered, said shafts being parallel to the axis of rotation of the frame on which is fixed the compass system.

4,362,948

METHODS OF FILLING AND EMPTYING RADIATION SHIELDS

John A. Weissenfluh, 13212 Ridge Dr., Rockville, Md. 20850

Filed Apr. 15, 1980, Ser. No. 140,527

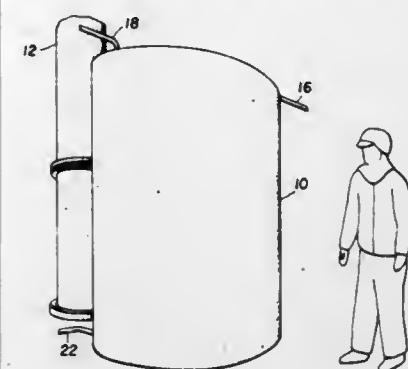
Int. Cl.³ G21F 3/02

U.S. Cl. 250—519.1

3 Claims

1. A free-standing radiation shield for use in installations containing sources of radiation, said radiation shield comprising a container of generally uniform thickness formed of thin flexible material and means for filling said container with a

radiation attenuating liquid, said radiation shield being many times taller than it is thick, being shaped such that said radia-



tion shield is stable and free-standing, and being curved about an axis which is vertical when said radiation shield is in use.

4,362,949

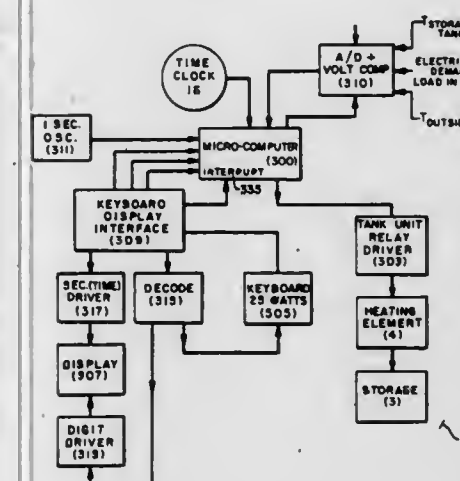
LOAD CONTROLLER HAVING TIME INTEGRATED DEMAND

James L. McKenney, Norwell, Mass., and Robert H. Stevenson, Barrington, R.I., assignors to Vapor Corporation, Chicago, Ill. Continuation-in-part of Ser. No. 5,304, Jan. 22, 1979, Pat. No. 4,305,005. This application Jul. 15, 1981, Ser. No. 283,365

Int. Cl.³ H02J 4/00; G05D 23/19

U.S. Cl. 307—31

10 Claims



6. A controller for adjusting storage temperatures in a stored energy heater supplying continuous heat from electric power to a system heat load having varying heat demands, during predetermined, cyclic power off periods comprising: means establishing power off and power on periods; means measuring storage and load temperatures at predetermined times within said period; means determining the heat storage level at said measurement time based on said storage and load temperatures; means determining a current heat demand based on said load temperatures; means determining a level of storage-power input based on said demand and power on interval; whereby tank storage is adjusted in a power on period to meet system demands during a succeeding power off period.

4,362,950

SYNCHRONOUS INVERTER COMPATIBLE WITH COMMERCIAL POWER

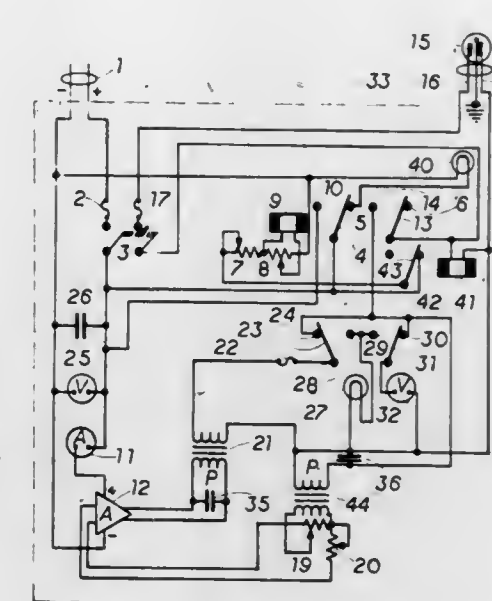
Joe S. Turner, 2825 S. Washington Ave., Apt. No. 614, Titusville, Fla. 32780

Filed Aug. 25, 1981, Ser. No. 295,994

Int. Cl.³ H02J 3/46

U.S. Cl. 307—45

1 Claim



1. In a method for combining direct current energy from a minor source means with alternating current energy from a commercial power energy source to a home electrical distribution system, a compatible synchronous inverter means comprising an audio amplifier means, alternating current power cord male plug means and a switching circuit means for controlling said amplifier means and a dummy load, said minor source means having a direct current scale means and said distribution system having female receptacle means, said method for combining is accomplished in a compatible manner by using parallel connections and avoiding any series connections or disturbances to the commercial power source wiring to the home, said method comprising the steps of:

- installing said inverter means by inserting said male plug means into a selected female receptacle means of the home electrical distribution system, and connecting said cable means for said minor source means to said inverter means,
- connecting the output of said amplifier means to said home electrical distribution system, and further connecting said direct current energy from said minor source means for supplying power to said amplifier means,
- detecting the direct current voltage available from said minor source means in accordance with a predetermined voltage range suitable for operation of said amplifier means, and disconnecting the input and output circuits of said amplifier means when said direct current voltage is not within said predetermined voltage range,
- providing a small amount of alternating current voltage from said home electrical distribution system as an input signal to said amplifier means to produce an output that is essentially the same in wave-shape, amplitude, phase and frequency as said input signal,
- connecting a dummy load to the output of said amplifier means at all times when said output is not connected to said home electrical distribution system, and disconnecting said dummy load after said output is connected to said home electrical distribution system.

4,362,951

CYCLE CHARGE STANDBY POWER SYSTEM

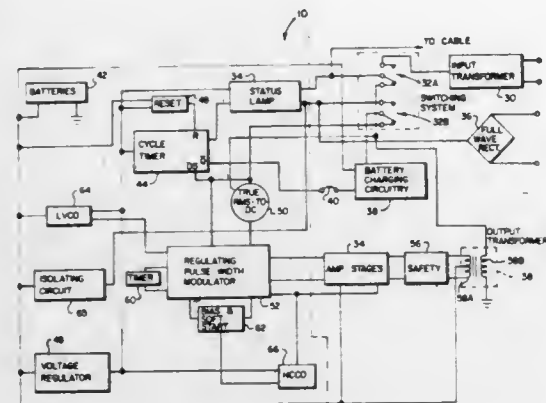
Charles S. Turner, Dallas; Donald J. McNeal, Garland; Donald G. Cheshier, Garland, and James C. Gray, Garland, all of Tex., assignors to Control Technology, Dallas, Tex.

Filed Dec. 10, 1980, Ser. No. 215,005

Int. Cl.³ H02J 9/06, 7/04

U.S. Cl. 307—66

17 Claims



1. A standby power supply for supplying power to a cable from an a-c utility source when available, and for supplying substantially constant frequency a-c power from a float service battery powered circuit to said cable when said utility source is unavailable, comprising:

means for converting the utility supplied voltage to cable voltage and for normally applying said converted voltage to said cable;

means for connecting said battery powered circuit to said cable upon failure of said utility source, and for reapplying said utility source to said cable upon restoration of said utility source;

a battery converting circuit converting the battery voltage to a-c voltage of substantially the same frequency as said utility source for application to said cable, said battery converting circuit comprising:

means for measuring a voltage applied to said cable by said battery converting circuit;

means for generating pulses of substantially constant frequency and of variable width, responsive to said voltage measuring means to vary the width of said pulses to maintain the voltage applied to said cable by said battery converting circuit substantially constant, despite decay in the battery voltage and despite varying loads applied to the standby power supply;

an amplifier controlled by said pulse generating means for amplifying said pulses to the voltage desired for application to said cable by said battery converting circuit;

means for charging said battery, including:

rectifying means for producing a d-c charging current from said a-c utility source;

means for measuring a desired time interval between charging cycles of said battery;

means responsive to said time measuring means for applying the charging current to said battery upon the elapsing of said time interval;

means responsive to a discharge condition of said battery for applying the charging current to said battery when said discharge condition falls below a predetermined level;

and means responsive to battery use for applying the charging current to said battery after said battery has been used to supply power to said cable;

means responsive to the voltage on said battery for removing said charging current from said battery when said voltage reaches a desired level; and

means responsive to said charging current removing means for resetting said clock means to initiate a succeeding desired time interval measurement.

4,362,952

APPARATUS AND METHOD FOR INITIATION OF RECIPROCAL REMOTE FEEDING OF INTERMEDIATE STATIONS OF A COMMUNICATIONS INSTALLATION

Alfred Ziegler, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

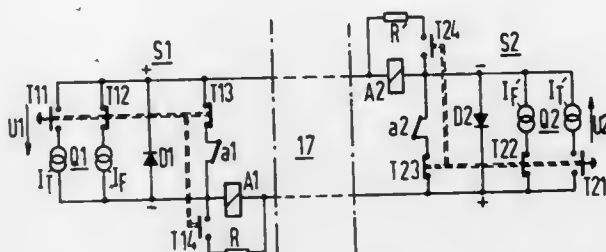
Filed Jul. 18, 1980, Ser. No. 169,952

Claims priority, application Fed. Rep. of Germany, Aug. 17, 1979, 2933439

Int. Cl.³ H04B 3/44

U.S. Cl. 307—77

8 Claims



1. The method for starting-up two-sided remote feeding of intermediate stations of a communications installation, whereby, in a remote feeding circuit, designed for d.c. current-series feeding, a series connection of two feeding circuits interconnected via a feed wire pair is provided, each of which feeding circuits contains a constant current source, characterized in that, first, by means of one of the feeding circuits, a test current which is lower than the remote feed current, is fed into the feed wire pair, whereas the other feed circuit transmits remote feed current to a bridging-over branch, and the bridging-over branch is opened as soon as, in the feed circuit, feeding into the bridging-over branch, the test current or at least a specified fractional amount of the test current is ascertained in the feed wire pair, and in the feed circuit transmitting the test current, a change-over switch is actuated from the test current to remote feed current as soon as the feed circuit has at least a specified fractional portion of the feed current in the feed wire pair.

4,362,953

ELECTRONICALLY REGULATED ELECTROMECHANICAL APPLIANCE CONTROL

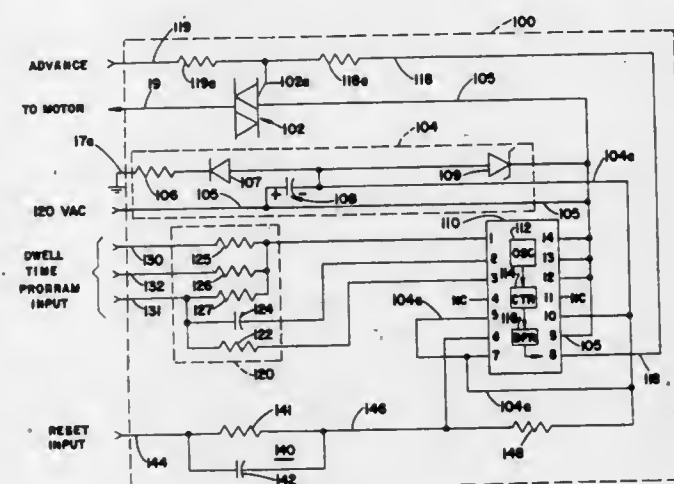
Donald E. Bolin, Franklin, Tenn., assignor to The Scott & Fetzer Company, Fairview, Tenn.

Filed Jun. 17, 1981, Ser. No. 274,374

Int. Cl.³ H01H 43/00

U.S. Cl. 307—141

7 Claims



1. An electromechanical control regulated by an electronic timer, comprising:

a drive means;

a member rotatably driven by the drive means through a discrete plurality of angular positions, the member dwelling for a period of time at each of its angular positions, the member providing at least one switch actuating cam surface;

at least one cam follower type electrical switch means fixed in position relative to the rotatably driven member and engageable with the cam surface, the switch means being movable between conducting and nonconducting positions by engagement with the cam surface; and

an electronic timer circuit for intermittently energizing the drive means to move the rotatably driven member from one angular position to another, the dwell time of the member at one or more of its angular positions being determined by the timer circuit.

4,362,954

POWER-UP CONTROL FOR MICROPROCESSOR BASED APPLIANCE

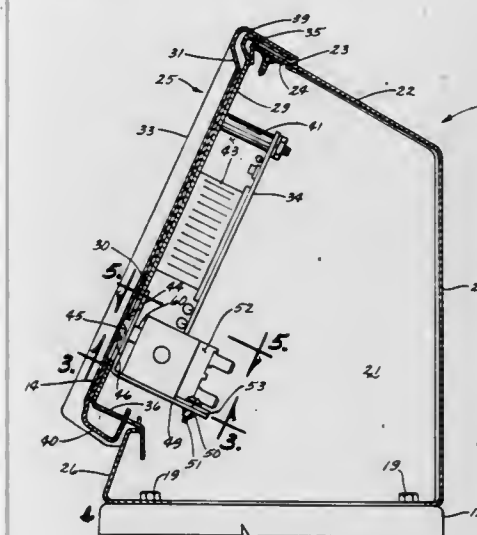
Curran D. Cotton, Newton, Iowa, assignor to The Maytag Company, Newton, Iowa

Filed Sep. 25, 1981, Ser. No. 305,558

Int. Cl.³ H01H 3/00, 13/70

U.S. Cl. 307—142

14 Claims



13. An appliance control center, the combination comprising: a control center housing having an opening for providing access into said housing; panel means for substantially closing said opening including a front surface and further including a generally imperforate smooth flexible membrane layer overlying said front surface, said panel means including at least one opening covered by said membrane layer; and switch means associated with said panel means including an electromechanical switch having an actuator extending into said opening for contact with the rear of said flexible membrane layer and manually operable therethrough and further including touch switch means operable through said flexible membrane layer whereby said touch switch means and electromechanical switch are integrated into said control center to provide a control center including electromechanical and touch switches and having a smooth unbroken control surface.

4,362,955

CURRENT BOOST CIRCUIT FOR A PULSE GENERATOR OUTPUT STAGE

William H. Davenport, Hillsboro, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Dec. 18, 1980, Ser. No. 217,954

Int. Cl.³ H03K 5/12

U.S. Cl. 307—263

3 Claims

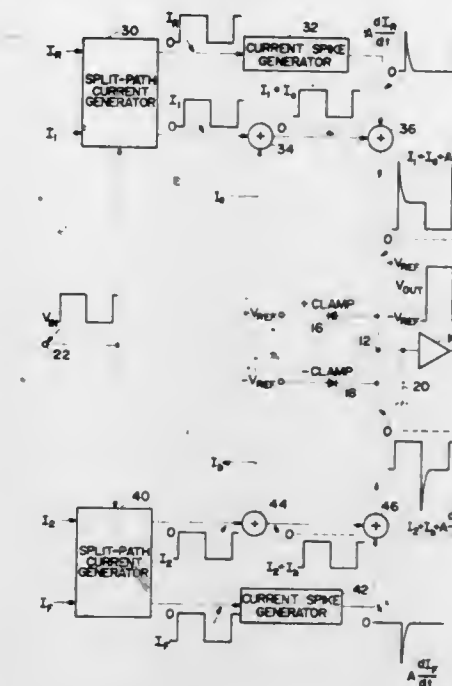
1. A pulse generator output stage, comprising:

means for receiving a voltage square-wave input signal;

means responsive to said input signal for generating a square-wave current;

means responsive to said input signal for generating boost currents substantially contemporaneous with the transitions of said input signal;

means for summing said square-wave current and said boost currents; and



an output amplifier responsive to said summed currents for generating a pulse voltage output signal, wherein said square-wave current generating means comprises a switched current source for developing the positive-going portion of said pulse voltage output signal and a switched current sink for developing the negative-going portion of said output signal.

4,362,956

ABSOLUTE VALUE CIRCUIT

Akira Ogasawara, Yokohama, and Ryuzo Motoori, Kawasaki, both of Japan, assignors to Nippon Kogaku K.K., Japan

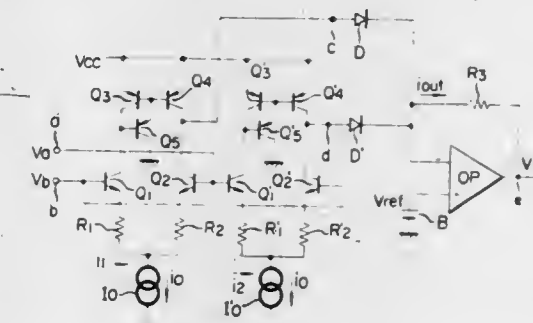
Filed Nov. 4, 1980, Ser. No. 203,903

Claims priority, application Japan, Nov. 22, 1979, 54-151468

Int. Cl.³ H03K 5/24

U.S. Cl. 307—355

6 Claims



1. An absolute value circuit capable of providing, through an output terminal, a signal corresponding to the absolute value of the difference between a first input signal and a second input signal, comprising:

(a) first circuit means adapted for subtracting a current corresponding to said second input signal from a current corresponding to said first input signal, and for supplying to a first terminal a current corresponding to the result of said subtraction of a first direction in case said result is positive, and for supplying a current corresponding to the

- result of said subtraction of a second direction opposite to said first direction in case said result is negative;
- (b) second circuit means adapted for subtracting a current corresponding to said first input signal from a current corresponding to said second input signal and for supplying to a second terminal a current corresponding to the result of said subtraction of said first direction in case said result is positive, and for supplying a current corresponding to the result of said subtraction of said second direction in case said result is negative; and
- (c) uni-directional circuit means disposed between said first and second terminals and said output terminal for transmitting current of only a predetermined one of said first and second directions from said first and second circuit means to said output terminal.

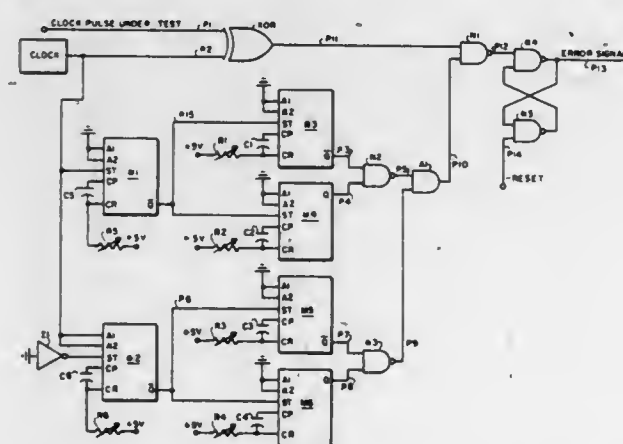
4,362,957

CLOCK PULSE TOLERANCE VERIFICATION CIRCUIT
David R. Stern, Hinsdale, Ill., assignor to GTE Automatic Electric Labs Inc., Northlake, Ill.

Filed Dec. 29, 1980, Ser. No. 220,670
Int. Cl.³ H03K 13/32

U.S. Cl. 307—527

4 Claims



1. A system for verifying the presence synchronization and correct tolerance of a pulse train comprising:
- a source of standard pulses,
 - an exclusive OR gate to which are inputted the pulse train to be tested and said standard pulses and having an output,
 - a first and a second pulse generating means operated in response to said standard pulses to output a first tolerance pulse at an acceptable time ahead of the desired start time for a pulse of said tested pulse train and a second tolerance pulse at an acceptable time ahead of the desired termination for a pulse of said tested pulse train,
 - a NAND gate having inputs connected to said exclusive OR gate output, and said first and second pulse generating means, and
 - an error latch having as an input the output of said NAND gate whereby said latch is inhibited from operation during the presence of said tolerance pulses.

4,362,958

ELECTROMAGNETIC COUPLING AND COOLING SYSTEM THEREFOR

Ralph L. Jaeschke, Kenosha, Wis., assignor to Eaton Corporation, Cleveland, Ohio

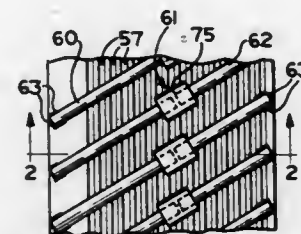
Filed Nov. 3, 1980, Ser. No. 203,306
Int. Cl.³ H02K 9/00

U.S. Cl. 310—59

19 Claims

1. An electromagnetic coupling comprising:
- (a) a housing;
 - (b) a rotor member disposed in said housing;
 - (c) inductor drum means disposed in said housing and rotatable about an axis of rotation relative to said rotor member;
 - (d) coil means for producing an electromagnetic field for

- electromagnetically coupling said rotor member and said inductor drum means;
- (e) said inductor drum means including a generally cylindrical drum portion, said drum portion defining an outer, heat-dissipating surface, said heat-dissipating surface including a plurality of circumferentially extending, heat-dissipating grooves spaced apart along the longitudinal axis of said cylindrical drum portion;



- (f) means for directing cooling fluid into said housing to dissipate heat generated in said inductor drum means; and
- (g) a plurality of fluid-directing means attached to said outer, heat-dissipating surface of said inductor drum means for rotation therewith, said fluid directing means being obliquely disposed relative to said axis of rotation for directing said cooling fluid inwardly into said heat-dissipating grooves to cool said inductor drum means.

4,362,959

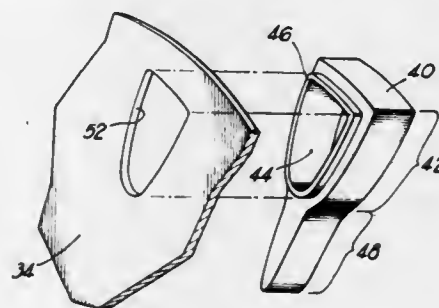
ELECTRIC MOTOR ROTOR WITH FITTED VENT SPACERS

Robert G. Bartheld, and Oscar Rubio-Medina, both of Cincinnati, Ohio, assignors to Siemens-Allis, Inc., Atlanta, Ga.

Filed May 15, 1980, Ser. No. 150,086
Int. Cl.³ H02K 9/00

U.S. Cl. 310—64

10 Claims



1. In a dynamoelectric machine including a rotor having a plurality of rotor bars arranged in a generally circular array and extending axially through said rotor, said rotor being formed of a stack of laminations, said laminations being axially spaced at at least one point along the stack to form a vent extending in a plane perpendicular to the axis of the rotor, a plurality of spacers disposed between confronting laminations to space said laminations apart to thereby form the vent;
- said spacers having substantially flat, parallel opposed end surfaces and having an opening extending therethrough for receiving rotor bar material, said spacers further comprising a radially outer portion surrounding a rotor bar and a radially inner portion extending radially inwardly from said rotor bar, said spacers each having a projection upstanding from at least one of said flat end surfaces, at least one of the laminations confronting said spacers having a depression therein for receiving said projection.

4,362,960

SPACER ASSEMBLY FOR A STATOR VENTING DUCT OF AN ELECTRIC POWER MACHINE

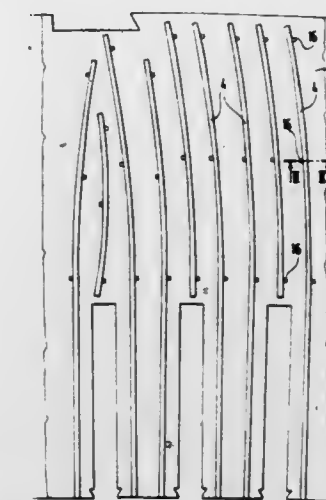
Roger Gillet, Belfort, France, assignor to Societe Anonyme Dite: Alsthom-Atlantique, Paris, France

Filed Apr. 30, 1981, Ser. No. 259,274

Claims priority, application France, Apr. 30, 1980, 80 09763
Int. Cl.³ H02K 1/32

U.S. Cl. 310—65

4 Claims



1. A spacer assembly for a stator venting duct of an electric power machine having a stator magnetic circuit constituted by an axial stack of magnetic laminations, said stack being held clamped and being cooled by circulation of a fluid in venting ducts each formed by a gap which is maintained by spacer members between two laminations of the stack, said spacer assembly including:

a metal support sheet incorporated in the axial stack of magnetic laminations to constitute one side of the venting duct therein, said metal support sheet having an inner surface on the venting duct side and an outer surface on the opposite side, said metal support sheet being of the same magnetic quality and same thickness as the laminations of the magnetic circuit and having fixing means which project into the venting duct from said inner surface; and

spacer members fixed on said inner surface of said metal support sheet by means of said fixing means so as to maintain the gap which forms a venting duct between said surface and the adjacent magnetic lamination on the other side of the venting duct; and

wherein said spacer members comprise flexible rods made of an insulating material extending lengthwise in the plane of the gap, having a thickness coextensive with the thickness of said gap, and wherein said fixing means constitute a succession of at least three side stops for each of said flexible rods, said side stops being disposed alternately on either side of each rod and out of line so as to keep each rod elastically bent in the plane of the gap providing permanent lateral pressure of the rod by deformation on each of the stops.

4,362,961

ENCAPSULATED PIEZOELECTRIC RESONATOR DEVICE

Karl-Heinz Gerber, Granges, Switzerland, assignor to Ebauches, S.A., Switzerland

Filed Jul. 1, 1980, Ser. No. 165,213

Claims priority, application Switzerland, Jul. 6, 1979, 6341/79
Int. Cl.³ H03H 9/24

U.S. Cl. 310—370

6 Claims

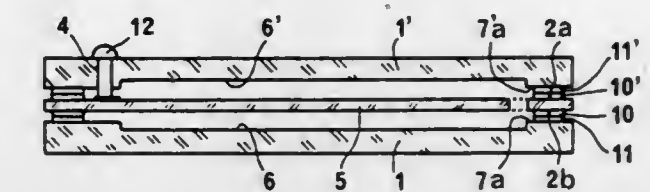
1. An encapsulated piezoelectric resonator device comprising:
- an oscillating member including a quartz member and a

frame integral with and surrounding said quartz member, said frame having two connecting faces;

electrodes provided on said quartz member;

two cover members, each having a central depression defining a frame provided with a connecting face;

connecting layers covering said connecting faces for bonding



ing and sandwiching said oscillating member between said cover members; and

conductor passages provided in at least one cover member and passing through said cover member; said conductor passages being in electrical communication with said electrodes, said connecting layers having no contact with said electrodes and said conductor passages.

4,362,962

ELECTRICAL TERMINAL CONNECTION FOR THE ELECTRODES OF A GAS DISCHARGE OVER-VOLTAGE ARRESTER

Gerhard Lange, Berlin, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

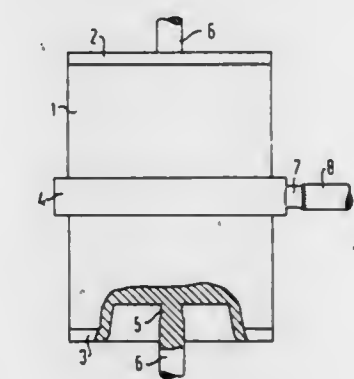
Filed Jan. 16, 1981, Ser. No. 225,769

Claims priority, application Fed. Rep. of Germany, Feb. 19, 1980, 3006193

Int. Cl.³ H01J 5/50

U.S. Cl. 313—331

12 Claims



1. An electrical terminal connection system for electrodes of a gas discharge over-voltage arrester, comprising:
- an electrode of the arrester to be connected comprising a high current conductivity material;
 - a connection wire comprising a high current conductivity material;
 - a peg projecting from the electrode to be connected and having a diameter of approximately 9/10 and a length of 5/10 to 8/10 of the diameter of the connection wire; and
 - an end surface of the connection wire being welded blunt to an end surface of the peg.

4,362,963

STRENGTHENED CRT APERTURE MASK FRAME
Peter G. Puhak, Seneca Falls, N.Y., assignor to North American Philips Consumer Electronics Corp., New York, N.Y.

Filed Mar. 6, 1981, Ser. No. 241,176

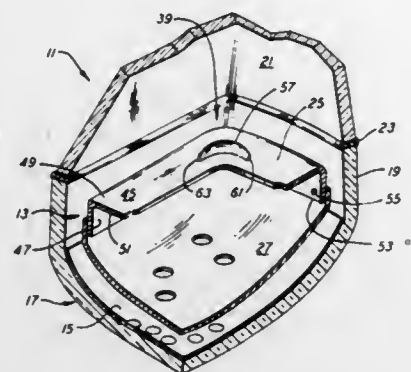
Int. Cl.³ H01J 29/07

U.S. Cl. 313—407

6 Claims

1. An improvement in the metallic perimetrical framing member of a substantially rectangular aperture mask-frame assembly of the type positioned in a color cathode ray tube in

spaced relationship within the viewing panel adjacent the cathodoluminescent screen disposed thereon; said framing member being an integration of top, bottom and side elements transitionally combined at angular corner regions to provide a continuous perimetrical supporting structure having X and Y axes of reference therethrough; said member evidencing a substantially L-shaped cross-sectional configuration having a substantially formed ledge portion instanding from an integral edge-related perimetrical upstanding sidewall portion, said ledge portion evidencing an exterior surface and an interior surface from which said sidewall portion is in substantially



perpendicular relationship; said sidewall having a terminal contour whereupon the apertured mask member of said mask-frame assembly is subsequently positioned and affixed, said improvement being means for strengthening the angular corner regions of said framing member and comprising:

a substantially crescent-shaped indentation, having concave and convex edges and rounded termini, formed in said ledge portion at each of said corner regions; each of said crescent shapings being oriented with said concave edge thereof facing the origin of said axes; and whereof a bisector of each of said corner regions is substantially a bisector of the respective crescent shaping associated therewith.

4,362,964

COLOR PICTURE TUBE WITH A MAGNETIC FOCUSING DEVICE

Soichi Sakurai; Kyohel Fukuda, both of Mobara, and Masanobu Takata, Chiba, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

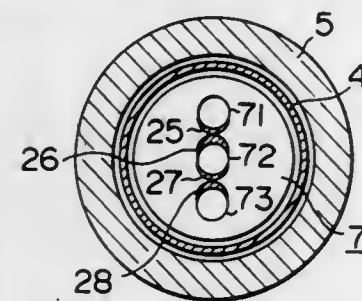
Filed Oct. 29, 1979, Ser. No. 89,095

Claims priority, application Japan, Oct. 30, 1978, 53/132669

Int. Cl.³ H01J 29/52, 29/56, 29/50

U.S. Cl. 313-414

17 Claims



11. In a color picture tube with a magnetic focusing device and having a plurality of electron guns arranged in a row in a horizontal direction in a neck portion of the tube, a pair of magnetic plate members each provided with plural through-holes of circular shape corresponding to the respective electron guns and permitting electron beams emitted from the corresponding electron guns to pass therethrough, the plate members being disposed apart from each other in an axial direction of the tube, and magnetizing means for magnetizing one of the magnetic plate members in one polarity and the other one of the magnetic plate members in the other polarity,

the improvement comprising the magnetic plate members each being provided with magnetic flux concentration means for partially concentrating the magnetic flux to be greater at peripheral side portions of the through-holes of the magnetic plate member in a hole alignment direction than the concentration of the magnetic flux at peripheral portions of the through-holes of the magnetic plate member in a direction orthogonal to the hole alignment direction so as to form magnetic focusing lenses between mutually corresponding through-holes of the pair of magnetic plate members having a symmetrical magnetic field distribution with respect to the axis of each of the magnetic focusing lenses.

4,362,965

COMPOSITE/LAMINATED WINDOW FOR ELECTRON-BEAM GUNS

John S. Kendall, Lebanon, Conn., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 29, 1980, Ser. No. 220,321

Int. Cl.³ H01J 33/00

U.S. Cl. 313-420

1 Claim



1. A composite window having a low electron cross-section and improved electron transmission characteristics for use with high-power, high energy electron-beam guns wherein the environment of use includes a high vacuum on the electron beam entrance side of the composite window and a high pressure on the electron beam exit side of the composite window, said composite window comprising:

- (i) a first material of a polyester film for supporting a low-Z metal layer, said polyester film having a low-Z of about 4.5 and a higher-strength than the low-Z metal layer;
- (ii) a second material in the form of a layer of a low-Z metal in intimate contact with said polyester film, said low-Z metal layer being an aluminum layer in the form of a foil which is laminated with said polyester film, or an aluminum layer which is vapor deposited on said polyester film, said low-Z metal layer having good heat transfer characteristics for removing energy deposited in the low-Z metal layer due to the electron beam which first penetrates the low-Z metal layer on the beam entrance side of said composite window, said composite laminated window having a thickness of up to about 1 mil.; and,
- (iii) a plurality of fluid cooled, spaced apart foil support members for supporting and cooling said composite window, said support members being spaced apart about 0.1 inch, said composite window having an improved electron transmission at 100 keV that rises from about 62 percent when measured on the exit side of a 2 mil thick aluminum window to about 85 percent when measured on the exit side of said composite window.

4,362,966

ELECTRON LEAKAGE REDUCTION IN FLAT PANEL DISPLAY DEVICES

Thomas L. Credelle, East Windsor, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 26, 1980, Ser. No. 210,741

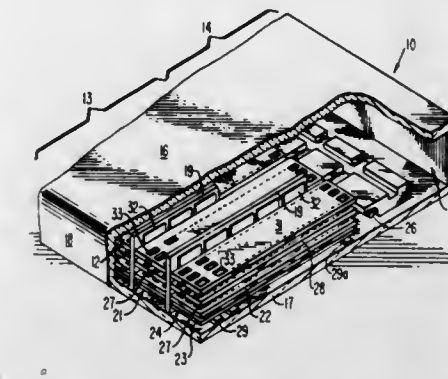
Int. Cl.³ H01J 29/72, 29/08

U.S. Cl. 313-422

9 Claims

1. In an electron display device having an evacuated envelope including a faceplate, a backplate and a side wall, a phosphor screen on said faceplate, a plurality of vanes dividing said

envelope into a plurality of channels, means for providing at least one electron beam, means in each of said channels for propagating said electron beam longitudinally along said channels substantially parallel to said screen, means extending along said backplate for selectively directing said electron beam toward said screen, and scanning means on said vanes for scanning said electron beam transversely across said channels so that each channel contributes a portion of a visual display on said screen, an improvement wherein:



said scanning means are electrode segments separated in the direction of said longitudinal electron beam propagation so that said electron beam sequentially propagates past said segments; and

means for applying a varying voltage to a first portion of said segments to scan said electron beam transversely across said channels and means for applying a deflection voltage to a second portion of said segments to deflect leakage electrons away from said screen.

4,362,967

GAS DISCHARGE DISPLAY DEVICE WITH AT LEAST ONE SPACING FRAME WHICH LIMITS THE POST-ACCELERATION CHAMBER

Burkhard Littwin, Hohenschaeftlarn, and Wilhelm Huber, Goldach, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

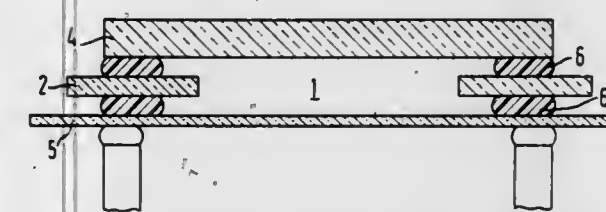
Filed Nov. 17, 1980, Ser. No. 207,696

Claims priority, application Fed. Rep. of Germany, Dec. 28, 1979, 2952528

Int. Cl.³ H01J 17/49

U.S. Cl. 313-493

14 Claims



1. In a gas discharge display device having a gas-filled, gas-tight space, said space defined by spaced parallel front and back plates, said device having a control disc disposed in said gas-filled space parallel to said front and back plates dividing said gas-filled space into a gas discharge chamber between said back plate and said control disc and a post-acceleration space between said front plate and said control disc, said control disc having a plurality of row conductors on one side thereof and a plurality of column conductors on an opposite side thereof and being perforated at points of intersection of said row and column conductors, said front plate having a luminescent screen thereon with an anode layer and said back plate having at least one cathode, the improvement of:

at least one spacing frame surrounding said post-acceleration chamber and defining a lateral boundary thereof at an interior of said spacing frame, said interior of said spacing frame being substantially

coincident with the boundary of an active portion of said luminescent screen, said spacing frame being attached by a sealing material to said control disc and said back plate in an air tight fashion, and said spacing frame having a width such that said sealing material when applied externally does not penetrate said post-acceleration chamber, said spacing frame further separating portions of said anode layer on said front plate and portions of said conductors on said control disc at edge regions of said post-acceleration chamber adjacent to said spacing frame.

4,362,968

SLOW-WAVE WIDEBAND CYCLOTRON AMPLIFIER

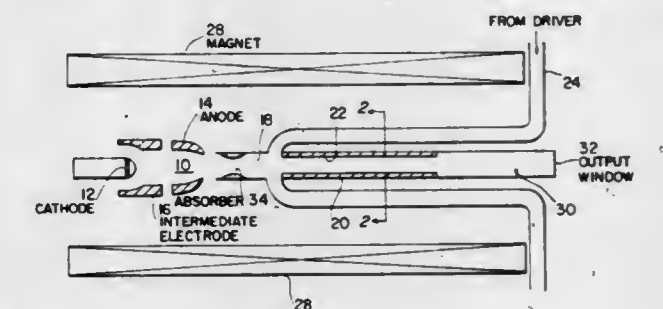
Kwo R. Chu, Annandale, Va.; Phillip A. Sprangle, and Victor L. Granatstein, both of Silver Spring, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 24, 1980, Ser. No. 162,702

Int. Cl.³ H01J 25/34

U.S. Cl. 315-3.5

8 Claims



1. A gyrotron travelling wave amplifier comprising: wave-launching means for launching a wave; beam producing means for forming an annular beam of electrons propagating along a path with velocity V_z ; a dielectric lined slow-wave structure for slowing the group velocity, V_g , of the wave so that $V_z \times V_g$ wherein V_g is constant over a wide frequency range; said slow wave structure being coupled to said wave launching means and said beam producing means so that said wave and said beam co-propagate within said slow wave structure, and wherein said wave interacts with and is amplified by said electron beam; and

means for generating a magnetic field B , within said slow wave structure, for causing cyclotron motion of the electrons in said beam wherein the magnitude, B_0 , of said magnetic field is adjusted so that the interaction between said wave and said beam is due to electron bunching caused by the $V_z \times B_0$ Lorentz force, where V_z is the traverse velocity of an electron in said electron beam and B_0 is the magnetic field of said wave.

8. A method of amplifying a wave in a gyrotron traveling wave amplifier dielectric lined waveguide comprising: launching a wave, with magnetic field B_0 and group velocity V_g , into the waveguide; injecting an annular electron beam into the waveguide wherein the beam velocity is V_z ; slowing the wave in the waveguide so that $V_g = V_z$; generating a magnetic field, B_0 , about said electron beam wherein the cyclotron frequency of the electrons in said electron beam is determined by B_0 ; and adjusting the amplitude of B_0 so that the wave is amplified by the beam due to bunching caused by the $V_z \times B_0$ Lorentz force where V_z is the transverse velocity of the electrons in the beam.

4,362,969

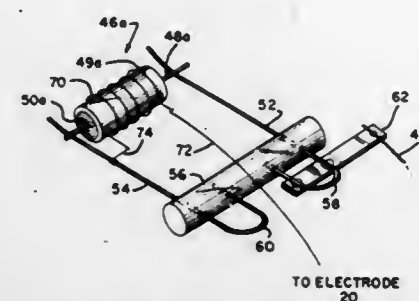
HIGH INTENSITY DISCHARGE LAMP INCLUDING ARC EXTINGUISHING MEANS

Harold L. Rothwell, Rowley, and W. Calvin Gungle, Danvers, both of Mass., assignors to GTE Products Corporation, Stamford, Conn.

Filed Apr. 27, 1981, Ser. No. 257,847
Int. Cl.³ H01J 7/44

U.S. Cl. 315—73

6 Claims



1. A high intensity discharge lamp having: an inner arc tube having at least two electrodes between which a discharge takes place to produce visible light and ultraviolet radiation; and an outer envelope substantially transparent to said visible light and substantially opaque to said ultraviolet radiation, said outer envelope containing an inert atmosphere which is substantially oxygen free; means external of said outer envelope for connecting said lamp to a source of electrical power; circuit means within said outer envelope electrically connecting said electrodes to said means external of said outer lamp; and lamp extinguishing means for opening said circuit in the event of rupture of said outer envelope and the entrance of oxygen thereinto, said lamp extinguishing means being serially connected between one of said electrodes and said means external of said outer envelope and being characterized by a fuse comprising: a meltable fuse wire have a given melting point, a given diameter and a given length, at least a portion of said given length being surrounded by a refractory hollow sleeve having an internal dimension larger than said given diameter; a pyrophoric material substantially filling the remaining volume of said sleeve; and a tungsten, heat generating coil serially connected between said fuse wire and said one electrode, said coil surrounding said sleeve.

4,362,970

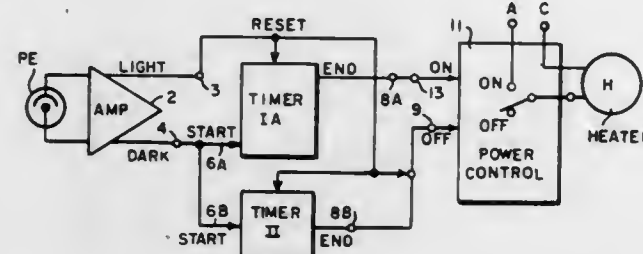
ENERGY CONSERVING ELECTRICAL POWER CONTROL CIRCUIT

John K. Grady, 277 Baker Ave., Concord, Mass. 01742
Filed Sep. 8, 1980, Ser. No. 184,991

Int. Cl.³ H05B 37/02

U.S. Cl. 315—159

1 Claim



1. A power control circuit comprising: a photoelectric device for sensing changes between light and dark; a timer coupled to the device including means timing a delay period starting when the device senses a light change; power control means having a power output and actuated by

the timer to switch between power-off and power-on states at the output, wherein the timer and power control means are connected to switch the power control means to power-on state at the end of the delay period, and including a second timer responsive to a change in the photoelectric device to start timing a second delay period longer than the first said delay period, the second timer being connected to the power control means to switch the power control means to power-off state at the end of the second delay period.

4,362,971

POWER SUPPLY FOR ARC DISCHARGE DEVICES

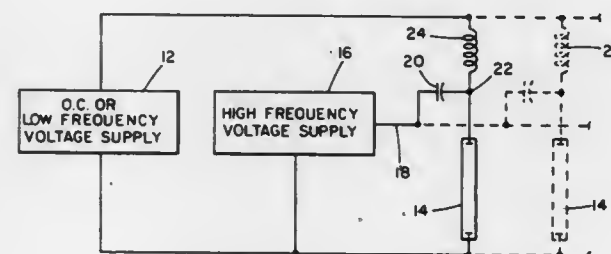
Hiram C. Sloan, Jr., 5116 W. 190th St., Torrance, Calif. 90503
Continuation of Ser. No. 865,900, Dec. 30, 1977, abandoned.

This application Dec. 6, 1979, Ser. No. 100,869

Int. Cl.³ H05B 41/39

U.S. Cl. 315—176

24 Claims



1. A power supply circuit for arc discharge devices including a first relatively low voltage source having means for connection to an arc discharge device and continuously supplying voltage at a level insufficient to conduct current in an arc discharge device until ionization has occurred in the device and having a power capability whereby it supplies a significant portion of the power to the device, and a second relatively high voltage power source having means for connection to the arc discharge device and continuously supplying voltage at a level sufficient to cause ionization in the device.

4,362,972

THYRATRONS

Timothy P. Donaldson, Great Totham, England, assignor to English Electric Valve Co. Limited, Chelmsford, England

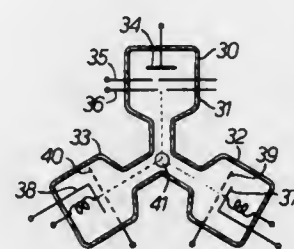
Filed Dec. 10, 1980, Ser. No. 214,880

Claims priority, application United Kingdom, Dec. 11, 1979, 7942655

Int. Cl.³ H01J 17/14

U.S. Cl. 315—338

5 Claims



1. A thyatron having: two cathodes and one anode, such that there are two distinct current pathways through the thyatron having a common section of significant length; and switching means for switching the current between the current pathways, which switching means comprises in part magnetic-field-producing means in operation producing a plasma-diverting magnetic field acting at the cathode

end of the common pathway section, with the position and direction of the field lying across the common pathway section so as to divert the current-carrying plasma away from one and towards the other of the pathways, whereby the current flowing along the one pathway is extinguished and replaced by a current flowing along the other pathway.

4,362,973

AESTHETICALLY PLEASING CRT-DISPLAY OF SINGLE-SOURCE SIGNALS

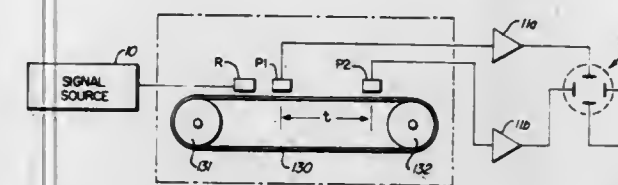
Brent R. Brentlinger, 1645 E. Thomas Rd., Apt. 409, Phoenix, Ariz. 85016

Filed Dec. 1, 1978, Ser. No. 965,569

Int. Cl.³ H01J 29/72

U.S. Cl. 315—393

4 Claims



1. In a cathode ray tube (CRT) having the necessary associated power supplies and sweep deflection means to produce a visually discernable image on the screen of said CRT when signals are applied to said deflection means a method of producing Lissajous figure imagery on said screen when the signals applied to said deflection means are derived from a common signal source comprising the steps of:

- (a) applying a first part of said signal from said common signal source to deflection means producing a first sweep deflection of the electron beam of said CRT;
- (b) applying a second part of said signal from said common signal source through a time delay element to deflection means producing a second sweep deflection of said electron beam at an angle displaced from that of said first sweep deflection,

whereby the deflection imagery derived on the screen of said CRT is the instantaneous resultant of said first and said second sweep deflections of said electron beam.

4,362,974

COMMUTATED SWITCHED REGULATOR WITH LINE ISOLATION FOR TRANSISTOR DEFLECTION

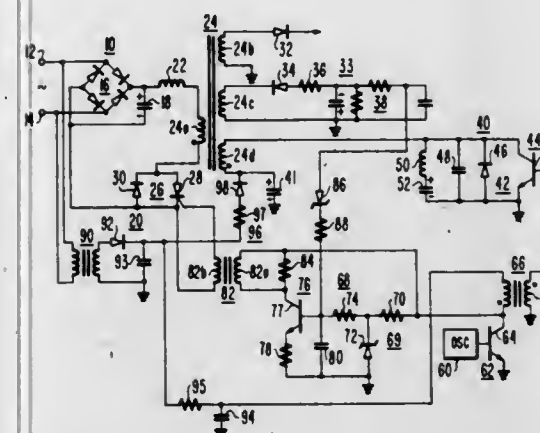
Wolfgang F. W. Dietz, New Hope, Pa., assignor to RCA Corporation, New York, N.Y.

Continuation of Ser. No. 19,581, Mar. 12, 1979, abandoned. This application Sep. 15, 1980, Ser. No. 187,275

Int. Cl.³ H01J 29/70

U.S. Cl. 315—408

16 Claims



1. A regulated television deflection apparatus adapted to be energized by and isolated from a source of unregulated direct voltage, comprising:

regulator switch means including a controlled, main, current path and a control electrode; a transformer including a primary winding serially coupled with said main current path and with said source for coupling energy from said source to said primary winding when said main current path is conductive in a first direction, said transformer further including a secondary winding conductively isolated from said primary winding; a deflection winding coupled across said secondary winding for forming a path for the bidirectional flow of current therebetween; a trace switch coupled in parallel with said deflection winding and operated at the horizontal rate for promoting the flow of deflection current in said deflection winding during trace and retrace intervals of each deflection cycle; and

control means coupled to said control electrode and to an energy sensing point on the apparatus for making said main current path conductive at a controllable instant during said trace interval that varies as said unregulated direct voltage varies for maintaining the voltage at said point substantially constant, said main current path remaining conductive after said controllable instant until the occurrence of said retrace interval when the voltage across said deflection winding is applied to said secondary winding for inducing a current in said primary winding that reduces the current in said main current path to zero during said retrace interval and thereafter said main current path is substantially nonconductive in said first direction until the reoccurrence of said controllable instant within the subsequent trace interval.

4,362,975

DEVICE FOR CONTROLLING A BIDIRECTIONAL DC MOTOR

Jean-Vitus Orsini, Marignier, France, assignor to Etablissements Carpano & Pons, France

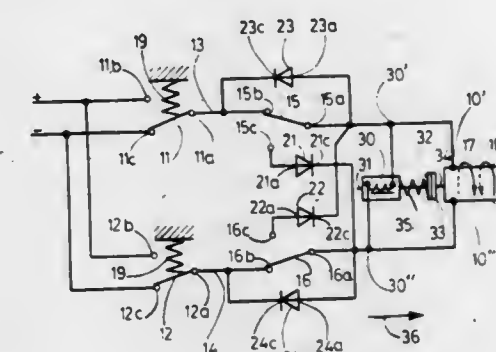
Filed Oct. 22, 1980, Ser. No. 199,570

Claims priority, application France, Nov. 14, 1979, 79 28508

Int. Cl.³ H02P 1/00

U.S. Cl. 318—293

2 Claims



1. A device for controlling a reversible DC electric motor having first and second terminals comprising: current supply conductors having positive and negative terminals, a first control reversing switch having a common terminal, a first control terminal connected with the positive supply terminal, a second control terminal connected with the negative supply terminal, and a movable element movable between a first position in which it connects said common terminal with said first control terminal and a second position in which it connects said common terminal with said second control terminal, a first ON-OFF switch having a common terminal connected with a first terminal of said motor, a first control terminal connected with said common terminal of said first control reversing switch, a second control terminal, and a movable element movable between a first position in which it connects said common terminal with said first

control terminal and a second position in which it connects said common terminal with said second control terminal,

a first unidirectional element connected in parallel with said first ON-OFF switch with said movable element in said first position,

a second control reversing switch having a common terminal, a first control terminal connected with the positive supply terminal, a second control terminal connected with the negative supply terminal, and a movable element movable between a first position in which it connects said common terminal with said first control terminal and a second position in which it connects said common terminal with said second control terminal,

a second ON-OFF switch having a common terminal connected with a second terminal of said motor, a first control terminal connected with said common terminal of said second control reversing switch, a second control terminal, and a movable element movable between a first position in which it connects said common terminals with said first control terminal and a second position in which it connects said common terminal with said second control terminal,

a second unidirectional element connected in parallel with said second ON-OFF switch with said movable element in said first position

a third unidirectional element connected between said second control terminal of said first ON-OFF switch and said common terminal of said second ON-OFF switch,

a fourth unidirectional element connected between said second control terminal of said second ON-OFF switch and said common terminal of said first ON-OFF switch, means for braking said motor comprising a braking element biased to braking condition and a solenoid connected in parallel with said motor for moving said braking element to released condition when said solenoid is energized,

said third and fourth unidirectional elements being directed and operable to short circuit said solenoid to prevent its being energized by reverse voltage generated by said motor when current from said current supply is switched off,

said first and second control reversing switches being operable separately and independently of one another, and

means spring biasing said control reversing switches to positions in which said common terminals of both of said control reversing switches are connected with the same terminal of said supply conductors whereby no current is supplied to said motor.

4,362,976

DRIVING CIRCUIT FOR DC MOTOR

Yoshiki Fujioka, Hino; Yutaka Koiwai, and Mitsuhiko Hirota, both of Tokyo, all of Japan, assignors to Fujitsu Fanuc Limited, Tokyo, Japan

Continuation of Ser. No. 97,382, Nov. 26, 1979. This application Dec. 1, 1980, Ser. No. 211,974

Claims priority, application Japan, Nov. 27, 1978, 53-146208 Int. Cl.³ H02P 5/16

U.S. Cl. 318—341

13 Claims

1. A DC motor drive circuit comprising speed command means for generating a command speed signal; speed detection means for detecting the actual speed of a DC motor;

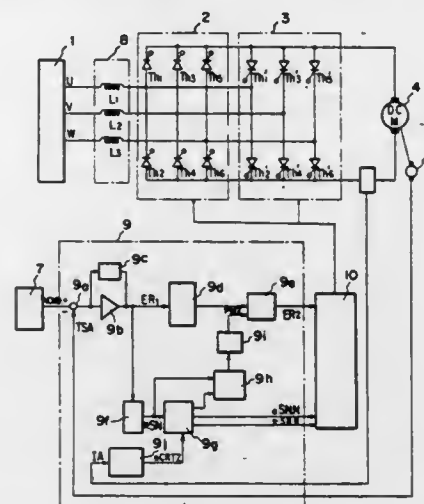
a thyristor-controlled full-wave reversible bridge including means, when in a power rectification mode, for converting an AC voltage from a power source to a DC voltage and for applying the DC voltage to the DC motor and, when in a power inversion mode, for feeding the DC motor armature current as AC power back to the power source; and

control means for controlling the firing angle of the thyristors of said bridge so that a speed deviation signal corresponding to the difference between the command speed

signal and the detected actual DC motor speed is made to approach a predetermined difference, and for shifting the operating mode of said bridge from the power rectification mode to the power inversion mode when the command speed undergoes an abrupt decrease in absolute value, and then back to the power rectification mode from the power inversion mode so that the DC motor will rotate at said predetermined difference from the command speed, said control means further comprising:

polarity discrimination means for detecting a change in the polarity of the speed deviation signal after said bridge has switched to said power inversion mode after said abrupt decrease of the command speed;

firing angle narrowing means responsive to said detected change in polarity of the speed deviation signal for narrowing the firing angle of said thyristors down to a reduced angle when said bridge is operating in the power



inversion mode before changing back from the inversion mode to the rectification mode, said reduced firing angle being such as to ensure that the current through said motor is intermittently interrupted;

current intermittence detection means for detecting at least the first said interruption of the DC motor armature current after the operation of said firing angle narrowing means, and for generating a signal indicative thereof, the generation of said signal taking place after the occurrence of a predetermined condition after said detection of the first interruption of the DC motor armature current;

blocking means for blocking the firing of said thyristor bridge circuit for a prescribed period of time after the third of said three firing pulses has been generated; and means for changing over the operating mode of said thyristor bridge from said inversion to said rectification mode after the occurrence of said predetermined condition.

4,362,977

METHOD AND APPARATUS FOR CALIBRATING A ROBOT TO COMPENSATE FOR INACCURACY OF THE ROBOT

Roger C. Evans, Yorktown Heights; John E. Griffith, Mahopac; David D. Grossman, Chappaqua; Myron M. Kutcher, Woodstock, all of N.Y., and Peter M. Will, Boca Raton, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 30, 1980, Ser. No. 164,391

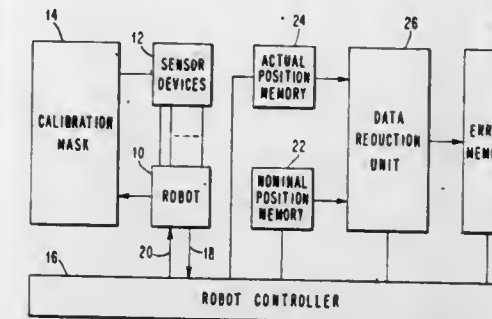
Int. Cl.³ G05B 19/42

U.S. Cl. 318—568

1 Claim

1. A method for calibrating a robot, comprising: moving the end effectors of a robot in response to commands representative of a set of previously determined nominal positions known to the robot controller; determining, by actual measurement, the associated actual positions reached by said robot end effector; comparing said set of nominal positions with said associated

actual positions to determine the robot position errors associated with each of said nominal positions by said robot end effector being in physical contact with a stationary calibration mask having a plurality of datum points, edges and surfaces, and



storing calibration data representing said robot position errors in an error memory for subsequent use by said robot controller in compensating for inaccuracy of said robot so it moves to the actual desired positions.

4,362,978

CONTROL SYSTEM FOR MANIPULATOR APPARATUS

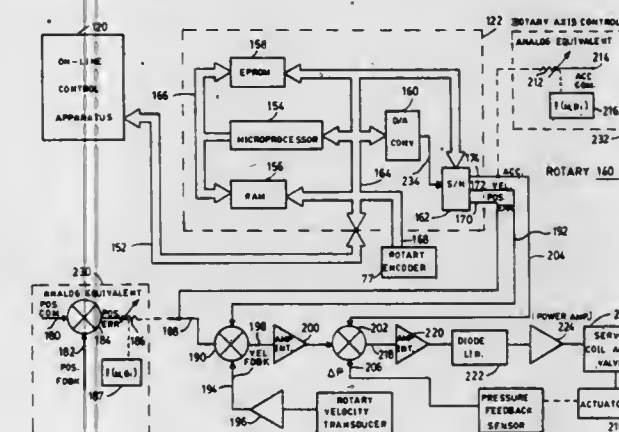
Brian W. Pollard, Westport; William Perzley, Weston, and Stanley J. Blanchard, Danbury, all of Conn., assignors to Unimation, Inc., Danbury, Conn.

Filed Oct. 27, 1980, Ser. No. 201,181

Int. Cl.³ G05B 19/42

U.S. Cl. 318—568

20 Claims



1. A control system for a manipulator having an arm movable in a plurality of axes and including control apparatus that provides position error, velocity and acceleration command signals in response to program data and arm position data, said manipulator arm performing a work cycle in accordance with said program data and said position error, velocity and acceleration command signals, said control system comprising:

means for inertia scaling one or more of said position error and acceleration command signals in accordance with scale factors representing the variation of the inertia of said arm over said work cycle; means responsive to said inertia scaled command signals and said command signals not scaled for variations in inertia for generating axes control signals; and means responsive to said axes control signals for moving said arm in said plurality of axes.

4,362,979

STEPPING MOTOR CONTROL CIRCUIT

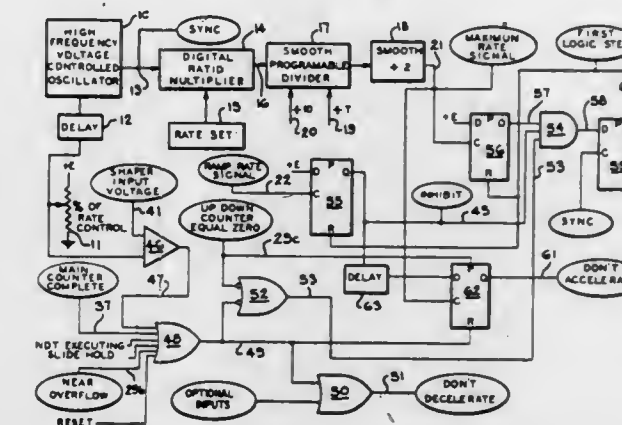
Lee E. Cannon, Bozeman, Mont., assignor to Dana Corporation, Toledo, Ohio

Division of Ser. No. 872,276, Jan. 25, 1978, Pat. No. 4,234,830, which is a division of Ser. No. 731,867, Oct. 13, 1976, Pat. No. 4,126,821. This application Jul. 14, 1980, Ser. No. 168,916

Int. Cl.³ G05B 19/28

U.S. Cl. 318—603

2 Claims



1. An electronic pulse counter for counting pulses up to an n digit number x of modulus m comprising:

- a modulus m down counter having a capacity of q digits where m is an integer with a minimum value of one, said down counter being of the type which counts down through zero to q digits of (m-1) including;
- (i) means to input the q lowest order digits of x into the register(s) of said downcounter;
- (ii) means to input the pulses to be counted into said downcounter;
- (iii) means producing an output pulse from said downcounter each time it counts to zero;
- (b) a computer including means to count n-q digits from a pulsed source;
- (c) means to input the highest order n-q digits of X into the computer;
- (d) means to input the output pulses from the downcounter into the computer;
- (e) output means from said computer to indicate that the highest order n-q digits have been counted; and
- (f) means responsive to the coincidence of said last mentioned output means and an output pulse from said downcounter to indicate that the count is complete.

4,362,980

POSITION ERROR RECOVERY AND MOTOR CONTROL SYSTEM

Herman Itzkowitz, Bala Cynwyd, Pa., assignor to Exxon Research and Engineering Co., Florham Park, N.J.

Filed Sep. 3, 1980, Ser. No. 183,964

Int. Cl.³ G05B 19/40

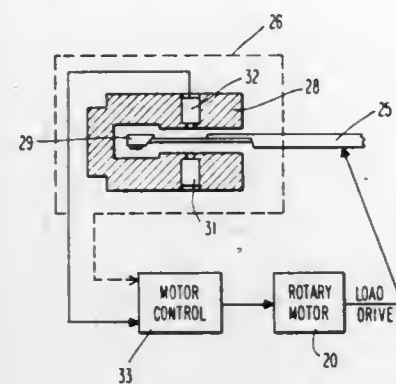
U.S. Cl. 318—685

22 Claims

1. A stepper motor system with improved tracking means, comprising:

a stepper motor and an element coupled to and driven by said stepper motor; sensor means for generating a plural state sensor signal representative of movement of said element through a plurality of positions, said signal normally being cyclical with said movement and changing a predetermined number of states at a time; means continuously operable as said sensor signal goes through a plurality of cycles for determining when other than said predetermined number of states of said signal

change at a time, whereby the sensor signal is continuously detected to be legal or in error as said stepper motor



drives said element through a controlled number of positions.

4,362,981

DRIVING CIRCUIT FOR A STEPPING MOTOR

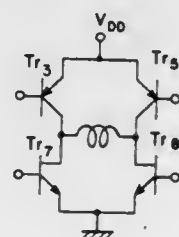
Satoshi Arai, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Japan

Filed Sep. 12, 1980, Ser. No. 186,537

Int. Cl.³ G05B 19/40

U.S. Cl. 318—696

5 Claims



1. A driving circuit for a stepping motor, comprising: first and second static induction transistors whose sources are connected together and each having a leak current characteristic between its drain and source selected so as to be approximately 10 μ A; first and second PNP transistors each having an emitter connected to a source voltage; and a motor having one terminal connected to a junction point of the drain of said first static induction transistor and the collector of said first PNP transistor and another terminal connected to a junction point of the drain of said second static induction transistor and the collector of said second PNP transistor.

4,362,982

VOLTAGE REGULATOR FOR VEHICLES

Yoshio Akita, Ichinomiya; Toshinori Maruyama, Kariya, and Katsuya Muto, Okazaki, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Jul. 8, 1981, Ser. No. 281,494

Claims priority, application Japan, Jul. 11, 1980, 55/94628

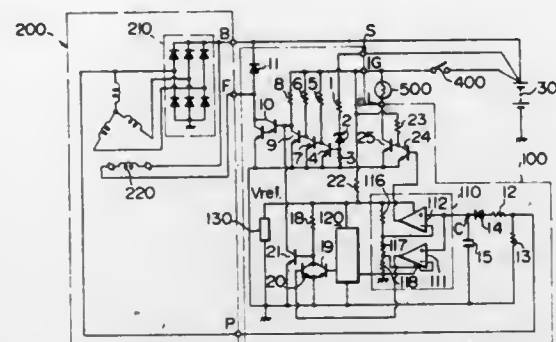
Int. Cl.³ H02J 7/00

U.S. Cl. 320—64

4 Claims

1. A battery charging system for vehicles comprising: an A.C. generator; a rectifier for rectifying the output of said A.C. generator; a battery charged from the output of said rectifier; and a voltage regulator for regulating the output of said A.C. generator; said regulator including: means for controlling the excitation of a field winding of said generator, said controlling means controlling a current flow to the field winding by detecting a voltage level of said battery, the current being supplied to said field winding from said battery and through an ignition switch at an initial excitation stage and the current being supplied from

said generator through said rectifier at a full excitation stage succeeding to the initial excitation stage; means for detecting an output voltage level of said generator, said detecting means having a single input terminal connected to an output terminal of a stator winding of said generator and producing first and second detection signals when said generator output voltage respectively reaches first and second predetermined reference levels; means for providing an on-off control signal of a predetermined duty ratio to said excitation control means, said on-off control signal providing means having an input



terminal to receive said first detection signal from said detecting means to continuously deliver said on-off control signal to said excitation control means until said first detection signal is received, thereby to supply the current to said field-winding intermittently at said predetermined duty ratio, and means for indicating a generating state of said generator in response to said second detection signal from said detecting means, said indicating means indicating that said generator is not in a normal generating state until said second detection signal is received.

4,362,983

GENERATION CONTROL SYSTEM FOR VEHICLES

Kazumasa Mori, Aichi; Taro Asahi, Chiryu; Keiichi Banzai, Toyota; Katsutaro Iwaki, Chiryu; Katsuya Muto, Kariya; Akira Mase, Handa; Takayasu Minura, Nagoya; Katsumi Itoh, Ohbu, and Yoshio Akita, Ichinomiya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

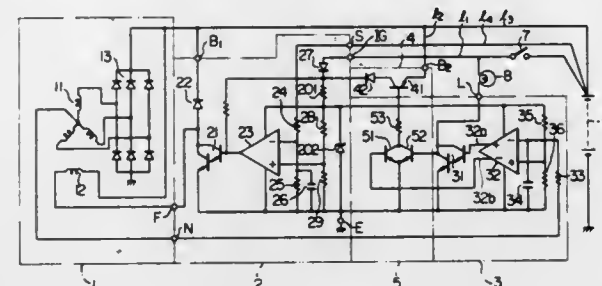
Filed Jul. 31, 1980, Ser. No. 174,178

Claims priority, application Japan, Aug. 1, 1979, 54-98527

Int. Cl.³ H02J 7/16; H02P 9/00

U.S. Cl. 322—28

7 Claims



1. A generation control apparatus for vehicles having a generator, a battery and an ignition switch, said apparatus comprising: a voltage regulator circuit for controlling the generation of power by the generator; a first circuit for supplying electric power from the battery to said voltage regulator circuit through the ignition switch; a second circuit for supplying the electric power to said voltage regulator circuit without passing through said ignition switch;

means for producing a generation signal indicative of the generating condition of said generator; a charge indicator connected to said battery through said ignition switch; and an energization control circuit for controlling the supply of said power through said second circuit in response to said generation signal and to a current flowing through said charge indicator when said ignition switch is turned on and when said charge indicator gives no indication of power generation.

4,362,984

CIRCUIT TO CORRECT NON-LINEAR TERMS IN BANDGAP VOLTAGE REFERENCES

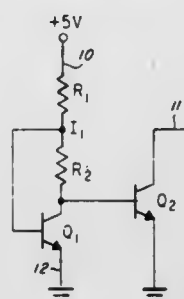
Varnum S. Holland, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Mar. 16, 1981, Ser. No. 244,356

Int. Cl.³ G05F 3/20

U.S. Cl. 323—313

7 Claims



1. A circuit which compensates for non-linear temperature induced variation in a voltage reference comprising: a. means for directing first and second current to flow through first and second circuit means, respectively; b. means for maintaining said first and second currents at a substantially similar magnitude; c. means for directing a component of said first current to flow through a third circuit means; and d. means for controlling said third circuit means including fourth circuit means operable to increase or decrease the value of said current component as a function of temperature.

4,362,985

INTEGRATED CIRCUIT FOR GENERATING A REFERENCE VOLTAGE

Chikara Tsuchiya, Tokyo, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

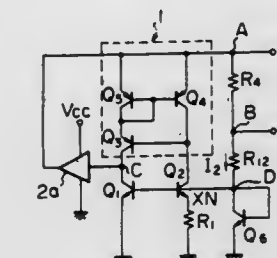
Filed Apr. 17, 1981, Ser. No. 255,038

Claims priority, application Japan, Apr. 18, 1980, 55-51399

Int. Cl.³ G05F 3/20

U.S. Cl. 323—314

10 Claims



1. A circuit for generating a reference voltage, comprising: a first resistor operatively connected to ground; a first transistor and a second transistor each having bases commonly connected together at a first connection point, each having collectors and each having emitter regions, an area of the emitter region of the first transistor being smaller than an area of the emitter region of the second transistor, the emitter of the first transistor being con-

nected to ground, and the emitter of the second transistor being connected to the first resistor at a second connection point; current supply means, operatively connected to the collectors of the first and second transistors, for supplying an equal current to the collectors of the first and second transistors; a second resistor operatively connected between an output terminal and the first connection point of the commonly connected bases of the first and second transistors; a third resistor operatively connected between said output terminal and a first power supply point; and a current generator circuit, operatively connected between the first connection point of the commonly connected bases and ground, for generating a current which is proportional to the emitter current of the first transistor or the second transistor, such that a constant voltage is generated at the output terminal.

4,362,986

METHOD AND MEANS FOR MONITORING FAULTS IN AN ELECTRIC POWER SYSTEM AND THE LIKE

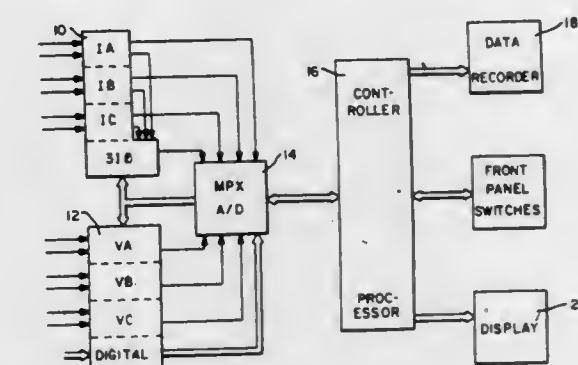
James J. Burke, Ballston Spa; Dale A. Douglass; Robert A. Lacy, both of Scotia; Richard J. Murphy, Clifton Park; Delano D. Wilson, Scotia, and Jonathan B. Wright, Schenectady, all of N.Y., assignors to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Oct. 14, 1980, Ser. No. 196,760

Int. Cl.³ G01R 31/02

U.S. Cl. 324—51

10 Claims



1. The method of monitoring an electric power system and recording faults for subsequent analysis comprising the steps of (a) monitoring voltage and current at a selected point in said system, (b) identifying voltage and current above preselected values, (c) recording voltage and current values at a plurality of sampling rates for a predetermined period of time subsequent to voltage and current exceeding said preselected values, (d) recording voltage and current values at a plurality of sampling rates for a predetermined period of time subsequent to the re-establishment of voltage and current after a fault interruption thereof, and (e) recording voltage and current values at a plurality of sampling rates and for predetermined periods of times subsequent to current exceeding a zero level following a preselected period of zero level current.

4,362,987

APPARATUS FOR DETECTING ELECTRICAL SHORTS IN ELECTRONIC CIRCUITS

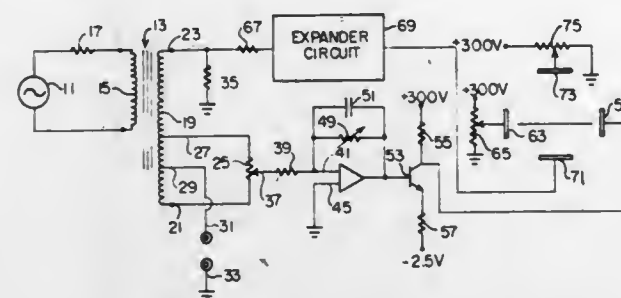
James R. Clinton, Seattle, Wash., assignor to Huntron Instruments, Inc., Lynnwood, Wash.

Filed Sep. 12, 1980, Ser. No. 186,493

Int. Cl.³ G01R 31/08

U.S. Cl. 324—52

11 Claims



1. An apparatus for detecting electrical shorts which is particularly useful with printed circuits, comprising: impedance means having first and second leads extending therefrom; first and second test lead means, one test lead means being connected to the first lead from said impedance means, the other test lead means being connected to ground; resistance means connected between the second lead from said impedance means and ground; means for inducing an AC signal into said impedance means, so that an AC signal is produced on the first lead, resulting in a current flow in the circuit comprising said first impedance means, said first and second test lead means, said resistance means and ground, when there is not an open circuit between said first and second test lead means; a visual indicator means having vertical and horizontal deflection plates, such as an oscilloscope; first amplifier means, including means connected to said impedance means for applying substantially the value of voltage on said first lead to the input of said first amplifier means, and means for applying the output of said first amplifier means to one horizontal deflection plate of said visual indicator means; and second amplifier means, including means connected to the second lead of said impedance means for applying the voltage on the second lead to the input of said second amplifier means, and means for applying the output of said second amplifier means to one of the vertical deflection plates of said visual indicator means, said second amplifier means including means for maintaining the peak voltage of the signal applied to the vertical deflection plates at a predetermined level, regardless of the peak of the signal applied to the input of said second amplifier means.

4,362,988

METHOD OF AND CIRCUIT ARRANGEMENT FOR DETERMINING THE MAGNITUDE OF AN UNKNOWN RESISTANCE ELEMENT

Günther Weimer, Gerlingen, Fed. Rep. of Germany, assignor to Centra-Burkle GmbH & Co., Schonaich, Fed. Rep. of Germany

Filed Jun. 6, 1980, Ser. No. 157,067

Claims priority, application Fed. Rep. of Germany, Jun. 7, 1979, 2923026

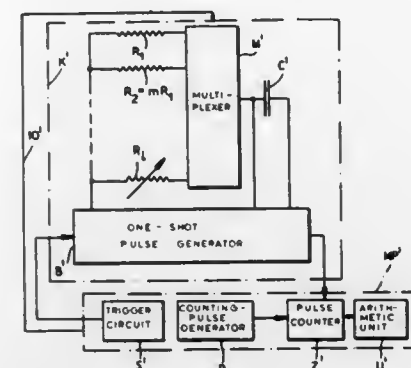
Int. Cl.³ G01R 27/02

U.S. Cl. 324—62

4 Claims

1. A method of digitally determining the magnitude of R_i of an unknown resistance element, comprising the steps of: establishing a recurrent gating period T with the aid of a first timing network; establishing, with the aid of a second timing network, a train of counting pulses with a recurrence period t substantially shorter than said gating period T ; providing different ratios T/t in three different gating periods

by respectively inserting a first known calibrating resistance of magnitude R_1 , a second known calibrating resistance of magnitude $R_2 = mR_1$ with $m > 1$, and the unknown resistance element in circuit with an unvarying capacitance in said first timing network;



registering the number of counting pulses N_1 , N_2 and N_i respectively occurring in said three gating periods; and calculating the ratio R_i/R_1 from the counts N_1 , N_2 , N_i , said counts N_1 , N_2 , N_i varying substantially in direct proportion to the magnitudes R_1 , R_2 , R_i , and from the factor m according to a formula given by

$$\frac{R_i}{R_1} = \frac{(m-1)N_i + N_2 - mN_1}{N_2 - N_1}$$

4,362,989

PROCESS AND APPARATUS FOR CONTROLLING THE CONCENTRATION OF SOLID PARTICLES IN SUSPENSION IN A LIQUID FLUID

Charles Frei, Geneva, Switzerland, assignor to Ateliers des Charmilles S.A., Geneva, Switzerland

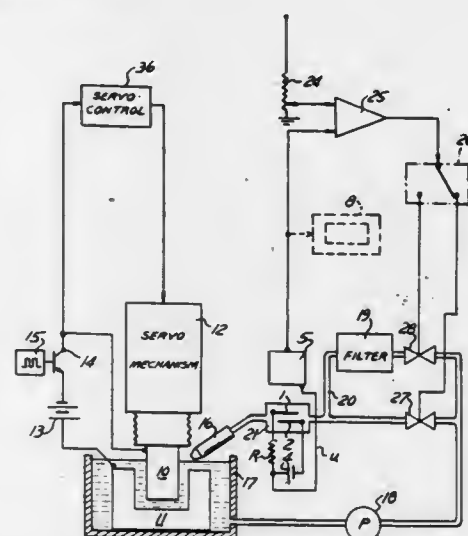
Filed Nov. 3, 1980, Ser. No. 203,719

Claims priority, application Switzerland, Nov. 16, 1979, 10237/79

Int. Cl.³ G01N 27/00

U.S. Cl. 324—71 CP

6 Claims



1. A process for controlling the concentration of electrically conductive solid particles in suspension in a liquid fluid, said process comprising flowing said liquid fluid between a pair of electrodes each having an active surface of predetermined area, maintaining said active surfaces at a constant distance from each other, connecting said electrodes across a D.C. power supply such as to cause relatively low energy electrical discharges to occur between said active surfaces, and determining the average delay time interval between applying a predetermined voltage between said electrodes and the occurrence of an electrical discharge, whereby the duration of said

average delay time interval is an inverse function of the concentration of said solid particles in said liquid fluid.

4,362,990

CURRENT- AND VOLTAGE-MEASUREMENT TRANSDUCER

Gernot Schneider, Baar; Werner Trinkler, Zug; Mathis Halder; Eva Blazso, both of Baar; Jacob de Vries, Allenwinden; Konrad Schürmann, Cham, and Hans Muntwyler, Baar, all of Switzerland, assignors to LGZ Landis & Gyr Zug AG, Zug, Switzerland

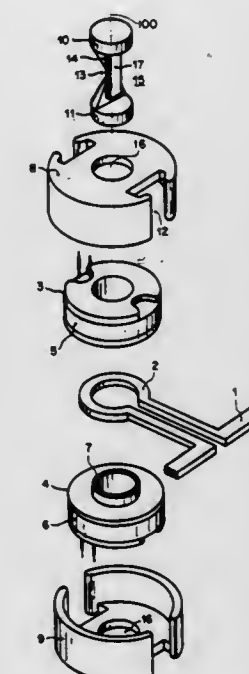
Filed Apr. 7, 1980, Ser. No. 138,005

Claims priority, application Switzerland, Apr. 20, 1979, 3724/79

Int. Cl.³ G01R 1/20, 33/00; H01F 1/00

U.S. Cl. 324—117 R

16 Claims



1. A transducer for measuring a current, comprising in combination: magnetic core means having a gap normally impeding passage of any magnetic flux, including a shell, coil means arranged to pass a premagnetizing current for producing a first magnetic field, loop means arranged to pass the current to be measured so as to produce a second magnetic field, said shell surrounding said coil means and said loop means, and magnetic field comparison means exposed to said magnetic fields, said magnetic field comparison means including magnetic film means bridging said flux gap and being alternately driveable in respective opposite directions of saturation substantially by said first magnetic field, and evaluating said measuring current in dependence of said magnetic fields, said magnetic core means, said coil means, said loop means, and said magnetic field comparison means having a common axis, and being substantially disposed concentrically about said axis.

4,362,991

INTEGRATED CIRCUIT TEST PROBE ASSEMBLY

Joseph C. Carbine, Wyncote, Pa., assignor to Burroughs Corporation, Detroit, Mich.

Filed Dec. 12, 1980, Ser. No. 215,572

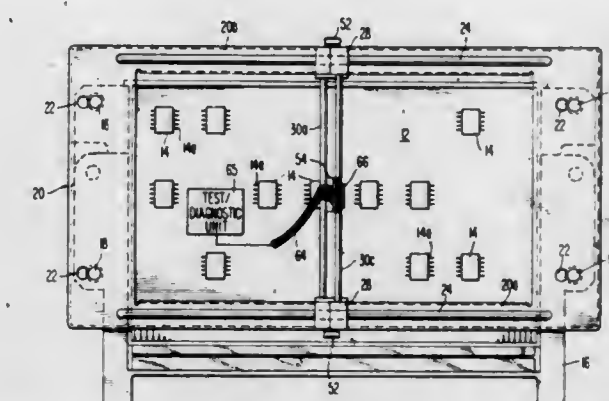
Int. Cl.³ G01R 1/06, 31/02

U.S. Cl. 324—158 P

9 Claims

1. An integrated circuit test probe assembly for probing selected leads of operational integrated circuit packages mounted on an interconnection medium comprising in combination: a probing frame removably mounted over said interconnection medium, said frame including a pair of opposed pla-

nar sides having respective bars elevated from the surfaces thereof and oriented parallel thereto, a probe support slidably mounted in one rectangular coordinate axis on said bars of said probing frame and oriented in orthogonal relation thereto, said probe support comprising a pair of end blocks for engaging the respective pair of bars of said probing frame and a plurality of parallel spaced-apart rods, each of said rods having its opposite extremities supported by the respective pair of end blocks, a test probe adapted to be carried by said rods of said probe support and being movable above said interconnection medium in the opposite rectangular coordinate axis, said test probe comprising a body and a cover therefor, said body including a plurality of spaced-apart tooth-like projections at its forward extremity, a plurality of spring-actuated plunger type contacts mounted in said body and protruding externally thereof between respective adjacent



ones of said tooth-like projections, a plurality of electrical conductors each having an extremity connected to one of said plurality of contacts and its opposite extremity external to said body, a spring member attached within said body, a plurality of slots in said body and said cover for permitting portions of said spring member to appear externally thereto, said test probe being further adapted to be moved toward said selected leads of an integrated circuit package in a direction substantially orthogonal to the surface of said interconnection medium, said contacts engaging said selected leads and said tooth-like projections separating and insulating the latter from one another, said spring member causing said body of said test probe to be locked onto one of said rods of said probe support in substantial concurrence with the attainment of contact of said tooth-like projections with said surface of said interconnection medium.

4,362,992

SYSTEM AND METHOD OF DETECTING THE PROXIMITY OF AN ALTERNATING MAGNETIC FIELD

David G. Young, Bracknell, and Peter D. Finch, Woking, both of England, assignors to Sperry Limited, Bracknell, England

Filed Jan. 30, 1978, Ser. No. 876,302

Int. Cl.³ G01R 33/02

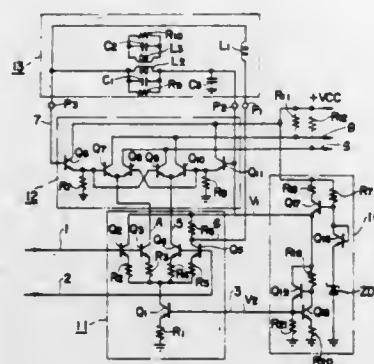
U.S. Cl. 324—247

10 Claims

1. A system for detecting the proximity of a source of an alternating magnetic field, said magnetic field having a horizontal component with a horizontal magnitude and a vertical component with a vertical magnitude comprising: sensor means including first and second sensor coils, mounted in respective generally vertical non-parallel planes, each substantially responsive to said horizontal component of said alternating magnetic field for respectively producing first and second signals; processing means coupled to receive said first and second signals for deriving a warning signal that is indicative of the proximity of said source and for determining the ratio of said second signal to said first signal, said ratio being

mediate frequency signal, at least said phase shift signal being applied to said phase detector circuit, the improvement comprising:

- (1) a third transistor, the base of which is connected to the base of said first transistor,
- (2) a fourth transistor, the base of which is connected to the base of said second transistor,
- (3) a first resistor, the one end of which is connected to the emitter of said first transistor,
- (4) a second resistor, the one end of which is connected to the emitter of said second transistor,



- (5) a third resistor, the one end of which is connected to the emitter of said third transistor,
- (6) a fourth resistor, the one end of which is connected to the emitter of said fourth transistor,
- (7) a constant-current transistor, the collector of which is connected to other ends of said first, second, third and fourth resistors, and
- (8) wherein a collector output of said first transistor is applied to said phase detector circuit, while a collector output of said fourth transistor is applied to said phase detector circuit through said phase shift network.

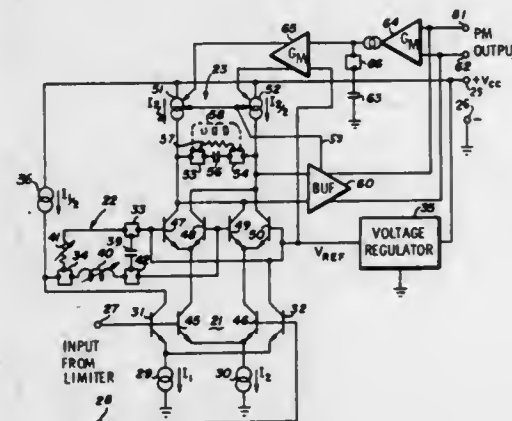
4,362,999

AM STEREO PHASE MODULATION DECODER
Don R. Sauer, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Oct. 15, 1980, Ser. No. 197,294
Int. Cl.³ H03D 3/06

U.S. Cl. 329-103

7 Claims



1. A phase demodulator comprising: a four quadrant multiplier having first and second input terminal pairs and an output terminal pair; means for driving said first input pair from a source of phase modulated signal;

integrating the signal at said output terminal pair thereby to produce a phase responsive output; and first and second variable current sources connected as load elements to said output terminal pair of said multiplier.

4,363,000

POWER AMPLIFIER TANK CIRCUIT

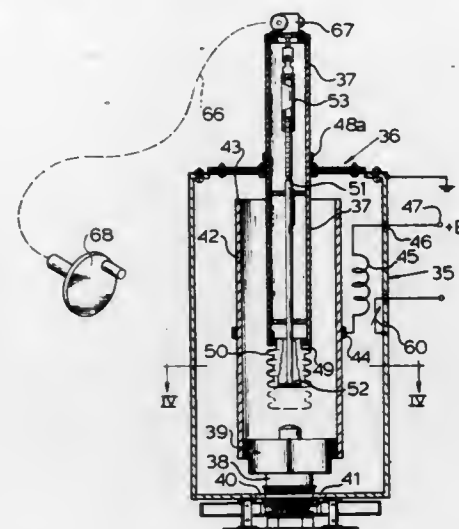
James A. Aurand, Quincy, Ill., assignor to Broadcast Electronics, Inc., Quincy, Ill.

Filed Apr. 9, 1980, Ser. No. 138,669

Int. Cl.³ H03F 3/60; H01P 7/04

U.S. Cl. 330-56

4 Claims



1. A resonant transmission line comprising: outer and inner conductors, a third conductor positioned generally axially within said inner conductor and electrically connected to said outer conductor, said inner conductor having a power amplifier tube mounted in one end thereof in direct contact therewith and having an open opposite end through which said third conductor extends a distance into said inner conductor, a conductive bellows disposed at an end of said third conductor which is inside said inner conductor, drive means extending through said third conductor connected to said bellows for axially expanding and contracting said bellows for fine-tuning said transmission line, drive controls located outside said inner conductor drivingly connected to said drive means for operating said drive means to fine-tune said cavity, the anode of said power amplifier tube being electrically connected directly to said inner conductor and,
- a coarse adjustment means mechanically connecting said third conductor and said outer conductor for coarse-tuning of said transmission line, said coarse adjustment means permitting limited axial movement of said third conductor inside said inner conductor.

4,363,001

DIGITAL GAIN CONTROL APPARATUS

Tadao Suzuki, and Tadao Yoshida, both of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jul. 23, 1980, Ser. No. 171,454

Claims priority, application Japan, Jul. 23, 1979, 54-93497

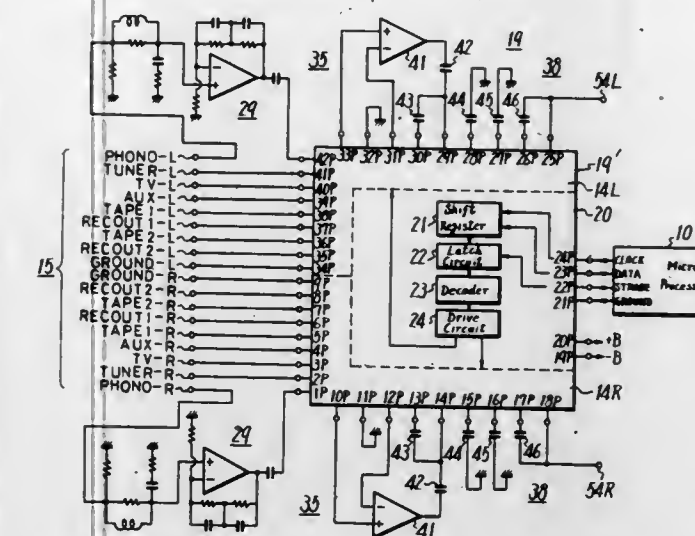
Int. Cl.³ H03G 9/14

U.S. Cl. 330-107

7 Claims

1. A digital gain control apparatus comprising: (a) a micro processor means for producing a plurality of serial-binary coded signals, a clock signal, and a strobe signal;
- (b) a one chip integrated circuit divided into an analog signal processing section and a digital control section;
- (c) said digital control section comprising: a shift register supplied with the plurality of serial-binary

coded signals and the clock signal from the micro processor means, latch circuit means connected to the output of said shift register and supplied with the strobe signal from said micro processor means to convert said plurality of serial-binary coded signals into a plurality of parallel-binary coded signals, and



4,363,004

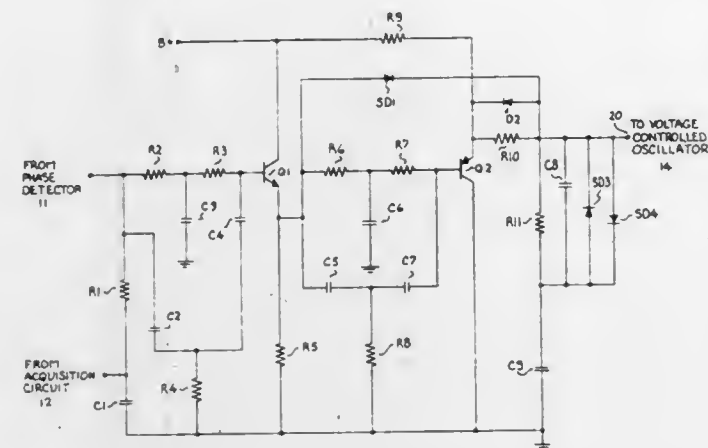
COMBINING AND FILTER CIRCUIT FOR A PHASE LOCKED LOOP

Arvid E. Englund, Jr., Lynchburg, and Gregory N. Mears, Forest, both of Va., assignors to General Electric Company, Lynchburg, Va.

Filed Oct. 20, 1980, Ser. No. 198,831
Int. Cl.³ H03L 7/08

U.S. Cl. 331-8

14 Claims



1. An improved combining and filter circuit for use in a phase locked loop comprising:
 - a. a first input for phase detector signals;
 - b. a second input for acquisition circuit signals;
 - c. first means for connecting said first and second inputs together;
 - d. an output for control signals;
 - e. second means including a first pair of diodes for connecting said first means to said output;
 - f. a resistor and a first capacitor connected in series across said output;
 - g. a second capacitor connected in parallel with said resistor;
 - h. and a second pair of diodes each connected in parallel with said resistor in reverse poled directions.

4,363,005

POWER CONSERVING BLOCKING OSCILLATOR POWER SUPPLY CIRCUIT

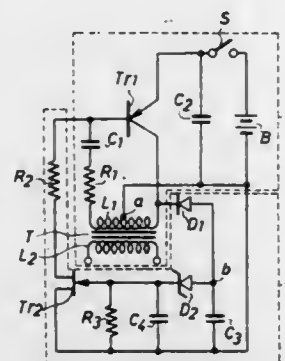
Toshihiko Kuroda, Tokyo, and Kazuo Sugiyama, Mitaka, both of Japan, assignors to Dentan Kabushiki Kaisha, Tokyo, Japan

PCT No. PCT/JP79/00176, § 371 Date Feb. 27, 1981, § 102(e) Date Feb. 27, 1981, PCT Pub. No. WO81/00178, PCT Pub. Date Jan. 22, 1981

PCT Filed Jul. 3, 1979, Ser. No. 243,941
Int. Cl.³ H03K 3/30; H02M 3/335; G05F 1/64

U.S. Cl. 331-112

2 Claims



1. A power source voltage stabilizing circuit, characterized in that a base of an oscillatory transistor of a blocking-oscillatory circuit is connected through a resistor to a drain of a control transistor, a circuit is provided between a primary winding of a transformer of said blocking-oscillatory circuit and a gate of said control transistor for applying a voltage at a

terminal of said primary winding of said transformer to said gate of said control transistor, said transformer has a secondary winding connectable to a discharge type sensing circuit, and a base current of said oscillatory transistor is controlled with said control transistor to change the period of oscillation of said blocking-oscillatory circuit.

4,363,006

NOISE REDUCTION SYSTEM HAVING SERIES CONNECTED VARIABLE FREQUENCY FILTERS

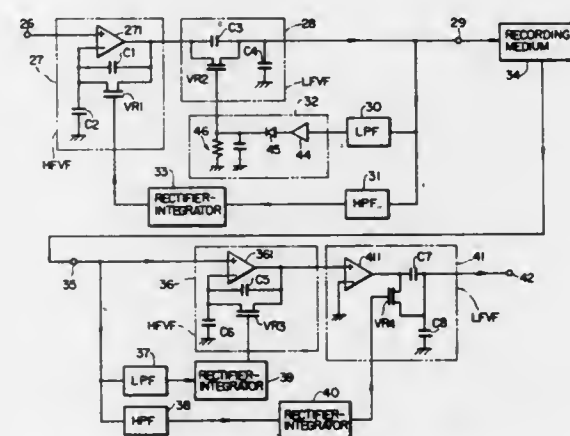
Yukinobu Ishigaki, and Yutaka Haramoto, both of Yokohama, Japan, assignors to Victor Company of Japan, Limited, Yokohama, Japan

Filed Feb. 25, 1981, Ser. No. 238,098

Claims priority, application Japan, Feb. 29, 1980, 55-24676
Int. Cl.³ H04B 1/64

U.S. Cl. 333-14

7 Claims



1. A noise reduction system having a compressor circuit and an expander circuit, said compressor circuit comprising:
 - a first input and output terminals, means connected to the first output terminal for generating a first control signal representing a high frequency component of a signal at said first output terminal, means connected to said first output terminal for generating a second control signal representing a low frequency component of said signal at said first output terminal, a first high frequency band variable filter, the cut-off frequency of which is variable as a function of said first control signal, and a first low frequency band variable filter, the cut-off frequency of which is variable inversely as a function of said second control signal, said high and low frequency band variable filters being connected in series between said first input and output terminals, said expander circuit comprising:
 - a second input terminal adapted for connection to said first output terminal, a second output terminal, means connected to said second input terminal for generating a third control signal representing a high frequency component of the signal at said second input terminal, means connected to said second input terminal for generating a fourth control signal representing a low frequency component of said signal at said second input terminal, a second low frequency band variable filter characterized with a complementary frequency response to the frequency response characteristic of said first high frequency band variable filter, and a second high frequency band variable filter characterized with a complementary frequency response to the frequency response characteristic of said first low frequency band variable filter, said second variable filters being connected in series between said second input and output terminals, the cut-off frequency of said second low frequency band variable filter being variable as a function of said third control signal and the cut-off frequency of said second high frequency band variable filter being variable inversely as a function of said fourth control signal.

4,363,007

NOISE REDUCTION SYSTEM HAVING SERIES CONNECTED LOW AND HIGH FREQUENCY EMPHASIS AND DE-EMPHASIS FILTERS

Yutaka Haramoto; Yukinobu Ishigaki; Kaoru Totsuka, and Takao Kawasaki, all of Yokohama, Japan, assignors to Victor Company of Japan, Limited, Yokohama, Japan

Filed Apr. 23, 1981, Ser. No. 256,825

Claims priority, application Japan, Apr. 24, 1980, 55-54657
Int. Cl.³ H04B 1/64

U.S. Cl. 333-14

7 Claims

1. A noise reduction system having a compressor and an expander having a complementary frequency response characteristic to the frequency response characteristic of the compressor, said compressor comprising:
 - first input and output terminals, means connected to the first output terminal for generating a first control signal representing a high frequency component of a signal applied to said first output terminal, means connected to said first output terminal for generating a second control signal representing a low frequency component of said signal at said first output terminal, a high frequency emphasis variable frequency filter circuit of which the cutoff frequency is variable as a function of said first control signal, and a low frequency emphasis variable gain filter circuit of which the amount of emphasis is variable inversely as a function of said second control signal, said filter circuits being connected in a series circuit between said first input and output terminals, and
 - said expander comprising:
 - a second input terminal adapted for connection to said first output terminal, a second output terminal, means connected to said second input terminal for generating a third control signal representing a high frequency component of the signal at said second input terminal, means connected to said second input terminal for generating a fourth control signal representing a low frequency component of said signal at said second input terminal, a low frequency de-emphasis variable gain filter circuit of which the amount of de-emphasis is variable inversely as a function of said fourth control signal, and a high frequency de-emphasis variable frequency filter circuit of which the cutoff frequency is variable as a function of said third control signal, said filter circuits being connected in a series circuit between said second input and output terminals.

4,363,008

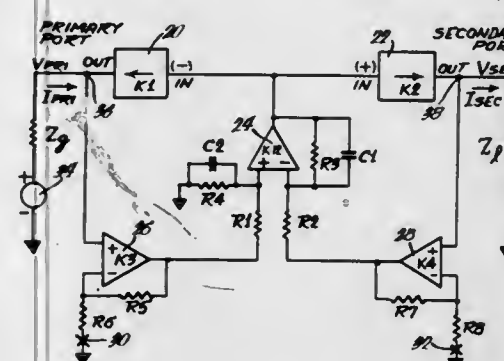
ELECTRONIC TRANSFORMER

Charles W. Chambers, Jr., Downers Grove, Ill., assignor to Tellabs, Inc., Lisle, Ill.

Continuation-in-part of Ser. No. 37,446, May 9, 1979, abandoned. This application Dec. 15, 1980, Ser. No. 216,202
Int. Cl.³ H03H 11/02

U.S. Cl. 333-24 R

20 Claims



1. A bilateral electronic transformer having a primary port for connection with a signal generator having an impedance and a secondary port for connection with a load impedance, comprising first and second out of phase sinking and sourcing current sources, each for receiving a control signal at an input

4,363,009

L-C FILTER WITH IMPEDANCE TRANSFORMERS

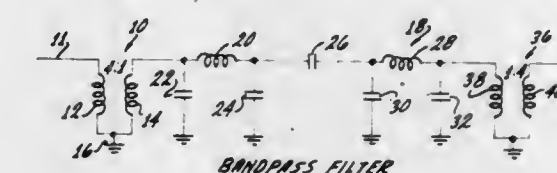
Bruce G. Malcolm, and Robert E. Binniger, both of Indianapolis, Ind., assignors to Wavetek Indiana, Inc., Beech Grove, Ind.

Filed May 8, 1980, Ser. No. 147,562

Int. Cl.³ H03H 7/075, 7/09, 7/38

U.S. Cl. 333-177

16 Claims



12. In combination for use in a particular frequency range between 3 megahertz and 300 megahertz, means providing an input signal at a particular impedance in the particular frequency range, first means providing a transformation in the particular frequency range of the impedance from the particular impedance to a second impedance lower than the particular impedance, a filter connected to the first means and operative at the second impedance in the particular frequency range, and second means connected to the filter and providing a transformation of the impedance from the second impedance to the particular impedance in the particular frequency range.

4,363,010

CONTACT DEVICE FOR A SWITCH

Herbert Wirth, Gisikon, Switzerland, assignor to Weber AG
Fabrik Elektrotechnischer Artikel und Apparate, Emmen-
brücke, Switzerland

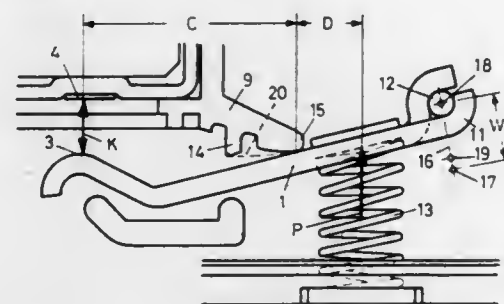
Filed May 12, 1981, Ser. No. 263,012

Claims priority, application Switzerland, May 28, 1980,
4147/80

Int. Cl.³ H01H 75/00, 77/00, 83/00

U.S. Cl. 335-6

3 Claims



1. A contact device in a switch, in particular in a circuit breaker, having a movable contact lever under spring pressure, which on one end includes a contact point for an associated fixed contact element and on its other end is pivotally supported on pin means of a tripping system which when tripped displaces said pin means in a direction transverse to the longitudinal direction of said contact lever, a stop for the contact lever being disposed between the two ends in order to pivot the contact lever about the stop upon a displacement of said pin means and thereby to disengage its contact point from the fixed contact element, said stop having at least two contact locations for the contact lever, which locations are spaced apart from the contact lever and from its supported end by different amounts, in such manner that the contact lever, beginning at its position in which its contact point rests on the fixed contact element, upon displacement of its supported end first comes into contact with the contact location, which is the most remote from the supported end and then, before the termination of the displacement, comes into contact with the contact location of the stop, which is located closest to the supported end, and a compression spring supported on a housing element and acting upon the contact lever at a point located between the end of the contact lever supported on said pin means and the contact location of the stop located closest to said end.

4,363,011

CONTACT ELECTRODES FOR REED SWITCHES

Henryk Turczanski, 17a Reddons Rd., Beckenham, Kent, En-
gland

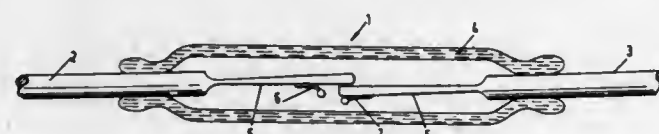
Filed Mar. 11, 1981, Ser. No. 242,536

Claims priority, application United Kingdom, Mar. 17, 1980,
8008912

Int. Cl.³ H01H 51/00, 1/66

U.S. Cl. 335-154

2 Claims



1. A reed switch comprising a hermetically sealed enclosure, and a pair of electrodes extending within the enclosure, each electrode having mutually orthogonal dimensions of length, width and thickness and being flattened over a part of its

length to provide respective flexible cantilevered electrode blade portions having free ends, the free ends having an overlap region within said enclosure extending in the length and width dimensions to form a magnetically actuable contact of said switch, characterized in that the blade portion of each electrode is tapered in the thickness dimension so that the thickness of the blade portion increases uniformly towards the free end.

4,363,012

WINDING STRUCTURE FOR STATIC ELECTRICAL INDUCTION APPARATUS

Takahiro Daikoku, Ushikumachi; Masahiro Ikegawa, Shimoinayoshi; Wataru Nakayama, Kashiwa, and Taisei Uede, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

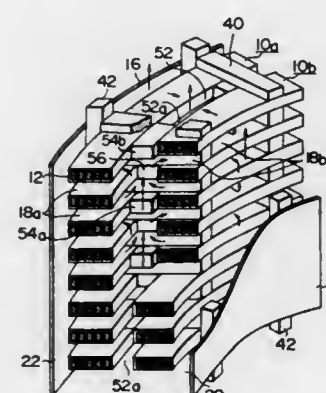
Division of Ser. No. 888,996, Mar. 22, 1978, Pat. No. 4,245,206.
This application Sep. 29, 1980, Ser. No. 192,329

Claims priority, application Japan, Mar. 26, 1977, 52-33454;
Mar. 26, 1977, 52-33455; Feb. 6, 1978, 53-11455; Feb. 6, 1978,
53-11457; Feb. 6, 1978, 53-11458

Int. Cl.³ H01F 27/08

U.S. Cl. 336-60

13 Claims



1. A static electrical induction apparatus comprising: a container having an axis extending in the vertical direction; a pair of inner and outer insulation continuous walls disposed in said container so as to commonly include said vertical axis thereby defining a predetermined space therebetween; a winding assembly disposed in said space in a manner so that an inner vertical coolant passage is formed between said winding assembly and said inner insulation continuous wall, said winding assembly being composed of a plurality of coil units stacked on one another in the vertical direction with separation at predetermined intervals so as to form horizontal coolant passages between vertically adjacent ones of said coil units, each of said coil units being divided into at least two, inner and outer, coil sub-units disposed concentrically with each other in a common horizontal plane to thereby define an intermediate vertical coolant passage between the vertically stacked inner coil sub-units and the vertically stacked outer coil sub-units, said inner, outer, and intermediate vertical coolant passages communicating with each other through said horizontal coolant passages, said intermediate vertical coolant passage being generally divided into a plurality of regions by a plurality of vertical arrays of horizontal spacer members radially extending in said horizontal coolant passages for ensuring said horizontal coolant passages; and a plurality of coolant flow control members disposed in circumferentially and axially discrete relation from one another in said intermediate vertical coolant passage in a manner so that a horizontal sectional area of each of the regions of said intermediate vertical coolant passages is decreased, but not substantially completely closed, periodically at a pitch of nP along the vertical direction,

4,363,014

SNAP-ON COVER FOR BOBBIN-WOUND COIL ASSEMBLY

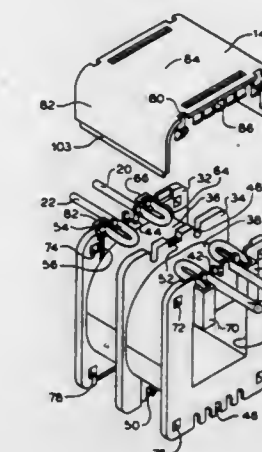
Charles W. Leach, Jefferson County; Jerry W. McElroy, St. Louis County, both of Mo., and Donald E. Donnelly, Edwardsville, Ill., assignors to Emerson Electric Co., St. Louis, Mo.

Filed May 6, 1981, Ser. No. 261,139

Int. Cl.³ H01F 27/02

U.S. Cl. 336-90

1 Claim



4,363,013

WINDING STRUCTURE FOR STATIC ELECTRICAL INDUCTION APPARATUS

Takahiro Daikoku, Ushikumachi; Masahiro Ikegawa, Shimoinayoshi; Wataru Nakayama, Kashiwa, and Taisei Uede, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

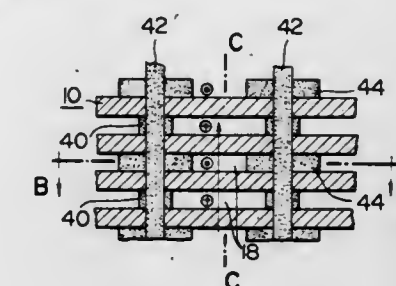
Division of Ser. No. 888,996, Mar. 22, 1978, Pat. No. 4,245,206.
This application Sep. 29, 1980, Ser. No. 192,329

Claims priority, application Japan, Mar. 26, 1977, 53/33454;
Mar. 26, 1977, 53/33455; Feb. 6, 1978, 54/11455; Feb. 6, 1978,
54/11457; Feb. 6, 1978, 54/11458

Int. Cl.³ H01F 27/08

U.S. Cl. 336-60

3 Claims



1. A static electrical induction apparatus comprising: a container having an axis extending in the vertical direction; a pair of inner and outer insulation continuous walls disposed in said container so as to commonly include said vertical axis thereby defining a predetermined space therebetween; a winding assembly disposed in said space in a manner so that an inner vertical coolant passage is formed between said winding assembly and said inner insulation continuous wall, said winding assembly being composed of a plurality of coil units stacked on one another in the vertical direction with separation at predetermined intervals so as to form a plurality of horizontal coolant passages between vertically adjacent ones of said coil units, said inner and outer vertical coolant passages communicating with each other through said horizontal coolant passages; and a plurality of coolant flow control members disposed in circumferentially and axially discrete relation from one another in at least selected one of said inner and outer vertical coolant passages in a manner so that a horizontal sectional area of said selected vertical coolant passage is decreased, but not substantially completely closed, periodically at a pitch of nP along the vertical direction where n represents an integer which is not smaller than two (2) and P represents a pitch of said coil units along the vertical direction, each of said coolant flow control members having a width in the radial direction perpendicular to said vertical axis being selected to closely correspond to a width in the radial direction of said selected vertical coolant passage, each of said coolant flow control members having a height in the vertical direction being selected to closely correspond to a height in the vertical direction of each of said horizontal coolant passages, said coolant flow control members being disposed in said selected vertical coolant passage at predetermined portions that are opposite the selected ones of said horizontal coolant passages.

1. In a bobbin-wound electrical coil assembly having a plurality of lead-exit slots in one or both of the bobbin end flanges, some of the slots containing insulated electrical leads and others of the slots being unused, the slots being narrower than the diameter of the insulated leads so that the insulation on the leads is compressed as the leads are inserted into those slots being used so as to enable the leads to resist a pulling force applied thereto, an improved cover therefor comprising:

- a relatively rigid U-shaped member comprising a central portion and side walls integral with said central portion and extending downwardly therefrom;
- a plurality of flexible legs extending downwardly from said central portion and cooperative with leg-retaining openings in the bobbin end flanges for providing snap-on engagement between the cover and said bobbin end flanges, said legs being adapted to be deflected inwardly by said bobbin end flanges prior to said engagement;
- a plurality of tabs extending downwardly from said central portion and spaced inwardly from an outer edge thereof so as to be in alignment with the bobbin end flange slots inwardly of said bobbin end flanges;
- those of said tabs aligned with the slots containing leads being displaced when said cover is snapped on to said bobbin end flanges, said cover being effective to retain said leads in said slots containing leads;
- those of said tabs aligned with the unused slots being undisturbed and effective to cover said unused slots;
- each of said side walls including guide rails cooperative with said bobbin end flanges for initially aligning said cover with said bobbin end flanges and for subsequently applying an outward force to portions thereof; and
- said outward force being effective, prior to said engagement, for minimizing the amount of said inward deflection of said flexible legs and, after engagement, for preventing said cover from being easily removed in the event of a minimum amount of engagement of said flexible legs in said leg-retaining openings.

4,363,015

CONDITION RESPONSIVE ELECTRICAL SWITCH CONSTRUCTION AND PARTS AND METHODS THEREFOR

Charles D. Branson, Greensburg, and Harvey J. Shopsky, La-
trobe, both of Pa., assignors to Robertshaw Controls Com-
pany, Richmond, Va.

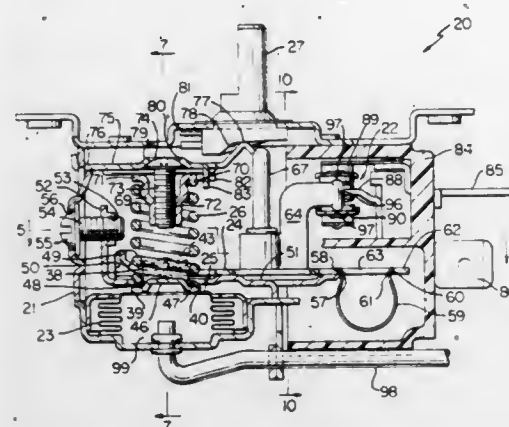
Division of Ser. No. 865,594, Dec. 29, 1977, Pat. No. 4,194,102.

This application Oct. 10, 1979, Ser. No. 83,559

Int. Cl.³ H01H 21/64

U.S. Cl. 337-117

40 Claims



1. In a condition responsive electrical switch construction having frame means carrying an electrical switch and a condition responsive device having a movable wall for causing movement of a lever that is pivotally carried by said frame means and is operatively associated with said switch to operate the same as said lever is moved by said wall to a certain position in opposition to the force of a range spring carried by said frame means, the improvement comprising a cradle-like member having a base operatively associated with said range spring so as to be held thereby against said wall to be moved in unison with said wall and having arm means engaging said lever to cause said lever to move in relation to movement of said wall.

4,363,016

CIRCUIT BREAKER

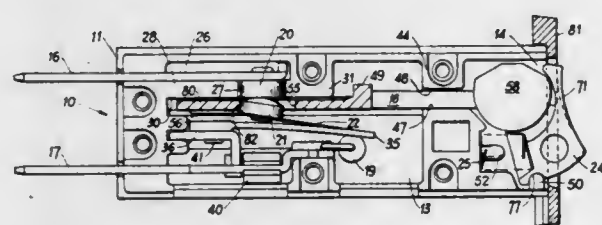
Robert P. Unger, Evansville, Ind., assignor to AMF Incorporated, White Plains, N.Y.

Filed Jun. 3, 1981, Ser. No. 270,186

Int. Cl.³ H01H 71/58

U.S. Cl. 337-56

14 Claims



1. A circuit breaker comprising:
a housing;
a first and a second terminal;
a stationary contact disposed within the housing being connected to said first terminal;
a movable contact disposed within said housing and connected to said second terminal;
said movable contact being moved on predetermined conditions toward and away from said stationary contact to make and break contact therewith;
an insulator slide member slidably guided in the housing between a first and a second position and having an opening through which the movable contact being extendable to make contact with the stationary contact with said slide member being disposed in said first position, and an insulator portion interposable between said contacts and a

tripped indicator portion exposable without said housing with said slide member being disposed to said second position;
said slide member also being provided with standoff means for keeping operative contact surface of said movable contact from contacting the insulator portion when slide member is in said second position;
actuator means rotatably mounted respective to said housing and engaging the slide member for translating a rotational motion of the actuator means into a linear motion displacement of the slide member; and
biasing means for urging the slide member to the second longitudinal position.

4,363,017

RESISTOR DEVICE PARTICULARLY FOR HIGH-VOLTAGE INSTALLATIONS

Manfred Weniger, and Manfred Just, both of Berlin, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

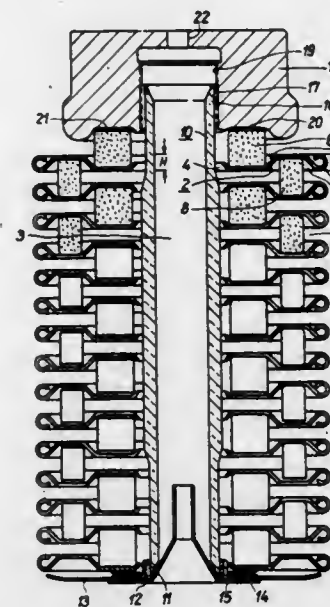
Filed May 22, 1981, Ser. No. 266,305

Claims priority, application Fed. Rep. of Germany, May 30, 1980, 8014833[U]

Int. Cl.³ H01C 7/10

U.S. Cl. 338-21

10 Claims



1. A resistor device comprising a plurality of annular resistance elements of which an inner annular resistance element is interleaved between two outer annular resistance elements of larger diameter than that of the inner resistance element, annular-shaped contact elements having a central cutout interposed between adjacent resistance elements for electrically connecting adjacent resistance elements, each contact element having an annular recess of larger diameter on one side thereof for receiving the outer resistance element and another annular recess of smaller diameter for receiving the inner resistance element, a clamping sleeve of insulating material disposed in the central cutouts of the contact elements, and means cooperating with opposed ends of the clamping sleeve for clamping the stack together.

4,363,018

ELECTRONIC COMPONENTS OF ROTARY TYPE

Hiroshi Matsui, and Masayoshi Kakumu, both of Hirakata, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Nov. 3, 1980, Ser. No. 203,550

Int. Cl.³ H01C 10/36

U.S. Cl. 338-172

22 Claims

1. An electronic component for electrical equipment comprising:
a bearing sheath having a front and rear end and an axially

4,363,020

INTERROGATING SYSTEM FOR REMOTELY MONITORING TIRE AIR PRESSURE

Harry J. Venema, Wheaton, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

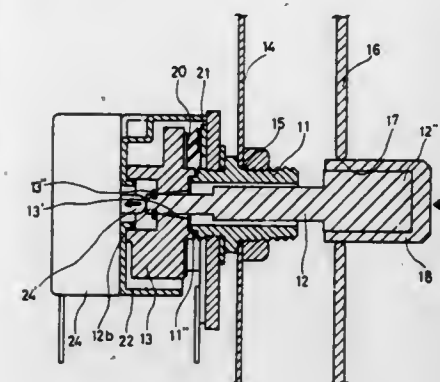
Filed Dec. 22, 1980, Ser. No. 219,299

Int. Cl.³ B60C 23/02; G01S 9/58

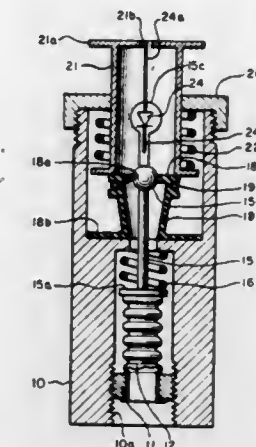
U.S. Cl. 340-58

6 Claims

extending bore therein, said sheath being fixed on a frame of the electrical equipment,
an operational shaft having portions extending internally and externally of said electrical equipment, said operational shaft being pivotally disposed in said bearing sheath,
a substrate fixed to the rear end of said bearing sheath having means defining a resistor layer thereon,
a brush holder mounted on the internal portion of said operational shaft so as to be rotated by rotation of said operational shaft, and



at least one contact mounted on said brush holder for operatively contacting said resistor layer means formed on said substrate,
wherein
a central portion of said operational shaft is disposed in said bearing sheath and has an outer diameter smaller than the diameter of the bore in said bearing sheath, and
said operational shaft is pivotally held near said internal portion so that the external portion of said operational shaft has degrees of freedom in all tilting directions.



1. An interrogating system for remotely monitoring the air pressure in a tire mounted on a wheel of a vehicle, comprising:
a passive transponder attached to the wheel and including a semiconductor diode having anode and cathode elements;
a relatively rigid, self-supporting metallic conductor directly connected to and extending from one of the diode's elements to provide an antenna for the diode; sensing means for sensing the air pressure within the tire; a movable electromagnetic shield for the antenna; and means controlled by said sensing means for positioning said shield, with respect to the antenna and in response to the sensed tire air pressure, so that the shield surrounds the antenna when the tire air pressure is within a predetermined desired normal range thereby shielding the antenna from radiation, and so that the antenna extends out of the shield and is exposed to radiation when the sensed tire air pressure is either above or below the desired normal range;
transmitting means in the vehicle for transmitting electromagnetic radiation to said passive transponder to effectively interrogate said transponder, said diode responding to the received radiation, when said antenna is exposed, and generating a response signal which is retransmitted from said antenna;
and receiving means in the vehicle for receiving said response signal and for producing therefrom an output for controlling an indicator to provide an indication to the driver of the vehicle that the tire air pressure is outside of the desired normal range.

4,363,019

IGNITION CABLES

Yoshimi Miyamoto, Aichi; Keiichi Kojima, and Yasuo Toriumi, both of Osaka, all of Japan, assignors to Sumitomo Electric Industries, Osaka and Nippondenso Co., Ltd., Aichi, both of Japan

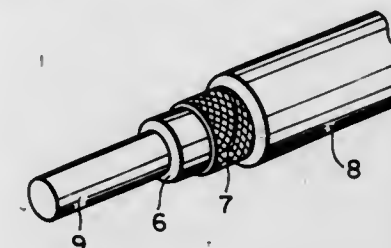
Filed Feb. 2, 1981, Ser. No. 230,928

Claims priority, application Japan, Jan. 31, 1980, 55/11441

Int. Cl.³ H01C 3/06

U.S. Cl. 338-214

4 Claims



1. A high voltage ignition cable having a low capacitance comprising a resistive-conductor core, an insulator layer, and a jacket, wherein the resistive-conductor core comprises a tension member prepared by intertwining a plurality of polyaramide fiber bundles around a central polyaramide fiber bundle, wherein said tension member is impregnated with a semiconductive paint.

4,363,021

SWITCHING DEVICE FOR MOTOR VEHICLE ANTI-THEFT SYSTEM

Vladimir Koubecky, Cologne, Fed. Rep. of Germany, assignor to Felten & Guillaume GmbH, Cologne, Fed. Rep. of Germany

Filed Oct. 8, 1980, Ser. No. 195,338

Claims priority, application Fed. Rep. of Germany, Oct. 19, 1979, 2942252; Apr. 30, 1980, 3016593

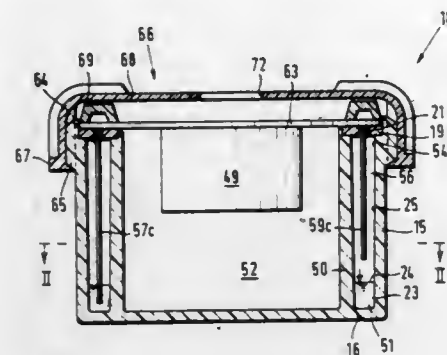
Int. Cl.³ B60R 25/10

U.S. Cl. 340-65

24 Claims

1. In a switching device to be used in an anti-theft system for a motor vehicle of the type having an electrically-powered alarm operated by said switching device, the improvement wherein said switching device comprises a housing defining a chamber with a floor and containing a partial filling of an electrically-conductive fluid, three or more electrical contacts in the form of elongated immersible sensors extending down-

wardly into said chamber to differing extents with at least one of said sensors being of a fixed extent longer than the others thereof and terminating adjacent to said floor of said housing and being immersed in said fluid filling when the vehicle is in



a given set position, said sensors automatically closing an electrical path when any one of said sensors is electrically connected to said immersed sensor by the said fluid when the vehicle is tilted from said given set position to a detecting position.

4,363,022

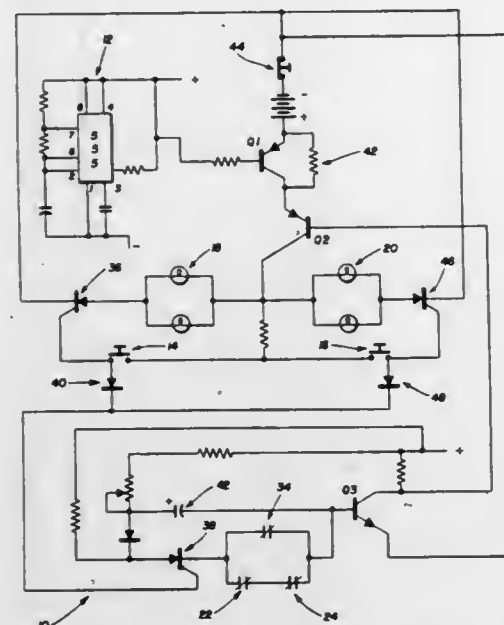
SELF CANCELLING MOTORCYCLE TURN SIGNAL WHICH RECOGNIZES BALANCE

Lawrence F. Manacci, 1013 W. 30th St., Lorain, Ohio 44055
Filed Mar. 30, 1981, Ser. No. 249,099

Int. Cl.³ B60Q 1/34

U.S. Cl. 340—73

2 Claims



1. A directional signaling system for motorcycles including; first and second normally open push button switches; a first silicon controlled rectifier connected to said first normally open push button switch; a second silicon controlled rectifier connected to said second normally open push button switch; first indicating means connected to said first silicon controlled rectifier; second indicating means connected to said second silicon controlled rectifier; said first and second indicating means connected to a first electronic switch; said first electronic switch connected to a second electronic switch; said second electronic switch connected to a power supply; a third silicon controlled rectifier connected to said first and second normally open push button switches; said third silicon controlled rectifier connected to a third electronic switch, via a plurality of normally closed contacts;

said third electronic switch connected to said first electronic switch;
said first normally closed push button switch, when closed, providing an electrical signal to said first and third silicon controlled rectifiers which turn on said first and third electrical switches;
said second normally closed push button switch, when closed, providing an electrical signal to said second and third silicon rectifiers which turn on said first and third electrical switches; and
a timing control means for providing a timed output signal for intermittently turning on said second electronic switch, resulting in an intermittent current flow through said first electronic switch, said second electronic switch, said indicating means connected to the closed push button switch, said silicon controlled rectifier connected to said indicating means, through said third silicon controlled rectifier and third electronic switch such that when said normally closed contacts open, said electrical energy storing device provides a sufficient electrical signal to keep said third electrical switch turned on for a predetermined period, said third electronic switch in turn keeping said first electronic switch turned on for that predetermined interval.

4,363,023

ELECTROMAGNETIC DEVICE FOR MEASURING THE SPEED OF HANDWRITING

Louis Bechet, Douvaine, France, assignor to Battelle Memorial Institute, Carouge, Switzerland

PCT No. PCT/CH78/00048, § 371 Date Aug. 9, 1979, § 102(e) Date Aug. 6, 1979, PCT Pub. No. WO79/00363, PCT Pub. Date Jun. 28, 1979

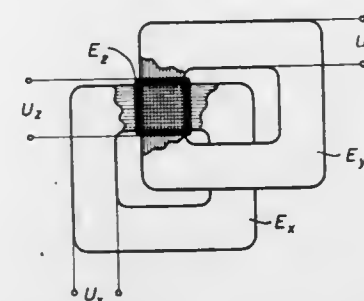
PCT Filed Dec. 11, 1978, Ser. No. 130,165

Claims priority, application Switzerland, Dec. 9, 1977, 15018/77

Int. Cl.³ G06K 9/00; G08C 21/00; G01R 33/00

U.S. Cl. 340—146.3 SY

1 Claim



1. Apparatus for measuring the relative speed of handwriting in a predetermined writing area on a writing support surface, comprising:

- a writing instrument having therein a longitudinal axis, a writing tip at one end thereof, and means for providing a magnetic flux directed substantially parallel and adjacent to the axis;
- a first electrically conductive winding comprising a plurality of turns below the writing support surface having a selected portion in which the conductors are substantially in a plane adjacent and parallel to the writing area, extend in substantially straight lines across the writing area in a first direction, and are substantially evenly distributed across the writing area in a second direction that is substantially perpendicular to the first direction, with the rest of the winding extending away from the vicinity of the writing area;
- a second electrically conductive winding comprising a plurality of turns below the writing support surface having a selected portion in which the conductors are substantially in a plane adjacent and parallel to the writing area, extend in substantially straight lines across the writing area in the

second direction, and are substantially evenly distributed across the writing area in the first direction, with the rest of the winding extending away from the vicinity of the writing area;
the selected portions of first and second windings thus forming a substantially rectangular grid adjacent and parallel to the writing area and substantially coextensive therewith;
so that, when the writing tip is moved in the proximity of the writing area, voltages are induced in the windings by the variations in magnetic flux across the selected portions of the windings responsive to the speed of the movement; means responsive to the voltage across each winding for indicating the relative speed of the writing tip, the magnetic flux providing means comprising an annular magnet positioned substantially coaxial with the writing tip around the longitudinal axis of the writing instrument; and a third electrically conductive winding comprising a plurality of turns below the writing support surface substantially in a plane adjacent and parallel to the writing area and extending around the writing area; so that, when the writing tip is moved in the proximity of the writing area in a direction having a component of movement perpendicular to the plane of the third winding, voltage is induced in the third winding by the variation in magnetic flux across it responsive to the speed of the movement component perpendicular to the plane of the writing area; and means for connecting the voltage across the third winding to the voltage responsive means, in opposition to the voltage across the first winding, and in opposition to the voltage across the second winding.

4,363,024

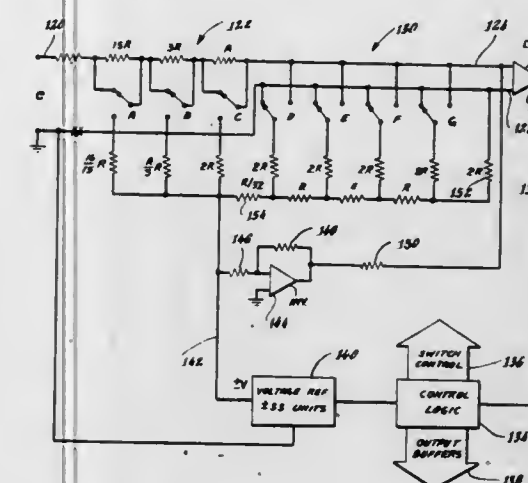
DIGITAL-TO-ANALOG CONVERTER PROVIDING MULTIPLICATIVE AND LINEAR FUNCTIONS

Adrian P. Brokaw, 81 Macon Rd., Burlington, Mass. 01803
Filed Nov. 21, 1977, Ser. No. 853,211

Int. Cl.³ H03K 13/02

U.S. Cl. 340—347 AD

11 Claims



1. A digital-to-analog converter for converting a digital number comprising a first set of step bits and a second set of segment bits to a corresponding analog signal, said converter including:

- a current source or sink comprising a resistor ladder network having an input and an output, said network including a plurality of stages each having a series resistor and a shunt resistor;
- an amplifier having one input connected to the output of said ladder network;
- a source of reference voltage connected to the input of said ladder network;
- a plurality of first switches directly responsive to said step bits respectively for switching the currents of corresponding stages of said ladder network into or out of the ladder

output, providing a step-wise output from said ladder into said amplifier input;
an attenuator network comprising a plurality of serially-connected stages;
a plurality of second switches directly responsive respectively to said segment bits, each of said second switches controlling a corresponding stage of said attenuator network to connect it into or out of the attenuator network, the degree of attenuation provided by said attenuator network being a multiplicative function of the individual attenuation factors of the stages thereof which are connected in the attenuator network by the corresponding switches of said network, each stage of said attenuator network being individually manipulatable by its corresponding switch without having any effect on the attenuation factor introduced by any other attenuator stage, said attenuation factors being weighted non-linearly with respect to said segment bits; and
circuit means interconnecting said attenuator network in a negative feedback circuit between the output and input of said amplifier, said circuit means including means for producing a composite output signal from said amplifier representing the multiplication of said ladder output, as controlled by said step bits, by a factor corresponding to the net attenuation effected by said attenuator network as controlled by said individual segment bits.

4,363,025

SIGNAL GENERATING ARRANGEMENTS

Howard Jackson, Maidstone, England, assignor to Elliott Brothers (London) Limited, Chelmsford, England

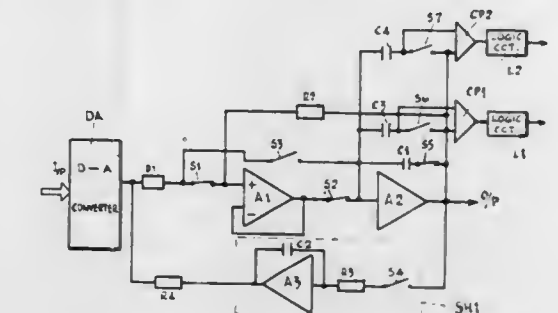
Filed Mar. 25, 1981, Ser. No. 247,771

Claims priority, application United Kingdom, Apr. 2, 1980, 8011069

Int. Cl.³ H03K 13/02

U.S. Cl. 340—347 DA

5 Claims



1. A digitally controlled presettable analogue ramp signal generating arrangement comprising:

- (A) digital to analogue converting means;
- (B) integrator means consisting of
 - (i) a first stage which operates as an amplifier,
 - (ii) a second stage which operates as an integrator, and
 - (iii) switching means which,
 - (a) when the arrangement is in a first mode, interconnects said converter and said first and second stages so that the output of the converter means is applied to said second stage via said first stage, the first stage operates as a scaling amplifier and the output of the integrator means assumes a value representative of the output of the converter means, and
 - (b) when the arrangement is in a second mode, interconnects said converter means and said second stage and disconnects said first stage so that the output of the converter means is applied directly to said second stage and the output of the integrator means changes at a rate dependent on the output of the converter means; and
- (C) analogue sample and hold means which periodically samples and holds the output of the arrangement and controls the output of the converting means to reduce

towards zero any deviation in the output of the arrangement from its desired value at the time of sampling.

4,363,026 POSITION ENCODER UPDATE MECHANISM AND METHOD

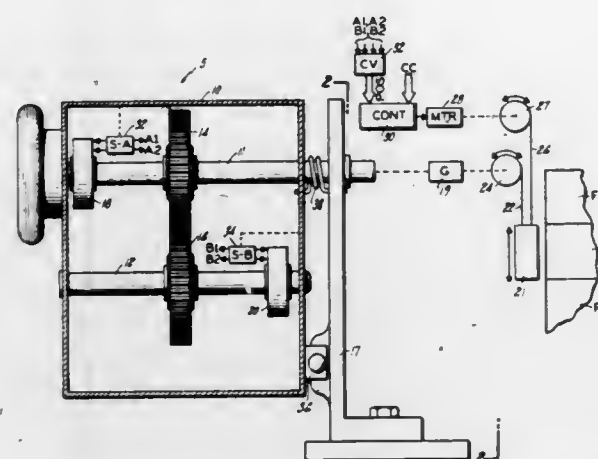
John K. Salmon, South Windsor, Conn., assignor to Otis Elevator Company, Farmington, Conn.

Filed Apr. 24, 1981, Ser. No. 256,768

Int. Cl.³ G08C 9/00

U.S. Cl. 340-347 P

4 Claims



1. A position encoder comprising a housing on a bracket and within the housing, coupled first and second gears and corresponding coded discs, and sensors for reading the code on each disc as it is rotated and providing signals which reflect the location of an object coupled to the encoder to rotate the gears, characterized in that:

- the case is rotatably attached to the bracket about the axis of one of the gears and can be rotated at least one revolution on that axis from a reference to an update position and returned to the reference position;
- the second gear is positioned on the case radially from the axis of rotation;
- the sensors are attached to the housing;
- the sensor for each disc is attached to and movable with the case, the sensor for the disc associated with the one gear is also attached to the case radially from that axis of rotation and the sensor for the second gear is attached to the case.

4,363,027 TOUCH SENSITIVE CONTROL PANEL UTILIZING PYROELECTRIC MATERIAL

Michael J. Brienza, Ridgewood, N.J., assignor to The Singer Company, Stamford, Conn.

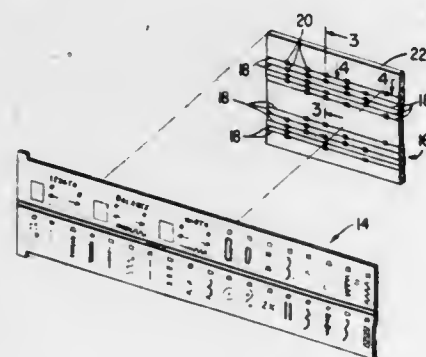
Division of Ser. No. 119,691, Feb. 8, 1980, Pat. No. 4,307,383.

This application May 28, 1981, Ser. No. 267,971

Int. Cl.³ G06F 3/02

U.S. Cl. 340-365 R

1 Claim



1. A control panel for an appliance having a multiplicity of

operating capabilities, functions and conditions, said control panel comprising:

- a backing member;
- a layer of conductive material on a surface of said backing member;
- a layer of pyroelectric material on said conductive layer;
- a layer of insulative material on said pyroelectric layer, said insulative layer leaving selected areas of said pyroelectric layer exposed;
- a plurality of non-intersecting elongated conductors on said insulative layer; and
- a graphics display member overlying said conductors, said graphics display member having indicia thereon representative of said operating capabilities, functions and conditions of said appliance;

said selected areas of exposed pyroelectric material being located in registration with said indicia and selectively in contact with said conductors so that a binary coded combination of voltage pulses is applied to said conductors in response to a body portion of an operator touching one of said indicia, each of said indicia corresponding to a unique respective binary code.

4,363,028 ELECTRONIC SIREN

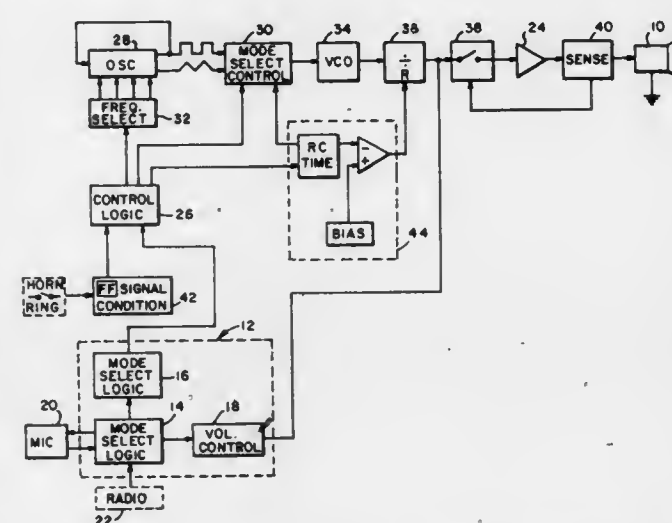
John J. Bosnak, Old Saybrook, Conn., assignor to Whelen Engineering Company, Inc., Deep River, Conn.

Filed Jul. 10, 1980, Ser. No. 167,444

Int. Cl.³ G08B 3/00

U.S. Cl. 340-384 E

12 Claims



1. Apparatus for generating an electrical signal which varies at an audible frequency comprising:

- controllable oscillator means;
- remote control means, said remote control means including a mode selector switch and encoder means for generating a binary coded output signal commensurate with the setting of said mode selector switch;
- decoder means, said decoder means being located remotely from said remote control means and being responsive to the coded output of said remote control means for generating a plurality of gate control signals;
- means delivering the coded output of said remote control means to said decoder means;
- gate circuit means responsive to the control signals generated by said decoder means, said gate circuit means including switch means connected to said oscillator means, said gate circuit means changing the frequency and rate of change of frequency of said oscillator means output signal commensurate with the setting of said remote control means mode selector switch;
- amplifier means;
- means applying said oscillator means output signals as the input signal to said amplifier means; and

means for delivering signals amplified by said amplifier means to a loudspeaker.

4,363,029 SWITCH FOR SENSING PROXIMITY OF AN OPERATOR

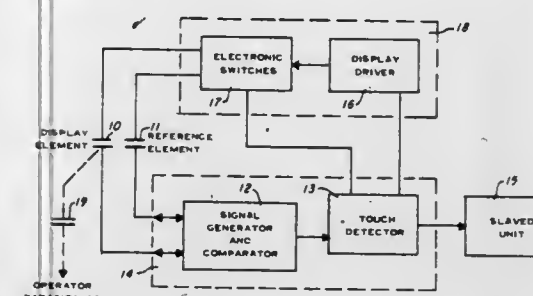
Michael A. Piliavin, Plano, and James R. Toker, Dallas, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Nov. 17, 1980, Ser. No. 207,584

Int. Cl.³ G02F 1/13

U.S. Cl. 340-501

17 Claims



1. A device having at least two states comprising:

- a. a reference element;
- b. an active element having alterable electrical characteristics responsive to the proximity of an operator; and
- c. means for,
 - (i) driving said reference element and said active element at a chosen level and producing signals therefrom, and for,
 - (ii) comparing the signal from said reference element and the signal from said active element and generating a comparison signal therefrom, and for,
 - (iii) altering the state of said device responsive to said comparison signal.

4,363,030 FAIL-SAFE INSTRUMENT SYSTEM

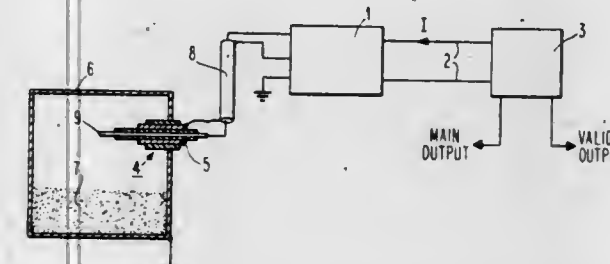
Frederick L. Maltby, Jenkintown, and L. Jonathan Kramer, Warminster, both of Pa., assignors to Drexelbrook Engineering Company, Horsham, Pa.

Filed Nov. 30, 1979, Ser. No. 98,750

Int. Cl.³ G08B 29/00

U.S. Cl. 340-511

30 Claims



1. A two-wire system comprising a power supply and a receiver in one location and a transmitter in another location, a pair of signal wires connecting said transmitter with said receiver and carrying a varying signal, wherein said transmitter produces a first signal falling within a first predetermined signal range in response to a first set of detected input data, and a second signal falling within a second predetermined signal range in response to a second set of detected input data, said first and second signal ranges being spaced from one another and substantially different from short circuit and open circuit signals.

4,363,031 WIRELESS ALARM SYSTEM

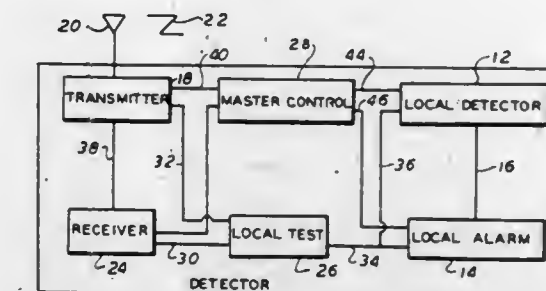
Jack Reinowitz, 563 Union Rd., Spring Valley, N.Y. 10977

Filed Jul. 7, 1980, Ser. No. 166,162

Int. Cl.³ G08B 23/00

U.S. Cl. 340-539

11 Claims



1. A detection system of the type intended to detect the occurrence of a local phenomena, and transmit at least one signal to other detectors to remotely sound an alarm, said system comprising:

- I. a first detector which comprises:
 - a. first means for sensing the occurrence of the predetermined phenomena and generating a signal;
 - b. first means responsive to said signal from said first sensing means for generating a local alarm to thereby indicate the occurrence of the phenomena; and
 - c. first transmitting means electrically coupled and responsive to said signal from said first sensing means to thereby wirelessly transmit a first signal indicative of the predetermined phenomena; and
- II. at least a second detector which comprises:
 - a. second receiving means for receiving said first signal from said first transmitter and generating a signal;
 - b. second means responsive to said signal from said second receiving means for generating a separate local alarm to thereby indicate the occurrence of the phenomena; and
 - c. second transmitting means, responsive to said signal from said second receiving means, for wireless transmission of said first signal; and
- III. at least a third detector which comprises:
 - a. third receiving means for receiving said first signal from either said first or second transmitting means and generating a signal; and
 - b. third means electrically responsive to said signal generated by said third receiving means for generating a separate local alarm to thereby indicate the occurrence of the phenomena.

4,363,032 SHEET FEEDING CONTROL DEVICE FOR USE IN A COIN WRAPPING MACHINE

Toyoki Kimoto, Tokyo, Japan, assignor to Laurel Bank Machine Co., Ltd., Tokyo, Japan

Filed Oct. 28, 1980, Ser. No. 201,611

Claims priority, application Japan, Dec. 13, 1979, 54-162120

Int. Cl.³ G08B 21/00; B65B 57/04

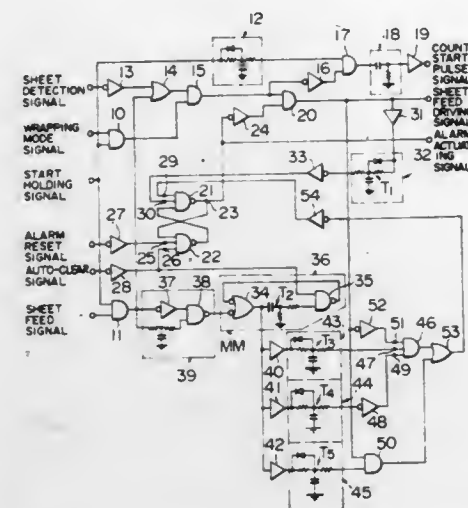
U.S. Cl. 340-679

6 Claims

1. A sheet feeding control device for use in a coin wrapping machine wherein coins accumulated in a predetermined number are wrapped with a wrapping sheet by wrapping rollers, said device comprising:

- sheet feeding rollers for feeding the wrapping sheet toward the wrapping rollers;
- a sensor positioned adjacent the wrapping rollers along the path of the wrapping sheet for detecting the presence of the wrapping sheet in a given position along said path to generate a sheet detection signal;
- a cutter positioned between said sensor and said sheet feeding rollers for cutting the wrapping sheet at the end of the wrapping operation;
- driving means for driving said sheet feeding rollers to ad-

vance the leading end of the wrapping sheet toward the wrapping rollers after the wrapping sheet is cut by said cutter; and
stopping means for stopping said sheet feeding rollers in response to said sheet detection signal so as to stop the



leading end of the wrapping sheet at a position near said sensor until the wrapping operation is started; whereby the wrapping sheet is then advanced from a position near the sensor once the wrapping operation is started.

4,363,033

VIDEO SWITCH CIRCUIT

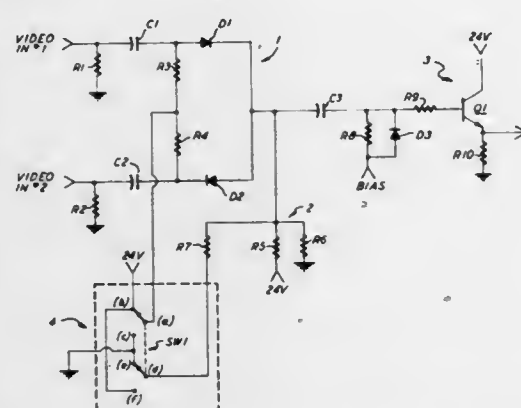
John D. Lovely, Batavia, N.Y., assignor to GTE Products Corporation, Seneca Falls, N.Y.

Filed Jun. 2, 1980, Ser. No. 155,702

Int. Cl.³ H04N 5/22; H03K 17/74

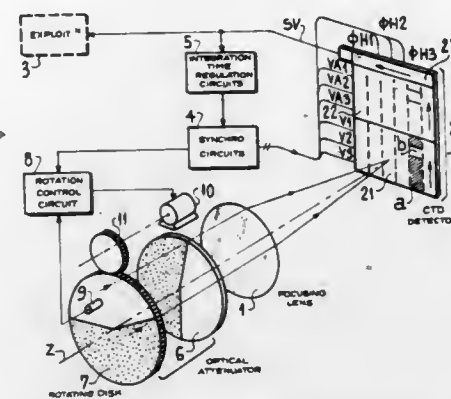
U.S. Cl. 358—181

16 Claims



1. A video switch comprising diode means having a first and a second input coupled respectively to a first and a second source of signals, and an output, said diode means including a first diode having an anode coupled to said first input and a second diode having a cathode coupled to said second input, the cathode of said first diode and the anode of said second diode being coupled in common to said output; a bias source coupled to the output of said diode means for applying a bias voltage to the output thereof; and control means coupled to the first and second inputs of said diode means for selectively applying respective first and second control signals thereto for determining, in conjunction with said bias source, which of said signal sources is coupled to the output of said diode means.

4,363,034
VIDEO PICTURE GENERATOR PHOTODETECTOR
Bernard Grancoin, and Christian Pepin, both of Paris, France, assignors to Thomson-CSF, Paris, France
Filed Dec. 31, 1980, Ser. No. 221,916
Claims priority, application France, Jan. 4, 1980, 80 00170
Int. Cl.³ H04N 3/14
U.S. Cl. 358—213 11 Claims



1. A video picture generator photodetector using a solid state camera with charge transfer operating by vertical frame transfer and comprising: an optical system for focusing the radiation onto the image area of a charge transfer array detector; a generator for the synchronization signals of the detector; and means for regulating the detector sensitivity grouping means for the control of the video signal by varying the integration time during which the electrons are collected in the picture area and optical attenuation means using density-carrying disks for chopping the picture area during each frame period substantially during the time interval when the collected charges are transferred to the store area of the detector.

4,363,035

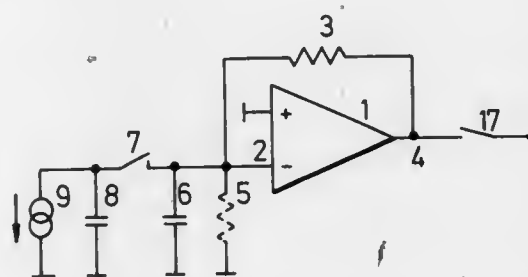
METHOD AND APPARATUS FOR SIGNAL PICK-UP FROM SEMICONDUCTOR IMAGE OR LINE SENSORS
Klaus Lehmann, Mühlthal, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany
Filed Apr. 15, 1981, Ser. No. 254,448

Claims priority, application Fed. Rep. of Germany, Apr. 24, 1980, 3015806

Int. Cl.³ H04N 3/14, 5/14, 5/34

U.S. Cl. 358—213

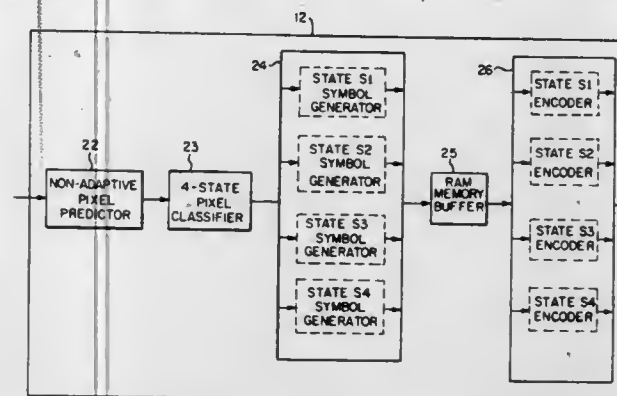
7 Claims



1. Method of picking up signals from a semiconductor image or line sensor at intervals defined by the frequency of a first set of periodic pulses, comprising the steps of:
charging a capacitance (6) associated with said sensor at the output thereof upon occurrence of each of a first set of periodic pulses in accordance with the state of said sensor; maintaining the charge of said capacitance for a first part of the interval between pulses of said first set;
deriving a signal from said charge of said capacitance during a portion of said first part of said interval offset in time from said first set of pulses sufficiently for the dying away of transient disturbances related to said first set of pulses, and

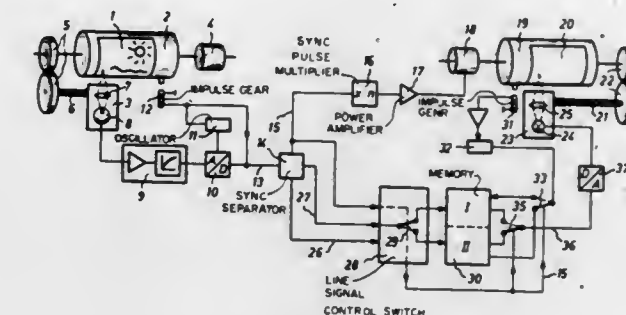
discharging said capacitance during a second part of said interval following said first part thereof.

4,363,036
METHOD AND APPARATUS FOR COMPRESSING DIGITAL DATA USING NON-ADAPTIVE PREDICTIVE TECHNIQUES
Ambati Subramaniam, Plano, Tex., assignor to NCR Canada Ltd
NCR Canada Ltd, Mississauga, Canada
Filed Mar. 16, 1981, Ser. No. 244,352
Int. Cl.³ H04N 7/12
U.S. Cl. 358—261 34 Claims



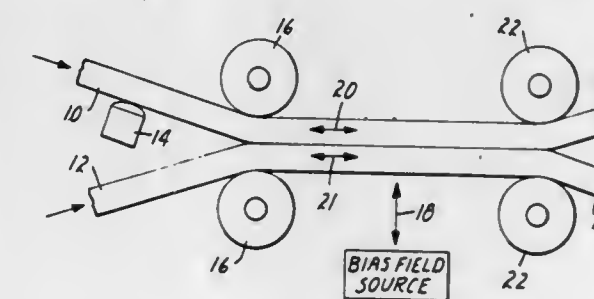
1. An apparatus for the processing of digital data derived from an image, comprising:
first means for converting said digital data into varying run lengths of a first type data element and a second type data element;
first receiving means for receiving said first and second types of data elements from said first conversion means, including first storage means for storing a specified number of data elements in a predefined pattern at any particular time;
means for predicting for each original data element received from said conversion means the type of said data element based upon the types of data elements stored within said first storage means;
means for classifying each of said predicted data elements into one of a plurality of source states, and providing a signal representative of said source state, wherein each source state is indicative of the degree of probability that said predicted data element is in error;
first means for comparing each of said predicted data elements from said prediction means to its corresponding original data element from said first conversion means to generate a plurality of prediction error data elements, each of said prediction error data elements maintaining the same relationship to a given source state signal as its corresponding predicted data element;
means for forming a plurality of symbols, wherein each symbol is comprised of a group of prediction error data elements having the same source state;
first means for controlling the generation of said symbols by said formation means;
second storage means, coupled to said formation means, for storing said symbols in the sequence in which they are generated by said formation means;
third storage means, coupled to said second storage means, for storing a plurality of code words which are representative of each of said symbols contained in said second storage means;
and means for outputting selected code words from said third storage means over a transmission medium, in response to receipt by said third storage means of symbols corresponding to said selected code words.

4,363,037
APPARATUS AND PROCESS FOR RECORDING AN IMAGE FREE OF LINE STRUCTURE
Heinz Taudt, Kiel, Fed. Rep. of Germany, assignor to Dr.-Ing. Rudolf Hell GmbH, Kiel, Fed. Rep. of Germany
Continuation of Ser. No. 821,657, Aug. 4, 1977, abandoned. This application Mar. 24, 1980, Ser. No. 133,878
Claims priority, application Fed. Rep. of Germany, Aug. 7, 1976, 2635674
Int. Cl.³ A04N 1/22
U.S. Cl. 358—296 7 Claims



1. In a process for line-by-line recording of an image with the aid of an intermediate memory, the steps comprising:
generating scanning signals by sensing the light values of the image along successive, substantially adjacent scanning lines, each of said scanning lines having a predetermined width,
converting the scanning signals into electrical signals, storing the electrical signals associated with at least one of said scanning lines in said intermediate memory, sequentially reading out at least two times at least a portion of the electrical signals associated with each of said scanning lines, respectively, from said intermediate memory, so as to obtain groups of successive electrical signals representing the light values for recording groups of sub-lines, each group of sub-lines corresponding to a scanning line, and
sequentially recording said groups of sub-lines, each of said sub-lines having a width sufficiently smaller than the width of said scanning lines, so that an image substantially free of any line structure and loss in resolution is obtained.

4,363,038
CONTACT DUPLICATION SYSTEM USING ANISOTROPIC MAGNETIC RECORDING MEDIA
Richard E. Fayling, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.
Filed Jul. 14, 1980, Ser. No. 168,675
Int. Cl.³ G11B 5/86, 5/74; G06K 19/06
U.S. Cl. 360—17 15 Claims



1. A signal duplicating system comprising:
(a) a master magnetic recording medium having magnetic anisotropy associated with at least one easy and one hard axis of magnetization, said medium being characterized by an initial remanent magnetic moment after a substantially saturating magnetizing field is applied along an easy axis

of said medium, and being further characterized by a subsequent remanent magnetic moment of at least 40% of said initial remanent magnetic moment after an AC magnetic field having an intensity equal to twice the easy axis coercive force of said master medium is applied parallel to a hard axis of the medium;

- (b) means for impressing a magnetic recording pattern on said master recording medium in the form of a localized magnetic field pattern therein;
- (c) a slave magnetic recording medium capable of becoming remanently magnetized when an external magnetic field is impressed thereon;
- (d) means for temporarily maintaining said master and slave magnetic media in surface contact with substantially no relative movement therebetween; and
- (e) means for applying an AC bias magnetic field to the contacted media parallel to said hard axis of said master medium to promote duplication of a magnetic pattern on said master media to said slave media without erasing said pattern on said master medium.

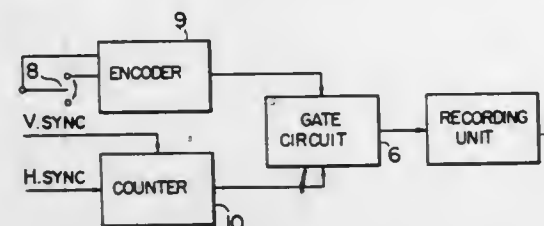
4,363,039

AUTOMATIC OPERATION CONTROL APPARATUS FOR A PCM RECORDING AND REPRODUCING SYSTEM

Keizo Nishimura, Yokohama, and Yasunori Kanazawa, Hachioji, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Aug. 3, 1979, Ser. No. 63,475
Claims priority, application Japan, Aug. 7, 1978, 53-95494
Int. Cl.³ H04N 5/785

U.S. Cl. 360—19.1

16 Claims



1. An automatic operation control apparatus for a PCM recorder system in which a PCM signal is recorded on a recording medium together with vertical and horizontal synchronizing signals, the PCM signal including a PCM sound signal recorded on the recording medium during a predetermined first horizontal scanning period of a plurality of horizontal scanning periods arranged between vertical synchronizing signals, the automatic operation control apparatus comprising a recording operation device including:

detector means including a recording counter for detecting a second horizontal scanning period between the vertical synchronizing signals, the second horizontal scanning period being different from the first horizontal scanning period, the recording counter being reset by the vertical synchronizing signals to initiate counting of the horizontal synchronizing signals;

means for generating at least an operation control signal for enabling control of a drive mechanism for the recording medium during a reproduction operation; and means for recording on the recording medium the operation control signal generated by said operation control signal generator means when said detector means detects the second horizontal scanning period;

whereby the recording medium includes the operation control signal in at least one second horizontal scanning period between the vertical synchronizing signals, the operation control signal being reproducible for enabling control of the recording medium during a reproduction operation.

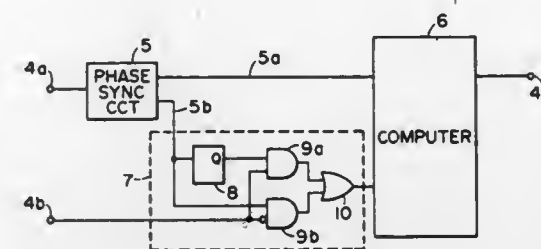
4,363,040

SIGNAL TRANSDUCER

Shuichi Inose, Inagi, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 17, 1980, Ser. No. 160,162
Claims priority, application Japan, Jun. 21, 1979, 54-78441
Int. Cl.³ G11B 5/09

U.S. Cl. 360—51

7 Claims



1. A signal transducer, comprising:

- (a) a phase synchronizing circuit which receives as an input thereinto information obtained by modulation of data, and produces as an output therefrom said input information and clock signals synchronized with a cycle proper to said input information;
- (b) a flip-flop circuit which receives as an input thereinto the clock signal output from said phase synchronizing circuit;
- (c) a first AND circuit which receives at one of the inputs thereof an output from said flip-flop circuit;
- (d) a second AND circuit which receives at one of the inputs thereof the clock signals output from said phase synchronizing circuit;
- (e) signal input means which receives thereinto input signals to open the other input of said first AND circuit and to open any one of the other inputs of said second AND circuit;
- (f) an OR circuit which receives as input thereinto the outputs from said first and second AND circuits; and
- (g) extracting means which receives as input thereinto the information output from said phase synchronizing circuit and the output from said OR circuit, and which extracts said data from said information.

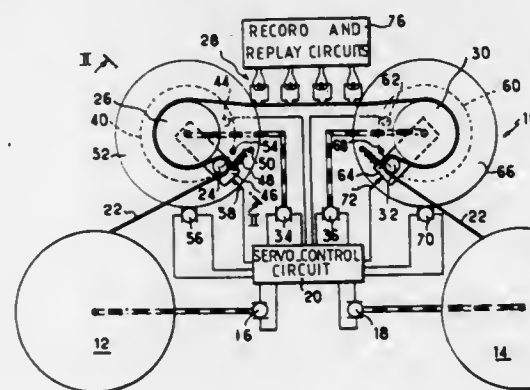
4,363,041

DUAL CAPSTAN TAPE TRANSPORT HAVING CONTROLLED TAPE TENSION

Guy Lelandais, Bures sur Yvette, France, assignor to Enertec, Montrouge, France
Filed Dec. 22, 1980, Ser. No. 219,454
Claims priority, application France, Dec. 26, 1979, 79 31649
Int. Cl.³ G11B 15/18; B65H 25/22

U.S. Cl. 360—71

7 Claims



1. A tape transport for use with transducer means to transport tape along a predetermined path extending past said transducer means, comprising:

two capstans, each disposed at a respective end of said predetermined path;

two rollers, each disposed adjacent a respective one of said capstans and arranged to guide tape beyond the respective end of said path in partial wrapping engagement about its respective capstan;

two drive means each coupled to a respective one of said capstans; and

control means coupled to said drive means and arranged to control operation thereof to drive said capstans at differing torques whereby to induce a controlled tension in tape extending along said path;

wherein said control means has a first servo-control loop known per se including one of said drive means and responsively coupled to an independent source of oscillatory signals to control the operation of said one drive means in accordance with the frequency thereof, and wherein said control means has a second servo-control loop including the other of said drive means and normally responsively coupled to a controlled source of oscillatory signals to control the operation of said other drive means in accordance with the frequency thereof, the controlled source being responsively coupled to said first servo-control loop to generate its oscillatory signals in dependence upon the operation of said one drive means.

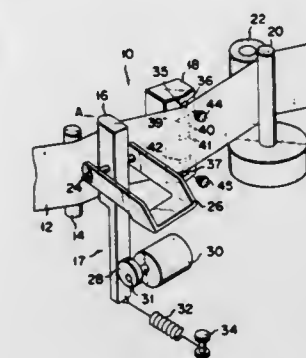
4,363,042

METHOD AND APPARATUS FOR AUTOMATICALLY TRACKING A MAGNETIC TAPE

Kenji Kimura, Tachikawa; Sinichi Saitou, Hachioji; Toyoo Nishiyama, Musashimurayama; Toshikazu Kato, Hachioji; Misao Shimoda, Hamura; Seizo Watanabe, Hachioji; Ken Satoh, Akikawa, and Tutomu Shibata, Hachioji, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan
Filed Mar. 25, 1980, Ser. No. 133,813
Claims priority, application Japan, Apr. 2, 1979, 54-39511
Int. Cl.³ G11B 15/60

U.S. Cl. 360—71

10 Claims



1. A method for automatically tracking a magnetic tape running against a magnetic head having a vertical assembly of vertically extending head gaps formed therein, said magnetic head being fixed during running of the tape thereagainst which comprises the steps of:

detecting the vertical position of a magnetic tape during its run by a means for detecting, at a position aligned vertically with the vertical axis of the vertical assembly of vertically extending head gaps formed in the magnetic head, at least one of the positions of the upper and lower edges of the magnetic tape, and generating data corresponding to the detected position;

determining any displacement of the magnetic tape from its standard vertical position from detected data; and varying the mode in which a tape edge position-compensating means for applying a tensile force to the magnetic tape by contact with the upper or lower edge portion of the tape in the sideward direction of the tape is pressed against the magnetic tape in order to control the tensile force applied by the tape edge position-compensating means to the magnetic tape to thereby control the vertical position of the magnetic tape relative to said magnetic head,

thereby enabling the running magnetic tape to maintain its standard vertical position.

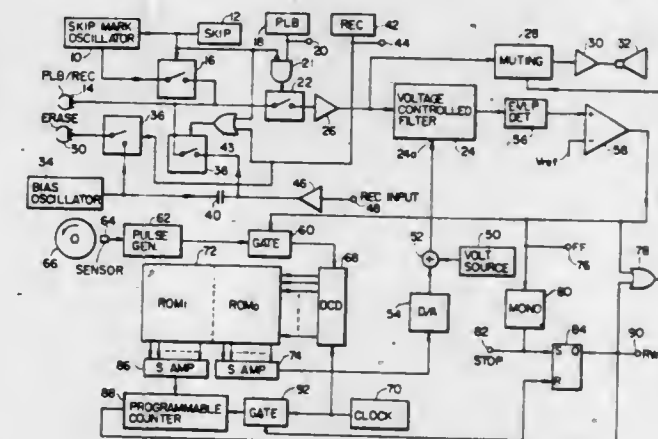
4,363,043

CIRCUIT ARRANGEMENT FOR SKIPPING MARKED PORTIONS OF A RECORDING TAPE

Masatsugu Kitamura; Hideo Onoye, and Hiroki Shimizu, all of Yokohama, Japan, assignors to Victor Company of Japan, Limited, Yokohama, Japan
Filed Jul. 16, 1980, Ser. No. 169,474
Claims priority, application Japan, Jul. 16, 1979, 54-89986
Int. Cl.³ G11B 17/00

U.S. Cl. 360—72.1

14 Claims



1. An automatic skipping control circuit for a tape reproducing apparatus having means for driving a tape in playback, fast-forward or rewind mode in response to a speed control signal, a transducer head, and means for reproducing materials recorded in said tape when said tape is driven in said playback or fast-forward mode by contacting said tape with said transducer head, wherein selected portions of said tape are recorded with a skip mark signal of a predetermined frequency, comprising:

voltage controlled filter means having a passband of which the frequency is variable in accordance with a frequency control signal applied thereto, the passband frequency of the filter means normally corresponding to said predetermined frequency of the skip mark signal when the tape is driven in said playback mode, said filter means being responsive to an output signal from said transducer head for generating a fast-forward speed control signal to cause said tape to be driven in said fast-forward mode, whereby the frequency of the skip mark signal detected by said transducer head becomes higher than said predetermined frequency; and

means for generating a said frequency control signal in response to the occurrence of said fast-forward speed control signal, the magnitude of said frequency control signal being a function of a varying diameter of the convolutions of said tape wound on a takeup reel of said tape reproducing apparatus, whereby the passband frequency of said voltage controlled filter means is varied to correspond to the increased frequency of the detected skip mark signal.

4,363,044

TRAY FOR MAGNETIC DISK DRIVE MACHINE

Daniel O. Castrodale, and Thomas R. Fournier, both of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

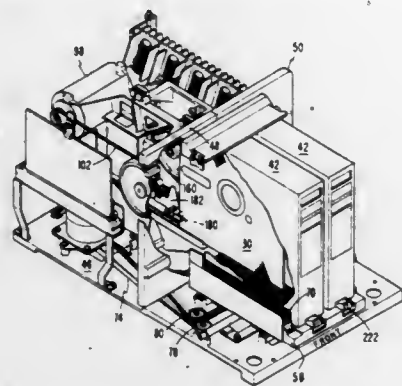
Division of Ser. No. 888,437, Mar. 20, 1978, Pat. No. 4,170,030.

This application May 29, 1979, Ser. No. 43,409

Int. Cl.³ G11B 23/02, 17/04, 5/82

U.S. Cl. 360—98

2 Claims



1. Apparatus for storing a series of information carrying disk jacket assemblies including:
 - a tray having spaced portions providing a series of parallel open top grooves of such transverse dimensions so that each groove receives an individual one of said disk-jacket assemblies,
 - a magazine disposed on said tray and having a bottom and a top, said bottom and top having opposite parallel internal grooves formed therein opposite ones of which in said bottom and top are of sufficient transverse dimensions to receive said disk-jacket assemblies, and
 - means for releasably fixing said magazine on said tray.

4,363,045

MAGNETIC TRANSDUCER SUSPENSION DEVICE

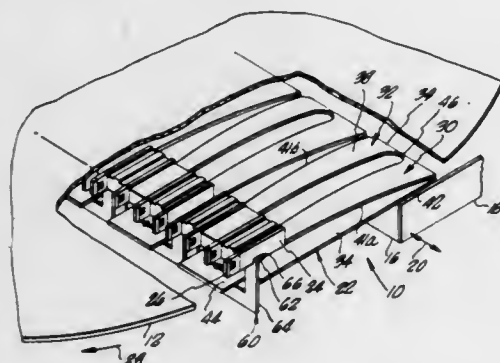
Robert W. Herman, Laguna Beach, Calif., assignor to New World Computer Company, Inc., Costa Mesa, Calif.

Filed Oct. 20, 1980, Ser. No. 199,092

Int. Cl.³ G11B 5/48, 5/54, 5/60

U.S. Cl. 360—104

11 Claims



1. A suspension device for magnetic transducers comprising:
 - a spring member;
 - a transducer attachment clip engaged by said spring member and adapted to be affixed to said transducer, said spring member adapted to apply biasing force to said attachment clip; and
 - pivot means disposed between said spring member and said attachment clip for allowing said attachment clip to pivot with respect to said spring member, said pivot means defining an axis of rotation for said attachment clip.

4,363,046

DEFLECTABLE TRANSDUCER HEAD ASSEMBLY

Etsuro Saito, Ayase, Japan, assignor to Sony Corporation, Tokyo, Japan

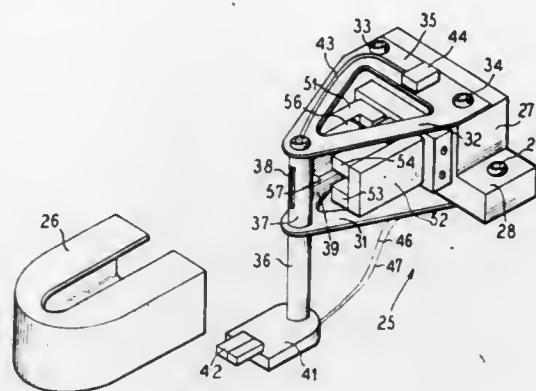
Filed Nov. 10, 1980, Ser. No. 205,742

Claims priority, application Japan, May 24, 1980, 55-69118

Int. Cl.³ G11B 21/10, 21/18, 5/52

U.S. Cl. 360—106

17 Claims



1. A deflectable transducer head assembly comprising:
 - (a) a transducer means for transducing signals;
 - (b) a base member;
 - (c) a pair of deflectable members spaced apart and mounted with first ends attached to said base member and extending parallel to each other and with second ends remote from said first ends and moveable together;
 - (d) means connecting said second ends of said deflectable members together;
 - (e) a moving coil mounted to move with said deflectable members in response to a control signal applied thereto;
 - (f) magnetic means mounted adjacent said moving coil for supplying a magnetic flux thereto; and
 - (g) said transducer means mounted on said connecting means and displaced in a predetermined direction to trace a signal track accurately in response to movement of said moving coil means relatively to said magnetic means.

4,363,047

ROTARY HEAD ASSEMBLY FOR MAGNETIC RECORDING AND REPRODUCING DEVICE

Teruo Maruyama, Neyagawa, and Takashi Ichinaga, Hirakata, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 4,564, Jan. 18, 1979, Pat. No. 4,251,840. This application Oct. 29, 1980, Ser. No. 201,737

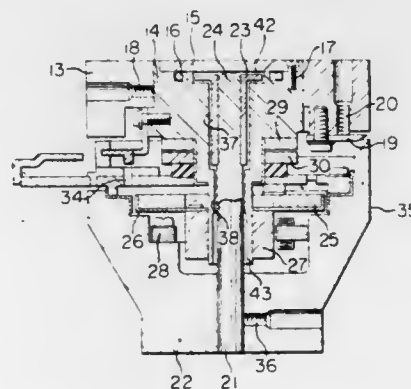
Claims priority, application Japan, Jan. 27, 1978, 53-8741

The portion of the term of this patent subsequent to Feb. 17, 1998, has been disclaimed.

Int. Cl.³ G11B 15/60

U.S. Cl. 360—107

2 Claims



1. A rotary head assembly for a magnetic recording and reproducing device, comprising:
 - a stationary center shaft having one end which is securely

held in position and a free end, with a flange adjacent said free end;

a stationary cylinder having a cylindrical surface coaxial with said stationary center shaft;

a rotary cylinder disposed adjacent to one end of said stationary cylinder for rotation about the axis of said stationary center shaft and having a cylindrical surface the diameter of which is the same as that of said cylindrical surface of said stationary cylinder, said rotary cylinder having an axial cylindrical recess therein, said recess including a shoulder portion for receiving said flange;

means for driving said rotary cylinder;

a magnetic head mounted on said rotary cylinder;

said stationary center shaft being stationary relative to said stationary cylinder, the free end of said stationary center shaft extending into said cylindrical recess for supporting said rotary cylinder, said free end having a region of engagement with the bottom of said recess which has an area substantially less than the cross sectional area of said shaft;

said rotary cylinder including a rotary sleeve having a sealed upper end defining the bottom of said recess and an open lower end;

a lubricating fluid disposed in the space between said rotary sleeve and said stationary center shaft so as to provide a hydraulic bearing means between said stationary center shaft and rotary cylinder, said hydraulic bearing means having (i) a radial bearing portion defined by a peripheral surface part of said shaft adjacent said flange and relatively remote from said free end, and the adjacent inner surface part of said rotary sleeve, one of said surface parts having a circumferential spiral or helical groove therein for subjecting said fluid to a pumping effect upon rotation of said rotary sleeve; and (ii) a thrust bearing portion defined by said shoulder portion and the adjacent major surface of said flange.

4,363,048

TIME COUNTING CLOCK GENERATOR

Shosuke Tanaka, Yokohama, and Fumiyoshi Abe, Atsugi, both of Japan, assignors to Sony Corporation, Tokyo, Japan

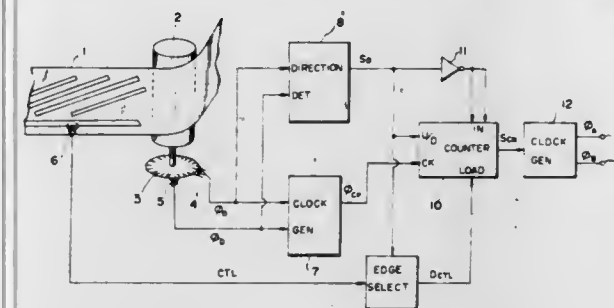
Filed Nov. 19, 1980, Ser. No. 208,433

Claims priority, application Japan, Nov. 27, 1979, 54-153406

Int. Cl.³ G11B 19/26, 15/54, 15/44

U.S. Cl. 360—137

7 Claims



1. A time counting clock generator for a video tape recorder comprising, a pulse generator for generating a pulse signal indicative of tape velocity in response to the movement of a video tape, a direction indicating pulse generator for generating a direction indicating pulse output from said pulse signal, a dividing counter for dividing said pulse signal for generating a timer counting clock signal, said direction indicating pulse output being supplied to an up-down control input of said dividing counter, a control signal reproducing circuit for reproducing control signals recorded on said video tape, and a counter presetting means for presetting said dividing counter to zero when said direction indicating pulse output indicates forward movement of said video tape and to the maximum value when said direction indicating pulse output indicates

reverse movement of said video tape at each occurrence of said control signal.

4,363,049

METHOD AND APPARATUS FOR EDITING DIGITAL SIGNALS

Tadashi Ohtsuki, Kanagawa; Shinichi Kazami, Tokyo; Shinji Anjyu, Saitama, and Masato Tanaka, Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan

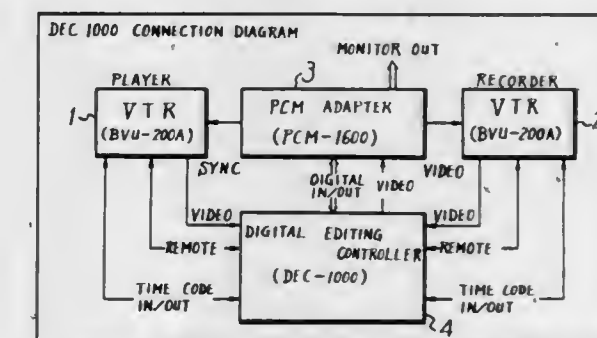
Filed May 29, 1980, Ser. No. 154,525

Claims priority, application Japan, May 31, 1979, 54-68201; Jun. 7, 1979, 54-71539; Jun. 7, 1979, 54-71540

Int. Cl.³ G11B 27/02, 5/00

U.S. Cl. 360—13

12 Claims



1. Method of editing digital signals which are composed of successive frames with a plurality of words included in each frame, said method comprising the steps of:
 - reproducing first digital signals from a first recording medium;
 - reproducing second digital signals from a second recording medium;
 - determining editing points for said first and second digital signals, respectively;
 - storing either one of said first and second digital signals for a predetermined duration which includes the respective one of said editing points;
 - recording the stored digital signals at least in the neighborhood of said respective editing point on said first recording medium; and
 - recording on said first recording medium, subsequent to said stored digital signals, said second digital signals with the recorded stored digital signals forming a discontinuity-free transition between said second digital signals and said first digital signals as recorded on said first recording medium.

4,363,050

DIGITIZED AUDIO RECORD AND PLAYBACK SYSTEM

Andrew A. Modla, Newtown, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Jul. 28, 1980, Ser. No. 172,756

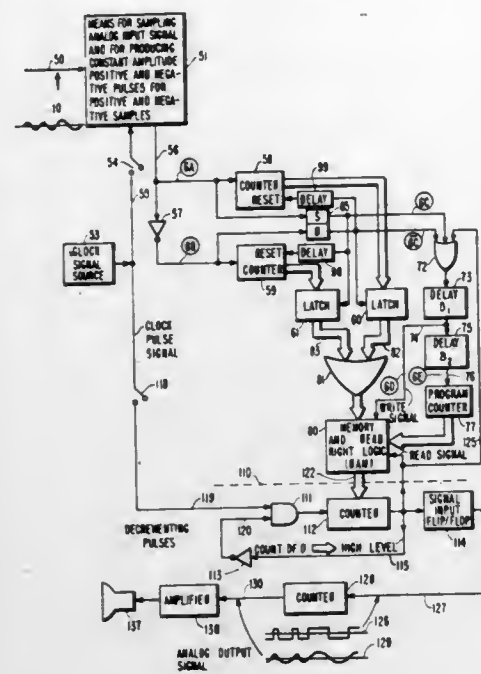
Int. Cl.³ G11B 5/00

U.S. Cl. 360—32

9 Claims

1. A system for processing an analog signal comprising:
 - means responsive to said analog signal to produce sequences of binary 1's for those portions thereof whose amplitude is greater than a given signal level and to produce sequences of binary 0's for those portions thereof whose amplitude is less than said given signal level;
 - first means responsive to each sequence, in the order of their occurrence, to form an N bit digital word of a fixed length and representing the number of bits in said each sequence;
 - second means for sequentially storing said digital words as they occur to form a series of co-existent sequentially stored digital words;
 - third means responsive to said sequentially stored digital

words, in said order of occurrence, to produce a two level signal whose first level represents said sequences of binary



1's and whose second level represents said sequences of binary 0's.

4,363,051

VIDEO TAPE RECORDER ARRANGED TO BE CONNECTED WITH A VIDEO CAMERA

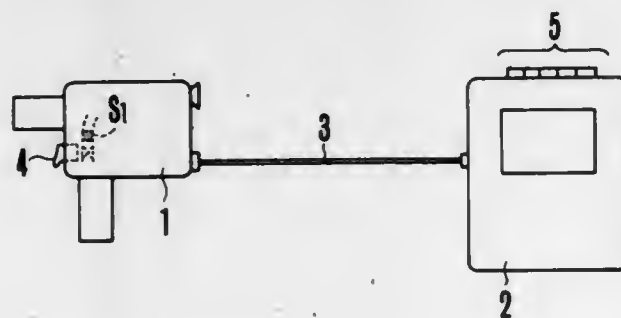
Masaya Maeda, Noritsugu Hirata, and Hiroyuki Takimoto, all of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 13, 1980, Ser. No. 206,486

Claims priority, application Japan, Nov. 14, 1979, 54-147254
Int. Cl.³ H04N 5/78

U.S. Cl. 360-33.1

11 Claims



1. A video tape recorder which allows a video camera having a coupling device to be connected to the recorder, comprising:

- a coupling part for electrically connecting the video camera to the video tape recorder when the coupling device of the video camera is attached to said coupling part;
- stopping operation means for bringing the video tape recorder to a stop condition when the recorder is in a video recording state; and
- means coupled to said stopping operation means for nullifying the operation of said operating means, said nullifying means being arranged to be controlled by the video camera connected to said coupling part and to nullify the operation of said stopping operation means at least during a picture taking operation by the video camera when the video camera is connected to said coupling part.

4,363,052 THERMOMAGNETIC RECORDING DEVICE

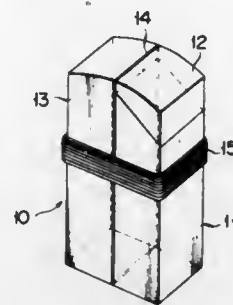
Naohiro Hanaoka, Hachioji, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jul. 10, 1980, Ser. No. 168,283

Claims priority, application Japan, Jul. 17, 1979, 54-90659
Int. Cl.³ G11B 5/02, 5/22, 5/25

U.S. Cl. 360-59

8 Claims



1. A thermomagnetic recording device for recording information on a magnetic recording medium with a magnetic recording section having magnetic anisotropy across the thickness thereof, comprising:

- a light beam irradiation system for applying a light beam to said magnetic recording section to heat said magnetic recording section over a given area, thereby reducing the coercive force of the heated section; and
- a single-pole magnetic head including a ferromagnetic thin membrane of high permeability having an end face located opposite to said magnetic recording section, said ferromagnetic thin membrane extending perpendicularly to said magnetic recording section, a main body supporting said thin membrane, said main body including a pair of nonmagnetic half pieces forming a nonmagnetic distal end portion and a ferromagnetic proximal portion, said distal end portion comprising said end face of the head, said ferromagnetic thin membrane being held between both said half pieces and between said nonmagnetic portions at the portion of the head facing the magnetic recording medium and an electrical coil coupled to said main body for applying a perpendicular magnetic field to said recording section through said end face of said thin membrane, said ferromagnetic thin membrane having a thickness which is smaller than the dimension of said given area which is heated by said light beam irradiation system such that only part of the given heated area is magnetized by said ferromagnetic thin membrane.

4,363,053

SIGNAL REPRODUCING CIRCUIT

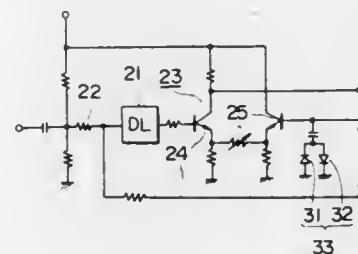
Yoshitaka Kanamoto, Kawasaki, and Makoto Ishiodori, Ebina, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Oct. 21, 1980, Ser. No. 199,228

Claims priority, application Japan, Oct. 23, 1979, 54-136758
Int. Cl.³ G11B 5/02, 5/04; H04N 5/78

U.S. Cl. 360-67

5 Claims



1. Signal reproducing circuit for an angular modulated signal, comprising:

- (a) a delay means for receiving and delaying an incoming

angular modulated signal by predetermined times τ , and 2τ ;

- (b) a mixing means for mixing said incoming angular modulated signal and said 2τ -delayed angular modulated signal;
- (c) a signal limiter means receiving the output of said mixing means and limiting the amplitude of signals derived from said mixing means; and
- (d) an adding means receiving the outputs of said delay means and said signal limiter means and adding in said opposite polarity the signals from said signal limiter means and τ -delayed angular modulated signal, whereby an equalized angular modulated signal is derived from said adding means.

4,363,055

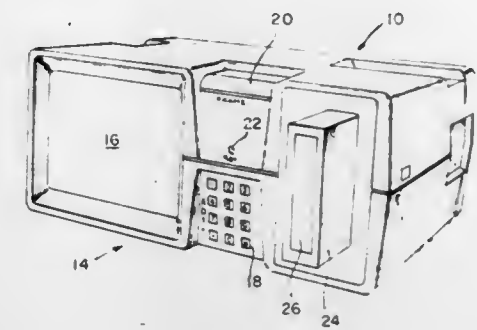
CONTROL SYSTEM FOR AUDIO-VISUAL PROJECTOR

Michael G. Lee, Redmond, Wash., assignor to Indal Corporation, Bellevue, Wash.

Filed Sep. 15, 1980, Ser. No. 187,313

Int. Cl.³ G11B 31/00; G03B 31/00
U.S. Cl. 360-80

15 Claims



1. A control system for an audio-visual device for sequentially projecting a plurality of frames of a filmstrip responsive to actuation of a film advance mechanism and for presenting an audio program recorded on an audio tape including spaced-apart coded signals each of which uniquely identifies a respective frame of said filmstrip so that each portion of said tape is associated with a respective film frame, said control system comprising:

- sync frame detector means for generating a reset signal responsive to projection of a predetermined sync frame;
- film frame counter means incremented responsive to actuation of said film advance mechanism and reset by the reset signal from said sync frame detector means such that a digital word at the output of said counter identifies the frame being projected;
- tape decoder means receiving the coded signals on said audio tape and generating a digital word indicative of the film frame associated with the coded signal last appearing in said audio program; and
- comparator means for actuating said advance mechanism until the digital word at the output of said film frame counter means is equal to the digital word at the output of said tape decoder means whereby the frames of said filmstrip are advanced in synchronism with said audio program.

4,363,056

DISK HOUSING FOR DISK DRIVE MASS STORAGE UNIT

Charles M. Riggle, Acton, Mass.; Christopher A. Pollard, and John D. Read, both of Monument, Colo., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Feb. 29, 1980, Ser. No. 126,024

Int. Cl.³ G11B 5/012

U.S. Cl. 360-98

5 Claims

1. A housing assembly for housing a disk for use in a mass information storage apparatus, the disk being supported on a spindle having first and second ends, said housing assembly comprising:

- A. first and second housing members each including
 - (i) a first and second generally circular portion having a rim,
 - (ii) first and second generally rectangular extension means each generally coplanar with a respective one of said circular portions defining an extension housing and having an edge, and
 - (iii) flange means depending from at least a substantial continuous portion of said rim and from the portions of said edge of said extension means adjacent to said circular portions, the distal edges of said extension means being free, and the distal edges and said flange means

4,363,054 APPARATUS AND METHOD FOR OSCILLATING THE TAPE OF A TAPE PLAYER

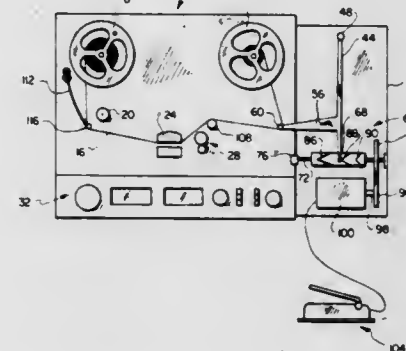
Ralph G. Laycock, 508 E. 600 South, Orem, Utah 84057

Filed May 5, 1980, Ser. No. 146,487

Int. Cl.³ G11B 15/18, 15/00

U.S. Cl. 360-72.1

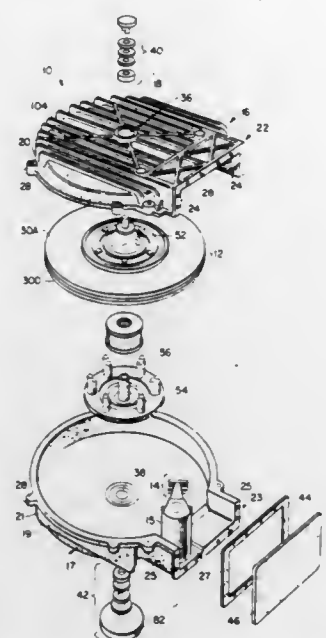
7 Claims



1. Tape oscillating apparatus for use in combination with a tape player adapted to reproduce sounds recorded on tapes when the tapes are moved past the tape player's playback head, said apparatus comprising

- first support means located on one side of the playback head and mounted to move in an oscillatory fashion,
- first guide means disposed on the first support means in a position to allow the tape of the tape player to continuously contact and extend about a portion of the guide means,
- drive means for causing said first support means and first guide means to repetitively oscillate in a continuous fashion to thereby alternately pull the tape in one direction past the playback head and allow return of the tape in the other direction to thus cause the tape to repetitively and continuously oscillate longitudinally at the playback head,
- second movable support means located on the other side of said playback head and including a resilient element biased to return to a rest position when moved from such position, and
- second guide means disposed on said second support means in a position to allow the tape to continuously contact and extend about a portion of the guide means so that when the tape is pulled by the first guide means in said one direction the second guide means maintains a tautness of the tape while alternately allowing movement of the tape in said one direction and causing the tape to return in the other direction.

forming an opening in said housing assembly, said flange means further having mating surfaces,
B. means for coupling together said mating surfaces of said flanges, to rotatably support the disk on the spindle inside of said housing assembly, and



C. removable cover means for sealing the opening defined by said extension housing means, thereby to seal the interior of said housing assembly from contaminants outside said housing assembly.

4,363,057

RECIRCULATING FILTER DUCT DESIGN

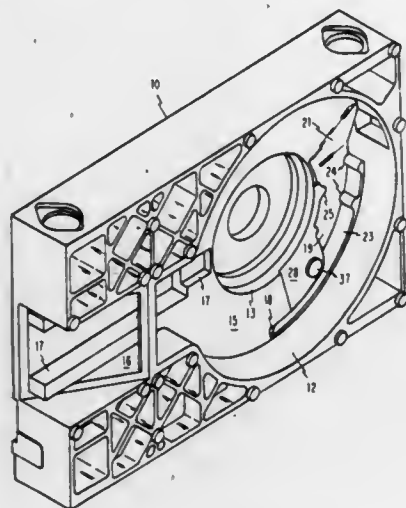
Michael M. Siverling, and Stephen E. Wheeler, both of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation-in-part of Ser. No. 57,631, Jul. 16, 1979, abandoned. This application Mar. 2, 1981, Ser. No. 239,810

Int. Cl.³ G11B 23/02, 25/04

U.S. Cl. 360—98

12 Claims



1. A magnetic disk memory comprising:
disk means supported for rotation about a central axis;
motive means operatively connected to said disk means to cause rotary motion about said central axis;
cover means enclosing said disk means and including shroud means adjacent at least one surface of said disk means;
a duct formed in said shroud means having an inlet adjacent the periphery of said disk means and an outlet underlying said disk means and radially inward of said inlet;
a filter means in said duct intermediate said inlet and outlet; and
a deflector adjacent said outlet opening adjacent the side thereof first approached by a point on said rotating disk means and presenting a surface inclined toward said disk

means whereby the clearance between the deflector and disk means is progressively reduced in the direction of disk means rotation.

4,363,058

MAGNETIC RECORDING DEVICE

Naohiro Hanaoka, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

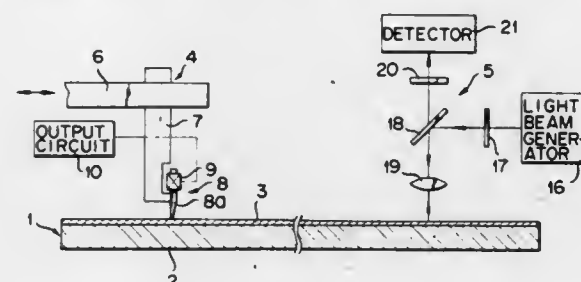
Filed May 1, 1980, Ser. No. 145,734

Claims priority, application Japan, May 15, 1979, 54-59484

Int. Cl.³ G11B 5/22, 5/20

U.S. Cl. 360—122

9 Claims



1. In a magnetic recording device for recording information on a track of a recording medium having magnetic anisotropy across the thickness thereof, comprising a flux producing winding adapted to be coupled to a signal source, and a magnetic head which includes said winding and means for guiding magnetic flux produced by said winding to said recording medium and magnetically recording information corresponding to said magnetic flux on said medium, the improvement wherein:

said magnetic flux guiding means of said magnetic head includes:

- a chip having a distal end portion and an opposite proximal end portion for receiving said winding thereon, said distal end portion being formed of nonmagnetic material and said proximal end portion including a ferromagnetic portion located at said winding receiving portion of said chip; and
 - a single ferromagnetic thin membrane held by said chip, said single thin membrane having one end thereof located at said distal end portion of said chip and the other end thereof extending to the winding receiving portion of said chip, said single thin membrane passing magnetic flux produced from said winding to said one end thereof and being so disposed that its thickness direction extends in the same direction as the track of the recording medium, whereby information is recorded on said recording medium through said one end of said single thin membrane located at said distal end of said chip;
- said chip including a pair of chip pieces with said ferromagnetic thin membrane held therebetween, one of said chip pieces being formed completely of nonmagnetic material, and the other of said chip pieces comprising a nonmagnetic distal end portion located at the distal end of said chip and said ferromagnetic proximal end portion located at said winding receiving portion of said chip, the magnetic flux produced from said winding being guided to said single ferromagnetic thin membrane through said proximal end portion; and
- a read out means is provided which includes a photomagnetic reproducing mechanism for directing a light beam to said recording medium and for detecting a change of the rotation angle of the plane of polarization of the light reflected from said recording medium.

4,363,059

MAGNETIC TAPE CASSETTE

Yoneo Matsuzawa, Yoshio Kawakami, and Norifumi Kajimoto, all of Tokyo, Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

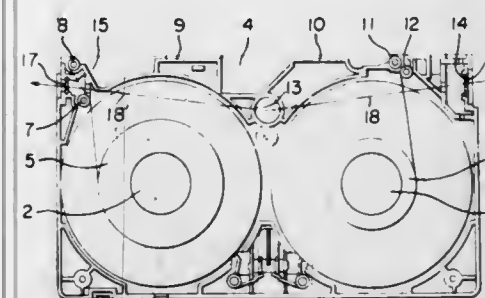
Filed Oct. 2, 1980, Ser. No. 193,293

Claims priority, application Japan, Oct. 19, 1979, 54-135804

Int. Cl.³ G11B 23/04, 15/06

U.S. Cl. 360—132

2 Claims



1. In a magnetic tape cassette holding a wound magnetic tape comprising a transparent base film and a magnetic layer having a thickness of 5 microns or less coated on the base film, an improvement comprising:

- a first hole means located in said cassette for inserting a light source means;
- second hole means located on the frame of said cassette for passing light emitted through said first hole means with said magnetic tape passing between said first hole means and said second hole means; and
- light-shielding filter means having light transmittance in the range between 0.5 and 10 percent fitted over said second hole means.

4,363,060

ARCLESS TAP CHANGER FOR VOLTAGE REGULATOR
Frederick A. Stich, Milwaukee, Wis., assignor to Siemens-Allis, Inc., Atlanta, Ga.

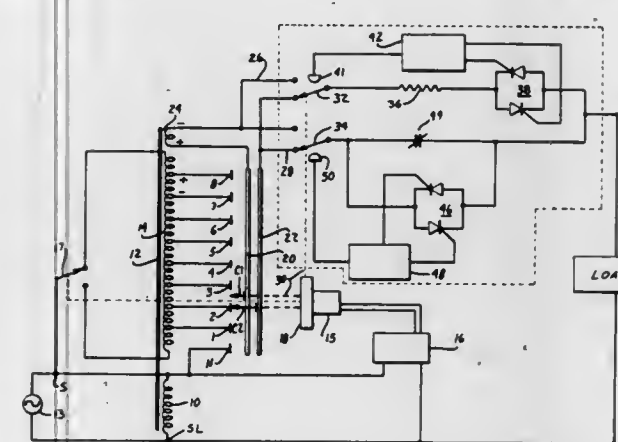
Continuation of Ser. No. 105,081, Dec. 19, 1979, abandoned.

This application Dec. 18, 1981, Ser. No. 332,365

Int. Cl.³ H02H 7/20

U.S. Cl. 361—8

6 Claims



1. In a power line voltage regulator of the tap changing type including a main winding and a tapped auxiliary winding, a plurality of taps on said auxiliary winding, a pair of selector contacts for engaging the taps, a collector coupled to each selector contact, drive means for operating said selector contacts and an output terminal adapted to be coupled to a load, the improvement comprising an auxiliary system for effecting arcless engagement and disengagement of said taps by said selector contacts including first and second terminals coupled to the first and second collectors, respectively; a first selector switch for engaging one or the other of said terminals; a current switch coupled between said selector switch and said

output terminal; a first thyristor circuit coupled in shunt about said current switch; a gating circuit coupled to said thyristor circuit for energizing said thyristor circuit to allow said current switch to open arclessly; current limiting impedance means; means for electrically coupling said impedance means to one of said first or second terminals and circuit switching means for coupling said impedance means in circuit between said output terminal and said first or said second collectors.

4,363,061

ELECTRIC MOTOR AND TRANSFORMER LOAD SENSING TECHNIQUE

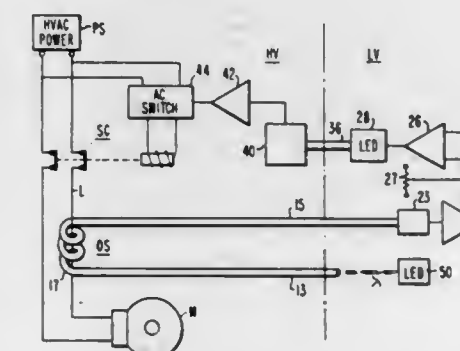
Eugene G. Vaerewyck, Pittsburgh, and Arthur E. Anderson, Murrysville, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jun. 10, 1980, Ser. No. 158,108

Int. Cl.³ H02H 7/085

U.S. Cl. 361—31

7 Claims



1. Apparatus for monitoring the current flow in a high voltage electrical load, such as a motor or transformer, comprising, a high voltage section including a Faraday rotator optical sensor means for generating an optical signal indicative of the current flow in a high voltage electrical load, a low voltage section including a signal processing circuit means, first optical coupling means connected between said high voltage section and said low voltage section to optically transmit said optical signal from said Faraday rotator optical sensor means to said signal processing circuit means, said optical coupling means providing electrical isolation and noise immunity for said low voltage section, said signal processing circuit means including first circuit means for converting said optical signal to an electrical signal manifesting the positive and negative half cycles of the current flow in said high voltage electrical load, second circuit means for comparing the positive half cycles of said electrical signal to a predetermined threshold, and the negative half cycles of said electrical signal to a second predetermined threshold and generating electrical overload output signals in the event the half cycles of said electrical signal exceed said respective thresholds, said third circuit means for converting said electrical overload output signal into an optical overload output signal.

4,363,062

INDUCTIVE VOLTAGE TRANSFORMER AND CIRCUIT THEREFOR

Klaus Bollmann, Hans-Joachim Freygang, Jürgen Moeller, and Manfred Weniger, all of Berlin, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed May 29, 1981, Ser. No. 268,162

Claims priority, application Fed. Rep. of Germany, May 30, 1980, 3021002

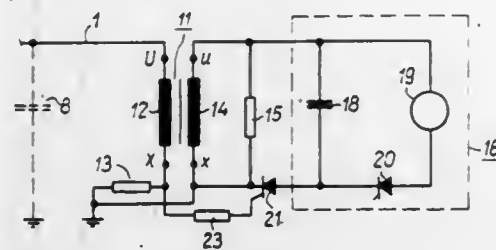
Int. Cl.³ H02H 7/04

U.S. Cl. 361—35

16 Claims

1. Apparatus for connection to an inductive voltage transformer having a primary winding connected directly to a

network line and at least one secondary winding connected a load, the apparatus comprising control means connected to the transformer primary, switching means connected to the control means, and means for generating current, the control means controlling switching of the switching means, the switching means coupling the current generating means to a secondary winding of the voltage transformer, the switching



means providing a low impedance between the transformer secondary and the current generating means responsive to the control means, whereby current fed to the transformer secondary from the current generating means causes an excitation opposed to the excitation caused by the discharge of a capacitance associated with the network line through the transformer primary winding.

4,363,063

LOAD BREAK SWITCH WITH BUILT-IN GROUND FAULT SENSING

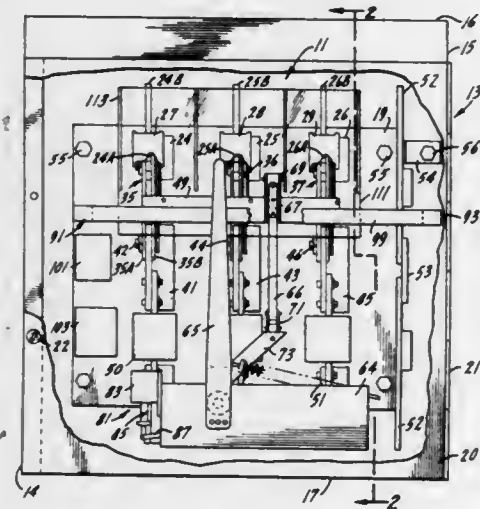
John W. Erickson, Crystal Lake, Ill., assignor to Boltswitch, Inc., Crystal Lake, Ill.

Filed Aug. 5, 1981, Ser. No. 290,370

Int. Cl.³ H02H 3/28

U.S. Cl. 361-48

3 Claims



1. A plural phase high current low voltage load break switch comprising:

- an insulator base;
- a plurality of individual phase circuits mounted on and extending across the base, in parallel spaced relation to each other, each phase circuit including in series an input connector, a fixed switch contact, a movable switch contact, a fuse, and an output connector;
- a neutral conductor mounted on and extending across the base in parallel spaced relation to the phase circuits;
- a switch operator mechanism, mounted on the base and connected to all of the movable switch contacts, for opening and closing such contacts simultaneously, the switch operator mechanism including an electrically operated trip actuator for actuating the operator mechanism to open the switch contacts;
- a zero sequence ground fault sensor coil disposed in encompassing relation to all of the phase circuits and the neutral conductor, the ground fault sensor coil being aligned with

and encompassing the portions of the phase circuits comprising the movable contacts of the switch; and

a control relay, electrically connected to the ground fault sensor coil and to the trip actuator, for energizing the trip actuator in response to the sensing of a ground fault condition by the sensor coil.

4,363,064

OVERCURRENT PROTECTION SYSTEM

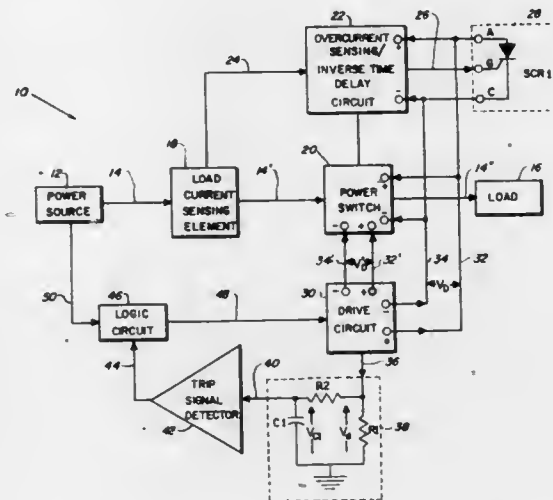
William W. Billings; James T. Mitchell, both of Lima, and Richard E. Luebrecht, Wapakoneta, all of Ohio, assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 27, 1981, Ser. No. 287,005

Int. Cl.³ H02H 3/08, 7/20

U.S. Cl. 361-57

6 Claims



1. An improved overcurrent protection system having a power source of single or multi-phase ac, or dc, a load current sensing element for generating an overcurrent sensing voltage that is proportional to a load voltage across a load, a power switch for controlling the flow of load current, via a load current line connected to the load, an overcurrent sensing/inverse time delay circuit for sensing the overcurrent sensing voltage to generate an overcurrent fault signal in response to an overload condition, the overcurrent fault signal being generated sooner for heavier overloads and later for lighter overloads, and a logic circuit operative, under a normal load condition, to generate an input drive voltage at a drive circuit input line and under an overload condition, and in response to an overcurrent trip signal at its input, said logic circuit operates to turn-off the input drive voltage, wherein the improvement comprises:

- a drive circuit operatively connected at its input, via the drive circuit input line, to said logic circuit, operatively connected at a first output to said power switch and said overcurrent sensing/inverse time delay circuit, and operatively connected at a second output to said power switch, said drive circuit operating on the input drive voltage at its input to generate first and second drive voltages at the first and second outputs thereof;
- a drive circuit input current sensor operatively connected at its input to a third output of said drive circuit for generating a filtered voltage at its output that is proportionate to the voltage at its input;
- a trip signal detector operatively connected in its input to the output of said drive circuit input current sensor, and operatively connected at its output to the input of said logic circuit; and
- a crowbar circuit operatively connected to said overcurrent sensing/inverse time delay circuit, said power switch and said drive circuit, such that when the overload condition occurs, the corresponding increase in the overcurrent sensing voltage causes said overcurrent sensing/inverse time delay circuit at the appropriate time to generate the

overcurrent fault signal causing said crowbar circuit to conduct, thereby causing the crowbarring of the first drive voltage across the first output of said drive circuit which causes said overcurrent sensing/inverse time delay circuit to turn-off, and due to the shorting of the first output of said drive circuit, a consequential increase in the voltage at the input of said drive voltage input current sensor, this increase affecting a subsequent increase in the output voltage of said drive circuit input current sensor, as applied to the input of said trip signal detector, which generates an overcurrent trip signal at its output when the voltage at its input exceeds a threshold level, thereby causing said logic circuit to remove the input drive voltage to said drive circuit causing it to deactivate.

4,363,065

INTERPHASE UNBALANCE DETECTOR FOR AC LOAD CIRCUIT

Uohiko Hasegawa, 1-2, Torimi-cho 4-chome, Nara-shi, Nara 631; Yasuo Fujii, 1-20, Kunimi-cho 2-chome, Saidaiji, Nara-shi, Nara 631, and Tahachi Murakami, 880-7, Shichijo Ni-shimachi, Nara-shi, Nara 630, all of Japan

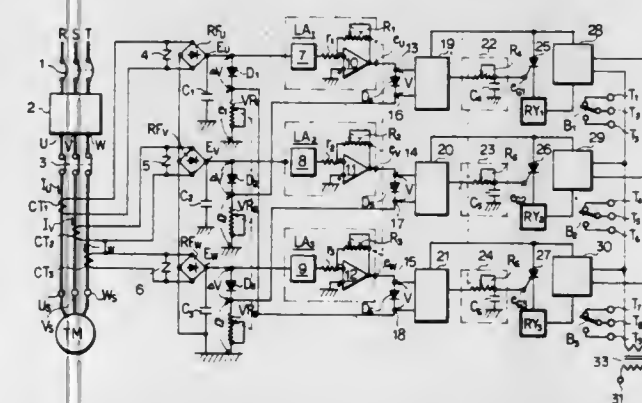
PCT No. PCT/JP79/00027, § 371 Date Oct. 8, 1980, § 102(e) Date Sep. 25, 1980, PCT Pub. No. WO80/01742, PCT Pub. Date Aug. 21, 1980

PCT Filed Feb. 8, 1979, Ser. No. 227,044

Int. Cl.³ H02H 3/26

U.S. Cl. 361-85

5 Claims



1. A detector for detecting an interphase unbalance in a polyphase AC load circuit, including convertors for converting alternating current in respective phases of said polyphase AC load circuit into a DC voltage, and comparing-detecting means for comparing the DC voltage of one phase with the DC voltage of another phase and for detecting a deviation of the two voltages, the current of each phase being used to detect the unbalance of currents in the respective phases at an arbitrarily adjustable predetermined unbalance factor, said comparing-detecting means comprising a dividing circuit having a forward constant-voltage element and a passive voltage varying element, said DC voltage being applied to the respective elements, the voltage at the passive voltage varying element being defined as current comparison voltage; a level adjusting circuit which reduces the voltage to reference level voltage; and a second constant-voltage element having the current comparison voltage and the reference level voltage being applied to the positive and negative terminals thereof.

4,363,066

PROTECTIVE RELAY

Martin T. Bishop, Wilkins Township, Allegheny County, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 20, 1981, Ser. No. 245,788

Int. Cl.³ H02H 3/26

U.S. Cl. 361-85

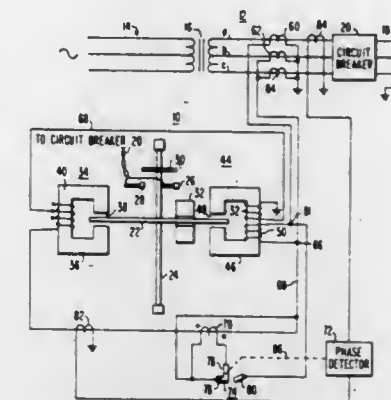
6 Claims

1. A relay for detecting open phases and phase-to-ground faults in a three-phase electrical power system, including high impedance phase-to-ground faults, comprising:

first means providing a first signal responsive to the zero

sequence current flowing in the three-phase electrical power system,

second means providing a second signal responsive to a phase current with said second means including means responsive to a phase-to-ground fault in said three-phase electrical power system for maintaining the magnitude of said second signal at substantially the same magnitude following said fault as it had prior to said fault,



third means providing a restraining quantity which varies as a function of the second signal less the first signal, fourth means providing an operating quantity which varies as a function of the first signal, and translating means responsive to said restraining and operating quantities for providing a predetermined signal when said restraining and operating quantities have a predetermined relationship.

4,363,067

TRANSISTOR CHOPPER PROTECTION CIRCUIT

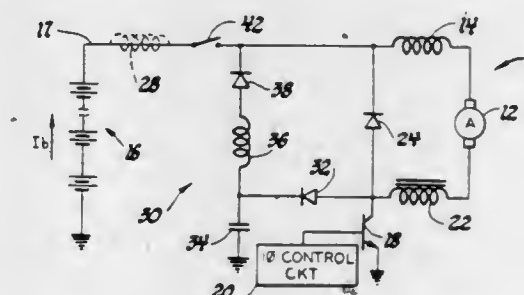
Thomas A. Radomski, Utica, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jun. 9, 1980, Ser. No. 157,821

Int. Cl.³ H02H 7/20

U.S. Cl. 361-91

4 Claims



1. A chopper circuit comprising in combination: a transistor, an electrical load and a source of direct voltage connected in series; means connected to said transistor for biasing it conductive and nonconductive to connect and disconnect said source and said load; a series circuit comprising a capacitor and a diode connected in parallel with the emitter-collector circuit of said transistor, said diode being connected to a junction between said transistor and said load to establish a charging path for said capacitor, said charging path comprising said source of direct voltage, said diode and said electrical load, whereby upon biasing said transistor nonconductive, said capacitor absorbs inductive energy stored in said chopper circuit to protect said transistor from transient inductive voltage surges;

a return circuit including an inductor having inductance substantially in excess of stray circuit inductance connected between said source of direct voltage and a junction between said diode and said capacitor for returning

energy stored in said capacitor to said source of direct voltage when said transistor is biased nonconductive and to said electrical load when said transistor is subsequently biased conductive, said inductor being operative to dampen the current of the return energy.

4,363,068

POWER FET SHORT CIRCUIT PROTECTION

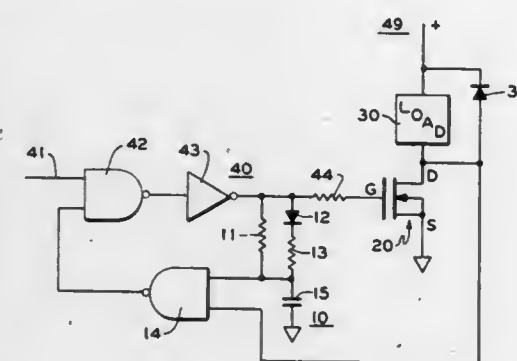
Dennis A. Burns, Ramsey, Minn., assignor to Sundstrand Corporation, Rockford, Ill.

Filed Aug. 18, 1980, Ser. No. 179,347

Int. Cl.³ H02H 3/20

U.S. Cl. 361—91

8 Claims



1. A protection circuit for a field effect transistor comprising:
a field effect transistor having a gate and a drain-source circuit;
drain-source connecting means for connecting said drain-source circuit to a load and a source of voltage;
switch means having first and second inputs and output means, said first input receiving a command signal for energizing said field effect transistor;
gate connecting means connecting said output of said switch means to said gate of said field effect transistor; and,
oscillator means connected to said drain-source circuit and to said second input of said switch means for cyclically operating said field effect transistor when both the voltage on said drain-source circuit exceeds a predetermined value and said field effect transistor receives said command signal.

4,363,069

OVERVOLTAGE ARRESTER WITH ARRESTER ELEMENTS IN A FRAME COMPRISING COLUMNS

Michael Crucius, and Mohamed A. Hassan, both of Berlin, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

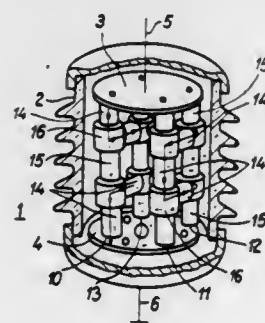
Filed Mar. 27, 1981, Ser. No. 248,232

Claims priority, application Fed. Rep. of Germany, Mar. 28, 1980, 3012744

Int. Cl.³ H02H 9/06

U.S. Cl. 361—130

13 Claims



1. An overvoltage arrester comprising a plurality of arrester elements, a plurality of insulating elements and a plurality of conducting elements arranged to form a plurality of columns interconnected by arrester elements, each column comprising at least two spaced conducting frame elements and at least one

additional element axially interposed between two conducting frame elements of the column, selected adjacent columns being interconnected by an arrester element which is interposed between respective conducting frame elements of the selected adjacent columns and which lies in a plane extending at about a right angle between adjacent columns, each said conducting frame element including means for connecting a said additional element thereto axially of a respective column and an arrester element thereto which is disposed in a respective said plane, there being a plurality of arrester elements per plane and one more conducting frame element per plane than the number of arrester elements per plane, each said additional element being one of an arrester element, an insulating element and a conducting support element, said insulating elements, conducting elements, and arrester elements being interconnected to provide a current path from an input to an output of said overvoltage arrester through said arrester elements.

4,363,070

NEUTRALIZATION OF ELECTROSTATIC CHARGES

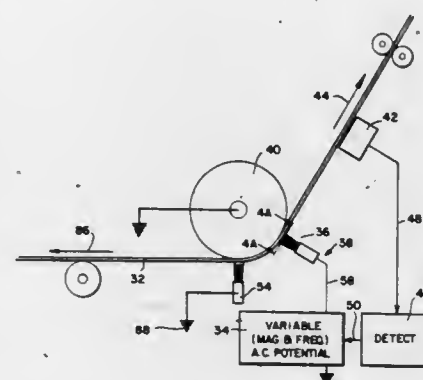
Semyon Kisler, West Newton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Sep. 2, 1980, Ser. No. 183,323

Int. Cl.³ H05F 3/00

U.S. Cl. 361—212

12 Claims



1. Apparatus for uniformly neutralizing positive and negative electrostatic charges on charge-retaining materials, comprising:

- a first common electrical conductor; means for establishing an electrically conductive reference surface;
- a first multiplicity of at least slightly electrically conductive elongated bristles supported over said reference surface with one end of said bristles being in an electrically coupled relation to said first common conductor, said bristles extending from their said one end toward said reference surface with the free ends of said filaments being adjacent said reference surface and with the positional relationship of said free ends approximating a row and column grid-like pattern; and

an AC potential source connected between said common electrical conductor and said reference surface, said potential source having a predetermined magnitude and frequency for establishing an alternating electrostatic field for neutralizing positive and negative electrostatic charges on charge-retaining material passed between said free bristle ends and said reference surface such that said material is supported by said reference surface and is spaced a finite distance from said free bristle ends, said predetermined potential magnitude being less than that required for the generation of corona.

4,363,071

STATIC DISSIPATIVE MAT

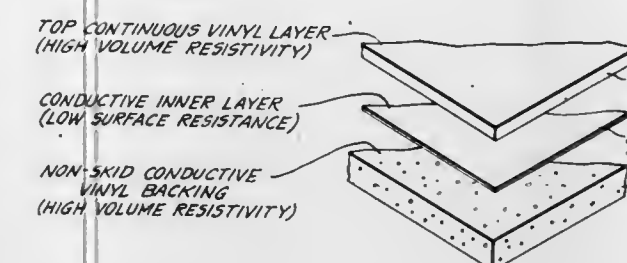
Ray M. Rzepecki, North Scituate, R.I., and Victor H. Weiss, Bridgeport, Conn., assignors to Pervel Industries, Inc., Plainfield, Conn.

Filed Mar. 16, 1981, Ser. No. 243,776

Int. Cl.³ B32B 5/18

U.S. Cl. 361—220

8 Claims



1. A three-ply conductive web for dissipating a static electric charge impressed thereon, comprising an upper layer of thermoplastic polymeric material having a volume resistivity of 1×10^7 to 1×10^{12} ohm-cm, a thin conductive film of thermoplastic polymeric material laminated directly to said upper layer and having a surface resistance in the order of 10^2 ohms per square, and a conductive underlying lower layer of expanded thermoplastic polymeric material in direct electrical contact with said conductive film and having a volume resistivity of 1×10^7 to 1×10^{12} ohm-cm.

4,363,072

ION EMITTER-INDICATOR

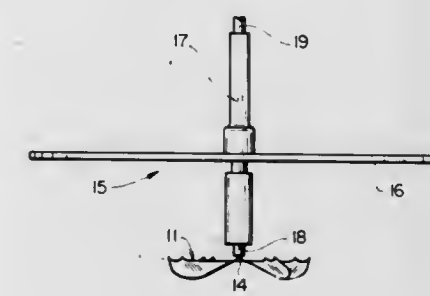
George G. Coggins, Redwood City, Calif., assignor to ZeCo, Incorporated, San Jose, Calif.

Filed Jul. 22, 1980, Ser. No. 170,844

Int. Cl.³ H01T 19/04

U.S. Cl. 361—231

4 Claims



1. An emitter for negative ion generators, of light, thin, electrically conductive material, adapted with a center hub or indentation to rest upon a pin supplying said emitter with electric potential from an ionizer power supply, said emitter being in a symmetrically balanced form disposing a plurality of projecting members, each of which said projecting members provides on one edge at or near its end at least one sharp point, which said sharp points act as discharge elements for the emission of electrons and are so disposed as to cooperate in cumulating the effect of the forces produced from the reaction of said emitted electrons with the surrounding air molecules to produce ions, said reactive forces causing said emitter to revolve; further providing said projecting members are so shaped as to act as a fan and induce airflow from the revolution of said emitter to aid in propagation of the ions produced from the emission of said electrons.

4,363,073

VARIABLE CAPACITOR TRANSDUCER

Brian W. Tumber, Greenford, England, assignor to Lucas Industries Limited, Birmingham, England

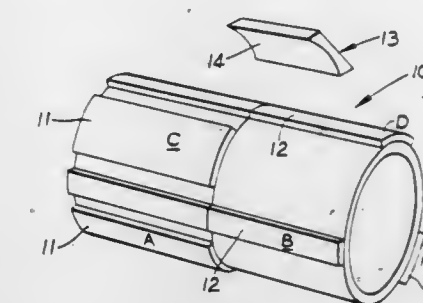
Filed Dec. 17, 1980, Ser. No. 217,467

Claims priority, application United Kingdom, Jan. 19, 1980, 8001837

Int. Cl.³ H01G 5/12

U.S. Cl. 361—292

3 Claims



1. A transducer for providing signals representative of the axial setting of an angularly movable component comprising a generally cylindrical member coupled in use, to said component so as to be axially and angularly movable therewith, a plurality of circumferentially spaced zones on the periphery of said member, said zones being defined by raised portions of substantially equal circumferential length on the surface of said member and being equiangular spaced, the zones extending from one end of the member and terminating in a generally radial plane disposed between the ends of the member, a sensing device having a sensing surface presented to but spaced from the surface of the member, the sensing surface having a fixed area and the sensing device having a fixed axial position, the sensing surface being responsive to the nature of said zones whereby the sensing device provides a fluctuating electrical signal indicative of the areas of said zones which pass beneath the sensing surface, and hence the relative axial position of the member and the sensing device, and further zones defined by raised portions on the surface of said member located between said first mentioned zones respectively and having differing circumferential lengths, said further zones each having areas presented to the sensing surface, the areas of said further zones presented to the sensing surface being substantially constant irrespective of the relative axial position of the component and sensing device.

4,363,074

HIGH VOLTAGE GENERATING DEVICE

Toshimi Miyagi, Kusatsu, and Saburo Kitao, Kyoto, both of Japan, assignors to Murata Manufacturing Co., Ltd., Japan

Filed Mar. 5, 1981, Ser. No. 240,957

Claims priority, application Japan, Mar. 7, 1980, 55/30443[U]; Aug. 9, 1980, 55/109635; Aug. 9, 1980, 55/109636

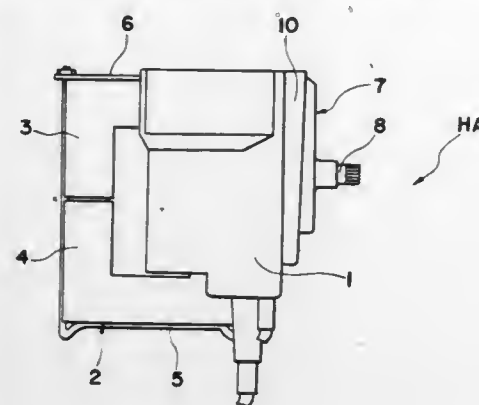
Int. Cl.³ H05K 5/00

U.S. Cl. 361—331

9 Claims

1. A high voltage generating device which comprises a first casing open at one side face thereof and accommodating therein high voltage electrical components, a second casing which is mounted in a cut-out portion formed in a side wall of said first casing and open at one edge thereof, and an electrically insulating material filled in a space within said first casing, said first casing being provided, along its entire peripheral wall adjacent to said cut-out portion thereof, with a fitting groove extending from said one open side face towards the bottom portion of said first casing and tapered so as to be narrowed at the side of said bottom portion, said second casing being formed with a wire-like protrusion provided adjacent to the peripheral edges thereof on its one surface in a position corresponding to one side face of said cut-out portion defining said fitting groove of said first casing, said peripheral edges of

said second casing which include said wire-like protrusion being arranged, in thickness thereof, to be larger to a certain



4,363,075

VENTILATED ELECTRONIC APPARATUS FOR HEATED APPLIANCES

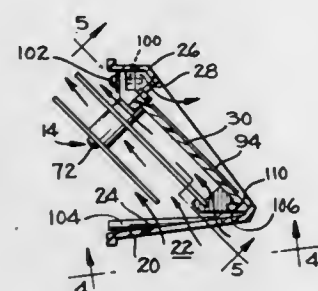
Harold A. DeRemer, Allentown, Pa., assignor to General Electric Company, New York, N.Y.

Filed Dec. 29, 1980, Ser. No. 220,441

Int. Cl.³ H05K 7/20

U.S. Cl. 361—383

12 Claims



1. In an apparatus having a source of substantial heat, electronic apparatus and a ventilated housing therefor comprising: a first housing wall portion having inlet opening means therein through which ventilating air may be admitted, a second housing wall portion having outlet opening means therein through which ventilating air may be discharged, an electronic assembly comprising a plurality of parallel spaced-apart plates of which at least one of each adjacent pair of plates has electronic circuitry mounted thereon, said electronic assembly comprising:

- a first plate,
- a second plate spaced from and substantially parallel to said first plate,
- a third plate spaced from and substantially parallel to said second plate on the side of said second plate opposite said first plate,
- a plurality of first support elements interposed between said first and second plates in abutment therewith to establish the spacing between said first and second plates,
- a plurality of second support elements interposed between said second and third plates in abutment therewith to establish the spacing between said second and third plates, each of said second support elements being aligned with a respective one of said first support elements,
- and a plurality of securing means each associated with and extending through at least a portion of a respective pair of said first and second support elements to interconnect said first, second and third plates into an integrated assembly,

and mounting means for mounting said electronic assembly

intermediate said inlet opening means and said outlet opening means such that electronic circuitry mounted on said plates may be cooled by air flowing between said parallel plates from said inlet opening means to said outlet opening means, the size and configuration of said inlet and outlet opening means and the spacing between adjacent plates being sufficient for the flow of adequate ventilating air for the cooling of electronic circuitry mounted on said plates.

4,363,076

INTEGRATED CIRCUIT PACKAGE

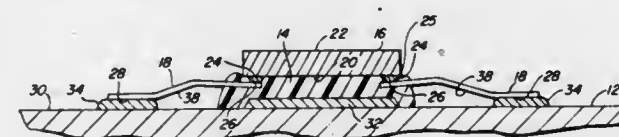
Chandler H. McIver, Tempe, Ariz., assignor to Honeywell Information Systems Inc., Phoenix, Ariz.

Filed Dec. 29, 1980, Ser. No. 221,103

Int. Cl.³ H05K 1/18

U.S. Cl. 361—386

13 Claims



1. The combination comprising: an integrated circuit chip having an active face having outer edges, a back face, and a plurality of input/output terminals on the active face;
- a plurality of flexible beam leads, each lead having an inner and an outer lead bonding site, the inner lead bonding site of each lead being bonded to an input/output terminal on the integrated circuit chip;
- a substrate having a top surface, a chip pad formed on said top surface, and a plurality of outer lead pads associated with said chip pad;
- a preform comprised of a segment of a web coated with an electrically insulating thermally conductive thermosetting plastic material, said preform substantially covering said chip pad; and
- said integrated circuit chip being mounted on said preform with its active face and the portions of the leads proximate the input/output terminals of the chip being encapsulated in the plastic material of said preform, said plastic material also being located between the leads and the outer edges of the active face of the chip, the outer lead bonding sites of the leads being bonded respectively to the outer lead pads associated with the chip pad.

4,363,077

ROTARY CIRCUIT COMPONENT ASSEMBLY AND CIRCUIT MOUNTING

Robert E. Brown, Lynchburg, Va., assignor to General Electric Company, Lynchburg, Va.

Filed Mar. 16, 1981, Ser. No. 244,304

Int. Cl.³ H05K 7/02; H01H 21/00

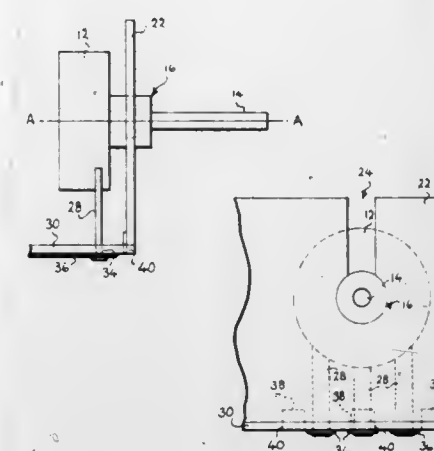
U.S. Cl. 361—400

6 Claims

1. A rotary circuit component assembly in which the rotary circuit component is secured and locked in position, comprising:

- a. a rotary circuit component including:
 1. a body which houses the component elements that determine the characteristics of said component;
 2. a shaft defining a rotational axis of said rotary circuit component, and rotatably mounted to said body to engage said elements in said body for the purpose of altering the characteristics of said component; and
 3. a cylindrical bushing positioned around said shaft and attached to said body, said cylindrical bushing having a slot defined therein;
- b. a mounting structure including a notch which is dimensionally compatible with said slot, for receiving said cylin-

dical bushing at said slot such that said slot and notch are aligned; and



- c. fastening means for securing and locking said rotary circuit to a circuit board having slits therein.

4,363,078

MINIATURE ELECTROLYTIC CAPACITOR WITH ANCHORING TERMINAL

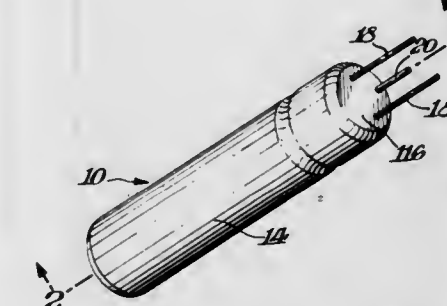
James F. Dwyer, Hillsville, Va., assignor to Sprague Electric Company, North Adams, Mass.

Filed Apr. 17, 1980, Ser. No. 141,240

Int. Cl.³ H01G 9/00

U.S. Cl. 361—433

4 Claims



1. A miniature electrolytic capacitor having a capacitor section housing in a can, wherein the improvement comprises the open end of said can being closed by an elastomer seal, said seal being held under compression within said open end by a circumferential groove in said can, at least one electrical lead from said capacitor section passing through said seal, and an anchor terminal being secured in said seal with one end of said anchor terminal extending outwardly from the outer surface of said seal and with the other end of said anchor terminal beyond said groove and stopping short of the inner surface of said seal.

4,363,079

SOLID STATE DOUBLE LAYER CAPACITOR

Satoshi Sekido, Yawata, and Yoshito Ninomiya, Hirakata, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Continuation of Ser. No. 105,855, Dec. 20, 1979, abandoned.

This application Jun. 23, 1981, Ser. No. 276,693

Claims priority, application Japan, Dec. 29, 1978, 53-165706; Apr. 5, 1979, 54-41382; May 25, 1979, 54-65366

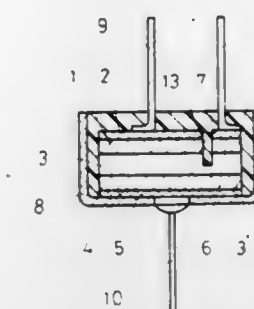
Int. Cl.³ H01G 9/00; B01J 17/00

U.S. Cl. 361—433

18 Claims

1. A solid state double layer capacitor comprising: a polarization electrode, a counter electrode, and a solid electrolyte disposed at least between said polarization electrode and said counter electrode, said polarization electrode and said counter electrode com-

prising a mixture of cuprous sulfide and said solid electrolyte,



said solid electrolyte comprising CuCl substituted 1/5 of Cu⁺ ions with Rb⁺ ions and 1/4 to 1/3 of Cl⁻ ions with I⁻ ions in CuCl.

4,363,080

WATER-COOLED LIGHT SOURCE

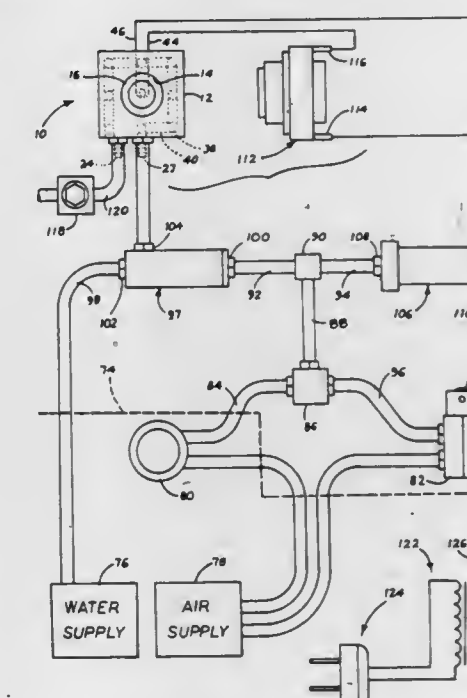
Donald D. Sylvester, Tigard, Oreg., assignor to Dentek Systems, Inc., Tigard, Oreg.

Filed Sep. 2, 1980, Ser. No. 182,975

Int. Cl.³ F21V 7/04

U.S. Cl. 362—32

5 Claims



1. Cooling apparatus for a light source which supplies light to an optical fiber, said apparatus comprising: a heat-conductive heat sink body having means defining a cavity extending thereto from a side of said body for receiving such a light source, means defining a duct extending into said body from another side of said body for permitting access of such a fiber to the source, and means defining a fluid coolant passage extending through said heat sink body; and a source of fluid coolant operatively connected to said passage for providing a flow of fluid coolant through said passage which operates to conduct heat away from the heat sink body.

4,363,081

ILLUMINATED GREETING CARDS

Robert W. Wilbur, 30 N. Byron Ave., Brockton, Mass. 02401

Filed Jul. 2, 1980, Ser. No. 164,505

Int. Cl.³ B42D 15/04; G09F 1/04

U.S. Cl. 362—98

10 Claims

1. An illuminated card comprising: a lamp for providing illumination;

a substantially flat battery for energizing the lamp;
a slide switch for closing a circuit to illuminate the lamp, the slide switch comprising a first, stationary member and a second moveable member;
a card formed of folded sheet stock;
the card having a first fold, defining first and second portions of the card on respective sides of the fold, such that the first and second portions of the card are hingeably connected to each other about the first fold;
the first and second portions of the card having first (i.e., inside) surfaces which face each other when the card is closed about said first fold;
the moveable switch member being fixed to the first card portion, so that the moveable switch member is translated across the second (i.e., outside) surface of the second portion of the card responsive to motion of the first card portion;
the stationary switch member also being disposed adjacent



and fixed with respect to the outside surface of the second portion of the card;
the moveable and stationary switch members being disposed relative to each other such that they are caused to come into contact by the opening of the card and are separated from each other by the closing of the card;
the card having a second fold, defining a third portion of the card;
the third portion of the card forming a tab hingeably attached to the first portion of the card along said second fold;
at least part of the tab being disposed behind the inside surface of the second portion of the card and confined to translate across such surface responsive to the opening and closing of the card about the first fold;
the moveable switch member being attached to the tab; and
the second portion of the card being provided with an aperture and the lamp being positioned behind such aperture, whereby the illumination of the lamp may be viewed there through when the card is opened.

4,363,082

PANEL CEILING AND LIGHT FIXTURE

George R. Roland, Paramus, N.J., assignor to Levolor Lortzen, Inc., Lyndhurst, N.J.

Filed Aug. 26, 1980, Ser. No. 181,740

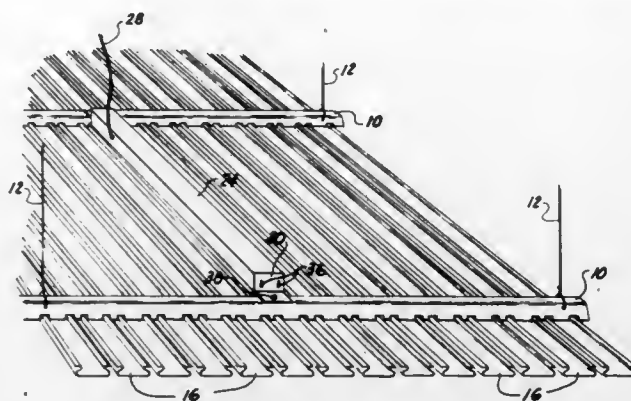
Int. Cl.³ F21S 1/14

U.S. Cl. 362-148

7 Claims

1. In a suspended ceiling: channel means suspended from a support, a plurality of elongated ceiling panels arranged parallel to each other and supported by said channel means essentially perpendicular thereto in an essentially horizontal plane,

at least one lighting fixture including fluorescent tube means housed in a box-shaped housing, and lens means arranged



below said lighting fixture and being of the same shape as said ceiling panels so as to fully blend therewith.

4,363,083

SCREW-BASED INCANDESCENT LAMP TYPE FLUORESCENT LAMP

Masashi Tanaka; Nobuhiro Fujii, and Yashuharu Takano, all of Yokohama, Japan, assignors to Toshiba Electric Equipment Corporation, Tokyo, Japan

Filed Sep. 2, 1980, Ser. No. 183,282

Claims priority, application Japan, Sep. 4, 1979, 54/113320

Int. Cl.³ F21S 13/00

U.S. Cl. 362-216

9 Claims



1. A screw-based incandescent lamp type fluorescent lamp comprising:
a luminous tube bent to define a vacant space therein;
an operating member including a ballast for said tube, the ballast disposed in said vacant space;
a holder having an opening facing said ballast at a given distance therefrom and holding said tube and ballast;
a base body supporting said holder and having a flange section in which a plurality of upper ventilation holes are formed;
a light transmitting bottom envelope having an end edge attached to the peripheral edge of the flange section of said base body and surrounding said tube, at least one lower ventilation opening with an opening area larger than 0.2826 cm² and smaller than the total area of said upper ventilation holes being formed in the bottom of said envelope; and
a screw base disposed on the top portion of said base body and electrically connected with said tube and said operating member,
whereby air introduced from said lower ventilation opening into said light transmitting bottom envelope will flow along the outer peripheral surfaces of said ballast and said tube and be discharged from said upper ventilation holes to the outside via the opening of said holder.

4,363,084

PORTABLE LIGHTING SYSTEM

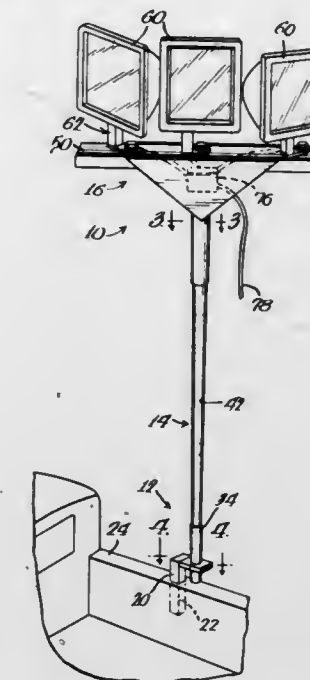
Michael A. Dimiceli, Kane, Ill., assignor to Allison Manufacturing Company, Barrington, Ill.

Filed Aug. 18, 1980, Ser. No. 179,266

Int. Cl.³ F21V 21/14

U.S. Cl. 362-250

11 Claims U.S. Cl. 362-368



1. A portable lighting system comprising a bar having a plurality of directional floodlights thereon, a socket on said bar having an open end with pin means extending across said socket spaced from said open end, and a support including an elongated tubular member having a plurality of angularly related recesses respectively adapted to receive said pin means, to support said bar in a plurality of angularly related positions on said support.

4,363,085

SCAN SYNTHESIZED BEAM HEADLAMP

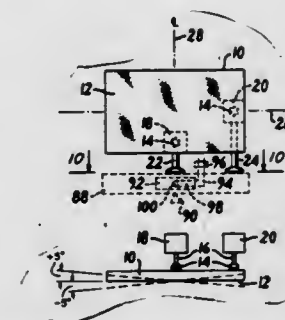
Nickolas P. Demas, Cranford, N.J., assignor to Edison International, Inc., Rolling Meadows, Ill.

Filed May 5, 1980, Ser. No. 146,683

Int. Cl.³ F21V 7/00

U.S. Cl. 362-283

15 Claims



1. A vehicle headlamp comprising a housing, means for generating a collimated beam of light in said housing, light reflective means mounted for predetermined oscillating movement, said light reflective means intercepting and scanning said collimated beam of light in said housing to project an apparently continuous beam of light from said housing, first means coupled to said light reflective scanning means and mounted for oscillating said light reflective scanning means about a first axis and second means coupled to said light reflective scanning means and mounted for oscillating said light reflective scanning means about a second axis positioned at a predetermined angle with respect to said first axis, said first and second oscillating means controlling the dimensions of said resulting continuous beam of light.

4,363,086

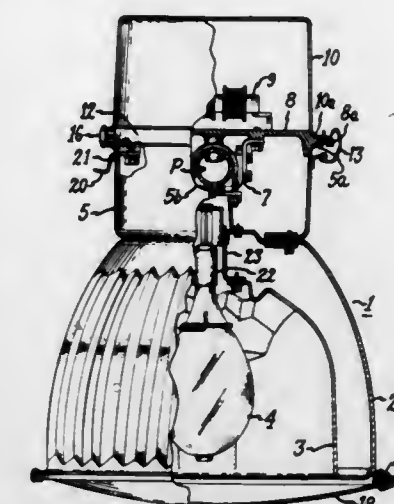
LUMINAIRE

Thomas A. Fletcher, Dana, N.C., assignor to General Electric Company, Schenectady, N.Y.

Filed Oct. 5, 1977, Ser. No. 839,550

Int. Cl.³ B60Q 1/00

9 Claims



1. A luminaire comprising, in combination, an upper housing having an open bottom, mounting plate means arranged closing the open bottom of said upper housing and adapted to have electrical operating components mounted on the upper side thereof and covered by said upper housing, slipfitter means secured to the underside of said mounting plate means, combined slipfitter housing and optical means arranged below said mounting plate means covering the underside thereof and forming with said mounting plate means and said upper housing an annular joint therebetween, and readily detachable attaching means surrounding said annular joint and holding said upper housing, said mounting plate means and said combined slipfitter housing and optical means in assembly.

4,363,087

MOUNTING POST FOR HOLDING A LIGHTED ELECTRICAL PUSHBUTTON SWITCH

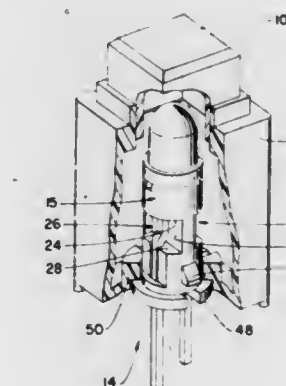
Bruce L. Graham, Wheeling, and Iran R. Littman, Wheaton, both of Ill., assignors to Illinois Tool Works Inc., Chicago, Ill.

Filed Jan. 22, 1981, Ser. No. 227,283

Int. Cl.³ F21V 17/00

U.S. Cl. 362-382

1 Claim



1. In a mounting post having a generally cylindrical base for supporting a light source for an electrical lighted pushbutton switch that has a pair of leads, wherein the leads of the light source pass through parallel passageways that run through said base from the top surface to the bottom surface of said base, the improvement comprising a pair of diametrically opposed cut-out sections, each of which receive one of said leads so as to expose a portion of said received lead in said section, said sections being located intermediate the ends of said base and comprising a rear wall which is recessed from the outer periph-

ery of said base and upper and lower walls which thereby divide said passageways into upper and lower segments on opposite sides of said cut-out sections and allowing said exposed portions of each of said leads to be inwardly crimped towards said rear wall of its respective cut-out sections so that said leads are securely locked into place in a said cut-out section between said upper and lower walls.

4,363,088

ELECTRIC POWER SOURCE UNITS

Hirotsuka Yamamoto, Tokyo; Minoru Obara, Kawasaki, and Shinobu Fujiwara, Nikaho, all of Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

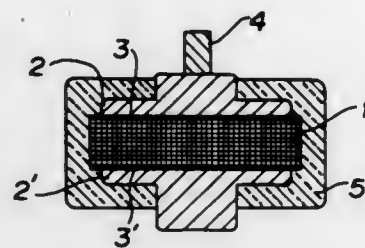
Filed Jan. 8, 1981, Ser. No. 223,261

Claims priority, application Japan, Jan. 11, 1980, 55-1319

Int. Cl.³ H02M 3/18

U.S. Cl. 363—59

4 Claims



1. An electric power source unit having a high-speed pulse-forming circuit or a high-frequency voltage-multiplier rectifying circuit comprising at least two ceramic capacitors having a strontium titanate-based ceramic as the dielectric body.

4,363,089

INVERTER

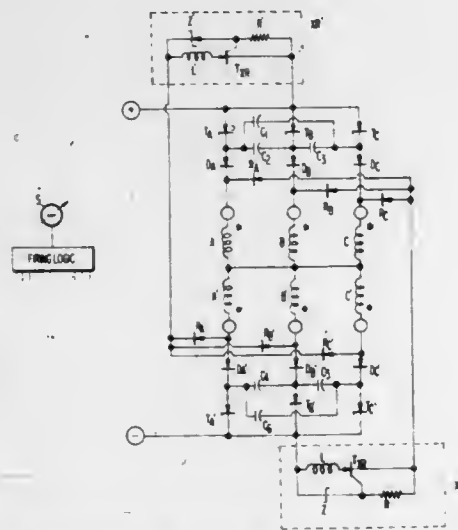
Franklin D. Wisman, Chambersburg, Pa., assignor to T. B. Wood's Sons Company, Chambersburg, Pa.

Continuation-in-part of Ser. No. 93,559, Nov. 13, 1979, abandoned. This application Oct. 20, 1980, Ser. No. 198,399

Int. Cl.³ H02M 7/515

U.S. Cl. 363—137

8 Claims



1. An inverter for converting DC available between a pair of terminals to three-phase AC of controllable frequency comprising:

first and second groups of complementary load windings, first and second groups of thyristors, each associated with a different load winding, means for gating said thyristors in a predetermined sequence and at a controllable frequency, first and second groups of isolation diodes, one isolation diode for each load winding, isolation diodes of a first group connecting cathodes of first group thyristors to an associated load winding and isolation diodes of said sec-

ond group connecting anodes of second group thyristors to an associated load winding, means coupling anode-cathode circuits of all said thyristors to one or another of said terminals, said means coupling anodes of first group thyristors to one of said terminal and second group cathodes to another said terminal, recovery diode means including first and second groups of recovery diodes, each recovery diode associated with a different load winding and coupled therewith for clamping energy represented by collapsing leakage flux in a winding during commutation to one or another of said terminals, said recovery diode means including a pair of expander circuits, one associated with each said terminal, each expander circuit coupled between said associated terminal and the terminal common to a group of said recovery diodes for inhibiting clamping until a predetermined voltage level is attained.

4,363,090

PROCESS CONTROL METHOD AND APPARATUS

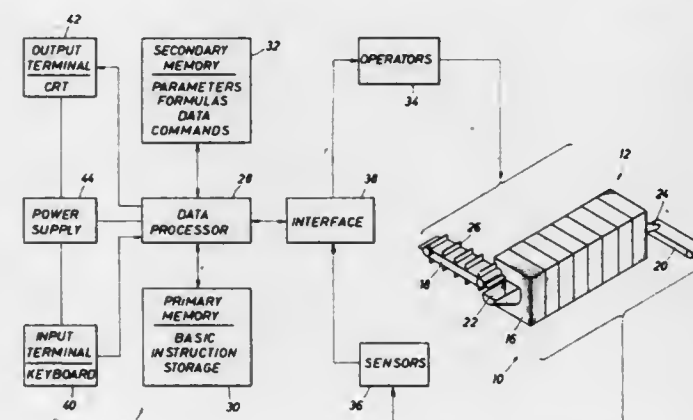
Daniel P. Garcia, Jefferson, La., assignor to Pellerin Milnor Corporation, Kenner, La.

Filed Aug. 1, 1980, Ser. No. 174,594

Int. Cl.³ G05B 19/04; D06F 21/04

U.S. Cl. 364—139

19 Claims



1. A method of operating a multi-stage batch processing system comprising the following steps:

- providing a programmable controller, having an accessible memory and being linked to the batch processing system for transmitting operational instructions thereto;
- providing to said memory at least one formula for operating the processing system by the controller;
- identifying a batch of goods to be processed according to one such formula;
- entering the batch of goods in the first stage of the processing system;
- noting the requirements of the selected formula for the first stage and, by the controller, carrying out those requirements;
- transferring the batch of goods to the next stage;
- noting the requirements of the selected formula for said next stage and, by the controller, carrying out those requirements; and
- repeating steps f. and g. herein until the batch of goods has been processed according to the selected formula in all stages of the processing system as required.

4,363,091

EXTENDED ADDRESS, SINGLE AND MULTIPLE BIT MICROPROCESSOR

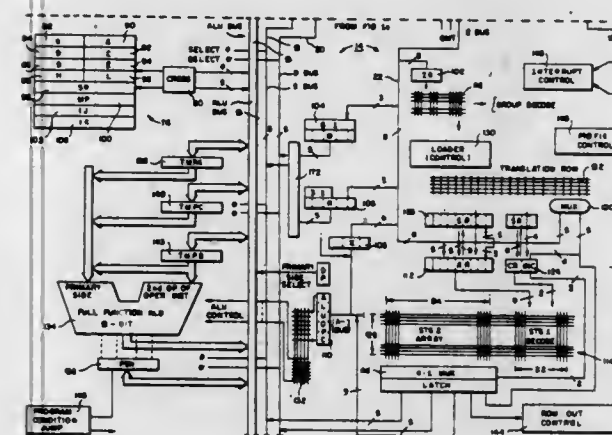
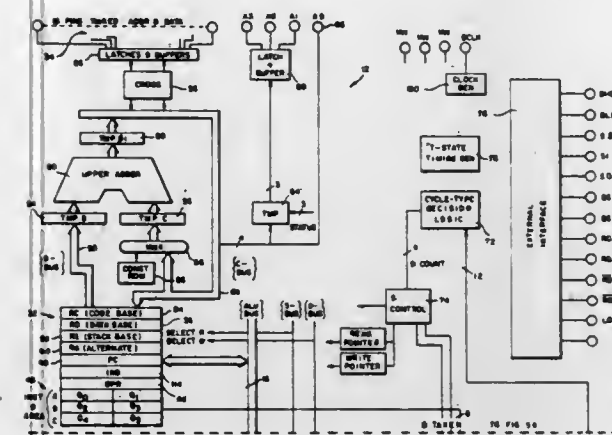
William B. Pohlman, III, Los Gatos; Bruce W. Ravenel, III, Sunnyvale; James F. McKevitt, III, San Jose, and Stephen P. Morse, San Francisco, all of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Filed Jan. 31, 1978, Ser. No. 873,777

Int. Cl.³ G06F 7/50, 13/00

U.S. Cl. 364—200

26 Claims



1. An improvement for generating an address word for addressing an extended memory space, said improvement being in a data processing system including a memory unit for storing digital information and a processor unit, including an adder, for processing digital information communicated at least in part between said processor unit and said memory unit, said improvement comprising:

- a plurality of registers in said processor unit, said registers for storing words of digital information, at least some of said registers being relocation registers and being selectively coupled by said processor unit to a first input of said adder, a selected one of another one of said plurality of registers being coupled by said processor unit to a second input of said adder such that a subset of bits of said word stored in said other selected register is numerically added by said adder to said word stored in said selected relocation register wherein the binary order of magnitude of said subset of bits is unequal to the binary order of magnitude of the bits of said word from said relocation register, the remaining bits of said word from said selected register being appended to the sum of said adder to result in an address word greater in bit length than the maximum bit length stored in said plurality of registers, whereby said data processing system is afforded an extended memory space beyond the address word length limitation of said plurality of registers.

4,363,092

MALFUNCTION PREVENTING SYSTEM FOR A MICROCOMPUTER SYSTEM

Toshimi Abo, and Akio Hosaka, both of Yokohama, Japan, assignors to Nissan Motor Company, Limited, Kanagawa, Japan

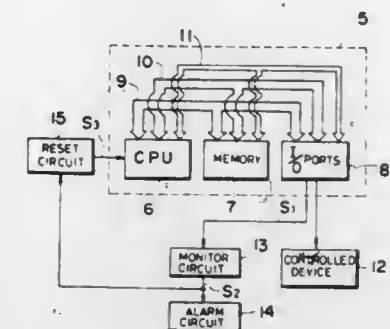
Filed Sep. 12, 1979, Ser. No. 75,183

Claims priority, application Japan, Oct. 25, 1978, 53-130512

Int. Cl.³ G06F 11/14

U.S. Cl. 364—200

12 Claims



1. Apparatus for preventing certain malfunctions of a microcomputer that is normally periodically cycled through a program, the microcomputer including a reset and initialization input terminal, the apparatus comprising a reset circuit for normally applying a first voltage to the reset and initialization input terminal, the microcomputer responding to the first voltage at the reset and initialization input terminal to continuously recycle the program, means responsive to power being initially applied to the microcomputer and the reset circuit for activating the reset circuit so the reset circuit applies a second voltage to the reset input for a predetermined interval after power is initially applied to the microcomputer and reset circuit, the microcomputer responding to the second voltage to reset the program to a starting point and initialize parameters associated with the program, the predetermined interval being greater than a predetermined time required for the microcomputer to execute a program cycle plus the time required to reset and initialize the microcomputer, the microcomputer deriving a program run impulse in response to the microcomputer executing each program cycle, whereby the microcomputer while normally operating derives adjacent periodic program run impulses at intervals spaced from each other by a predetermined time, the predetermined time being less than the predetermined interval, and means connected to the microcomputer to be responsive to the program run impulses for supplying the second voltage to the reset and initialization input terminal in response to a pair of the impulses not occurring in a predetermined duration, the predetermined duration being greater than the predetermined time, whereby the program is immediately reset and initialized in response to the microcomputer not executing the program within the predetermined duration.

4,363,093

PROCESSOR INTERCOMMUNICATION SYSTEM

Michael I. Davis, Kingsworthy, near Winchester, England, and Daniel T. W. Sze, Boca Raton, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 10, 1980, Ser. No. 129,053

Int. Cl.³ G06F 15/16

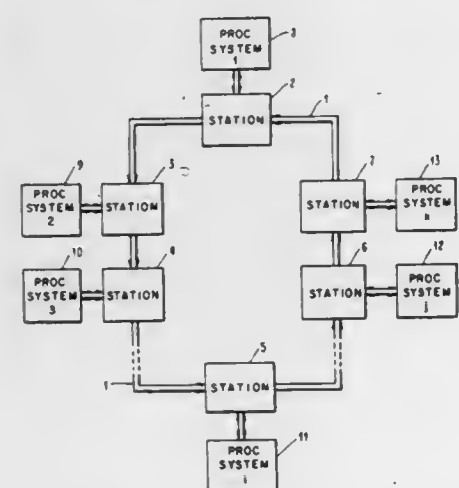
U.S. Cl. 364—200

7 Claims

1. A processor intercommunication system for effecting information transfer among a plurality of processors, said system having a communications link with a plurality of station nodes, said processors each having at least one Input/Output I/O channel and said processors each periodically requiring exchanges of information such as control, data and status information with other processors in said system, such exchanges occurring by way of individual logical connections and transfer sessions between processors, the arrangement establishing

and maintaining a multiplicity of such logical connections or transfer sessions between individual stations and other stations, said system comprising:

a corresponding plurality of stations in said system, each of said stations being connected to a respective one of said station nodes for communication with any other station in said system by way of said communications link, each of said stations being attached to a respective one of said processors for controlling transfer of information such as said control, data, and status information between said processors over said communications link, such information being arranged in accordance with a variety of information frames, and each of said stations incorporating a modem for handling link related functions, such as information coding and modulation and the like, a link manager, said link manager providing logical frame management functions such as frame structuring, and the like, a channel interface controller, said channel interface controller providing interfacing for its station with its respective processor I/O channel, and the like, a storage section, said storage section incorporating a control storage array including a respectively assigned storage subsection for each station in the system for storing control information for the respective stations during transfer sessions, said storage section further incorporating a data storage array, including a respectively assigned storage subsection for each station in the system for storing data for the respec-



tive stations during transfer sessions, said storage section further incorporating a work queue storage array for storing work queues of pending task information during transfer sessions, and said arrays being commonly used by said link manager and said channel interface controller; and

logic means in said channel interface controller and said link manager at each station operable in an initiating mode in response to control signals from the respective processor for initiating a logical connection with another station via said communications link by way of a requesting control frame to establish a transfer session, any station taking the initiative to establish a particular transfer session, i.e., the station which first sends a control frame being designated the master station and said logic means at each station being further operable in a receiving mode responsive to a received requesting control frame addressed to it and a conditioning signal from its respective processor to complete the logical connection, the station which does not have the initiative for a particular session but which accepts the requesting control frame from the master station for that particular session being designated a slave station, said logic means at each station being further operable to establish logical connections from the respective station to other stations via said communications link wherein any of said respective stations can simultaneously serve as a master in one transfer session and a slave in another transfer session through utilization of said control storage array, said data storage array and said work queue in a

multiplexed manner under joint control of said link manager and said channel interface controller to thereby establish and maintain the required logical connections during operation of said system, whereby a multiplicity of interconnected master and slave station connections may exist within said system for accomplishing a multiplicity of exchanges of information in said system.

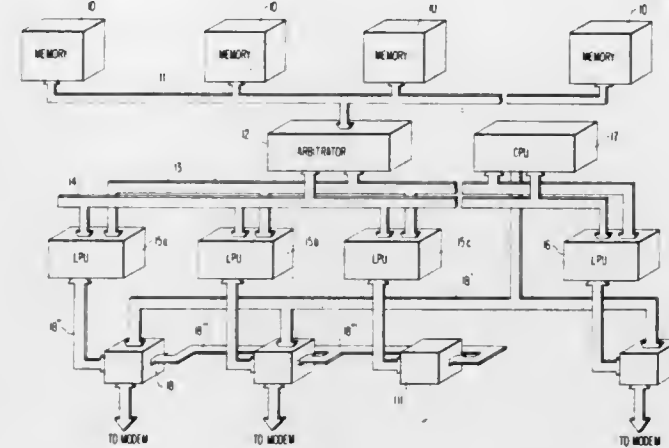
4,363,094 COMMUNICATIONS PROCESSOR

Pradeep Kaul; Daniel Wendling, both of Rockville; Harold Ford, Germantown; Deepak Muzamder, Gaithersburg, all of Md., and Christopher Newport, Annandale, Va., assignors to M/A-COM DDC, Inc., Germantown, Md.

Continuation of Ser. No. 865,655, Dec. 29, 1977. This application Jun. 4, 1980, Ser. No. 156,451
Int. Cl.³ G06F 13/00

U.S. Cl. 364-200

43 Claims



1. An information transfer system for transferring information between a common location and a plurality of independently operating data processors over a bi-directional bus operated in a demand assigned mode, said information transfer system including:

an information storage and retrieval device and an arbitrator at said common location, said arbitrator coupling said bi-directional bus to said information storage and retrieval device,

said arbitrator including means for generating a control signal after all said independently operating processors, collectively, either has had, refused or does not require access, and also including clock means for generating a cyclic timing signal having two distinct portions,

a plurality of bus control means, each associated with a different one of said plurality of independently operating data processors, each said bus control means including a control signal input and a control signal output, each said bus control means enabling access to said bi-directional bus by the associated data processor, only on receipt of said control signal or a replica thereof,

a clock bus coupled to said clock means for distributing said timing signal to a plurality of said bus control means, control signal distributing means coupled to said means for generating a control signal for presenting said control signal to be effective at a control signal input of only one of said bus control means, and coupling a control signal output of each of a plurality of said bus control means to be effective at a control signal input of other of said bus control means,

each of said bus control means responsive to the receipt of a control signal or replica thereof at said control signal input for immediately coupling a replica of said control signal to the associated control signal output in the event access to said bus is not required,

or if access to said bus is required, allowing access to said bi-directional bus subsequent to receipt of said control

signal or replica thereof and synchronous with said timing signal for one of said distinctive portions and simultaneously with the beginning of said one distinctive portion coupling a replica of said control signal to an associated control signal output.

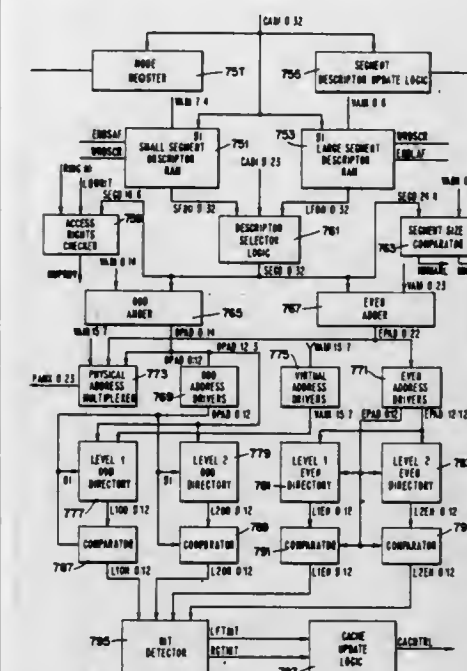
4,363,095 HIT/MISS LOGIC FOR A CACHE MEMORY

William E. Woods, Natick, and Arthur Peters, Sudbury, both of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Dec. 31, 1980, Ser. No. 221,851
Int. Cl.³ G06F 13/00

U.S. Cl. 364-200

13 Claims



1. In a data processing system including a system memory for addressably storing a plurality of data words identified by a like plurality of associated odd and even address numbers, each address number including a first portion and a second portion, and wherein system elements generate requests for the transfer of a pair of data words identified by successive address numbers, a transfer request including a memory request address number identifying the first of the pair of data words requested, a cache memory for selectively storing a subset of the data words stored in the system memory and for supplying the requested data words in the place of the system memory if the requested data words are stored in the cache memory, the cache memory comprising:

memory means for storing said subset of said data words stored in said system memory, said memory means including an odd memory module for storing said data words identified by said odd address numbers and an even memory module for separately storing said data words identified by said even address numbers;

an odd directory memory for storing said address numbers identifying said data words stored in said odd memory modules;

an even directory memory for storing said address numbers identifying said data words stored in said even memory modules;

means for receiving each of said address numbers supplied by said system elements and for determining if said received memory request address number and the next successive address number are stored in said odd or even directory memories; and

hit detector circuit means coupled to said receiving and determining means for generating a full hit signal if both said supplied memory request address number and said next successive address number are determined to be stored in said odd and even directory memories, a partial hit signal if only one of said supplied memory request address number and said next successive address number

are determined to be stored in said odd and even directory memories, and a no hit signal if neither said supplied memory request address number nor said next successive address number are determined to be stored in said odd and even directory memories.

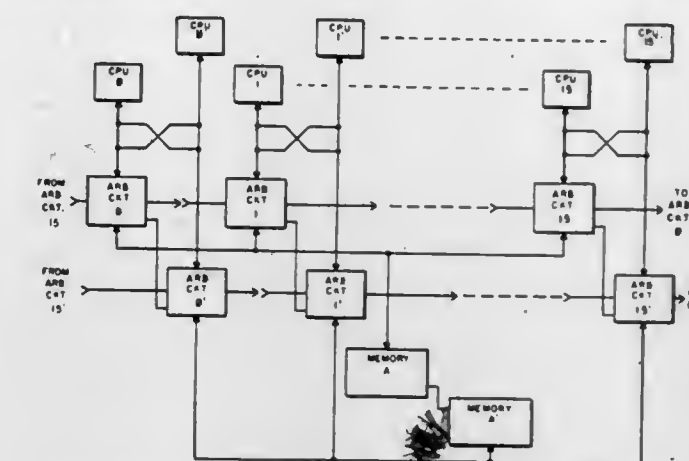
4,363,096 ARBITRATION CONTROLLER PROVIDING FOR ACCESS OF A COMMON RESOURCE BY A DUPLEX PLURALITY OF CENTRAL PROCESSING UNITS

Joseph A. Comfort; Thomas J. Perry, and Michel Loos, all of Phoenix, Ariz., assignors to GTE Automatic Electric Labs Inc., Northlake, Ill.

Filed Jun. 26, 1980, Ser. No. 163,044
Int. Cl.³ G06F 13/00, 15/16

U.S. Cl. 364-200

8 Claims



1. An arbitration controller providing for equal priority sharing of duplicate copy resources by active ones of a plurality of duplicate pairs of CPUs, said arbitration controller comprising:

first and second means for initialization, each providing a first signal;

corresponding first and second pluralities of arbitration circuits, each plurality including a first, at least one successive and a last arbitration circuit;

each of said means for initialization connected to at least one of said corresponding plurality of arbitration circuits;

first and second pluralities of CPU buses each bus of each plurality connected between a particular CPU and said resources via a particular arbitration circuit on a one for one basis, each CPU bus including a control portion and an address/data portion;

each of said CPU buses of said first plurality connected to a particular one of said buses of said second plurality and each of said buses of said second plurality connected to a particular one of said buses of said first plurality;

first and second common buses, each common bus connected between said corresponding CPU and a particular one of said duplicate copies of said resource via said corresponding plurality of arbitration circuits for the parallel transmission of information between said duplicate common resources and any active one of said plurality of CPUs via said address/data portion of said corresponding CPU bus;

first and second pluralities of circuit connections, each plurality including a circuit connection between each first arbitration circuit and each successive arbitration circuit, said last arbitration circuit connected to said first arbitration circuit, thereby forming corresponding first and second completed ring connections, each of said ring connections propagating a corresponding one of said first signals through said first and second ring connections;

one arbitration circuit of each plurality connected to said control portion of said corresponding CPU bus and simultaneously operated in response to its respective first signal and to a common bus request signal from said active CPU,

each arbitration circuit producing a second signal for allowing said active CPU to access each of said duplicate copy resources simultaneously via said first and said second common buses respectively;

each said arbitration circuit of each said plurality including:

first gating means operated to propagate said first signal along said corresponding ring connection at a relatively high rate of speed;

latching means operated in response to said common bus request signal of said corresponding CPU to produce said second signal for allowing said CPU to access said duplicate resources via said common and CPU buses;

second gating means operated in response to said operated latching means and in response to aid propagated first signal to propagate a third signal from each arbitration circuit of each plurality to each successive arbitration circuit; and

said first signal of each said plurality of arbitration circuits propagating through said ring connection to successively enable said active CPU access to said duplicate copy resources via said common bus, while said third signal permitting said successive arbitration circuits of each said plurality to establish priority for subsequent access of said duplicate copy resources simultaneously with a present access of said resources.

4,363,097

ELECTRONIC TYPE ENGINE CONTROL METHOD

Matsuo Amano; Masumi Imai; Toru Sugawara; Shinichi Sakamoto, all of Hitachi; Masayuki Miki, Katsuta, and Takao Sasayama, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

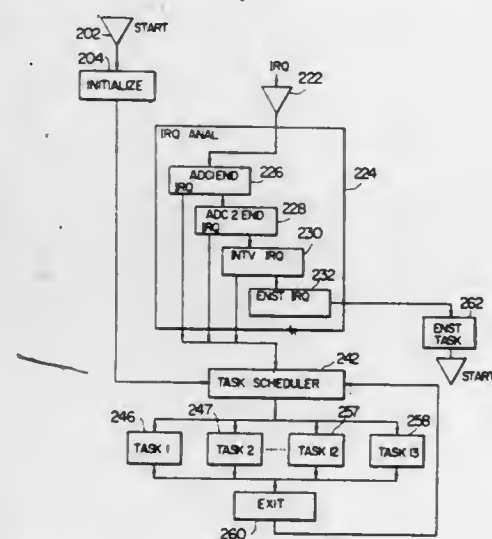
Filed Apr. 7, 1980, Ser. No. 138,086

Claims priority, application Japan, Apr. 6, 1979, 54-40934

Int. Cl.³ G05B 15/02; G06F 9/46; G11C 7/00

U.S. Cl. 364-431.11

71 Claims



1. A method of electronically controlling the operation of an internal combustion engine provided with a control system which includes sensors for detecting operating conditions of said engine, an arithmetic unit for arithmetically determining control quantities for controlling said engine through the digital processing of output signals produced from said sensors, memory means for storing therein programs and data for performing said arithmetic operations, and control means for controlling said engine on the basis of the results of said arithmetic operations, wherein contents of said arithmetic operations are divided into a number of tasks in dependence on control functions to be performed, said method comprising:

- a first step of setting the indication of an activation request for a given one of said tasks through the execution of another task;
- a second step of setting the indication of an activation request for a task through the execution of said task itself;

a third step of searching the set of the activation request indications for the individual tasks; and

a fourth step of executing the tasks for which the activation requests are retrieved on the basis of the generation of the retrieved activation requests.

4,363,098

ELECTRIC COMMAND SPOILER SYSTEM

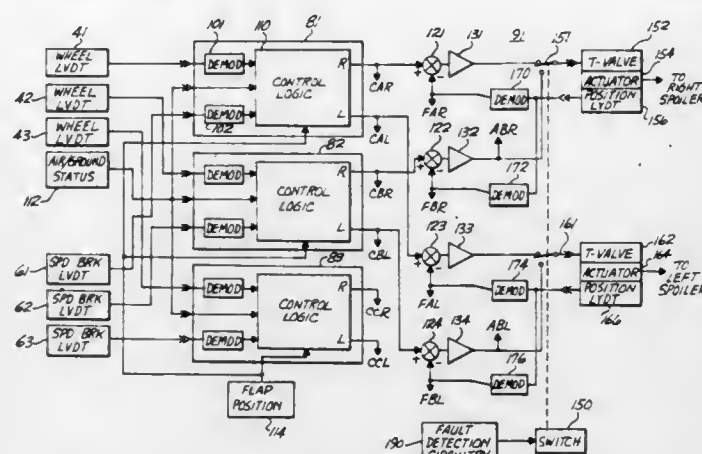
Henning Buus; Thomas D. MacFie, both of Woodinville, and Odd Justad, Issaquah, all of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Jun. 24, 1980, Ser. No. 162,458

Int. Cl.³ G05D 1/08

U.S. Cl. 364-434

7 Claims



1. An electric command spoiler system for use in aircraft wherein a plurality of spoilers are deployed for both aircraft roll and speedbrake operation, the system comprising:

a plurality of electrically responsive spoiler actuator means, each actuator means responding to a control signal to actuate an associated spoiler to a predetermined deflection between its fully retracted and fully deployed positions;

roll command means for producing a roll command signal representative of commanded roll;

speedbrake command means for producing a speedbrake command signal representative of a commanded speedbrake condition;

flap position transducer means for producing a signal representative of the aircraft's flap position; and

logic control means responsive to said roll and speedbrake command signals and said flap position transducer produced signal for producing at least two unique predetermined actuator command signals, said logic control means including means for coupling each of said unique actuator command signals to at least a predetermined one of said spoiler actuators such that differing spoiler deflections are produced.

4,363,099

METHOD AND SYSTEM FOR MEASURING FREQUENCY DEVIATION OF LOW FREQUENCY SIGNALS

Krishnaswamy Srinivasan, and Chinh T. Nguyen, both of St. Bruno, Canada, assignors to Hydro-Quebec, Montreal, Canada

Filed Mar. 13, 1980, Ser. No. 129,756

Int. Cl.³ G01K 23/00

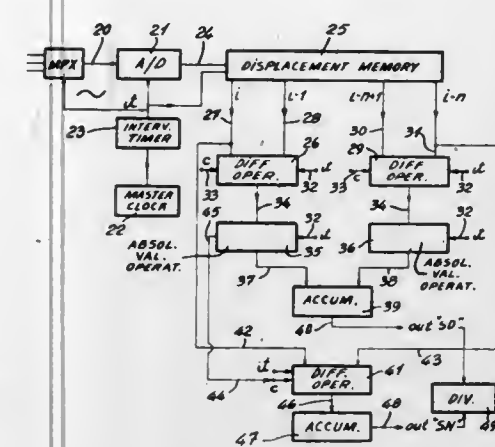
U.S. Cl. 364-484

10 Claims

4. A measuring system for measuring power system frequencies in the low frequency range of approximately 0 to 2 KHz, said system comprising an analog to digital converter circuit having an input for receiving a signal to be measured, a real time clock connected to said converter circuit to provide periodic impulses for sampling said periodic signal at precise intervals, said converter circuit providing output digital value signals at said precise intervals and derived from a periodic signal at its input, memory device for storing a predetermined

number of said digital values representative of the lapse time of at least a time period of said periodic signal, and operator system means for processing selected samples of said stored digital values to provide output numerator and denominator values expressed by the formula:

$$N = (V_{i-n} - V_i) \text{Sgn}(V_{i-1} - V_i)$$



$$D = |V_{i-1} - V_i| + |V_{i-n+1} - V_{i-n}|$$

wherein V_i , V_{i-1} , V_{i-n} and V_{i-n+1} are digital values and Sgn is the sign + or -, and divider to provide a resultant output from said N and D values, said resultant value being representative of the time period deviation, frequency deviation or frequency of said input periodic signal.

4,363,100

DETECTION OF TONES IN SAMPLED SIGNALS

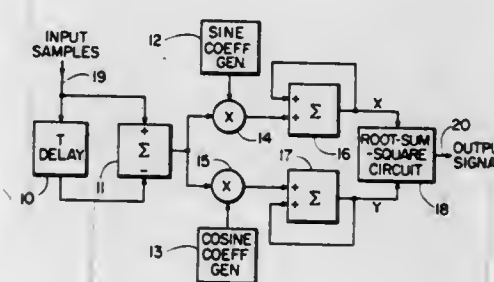
David G. Agnew, Ottawa, and Sorin Cohn-Sfetcu, Kanata, both of Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed Oct. 28, 1980, Ser. No. 201,503

Int. Cl.³ G06F 15/31; H04M 1/50

U.S. Cl. 364-484

9 Claims



1. A method of detecting the presence of a predetermined frequency component in a signal sampled with a sampling period t , each signal sample comprising a plurality of bits, the method comprising:

- delaying the samples of said signal by a predetermined correlation period T to produce delayed signal samples;
- producing samples with a sampling period t of first and second signal sequences representing respective signals at said predetermined frequency having a phase difference other than 0 or π , each sample of the first and second signal sequences comprising a plurality of bits;
- cumulatively producing for each signal sample first and second accumulated signals, each of the first and second accumulated signals being equal to the first or second, respectively, accumulated signal produced for the previous signal sample modified in dependence upon the product of the current sample of the first or second, respectively, signal sequence with the difference between the current signal sample and the current delayed signal sample; and
- deriving from the first and second accumulated signals an

output signal which represents the presence or absence of the predetermined frequency component during the preceding correlation period T .

4,363,101

COMPUTERIZED POWER DEMAND CONTROL IN AN ELECTROCHEMICAL PLANT

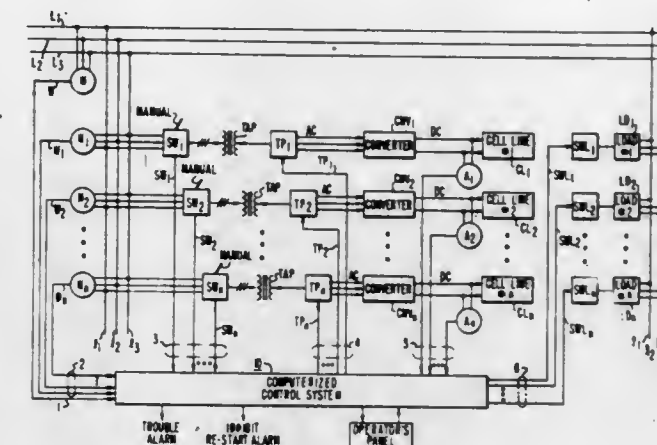
Francis R. Czerniejewski, Longwood, Fla., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Apr. 28, 1980, Ser. No. 144,149

Int. Cl.³ G05F 1/66

U.S. Cl. 364-492

14 Claims



1. A method of controlling the loads in a plant facility while keeping the overall plant consumption within an assigned power demand limit, comprising the steps of:

measuring the actual power rate of consumption by said plant;

establishing successive demand periods for totalizing the power demand from the beginning of a demand period to the end thereof;

said power demand limit being assigned at the end of a demand period;

periodically calculating a demand error projected to be at the end of a demand period on the basis of actual power rate;

changing concurrently with said calculating step the demand error into a changed error by an amount sufficient to reach at a predetermined instant selected before the end of the demand period a power rate corresponding to the ideal rate of consumption at said predetermined instant; and

controlling at least one of said loads in order to compensate for such said changed error, thereby reaching said assigned demand limit under the ideal rate at the end of the demand period.

4,363,102

SPEAKER IDENTIFICATION SYSTEM USING WORD RECOGNITION TEMPLATES

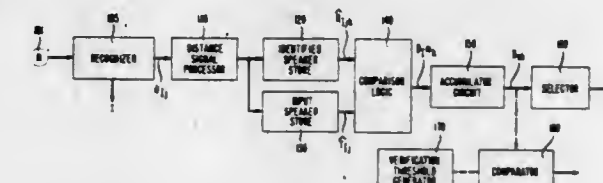
John E. Holmgren, Lincroft; Aaron E. Rosenberg, Berkeley Heights, and John W. Upton, Chatham, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 27, 1981, Ser. No. 248,546

Int. Cl.³ G10L 1/00

U.S. Cl. 364-513

17 Claims



1. A method for recognizing a speaker comprising the scope of storing a set of templates representative of the acoustic features of predetermined reference words; generating, for

each of a plurality of identified speakers, a set of first signals representative of the correspondence of the identified speaker's utterance of said reference words with said templates; generating a set of signals representative of the acoustic features of the utterance of an unknown speaker; recognizing the words of the unknown speaker's utterance from his utterance feature signals and said templates; generating a set of second signals representative of the correspondence of the feature signals of the recognized words of the unknown speaker to the feature signals of the templates; and identifying the unknown speaker responsive to the first signals for the recognized words of the identified speakers and the second signals.

4,363,103

DEVICE FOR FOLLOWING AND ESTIMATING THE LOCAL STATE OF PICTURE CONTOURS

Christian Richard, Rennes; Francis Kretz, Cesson Sevigne, and Albert Benveniste, Rennes, all of France, assignors to L'Etat Francais represente par le Secretaire d'Etat aux Postes et Telecommunications et la Telediffusion (Centre National d'Etudes des Telecommunications), Issy les Moulineaux and Etablissement Public de Diffusion dit "Telediffusion de France", Montrouge, both of France

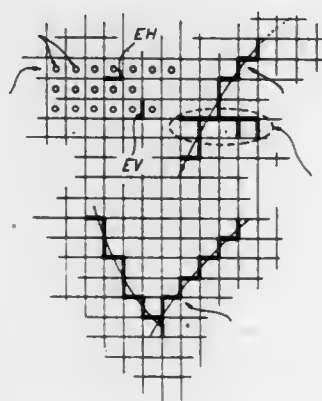
Filed Jun. 11, 1980, Ser. No. 158,588

Claims priority, application France, Jun. 29, 1979, 79 16914

Int. Cl.³ H04N 7/13, 5/40; G06F 15/20

U.S. Cl. 364—515

13 Claims



1. For use in a differential coded pulse modulation coder or decoder a device for following and recursively estimating the local state of picture contours defined by lines of N points, N being an integer, said points being distributed in accordance with an orthogonal sampling structure, each line beginning with a line start signal DL and corresponding to a binary parity signal PL , said points being defined by successive numerical samples, wherein said device comprises:

(A) a sequential memory having three sections with an input which receives the sequence of numerical samples designated X_n , in which n is a rank of the sample successively assuming integral values of 1 at N , and at least three outputs supplying, when the sample of rank $n+1$ is received at the input respectively: the sample of rank n , i.e. X_n , the sample of rank $n-1$, i.e. X_{n-1} belonging to the same line as the sample received and the sample of rank n belonging to the preceding line, i.e. X_{n-1} ;

(B) an examination circuit incorporating:
means for detecting between two successive samples X_{n-1} and X_n of the same line, the presence of a variation in the value of the sample exceeding a certain threshold and for producing a corresponding signal called "the vertical contour element" and designated EV_n ;
means for detecting between two samples X_{n-1} and X_n of the same rank but belonging to two adjacent lines the presence of a variation in the value of the sample exceeding the same threshold and for producing a corresponding signal called "horizontal contour element" and designated EH_n ;

two connected contour elements, an image contour then

being defined by a system of connected contour elements;

means for detecting the absence of a contour element at the point of rank n , said means supplying a signal designated $HOLE_n$;

means for counting the total number of horizontal contour elements and the total number of vertical contour elements examined along a line for each connected zone; said numbers being converted into signals H and V at the end of the connected zone;

means for detecting the connected horizontal and vertical contour elements and for detecting the systems of such connected elements along a line, said systems being called connected zones and each connected zone being between a first contour element and a last contour element, said means being able to supply a signal when a connected zone ends at a point of rank n , the signal being designated FZC_n ;

the examination circuit thus having the three inputs receiving the samples X_n , X_{n-1} and X_{n-2} and six outputs respectively supplying the signals EV_n , EH_n , V , H , FZC_n , $HOLE_n$;

(c) a loop functioning in a recursive manner and incorporating the means for calculating a magnitude representative of the contour and called state of the contour and designated E for storing the state

E' obtained for the line preceding that which is examined and for calculating as a function of said state E and signals EH_n , $HOLE_n$, FZC_n , V and H obtained for the examined line the new state E of the contour on said examined line.

4,363,104

IMAGING SYSTEM HAVING MULTIPLE IMAGE COPYING AND HIERARCHICAL BUSING

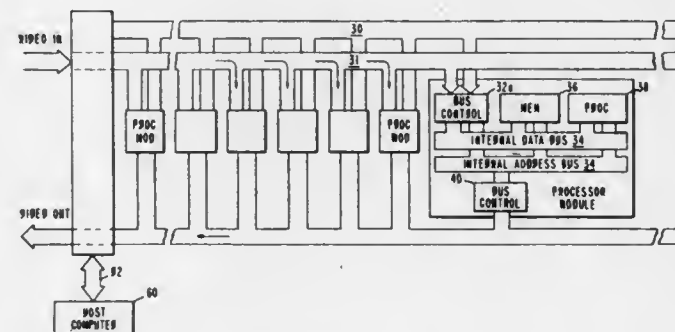
Thomas A. Nussmeier, Thousand Oaks, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Sep. 22, 1980, Ser. No. 189,260

Int. Cl.³ G06F 15/20; H04N 5/14

U.S. Cl. 364—515

16 Claims



1. An imaging system wherein video data from each video frame of video data words is multiplexed serially by a row, including means for enhancing said video data by operating on successive kernels of said data words, comprising:

a plurality of main processors and memories individually associated with said processors, each of said processors corresponding to an individually assigned block of video data words in said frame;

a plurality of bus control means, individually associated with said processors, each one of said bus control means for selecting those data words from said video data words which lie within the corresponding assigned data word block;

data bus means for simultaneously distributing each of said data words to said k bus control means; and

a plurality of internal data bus means individually associated with said plurality of bus control means, each of said internal data bus means for carrying the selected ones of said data words from the corresponding bus control means to the corresponding one of said memories and for permitting the corresponding one of said processors to access

data words in said corresponding memory, wherein each processor is programmed with selected operator means for generating an enhanced value from each kernel of data words stored in the corresponding memory.

4,363,105

MICROCOMPUTER-CONTROLLED CIRCUIT TESTER

Horst Plassmeier, Herford, Fed. Rep. of Germany, assignor to Dürkoppwerke GmbH, Bielefeld, Fed. Rep. of Germany

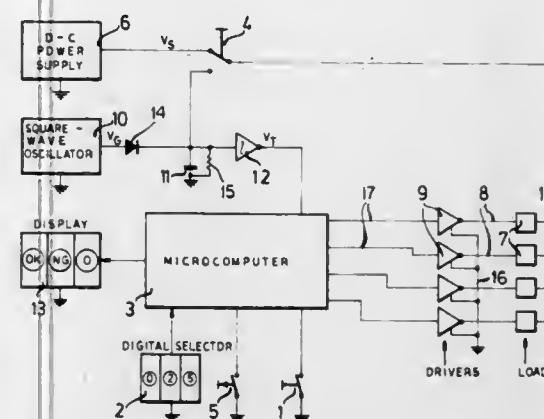
Filed Sep. 3, 1980, Ser. No. 183,931

Claims priority, application Fed. Rep. of Germany, Sep. 4, 1979, 2935585

Int. Cl.³ G05B 19/02

U.S. Cl. 364—580

7 Claims



1. In a system for the programmed control of a plurality of loads provided with respective operating circuits including drivers individually associated therewith, and computer means for cutting said drivers in and out according to a given program,

the combination therewith of testing equipment for individually checking the integrity of any of said operating circuits, said equipment comprising:

a generator of a pulsating unipolar test voltage connectable to a common terminal of said operating circuits in parallel with a capacitance chargeable by said generator through a unidirectionally conductive connection;

sensing means connected across said capacitance for detecting the magnitude of a voltage difference developed thereacross, said sensing means having an output connected to said computer means;

selector means, connected to said computer means, for identifying a driver of an operating circuit to be checked, said computer means being responsive to said selector means for activating the driver so identified whereby the voltage difference across said capacitance decreases upon conduction of the selected operating circuits;

switch means operable to cause said computer means to emit a series of brief activating pulses, of a duration insufficient to operate the associated load, to a driver identified by said selector means, said computer means being responsive to an output signal from said sensing means resulting from a significantly reduced capacitance charge to terminate the emission of said activating pulses; and

indicating means operable by said computer means in response to an output signal from said sensing means to register the state of conduction of the selected circuit.

4,363,106

COMPUTATION MODULE FOR ADDITION AND MULTIPLICATION IN RESIDUE ARITHMETIC

Anthony M. Tai, Plymouth, Mich., assignor to Environmental Research Institute of Michigan, Ann Arbor, Mich.

Filed Aug. 13, 1980, Ser. No. 177,954

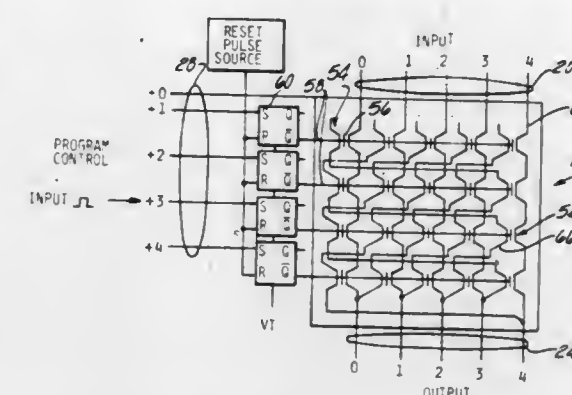
Int. Cl.³ G06F 7/72

U.S. Cl. 364—746

14 Claims

1. A computation module for generating an arithmetic function of two residues in the residue number system, comprising

an array of light switches arranged in rows and columns, each of said light switches including an input for receiving light and an output for delivering light and being switchable between first and second light transmitting states for altering the path of light traveling therethrough; light transmission paths interconnecting each of the outputs of the light switches in one row with the inputs of light switches in a successive row to define a plurality of light transmitting channels through said module; first input means operably coupled with at least one of the light switches in the first row of the array for inputting a light signal



into the input of said one switch as a function of a first of the residues; a plurality of means operably coupled with at least certain of the rows of the array for simultaneously switching the state of all of the light switches in said certain rows of the array; and means operably coupled with said means for simultaneously switching and controlled by the second residue for actuating one of said means for switching all of the light switches in said certain of the rows of the array, whereby said light input signal is channeled through the array and outputs from a light switch in a successive row of the array at a position which is a function of the two residue numbers.

4,363,107

BINARY MULTIPLICATION CELL CIRCUIT

Masahide Ohhashi, Sagami, and Hisao Yanagi, Yokohama, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

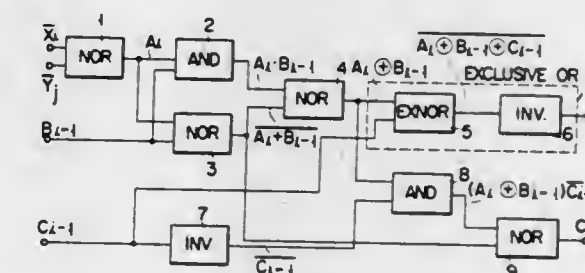
Filed Sep. 30, 1980, Ser. No. 192,201

Claims priority, application Japan, Oct. 1, 1979, 54-125316

Int. Cl.³ G06F 7/52

U.S. Cl. 364—758

2 Claims



1. A binary multiplication cell circuit comprising:
a first NOR circuit for providing a partial product of one binary digit of a multiplicand and one binary digit of a multiplier;
a first AND circuit connected to receive an output signal of said first NOR circuit and an augend;
a second NOR circuit connected to receive said augend and the output signal of said first NOR circuit;
a third NOR circuit connected to receive an output signal of said first AND circuit and an output signal of said second NOR circuit;
an inverter for inverting a carry binary digit;
a second AND circuit connected to receive an output signal

of said inverter and an output signal of said third NOR circuit;
 a fourth NOR circuit connected to receive an output signal of said second AND circuit and the output signal of said second NOR circuit; and
 an exclusive OR circuit connected to receive the carry binary digit and the output signal of said third NOR circuit.

4,363,108

LOW COST PROGRAMMABLE VIDEO COMPUTER TERMINAL

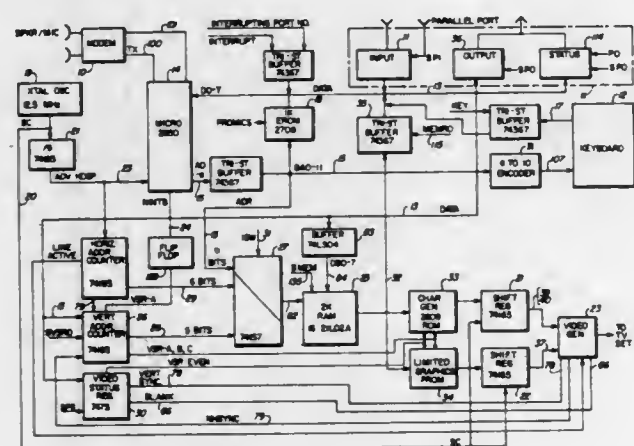
Ronald E. Lange, and Steve E. King, both of Phoenix, Ariz., assignors to Honeywell Information Systems Inc., Phoenix, Ariz.

Filed Jun. 25, 1979, Ser. No. 51,590

Int. Cl.³ G06F 3/153

U.S. Cl. 364-900

2 Claims



1. A computer terminal for displaying data and for communicating with another data processing device comprising:
 - (a) a television monitor for displaying data presented at an input as a composite video signal including video data, horizontal sync and blanking data and vertical sync and blanking data;
 - (b) first means having an output coupled to said input of said television monitor and having a character data input for receiving the data to be displayed and Hsync and Line Active signals for control of horizontal sync and blanking and Vert Sync and Blank signals for controlling vertical sync and blanking, said first means for converting the signals at said inputs into said composite video signal;
 - (c) second means for storing the data to be displayed, said second means having a data input for receiving the data to be displayed, having a character data output connected to said character data input of said first means for supplying the data to be displayed to said first means, having an address input for receiving the address in which to store data received at said data input in a write mode or for receiving the address to retrieve said data from for presentation at said data output in a read mode, and having a control input for receiving a \$MEM signal for controlling whether said second means is in said read or write mode;
 - (d) third means having an output connected to said address input of said second means, having an address bus input and having a horizontal and vertical address input, said third means switching the address at said address bus input to said output for use by said second means when in the write mode, wherein said third means switches the address at said horizontal and vertical address input to said output for use by said second means when in the read mode, said switching controlled by an ISW signal control input;
 - (e) clock means for providing a timing waveform;
 - (f) fourth means for counting the periods of said timing waveform, said fourth means including apparatus for generating said horizontal and vertical address signals and sending them to said third means, wherein said fourth

means also generates said Hsync and Line Active signals and sends said Hsync and Line Active signals to said first means, said fourth means generating an interrupt request signal after each N horizontal address signals have been counted, wherein N is a predetermined number;

(g) keyboard means having a plurality of switches, having a plurality of scan inputs and having a plurality of sense outputs, said keyboard means causing a distinct logical state on said sense outputs for each distinct combination of logical states of said scan inputs and switch activation of said keyboard means;

(h) parallel port means having an input register and having an output register for receiving data in said input register from said other data processing device, said parallel port means setting a Portinbusy memory bit to signal when data has been received, said parallel port means receiving data in said output register to be transmitted to said other data processing device, said data to be transmitted having a Portoutbusy memory bit;

- (i) means for controlling the functioning of said computer terminal, said means for controlling having a data bus coupled to said data input of said second means, said means for controlling including apparatus for generating and sending said \$MEM signal to said control input of said second means, whereby said \$MEM signal causes switch-over to said write mode when said means for controlling seeks to store data to be displayed in said second means, said means for controlling further including apparatus for receiving and counting the number of interrupt requests from said fourth means and for generating and sending said Vert Sync and Blank signals to said first means upon predetermined counts of said interrupt request, said means for controlling supplying the address and ISW control signal to the address bus input and ISW control signal input of said third means, whereby said third means switches said address to the address input of said second means when said second means is in said write mode in order to control the location of storage in said second means of data to be displayed, said means for controlling being selectively coupled to said sense output of said keyboard means via said data bus, wherein a portion of said address bus is coupled to said scan input in order to scan said keyboard means in order to determine which character and control keys are activated, said means for controlling encoding data on said scan inputs and said sense outputs into a code and processing character data thus derived in accord with the control characters received from said keyboard means, said means for controlling being coupled to said input and output registers of said parallel port means for loading data to be transmitted to said other data processing device into said output register when so desired by said operator, wherein said Portoutbusy memory bit is set to signal said other data processing device that data is available to be read, said means for controlling scanning said Portinbusy memory bit to sense when data has been loaded in said input register by said other data processing device for use by said computer terminal, whereby said data is read and processed according to the desires of the operator.

4,363,109

CAPACITANCE COUPLED EEPROM

Raymond K. Gardner, Jr., Kokomo, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 28, 1980, Ser. No. 211,109

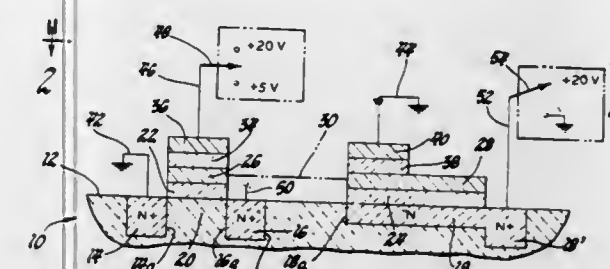
Int. Cl.³ G11C 11/40

U.S. Cl. 365-94

6 Claims

1. An electrically erasable IGFET nonvolatile memory comprising:
 - a semiconductive material surface zone of one conductivity type;
 - at least three opposite conductivity-type regions in said zone, two of which respectively serve as source and drain

regions of an IGFET and the third serves as a memory control region for that IGFET;
 two polysilicon gate electrodes respectively insulatingly spaced above an IGFET channel between the source and drain regions and above the memory control region and in low resistance electrical connection only with each other;
 two polysilicon control gate electrodes respectively insulatingly spaced above said floating gate electrodes;
 means for applying an appropriate electrical potential simultaneously to both the channel control electrode and to said memory control region while maintaining said source



region and other control electrode at a relative zero potential, to store a nonvolatile charge on said floating gates for switching the IGFET channel from one conductivity condition to another; and
 means for changing the potential on the memory control region to that of the source region and other control electrode, so that application of said appropriate potential to said channel control electrode removes the nonvolatile charge on said floating gates and allows said IGFET channel to switch back to its initial conductivity condition.

4,363,110

NON-VOLATILE DYNAMIC RAM CELL

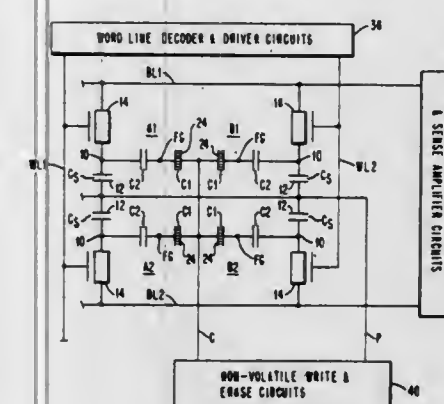
Howard L. Kalter, Colchester; Harish N. Kotecha, Essex Junction, both of Vt., and Parsotam T. Patel, Round Rock, Tex., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Dec. 22, 1980, Ser. No. 219,285

Int. Cl.³ G11C 11/24, 11/34

U.S. Cl. 365-149

21 Claims



1. A memory cell comprising:
 - a storage capacitor having a storage node and a plate, means for applying a reference voltage to said plate, a control electrode,
 - a voltage divider circuit having serially-connected first and second capacitors and a floating gate connected to the common point between said first and second capacitors, said voltage divider circuit being disposed between said control electrode and said storage node,
 - an input/output line, and
 - a transfer device disposed between said storage node and said input/output line.

4,363,111

DUMMY CELL ARRANGEMENT FOR AN MOS MEMORY

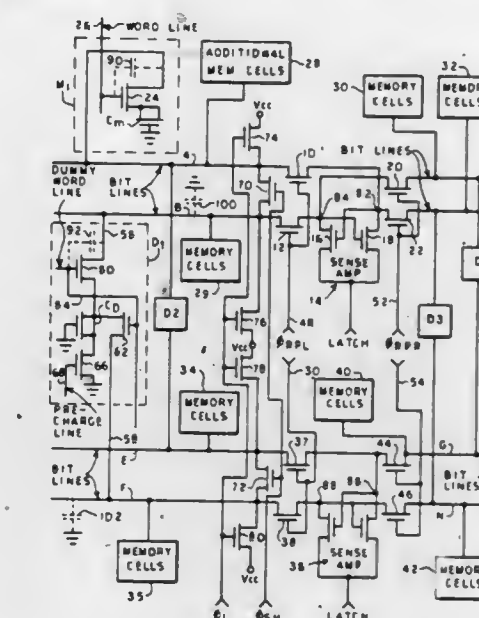
John D. Heightley, 3150 Monument Lake Rd., Monumet, Colo. 80132, and Sargent S. Eaton, Jr., 3361 Springridge Cir., Colorado Springs, Colo. 80906

Filed Oct. 6, 1980, Ser. No. 194,614

Int. Cl.³ G11C 7/00

U.S. Cl. 365-210

10 Claims



1. In an MOS memory having a plurality of memory cells each having a memory cell capacitor of a given size which is adapted to be charged so as to reflect the logic state of its memory cell, and having a plurality of bit lines and word lines for accessing a particular memory cell, a dummy cell arrangement for sensing the state of an accessed memory cell, comprising:
 - a dummy cell having a dummy capacitor of substantially the same given size as a memory cell capacitor and adapted to be precharged to a selected voltage level;
 - means for selectively coupling the dummy capacitor to first and second bit lines such that the capacitance associated with the dummy capacitor effects substantially equal transfers of charge between the first and second bit lines and the dummy capacitor, thereby imparting substantially equal voltage changes to the first and second bit lines;
 - means for selectively coupling the capacitor associated with the accessed memory cell to a third bit line so as to effect a transfer of charge between the latter bit line and the memory cell capacitor for changing the voltage on the third bit line; and
 - means for sensing a difference in voltage between the third bit line and one of the first and second bit lines so as to determine the logic state associated with the selected memory cell.

4,363,112

APPARATUS AND METHOD FOR DETERMINING THE POSITION OF A GAS-SATURATED POROUS ROCK IN THE VICINITY OF A DEEP BOREHOLE IN THE EARTH

Bernard Widrow, 860 Lathrop Dr., Stanford, Calif. 94305

Filed Apr. 18, 1980, Ser. No. 141,271

Int. Cl.³ G01V 1/40, 1/28, 1/20

U.S. Cl. 367-30

5 Claims

1. Apparatus for determining while drilling the position of a gas-saturated rock formation in the vicinity of a borehole in the earth, comprising:
 - (a) a rotary drill bit for generating periodic seismic waves as it drills into the earth;
 - (b) a plurality of transducer means located on the surface at preselected positions for defining a first plurality of seismic wave paths between a first position of said drill bit on one side of said gas-saturated porous rock formation and

4,363,118

SOUND CARRIER AMPLITUDE MEASUREMENT SYSTEM

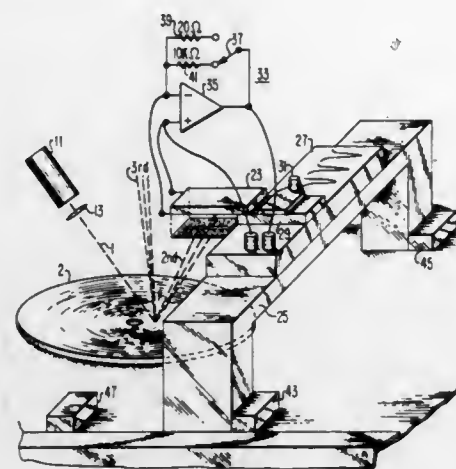
William R. Roach, Rocky Hill, and Istvan Gorog, Princeton, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Sep. 22, 1980, Ser. No. 189,355

Int. Cl.³ G11B 27/36; G01N 21/32

U.S. Cl. 369-58

10 Claims



1. Depth measuring apparatus for use with a disc-shaped substrate having a spiral groove formed on a surface thereof, wherein signal information is recorded in said spiral groove as undulations which vary about a given nominal groove depth, said signal information being recorded in said groove over first and second given frequency ranges, said signal information recorded over said first given frequency range being recorded over a low frequency range and said information recorded over said second given frequency range being recorded over a high frequency range, the peak-to-peak variation of said undulations over said first given frequency range being less than the peak-to-peak variations of said undulations over said second given frequency range, said signal information recorded over said first given frequency range being recorded in a spiral groove in a test band to the exclusion of said signal information recorded over said second frequency range, said signal information being recorded in said test band such that signal elements in adjacent convolutions of the spiral are radially aligned; said apparatus comprising:

means for illuminating a region of said test bands of the grooved disc surface with a light beam of a given wavelength, said light beam being incident on said surface at a nonnormal angle, the illuminated region being sufficiently large to span a plurality of groove convolutions, the structure of the grooves and radially aligned undulations in said illuminated region serving as a two-dimensional diffraction grating for diffracting light reflected from said illuminated region to form a diffraction pattern comprising respectively separated diffraction order beams of light; means for detecting the light power in each of a plurality of said diffraction order beams; said means for detecting having a light accepting surface; means coupled to said detecting means, for indicating a measure of said detected light powers; and movable frame member, supporting said detecting means, for positioning said detecting means in a first position to measure the light powers in a first set of diffraction order beams of light and in a second position to measure the light powers in a second set of diffraction order beams of light

whereby the measurement in said first position provides a first estimate of the peak-to-peak variations of said undulations over said first given frequency range and the measurement in said second position provides a second estimate, and an internal consistency check, of the peak-to-peak variations of said undulations over said first given frequency range.

4,363,119

METHOD OF AND APPARATUS FOR ASSEMBLING A BELT DRIVE OF A RECORD PLAYER

Philip H. Evans, Stourbridge, England, assignor to BSR Limited, Warley, England

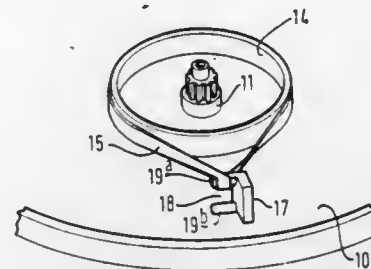
Filed Jun. 10, 1981, Ser. No. 272,193

Claims priority, application United Kingdom, Jun. 13, 1980, 8019412

U.S. Cl. 369-266

Int. Cl.³ G11B 3/60

9 Claims



1. A record player of the type having a belt drive in which an endless resilient belt passes around a motor driving spindle which extends from a deck plate, and around a drum provided on the underside of a turntable, the turntable being mounted for rotation on a mounting means provided on the deck plate, further comprising a turntable having a temporary belt holding means on the underside of said turntable comprising a member having a first end extending away from the turntable underside and a second end attached to said underside and further including a holding portion comprising a free ended portion attached at one end to the first end of said member and extending non-radially perpendicularly to the rotational axis of the turntable, the holding means being spaced radially outwardly of the drum of the turntable and the motor driving spindle of the deck plate, and an abutment projecting upwardly from the deck plate of the record player and positioned radially outwardly of the drum and inwardly of the holding means.

4,363,120

RECORD PLAYER SPEED CHANGING MECHANISM

Henri M. Grobben, and Michel H. F. Decoster, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

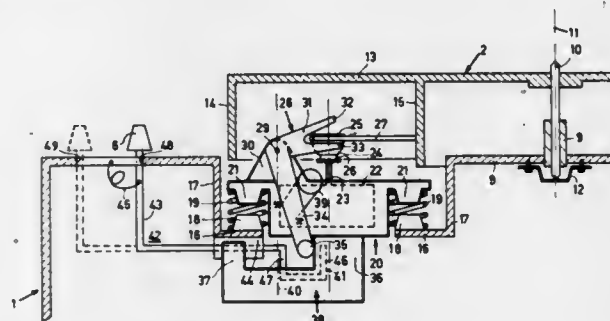
Filed Dec. 15, 1980, Ser. No. 216,235

Claims priority, application Netherlands, Jan. 10, 1980, 8000151

Int. Cl.³ G11B 3/60; F16H 7/08

U.S. Cl. 369-267

8 Claims



1. A record player comprising a main frame, a turntable having a cylindrical drum, supported on the main frame for rotation about an axis, the drum being concentric with said axis, a sub-frame resiliently mounted relative to the main frame, a drive motor mounted on the sub-frame, having a motor spindle extending at least substantially parallel to said turntable axis, said motor spindle further including a pul-

ley formed with two grooves of different diameters in parallel planes, a flexible belt disposed to pass around said cylindrical drum and engaging selectively in one or the other groove of the pulley, a switching member comprising a switching fork, movable between two stationary positions to effect transfer of the belt from one groove to the other, a control member mounted on the main frame, means for coupling the control member to the switching member to effect the transfer, and positioning means for retaining the switching fork in the respective stationary position after transfer of the belt, characterized in that the switching member is mounted on the sub-frame for movement between the two stationary positions, and that the record player further comprises stop means connected to the sub-frame for determining the stationary positions of the switching member, and means for disengaging the switching member from the control member when the switching member is in either of the stationary positions.

4,363,121

METHOD AND SYSTEM FOR SIMULTANEOUS BIDIRECTIONAL TRANSMISSION OF INFORMATION

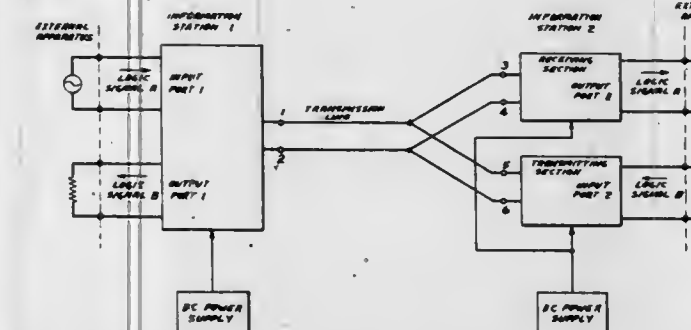
Fredrik Schlyter, Fairfield, Conn., assignor to DuArt Film Laboratories, New York, N.Y.

Filed Nov. 14, 1979, Ser. No. 94,296

Int. Cl.³ H04L 5/14

U.S. Cl. 370-24

15 Claims



11. A method for simultaneously transmitting information between a first and a second information station, said method including the steps of:

providing a first information station for receiving a first binary logic signal and for generating a voltage polarity signal in response to the logic state of said first binary logic signal, providing a second information station and a receiver responsive to said polarity signal generated in said first information station for generating an output signal at said second information station, providing a pair of transmission wires for connecting said first and said second information stations through which said polarity signal is transmitted from said first to said second information station, providing a transmitter in said second information station for receiving a second binary logic signal and for drawing or not drawing a current, independent of said polarity signal, from said first information station and through said transmission wires in response to the logic state of said second binary logic signal, providing means in said first information station for detecting current drawn by said transmitter through said transmission wires and generating an output signal at said first information station in response to said current drawn by said transmitter.

4,363,122

MITIGATION OF NOISE SIGNAL CONTRAST IN A DIGITAL SPEECH INTERPOLATION TRANSMISSION SYSTEM

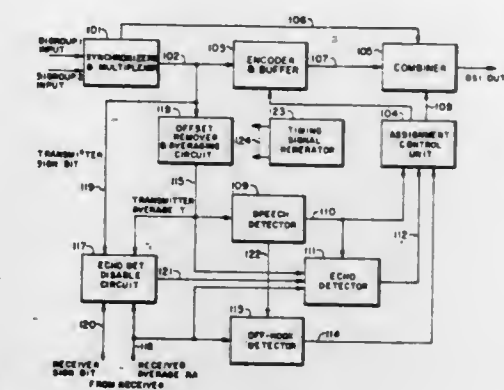
David H. A. Black, Chelsea, Canada; Robert H. Joyce, Menlo Park, Calif.; Fouad Daaboul, Verdun, and Tiu Le Van, Touraine, both of Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed Sep. 16, 1980, Ser. No. 187,821

Int. Cl.³ H04J 6/02; H04B 1/62

U.S. Cl. 370-81

14 Claims



1. A method of mitigating noise signal contrast in a multi-channel digital speed interpolation transmission system, comprising the steps of:

determining each channel which is active and each channel which carries background noise; transmitting the active channels; and transmitting the channels which carry background noise with a resolution which is dependent upon the number of channels transmitted and which is reduced as said number is increased.

4,363,123

METHOD OF AND APPARATUS FOR MONITORING DIGITAL TRANSMISSION SYSTEMS IN WHICH LINE TRANSMISSION ERRORS ARE DETECTED

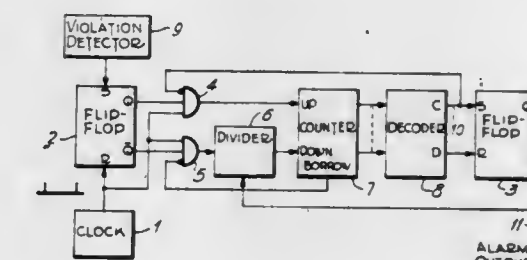
Wayne D. Grover, Ottawa, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Filed Dec. 1, 1980, Ser. No. 211,507

Int. Cl.³ G01R 31/28

U.S. Cl. 371-5

12 Claims



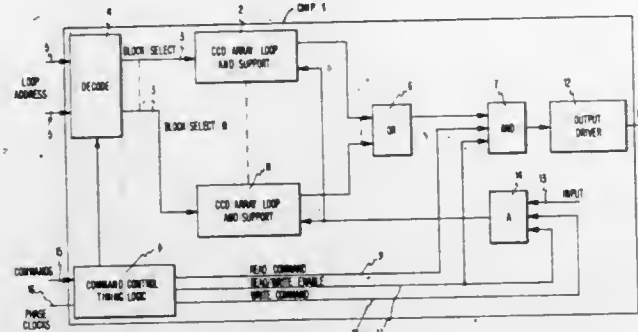
1. A method of monitoring a digital transmission system in which errors are detected, comprising: defining periods during each of which a plurality of errors may occur; determining whether or not at least one error occurs in each of said periods; in respect of each period, incrementing a digital value in a direction which is dependent upon the result of the determination; and producing an output signal in response to the digital value having a predetermined level.

4,363,124

RECIRCULATING LOOP MEMORY ARRAY TESTER
 Frederick J. Aichelmann, Jr., Hopewell Junction, N.Y., assignor
 to International Business Machines Corp., Armonk, N.Y.
 Filed Jun. 26, 1980, Ser. No. 163,373
 Int. Cl.³ G01R 31/28

U.S. Cl. 371-21

3 Claims



1. Logic means on an array chip for testing the constituent recirculating loop memory elements of said array, said means comprising means for simultaneously addressing all of said elements and for loading said elements in parallel with the same test bits and single comparison gate means connected to the outputs of all said elements for ANDing said outputs to produce a first signal when all said outputs are identical on a serial bit-by-bit basis and to produce a second signal when all said outputs are not identical, wherein said comparison gate means comprises a multi input, multi output inverter circuit and first and second multi input AND circuits, means for applying said test bits from all said elements to respective inputs of said inverter circuit and to respective inputs of said first AND circuit, said second AND circuit being coupled to receive the multi outputs from said inverter circuit, and means for combining the outputs of said first and second AND circuits.

4,363,125

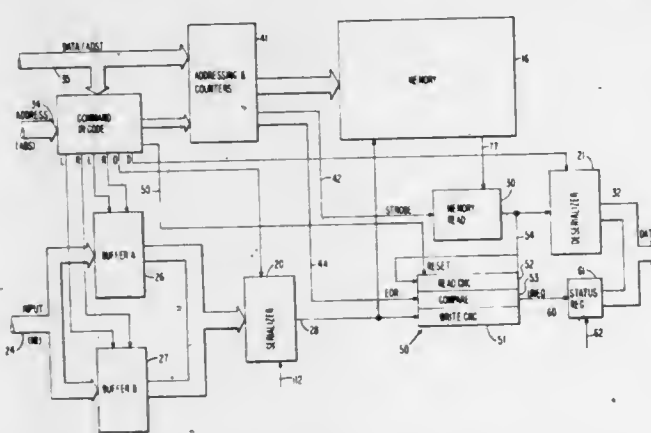
MEMORY READBACK CHECK METHOD AND APPARATUS

James A. Brewer, Boulder, Colo., and John A. Lowy, Tucson, Ariz., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 26, 1979, Ser. No. 106,633
 Int. Cl.³ G06F 11/00; G11C 29/00

U.S. Cl. 371-71

10 Claims



1. A data storage means for storing data received from a source comprising: a cyclic memory means having a plurality of data blocks for storing data; writing means for sequentially writing said received data in

said plurality of blocks of said cyclic memory means over a corresponding plurality of cycles of said memory means; reading means for reading after a one-cycle delay and simultaneously with said writing during ones of said plurality of said cycles, said data written in each said block of said cyclic memory means during the immediately preceding cycle; and means for comparing said received data and said data read by said reading means to detect any difference therebetween.

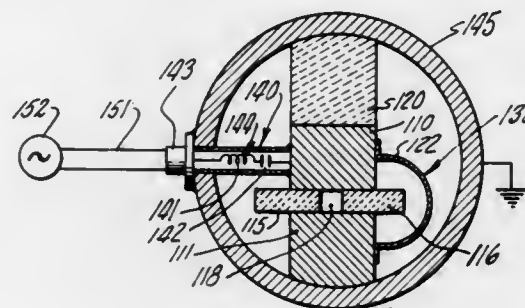
4,363,126

TUNED-CIRCUIT RF-EXCITED LASER
 Peter P. Chenausky, Avon; Erroll H. Drinkwater, Portland, and Lanny M. Laughman, Bolton, all of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Dec. 10, 1980, Ser. No. 214,858
 Int. Cl.³ H01S 3/09

U.S. Cl. 372-38

4 Claims



1. A radio frequency-excited gas laser comprising: an optical resonant cavity having electrodes disposed on opposite sides thereof and a lasing gas therein, said optical cavity having a cavity capacitance; radio frequency means having an output impedance for establishing a radio frequency electric discharge of a predetermined driving frequency through said lasing gas, whereby optical radiation is resonated in said optical cavity, said discharge having a discharge resistance in parallel with said cavity capacitance, forming a cavity impedance that is a complex number; and an input impedance circuit connected to at least one of said electrodes and to said radio frequency means for coupling power from said radio frequency means to said radio frequency electrode discharge, said input impedance circuit having a complex impedance the imaginary part of which substantially cancels the imaginary part of said cavity impedance at said driving frequency, characterized in that: at least one inductance is connected between said electrodes in parallel with said discharge resistance and cavity capacitance to form an electrical resonant circuit having a complex RLC impedance and a predetermined resonant frequency.

4,363,127

LINE SIGNALING APPARATUS AND TECHNIQUES FOR DIGITAL DATA LINKS

Randall G. Evans, and James F. Buddenhagen, both of San Jose, Calif., assignors to Ford Aerospace & Communications Corporation, Detroit, Mich.

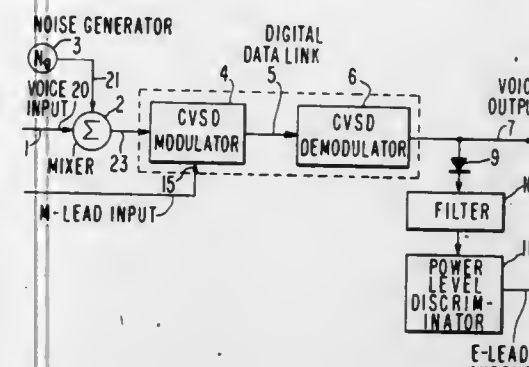
Filed Jan. 12, 1981, Ser. No. 224,367
 Int. Cl.³ H03K 13/22

U.S. Cl. 375-30

7 Claims

1. Apparatus for distinguishing between an analog input signal and a line status signal wherein each of said signals is transmitted over a digital data link, comprising: a noise generator connected to said input signal; an analog-to-digital converter having a first input connected to said noise-corrupted input signal and a second input

connected to said line status signal, and having an output connected to an input of said digital data link; a digital-to-analog converter having an input connected to an output of the digital data link and having an output connected to power distinguishing means;



wherein the amount of noise generated by said noise generator is preselected to enable said power distinguishing means to distinguish between said noise-corrupted input signal and said line status signal.

4,363,128

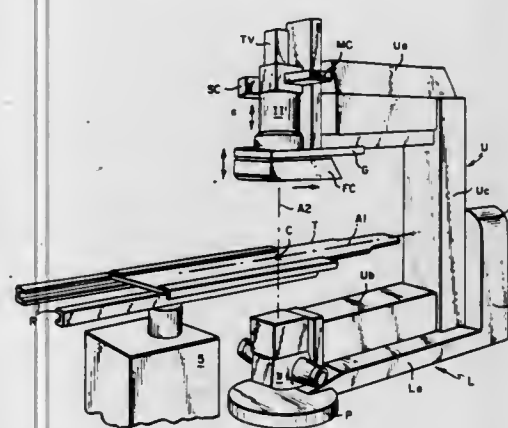
X-RAY DRIVE APPARATUS

John K. Grady, 277 Baker Ave., Concord, Mass. 01742, and Paul G. Rice, Lincoln, Mass., assignors to John K. Grady, Lincoln, Mass.

Filed Sep. 29, 1980, Ser. No. 191,532
 Int. Cl.³ G03B 41/16

U.S. Cl. 378-181

10 Claims



1. Radiological apparatus comprising: a support; radiation source means and radiation receptor means at spaced positions on the support for examination of a subject at a location therebetween, the source and receptor means having a common radiation axis extending through the subject location, and each means being mounted on the support to move along the radiation axis; a motor, a first drive linkage and a first clutch, the motor being connected by the linkage and clutch to one of the moveable radiation means to drive said one means along the radiation axis; a cross drive linkage, a second clutch and a second drive linkage forming a drive connection between the first drive linkage and the other radiation means; and means for selectively engaging the respective clutches so that with either clutch disengaged one of the radiation means is driven independently to select the spacing between the radiation means, and with both clutches engaged both radiation means are driven interdependently so as to vary the radiation image magnification of the subject while maintaining a selected spacing between the radiation means.

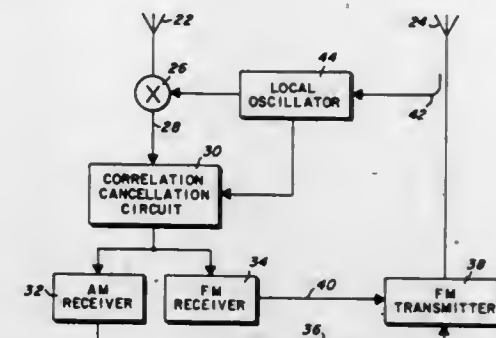
METHOD AND MEANS OF MINIMIZING SIMULCAST DISTORTION IN A RECEIVER WHEN USING A SAME-FREQUENCY REPEATER

Jona Cohn, Morton Grove; Allen L. Davidson, Crystal Lake, and Anthony P. van den Heuvel, Arlington Heights, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 11, 1980, Ser. No. 215,589
 Int. Cl.³ H04B 7/16

U.S. Cl. 455-17

7 Claims



1. A method of minimizing simulcast distortion when broadcasting an information signal directly to an FM receiver and indirectly to the FM receiver through a same-frequency repeater comprising the steps of: generating an RF signal that is amplitude-modulated with the information signal and that is frequency-modulated with the information signal delayed by a predetermined length of time; broadcasting the RF signal to the FM receiver and to the same-frequency repeater; detecting the amplitude-modulated signal at the same-frequency repeater and applying the detected signal as frequency modulation to a repeater to produce a repeated RF signal that is inherently delayed in the repeater by the predetermined length of time; and broadcasting the repeated RF signal to the FM receiver; whereby the RF signal and the repeated RF signal will both be delayed at the FM receiver, by essentially the predetermined length of time, thereby minimizing simulcast distortion.

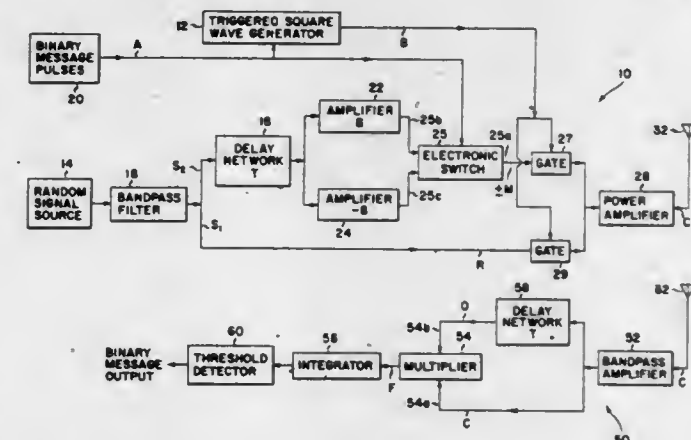
4,363,130

BINARY DIGITAL COMMUNICATION SYSTEM
 William R. Ramsay, Mt. View, and James J. Spilker, Jr., Palo Alto, both of Calif., assignors to Lockheed Missiles & Space Company, Inc., Sunnyvale, Calif.

Filed Mar. 18, 1960, Ser. No. 16,099
 Int. Cl.³ H04K 1/00

U.S. Cl. 455-27

5 Claims



1. A binary digital communication system comprising a transmitter and receiver: said transmitter comprising means for alternately radiating in response to the digits of a binary mes-

sage two signals of non-periodic energy which have been delayed by a predetermined amount with respect to one another, and means for phase shifting one of said signals by 180° prior to radiation thereof in response to one of the "0" and "1" digits of the binary message; said receiver comprising means for receiving the signals alternately radiated by said transmitter, means for delaying the alternately received signals with respect to one another so they are brought back into correlation, and correlation-sensitive means to which the correlated received signals are fed, the output of said correlation-sensitive means being representative of said binary message.

4,363,131

BUILT-IN GROUP DELAY TESTING ARRANGEMENT FOR AN FM RADIO SYSTEM

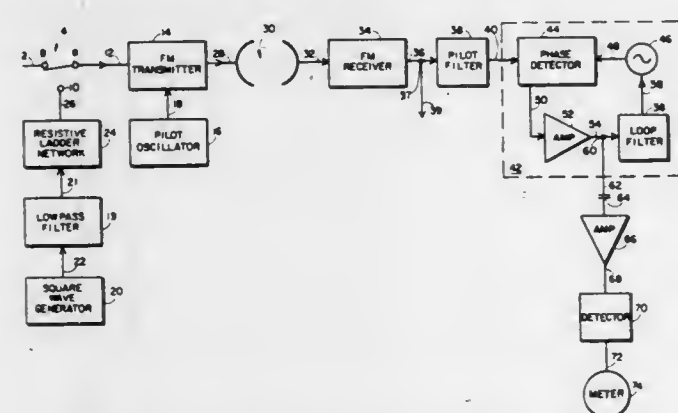
Abram Froese, North Vancouver; Larry Y. Onotera, Surrey; Muhammad J. Ahmed, New Westminster, and Alvin Liebelt, Vancouver, all of Canada, assignors to AEL Microtel, Ltd., Burnaby, Canada

Filed Mar. 2, 1981, Ser. No. 239,743

Int. Cl.³ H04B 1/00, 17/00

U.S. Cl. 455—42

3 Claims



1. In a radio system, including a transmitter and a receiver, which employs frequency modulation of information signals, apparatus for providing a built-in group delay test arrangement, comprising:

- a transmitter having a baseband input terminal for accepting signals to be conditioned for radio transmission to said receiver;
- a pilot frequency oscillator having an output terminal connected to an input terminal of said transmitter;
- means for selectively applying a square-wave test signal to said baseband input terminal for providing a predetermined deviation of said frequency modulation transmitter;
- an FM receiver adapted to receive the signal conditioned for transmission, said receiver providing at an output port a phase modulated signal caused by system group delay slope encountered in the course of transmission through the system;
- means connected to the output port of said receiver for detecting said phase modulated signal and providing an AC signal output which is representative of the deviation thereof at an output terminal; and
- means for measuring the amplitude of said AC signal.

4,363,132

DIVERSITY RADIO TRANSMISSION SYSTEM HAVING A SIMPLE AND ECONOMICAL STRUCTURE

Claude Collin, Paris, France, assignor to Thomson-CSF, Paris, France

Filed Jan. 27, 1981, Ser. No. 228,724

Claims priority, application France, Jan. 29, 1980, 80 01898

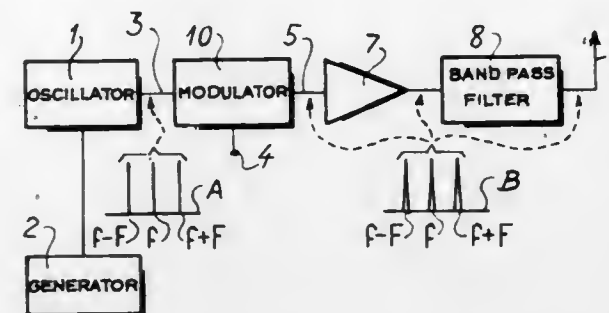
Int. Cl.³ H04B 7/02

U.S. Cl. 455—52

5 Claims

1. A system for radio transmission of high-frequency signals modulated by the information to be transmitted between two terminal stations via a plurality of diversity propagation channels, each terminal station being equipped respectively with at

least one transmitter and one superheterodyne receiver, wherein the transmitter comprises a carrier-signal generator having a carrier signal output, an oscillator having a signal frequency F for frequency modulating said carrier signal according to a modulation index so determined as to produce a signal having a spectrum comprising N spectral lines having closely related amplitudes where N is a positive whole number



4,363,133

CONVERTER CIRCUIT FOR TELEVISION SIGNALS

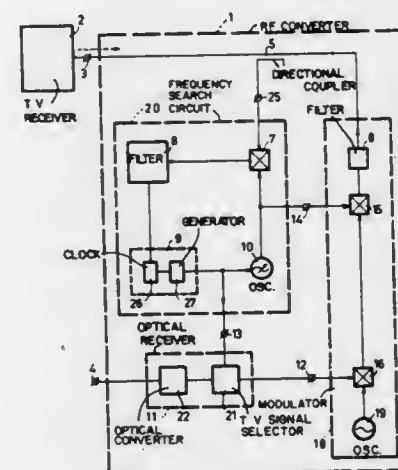
Abram van de Grijp, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 28, 1980, Ser. No. 182,261

Int. Cl.³ H04B 1/18, 1/26

U.S. Cl. 455—131

5 Claims



1. A RF signal converter circuit positioned externally to a superheterodyne receiver, said converter circuit having a signal input and a signal output, said output being connected to the RF aerial input of said superheterodyne receiver, said converter circuit comprising:

- a cascade arrangement of a RF signal selector which provides a selected and modified RF signal and a modulator connected between the signal input and the signal output of said converter,
- said converter circuit also comprising a coupling circuit connected to said RF aerial signal input and said converter signal output for coupling oscillator radiation present at the aerial input of said RF superheterodyne receiver,
- a frequency search circuit connected to said coupling circuit for receiving said oscillator radiation present at the aerial input of said RF receiver, one output of said frequency search circuit being coupled to said RF signal selector to control the selection of a RF signal from RF signals ap-

plied to a signal input of said signal selector, another output thereof being coupled to said modulator to control modulation of the selected and modified RF signal onto a carrier frequency.

4,363,134

CHANNEL SELECTION APPARATUS

Toshinori Murata, and Shigeo Matsuura, both of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

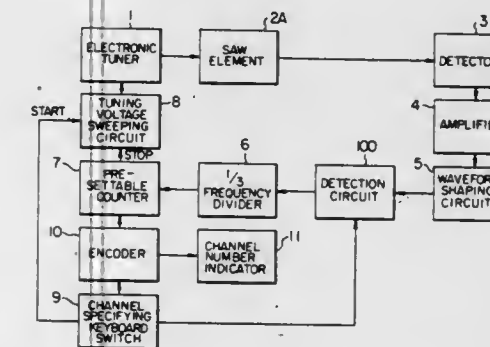
Filed Jul. 14, 1980, Ser. No. 168,733

Claims priority, application Japan, Jul. 14, 1979, 54-88691

Int. Cl.³ H04B 1/16

U.S. Cl. 455—161

9 Claims



1. A channel selection apparatus comprising:
 - an electronic tuner having a local oscillator which produces an output signal whose output frequency is variable for controlling the tuning frequency of the tuner;
 - a sweeping circuit coupled to said local oscillator for sweeping the frequency of the output signal of said local oscillator;
 - a surface acoustic wave comb-shape filter coupled to said local oscillator for receiving the output signal of said local oscillator and producing, when the frequency of the output of said local oscillator is swept from a lower frequency to a higher frequency, an output having a comb-shape output characteristic including a plurality of first output peaks which successively appear at predetermined first frequencies which are substantially equal to first predetermined frequency intervals within a predetermined frequency range of the output of said local oscillator and a second output peak just preceding to a first produced one of said first output peaks at a second frequency spaced by a second frequency interval which is greater than said first frequency interval;
 - a first detector coupled to receive the output of the surface acoustic wave comb-shape filter including means for detecting the first and second output peaks of said surface acoustic wave comb-shape filter and means for producing output signals corresponding to the first and second output peaks at said first and second frequency intervals, respectively;
 - a presetable counter including means for counting the number of peaks detected by said first detector;
 - a second detector coupled to receive the output signals of said first detector including means for discriminating the second frequency interval from the first frequency interval and means for producing an output signal indicative of the detection of said second frequency interval; and
 - means coupled to said presetable counter and responsive to the output signal of said second detector for causing said presetable counter to start counting of the output peaks detected by said first detector which occur after detection of said second frequency interval by said second detector.

4,363,135

FOUR BAND VHF VARACTOR TUNER

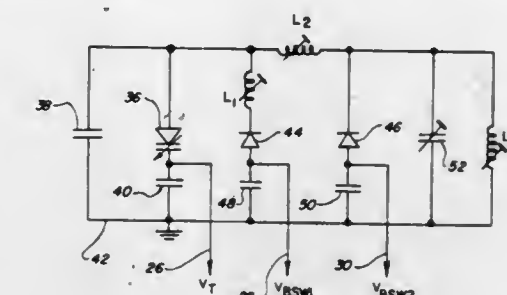
Fred H. Moon, Mt. Prospect, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Oct. 27, 1980, Ser. No. 200,806

Int. Cl.³ H04N 5/44; H04B 1/16

U.S. Cl. 455—180

7 Claims



1. In a television receiver of the type including a three-band varactor tuned resonant circuit comprising a varactor diode; first, second and third inductance means; and first and second switching means selectively operable for connecting three different combinations of said inductance means across said varactor diode for tuning three different television signal bands, the improvement comprising:
 - means for selectively operating said first and second switching means for connecting four different combinations of said inductance means across said varactor diode to allow the tuning of four different VHF/CATV television signal bands; and
 - tuning means connected in circuit with said inductance means and having a variable reactance adjustable for facilitating the alignment of said resonant circuit for tuning one of said four bands.

4,363,136

STATION SELECTING APPARATUS

Koji Terami, Daito, and Isao Fujimoto, Katano, both of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

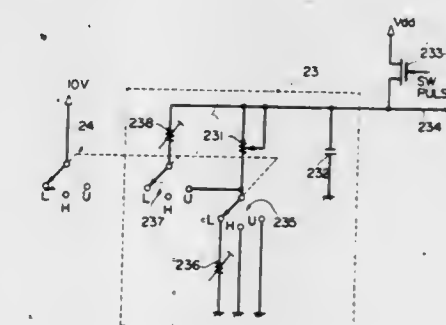
Filed Mar. 10, 1981, Ser. No. 242,229

Claims priority, application Japan, Mar. 19, 1980, 55-35239; May 1, 1980, 55-59243; May 10, 1980, 55-62110; May 13, 1980, 55-63763

Int. Cl.³ H04B 1/16

U.S. Cl. 455—180

9 Claims



1. A station selecting apparatus of a voltage synthesizer type for supplying a tuning voltage to an electronic tuner including a voltage controlled variable reactance device as a tuning element, said station selecting apparatus comprising
 - a memory,
 - channel signal generating means for generating and pre-setting a channel signal to said memory,
 - read means for reading said channel signal as necessary from said memory,
 - tuning voltage generating means for generating said tuning voltage responsive to a channel signal read from said read means, and

said channel signal generating means comprises charging/discharging circuit means having capacitor means and variable resistor means, a time constant of which is changeable by said variable resistor, a different channel signal being generated responsive to said time constant, and
semifixed resistor means connected in series with said variable resistor means for defining a lower limit of said time constant, thereby to define a lower limit of said tuning voltage.

4,363,137

WIRELESS TELEMETRY WITH MAGNETIC INDUCTION FIELD

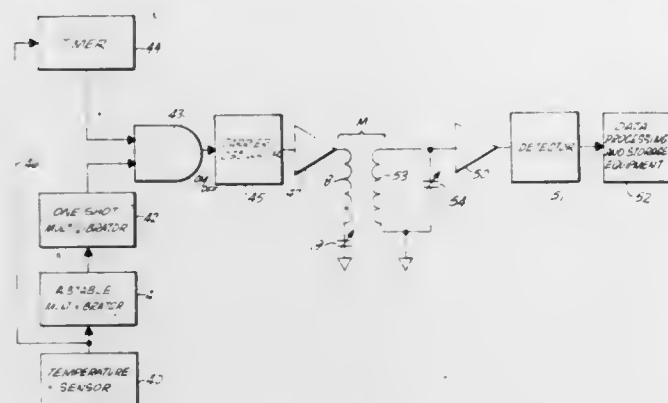
Winfield W. Salisbury, Scottsdale, Ariz., assignor to Occidental Research Corporation, Irvine, Calif.

Filed Jul. 23, 1979, Ser. No. 59,656

Int. Cl.³ H04B 12/02; H01V 1/40

U.S. Cl. 455—40

15 Claims



1. A method for determining the temperature of a remote point in an in situ oil shale retort, the method comprising the steps of:

- igniting the shale in the retort to initiate retorting along a retorting path;
- implanting in the retort at the remote point a temperature sensor and means for transmitting an alternating magnetic induction field spaced behind the temperature sensor in the retorting path, the transmitting means including means for modulating the transmitted field responsive to the temperature sensor;
- intercepting the modulated magnetic induction field outside the retort to determine the temperature as the retorting path progresses toward the transmitting means.

4,363,138

SIGNAL PRESENCE DETECTOR AND METHOD

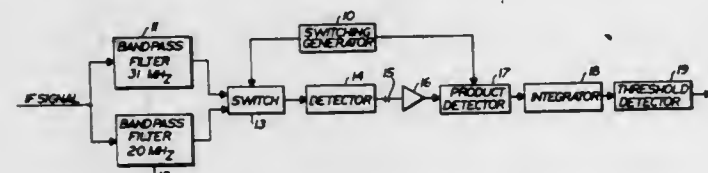
Sidney B. Franklin, Rancho Palos Verdes; Arthur Garabedian, Manhattan Beach; Curtis S. Hoffman; Marshall Y. Huang, both of Rancho Palos Verdes, all of Calif., and Robert B. Marcum, West Carrollton, Ohio, assignors to TRW Inc., Redondo Beach, Calif.

Filed Nov. 27, 1978, Ser. No. 964,127

Int. Cl.³ H04B 17/00, 1/10

U.S. Cl. 455—226

15 Claims



1. A signal presence detector for an input signal having a known spectral distribution but accompanied by strong noise

energy which may provide a negative signal-to-noise ratio, comprising:

- a common input for receiving the input signal;
- a first bandpass filter coupled to the common input and responsive to the input signal, the first bandpass filter encompassing one selected region within the spectral distribution;
- a second bandpass filter coupled to the common input and responsive to the input signal, the second bandpass filter encompassing a second selected region within the spectral distribution;
- a detector;
- switching means for applying the outputs of said first and second bandpass filters to said detector in time shared fashion; and
- means coupled to said detector and responsive to received energy levels from said bandpass filters which differ by at least a predetermined minimum amount for indicating the presence of the input signal;
- the first and second bandpass filters having center frequencies lying at different regions within the spectral distribution, the signal having a spread spectrum characteristic and the center frequency of said first bandpass filter being at the center frequency of the spread spectrum.

4,363,139

RADIO FREQUENCY RECEIVER

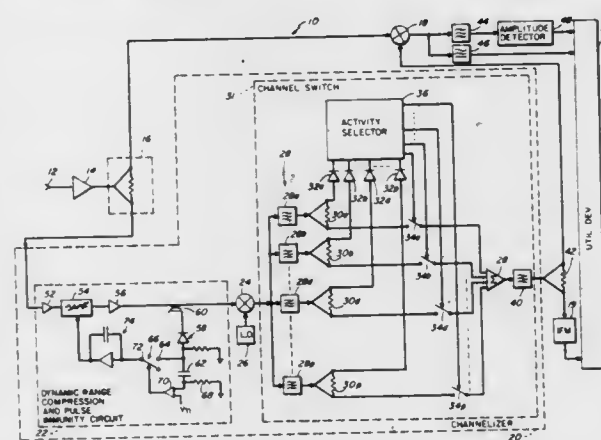
William B. Sullivan, Jr., Verona, N.J., assignor to Raytheon Company, Lexington, Mass.

Filed Nov. 2, 1979, Ser. No. 90,811

Int. Cl.³ H04B 1/30; H03D 1/22

U.S. Cl. 455—324

10 Claims



10. In combination:

- (a) means for coupling signals within a predetermined band of frequencies to a pair of signal channels, a first one of such pair of signal channels comprising:
 - (i) bandpass filter means, fed by the signals coupled to the first one of the pair of signal channels, for passing there-through signals in different portions of the predetermined band of frequencies;
 - (ii) detector means, fed by signals passed through the bandpass filter means, for detecting signals passing through the different portions of the predetermined band of frequencies of the bandpass filter means; and
 - (iii) means, responsive to the detector means, for coupling signals passing through a selected one of the different portions of the predetermined band of frequencies of the filter means to an output of the first one of the pair of signal channels;
- (b) a mixer; and
- (c) means for coupling a second one of the pair of signal channels and the output of the first one of the pair of signal channels to the mixer.

DESIGN PATENTS

GRANTED DEC. 7, 1982

ERRATA

For	See
CLASS	PATENT NO.
D18-001	267,151
D19-003	267,152
D17-077	267,153

DESIGNS

DECEMBER 7, 1982

267,128
BREATH DEFLECTOR ATTACHMENT FOR A HELMET
 Ronald L. Pearce, 8709 Glenwood, Kansas City, Mo. 64138
 Filed Jun. 16, 1980, Ser. No. 160,019
 Term of patent 14 years
 Int. Cl. D2-03
 U.S. Cl. D2-233



267,130
BUCKLE
 Isadore Goldman, Bronx, N.Y., assignor to C & C Metal Products Corp., Englewood, N.J.
 Filed May 5, 1980, Ser. No. 146,406
 Term of patent 14 years
 Int. Cl. D2-07
 U.S. Cl. D2-405



267,131
PAINT ROLLER
 Kiyoshi Hori, Suita, Japan, assignor to Nippon Paint Co., Ltd., Osaka, Japan
 Filed Jun. 19, 1981, Ser. No. 275,228
 Claims priority, application Japan, Dec. 19, 1980, 55-53455
 Term of patent 14 years
 Int. Cl. D4-04; D8-05
 U.S. Cl. D4-38.1



267,129
GOLF AID GLOVE
 Rick A. Kneisley, 1310 Chestnut Ridge, Humble, Tex. 77339
 Filed Nov. 12, 1980, Ser. No. 206,047
 Term of patent 14 years
 Int. Cl. D2-06
 U.S. Cl. D2-361



267,132
PAINT ROLLER
 Kiyoshi Hori, Suita, Japan, assignor to Nippon Paint Co., Ltd., Osaka, Japan
 Filed Jun. 19, 1981, Ser. No. 275,223
 Claims priority, application Japan, Dec. 19, 1980, 55-53450
 Term of patent 14 years
 Int. Cl. D4-04; D8-05
 U.S. Cl. D4-381



267,133
CHAIR

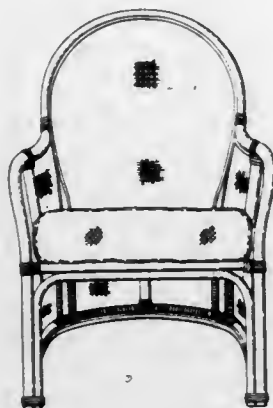
Mike T. Claman, New York, N.Y., assignor to Lewittes Furniture Enterprises, Inc., New York, N.Y.

Filed Jul. 8, 1980, Ser. No. 166,959

Term of patent 3½ years

Int. Cl. D6—01

U.S. Cl. D6—57



267,134
SOFA

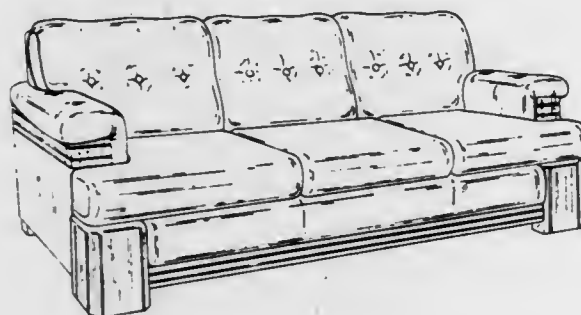
Deborah Nelson, Knoxville, Tenn., assignor to The Berkline Corporation, Morristown, Tenn.

Filed May 1, 1980, Ser. No. 145,785

Term of patent 14 years

Int. Cl. D6—01

U.S. Cl. D6—63



267,135
CHAIR

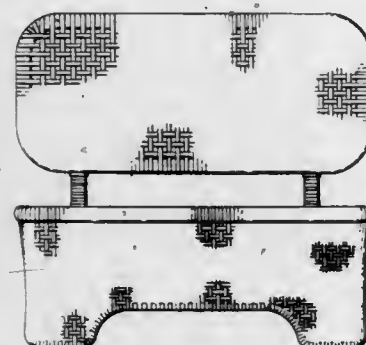
Mike T. Claman, New York, N.Y., assignor to Lewittes Furniture Enterprises, Inc., New York, N.Y.

Filed Jun. 25, 1980, Ser. No. 162,721

Term of patent 3½ years

Int. Cl. D6—01

U.S. Cl. D6—78



267,136

DISPENSER FOR LIQUIDS OR THE LIKE

Stewart Banks, Milford, England, assignor to Appor Limited, Derby, England

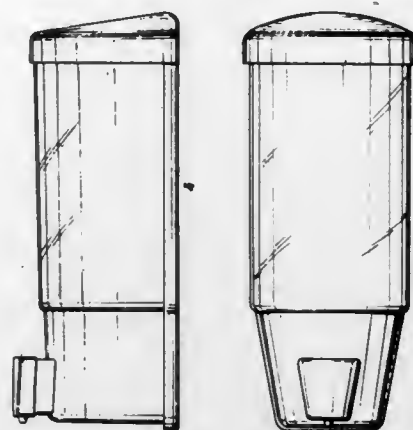
Filed Mar. 12, 1981, Ser. No. 242,869

Claims priority, application United Kingdom, Sep. 13, 1980, 80996548

Term of patent 14 years

Int. Cl. D23—02

U.S. Cl. D6—95



267,137

GARMENT HOOK

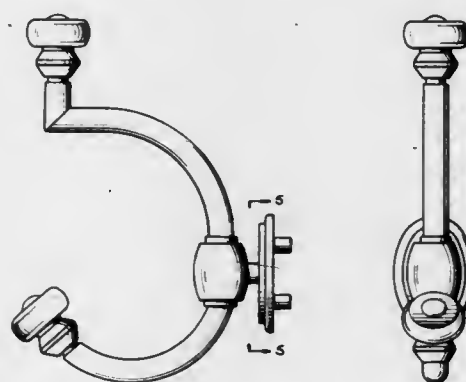
Lothar L. Mayer, 136 Fox Meadow Rd., Scarsdale, N.Y. 10583

Filed Dec. 9, 1980, Ser. No. 214,670

Term of patent 14 years

Int. Cl. D6—06; D8—08

U.S. Cl. D6—122



267,138

PERIODICAL SHELF FOR LIBRARY UNIT

Frederick J. Moriarty, Worcester, and Edmund T. Paquette, Shrewsbury, both of Mass., assignors to Wright Line Inc., Worcester, Mass.

Filed Apr. 17, 1980, Ser. No. 141,163

Term of patent 14 years

Int. Cl. D6—04

U.S. Cl. D6—132



267,139
TABLE

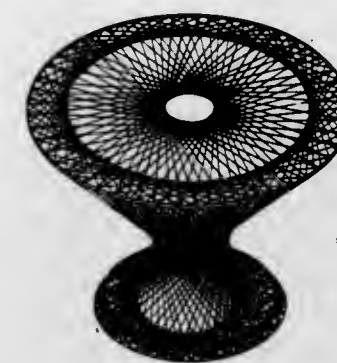
Donald E. Hanaford, Phoenix, Ariz., assignor to Arthur E. Thomson, Glendale, Ariz.

Filed Apr. 25, 1980, Ser. No. 143,615

Term of patent 14 years

Int. Cl. D6—03

U.S. Cl. D6—146



267,141

COASTER FOR A BEVERAGE CAN

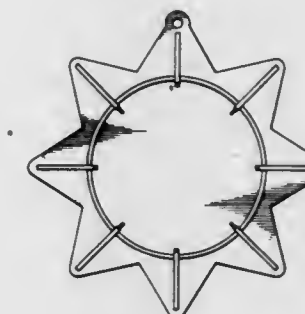
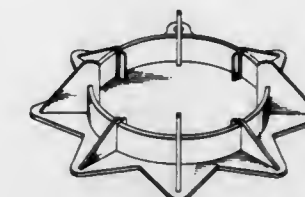
Ralph W. Meldrum, Jr., 7465 Layton St., Cucamonga, Calif. 91730

Filed Dec. 22, 1980, Ser. No. 218,534

Term of patent 14 years

Int. Cl. D7—06

U.S. Cl. D7—45



267,142

SLANTED HOLDER FOR CUTLERY

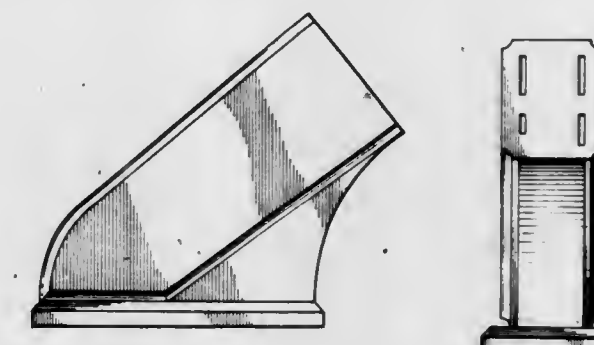
Ross Pollard, Amesbury, Mass., assignor to Towle Manufacturing Company, Boston, Mass.

Filed Dec. 9, 1980, Ser. No. 214,488

Term of patent 14 years

Int. Cl. D7—06

U.S. Cl. D7—74



267,140

BATHROOM TUMBLER

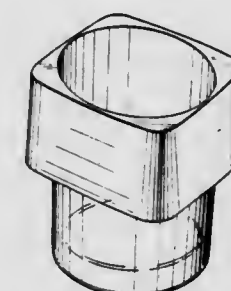
Bruce R. Thompson, 32 Shakespeare Ave., Tranmere, South Australia, Australia

Filed Feb. 13, 1980, Ser. No. 121,248

Term of patent 14 years

Int. Cl. D7—01

U.S. Cl. D7—6



267,143

FOOD SUPPORT

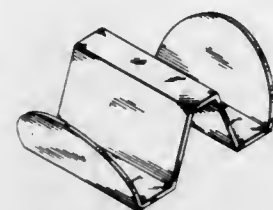
Julie M. Gessing; Dennis Gessing, both of 1226 S. Bedford #6, Los Angeles, Calif. 90035; John F. Matherly, 931 Pavillion Dr., Creve Coeur, Mo. 63141, and Ferman Ansel, 434 Weld County Rd. 164, Longmont, Colo. 80501

Filed Apr. 28, 1980, Ser. No. 145,579

Term of patent 14 years

Int. Cl. D7—99

U.S. Cl. D7—76



267,145

STRAP TIGHTENER AND CUTTER

Hogara Kaneko, 3-2-302, Zengyo Danchi, Fujisawa, Japan (215)

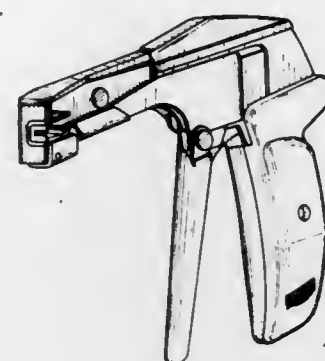
Filed Mar. 28, 1980, Ser. No. 135,099

Claims priority, application Japan, Sep. 28, 1979, 54-40824

Term of patent 14 years

Int. Cl. D08—05

U.S. Cl. D8—51



267,144

PRUNER

Christopher R. B. Harrison, Porthcawl, Wales, and Alan K. Pittaway, High Wycombe, England, assignors to Wilkinson Sword Limited, High Wycombe, England

Filed Feb. 21, 1980, Ser. No. 123,447

Claims priority, application United Kingdom, Aug. 29, 1979, 991347

Term of patent 14 years

Int. Cl. D8—03

U.S. Cl. D8—5



267,146

ABRADING TOOL BLADE

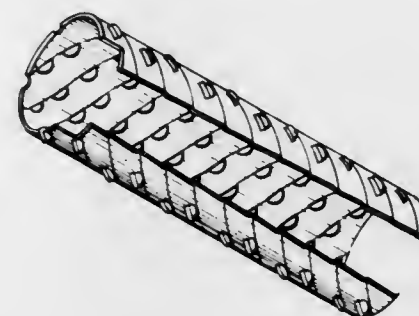
Robert F. West, West Simsbury, and Richard E. Ziel, Cheshire, both of Conn., assignors to The Stanley Works, New Britain, Conn.

Filed Dec. 21, 1978, Ser. No. 971,932

Term of patent 14 years

Int. Cl. D08—03

U.S. Cl. D8—90



267,147

GRIP FOR BICYCLES, MOTORCYCLES OR THE LIKE

James H. Jannard, Laguna Niguel, Calif., assignor to Oakley, Inc., Laguna Hills, Calif.

Filed Dec. 8, 1980, Ser. No. 214,181

Term of patent 14 years

Int. Cl. D12—11

U.S. Cl. D8—303



267,148

BLIND NAIL

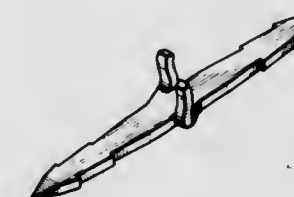
Philip W. Smith, 1414 Appleton Cir., Medford, Oreg. 97501

Filed May 22, 1981, Ser. No. 266,232

Term of patent 14 years

Int. Cl. D8—08

U.S. Cl. D8—389



267,149

PACKAGING CONTAINER FOR SYRUP OR THE LIKE

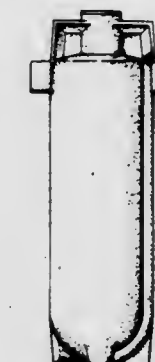
Robert B. Whorton, III, Spartanburg, S.C.; Samuel C. Crosby, Jr., Decatur, Ga.; Frank M. Iannelli, Spartanburg, S.C.; James Denmark, Ilkley, and Edward L. Jeans, Ledbury, both of England, assignors to Tannetco, Inc., Erie, Pa.

Filed Jul. 2, 1979, Ser. No. 53,949

Term of patent 14 years

Int. Cl. D9—01

U.S. Cl. D9—370



267,150

TEAR STRIP PACKAGING CONTAINER

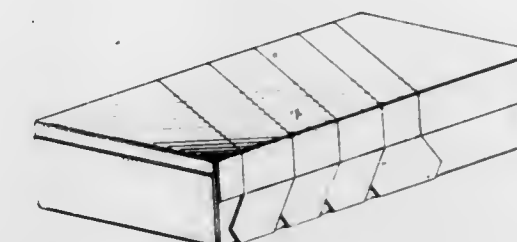
William D. Kinsell, Jr., Westlake, Ohio, assignor to SCM (Canada) Limited, Don Mills, Canada

Filed Feb. 8, 1979, Ser. No. 10,380

Term of patent 14 years

Int. Cl. D9—03

U.S. Cl. D9—416



267,151

TYPEWRITER

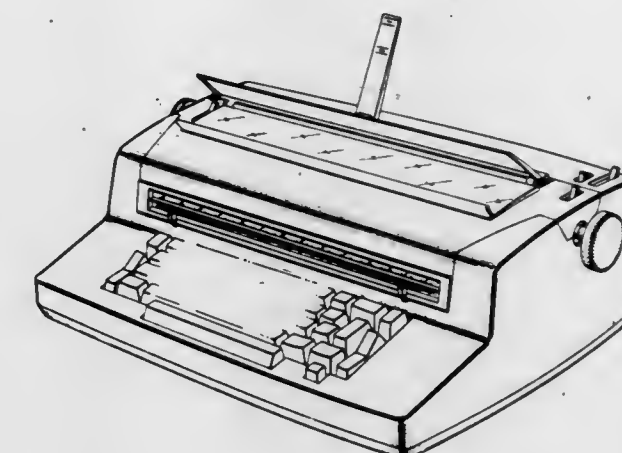
Gordon P. Bruce, New Milford; David C. Danielson, Rowayton, both of Conn.; Robert E. Griffith, Lexington, Ky.; Allen D. Hawthorne, New Canaan, Conn.; Jeffrey L. Quedenfeld, Bridgeport, Conn., and Paul F. Siegel, Ridgefield, Conn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 1, 1980, Ser. No. 145,545

Term of patent 14 years

Int. Cl. D18—01

U.S. Cl. D18—1



267,152

POCKET PORTFOLIO

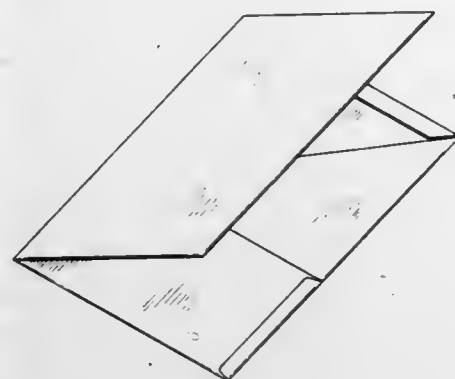
John J. Nerlinger, Jr., Dayton, Ohio, assignor to The Mead Corporation, Dayton, Ohio

Filed Apr. 11, 1980, Ser. No. 139,370

Term of patent 14 years

Int. Cl. D19-99

U.S. Cl. D19-3



267,153

DESK RECEPTACLE FOR WRITING INSTRUMENTS AND OFFICE SUPPLIES OR THE LIKE

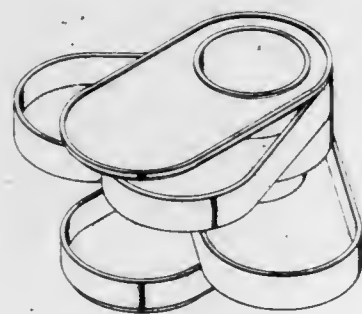
Samuel Lebowitz, New York, N.Y., assignor to Ketcham & McDougall, Roseland, N.J.

Filed Oct. 28, 1980, Ser. No. 201,635

Term of patent 14 years

Int. Cl. D19-02

U.S. Cl. D19-77



267,154

PROBE COVER

Ilhan M. Bilgutay, 837 Harbor Island, Clearwater, Fla. 33515

Filed Aug. 8, 1980, Ser. No. 176,415

Term of patent 14 years

Int. Cl. D10-04

U.S. Cl. D10-60



267,155

PRESSURE-SENSITIVE CALIPER ATTACHMENT

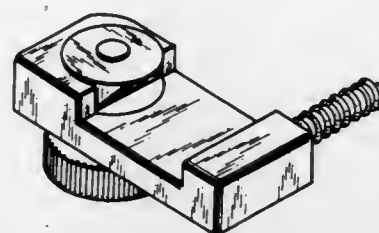
Jack P. McClung, 12117 Orange Dr., Whittier, Calif. 90601

Filed Aug. 25, 1980, Ser. No. 182,275

Term of patent 14 years

Int. Cl. D10-07

U.S. Cl. D10-74



267,156

WARNING LIGHT WITH CYLINDRICAL LENS

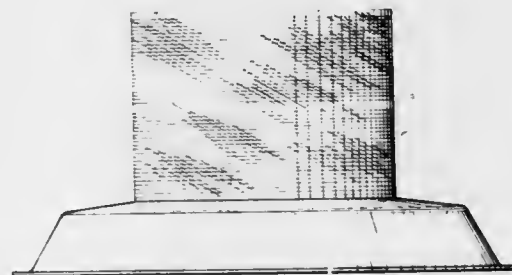
Charles W. Phelps, Deep River, Conn., assignor to Whelen Engineering Company, Inc., Deep River, Conn.

Filed Mar. 31, 1980, Ser. No. 135,458

Term of patent 14 years

Int. Cl. D10-06

U.S. Cl. D10-114



267,157

COMBINED STROBELAMP AND HOLDER

Chan M. Kong, 58 Pau Chung St., Tokwawan, Kowloon, Hong Kong

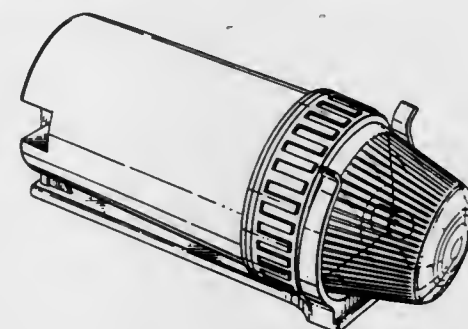
Filed Aug. 25, 1980, Ser. No. 181,211

Claims priority, application United Kingdom, May 23, 1980, 995-003

Term of patent 14 years

Int. Cl. D10-06; D26-02

U.S. Cl. D10-114



267,158

SEMAPHORE

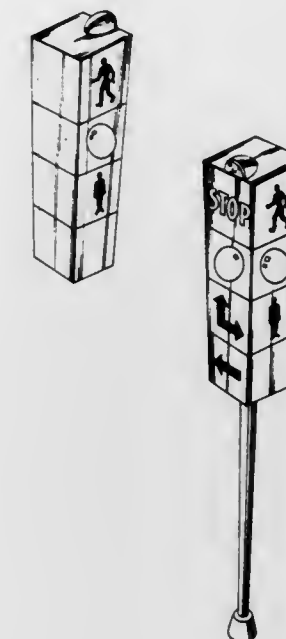
Humberto A. Lopez, Mexico City, Mexico

Filed Aug. 7, 1978, Ser. No. 932,041

Term of patent 14 years

Int. Cl. D10-06

U.S. Cl. D10-115



267,160

POCKET BILLIARDS RACK ORNAMENT

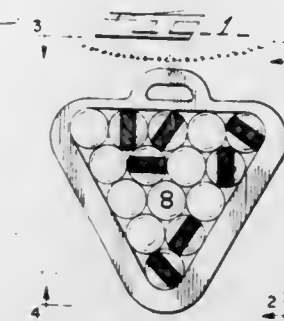
Jeanne F. Tomasello, 6266 Niagara, Chicago, Ill. 60631

Filed Apr. 1, 1980, Ser. No. 136,280

Term of patent 14 years

Int. Cl. D11-07

U.S. Cl. D11-81



267,161

DESK ORNAMENT

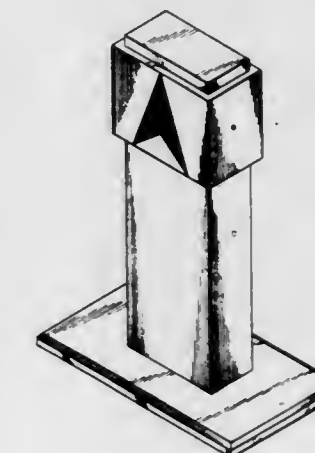
Bert A. Goldman, 1608 Ilchester Ct., Greensboro, N.C. 27408

Filed Sep. 11, 1980, Ser. No. 186,173

Term of patent 14 years

Int. Cl. D11-02

U.S. Cl. D11-131



267,159

ADJUSTABLE NECKLACE OR BRACELET

Margaret Borofsky, 14 Greenway La., Greenfield, Mass. 01301, and Robert L. Borofsky, 22 Wilsondale St., Dover, Mass. 02030

Continuation-in-part of Ser. No. 183,009, Sep. 2, 1980. This application Mar. 26, 1981, Ser. No. 248,037

Term of patent 14 years

Int. Cl. D11-07

U.S. Cl. D11-5



267,162

ARTIFACT PLAQUE

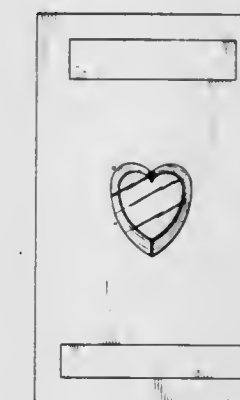
Sylvester Buschmann, Vienna, Mo. 65582

Filed Jul. 20, 1979, Ser. No. 59,336

Term of patent 14 years

Int. Cl. D11-02

U.S. Cl. D11-133

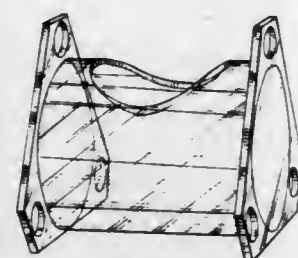


267,163

CONTAINER FOR PLANTS, FISH OR THE LIKE
Kevin M. Murray, 143(D) N. Pacific St., San Marcos, Calif. 92069

Filed Oct. 27, 1980, Ser. No. 201,358
Term of patent 14 years
Int. Cl. D11-02; D30-02

U.S. Cl. D11-145



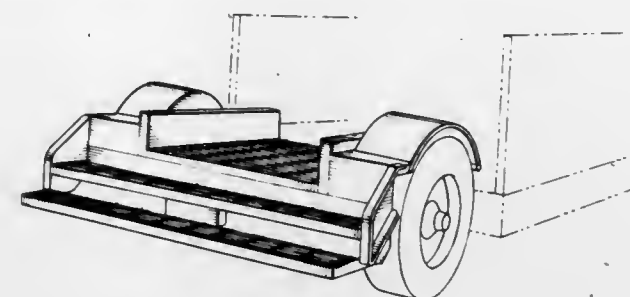
267,166

SEMI-TRAILER

Eugene D. Sambucetti, and Keith L. Mathews, both of Woodland, Calif., assignors to Wesco Truck & Trailer Sales, Woodland, Calif.

Filed Aug. 27, 1979, Ser. No. 69,720
Term of patent 14 years
Int. Cl. D12-10

U.S. Cl. D12-101



267,164

FIGURINE OF A DOBERMAN PINSCHER

Jesus A. Santa-Eulalia Carvajales, and Javier B. Santa-Eulalia Carvajales, both of Montevideo, Uruguay, assignors to John J. Madison Co., Inc., Laguna Hills, Calif.

Filed May 29, 1980, Ser. No. 154,326
Term of patent 14 years
Int. Cl. D11-02

U.S. Cl. D11-158



267,167

WHEEL FOR MOTORCYCLE

Toshiyuki Suzuki, Shimada, and Kiyoshi Amaki, Kaga, both of Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha, Japan

Filed Nov. 10, 1980, Ser. No. 205,696
Claims priority, application Japan, May 13, 1980, 55-18667
Term of patent 14 years
Int. Cl. D12-16

U.S. Cl. D12-205



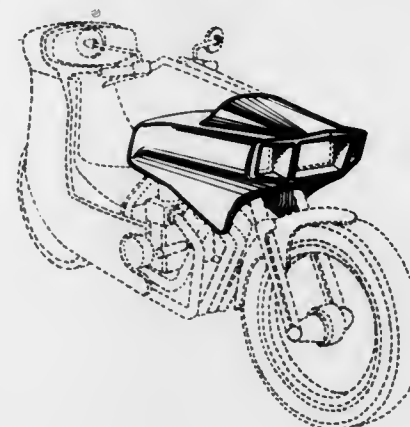
267,168

BODY PANEL FOR A MOTORCYCLE

Bruce D. Omholt, 1034 Holly Ave., Rohnert Park, Calif. 94928

Filed Mar. 10, 1980, Ser. No. 128,541
Term of patent 14 years
Int. Cl. D12-11

U.S. Cl. D12-110



267,165

FIGURINE OF AN OLDE ENGLISH SHEEPDOG

Jesus A. Santa-Eulalia Carvajales, and Javier B. Santa-Eulalia Carvajales, both of Montevideo, Uruguay, assignors to John J. Madison Co., Inc., Laguna Hills, Calif.

Filed May 29, 1980, Ser. No. 154,588
Term of patent 14 years
Int. Cl. D11-02

U.S. Cl. D11-158



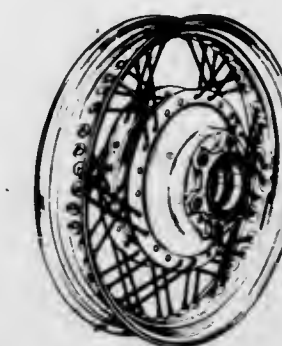
267,169

WHEEL FOR MOTORCYCLE

Toshiyuki Suzuki, Shimada, and Kiyoshi Amaki, Kaga, both of Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha, Japan

Filed Nov. 10, 1980, Ser. No. 205,703
Claims priority, application Japan, May 13, 1980, 55-18669
Term of patent 14 years
Int. Cl. D12-16

U.S. Cl. D12-205



267,172

TAPE RECORDING AND PLAYBACK APPARATUS
John H. Pemberton, 9 Park View, Needingworth, Cambridge, PE17 3TJ, England

Filed Oct. 11, 1979, Ser. No. 83,786
Term of patent 14 years
Int. Cl. D14-01

U.S. Cl. D14-2



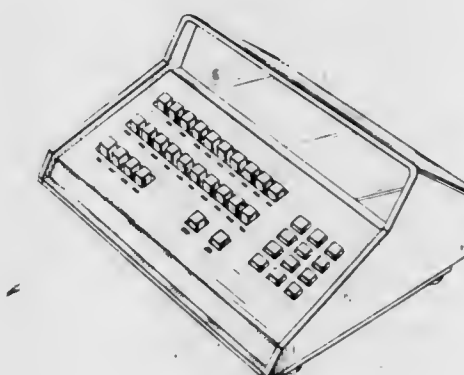
267,173

TELEPHONE SWITCHBOARD HOUSING

Thomas Georgopoulos, Roselle, Ill., assignor to GTE Automatic Electric Labs Inc., Northlake, Ill.

Filed Dec. 29, 1980, Ser. No. 220,337
Term of patent 14 years
Int. Cl. D14-03

U.S. Cl. D14-58



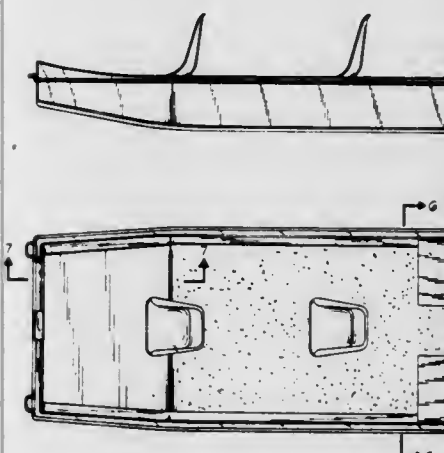
267,170

BOAT

Nancey J. Coulter, P.O. Box 626, Henryetta, Okla. 74437

Filed Jun. 30, 1980, Ser. No. 163,995
Term of patent 14 years
Int. Cl. D12-06

U.S. Cl. D12-314



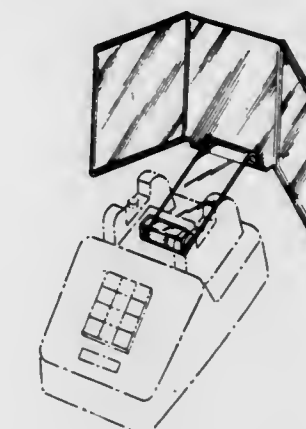
267,174

TELEPHONE ATTACHMENT

Dallas C. Fox, 4802 Old Springfield Rd., Vandalia, Ohio 45377, and Richard J. Raterman, 209 Oakview Dr., Kettering, Ohio 45429

Filed Aug. 11, 1980, Ser. No. 177,202
Term of patent 14 years
Int. Cl. D14-99

U.S. Cl. D14-59



267,171

AIRPLANE

Perry B. Johnson, 169 N. Main St., Paterson, N.J. 07522
Division of Ser. No. 929,854, Jul. 31, 1978, Pat. No. Des. 259,713. This application May 27, 1980, Ser. No. 153,066

Term of patent 14 years
Int. Cl. D12-07

U.S. Cl. D12-326



267,175

WALL TELEPHONE BASE HOUSING

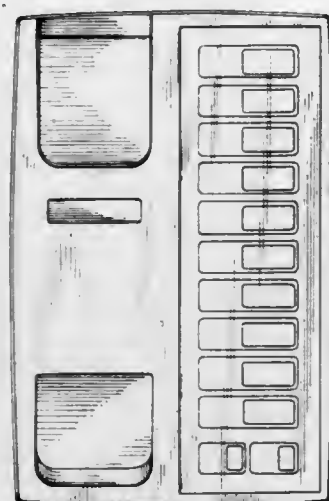
George M. Janda, Wheaton, Ill., assignor to GTE Automatic Electric Labs Inc., Northlake, Ill.

Filed Dec. 29, 1980, Ser. No. 220,330

Term of patent 14 years

Int. Cl. D14-03

U.S. Cl. D14-60



267,178

TELEPHONE HANDSET

Lee P. Mona, North Point, Hong Kong, assignor to Bondwell Electronics Ltd., Kowloon, Hong Kong

Filed Feb. 10, 1981, Ser. No. 233,053

Claims priority, application United Kingdom, Aug. 28, 1980, 80996318

Term of patent 14 years

Int. Cl. D14-03

U.S. Cl. D14-63



267,176

TELEPHONE INSTRUMENT BASE HOUSING

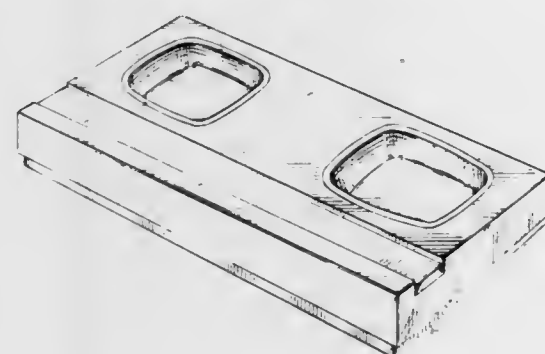
George M. Janda, Wheaton, Ill., assignor to GTE Automatic Electric Labs Inc., Northlake, Ill.

Filed Dec. 29, 1980, Ser. No. 220,333

Term of patent 14 years

Int. Cl. D14-03

U.S. Cl. D14-60



267,177

TELEPHONE INSTRUMENT BASE

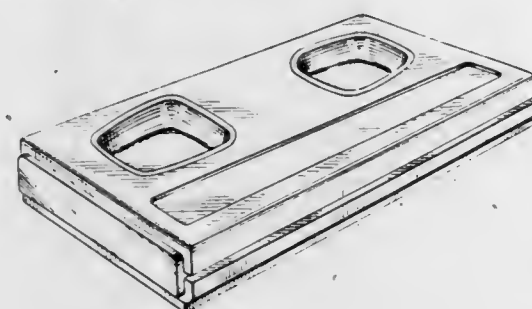
George M. Janda, Wheaton, Ill., assignor to GTE Automatic Electric Labs Inc., Northlake, Ill.

Filed Dec. 29, 1980, Ser. No. 220,339

Term of patent 14 years

Int. Cl. D14-03

U.S. Cl. D14-60



267,179

CALL PROCESSOR FOR A TELEPHONE SYSTEM

Ryoji Yamaguchi, Kokubunji, and Toshio Kurita, Sayama, both of Japan, assignors to Iwatsu Electric Company, Limited, Tokyo, Japan

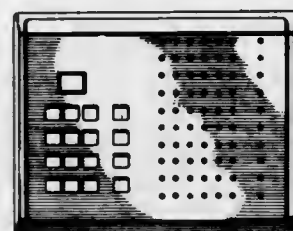
Filed Sep. 27, 1979, Ser. No. 79,427

Claims priority, application Japan, Apr. 20, 1979, 54-16256

Term of patent 14 years

Int. Cl. D14-03

U.S. Cl. D14-66



267,180

MICROFILM READER

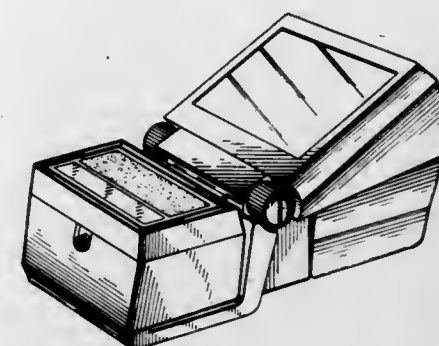
Charles H. Kiesow, Mequon, and Allen E. Johnson, Hartford, both of Wis., assignors to Bell & Howell Company, Chicago, Ill.

Filed Nov. 10, 1980, Ser. No. 205,384

Term of patent 14 years

Int. Cl. D16-03

U.S. Cl. D16-14



267,181

SLIDE FRAME

Jochen Jost, Halbe Höhe 20, 4300 Essen 1, Fed. Rep. of Germany

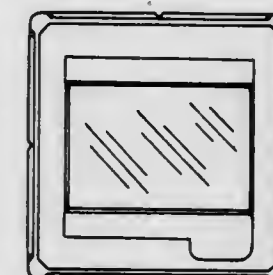
Filed Aug. 12, 1980, Ser. No. 178,702

Claims priority, application Fed. Rep. of Germany, Feb. 12, 1980, 5 MR 578

Term of patent 14 years

Int. Cl. D16-03

U.S. Cl. D16-26



267,184

TENNIS RACKET

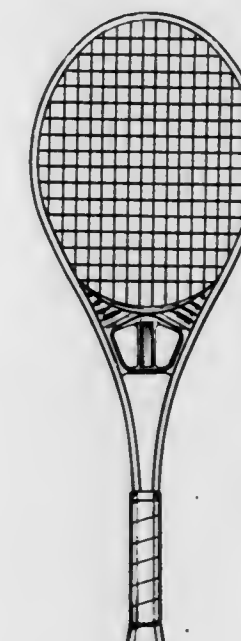
Paul A. Witte, New Hope, Pa., and Thomas Johnson, Hopewell, N.J., assignors to AMF Incorporated, White Plains, N.Y.

Filed May 14, 1980, Ser. No. 149,847

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D21-212



267,182

BALL STRIKING AND TARGET GAME APPARATUS

Yoshihiko Kato, Kasukabe, Japan, assignor to Ohkuma Seisakusho Co. Ltd., Japan

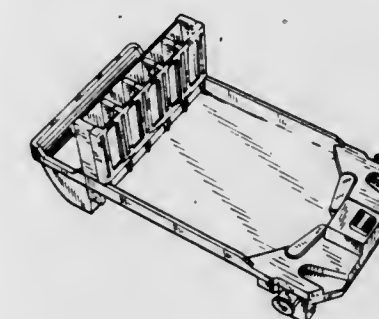
Filed Jan. 24, 1980, Ser. No. 117,842

Claims priority, application Japan, Aug. 27, 1979, 54-35811

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D21-10



267,185

AMUSEMENT BUMPER CAR

Christian Reverchon, Samois sur Seine, France, assignor to Societe Anonyme Gaston Reverchon & Ses Fils, Samois sur Seine, France

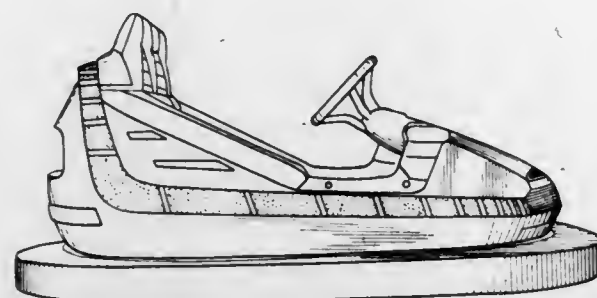
Filed Jul. 7, 1978, Ser. No. 923,083

Claims priority, application France, Apr. 7, 1978, 19

Term of patent 7 years

Int. Cl. D21—03

U.S. Cl. D21—250



267,186

COMBINED VALVE ASSEMBLY AND FRAME HEAD FOR THE TRANSPORT AND HANDLING OF GAS CYLINDERS

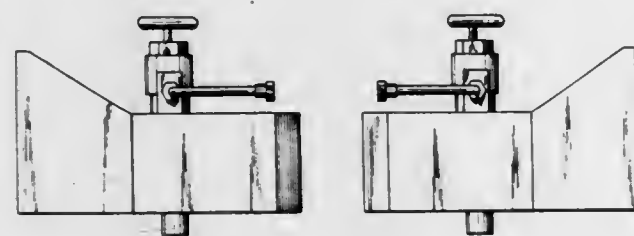
Bengt G. Winqvist, Esbo, Finland, assignor to AGA Aktiebolag, Lidings, Sweden

Filed May 20, 1980, Ser. No. 151,753

Term of patent 14 years

Int. Cl. D23—01

U.S. Cl. D23—20



267,187

SINGLE HANDLE FAUCET AND THE LIKE

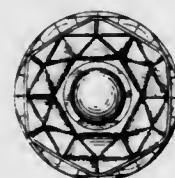
John P. Ronvik, Palos Heights, Ill., assignor to Sears, Roebuck and Co., Chicago, Ill.

Filed Jun. 6, 1980, Ser. No. 157,124

Term of patent 14 years

Int. Cl. D23—01

U.S. Cl. D23—28



267,188

SPOUT

Bruce R. Thompson, Tranmere, Australia, assignor to UPL Group Limited, Brisbane, Australia

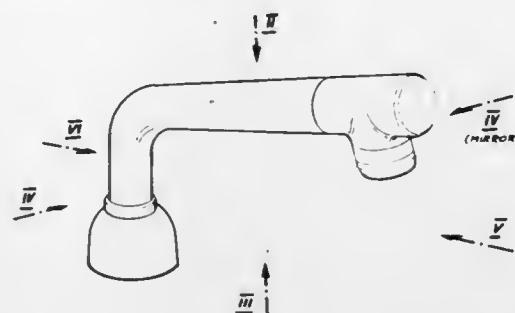
Filed Apr. 20, 1981, Ser. No. 255,533

Claims priority, application Australia, Nov. 20, 1980, 82662

Term of patent 14 years

Int. Cl. D23—01

U.S. Cl. D23—32



267,189

SPOUT

Bruce R. Thompson, Tranmere, Australia, assignor to UPL Group Limited, Brisbane, Australia

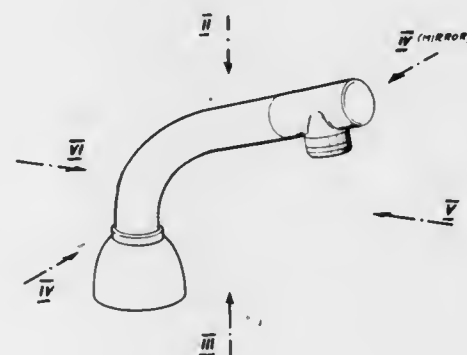
Filed Apr. 20, 1981, Ser. No. 255,537

Claims priority, application Australia, Dec. 4, 1980, 82769

Term of patent 14 years

Int. Cl. D23—01

U.S. Cl. D23—32



267,190

BATHTUB

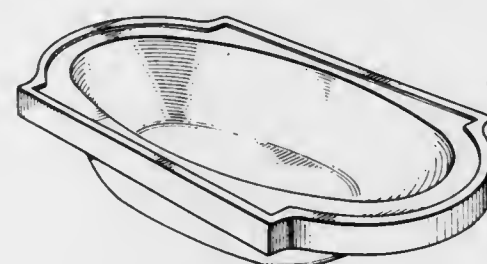
Jeffrey Harrison, Brookhouse, England, assignor to Kallista Baths, Inc., San Francisco, Calif.

Filed Nov. 20, 1980, Ser. No. 208,801

Term of patent 14 years

Int. Cl. D23—02

U.S. Cl. D23—55



267,191

BATHTUB

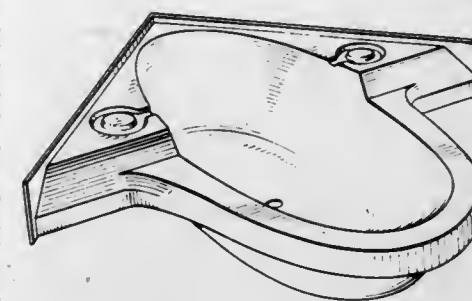
Jeffrey Harrison, Brookhouse, England, assignor to Kallista Baths, Inc., San Francisco, Calif.

Filed Nov. 20, 1980, Ser. No. 208,803

Term of patent 14 years

Int. Cl. D23—02

U.S. Cl. D23—55



267,192

STOVE

Michel D. Vincent, Avenue Saint-Pierre 31 Bis, 7000 Mons, Belgium

Filed May 8, 1981, Ser. No. 261,438

Term of patent 14 years

Int. Cl. D23—03

U.S. Cl. D23—92



267,193

WOOD STOVE

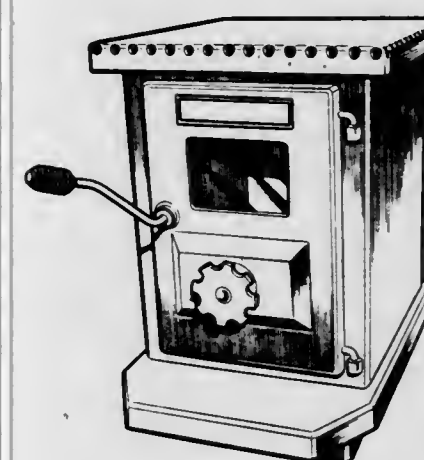
Luigi C. Salce, Quinebaug, Conn., assignor to Woodstocker Heating Corp., Southbridge, Mass.

Filed Dec. 12, 1980, Ser. No. 215,517

Term of patent 14 years

Int. Cl. D23—03

U.S. Cl. D23—97



267,194

DRAFT CONTROL KNOB FOR A WOOD BURNING STOVE OR THE LIKE

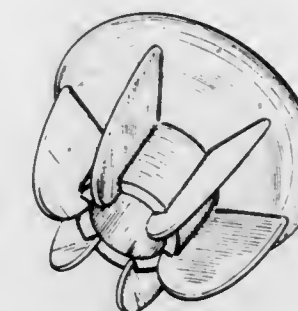
Arthur L. Baker, R.D. #1, Lewisbury, Pa. 17339

Filed Jan. 4, 1980, Ser. No. 109,472

Term of patent 14 years

Int. Cl. D23—03

U.S. Cl. D23—127



267,195

CEILING FAN COVER PLATE

Roy A. Gomes, 419 Latham La., East Williston, N.Y. 11596

Filed Feb. 9, 1981, Ser. No. 233,013

Term of patent 14 years

Int. Cl. D23—04

U.S. Cl. D23—163



267,196

CEILING FAN COVER PLATE

Roy A. Gomes, 419 Latham La., East Williston, N.Y. 11596
Filed Feb. 9, 1981, Ser. No. 233,021

Term of patent 14 years

Int. Cl. D23—04

U.S. Cl. D23—163



267,198

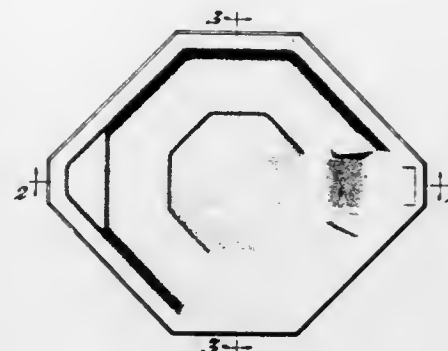
SPA

Rafael Huguet, 3760 NW. 80 St., Miami, Fla. 33147
Filed Aug. 27, 1980, Ser. No. 181,680

Term of patent 14 years

Int. Cl. D24—02; D25—02

U.S. Cl. D24—38



267,197

INTRAOCULAR LENS HAPTIC LOOP

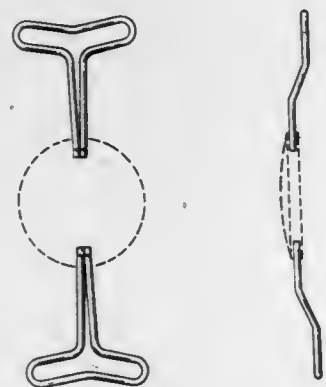
Philip C. Hessburg, 1169 Three Mile Dr., Grosse Pointe Park, Mich. 48230

Filed May 5, 1980, Ser. No. 146,678

Term of patent 14 years

Int. Cl. D24—03

U.S. Cl. D24—33



267,199

VIAL AND SOLUTION CONTAINER CONNECTING DEVICE

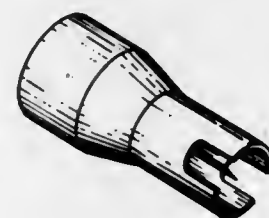
Elmer A. Koenig, Arlington Heights, Ill., assignor to Abbott Laboratories, North Chicago, Ill.

Filed Jul. 17, 1980, Ser. No. 169,562

Term of patent 14 years

Int. Cl. D24—02

U.S. Cl. D24—53



267,200

ELASTIC BANDAGE WITH QUICK-LOCKING FASTENER

Ebbe G. Milding, Mölnlycke, Sweden, assignor to Mölnlycke AB, Goteborg, Sweden

Filed Jul. 12, 1979, Ser. No. 57,117

Term of patent 14 years

Int. Cl. D24—04; D2—02

U.S. Cl. D24—64



267,202

RUNNING LIGHT FOR BOAT TRAILER AND THE LIKE

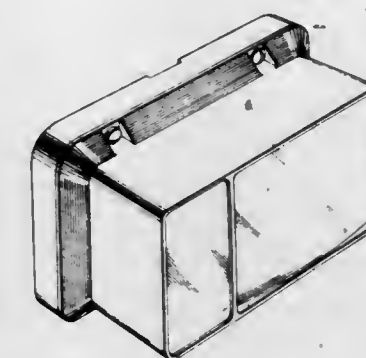
Virgil W. Potts, Harrisonville, Mo., assignor to Peterson Manufacturing Co., Grandview, Mo.

Filed May 2, 1980, Ser. No. 146,190

Term of patent 14 years

Int. Cl. D26—06

U.S. Cl. D26—35



267,203

GIMBAL LAMP

Bruce B. Phillips, Toronto, Canada, assignor to Phillips Lighting Specialists Ltd., Toronto, Canada

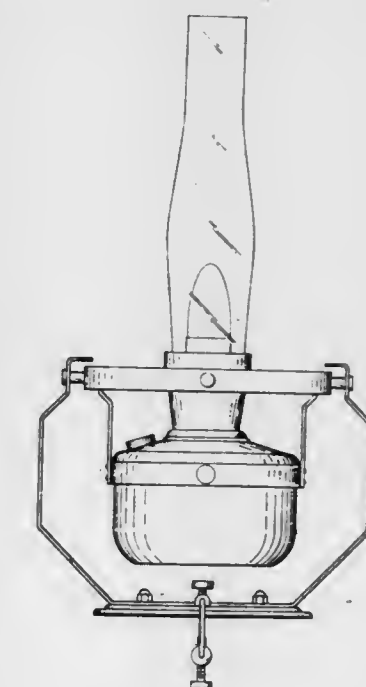
Filed Sep. 28, 1979, Ser. No. 79,805

Claims priority, application Canada, May 2, 1979, 02-05-79-2

Term of patent 14 years

Int. Cl. D26—05

U.S. Cl. D26—60



267,201

BUILDING

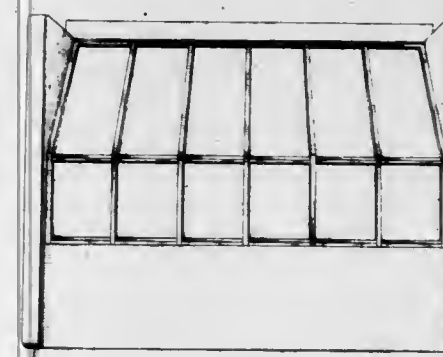
Glenn W. Monigle, Golden, Colo., assignor to The National Bank of Georgia, Atlanta, Ga.

Filed Sep. 22, 1980, Ser. No. 189,263

Term of patent 14 years

Int. Cl. D25—03

U.S. Cl. D25—33



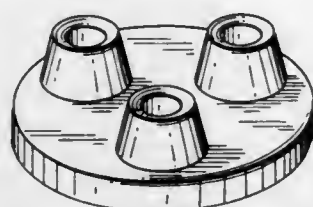
267,204

CIGARETTE EXTINGUISHER

Harry C. Hagman, 6122 Portland Ave., Minneapolis, Minn.
55417

Filed Aug. 22, 1979, Ser. No. 68,574
Term of patent 14 years
Int. Cl. D27-99

U.S. Cl. D27-08



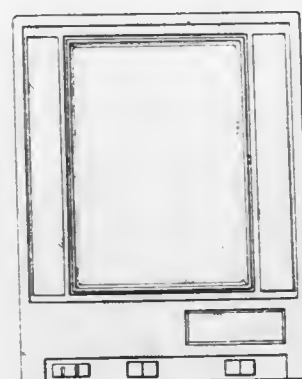
267,205

COMBINED LIGHTED MIRROR AND DIGITAL CLOCK

Ronald Weinhart, Encino, Calif., assignor to Hartman Products,
Hawthorne, Calif.

Filed Sep. 8, 1980, Ser. No. 185,377
Term of patent 14 years
Int. Cl. D28-03

U.S. Cl. D28-67



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 7TH DAY OF DECEMBER, 1982

NOTE.—Arranged in accordance with the first significant character or word of the name
(in accordance with city and telephone directory practice).

- A. H. Robins Company, Inc.: See—
Cale, Albert D., Jr.; and Leonard, Charles A., 4,362,667, Cl. 548-557,000.
- A/S Akers Mek. Verksted: See—
Spink, Ian R., 4,362,438, Cl. 405-195,000.
- A/S Kongsberg Vapenfabrikk: See—
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Igashira, Toshihiko; Yoshida, Hitoshi; Nomura, Ken; and Abe, Seikou, 4,362,142, Cl. 123-549,000.
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Kimura, Hiroshi; Abiko, Kenji; Sato, Takashi; Yoshii, Isamu; Watanabe, Sadao; and Takei, Yutaka, 4,362,581, Cl. 148-31,550.
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Driedger, Klaus U., 4,362,453, Cl. 414-268,000.
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Seino, Junzaburo; Ikeda, Hiroshi; Abo, Washohati; Minami, Iwao; and Fujii, Joji, 4,362,273, Cl. 239-128,000.
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Ross, Robert M.; and Kristof, George M., 4,362,334, Cl. 297-230,000.
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Kerschner, James J., 4,362,428, Cl. 404-64,000.
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Minagawa, Motonobu; and Nakahara, Yutaka, 4,362,830, Cl. 524-101,000.
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Boissiere, Guy, 4,362,518, Cl. 441-60,000.
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Stark, Marvin; and Adler, Franklin P., 4,362,111, Cl. 105-247,000.
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- AEL Microtel, Ltd.: See—
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Montmory, Robert, 4,362,271, Cl. 239-2,000.
- Agency of Industrial Science & Technology: See—
Ikari, Yoshikatsu; Yokoyama, Shiyochiro; Katoh, Keisuke; Itaya, Ryutaro; and Kaga, Toshio, 4,362,571, Cl. 127-55,000.
- Kaneko, Hiroko; and Nozaki, Ken, 4,362,791, Cl. 429-101,000.
- Torigai, Eiichi; Wakabayashi, Noboru; Kawami, Yoji; Kamijo, Eiji; Nishimoto, Tatsuya; and Tani, Katsuhito, 4,362,647, Cl. 252-425,300.
- AGFA-Gevaert Aktiengesellschaft: See—
Stemme, Otto; Wagenonner, Eduard; and von Fischern, Bernhard, 4,362,259, Cl. 226-123,000.
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Yabe, Kenji; Asakura, Masayoshi; Sano, Hiroki; and Aizawa, Masanori, 4,362,775, Cl. 428-213,000.
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- Akita, Shoji: See—
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Mori, Kazumasa; Asahi, Taro; Banzai, Keiichiro; Iwaki, Katsutaro; Muto, Katsuya; Mase, Akira; Minura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, 4,362,983, Cl. 322-28,000.
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Blomberg, Peter E.; Boren, Karl G.; and Ostergren, Axel H., 4,362,029, Cl. 62-497,000.
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- Akzona, Inc.: See—
Hof, Craig R.; and Ulin, Roy A., 4,362,645, Cl. 252-408,100.
- Ohnishi, Tatsuo; Uemura, Takeshi; and Nakajima, Teruo, 4,362,078, Cl. 83-862,000.
- Rice, Charles M., 4,362,009, Cl. 57-86,000.
- Alafandi, Hamid: See—
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- Alco Standard Corporation: See—
Luebke, Clement J.; and Daniels, Lowell W., 4,362,148, Cl. 126-369,000.
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- Allied Corporation: See—
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- Allis-Chalmers Corporation: See—
Hanaway, Roger D.; James, Larry R.; and Busboom, Garry W., 4,362,005, Cl. 56-14.600.
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Dimiceli, Michael A., 4,363,084, Cl. 362-250.000.
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Hawkins, Ronald G.; and DeHart, Dwain L., 4,362,352, Cl. 339-248.00S.
- Amano, Matsuo; Imai, Masumi; Sugawara, Toru; Sakamoto, Shinichi; Miki, Masayuki; and Sasayama, Takao, to Hitachi, Ltd. Electronic type engine control method. 4,363,097, Cl. 364-431.110.
- Amarge, Edmond: See—
Perraudin, Claude; Amarge, Edmond; Guiho, Jean P.; Horiot, Jean C.; Taniel, Gerard; Viel, Georges; and Brethon, Jean P., 4,362,947, Cl. 378-150.000.
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- Amaya, Nestor R.: See—
Stumpp, Gerhard; Eblen, Ewald; Hofmann, Karl; Kopse, Odon; Amaya, Nestor R.; Schlagenhaut, Josef; and Locher, Johannes, 4,362,050, Cl. 73-119.00A.
- American Can Company: See—
Kuchenbecker, Morris W., 4,362,245, Cl. 206-621.000.
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- American Cyanamid Company: See—
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- American Dental Association Health Foundation, The: See—
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Lyons, Michael D., 4,362,516, Cl. 440-85.000.
- Parkison, Richard G.; Fischer, Armin O.; and Kaussner, John C., 4,362,186, Cl. 137-625.170.
- AMF Incorporated: See—
Rose, John A.; and Dyer, Keith, 4,362,115, Cl. 112-262.300.
- Unger, Robert P., 4,363,016, Cl. 337-56.000.
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- Amick, James A., to Exxon Research & Engineering Co. Method of making solar cell with wrap-around electrode. 4,361,950, Cl. 29-572.000.
- Amiot, Jacques H. J., to Moulinex, Societe Anonyme. Domestic electrical food processing appliance. 4,362,277, Cl. 241-37.500.
- AMP Incorporated: See—
Cobaugh, Robert F.; and Graeff, Norwood C., 4,362,353, Cl. 339-258.00P.
- Grabbe, Dimitry G., 4,362,902, Cl. 174-52.00P.
- Williams, Russell H.; and Meeham, Robert F., 4,362,356, Cl. 350-96.200.
- Amstar Corporation: See—
Chen, Andy C. C.; Lang, Clifford E., Jr.; Graham, Charles P.; and Rizzutto, Anthony B., 4,362,757, Cl. 426-599.000.
- Anan, Hiromichi: See—
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- Anel Products, Inc.: See—
Meade, Albert J., 4,362,289, Cl. 248-656.000.
- Ancos Co., Ltd.: See—
Hashimoto, Yasuyuki, 4,362,410, Cl. 401-67.000.
- Anderson, Arthur E.: See—
Vaerewyck, Eugene G.; and Anderson, Arthur E., 4,363,061, Cl. 361-31.000.
- Anderson, Gerald: See—
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- Anderson, Leroy E., to Standex International Corporation. Air make-up unit. 4,362,922, Cl. 219-369.000.
- Anderson, Ralph L., to Scott Paper Company. Flushable premoistened wiper. 4,362,781, Cl. 428-291.000.
- Anderson, Bengt; and Tanner, Olof, to KemaNord AB. Foam composite material impregnated with resin. 4,362,778, Cl. 428-240.000.
- Andersson, John O.: See—
Eriksson, Torsten L.; Andersson, John O.; and Nystrom, Olle, 4,362,500, Cl. 431-352.000.
- Andrews, M.ritt B., to United Technologies Corp. Centrifugal fuel pump with automatically switched jet injection. 4,362,474, Cl. 417-80.000.
- Andrieu, Louis; Bernard, Jean; Beyl, Jean; LeFaou, Daniel; Peyre, Henri; and Veniat, Jacky, to Look, S.A. Toe abutment member for a ski binding. 4,362,313, Cl. 280-628.000.
- Anetseder, Leopold: See—
Ellerstorfer, Herbert; and Anetseder, Leopold, 4,362,126, Cl. 119-1.000.
- Anjyu, Shinji: See—
Ohtsuki, Tadashi; Kazami, Shinichi; Anjyu, Shinji; and Tanaka, Masato, 4,363,049, Cl. 360-13.000.
- Anstey, Nigel A.: See—
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- Aoshima, Terutaka, to Tokyo Shibaura Denki Kabushiki Kaisha. Rice cooker. 4,362,923, Cl. 219-441.000.
- Aotsuka, Yasuo: See—
Mihara, Yuji; Ikeda, Tadashi; Takei, Haruo; Okazaki, Masaki; and Aotsuka, Yasuo, 4,362,813, Cl. 430-550.000.
- Appleton Electric Company: See—
Bolante, Jay J., 4,362,284, Cl. 248-205.00R.
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- Arai, Yasuyuki: See—
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Reiling, Walter S.; Tsui, Kwok W.; and Yuen, Johnny S. C., 4,361,981, Cl. 46-228.000.
- Arends, Harm J.: See—
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- Argentar, Harold: See—
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- Arima, Sumito: See—
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- Ark-Les Corporation: See—
Boebel, Theodore D.; Walkup, William B.; and Mitchell, Edward B., 4,362,910, Cl. 200-5.0EA.
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- Armbrust, William D., to Kennametal Inc. Floating boring bar cartridge. 4,362,445, Cl. 408-182.000.
- Armstrong, Alfred, to Crathco, Inc. Multi-bowl beverage dispensers. 4,362,028, Cl. 62-390.000.
- Armstrong, Peter R., to Electric Power Research Institute, Inc. Heat measuring apparatus and method for use in a continuous fluid stream. 4,362,404, Cl. 374-39.000.
- Armstrong World Industries, Inc.: See—
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- Arnaud, Ronald L. Storage container and method of making same. 4,361,947, Cl. 29-416.000.
- Arsac, Andre, to Rhone-Poulenc-Textile. Process of silvering articles having a base of polyamides. 4,362,779, Cl. 428-263.000.
- Arthur, Lawrence E. Karate protective equipment. 4,361,912, Cl. 2-18.000.
- ASA S.A.: See—
Crouzet, Henri, 4,362,010, Cl. 57-279.000.
- Asahi Glass Company, Ltd.: See—
Yamabe, Masaaki; Munkata, Seiji; and Samejima, Shunichi, 4,362,672, Cl. 260-544.00F.
- Asahi Kogaku Kogyo Kabushiki Kaisha: See—
Ishii, Haruo, 4,362,374, Cl. 354-242.000.
- Asahi, Taro: See—
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- Asakura, Masayoshi: See—
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- Asberg, Sture L., to SKF Nova AB. Device for proving a friction joint. 4,362,411, Cl. 403-5.000.
- Asdigian, George, to UOP Inc. Mercaptan extraction process with recycled alkaline solution. 4,362,614, Cl. 208-235.000.
- Ashida, Shigeki: See—
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- Astech: See—
Fage, Etienne, 4,362,015, Cl. 60-226.00A.
- Ateliers des Charmilles S.A.: See—
Frei, Charles, 4,362,989, Cl. 324-71.0CP.
- Atlantic Building Systems, Inc.: See—
Ellison, Burlan E.; Spranca, Harry P.; and Hooper, Christopher C., 4,361,998, Cl. 52-520.000.
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- Automation Industries, Inc.: See—
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- Automotive Environmental Systems, Inc.: See—
Story, Gene F.; and La Belle, John T., 4,362,924, Cl. 219-497.000.
- Autzen, Horst: See—
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- Axinte, Gavril: See—
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- B. L. Downey Company, Inc.: See—
Downey, Bernard L., 4,362,128, Cl. 119-28.000.
- Babcock, Frank H., III: See—
Wren, Fred H., Jr.; and Babcock, Frank H., III, 4,361,970, Cl. 36-106.000.
- Babenko, Evgeny A.: See—
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- Badische Corporation: See—
Berg, Gerald A.; Buchert, Hermann; Duffy, Steve R.; Harder, Richard E.; Higgs, E. R.; Hoblit, Louis D.; Ryffel, James R.; Smith, Walter P.; and Stenzel, Edwin L., 4,362,682, Cl. 264-143.000.
- Baggaley, Keith H.: See—
Hindley, Richard M.; and Baggaley, Keith H., 4,362,892, Cl. 564-374.000.
- Bahnsen, Heiner; and Rumpf, Dietrich, to Siemens Aktiengesellschaft. Device for cooling freshly-soldered circuit boards. 4,361,967, Cl. 34-151.000.
- Bahr, Dietrich J.; Briska, Marian; and Schackert, Klaus, to International Business Machines Corporation. Process for producing a polymerized, heat-resistant lacquer. 4,362,843, Cl. 525-54.230.
- Bailey, Alan C.; and Miller, Stephen B., to Corning Glass Works. Support member for an optical waveguide preform. 4,362,545, Cl. 65-169.000.
- Bailey, William D.: See—
Brandon, William A., Jr.; and Bailey, William D., 4,362,774, Cl. 428-159.000.
- Baisch, Herbert: See—
Ferdinand, Irwin J.; Sylvan, Richard; and Baisch, Herbert, 4,362,196, Cl. 144-286.00R.
- Baker, Bernard S.: See—
Maru, Hansraj C.; and Baker, Bernard S., 4,362,788, Cl. 429-13.000.
- Baker, Hugh W. B.; Packham, Charles C.; and Welsh, Norman C., to Gillette Company, The. Toothbrushes. 4,362,174, Cl. 132-84.00R.
- Baldwin-Gegenheimer Corporation: See—
MacPhee, John; and Barton, William W., 4,362,179, Cl. 137-3.000.
- Baltz, Richard H.: See—
Hamil, Robert L.; Huff, Gerald L.; Baltz, Richard H.; and Seno, Eugene T., 4,362,881, Cl. 549-271.000.
- Balzars Aktiengesellschaft: See—
Schadler, Walter, 4,362,125, Cl. 118-712.000.
- Banfi, Jozsef; Lontay, Zoltan; Vadas, Zoltan; and Wenzel, Bela, to Energiagazdalkodasi Intezet. Steam generator using waste heat from glass furnace. 4,362,129, Cl. 122-7.00R.
- Bange, Joseph B., to Western States Machine Company, The. Continuous centrifugal machine. 4,362,619, Cl. 210-360.100.
- Banzai, Keiichiro: See—
Mori, Kazumasa; Asahi, Taro; Banzai, Keiichiro; Iwaki, Katsutaro; Muto, Katsuya; Mase, Akira; Minura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, 4,362,983, Cl. 322-28.000.
- Baratti, Mario, to Samar, Import and Export, Inc. Replacement starting motor assembly. 4,362,065, Cl. 74-7.00A.
- Barber, Gerald L. Speed bump. 4,362,424, Cl. 404-6.000.
- Barbier, William J., to Sporlan Valve Company. Refrigeration control system for modulating electrically-operated expansion valves. 4,362,027, Cl. 62-197.000.
- Barrett, Gary L., to GSE, Inc. Apparatus for measuring parking brake activating forces. 4,362,053, Cl. 73-121.000.
- Barry, Leonard D. Rotary loader and storage system. 4,362,456, Cl. 414-334.000.
- Barta, Kent S. Meat carcass sanitizing process. 4,362,753, Cl. 426-332.000.
- Barthel, Robert G.; and Rubio-Medina, Oscar, to Siemens-Allis, Inc. Electric motor rotor with fitted vent spacers. 4,362,959, Cl. 310-64.000.
- Bartlett, Keith G.: See—
Chen, Mung; Trutna, William R., Jr.; Watts, Michael P. C.; Bartlett, Keith G.; and Hillis, Gary, 4,362,809, Cl. 430-312.000.
- Barton, William W.: See—
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- BASF Aktiengesellschaft: See—
Grabhoefer, Herbert; and Weyland, Peter, 4,362,825, Cl. 521-172.000.
- Ohlinger, Manfred; Reichert, Hans; Vaeth, Guenter; Faulhaber, Friedrich R.; Autzen, Horst; Rudolf, Peter; and Werther, Joachim, 4,362,708, Cl. 423-634.000.
- Steiner, Gerd; Teschendorf, Hans-Juergen; Kreiskott, Horst; and Hofmann, Hans P., 4,362,727, Cl. 424-248.510.
- BASF Wyandotte Corporation: See—
Davis, Paul; and Wilson, Joe C., 4,362,644, Cl. 252-389.00R.
- Bassett, James H.: See—
Hengen, Edward J.; and Bassett, James H., 4,362,168, Cl. 130-27.00H.
- Bast, Bernard J., to Bethlehem Steel Corporation. Expandable mandrel apparatus for manufacturing smooth-lined corrugated pipe. 4,362,489, Cl. 425-127.000.
- Baston, Eric W., to Coventry Climax Limited. Industrial truck. 4,362,220, Cl. 180-68.500.
- Battelle Memorial Institute: See—
Bechet, Louis, 4,363,023, Cl. 340-146.35Y.
- Baudin, Pol; Collignon, Pierre; and Gillicaux, Claude, to BFG Glass-group. Process of forming a multi-ply laminate. 4,362,587, Cl. 156-87.000.
- Baumert, Jurgen: See—
Jupe, Christoph; Waldmann, Helmut; Baumert, Jurgen; and Schummer, Gunther, 4,362,846, Cl. 203-75.000.
- Bay, Wilhelm: See—
Imhoff, Lothar; Hoppe, Walter; and Bay, Wilhelm, 4,361,973, Cl. 37-58.000.
- Bayer Aktiengesellschaft: See—
Dhein, Rolf; Hentschel, Karl-Heinz; Nutzel, Karl; Morche, Klaus; and Schule, Wolfgang, 4,362,635, Cl. 252-56.00S.
- Idel, Karsten; Freitag, Dieter; Bottenbruch, Ludwig; and Merten, Josef, 4,362,864, Cl. 528-388.000.
- Jupe, Christoph; Waldmann, Helmut; Baumert, Jurgen; and Schummer, Gunther, 4,362,604, Cl. 203-75.000.
- Kalk, Walter; Schundehutte, Karl H.; and Soll, Manfred, 4,362,874, Cl. 544-317.000.
- Korber, Helmut; Tacke, Peter; Fahnler, Friedrich; Neuray, Dieter; and Heydenreich, Frieder, 4,362,846, Cl. 525-66.000.
- Bayer, Franz: See—
Cordella, Johannes; Bayer, Franz; and Felbermayer, Erich, 4,362,206, Cl. 164-448.000.
- Bayrak, Unal: See—
Adolph, Erich; Bayrak, Unal; Prohl, Robert; and Stecker, Walter, 4,362,914, Cl. 200-144.00B.
- Beard, Harold. Waste water clarifier. 4,362,625, Cl. 210-521.000.
- Beaudoin, John F.: See—
Stelling, Walter R., Jr.; Cummins, William A.; and Beaudoin, John F., 4,362,098, Cl. 101-219.000.
- Bechet, Louis, to Battelle Memorial Institute. Electromagnetic device for measuring the speed of handwriting. 4,363,023, Cl. 340-146.35Y.
- Beck, Martin H.: See—
Harry, Ieuan L.; Krishnakumar, Suppayan M.; Jolly, Walter R.; Beck, Martin H.; and Pocock, John F. E., 4,362,498, Cl. 425-526.000.
- Becker, Wayne A.: See—
Sen Gupta, Sisir K.; and Becker, Wayne A., 4,362,116, Cl. 112-265.200.
- Beecham Group Limited: See—
Hindley, Richard M.; and Baggaley, Keith H., 4,362,892, Cl. 564-374.000.
- Rogers, Norman H.; O'Hanlon, Peter J.; and Walker, Graham, 4,362,743, Cl. 424-283.000.
- Veal, Kenneth T.; and Grinter, Trevor J., 4,362,880, Cl. 549-79.000.
- BEI Electronics, Inc.: See—
Hafle, Ralph S., 4,362,358, Cl. 350-96.160.
- Belart, Juan, to ITT Industries, Inc. Hydraulic brake system with an antiskid control apparatus. 4,362,339, Cl. 303-117.000.
- Belfort, Gerard L. A., to P C U K Produits Chimiques Uguine Kuhlmann. Process for the preparation of basic oxazine dyestuffs. 4,362,873, Cl. 544-103.000.
- Bell & Howell Company: See—
Stefansson, Rafn; and McManaman, Raymond M., 4,362,298, Cl. 271-236.000.
- Bell, Michael: See—
Laube, Dennis; Hausch, Daniel E.; and Bell, Michael, 4,362,329, Cl. 296-26.000.
- Bell, Roland G., to Taylor, Thomas Lee. Torch tip rebuilding tool. 4,362,446, Cl. 408-211.000.
- Bell Telephone Laboratories, Incorporated: See—
Fraser, David B.; Kinsbron, Eliezer; and Vratny, Frederick, 4,362,597, Cl. 156-643.000.
- Holmgren, John E.; Rosenberg, Aaron E.; and Upton, John W., 4,363,102, Cl. 364-513.000.
- Presby, Herman M., 4,362,943, Cl. 250-459.100.
- Belles, Benjamin P., to Standard Oil Company (Indiana). Method for continuous soluble polypropylene recovery from hydrocarbon polymerization media. 4,362,865, Cl. 528-500.000.
- Belsky, Arkady A.: See—
Abrutin, Vladimir N.; Ezhkov, Vyacheslav P.; Ivanova, Raisa V.; Kalashnik, Oleg N.; Kirichenko, Vyacheslav A.; Peredereev, Alexandr V.; Pukhov, Jury G.; Belsky, Arkady A.; Kozhemyakin, Vladimir V.; and Masjuk, Galina E., 4,362,560, Cl. 75-63.000.
- Bendix Corporation, The: See—
Gallusser, David O.; Hemmer, Valentine J.; and Toombs, Gary C., 4,362,349, Cl. 339-89.00M.
- Runkle, Dean E., 4,362,086, Cl. 91-391.00R.
- Bentzen-Bilkvist, Ib; and Jacobson, Wayne M., to Dundee Cement Company; and Cyclonaire Corporation. Venturi barge unloading system. 4,362,442, Cl. 406-109.000.
- Benveniste, Albert: See—
Richard, Christian; Kretz, Francis; and Benveniste, Albert, 4,363,103, Cl. 364-515.000.

Berens, George; Padovani, Frank L.; and Timony, Peter E., to Stauffer Chemical Company. Metal working lubricant and lubricant emulsion. 4,362,634, Cl. 252-49.500.

Berg, Gerald A.; Buchert, Hermann; Duffy, Steve R.; Harder, Richard E.; Higgs, E. R.; Hoblit, Louis D.; Ryffel, James R.; Smith, Walter P.; and Stenzel, Edwin L., to Badische Corporation. Chip-free staple fiber process. 4,362,682, Cl. 264-143.000.

Berglund, Sidney J.; and Matthews, Gary B., to Minnesota Mining and Manufacturing Company. Modular connector and protector. 4,362,347, Cl. 339-14.00R.

Bergman, Per G. Dismountable wheel-chair. 4,362,311, Cl. 280-242.0WC.

Bergwerksverband GmbH: See—
Glaesmann, Otto-Ernst; Meyer, Frank; and Marsch, Walter, 4,362,440, Cl. 405-269.000.

Bernard, Jean: See—
Andrieu, Louis; Bernard, Jean; Beyl, Jean; LeFaou, Daniel; Peyre, Henri; and Veniat, Jacky, 4,362,313, Cl. 280-628.000.

Bertone, Antonino; and Vannini, Paolo, to Centro Ricerche Fiat S.p.A. Motor vehicle hydraulic system. 4,362,019, Cl. 60-547.00A.

Bessay, Raymond: See—
Riollet, Gilbert; and Bessay, Raymond, 4,362,465, Cl. 415-144.000.

Bethlehem Steel Corporation: See—
Bast, Bernard J., 4,362,489, Cl. 425-127.000.
Egan, Walter D.; Boos, Roger T.; Byer, Robert L.; and DeFreez, Richard K., 4,362,388, Cl. 356-341.000.

Better Methods, Inc.: See—
Matkan, Josef; and Wright, Robert J., 4,362,764, Cl. 427-14.100.

Beyl, Jean: See—
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BFG Glassgroup: See—
Baudin, Pol; Collignon, Pierre; and Gilliaux, Claude, 4,362,587, Cl. 156-87.000.

Bharucha, Kekhusroo R.; Tin, Kam C.; Ajdukovic, Iva; and Ajdukovic, Djordje, to Canada Packers Inc.; and Institute of Microbiology and Hygiene of the University of Montreal, The. Antiviral 1,2,3,4-tetrahydro-1,4-methanonaphthalene derivatives. 4,362,746, Cl. 424-330.000.

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Bock, Thomas; Bhatia, Chandrakant; and Toman, George M., 4,362,113, Cl. 112-199.000.

Bieber, Gerold: See—
Boss, Franz; Bieber, Gerold; and Schachmann, Karlheinz, 4,362,017, Cl. 60-337.000.

Bier, Milan, to University Patents, Inc. Isoelectric focusing apparatus. 4,362,612, Cl. 204-301.000.

Biles, Don L.; and Richardson, A. Alan, to Silver Systems, Ltd. Silver recovery method. 4,362,608, Cl. 204-109.000.

Billings, William W.; Mitchell, James T.; and Luebrecht, Richard E., to United States of America, Navy. Overcurrent protection system. 4,363,064, Cl. 361-57.000.

Bings, Hubert: See—
Kruger, Jorg; Thome, Roland; Moritz, Dieter; Bings, Hubert; and Losert, Herbert, 4,362,701, Cl. 422-194.000.

Binninger, Robert E.: See—
Malcolm, Bruce G.; and Binninger, Robert E., 4,363,009, Cl. 333-177.000.

Bio Research, Inc.: See—
Verlander, Michael S.; Fuller, William D.; and Goodman, Murray, 4,362,699, Cl. 422-131.000.

Bird, Kenneth I. W.; and Thomas, Evan S., to United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Majesty's Government of the. Safety fuel admixture apparatus. 4,362,534, Cl. 44-62.000.

Bischoff, Robert F.: See—
Bushor, Ray E.; and Bischoff, Robert F., 4,362,342, Cl. 308-36.100.

Bishop, Martin T., to Westinghouse Electric Corp. Protective relay. 4,363,066, Cl. 361-85.000.

Bitthn, Rainer; Wagner, Armin; Randin, Jean-Paul; and Rosselet, Jean-Daniel, to Varta Batterie Aktiengesellschaft. Galvanic cell with solid electrolyte. 4,362,793, Cl. 429-191.000.

BJ-Hughes Inc.: See—
McFadden, Edward J., 4,361,940, Cl. 24-263.0DA.

Bjorkqvist, Lars-Goran: See—
Rastias, Jussi K.; Nyberg, Jens R.; Karpale, Kauko J.; and Bjorkqvist, Lars-Goran, 4,362,702, Cl. 423-41.000.

Black, David H. A.; Joyce, Robert H.; Daaboul, Fouad; and Le Van, Tiu, to Northern Telecom Limited. Mitigation of noise signal contrast in a digital speech interpolation transmission system. 4,363,122, Cl. 370-81.000.

Black & Decker Inc.: See—
Jenkins, Danny R., 4,361,929, Cl. 15-355.000.

Blanchard, Clarence E., to Outboard Marine Corporation. High performance stern drive unit. 4,362,514, Cl. 440-61.000.

Blanchard, Stanley J.: See—
Pollard, Brian W.; Perzley, William; and Blanchard, Stanley J., 4,362,978, Cl. 118-568.000.

Blanchart, Alain P. O.; Van Bogaert, Gilbert J. L.; De Brandt, Constantine W. M. V. A.; and Spaepen, Gustaaf J. F., to Electrochemische Energieconversie, N.V. Porous electrode. 4,362,790, Cl. 429-42.000.

Blazzo, Eva: See—
Schneider, Gernot; Trinkler, Werner; Halder, Mathis; Blazzo, Eva; de Vries, Jacob; Schurmann, Konrad; and Muntwyler, Hans, 4,362,990, Cl. 324-117.00R.

Bleuel, Walter: See—
Kallinke, Manfred; Bleuel, Walter; Hoehn, Wolfgang; and Heinrich, Kurt, 4,362,402, Cl. 368-317.000.

Blinman, Daryl J., to Minister for Public Works for the State of New South Wales. Cashmere combing machine. 4,362,173, Cl. 132-9.000.

Blok, Gerard A. E.: See—
Lodder, Bernhard; van Dongeren, Jan P.; and Blok, Gerard A. E., 4,362,323, Cl. 285-4.000.

Blomberg, Peter E.; Boren, Karl G.; and Ostergren, Axel H., to Aktiebolaget Electrolux. Absorption refrigerator boiler construction. 4,362,029, Cl. 62-497.000.

Blotenberg, Wilfried, to M.A.N. Unternehmensbereich G.H.H. Sterk-rade. Method of intermediate cooling of compressed gases. 4,362,462, Cl. 415-1.000.

Board of Regents, University of Texas Systems: See—
Almond, Peter R., 4,362,940, Cl. 250-374.000.

Bocard, Christian; and Lemesre, Maurice, to Institut Francais du Petrole; and Societe Anonyme Cousin Freres. Special trawl net for collecting floating products. 4,362,631, Cl. 210-776.000.

Bock, Mark G.; Cragoe, Edward J., Jr.; and Smith, Robert L., to Merck & Co., Inc. Method of treating edema and hypertension and pharmaceutical composition therefor in which the active ingredient comprises a novel substituted pyrazinyl-1,2,4-oxadiazole and a kaliuretic diuretic. 4,362,724, Cl. 424-246.000.

Bock, Thomas; Bhatia, Chandrakant; and Toman, George M., to Union Special Corporation. Mechanism generating helical/elliptical motion. 4,362,113, Cl. 112-199.000.

Boebel, Theodore D.; Walkup, William B.; and Mitchell, Edward B., to Ark-Les Corporation. Electrical switch. 4,362,910, Cl. 200-5.0EA.

Boehnlein, Bernard M., Sr.: See—
Frye, Robert S.; and Boehnlein, Bernard M., Sr., 4,362,178, Cl. 134-83.000.

Boeing Company, The: See—
Buus, Henning; MacFie, Thomas D.; and Justad, Odd, 4,363,098, Cl. 364-434.000.
Hause, Leroy R.; and Tsuchida, Dean Y., 4,361,963, Cl. 33-143.00L.
Skog, Jack E., 4,362,595, Cl. 156-626.000.

Boissiere, Guy, to Adidas Fabrique de Chausseurs de Sport. Combined kick board and arm stroke swimming practice device. 4,362,518, Cl. 441-60.000.

Bokelman, Gordon H.: See—
Keritsis, Gus D.; Bokelman, Gordon H.; and Gooden, Dewitt T., III, 4,362,170, Cl. 131-309.000.

Bolante, Jay J., to Appleton Electric Company. Fastener for attaching electrical boxes to steel studs. 4,362,284, Cl. 248-205.00R.

Bolin, Donald E., to Scott & Fetzer Company, The. Electronically regulated electromechanical appliance control. 4,362,953, Cl. 307-141.000.

Bolldorf, Kurt, to Pfaff Industriemaschinen GmbH. Table top embroidery machine having a plurality of embroidering units and to an adjustable table top therefor. 4,362,114, Cl. 112-217.200.

Bollhoff & Co.: See—
Kobusch, Klaus, 4,361,943, Cl. 29-240.000.

Bollmann, Klaus; Freygang, Hans-Joachim; Moeller, Jurgen; and Weniger, Manfred, to Siemens Aktiengesellschaft. Inductive voltage transformer and circuit therefor. 4,363,062, Cl. 361-35.000.

Bolssens, Frans P. J.; Franck, Guy C. J. L. G. G. M.; and Dehertefelt, Henri, to International Standard Electric Corporation. Valve and wire cutting, skinning and wrapping tool employing the valve. 4,361,941, Cl. 29-33.00M.

Bolt, Gary L.: See—
Leep, Gus W.; and Bolt, Gary L., 4,362,838, Cl. 524-444.000.

Boltswitch, Inc.: See—
Erickson, John W., 4,363,063, Cl. 361-48.000.

Bond, Curtis J., to Liqui-Box Corporation. Barrier spout and cap for flexible bags or pouches. 4,362,255, Cl. 222-107.000.

Bonin, John H.: See—
Meyer, John W.; Daniel, Arnold D., Jr.; and Bonin, John H., 4,362,441, Cl. 406-14.000.

Boos, Roger T.: See—
Egan, Walter D.; Boos, Roger T.; Byer, Robert L.; and DeFreez, Richard K., 4,362,388, Cl. 356-341.000.

Bocsalis, Nicholas T.; and Sherman, George E., to Sherman-Bocsalis Corporation. Closures for fluid sample cups. 4,362,698, Cl. 422-102.000.

Bopp & Reuther GmbH: See—
Richter, Herbert; and Schaaf, Karl, 4,362,183, Cl. 137-489.000.

Borden, Inc.: See—
Williams, Alexander W., 4,362,756, Cl. 426-587.000.

Boren, Karl G.: See—
Blomberg, Peter E.; Boren, Karl G.; and Ostergren, Axel H., 4,362,029, Cl. 62-497.000.

Borg-Warner Corporation: See—
Venema, Harry J., 4,363,020, Cl. 340-58.000.

Borrill, Paul L., to University College London. Printed circuit board. 4,362,899, Cl. 174-36.000.

Bosnak, John J., to Whelen Engineering Company, Inc. Electronic siren. 4,363,028, Cl. 340-384.00E.

Boss, Franz; Bieber, Gerold; and Schachmann, Karlheinz, to Zahnrad-fabrik Friedrichshafen AG. Hydraulic torque converter. 4,362,017, Cl. 60-337.000.

Bosserman, David A., to United States of America, Army. Infrared viewing system. 4,362,938, Cl. 250-332.000.

Bosuego, Gail P.: See—
Partridge, Jerry A.; and Bosuego, Gail P., 4,362,660, Cl. 252-631.000.

Bottenbruch, Ludwig: See—
Idel, Karsten; Freitag, Dieter; Bottenbruch, Ludwig; and Merten, Josef, 4,362,864, Cl. 528-388.000.

Bouchaudon, Jean; Farge, Daniel; and James, Claude, to Rhone-Poulenc Industries. Dipeptides, their preparation and compositions containing them. 4,362,716, Cl. 424-177.000.

Boucaut, Frantz M. J., to Valton S.A. Weaving loom for providing a ladderfree woven fabric. 4,362,082, Cl. 87-24.000.

Bouffechoux, Lucien, to Essilor International (Compagnie Generale d'Optique). Instrument stand. 4,362,283, Cl. 248-183.000.

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- Campbell, Charles M.: See—
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- Campbell, Frank, Jr., to Fulbright & Jaworski. Single location insulator locking device. 4,362,506, Cl. 432-234.000.
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- Watanabe, Yoshitaka; and Iwashita, Tomonori, 4,362,371, Cl. 354-173.000.
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- Melocik, Kurt B.; and Earley, Robert W., 4,362,089, Cl. 91-461.000.
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- Champion International Corporation: See—
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- Webinger, George P., 4,362,266, Cl. 229-33.000.
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- Chaput, Dale T.: See—
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- Chembioned Ltd.: See—
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- Chemed Corporation: See—
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- Cheshier, Donald G.: See—
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- Choinski, Edward J., to Polaroid Corporation. Fluid dispensing system. 4,362,122, Cl. 118-600.000.

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- Ciba-Geigy Corporation: See—
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- Clark, Roy, to Rockwell International Corporation. Method and apparatus for measuring visibility from the polarization properties of the daylight sky. 4,362,387, Cl. 356-338.000.
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- Cleveland, Joseph J., to GTE Products Corporation. Ceramic heat recuperative structure and assembly. 4,362,209, Cl. 165-166.000.
- Clinton, James R., to Huntron Instruments, Inc. Apparatus for detecting electrical shorts in electronic circuits. 4,362,987, Cl. 324-52.000.
- Clip Strip Corporation: See—
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- Cobaugh, Robert F.; and Graeff, Norwood C., to AMP Incorporated. Contact clip for connecting a ceramic substrate to a printed circuit board. 4,362,353, Cl. 339-258.00P.
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- Cochran, Thomas E., to Caterpillar Tractor Co. Vibrating apparatus for vibratory compactors. 4,362,431, Cl. 404-117.000.
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- Coffee, Ronald A., to Imperial Chemical Industries Limited. Sprayers. 4,362,275, Cl. 239-700.000.
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- Cohn, Jona; Davidson, Allen L.; and van den Heuvel, Anthony P., to Motorola, Inc. Method and means of minimizing simulcast distortion in a receiver when using a same-frequency repeater. 4,363,129, Cl. 455-17.000.
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- Cox, James P., to Wells, Loyal; and Cox Family Laboratories, Inc., a part interest. Method for forming shaped products for human and/or animal consumption or as marine bait and products produced thereby, 4,362,748, Cl. 426-1.000.
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- Garnham, Edward E., to General Motors Corporation. Sunroof air deflector. 4,362,332, Cl. 296-217.000.
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- Gevers, Vincent M. Method of preparing indexes. 4,362,929, Cl. 235-432.000.
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- Phillips, Martin A., Jr., 4,362,835, Cl. 524-317.000.
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- Green, James R. Friction hold wear bushing. 4,362,210, Cl. 166-85.000.
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- Hanson, Thomas A. Pipe unions. 4,362,043, Cl. 72-354.000.
- Hanssens, Alain: See—
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- Hara, Shigeo: See—
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- Harada, Chosei: See—
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- Harada, Mashahiro: See—
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- Harada, Tatsumi: See—
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- Harasaki, Hayathugu; and Morimoto, Yoshihiro, to Tokyo Kogyo Co., Ltd. Automobile front body construction. 4,362,331, Cl. 296-194.000.
- Hardaker, Edwin J.: See—
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- Harder, Richard E.: See—
Berg, Gerald A.; Buchert, Hermann; Duffy, Steve R.; Harder, Richard E.; Higgs, E. R.; Hoblit, Louis D.; Ryffel, James R.; Smith, Walter P.; and Stenzel, Edwin L., 4,362,682, Cl. 264-143.000.
- Hargreaves, Neil G.: See—
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- Harmstorf, Rudolf, to Hydro-Jet System Establishment. Method and device for embedding cables or the like into an underwater ground. 4,362,436, Cl. 405-161.000.
- Harper, Robert J., Jr., to United States of America, Agriculture. Radiation-resistant fluoroaromatic cellulosic ethers. 4,362,527, Cl. 8-194.000.
- Harris, Allan; and Huff, Lemuel H., to Manville Service Corporation. Spirally-formed thermoplastic tube. 4,362,187, Cl. 138-109.000.
- Harris, Hubert, to Peanut Research & Testing Labs, Inc. Method of producing a slurry from peanuts and crop foods. 4,362,759, Cl. 426-632.000.
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- Harvey, Douglas J., to General Motors Corporation. Method of making tin-base body solder and product. 4,362,576, Cl. 148-2.000.
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- Hasegawa, Katsumi; Kawabata, Takahiro; and Ueda, Hiroshi, to Toray Industries, Inc. Yarn feeding apparatus. 4,362,260, Cl. 226-190.000.
- Hasegawa, Shiro; and Gima, Saneshiro, to Nippon Oil and Fats Co. Ltd. Torque stabilizing method for fasteners and torque stabilized fasteners. 4,362,450, Cl. 411-258.000.
- Hasegawa, Uohiko; Fujii, Yasuo; and Murakami, Tahachi. Interphase unbalance detector for AC load circuit. 4,363,065, Cl. 361-85.000.
- Hashimoto, Norikazu: See—
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- Hashimoto, Yasuyuki, to Ancos Co., Ltd. Mechanical pencil. 4,362,410, Cl. 401-67.000.
- Haskel Engineering & Supply Company: See—
Kelly, John W., 4,362,324, Cl. 285-119.000.
- Haslinger, Martin F.: See—
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- Hassan, Mohamed A.: See—
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- Hauni-Werke Korber & Co., KG: See—
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- Hausch, Daniel E.: See—
Laube, Dennis; Hausch, Daniel E.; and Bell, Michael, 4,362,329, Cl. 296-26.000.
- Hause, Leroy R.; and Tsuchida, Dean Y., to Boeing Company, The. Differential nonmetals thickness gauge. 4,361,963, Cl. 33-143.00L.
- Hauser, Kurt, to Sueddeutsche Kuehlerfabrik Julius Fr. Behr GmbH & Co. K.G. Motor vehicle, especially a truck, with a cooling system for an internal combustion engine. 4,362,208, Cl. 165-51.000.
- Hawkins, Ronald G.; and DeHart, Dwain L., to Aluminum Company of America. Splicing device. 4,362,352, Cl. 339-248.00S.
- Hayakawa, Izumi: See—
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- Hayakawa, Shigeru: See—
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- Hayashi, Tadayoshi; Kajitani, Ikuo; Ueno, Katsusuke; and Noritake, Yutaka, to Honda Giken Kogyo Kabushiki Kaisha. Catalytic converter. 4,362,700, Cl. 422-179.000.
- Hayashi, Tetsuaki: See—
Murayama, Yoshinobu; and Hayashi, Tetsuaki, 4,362,070, Cl. 74-691.000.
- Hayashi, Yoshimasa: See—
Matsumoto, Yasuo; and Hayashi, Yoshimasa, 4,362,341, Cl. 308-26.000.
- Hayes, Gerard F.: See—
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- Heath, Alastair E. F.; Neville, David J.; Cockburn, Barry; and Bussey, Stephen, to Leslie Hartridge Limited. Flowmeter. 4,362,052, Cl. 73-119.00A.
- Hedel, Rudolph H., to RCA Corporation. Workpiece loader. 4,362,236, Cl. 198-446.000.
- Hedlund Manufacturing Co., Inc.: See—
Martin, Mervin G., 4,362,272, Cl. 239-7.000.
- Heightley, John D.; and Eaton, Sargent S., Jr. Dummy cell arrangement for an MOS memory. 4,363,111, Cl. 365-210.000.
- Heinrich, Kurt: See—
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- Heinrich Mack Nachf. Chem-Pharm. Fabrik: See—
Rader, Kurt; and Stoss, Peter, 4,362,730, Cl. 424-256.000.
- Heilmann, Per A., to Byggnadsfysik A & K AB. Arrangement for damping and absorption of sound in rooms. 4,362,222, Cl. 181-30.000.
- Helmac Products Corporation: See—
McKay, Nicholas D., 4,361,923, Cl. 15-104.00A.
- Hemberson, Roland; and Nicaise, Remy, to Solvay & Cie. Process for the treatment of heavy products resulting from the manufacture of chlorohydrocarbons. 4,362,602, Cl. 203-59.000.
- Hemmer, Valentine J.: See—
Gallusser, David O.; Hemmer, Valentine J.; and Toombs, Gary C., 4,362,349, Cl. 339-89.00M.
- Hengen, Edward J.; and Bassett, James H., to Deere & Company. Separator for an axial flow rotary combine. 4,362,168, Cl. 130-27.00H.
- Henkel Kommanditgesellschaft auf Aktien: See—
Hill, Frank F.; Schindler, Joachim; Schmid, Rolf; Preuss, Wolfgang; and Struve, Alfred, 4,362,815, Cl. 435-172.000.
- Schaper, Ulf-Armin; and Bruns, Klaus, 4,362,882, Cl. 549-274.000.
- Hennessee, John W. Lay out square. 4,361,964, Cl. 33-478.000.
- Henry, John T. Apparatus for laying pipe. 4,362,435, Cl. 405-154.000.
- Henry, Ronald A.; and Norris, William P., to United States of America, Navy. 1,9-Diazido-2,4,6,8-tetranitro-2,4,6,8-tetrazanone. 4,362,583, Cl. 149-92.000.
- Hentschel, Karl-Heinz: See—
Dhein, Rolf; Hentschel, Karl-Heinz; Nutz, Karl; Morche, Klaus; and Schule, Wolfgang, 4,362,635, Cl. 252-56.00S.
- Herman, Robert W., to New World Computer Company, Inc. Magnetic transducer suspension device. 4,363,045, Cl. 360-104.000.
- Herrmann, Lothar; and Muller, Helmut, to Kienzle Apparate GmbH. Preselection counter with continuous display and automatic repetition of a preset value. 4,362,927, Cl. 235-132.00R.
- Hertzberg, Elliot P.: See—
Strianse, Sabbat J.; Sherry, Howard S.; and Hertzberg, Elliot P., 4,362,715, Cl. 424-78.000.
- Hewlett-Packard Company: See—
Chen, Mung; Trutna, William R., Jr.; Watts, Michael P. C.; Bartlett, Keith G.; and Hillis, Gary, 4,362,809, Cl. 430-312.000.
- Priebe, Durward H., 4,362,996, Cl. 328-151.000.
- Heydenreich, Frieder: See—
Korber, Helmut; Tacke, Peter; Fahnler, Friedrich; Neuray, Dieter; and Heydenreich, Frieder, 4,362,846, Cl. 525-66.000.
- Hickmann, Horst R.: See—
Koch, Robert C., Jr.; and Hickmann, Horst R., 4,362,118, Cl. 114-201.00R.
- Hicks, James S.; and Massaro, Pasquale. Combination portable chair and container. 4,362,308, Cl. 280-30.000.
- Higashiguthi, Teruaki; and Ishioka, Mithio, to Okamura Oil Mill Limited. Polycarboxylic acid glycidyl esters and process for preparing the same. 4,362,871, Cl. 542-427.000.
- Higgs, E. R.: See—
Berg, Gerald A.; Buchert, Hermann; Duffy, Steve R.; Harder, Richard E.; Higgs, E. R.; Hoblit, Louis D.; Ryffel, James R.; Smith, Walter P.; and Stenzel, Edwin L., 4,362,682, Cl. 264-143.000.
- High, Robert E. Partitioned centrifuge. 4,362,620, Cl. 210-378.000.
- High Voltage Engineering Corporation: See—
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- Higuchi, Hideo: See—
Katahira, Sota; Tsukioka, Hideaki; Sakuma, Yutaka; and Higuchi, Hideo, 4,362,038, Cl. 72-130.000.
- Hill, Frank F.; Schindler, Joachim; Schmid, Rolf; Preuss, Wolfgang; and Struve, Alfred, to Henkel Kommanditgesellschaft auf Aktien. Process for the preparation of defective mutants of microorganisms. 4,362,815, Cl. 435-172.000.
- Hill, Louis F., to Pacific Rim Equipment Corp. Portable log debarking apparatus. 4,362,195, Cl. 144-242.000.
- Hill, Ronald C., to Sandoz Ltd. Myotonolytic use of 4,5,6,7-tetrahydroisoxazolo [5,4-c] pyridin-3-ol and derivatives thereof. 4,362,731, Cl. 424-256.000.
- Hillis, Gary: See—
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- Hiltbrandt, Siegfried, to Richard Wolf GmbH. Endoscopes. 4,362,160, Cl. 128-303.150.
- Hindley, Richard M.; and Baggaley, Keith H., to Beecham Group Limited. Hypolipidaemic compounds. 4,362,892, Cl. 564-374.000.
- Hinterwaldner, Rudolf. One-component hardenable substances stable to storage and activatable by mechanical and/or physical forces and method of producing, activating and applying same. 4,362,566, Cl. 106-85.000.
- Hirai, Minoru: See—
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- Hirata, Noritsugu: See—
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- Hirata, Yoshihisa: See—
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- Hirose, Yoshiyuki. Vibrating bowl feeder. 4,362,455, Cl. 414-306.000.
- Hirota, Mitsuhiro: See—
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- Hirsh Company: See—
Ferdinand, Irwin J.; Sylvan, Richard; and Baisch, Herbert, 4,362,196, Cl. 144-286.00R.
- Hitachi Chemical Co., Ltd.: See—
Konii, Susumu; Sase, Shigeo; Yoshida, Masatoshi; Kuroda, Shoei; and Sumi, Takeshi, 4,362,203, Cl. 164-16.000.
- Hitachi, Ltd.: See—
Amano, Matsuo; Imai, Masumi; Sugawara, Toru; Sakamoto, Shinichi; Miki, Masayuki; and Sasayama, Takao, 4,363,097, Cl. 364-431.110.
- Daikoku, Takahiro; Ikegawa, Masahiro; Nakayama, Wataru; and Ueda, Taisei, 4,363,012, Cl. 336-60.000.
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- Hori, Ryoichi; Kubo, Masaharu; Hashimoto, Norikazu; Nishimatsu, Shigeru; and Itoh, Kiyoo, 4,361,949, Cl. 29-571.000.
- Horiuchi, Shoichi; and Sase, Yoshihiro, 4,362,939, Cl. 250-358.100.
- Ihochi, Takahiko; Tanaka, Masashi; Kojima, Kazuo; and Nakajima, Yutaka, 4,362,400, Cl. 368-255.000.
- Imazumi, Ichiro; Kimura, Masatoshi; and Uehara, Keiji, 4,362,599, Cl. 156-647.000.
- Koizumi, Mitsuhiro; Akiyama, Nobuyuki; and Oshima, Yoshimasa, 4,362,389, Cl. 356-401.000.
- Kuribayashi, Tetsuzo, 4,362,013, Cl. 60-39.020.
- Machida, Yoshihiro; Nakamura, Kenichi; Mifune, Takao; and Sugishima, Masayuki, 4,362,490, Cl. 425-128.000.

- Matsushita, Hajime; and Shimura, Yoshimasa, 4,362,386, Cl. 356-39.000.
- Murata, Toshinori; and Matsuura, Shigeo, 4,363,134, Cl. 455-161.000.
- Nishimura, Keizo; and Kanazawa, Yasunori, 4,363,039, Cl. 360-19.100.
- Okayama, Tsutomu; and Kugaya, Takashi, 4,362,060, Cl. 73-708.000.
- Saito, Cyuichi; Shiraki, Isamu; and Yumino, Hiroshi, 4,362,232, Cl. 198-333.000.
- Sakurai, Soichi; Fukuda, Kyohei; and Takata, Masanobu, 4,362,964, Cl. 313-414.000.
- Sudo, Sumio; Anan, Hiromichi; and Yamada, Masayuki, 4,362,463, Cl. 415-129.000.
- Umeda, Takao; Igawa, Tatsuo; Simazaki, Yuzuru; Miyashita, Takao; and Nakano, Fumio, 4,362,771, Cl. 428-1.000.
- Watanabe, Kazuo; Ienaka, Masanori; Kominami, Yasuo; and Homma, Makoto, 4,362,998, Cl. 329-103.000.
- Hlinsky, Emil J., to MacLean-Fogg Company, Fastener assemblies, 4,362,449, Cl. 411-156.000.
- Hoblit, Louis D.: See—
Berg, Gerald A.; Buchert, Hermann; Duffy, Steve R.; Harder, Richard E.; Higgs, E. R.; Hoblit, Louis D.; Ryffel, James R.; Smith, Walter P.; and Stenzel, Edwin L., 4,362,682, Cl. 264-143.000.
- Hoehn, Wolfgang: See—
Kallinke, Manfred; Bleuel, Walter; Hoehn, Wolfgang; and Heinrich, Kurt, 4,362,402, Cl. 368-317.000.
- Hoeschele, Guenther K., to Du Pont de Nemours, E. I., and Company, Thermoplastic copolyester elastomers modified with salts of aliphatic polycarboxylic acid, 4,362,836, Cl. 524-322.000.
- Hof, Craig R.; and Ulin, Roy A., to Akzona, Inc. Temperature indicating compositions of matter, 4,362,645, Cl. 252-408.100.
- Hofer, Edwin: See—
Ohnmacht, Helmut; and Hofer, Edwin, 4,361,954, Cl. 29-611.000.
- Hoffman, Curtis S.: See—
Franklin, Sidney B.; Garabedian, Arthur; Hoffman, Curtis S.; Huang, Marshall Y.; and Marcum, Robert B., 4,363,138, Cl. 455-226.000.
- Hoffmann-La Roche Inc.: See—
Hunkeler, Walter; and Kyburz, Emilio, 4,362,732, Cl. 424-256.000.
- Hofmann, Dieter; and Wechsung, Reiner, to Leybold-Heraeus GmbH, Apparatus for monitoring and/or controlling plasma processes, 4,362,936, Cl. 250-292.000.
- Hofmann, Hans P.: See—
Steiner, Gerd; Teschendorf, Hans-Juergen; Kreiskott, Horst; and Hofmann, Hans P., 4,362,727, Cl. 424-248.510.
- Hofmann, Karl: See—
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- Hokkaido Soda Co., Ltd.: See—
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- Holland, Varnum S., to Texas Instruments Incorporated, Circuit to correct non-linear terms in bandgap voltage references, 4,362,984, Cl. 323-313.000.
- Hollandsche Beton Groep N.V.: See—
Jansz, Joost W., 4,362,216, Cl. 173-131.000.
- Holmes, Ruth A.: See—
Elger, Gerald W.; and Holmes, Ruth A., 4,362,557, Cl. 75-24.000.
- Holmgren, John E.; Rosenberg, Aaron E.; and Upton, John W., to Bell Telephone Laboratories, Incorporated, Speaker identification system using word recognition templates, 4,363,102, Cl. 364-513.000.
- Holopainen, Vaino J., to Coffee filter system, 4,362,623, Cl. 210-493.500.
- Holzhauser, Wendell C.: See—
Swaidner, James A.; and Holzhauser, Wendell C., 4,362,676, Cl. 264-35.000.
- Homma, Makoto: See—
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- Honda Giken Kogyo Kabushiki Kaisha: See—
Hayashi, Tadayoshi; Kajitani, Ikuo; Ueno, Katsusuke; and Noritake, Yutaka, 4,362,700, Cl. 422-179.000.
- Irimajiri, Shoichiro, 4,362,135, Cl. 123-193.00P.
- Honeywell Inc.: See—
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- Honeywell Information Systems Inc.: See—
Lange, Ronald E.; and King, Steve E., 4,363,108, Cl. 364-900.000.
- McIver, Chandler H., 4,363,076, Cl. 361-386.000.
- Woods, William E.; and Peters, Arthur, 4,363,095, Cl. 364-200.000.
- Honma, Akira: See—
Osaka, Hiroshi; Honma, Akira; and Kizaki, Yoshio, 4,363,003, Cl. 331-1.00A.
- Honma, Tsunetoshi: See—
Igarashi, Kikuo; and Honma, Tsunetoshi, 4,362,866, Cl. 536-16.800.
- Hooper, Christopher C.: See—
Ellison, Burlan E.; Spranca, Harry P.; and Hooper, Christopher C., 4,361,998, Cl. 52-520.000.
- Hopkinson, Linn L., to Roll dispenser, 4,362,278, Cl. 242-55.300.
- Hoppe, Walter: See—
Imhoff, Lothar; Hoppe, Walter; and Bay, Wilhelm, 4,361,973, Cl. 37-58.000.
- Hori, Ryoichi; Kubo, Masaharu; Hashimoto, Norikazu; Nishimatsu, Shigeru; and Itoh, Kiyoo, to Hitachi, Ltd. Process for making a memory device, 4,361,949, Cl. 29-571.000.
- Horiot, Jean C.: See—
Perraudin, Claude; Amarge, Edmond; Guiho, Jean P.; Horiot, Jean C.; Taniel, Gerard; Viel, Georges; and Brethon, Jean P., 4,362,947, Cl. 378-150.000.
- Horiuchi, Shoichi; and Sase, Yoshihiro, to Hitachi, Ltd. Method and apparatus for measurement of moisture, 4,362,939, Cl. 250-358.100.
- Horling, Peter: See—
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- Hormadaly, Jacob, to Du Pont de Nemours, E. I., and Company, Thick film resistor compositions, 4,362,656, Cl. 252-518.000.
- Horowitz, Alvin E., to Umbrella topiary framework, 4,361,982, Cl. 47-45.000.
- Horton, Mark D., to Method and apparatus for leak testing the interior of pipe, 4,362,049, Cl. 73-49.600.
- Hosaka, Akio: See—
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- Hosem Reliable Protection System Ltd.: See—
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- Houben, Marcellus J. P.: See—
Lemstra, Pieter J.; and Houben, Marcellus J. P., 4,362,844, Cl. 525-57.000.
- Houston, Herbert J.: See—
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- Nigol, Olaf; and Houston, Herbert J., 4,362,901, Cl. 174-42.000.
- HPM Corporation: See—
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- Huang, Marshall Y.: See—
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- Huber, Wilhelm: See—
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- Huckaby, Leonard L., to Bypass valve for sucker rod pumps, 4,362,478, Cl. 417-434.000.
- Huff, Gerald L.: See—
Hamill, Robert L.; Huff, Gerald L.; Baltz, Richard H.; and Seno, Eugene T., 4,362,881, Cl. 549-271.000.
- Huff, Lemuel H.: See—
Harris, Allan; and Huff, Lemuel H., 4,362,187, Cl. 138-109.000.
- Hughes Aircraft Company: See—
Little, Michael J.; and Wong, Shi-Yin, 4,362,164, Cl. 128-639.000.
- Nussmeier, Thomas A., 4,363,104, Cl. 364-515.000.
- Hughes, Michael: See—
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- Hull, James R., to Convertible child's bed, 4,361,919, Cl. 5-93.00B.
- Hunger, Walter, to Packing arrangement for a floating piston, 4,362,304, Cl. 277-27.000.
- Hunkeler, Walter; and Kyburz, Emilio, to Hoffmann-La Roche Inc., Diazepine derivatives and their use, 4,362,732, Cl. 424-256.000.
- Hunttron Instruments, Inc.: See—
Clinton, James R., 4,362,987, Cl. 324-52.000.
- Huret, Roger H. M., to Deraillleur for a chainwheel assembly for a bicycle, 4,362,522, Cl. 474-82.000.
- Huret, Roger H. M., to Huret & Ses Fils, Deraillleur for a cycle, 4,362,523, Cl. 474-82.000.
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- Ichiyana, Takashi: See—
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Yellin, Tobias O.; Edwards, Philip N.; and Large, Michael S., 4,362,728, Cl. 424-249.000.
- ICI Australia Limited: See—
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- Igashira, Toshihiko; Yoshida, Hitoshi; Nomura, Ken; and Abe, Seikou, to Nippon Soken, Inc. Fuel heating apparatus for internal combustion engine, 4,362,142, Cl. 123-549.000.
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- IHC Holland N.V.: See—
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- Ikari, Yoshikatsu; Yokoyama, Shiyoichiro; Katoh, Keisuke; Itaya, Ryutaro; and Kaga, Toshio, to Agency of Industrial Science & Technology, Sumitomo Jukikai Envirotech, Inc.; Hokkaido Soda Co., Ltd.; and Mitsui Sugar Co., Ltd. Method for refining sugar solutions, 4,362,571, Cl. 127-55.000.
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Matsuo, Yoshihiro; Itakura, Gen; Ikebe, Shoichi; and Wada, Tatsuya, 4,362,637, Cl. 252-62.3BT.
- Ikeda, Hiroshi: See—
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- Ikeda, Tadashi: See—
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- Ikeda, Yoshiaki, to Seikosha Co., Ltd. Moving coil type printing head, 4,362,405, Cl. 400-121.000.
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- Imada, Isuke; Sugihara, Hirosada; and Kawada, Mitsuru, to Takeda Chemical Industries, Ltd. Spiro compounds, their production and use, 4,362,740, Cl. 424-275.000.
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- Imai, Jun: See—
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- Imai, Masumi: See—
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- Imazumi, Ichiro; Kimura, Masatoshi; and Uehara, Keijiro, to Hitachi, Ltd. Method for making semiconductor device, 4,362,599, Cl. 156-647.000.
- Imhoff, Lothar; Hoppe, Walter; and Bay, Wilhelm, to Zimmermann & Jansen Gesellschaft mit Beschränkter Haftung, Bulk material conveying for a pneumatic dredger, 4,361,973, Cl. 37-58.000.
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Schwarz, Otto; Linnau, Yendra; Loblich, Franz; and Seelich, Thomas, 4,362,567, Cl. 106-157.000.
- Imperial Chemical Industries Limited: See—
Coffee, Ronald A., 4,362,275, Cl. 239-700.000.
- Mackrodt, William C.; Jones, Richard B.; and Winterton, Neil, 4,362,573, Cl. 134-31.000.
- Yellin, Tobias O.; Edwards, Philip N.; and Large, Michael S., 4,362,728, Cl. 424-249.000.
- Inagaki, Sanzi: See—
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- Inayama, Takayuki: See—
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- Indal Corporation: See—
Lee, Michael G., 4,363,055, Cl. 360-80.000.
- Industrial Electronic Rubber Company: See—
Murray, Myles N., 4,362,786, Cl. 428-36.000.
- Ingersoll-Rand Company: See—
Urquhart, Burton W., 4,362,622, Cl. 210-486.000.
- Inose, Shuichi, to Canon Kabushiki Kaisha, Signal transducer, 4,363,040, Cl. 360-51.000.
- Inoshita, Yasushi: See—
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- Institut Francais du Pétrole: See—
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- Chauvin, Yves; Commereuc, Dominique; Leger, Gerard; Gaillard, Jean; and Phung, Nhu H., 4,362,650, Cl. 252-431.00C.
- Sparks, Charles, 4,362,215, Cl. 166-367.000.
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Bharucha, Keshurroo R.; Tin, Kam C.; Ajdukovic, Iva; and Ajdukovic, Djordje, 4,362,746, Cl. 424-330.000.
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- Intel Corporation: See—
Pohlman, William B., III; Ravenel, Bruce W., III; McKevitt, James F., III; and Morse, Stephen P., 4,363,091, Cl. 364-200.000.
- International Business Machines Corp.: See—
Aichelmann, Frederick J., Jr., 4,363,124, Cl. 371-21.000.
- Anderson, Howard W.; and Champ, Robert B., 4,362,798, Cl. 430-59.000.
- Bahr, Dietrich J.; Briska, Marian; and Schackert, Klaus, 4,362,843, Cl. 525-54.230.
- Brewer, James A.; and Lowy, John A., 4,363,125, Cl. 371-71.000.
- Castrodale, Daniel O.; and Fournier, Thomas R., 4,363,044, Cl. 360-98.000.
- Choberka, John M.; and Rex, Donald K., 4,362,406, Cl. 400-124.000.
- Davis, Gordon T.; Faulkner, Edward H.; Gasparri, Angelo S.; Magee, Robert A.; Remsen, Lawrence P.; Saylor, Dennis L.; and Stricker, Alfred A., 4,362,486, Cl. 425-110.000.
- Davis, Michael I.; and Sze, Daniel T. W., 4,363,093, Cl. 364-200.000.
- Desilets, Brian H.; and Gunther, Thomas A., 4,362,596, Cl. 156-627.000.
- Engler, Edward M.; Patel, Vishnubhai V.; and Schumaker, Robert R., 4,362,662, Cl. 260-239.00R.
- Evans, Roger C.; Griffith, John E.; Grossman, David D.; Kutcher, Myron M.; and Will, Peter M., 4,362,977, Cl. 318-568.000.
- Kalter, Howard L.; Kotecha, Harish N.; and Patel, Parsotam T., 4,363,110, Cl. 365-149.000.
- Logan, Joseph S.; Petvai, Steve I.; and Rosu, Cornel, 4,362,611, Cl. 204-298.000.
- Silverling, Michael M.; and Wheeler, Stephen E., 4,363,057, Cl. 360-98.000.
- International Flavors & Fragrances Inc.: See—
Kiwa, Jacob; Tokarzewski, Richard J.; Schmitt, Frederick L.; and Sprecker, Mark A., 4,362,657, Cl. 252-522.00R.
- International Standard Electric Corporation: See—
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- International Telephone and Telegraph Corporation: See—
von Harz, James L., 4,362,350, Cl. 339-143.00R.
- Ionitakis, Nicolaos: See—
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- Iowa State University Research Foundation, Inc.: See—
Boybay, Mustafa; and Demirel, Turgut, 4,362,703, Cl. 423-116.000.
- IPCO Corporation: See—
Carmon, Amiram; Claffey, Kevin; Lowe, Daniel; and Osipow, Lloyd, 4,362,165, Cl. 128-640.000.
- Irimajiri, Shoichiro, to Honda Giken Kogyo Kabushiki Kaisha, Piston ring of internal combustion engine, 4,362,135, Cl. 123-193.00P.
- Irwin, Lawrence F., to Grip handle chuck, 4,361,924, Cl. 15-104.3SN.
- Ishida, Hiroshi: See—
Sasaki, Koichi; Sumida, Yasuji; and Ishida, Hiroshi, 4,362,076, Cl. 83-285.000.
- Ishida, Kohji, to Pioneer Electronic Corporation, FM Receiver, 4,362,906, Cl. 179-1.0GD.
- Ishigaki, Yukinobu; and Haramoto, Yutaka, to Victor Company of Japan, Limited, Noise reduction system having series connected variable frequency filters, 4,363,006, Cl. 333-14.000.
- Ishigaki, Yukinobu: See—
Haramoto, Yutaka; Ishigaki, Yukinobu; Totsuka, Kaoru; and Kawasaki, Takao, 4,363,007, Cl. 333-14.000.
- Ishii, Haruo, to Asahi Kogyo Kogyo Kabushiki Kaisha, Focal plane shutter winding mechanism, 4,362,374, Cl. 354-242.000.
- Ishii, Sumio: See—
Mizuno, Shogo; and Ishii, Sumio, 4,362,529, Cl. 8-471.000.
- Ishii, Yoshio: See—
Hirata, Yasufumi; Yanagisawa, Isao; Ishii, Yoshio; and Takeda, Masaaki, 4,362,736, Cl. 424-270.000.
- Ishiodori, Makoto: See—
Kanamoto, Yoshitaka; and Ishiodori, Makoto, 4,363,053, Cl. 360-67.000.
- Ishioka, Mithio: See—
Higashiguthi, Teruaki; and Ishioka, Mithio, 4,362,871, Cl. 542-427.000.
- Ishizu, Junichi: See—
Yonezawa, Kazuya; Ishizu, Junichi; and Matsuura, Miyuki, 4,362,857, Cl. 528-174.000.
- Ismail, Nassar, to Universal adapters for modular plug telephones, 4,362,905, Cl. 179-1.0PC.
- Isobe, Eiji; Hayakawa, Izumi; and Emura, Akira, to Mitsui Mining & Smelting Co., Ltd. Sintered metal bonded diamond abrasive articles, 4,362,535, Cl. 51-309.000.
- Isobe, Hiroshi; Yoshino, Masao; and Fukushima, Koji, to Diesel Kiki Co., Ltd. Vibration absorber for centrifugal governor, 4,362,139, Cl. 123-364.000.
- Isover Saint-Gobain: See—
Buck, Yves; and Delcoigne, Adrien, 4,361,995, Cl. 52-309.170.
- Itakura, Gen: See—
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- Itaya, Ryutaro: See—
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- Ito, Haruo: See—
Kajikawa, Shuji; Kanai, Kazuo; Ito, Haruo; Hirata, Yoshihisa; Konishi, Jiro; Takasaki, Yasuo; Ohkoshi, Kenji; and Yanagida, Yoshinobu, 4,362,504, Cl. 432-83.000.

- Ito, Hiroshi: See—
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- Itoh, Katsumi: See—
Mori, Kazumasa; Asahi, Taro; Banzai, Keiichi; Iwaki, Katsutaro; Muto, Katsuya; Mase, Akira; Minura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, 4,362,983, Cl. 322-28.000.
- Itoh, Kiyoo: See—
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- ITT Industries, Inc.: See—
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Drott, Peter, 4,362,225, Cl. 188-218.0XL.
- Itzkowitz, Herman, to Exxon Research and Engineering Co. Position error-recovery and motor control system, 4,362,980, Cl. 318-685.000.
- Ivanova, Raisa V.: See—
Abriutin, Vladimir N.; Ezhkov, Vyacheslav P.; Ivanova, Raisa V.; Kalashnik, Oleg N.; Kirichenko, Vyacheslav A.; Peredereev, Alexandr V.; Pukhov, Yuri G.; Belsky, Arkady A.; Kozhemyakin, Vladimir V.; and Masjuk, Galina E., 4,362,560, Cl. 75-63.000.
- Iwaki, Katsutaro: See—
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- Iwamoto, Masayuki, to Kabushiki Kaisha Shinoharatekkosho. Adjusting device for sheet reversing in a sheet-fed rotary press, 4,362,099, Cl. 101-230.000.
- Iwamoto, Masayuki, to Kabushiki Kaisha Shinoharatekkosho. Sheet drawing device for a sheet-fed rotary press, 4,362,105, Cl. 101-410.000.
- Iwashita, Tomonori: See—
Watanabe, Yoshitaka; and Iwashita, Tomonori, 4,362,371, Cl. 354-173.000.
- Iwata, Hiroshi; and Yoshino, Tsunemi, to West Electric Co., Ltd. Automatic film transport device, 4,362,370, Cl. 354-173.000.
- Izawa, Motowo: See—
Kida, Makoto; Izawa, Motowo; and Nakahama, Kazuo, 4,362,663, Cl. 260-239.30P.
- Izumi, Kazuo: See—
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- Izumi, Seto: See—
Toshiro, Tahara; and Izumi, Seto, 4,362,375, Cl. 354-320.000.
- Jacklich, Jack J. Bolt, 4,362,511, Cl. 433-220.000.
- Jackson, Graham: See—
Jenner, Michael R.; Waite, David; Jackson, Graham; and Williams, John C., 4,362,869, Cl. 536-122.000.
- Jackson, Howard, to Elliott Brothers (London) Limited. Signal generating arrangements, 4,363,025, Cl. 340-347.0DA.
- Jackson, Michael, to Timex Corporation. Multiplexed LCD analog timepiece, 4,362,398, Cl. 368-240.000.
- Jacob, Adir, to LFE Corporation. Gas discharge apparatus, 4,362,632, Cl. 422-183.040.
- Jacobson, Wayne M.: See—
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- Jaeneke, Christian: See—
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- Jaeschke, Ralph L., to Eaton Corporation. Electromagnetic coupling and cooling system therefor, 4,362,958, Cl. 310-59.000.
- James, Claude: See—
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- James, Larry R.: See—
Hanaway, Roger D.; James, Larry R.; and Busboom, Garry W., 4,362,005, Cl. 56-14.600.
- Jansz, Joost W., to Hollandse Beton Groep N.V. Pile driving apparatus, 4,362,216, Cl. 173-131.000.
- Jantzi, Albert T. Apparatus for moving large heavy objects, 4,362,458, Cl. 414-458.000.
- Jefferson, John R.; and Cunliffe, Frank, to Lucas Industries Limited. Liquid fuel injection pumps, 4,362,140, Cl. 123-366.000.
- Jenkins, John W., to Johnson, Matthew & Co., Limited. Catalyst or catalyst substrate, 4,362,655, Cl. 252-474.000.
- Jenkner, Erwin. Conveyor system, 4,362,108, Cl. 104-94.000.
- Jenner, Michael R.; Waite, David; Jackson, Graham; and Williams, John C., to Talres Development (N.A.) N.V. Process for the preparation of 4,1',6'-trichloro-4,1',6'-trideoxygalactosucrose, 4,362,869, Cl. 536-122.000.
- Jerome, Robert J.: See—
Teyssie, Philippe T.; Jerome, Robert J.; and Broze, Guy J., 4,362,837, Cl. 524-400.000.
- Jezbera, Val K., to Dataproducts Corporation. Flag strip for use in print hammers, 4,362,787, Cl. 428-572.000.
- Jinkins, Danny R., to Black & Decker Inc. Vacuum cleaner tool having a two-position rotary brush, 4,361,929, Cl. 15-355.000.
- Johansson, Borje: See—
Santen, Sven; and Johansson, Borje, 4,362,555, Cl. 75-11.000.
- Johnson & Johnson Products, Inc.: See—
Buck, Carl J., 4,362,712, Cl. 424-49.000.
Buck, Carl J., 4,362,713, Cl. 424-54.000.
Lindquist, Julius A.; and Lukacs, George J., 4,362,762, Cl. 427-2.000.
- Johnson, Matthew & Co., Limited: See—
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- Johnson, Robert R.; and Cantrell, Daniel V., to Brown & Williamson Tobacco Corporation. Cigarette filter, 4,362,171, Cl. 131-336.000.
- Johnson, Robert R., to Brown & Williamson Tobacco Corporation. Cigarette filter, 4,362,172, Cl. 131-336.000.
- Johnson, Thomas A.: See—
Ford, Michael E.; and Johnson, Thomas A., 4,362,886, Cl. 564-479.000.
- Johnson, Wallace R., to Outboard Marine Corporation. Electric outboard motor construction, 4,362,512, Cl. 440-6.000.
- Johnston, Frederick B. Medical process and preparation, 4,362,745, Cl. 424-319.000.
- Jolly, Walter R.: See—
Harry, Ieuan L.; Krishnakumar, Suppayan M.; Jolly, Walter R.; Beck, Martin H.; and Pocock, John F. E., 4,362,498, Cl. 425-526.000.
- Jones, John P., to Purex Corporation. Sealing of phosphated coatings, 4,362,577, Cl. 148-6.15R.
- Jones, Richard B.: See—
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- Joy Manufacturing Company: See—
Seitz, William R., 4,362,475, Cl. 417-295.000.
- Joyce, Robert H.: See—
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- Jupe, Christoph; Waldmann, Helmut; Baumer, Jürgen; and Schummer, Gunther, to Bayer Aktiengesellschaft. Process for the preparation of pyrocatechol and hydroquinone, 4,362,604, Cl. 203-75.000.
- Just, Manfred: See—
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- Justad, Odd: See—
Bus, Henning; MacFie, Thomas D.; and Justad, Odd, 4,363,098, Cl. 364-434.000.
- K. E. McConnaughay, Inc.: See—
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- Kabushiki Kaisha Daini Seikosha: See—
Arai, Satoshi, 4,362,981, Cl. 318-696.000.
Mitamura, Gen; Eguchi, Takao; and Nagami, Yukio, 4,362,401, Cl. 368-309.000.
- Kabushiki Kaisha Shinoharatekkosho: See—
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Iwamoto, Masayuki, 4,362,105, Cl. 101-410.000.
- Kabushiki-Kaisha Tokai-Rika-Denki-Seisakusho: See—
Ogura, Mitsuhiro; and Saito, Toshio, 4,362,320, Cl. 280-802.000.
Usami, Susumu; Teranishi, Nobuyuki; Kuwako, Tomohisa; Sugiyama, Ikuro; Tsujiuchi, Yoshio; and Hara, Shigeo, 4,362,362, Cl. 350-289.000.
- Kabushiki Kaisha Toyoda Jidoshokki Seisakusho: See—
Arakawa, Akio, 4,362,190, Cl. 139-370.200.
- Kadner, Max. Seating arrangements for poppet or non return valves, 4,362,185, Cl. 137-516.290.
- Kaesgen, Hartmut: See—
Plamper, Gerhard R.; Kaesgen, Hartmut; and Rush, Robert W., Jr., 4,362,228, Cl. 192-0.094.
- Kaga, Toshio: See—
Ikari, Yoshikatsu; Yokoyama, Shioichiro; Katoh, Keisuke; Itaya, Ryutaro; and Kaga, Toshio, 4,362,571, Cl. 127-55.000.
- Kaimo, Matti, to Oy Lohja AB. Extension joint for concrete poles, 4,362,416, Cl. 403-316.000.
- Kaimo, Matti: See—
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- Kaiser, Charlie J.: See—
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- Kajikawa, Shuji; Kanai, Kazuo; Ito, Haruo; Hirata, Yoshihisa; Konishi, Jiro; Takasaki, Yasuto; Ohkoshi, Kenji; and Yanagida, Yoshinobu, to Nippon Kokan Kabushiki Kaisha. Apparatus for manufacturing a rapidly cooled solidified gas having rotating cooling drum, 4,362,504, Cl. 432-83.000.
- Kajimoto, Norifumi: See—
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- Kajitani, Ikuro: See—
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- Kakumu, Masayoshi: See—
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- Kalashnik, Oleg N.: See—
Abriutin, Vladimir N.; Ezhkov, Vyacheslav P.; Ivanova, Raisa V.; Kalashnik, Oleg N.; Kirichenko, Vyacheslav A.; Peredereev, Alexandr V.; Pukhov, Yuri G.; Belsky, Arkady A.; Kozhemyakin, Vladimir V.; and Masjuk, Galina E., 4,362,560, Cl. 75-63.000.
- Kalichman, Isidore: See—
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- Kalk, Walter; Schundehutte, Karl H.; and Soll, Manfred, to Bayer Aktiengesellschaft. Quaternary reactive compounds, 4,362,874, Cl. 544-317.000.
- Kallinke, Manfred; Bleuel, Walter; Hoehn, Wolfgang; and Heinrich, Kurt, to VDO Adolf Schindling AG. Clock with a holder, 4,362,402, Cl. 368-317.000.
- Kalter, Howard L.; Kotecha, Harish N.; and Patel, Parsotam T., to International Business Machines Corp. Non-volatile dynamic RAM cell, 4,363,110, Cl. 365-149.000.

- Kamata, Kazumasa; Kishida, Kazuo; Ueda, Kazuo; and Osaka, Norihisa, to Mitsubishi Rayon Co., Ltd. Polyvinyl chloride-base resin and multistage graft resin composition, 4,362,845, Cl. 525-57.000.
- Kamijo, Eiji: See—
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- Kaminaka, Nobuyuki: See—
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- Kamp, Ewald A., to Union Carbide Corporation. Closure device, 4,362,198, Cl. 150-3.000.
- Kamyr, Inc.: See—
Gullichsen, Johan E., 4,362,536, Cl. 55-52.000.
- Kanai, Kazuo: See—
Kajikawa, Shuji; Kanai, Kazuo; Ito, Haruo; Hirata, Yoshihisa; Konishi, Jiro; Takasaki, Yasuto; Ohkoshi, Kenji; and Yanagida, Yoshinobu, 4,362,504, Cl. 432-83.000.
- Kanai, Kenji: See—
Nouchi, Norimoto; Kanai, Kenji; Kaminaka, Nobuyuki; and Nomura, Noboru, 4,362,767, Cl. 427-130.000.
- Kanamoto, Yoshitaka; and Ishiodori, Makoto, to Sony Corporation. Signal reproducing circuit, 4,363,053, Cl. 360-67.000.
- Kanazawa, Yasunori: See—
Nishimura, Keizo; and Kanazawa, Yasunori, 4,363,039, Cl. 360-19.100.
- Kane, Hugh. Fishing bobber, 4,361,978, Cl. 43-44.870.
- Kane, William T.; and Whitney, William P., II, to Corning Glass Works. Furnace and method with sensor, 4,362,580, Cl. 148-16.000.
- Kanegafuchi Kagaku Kogyo Kabushiki Kaisha: See—
Fujita, Hiroyuki; Ashida, Shigeaki; Taguchi, Yoshiaki; and Sakai, Masami, 4,362,760, Cl. 426-641.000.
Tonoki, Satoshi; Hirobe, Kazushi; Osawa, Tadashi; and Nishigaki, Masahiko, 4,362,839, Cl. 524-513.000.
Yonezawa, Kazuya; and Nagano, Hirosaku, 4,362,826, Cl. 525-426.000.
Yonezawa, Kazuya; Ishizu, Junichi; and Matsura, Miyuki, 4,362,857, Cl. 528-174.000.
- Kaneko, Hiroko; and Nozaki, Ken, to Agency of Industrial Science & Technology; and Ministry of International Trade & Industry. Redox battery, 4,362,791, Cl. 429-101.000.
- Kao Soap Co., Ltd.: See—
Sakurai, Akira; and Mizutani, Hiroshi, 4,362,159, Cl. 128-285.000.
- Kaplan, Leonard, to Union Carbide Corporation. Process for producing ethylene glycol and methanol, 4,362,820, Cl. 518-700.000.
- Karady, Sandor: See—
Amato, Joseph S.; Karady, Sandor; and Weinstock, Leonard M., 4,362,726, Cl. 424-248.510.
- Karal, Donald W., to Schlegel Corporation. Cleaning brush for electrostatic copiers, printers and the like, 4,361,922, Cl. 15-1.50R.
- Karasawa, Yukihiro: See—
Nakajima, Takeaki; Yoshimura, Tatsushiro; and Karasawa, Yukihiro, 4,362,162, Cl. 128-334.00R.
- Karl, Alfons: See—
Panster, Peter; Karl, Alfons; Buder, Wolfgang; and Kleinschmit, Peter, 4,362,885, Cl. 556-446.000.
- Karpale, Kauko J.: See—
Rastas, Jussi K.; Nyberg, Jens R.; Karpale, Kauko J.; and Bjorkqvist, Lars-Göran, 4,362,702, Cl. 423-41.000.
- Kasanami, Tohru: See—
Senda, Atsuo; Kasanami, Tohru; and Nakagawa, Takuji, 4,362,629, Cl. 210-714.000.
- Kasei Optonix Ltd.: See—
Suzuki, Yujiro; Mirua, Norio; and Shimiya, Keiji, 4,362,944, Cl. 250-483.100.
- Kassabov, Nikola K.: See—
Dakovski, Lyudmil G.; and Kassabov, Nikola K., 4,362,926, Cl. 235-92.0CC.
- Kassai Kabushikikaisha: See—
Kassai, Kenzo; and Kassai Kabushikikaisha. Baby carriage, 4,362,315, Cl. 280-650.000.
- Kassai, Kenzo, to Kassai Kabushikikaisha. Wire forming apparatus for torsion springs, 4,362,038, Cl. 72-130.000.
- Kato, Takeo; and Fukuda, Nobuyoshi, to Toppan Printing Co., Ltd. Packing materials for molten contents, 4,362,784, Cl. 428-340.000.
- Kato, Toshikazu: See—
Kimura, Kenji; Saitou, Sinichi; Nishiyama, Toyoo; Kato, Toshikazu; Shimoda, Misao; Watanabe, Seizo; Satoh, Ken; and Shibata, Tutomu, 4,363,042, Cl. 360-71.000.
- Katoh, Keisuke: See—
Ikari, Yoshikatsu; Yokoyama, Shioichiro; Katoh, Keisuke; Itaya, Ryutaro; and Kaga, Toshio, 4,362,571, Cl. 127-55.000.
- Katritzky, Alan R.: See—
Schultz, William J.; and Katritzky, Alan R., 4,362,785, Cl. 428-480.000.
- Kaul, Pradeep; Wendling, Daniel; Ford, Harold; Muzamder, Deepak; and Newport, Christopher, to M/A-COM DDC, Inc. Communications processor, 4,363,094, Cl. 364-200.000.
- Kaussner, John C.: See—
Parkison, Richard G.; Fischer, Armin O.; and Kaussner, John C., 4,362,186, Cl. 137-625.170.
- Kawabata, Takahiro: See—
Hasegawa, Katsumi; Kawabata, Takahiro; and Ueda, Hiroshi, 4,362,260, Cl. 226-190.000.
- Kawada Co., Ltd.: See—
Chatani, Yasushi, 4,361,980, Cl. 46-111.000.
- Kawada, Hiroshi: See—
Hasebe, Nobuhisa; Kawada, Hiroshi; and Kobatake, Tatsuo, 4,362,448, Cl. 409-300.000.
- Kawada, Mitsuru: See—
Imada, Isuke; Sugihara, Hirosada; and Kawada, Mitsuru, 4,362,740, Cl. 424-275.000.
- Kawaguchi, Kiyoshi: See—
Matsui, Kazuma; Kurahashi, Takashi; Suzuki, Masahiko; and Kawaguchi, Kiyoshi, 4,361,927, Cl. 15-250.420.
- Kawai, Syuji: See—
Yamashita, Shuzo; Tanaka, Taku; Tani, Hirokuni; Kubotsu, Akira; and Kawai, Syuji, 4,362,677, Cl. 264-41.000.
- Kawakami, Yoshio: See—
Matsuzawa, Yoneo; Kawakami, Yoshio; and Kajimoto, Norifumi, 4,363,059, Cl. 360-132.000.
- Kawami, Yoji: See—
Torikai, Eiichi; Wakabayashi, Noboru; Kawami, Yoji; Kamijo, Eiji; Nishimoto, Tatsuya; and Tani, Katsuhito, 4,362,647, Cl. 252-425.300.
- Kawamura, Kouichi: See—
Takimoto, Masaaki; Sawada, Kenichi; and Kawamura, Kouichi, 4,362,800, Cl. 430-83.000.
- Kawasaki Jukogyo Kabushiki Kaisha: See—
Nishikawa, Yoshiyasu; Harada, Chosei; and Nakano, Masao, 4,362,468, Cl. 416-186.00R.
- Kawasaki Steel Corporation: See—
Nakanishi, Teruyuki; Akune, Toshiyuki; Kusaba, Takashi; and Ehro, Takashi, 4,362,041, Cl. 72-221.000.
- Kawasaki, Takao: See—
Haramoto, Yutaka; Ishigaki, Yukinobu; Totsuka, Kaoru; and Kawasaki, Takao, 4,363,007, Cl. 333-14.000.
- Kayser, Gaston, to Commissariat a l'Energie Atomique. Liquid metal-cooled nuclear reactor, 4,362,694, Cl. 376-298.000.
- Kazami, Kazuyuki; and Hagiyuda, Nobuyoshi, to Nippon Kogaku K.K. Camera having a data photographing device, 4,362,369, Cl. 354-106.000.
- Kazami, Kazuyuki; and Ohtsubo, Yoshiaki, to Nippon Kogaku K.K. Shutter control device for a camera having a shutter release lock device, 4,362,373, Cl. 354-234.000.
- Kazami, Shinichi: See—
Ohtsuki, Tadashi; Kazami, Shinichi; Anjyu, Shinji; and Tanaka, Masato, 4,363,049, Cl. 360-13.000.
- Keck, Johannes; Kruger, Gerd; Pieper, Helmut; Noll, Klaus; Engelhardt, Gunther; Promberger, Norbert; and Zimmermann, Rainer, to Dr. Karl Thomae GmbH. Esters and amides containing the 1-(4-chlorobenzoyl)-5-methoxy-2-methyl-1H-indole-3-acetyl moiety, 4,362,738, Cl. 424-274.000.
- Keeth, John D. Template for locating hypodermic injection sites, 4,362,157, Cl. 128-215.000.
- Keihin Hatsujo Company Limited: See—
Katahira, Sota; Tsukioka, Hideaki; Sakuma, Yutaka; and Higuchi, Hideo, 4,362,038, Cl. 72-130.000.
- Kelly, Charles J., to Ribbecke, Thomas L., a part interest. Accentuator plate for vibrating soundboard in stringed musical instruments, 4,362,079, Cl. 84-291.000.
- Kelly, John W., to Haskel Engineering & Supply Company. Jointed high pressure conduit, 4,362,324, Cl. 285-119.000.
- Kelly, William F. Anchor for use in the post-tensioning of prestressed concrete, 4,362,421, Cl. 403-369.000.
- Kelowna Nurseries Ltd.: See—
Dunstan, David I.; Turner, Keith E.; and Lane, David W., 4,361,984, Cl. 47-58.000.
- KemaNord AB: See—
Anderson, Bengt; and Tanner, Olof, 4,362,778, Cl. 428-240.000.
- Kemmner, Ulrich; and Ruhl, Karl, to Robert Bosch GmbH. Securing apparatus for electric fuel pumps, 4,362,476, Cl. 417-360.000.
- Kempter, Karl: See—
Dannhauser, Friedrich; Kempter, Karl; Krause, Jürgen; and Schnoller, Manfred, 4,362,766, Cl. 427-39.000.
- Kendall, John S., to United States of America, Army. Composite/laminated window for electron-beam guns, 4,362,965, Cl. 313-420.000.
- Kennametal Inc.: See—
Armbrust, William D., 4,362,445, Cl. 408-182.000.
- Kennedy, Alvin B.; and Leecraft, Bertram M., to Methods Engineering, Inc. Method and apparatus for cleaning basins, 4,362,628, Cl. 210-712.000.
- Kennedy, Merrill V.; and Richards, Howard E. Cutting head assembly for a rotary motor, 4,362,007, Cl. 56-295.000.
- Kerber, Richard F.: See—
Bowsky, Benjamin; Siegel, Allen E.; and Kerber, Richard F., 4,362,792, Cl. 429-181.000.
- Keritsis, Gus D.; Bokelman, Gordon H.; and Gooden, Dewitt T., III, to Philip Morris, Incorporated. Tobacco curing method, 4,362,170, Cl. 131-309.000.
- Kernforschungsanlage Julich GmbH: See—
Forster, Siegfried; Ionitakis, Nicolaos; and Quell, Peter, 4,362,695, Cl. 376-314.000.
Welter, Jean-Marie, 4,362,501, Cl. 432-11.000.
- Kerschner, James J., to Acme Highway Products Corporation. Expansion seal, 4,362,428, Cl. 404-64.000.
- Kerschner, James J.: See—
Puccio, Guy S.; and Kerschner, James J., 4,362,429, Cl. 404-68.000.

Kida, Makoto; Izawa, Motowo; and Nakahama, Kazuo, to Takeda Chemical Industries, Ltd. Maytansinoid compound. 4,362,663, Cl. 260-239.30P.

Kidd, Nash A., to Dow Chemical Company, The. Terpolymers of ethylene, vinyl acetate, and styrene as pour point depressants for distillate fuels. 4,362,533, Cl. 44-62.000.

Kidd, Patrick D.: See—
Orlowski, Jan A.; Butler, David V.; and Kidd, Patrick D., 4,362,888, Cl. 560-162.000.

Kienzle Apparate GmbH: See—
Herrmann, Lothar; and Muller, Helmut, 4,362,927, Cl. 235-132.00R.

Kiesel, Kenneth C., to Polaroid Corporation. Focusing system and method with adjustment for lens depth of focus. 4,362,372, Cl. 354-195.000.

Kikuchi, Syuichi, to Murata Kikai Kabushiki Kaisha. False-twisting equipment. 4,362,011, Cl. 57-291.000.

Killat, Ulrich: See—
Dammann, Hans; and Killat, Ulrich, 4,362,359, Cl. 350-96.190.

Killgoar, Paul C., Jr.: See—
Tabar, Ronald J.; Killgoar, Paul C., Jr.; and Lemieux, Marvin A., 4,362,840, Cl. 524-525.000.

Kimoto, Ryuzo: See—
Takeuchi, Tatsuro; Sokukawa, Masaki; and Kimoto, Ryuzo, 4,362,626, Cl. 210-670.000.

Kimoto, Toyoki, to Laurel Bank Machine Co., Ltd. Sheet feeding control device for use in a coin wrapping machine. 4,363,032, Cl. 340-679.000.

Kimura, Hiroshi; Abiko, Kenji; Sato, Takashi; Yoshii, Isamu; Watanabe, Sadao; and Takei, Yutaka, to Sony Corporation. Magnetic alloy. 4,362,581, Cl. 148-31.550.

Kimura, Kenji; Saitou, Sinichi; Nishiyama, Toyoo; Kato, Toshikazu; Shimoda, Misao; Watanabe, Seizo; Sato, Ken; and Shibata, Tutomu, to Olympus Optical Co., Ltd. Method and apparatus for automatically tracking a magnetic tape. 4,363,042, Cl. 360-71.000.

Kimura, Masatoshi: See—
Imaizumi, Ichiro; Kimura, Masatoshi; and Uehara, Keiji, 4,362,599, Cl. 156-647.000.

Kimura, Yoshikazu: See—
Yonehara, Hiroyuki; Kimura, Yoshikazu; and Tanabe, Kenji, 4,362,383, Cl. 355-71.000.

Kinetronics Corporation: See—
Stelcher, William N., 4,362,145, Cl. 124-32.000.

King, Josef; and Ganter, Wolfgang, to Gebrüder Junghans GmbH. Watch with a calendar display and hand setting device actuated by a setting shaft. 4,362,391, Cl. 368-34.000.

King, Steve E.: See—
Lange, Ronald E.; and King, Steve E., 4,363,108, Cl. 364-900.000.

Kinsbron, Eliezer: See—
Fraser, David B.; Kinsbron, Eliezer; and Vratny, Frederick, 4,362,597, Cl. 156-643.000.

Kira, Masaaki: See—
Kobayashi, Yukio; Kira, Masaaki; and Yamaguchi, Kinya, 4,362,680, Cl. 264-83.000.

Kirichenko, Vyacheslav A.: See—
Abrjutin, Vladimir N.; Ezhkov, Vyacheslav P.; Ivanova, Raisa V.; Kalashnik, Oleg N.; Kirichenko, Vyacheslav A.; Peredereev, Alexandr V.; Pukhov, Yuri G.; Belsky, Arkady A.; Kozhemyakin, Vladimir V.; and Masjuk, Galina E., 4,362,560, Cl. 75-63.000.

Kirk, Norbert A. Oscillating saw accessory. 4,361,956, Cl. 30-122.000.

Kirkby, Larry L.: See—
Tung, Lu H.; Kirkby, Larry L.; and Lyons, Charles E., 4,362,849, Cl. 525-316.000.

Kirkpatrick, Joel L.; Patel, Natu R.; and Rutter, Jerry L., to Gulf Oil Corporation. Isothioureido isindoleones and use as plant growth regulators. 4,362,879, Cl. 548-473.000.

Kishida, Kazuo: See—
Kamata, Kazumasa; Kishida, Kazuo; Ueda, Kazuo; and Osaka, Norihisa, 4,362,845, Cl. 525-57.000.

Kishida, Toshio, to Daido Tokushuko, K.K. Arc furnace steelmaking involving oxygen blowing. 4,362,556, Cl. 75-12.000.

Kishimoto, Shinzo: See—
Minamizono, Junji; Kishimoto, Shinzo; Yokoyama, Shigeki; and Inayama, Takayuki, 4,362,812, Cl. 430-528.000.

Kisler, Semyon, to Polaroid Corporation. Neutralization of electrostatic charges. 4,363,070, Cl. 361-212.000.

Kitagawa, Naoto: See—
Masaki, Kunihiko; Kitagawa, Naoto; and Yamada, Kosaku, 4,362,319, Cl. 280-779.000.

Kitamura, Masatsugu; Onoye, Hideo; and Shimizu, Hiroki, to Victor Company of Japan, Limited. Circuit arrangement for skipping marked portions of a recording tape. 4,363,043, Cl. 360-72.100.

Kitao, Saburo: See—
Miyagi, Toshimi; and Kitao, Saburo, 4,363,074, Cl. 361-331.000.

Kiwa, Jacob; Tokarzewski, Richard J.; Schmitt, Frederick L.; and Sprecker, Mark A., to International Flavors & Fragrances Inc. Use of cyclohexyl phenethyl ether derivative in augmenting or enhancing the aromas of perfumes and colognes. 4,362,657, Cl. 252-522.00R.

Kizaki, Yoshio: See—
Osaka, Hiroshi; Honma, Akira; and Kizaki, Yoshio, 4,363,003, Cl. 331-1.00A.

Klausbrückner, Gert; and Tushaus, Bernd, to Steinbock GmbH. System for storing and transporting guided missiles and similar flying bodies. 4,362,459, Cl. 414-584.000.

Kleinschmit, Peter: See—
Panster, Peter; Karl, Alfons; Buder, Wolfgang; and Kleinschmit, Peter, 4,362,885, Cl. 556-446.000.

Klenk, Robert: See—
Krotz, Hermann; and Klenk, Robert, 4,361,957, Cl. 30-124.000.

Klepper, Constant L., to Micronic Filtration Inc. Liquid filtering apparatus. 4,362,617, Cl. 210-225.000.

Kleuters, Wilhelm J.; Gerritsen, Gerrit B.; and Verboom, Johannes J., to U.S. Philips Corporation. Method, apparatus and record carrier body for optically writing information. 4,363,116, Cl. 369-30.000.

Kline, Richard H., to Goodyear Tire & Rubber Company, The. Synergistic antioxidant mixtures. 4,362,887, Cl. 560-152.000.

Klingenberg, Hans U. Analog-display timepiece. 4,362,397, Cl. 368-233.000.

Klockner-Humboldt-Deutz AG: See—
Weigel, Horst; and Melcher, Gerhard, 4,362,561, Cl. 75-92.000.

Kluger, Edward W., to Milliken Research Corporation. Poly-(2-aminoalkyl)polyamines. 4,362,856, Cl. 528-111.000.

Kluger, Edward W., to Milliken Research Corporation. Poly-(2-aminoalkyl)polyamines. 4,362,894, Cl. 564-512.000.

Klupfel, Norbert: See—
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Kunkel, Heinrich; Dobhan, Herbert; Horling, Peter; and Klupfel, Norbert, 4,362,687, Cl. 264-318.000.

Knifton, John F., to Texaco Inc. Process for preparing acetic and propionic acids and their esters. 4,362,822, Cl. 518-700.000.

Kobatake, Tatsuo: See—
Hasebe, Nobuhisa; Kawada, Hiroshi; and Kobatake, Tatsuo, 4,362,448, Cl. 409-300.000.

Kobayashi, Yukio; Kira, Masaaki; and Yamaguchi, Kinya, to Showa Denko K.K. Process for production of molded articles of acetylene polymer. 4,362,680, Cl. 264-83.000.

Kobe Steel, Ltd.: See—
Torii, Satoru, 4,362,018, Cl. 60-468.000.

Yamaguchi, Yoshihiro; Takatsuka, Kouro; Murakami, Shohel; Ogawa, Rikuo; Yamada, Yoshiro; Yokoyama, Tadamasu; and Akita, Shoji, 4,362,040, Cl. 72-201.000.

Koberstein, Edgar: See—
Bozon, Alfred; Koberstein, Edgar; Pletka, Hans-Dieter; and Voelker, Herbert, 4,362,605, Cl. 204-1.00T.

Kobusch, Klaus, to Bollhoff & Co. Device for installing threaded bushes. 4,361,943, Cl. 29-240.000.

Koch, Robert C., Jr.; and Hickmann, Horst R., to American Commercial Barge Line Co. Self-latching hatch cover for barges. 4,362,118, Cl. 114-201.00R.

Koehler, Fulton: See—
Taner, Mehmet T.; Koehler, Fulton; Anstey, Nigel A.; and Castelberg, Michael J., 4,363,113, Cl. 367-63.000.

Koiwai, Yutaka: See—
Fujioka, Yoshiki; Koiwai, Yutaka; and Hirota, Mitsuhiko, 4,362,976, Cl. 318-341.000.

Koizumi, Mituyoshi; Akiyama, Nobuyuki; and Oshima, Yoshimasa, to Hitachi, Ltd. Method and apparatus for projection type mask alignment. 4,362,389, Cl. 356-401.000.

Kojima, Kazuo: See—
Ihuchi, Takahiko; Tanaka, Masashi; Kojima, Kazuo; and Nakajima, Yutaka, 4,362,400, Cl. 368-255.000.

Kojima, Keiichi: See—
Miyamoto, Yoshimi; Kojima, Keiichi; and Toriumi, Yasuo, 4,363,019, Cl. 338-214.000.

Kojima, Makoto; and Yane, Hideki, to Nitto Electric Industrial Co., Ltd. Process for production of polyimide resins. 4,362,863, Cl. 528-353.000.

Kolm, Eric A.: See—
Kolm, Henry H.; and Kolm, Eric A., 4,362,407, Cl. 400-124.000.

Kolm, Henry H.; and Kolm, Eric A., to Piezo Electric Products, Inc. Piezoelectric printer and piezoelectric multilam actuator used therein. 4,362,407, Cl. 400-124.000.

Kominami, Yasuo: See—
Watanabe, Kazuo; Ienaka, Masanori; Kominami, Yasuo; and Homma, Makoto, 4,362,998, Cl. 329-103.000.

Kondo, Eiji: See—
Tanaka, Kentaro; Kondo, Eiji; Matsumoto, Kouichi; Shoji, Jun'ichi; and Tsuji, Naoki, 4,362,665, Cl. 260-245.20T.

Kondo, Hideyo; and Yashiki, Yuichi, to Canon Kabushiki Kaisha. Image-holding member with a curable epoxyacrylate resin insulating layer. 4,362,799, Cl. 430-67.000.

Konig, Wolfhard: See—
Schobbe, Hermann; König, Wolfhard; and Mohrmann, Werner, 4,362,294, Cl. 267-170.000.

Konii, Susumu; Sase, Shigeo; Yoshida, Masatoshi; Kuroda, Shoen; and Sumi, Takeshi, to Hitachi Chemical Co., Ltd. Process for preparing foundry cores or molds and binder materials used therefor. 4,362,203, Cl. 164-16.000.

Konishi, Jiro: See—
Kajikawa, Shuji; Kanai, Kazuo; Ito, Haruo; Hirata, Yoshihisa; Konishi, Jiro; Takasaki, Yasuo; Ohkoshi, Kenji; and Yanagida, Yoshinobu, 4,362,504, Cl. 432-83.000.

Konishioku Photo Industry Co., Ltd.: See—
Usagawa, Yasushi; Fujimatsu, Wataru; Sasaki, Osamu; and Matsuura, Katsumi, 4,362,810, Cl. 430-384.000.

Kontron Cardiovascular Inc.: See—
Lombardi, Edward J., Jr.; Neuman, Harold L.; Magro, Alfred E.; and Rishton, Michael L., 4,362,150, Cl. 128-1.00D.

Kooijmans, Petrus G.; Raudenbusch, Werner T.; Van Steenis, Adrianus M. C.; Kunze, Wolfgang; and Seelen-Kruijsen, Josepha M. E., to

Shell Oil Company. Heat-curable thermosetting resin binder compositions comprising a non-acidic resinous compound, a non-acidic polyester cross-linking agent, and a transesterification catalyst. 4,362,847, Cl. 525-172.000.

Kopse, Odon: See—
Stumpp, Gerhard; Eblen, Ewald; Hofmann, Karl; Kopse, Odon; Amaya, Nestor R.; Schlagenhaut, Josef; and Locher, Johannes, 4,362,050, Cl. 73-119.00A.

Korber, Helmut; Tacke, Peter; Fahnler, Friedrich; Neuray, Dieter; and Heydenreich, Frieder, to Bayer Aktiengesellschaft. Polyamide moulding compounds having high impact strength. 4,362,846, Cl. 525-66.000.

Kotecha, Harish N.: See—
Kalter, Howard L.; Kotecha, Harish N.; and Patel, Parsotam T., 4,363,110, Cl. 365-149.000.

Koubeky, Vladimir, to Felten & Guillaume GmbH. Switching device for motor vehicle anti-theft system. 4,363,021, Cl. 340-65.000.

Kozhemyakin, Vladimir V.: See—
Abrjutin, Vladimir N.; Ezhkov, Vyacheslav P.; Ivanova, Raisa V.; Kalashnik, Oleg N.; Kirichenko, Vyacheslav A.; Peredereev, Alexandr V.; Pukhov, Yuri G.; Belsky, Arkady A.; Kozhemyakin, Vladimir V.; and Masjuk, Galina E., 4,362,560, Cl. 75-63.000.

Kramer, George M.; Cox, Donald M.; Dines, Martin B.; and Maas, Edward T., Jr., to Exxon Research and Engineering Co. Uranyl compounds employing a strong base. 4,362,669, Cl. 260-429.100.

Kramer, L. Jonathan: See—
Maltby, Frederick L.; and Kramer, L. Jonathan, 4,363,030, Cl. 340-511.000.

Krause, Jürgen: See—
Dannhauser, Friedrich; Kempter, Karl; Krause, Jürgen; and Schnoller, Manfred, 4,362,766, Cl. 427-39.000.

Kreiskott, Horst: See—
Steiner, Gerd; Teschendorf, Hans-Jürgen; Kreiskott, Horst; and Hofmann, Hans P., 4,362,727, Cl. 424-248.510.

Kretz, Francis: See—
Richard, Christian; Kretz, Francis; and Benveniste, Albert, 4,363,103, Cl. 364-515.000.

Krick, Gerd, to Eduard Fresenius Chem.-Pharm. Industrie KG. Apparatus for stiffening core for catheters. 4,362,163, Cl. 604-280.000.

Kripzak, Rudolf, to Kripzak, Rudolf. Handling system for workpieces. 4,362,454, Cl. 414-280.000.

Krishnakumar, Suppayan M.: See—
Harry, Jean L.; Krishnakumar, Suppayan M.; Jolly, Walter R.; Beck, Martin H.; and Pocock, John F. E., 4,362,498, Cl. 425-526.000.

Kristof, George M.: See—
Ross, Robert M.; and Kristof, George M., 4,362,334, Cl. 297-230.000.

Kroener, Ulrich; Greschat, Walter; and Roemer, Peter, to Siemens Aktiengesellschaft. Multistage vacuum x-ray image intensifier. 4,362,933, Cl. 250-213.0VT.

Krotz, Hermann; and Klenk, Robert, to Robert Bosch GmbH. Pneumatic hand tool with vacuum debris removal. 4,361,957, Cl. 30-124.000.

Krueger, Ronald M.; and Sturdy, Harry D., to Sturdy Truck Equipment, Inc. Changeable length accelerator-carburetor-speed regulator linkage. 4,362,138, Cl. 123-342.000.

Kruger, Gerd: See—
Keck, Johannes; Kruger, Gerd; Pieper, Helmut; Noll, Klaus; Engelhardt, Gunther; Promberger, Norbert; and Zimmermann, Rainer, 4,362,738, Cl. 424-274.000.

Kruger, Jörg; Thome, Roland; Moritz, Dieter; Bings, Hubert; and Losert, Herbert, to Vereinigte Aluminium-Werke Aktiengesellschaft. Rotating apparatus for manufacturing hydrogen fluoride. 4,362,701, Cl. 422-194.000.

Krupp Polysius AG: See—
Eiring, Karl; and Löffler, Bernhard, 4,362,503, Cl. 432-80.000.

Kubis, Charles S.: See—
Roth, Donald J.; Kubis, Charles S.; and Walter, John, 4,362,254, Cl. 220-307.000.

Kubo, Masaharu: See—
Hori, Ryoichi; Kubo, Masaharu; Hashimoto, Norikazu; Nishimatsu, Shigeru; and Itoh, Kiyoo, 4,361,949, Cl. 29-571.000.

Kubota, Ltd.: See—
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- Langer, Manfred; and Siebels, Johann, to Volkswagenwerk Aktiengesellschaft. Article, such as a turbine rotor and blade which comprises a first zone of a nonoxide ceramic material and a second zone of a softer material. 4,362,471, Cl. 416-241.00B.
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- Laurel Bank Machine Co., Ltd.; See—
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- Lawson, Jack O. Manually mobile firewood log splitter. 4,362,194, Cl. 144-193.00R.
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- Leary, Sean J. Apparatus for providing a liquid free working environment on submerged surfaces. 4,362,437, Cl. 405-188.000.
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- Lee, Richard J., to Standard Oil Company (Indiana). Substituted orthoquinone dimer. 4,362,668, Cl. 260-396.00R.
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- Lehmann, Klaus, to Robert Bosch GmbH. Method and apparatus for signal pick-up from semiconductor image or line sensors. 4,363,035, Cl. 358-213.000.
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- Martin, Mervin G., to Hedlund Manufacturing Co., Inc. Manure spreader with multiple side auger. 4,362,272, Cl. 239-7.000.
- Martin, Michael D., to RFD Inflatables Limited. Inflatable liferafts. 4,362,517, Cl. 441-41.000.
- Martinez Corral, Cecilio, to Fraymon S.A.E. Motor vehicle clutch mechanism. 4,362,230, Cl. 192-109.00R.
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Suzuki, Ryozo; Murakami, Sadatoshi; Harada, Tatsumi; Fujiwara, Hiroyuki; and Yamasaki, Satoru, 4,362,480, Cl. 418-152.000.
- Yamazaki, Hitoshi; Ito, Hiroshi; Doi, Sadaharu; Imai, Jun; and Takada, Hiroshi, 4,362,123, Cl. 118-642.000.
- Mitsubishi Gas Chemical Co., Inc.: See—
Shimizu, Senzo; Nomura, Isao; Usui, Motohachi; and Harada, Mashahiro, 4,362,858, Cl. 528-179.000.
- Mitsubishi Jukogyo Kabushiki Kaisha: See—
Imai, Hiroto; and Arima, Sumito, 4,362,104, Cl. 101-349.000.
- Mishina, Haruhiko, 4,362,117, Cl. 114-150.000.
- Mitsubishi Paper Mills Ltd.: See—
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- Mitsubishi Rayon Co., Ltd.: See—
Kamata, Kazumasa; Kishida, Kazuo; Ueda, Kazuo; and Osaka, Norihisa, 4,362,845, Cl. 525-57.000.
- Ohshima, Iwao; and Nakashima, Yasutaka, 4,362,890, Cl. 560-222.000.
- Mitsui Mining & Smelting Co., Ltd.: See—
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- Mitsui Petrochemical Industries, Ltd.: See—
Masuhara, Eiichi; Nakabayashi, Nobuo; Nagata, Katsuhisa; and Takeyama, Morio, 4,362,842, Cl. 524-854.000.
- Mitsui Sugar Co., Ltd.: See—
Ikari, Yoshikatsu; Yokoyama, Shioichiro; Katoh, Keisuke; Itaya, Ryutaro; and Kaga, Toshio, 4,362,571, Cl. 127-55.000.
- Miyagi, Toshimi; and Kitao, Saburo, to Murata Manufacturing Co., Ltd. High voltage generating device. 4,363,074, Cl. 361-331.000.
- Miyakawa, Nobuhiko; and Teshima, Takashi, to Mita Industrial Co., Ltd. One-component type magnetic developer for development and transfer of positively charged images. 4,362,803, Cl. 430-122.000.
- Miyamoto, Yoshimi; Kojima, Keiichi; and Toriumi, Yasuo, to Sumitomo Electric Industries; and Nippondenso Co., Ltd. Ignition cables. 4,363,019, Cl. 338-214.000.
- Miyashita, Takao: See—
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- Mizuno, Shogo; and Ishii, Sumio, to Dai Nippon Printing Co., Ltd. Heat transfer printing sheet and heat transfer printing method using the same. 4,362,529, Cl. 8-471.000.
- Mizuno, Tiaki: See—
Yamaguchi, Toshiyuki; Nobeche, Hiroyuki; Nakano, Yoshiaki; and Mizuno, Tiaki, 4,362,144, Cl. 123-609.000.
- Mizutani, Hiroshi: See—
Sakurai, Akira; and Mizutani, Hiroshi, 4,362,159, Cl. 128-285.000.
- Mobil Oil Corporation: See—
Prapas, Aristotle G., 4,362,854, Cl. 526-228.000.
- Modla, Andrew A., to RCA Corporation. Digitized audio record and playback system. 4,363,050, Cl. 360-32.000.
- Moeller, Jürgen: See—
Bollmann, Klaus; Freygang, Hans-Joachim; Moeller, Jürgen; and Weniger, Manfred, 4,363,062, Cl. 361-35.000.
- Mohr, Robert K.: See—
Macedo, Pedro B.; Mohr, Robert K.; and Gupta, Prabhat K., 4,362,542, Cl. 65-3.110.
- Mohrmann, Werner: See—
Schobbe, Hermann; Konig, Wolfhard; and Mohrmann, Werner, 4,362,294, Cl. 267-170.000.
- Moniot, Jerome L.; Fox, Rita T.; Sprague, Peter W.; and Haslanger, Martin F., to E. R. Squibb & Sons, Inc. 6,6-Difluoro-5-hydroxy-4-(3-oxoalk-1-enyl)hexahydro cyclopenta[b] furan-2-ols. 4,362,872, Cl. 542-429.000.
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Grollier, Jean F.; Monnais, Christian; and Peritz, Lyonel, 4,362,528, Cl. 8-406.000.
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- Monsanto Company: See—
Burk, Raymond D., 4,362,850, Cl. 525-316.000.
- D'Amico, John J., 4,362,547, Cl. 71-90.000.
- MacLean, Donald L., 4,362,613, Cl. 208-108.000.
- Montmorey, Robert, to Agence Nationale de Valorisation de la Recherche (ANVAR). Procedure for the artificial modification of atmospheric precipitation as well as compounds with a dimethyl sulfoxide base for use in carrying out said procedure. 4,362,271, Cl. 239-2.00R.
- Moon, Fred H., to Zenith Radio Corporation. Four band VHF varactor tuner. 4,363,135, Cl. 455-180.000.
- Mooney, Joseph R. Means and method of sensing temperature. 4,362,403, Cl. 374-4.000.
- Moor, B. J.: See—
Brush, Claire; McCormick, Keith M.; and Moor, B. J., 4,361,926, Cl. 15-236.00R.
- Moore, Kenneth: See—
Erskine, William G.; Moore, Kenneth; Purvis, Ronald; Ridley, Robert F.; and Shreeve, Nicholas G., 4,362,378, Cl. 355-3.0TR.
- Moore, Russell H.; and O'Meara, Patrick, to Mead Corporation. The Method and apparatus for curing a foundry core. 4,362,204, Cl. 164-16.000.
- Morche, Klaus: See—
Dhein, Rolf; Hentschel, Karl-Heinz; Nutz, Karl; Morche, Klaus; and Schule, Wolfgang, 4,362,635, Cl. 252-56.00S.
- Morey, Booker W., to Occidental Research Corporation. Process and apparatus for recovering metal and plastic from insulated wire. 4,362,276, Cl. 241-24.000.
- Morgan, Arthur E. W.: See—
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- Mori, Kazumasa; Asahi, Taro; Banzai, Keiichiro; Iwaki, Katsutaro; Muto, Katsuya; Mase, Akira; Minura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, to Nippondenso Co., Ltd. Generation control system for vehicles. 4,362,983, Cl. 322-28.000.
- Morimoto, Yoshihiro: See—
Harasaki, Hayathugu; and Morimoto, Yoshihiro, 4,362,331, Cl. 296-194.000.
- Morita, Minoru, to Tsukishima Kikai Co., Ltd. Method for distilling ethyl alcohol by adding salt or salts. 4,362,601, Cl. 203-19.000.
- Moritz, Dieter: See—
Kruger, Jorg; Thome, Roland; Moritz, Dieter; Bings, Hubert; and Losert, Herbert, 4,362,701, Cl. 422-194.000.
- Morris, Arthur J.: See—
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- Morris, Darryl C., to Northern Telecom, Inc. Method of and apparatus for producing a logarithmic representation of an input voltage. 4,362,995, Cl. 328-145.000.
- Morrison, Larry J.: See—
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- Morse, Stephen P.: See—
Pohlman, William B., III; Ravenel, Bruce W., III; McKevitt, James F., III; and Morse, Stephen P., 4,363,091, Cl. 364-200.000.
- Motomura, Minoru; Shibata, Kiyoshi; and Watanabe, Toshio, to Mita Industrial Company Limited. Fixing and heating device for electrostatic copying apparatus. 4,362,502, Cl. 432-60.000.
- Motoori, Ryuzo: See—
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- Motorola, Inc.: See—
Cohn, Jona; Davidson, Allen L.; and van den Heuvel, Anthony P., 4,363,129, Cl. 455-17.000.
- Moulinex, Societe Anonyme: See—
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- Mowbray, Dorian F., to Lucas Industries Limited. Fuel injection pumping apparatus. 4,362,141, Cl. 123-449.000.
- MTD Products Inc.: See—
Plamper, Gerhard R.; Kaesgen, Hartmut; and Rush, Robert W., Jr., 4,362,228, Cl. 192-0.094.
- Rush, Robert W., Jr.; and Fortlage, Paul R., 4,362,004, Cl. 56-11.300.
- Mulder, Bernardus A.; and Witteveen, Bontko, to OCE-Nederland B.V. Polygonal mirror with tightened reflecting foil. 4,362,363, Cl. 350-299.000.
- Muller, Helmut: See—
Herrmann, Lothar; and Muller, Helmut, 4,362,927, Cl. 235-132.00R.
- Mune, Isao; Suzuki, Kihachi; and Okuno, Toshimitu, to Nitto Electric Industrial Co., Ltd. Composition for forming a release coating layer. 4,362,833, Cl. 524-265.000.
- Munekata, Seiji: See—
Yamabe, Masaaki; Munekata, Seiji; and Samejima, Shunichi, 4,362,672, Cl. 260-544.00F.
- Muntwyler, Hans: See—
Schneider, Gernot; Trinkler, Werner; Halder, Mathis; Blazso, Eva; de Vries, Jacob; Schurmann, Konrad; and Muntwyler, Hans, 4,362,990, Cl. 324-117.00R.
- Murakami, Sadatoshi: See—
Suzuki, Ryozo; Murakami, Sadatoshi; Harada, Tatsumi; Fujiwara, Hiroyuki; and Yamasaki, Satoru, 4,362,480, Cl. 418-152.000.
- Murakami, Shohel: See—
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- Murakami, Tahachi: See—
Hasegawa, Uohiko; Fujii, Yasuo; and Murakami, Tahachi, 4,363,065, Cl. 361-85.000.
- Murata Kikai Kabushiki Kaisha: See—
Kikuchi, Syuichi, 4,362,011, Cl. 57-291.000.
- Murata Manufacturing Co., Ltd.: See—
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- Senda, Aisuo; Kasanami, Tohru; and Nakagawa, Takuji, 4,362,629, Cl. 210-714.000.
- Murata, Toshinori; and Matsuura, Shigeo, to Hitachi, Ltd. Channel selection apparatus. 4,363,134, Cl. 455-161.000.
- Murayama, Yoshinobu; and Hayashi, Tetsuaki, to Kubota, Ltd. Change speed apparatus for a tractor. 4,362,070, Cl. 74-691.000.
- Murphy, Richard J.: See—
Burke, James J.; Douglass, Dale A.; Lacy, Robert A.; Murphy, Richard J.; Wilson, Delano D.; and Wright, Jonathan B., 4,362,986, Cl. 324-51.000.

- Murray, Myles N., to Industrial Electronic Rubber Company. Apparatus and product useful in manufacture and handling of cable seals. 4,362,786, Cl. 428-36.000.
- Musante, Louis P.: See—
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- Muto, Katsuya: See—
Akita, Yoshio; Maruyama, Toshinori; and Muto, Katsuya, 4,362,982, Cl. 320-64.000.
- Mori, Kazumasa; Asahi, Taro; Banzai, Keiichiro; Iwaki, Katsutaro; Muto, Katsuya; Mase, Akira; Minura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, 4,362,983, Cl. 322-28.000.
- Muzamder, Deepak: See—
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- Nagai, Koji: See—
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- Nagano, Hirosaku: See—
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- Nagano, Yasuaki; and Naka, Toshiaki, to Shibuya Kogyo Co., Ltd. Apparatus for sticking labels to containers. 4,362,594, Cl. 156-567.000.
- Nagase, Hiroshi, to Takeda Chemical Industries, Ltd. Tetrahydrophthalimide derivatives, herbicidal compositions and use. 4,362,546, Cl. 71-88.000.
- Nagata, Katsuhisa: See—
Masuhara, Eiichi; Nakabayashi, Nobuo; Nagata, Katsuhisa; and Takeyama, Morio, 4,362,842, Cl. 524-854.000.
- Naito, Junichiro; Yamamoto, Shinichi; Suzuki, Zituo; and Asano, Mitsuru, to Nippon Soken, Inc. Extrusion device for forming a honeycomb structure. 4,362,495, Cl. 425-376.00A.
- Naka, Toshiaki: See—
Nagano, Yasuaki; and Naka, Toshiaki, 4,362,594, Cl. 156-567.000.
- Nakabayashi, Nobuo: See—
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- Nakagawa, Takuji: See—
Senda, Aisuo; Kasanami, Tohru; and Nakagawa, Takuji, 4,362,629, Cl. 210-714.000.
- Nakagawa, Tatsuya, to Excell Corporation. Method for molding a plastic pipe. 4,362,688, Cl. 264-503.000.
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Kida, Makoto; Izawa, Motowo; and Nakahama, Kazuo, 4,362,663, Cl. 260-239.30P.
- Nakahara, Yutaka: See—
Minagawa, Motonobu; and Nakahara, Yutaka, 4,362,830, Cl. 524-101.000.
- Nakajima, Katsuki, to Doryokuro Kakunrenryo Kaihatsu Jigyodan. Alpha-ray radiation source photographing device. 4,362,937, Cl. 250-306.000.
- Nakajima, Takeaki; Yoshimura, Tatsushiro; and Karasawa, Yukihiro, to Daikin Kogyo Co., Ltd. Surgical sutures. 4,362,162, Cl. 128-334.00R.
- Nakajima, Teruo: See—
Ohnishi, Tatsuo; Uemura, Takeshi; and Nakajima, Teruo, 4,362,078, Cl. 83-862.000.
- Nakajima, Yutaka: See—
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- Nakamura, Kenichi: See—
Machida, Yoshiro; Nakamura, Kenichi; Mifune, Takao; and Sugishima, Masayuki, 4,362,490, Cl. 425-128.000.
- Nakanishi, Teruyuki; Akune, Toshiyuki; Kusaba, Takashi; and Ehiro, Takashi, to Kawasaki Steel Corporation. Method of forming beam blank. 4,362,041, Cl. 72-221.000.
- Nakano, Fumio: See—
Umeda, Takao; Igawa, Tatsuo; Simazaki, Yuzuru; Miyashita, Takao; and Nakano, Fumio, 4,362,771, Cl. 428-1.000.
- Nakano, Masao: See—
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- Nakano, Yoshiaki: See—
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- Nakashima, Yasutaka: See—
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- Nakatani, Koma, to Nihon Velbon Seiki Kogyo Kabushiki Kaisha. Shoulder-carriable cart. 4,362,307, Cl. 280-30.000.
- Nakayama, Wataru: See—
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- Daikoku, Takahiro; Ikegawa, Masahiro; Nakayama, Wataru; and Ueda, Taisei, 4,363,013, Cl. 336-60.000.
- Narita, Seiichi: See—
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- Narusawa, Toshiaki: See—
Yagishita, Teruo; Okada, Seiji; Narusawa, Toshiaki; and Okuyama, Hirofumi, 4,362,801, Cl. 430-83.000.
- National Distillers & Chemical Corp.: See—
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- National Semiconductor Corporation: See—
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- Natzel, Jerome W.: See—
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- NCR Canada Ltd - NCR Canada Ltee: See—
Subramaniam, Ambati, 4,363,036, Cl. 358-261.000.
- NCR Corporation: See—
Cordes, Richard E.; and Sears, Ronald J., 4,362,408, Cl. 400-481.000.
- Sears, Ronald J.; and Gross, Jack R., 4,362,911, Cl. 200-5.00A.
- van Driest, Hans, 4,362,997, Cl. 329-50.000.
- Necsoiu, Ion-Jan; Bratu, Polidor P.; Ghinea, Aurelian; and Axinte, Gavril, to Institutul de Cercetari in Constructii si Economia Constructiilor. Step adjustable monoaxial vibrator. 4,362,066, Cl. 74-87.000.
- Neesse, James A., to Sparton Corporation. Method of adjusting air gap of an electric horn. 4,361,952, Cl. 29-594.000.
- Neil, Clyde C.: See—
Hammer, Jacob M.; Kaiser, Charlie J.; and Neil, Clyde C., 4,362,367, Cl. 350-433.000.
- Nelson, Donald L.: See—
Friedli, Hans R.; Nelson, Donald L.; and Massingill, John L., Jr., 4,362,848, Cl. 525-193.000.
- Nelson, Eugene D.; and Rasovich, Ivan. Foam splitter. 4,362,539, Cl. 55-178.000.
- Nelson, John P.: See—
Cockerham, C. C., Jr.; and Nelson, John P., 4,362,001, Cl. 53-441.000.
- Nethery, Stanton K., to Fisher Controls Company, Inc. Combustion control system and method. 4,362,499, Cl. 431-12.000.
- Neuman, Clayton L. Two-cycle engine. 4,362,132, Cl. 123-73.00D.
- Neuman, Harold L.: See—
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- Neuray, Dieter: See—
Korber, Helmut; Tacke, Peter; Fahnler, Friedrich; Neuray, Dieter; and Heydenreich, Frieder, 4,362,846, Cl. 525-66.000.
- Neville, David J.: See—
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- Neville, Melvin L.: See—
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- New World Computer Company, Inc.: See—
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- New York University: See—
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- NFE International Ltd.: See—
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- Nguyen, Chinh T.: See—
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- Nicaise, Remy: See—
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- Nicholson, Brian: See—
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- Nicolai, Donald R.; and Hanson, Oliver D. Diagnostic measuring instrument. 4,362,167, Cl. 128-778.000.
- Nielsen, Floyd P.; and Wallender, Thomas A., to Nielsen Industries, Inc. Milking barn system and apparatus. 4,362,127, Cl. 119-14.030.
- Nielsen Industries, Inc.: See—
Nielsen, Floyd P.; and Wallender, Thomas A., 4,362,127, Cl. 119-14.030.
- Nigol, Olaf; and Houston, Herbert J., to Slater Steel Industries Limited. Air cylinder-type vibration absorber for suspended cables and suspended cable in combination therewith. 4,362,900, Cl. 174-42.000.
- Nigol, Olaf; and Houston, Herbert J., to Slater Steel Industries Limited. Bellows-type vibration absorber for suspended cables and suspended cable in combination therewith. 4,362,901, Cl. 174-42.000.
- Nihon Kogyo Kabushiki Kaisha: See—
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- Nihon Velbon Seiki Kogyo Kabushiki Kaisha: See—
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- Nijhuis, Johan W., to Machinefabriek G.J. Nijhuis B.V. Apparatus for electrically stunning slaughter cattle. 4,361,932, Cl. 17-1.00E.
- Nimry, Tayseer S.; and Fields, Ellis K., to Standard Oil Company (Indiana). Polyimides from bicyclo[4.2.0]octane-7,8-dimethyl-3,4,7,8-tetracarboxylic acid dianhydride (I) and bicyclo [4.2.0]octane-2,5 diphenyl-7,8-dimethyl-3,4,7,8-tetracarboxylic dianhydride. 4,362,859, Cl. 528-188.000.
- Ninomiya, Yoshito: See—
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- Nippon Kogaku K.K.: See—
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- Kazami, Kazuyuki; and Ohtsubo, Yoshiaki, 4,362,373, Cl. 354-234.000.
- Ogasawara, Akira; and Motoori, Ryuzo, 4,362,956, Cl. 307-355.000.

- Nippon Kokan Kabushiki Kaisha: See—
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- Kajikawa, Shuji; Kanai, Kazuo; Ito, Haruo; Hirata, Yoshihisa; Konishi, Jiro; Takasaki, Yasuo; Ohkoshi, Kenji; and Yanagida, Yoshinobu, 4,362,504, Cl. 432-83.000.
- Nippon Oil and Fats Co. Ltd.: See—
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- Nippon Soken, Inc.: See—
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- Naito, Junichiro; Yamamoto, Shinichi; Suzuki, Zituo; and Asano, Mitsuru, 4,362,495, Cl. 425-376.00A.
- Nippondenso Co., Ltd.: See—
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- Kumita, Norio; Ori, Takaaki; and Narita, Seiichi, 4,362,913, Cl. 200-61.45R.
- Miyamoto, Yoshimi; Kojima, Keiichi; and Toriumi, Yasuo, 4,363,019, Cl. 338-214.000.
- Mori, Kazumasa; Asahi, Tarō; Banzai, Keiichiro; Iwaki, Katsutaro; Muto, Katsuya; Mase, Akira; Minura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, 4,362,983, Cl. 322-28.000.
- Sano, Hiromi; Suzuki, Masatoshi; Hamaya, Masahiro; and Ouki, Masami, 4,362,609, Cl. 204-195.00S.
- Yamaguchi, Toshiyuki; Nobuchi, Hiroyuki; Nakano, Yoshiaki; and Mizuno, Tiaki, 4,362,144, Cl. 123-609.000.
- Nipponseimitsu Kogyo Kabushiki Kaisha: See—
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- Nishi, Katsuhide: See—
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- Nishigaki, Masahiko: See—
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- Nishikawa, Masahiro: See—
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- Nishikawa, Yoshiyasu; Harada, Chosei; and Nakano, Masao, to Kawasaki Jukogyo Kabushiki Kaisha. Single curvature fan wheel of a diagonal flow fan, 4,362,468, Cl. 416-186.00R.
- Nishimatsu, Shigeru: See—
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- Nishimoto, Tatsuya: See—
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- Nishimura, Keizo; and Kanazawa, Yasunori, to Hitachi, Ltd. Automatic operation control apparatus for a PCM recording and reproducing system, 4,363,039, Cl. 360-19.100.
- Nishiyama, Toyoo: See—
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- Nissan Gosei Kogyo Co., Ltd.: See—
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- Nissan Motor Company, Limited: See—
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- Nitto Electric Industrial Co., Ltd.: See—
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- Norcross Investments Limited: See—
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- Nordson Corporation: See—
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- Noritake, Yutaka: See—
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- North American Philips Consumer Electronics Corp.: See—
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- Northern Telecom, Inc.: See—
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- Northern Telecom Limited: See—
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- Black, David H. A.; Joyce, Robert H.; Daaboul, Fouad; and Le Van, Tiu, 4,363,122, Cl. 370-81.000.
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- Nozaki, Ken: See—
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- Occidental Chemical Corporation: See—
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- Occidental Research Corporation: See—
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- Salisbury, Winfield W., 4,363,137, Cl. 455-40.000.
- OCE-Nederland B.V.: See—
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- Tiek, Fredericus J. A. M.; and Stienstra, Jan B., 4,362,379, Cl. 355-3.05H.
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- Ogasawara, Akira; and Motoori, Ryuzo, to Nippon Kogaku K.K. Absolute value circuit, 4,362,956, Cl. 307-355.000.
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- O'Hanlon, Peter J.: See—
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- O'Hare, Louis R. Hydrogen pyrolysis fuel injection, 4,362,137, Cl. 123-295.000.
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- Ohhashi, Masahide; and Yanagi, Hisao, to Tokyo Shibaura Denki Kabushiki Kaisha. Binary multiplication cell circuit, 4,363,107, Cl. 364-758.000.
- Ohkoshi, Kenji: See—
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- Ohlinger, Manfred; Reichert, Hans; Vaeth, Guenter; Faulhaber, Friedrich R.; Autzen, Horst; Rudolf, Peter; and Werther, Joachim, to

- BASF Aktiengesellschaft. Preparation of acicular gamma-iron(III) oxide of high coercive force, 4,362,708, Cl. 423-634.000.
- Ohnishi, Tatsuo; Uemura, Takeshi; and Nakajima, Tetsuo, to Akzona Incorporated. Method of blanking, 4,362,078, Cl. 83-862.000.
- Ohnmacht, Helmut; and Hofer, Edwin, to Fritz Eichenauer, Firma. Method of and apparatus for the production of a toaster heating element, 4,361,954, Cl. 29-611.000.
- Ohno, Isamu: See—
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- Ohno, Tetatsu. Polishing apparatus, 4,361,989, Cl. 51-164.100.
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- Ohtsubo, Yoshiaki: See—
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- Ohtsuki, Tadashi; Kazami, Shinichi; Anjyu, Shinji; and Tanaka, Masato, to Sony Corporation. Method and apparatus for editing digital signals, 4,363,049, Cl. 360-13.000.
- Ohzeki, Toshio; Akutsu, Mitsuo; and Semba, Takanori, to Adeka Argus Chemical Co., Ltd. Synergistic light and heat stabilizer compositions for synthetic resins and resin compositions containing the same, 4,362,831, Cl. 524-102.000.
- Oka, Shoji: See—
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- Okada, Seiji: See—
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- Okamura Oil Mill Limited: See—
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- Okazaki, Masaki: See—
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- Okuno, Toshimitu: See—
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- Okuyama, Hirofumi: See—
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- Olin Corporation: See—
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- Oliver, Earl P. Shower curtain holder, 4,361,914, Cl. 4-605.000.
- Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Kunkel, Heinrich; Dobhan, Herbert; Horling, Peter; and Klupfel, Norbert, to SKF Kugellagerfabriken GmbH. Method and apparatus for casting or injection-molding of cages of cylindrical rolling elements, 4,362,687, Cl. 264-318.000.
- Olzewski, Anthony R.; Tick, Paul A.; and Sanford, Leon M., deceased (by Sanford, Michele R., administratrix), to Corning Glass Works. Moldable fluoroaluminophosphate glasses, 4,362,819, Cl. 501-44.000.
- Olstynski, Adalbert; and Hardegen, Bernd, to Buehler-Miag GmbH. Material conveying system with a pneumatically or mechanically operated substantially upright conveyor provided with a device for loosening and transporting the material to the upright conveyor, 4,362,237, Cl. 198-509.000.
- Olympus Optical Co., Ltd.: See—
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- Omata, Katumi, 4,361,948, Cl. 29-517.000.
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- Takahashi, Naoyuki, 4,362,355, Cl. 350-84.000.
- Omata, Katumi, to Olympus Optical Company Ltd. Method of manufacturing cytodiagnostic brush assembly, 4,361,948, Cl. 29-517.000.
- O'Meara, Patrick: See—
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- Onotera, Larry Y.: See—
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- Onoye, Hideo: See—
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- Opalka, Chester J., Jr.: See—
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- Orlowski, Jan A.; Butler, David V.; and Kidd, Patrick D., to Scientific Pharmaceuticals, Inc. Adducts of 1,4-bis[(3-methacryloyl-2-hydroxy-
- propoxy)methyl] cyclohexane and derivatives thereof with isocyanates, 4,362,888, Cl. 560-162.000.
- Orsini, Jean-Vitus, to Etablissements Carpano & Pons. Device for controlling a bidirectional DC motor, 4,362,975, Cl. 318-293.000.
- Orloff, John E.; and Wolfram, W. Robert, Jr., to Exxon Production Research Co. Limited angle piggable swivel, 4,362,325, Cl. 285-190.000.
- Osaka, Hiroshi; Honma, Akira; and Kizaki, Yoshio, to Clarion Co., Ltd. Phase locked loop for use with discontinuous input signals, 4,363,003, Cl. 331-1.00A.
- Osaka, Norihisa: See—
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- Osawa, Tadashi: See—
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- Ostermeyer, Larry F., to K. E. McConaughay, Inc. Petroleum distillate free prime coat material, 4,362,568, Cl. 106-232.000.
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- Otis Elevator Company: See—
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- Otis Engineering Corporation: See—
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- Othofer, Jacob A., Jr., to Armstrong World Industries, Inc. Print screen stencil and its production, 4,362,808, Cl. 430-308.000.
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- Marzocchi, Alfred; and Shannon, Richard F., 4,362,780, Cl. 428-283.000.
- Ritter, George W., II, 4,362,768, Cl. 427-307.000.
- Shannon, Richard F., 4,362,675, Cl. 264-28.000.
- Thompson, Thomas K., 4,362,541, Cl. 65-2.000.
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- Owens-Illinois, Inc.: See—
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- Oy Lohja AB: See—
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- Pacific Nuclear Fuels, Inc.: See—
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- Pacific Paperboard Products, Inc.: See—
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- Packaging Corporation of America: See—
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- Page, Donald F.: See—
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- Paloian, Michael D.; and George, Peter D., to Ransom F. Shoup & Company, Inc. Voting machine. 4,362,925, Cl. 235-51.000.
- Panagin, Romano, to Centro Ricerche Fiat S.p.A. Railway vehicle trucks. 4,362,109, Cl. 105-182.00R.
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- Parkison, Richard G.; Fischer, Armin O.; and Kaussner, John C., to American Standard Inc. Sanitary fitting. 4,362,186, Cl. 137-625.170.
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- Patel, Parsotam T.: See—
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- Pell, Philip T. Table game employing two sets of cards. 4,362,303, Cl. 273-274.000.
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- Perrot, Friedrich, to ETA A.G. Ebauches-Fabrik. Battery holder for electronic wrist watch. 4,362,396, Cl. 368-203.000.
- Perrut, Michel; Pointet, Marcel; and de Santerre, Henri T., to Societe Nationale Elf Aquitaine. Liquid sample injection system for gas chromatography. 4,362,046, Cl. 73-23.100.
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- Peterson, Avo, to V. Lowener Maschinen GmbH. Belt-tension gauge. 4,362,062, Cl. 73-862.470.
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- Peterson, Nils A. I., to Brio Toy AB. Connection element for making assemblies of toy units. 4,361,979, Cl. 46-26.000.
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- Petree, Marcella: See—
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- Petrovich, Vojislav. Froth flotation of ores. 4,362,552, Cl. 75-2.000.
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- Phung, Nhu H.: See—
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- Polasek, Randolph J. Beverage dispenser. 4,362,256, Cl. 222-383.000.
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- Polster, Louis S. Cooking time control system. 4,362,094, Cl. 99-342.000.
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- Prusak, John J., to RCA Corporation. Apparatus for compression molding recorded discs. 4,362,492, Cl. 425-309.000.
- PTX-Pentronix, Inc.: See—
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- Puccio, Guy S.; and Kerschner, James J., to Acme Highway Products Corporation. Cover cap for the anchor bolt receiving channel of an expansion joint system retainer. 4,362,429, Cl. 404-68.000.
- Puck, Alfred; and Voirel, Peter, to Ciba-Geigy Corporation. Power transmission shaft. 4,362,521, Cl. 464-181.000.
- Puhak, Peter G., to North American Philips Consumer Electronics Corp. Strengthened CRT aperture mask frame. 4,362,963, Cl. 313-407.000.
- Pukhov, Yuri G.: See—
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- Rader, Kurt; and Stoss, Peter, to Heinrich Mack Nachf. Chem-Pharm. Fabrik. Vincamine saccharinate and a pharmaceutical composition containing it dissolved therein. 4,362,730, Cl. 424-256.000.
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- Ramsay, William R.; and Spilker, James J., Jr., to Lockheed Missiles & Space Company, Inc. Binary digital communication system. 4,363,130, Cl. 455-27.000.
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- Ratto, Joseph J.; and Hamermesh, Charles L., to Rockwell International Corporation. Addition curing polystyryl pyridine. 4,362,860, Cl. 528-248.000.
- Raudenbusch, Werner T.: See—
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- Geovondyan, Ara, 4,362,574, Cl. 148-1.500.
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- Dietz, Wolfgang F. W., 4,362,974, Cl. 315-408.000.
- Hammer, Jacob M.; Kaiser, Charlie J.; and Neil, Clyde C., 4,362,367, Cl. 350-433.000.
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- Rosch, William R.; and Gorog, Istvan, 4,363,118, Cl. 369-58.000.
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- Rice, Doris M.: See—
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- Rice, Paul G.: See—
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- Richter, Herbert; and Schaaf, Karl, to Bopp & Reuther GmbH. Spring loaded safety valve. 4,362,183, Cl. 137-489.000.
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- Ritcey, Gordon M.; Price, Kenneth T.; and Lucas, Bernard H., to Canadian Patents and Development Limited. Recovery of copper and zinc from complex chloride solutions. 4,362,607, Cl. 204-108.000.
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- Robinson, Delmar W., to UOP Inc. Hydrocarbon conversion catalyst. 4,362,653, Cl. 252-455.00R.
- Robinson, Michael A. Cattle saddle. 4,362,003, Cl. 54-44.000.
- Roccaforte, Harry I., to Champion International Corporation. Display card with concave panel. 4,362,239, Cl. 206-45.140.
- Rockwell International Corporation: See—
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- Esghy, Siavash, 4,361,945, Cl. 29-407.000.
- Ratto, Joseph J.; and Hamermesh, Charles L., 4,362,860, Cl. 528-248.000.
- Thomson, Wallace B., 4,362,149, Cl. 126-400.000.
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- Rogers, Norman H.; O'Hanlon, Peter J.; and Walker, Graham, to Beecham Group Limited. Antibacterial monic acid esters. 4,362,743, Cl. 424-283.000.
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- Roiseth, Kjell. Devices and method for handling a person on a base. 4,361,918, Cl. 5-81.00R.
- Roland, George R., to Levolor Lorentzen, Inc. Panel ceiling and light fixture. 4,363,082, Cl. 362-148.000.
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- Simpson, Harold G., to Encon Products, Inc. Frameless enclosure assembly. 4,361,993, Cl. 52-222.000.
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- Sokukawa, Masaki: See—
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- Sprangle, Phillip A.: See—
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- Staples, Phillip E., to Coulter Systems Corporation. Method of toner
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- Stelcher, William N., to Kintronics Corporation. Practice weapon
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- Stelling, Walter R., Jr.; Cummins, William A.; and Beaudoin, John F.,
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- Leshner, George Y.; and Brundage, Ruth P., 4,362,735, Cl.
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- Stoddard, Philip V.: See—
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128-670.000.
- Stone-Platt Oldham Limited: See—
Walton, John M.; and Mather, Anthony H., 4,362,227, Cl.
192-70.280.
- Story, Gene F.; and La Belle, John T., to Automotive Environmental
Systems, Inc. Temperature achievement controller. 4,362,924, Cl.
219-497.000.
- Stoss, Peter: See—
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- Stoudt, Thomas H.: See—
Dobna, Robert W.; Mayles, B. Allen; and Stoudt, Thomas H.,
4,362,621, Cl. 210-450.000.
- Strahner, Emanuel, to Voest-Alpine Aktiengesellschaft. Apparatus for
removing dust particles from an air stream. 4,362,540, Cl. 55-257.00C.
- Straub, Hermann, to Sulzer Brothers Limited. Casing for an armoured
vehicle. 4,362,083, Cl. 89-36.00H.
- Streck, Donald A. Intraocular lens. 4,361,913, Cl. 3-13.000.
- Strianse, Sabbat J.; Sherry, Howard S.; and Hertenberg, Elliot P., to
PQ Corporation. Cosmetic vehicle. 4,362,715, Cl. 424-78.000.
- Stricker, Alfred A.: See—
Davis, Gordon T.; Faulkner, Edward H.; Gasparri, Angelo S.;
Magee, Robert A.; Remsen, Lawrence P.; Saylor, Dennis L.; and
Stricker, Alfred A., 4,362,486, Cl. 425-110.000.
- Stropkay, Edward J.: See—
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141-94.000.
- Struve, Alfred: See—
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gang; and Struve, Alfred, 4,362,815, Cl. 435-172.000.
- Stubbs, Vincent K., to ICI Australia Limited. Synergistic tickicidal
compositions containing organophosphorus compounds and cyclo-
propane carboxylates. 4,362,722, Cl. 424-219.000.
- Stumpp, Gerhard; Eblen, Ewald; Hofmann, Karl; Kopse, Odon;
Amaya, Nestor R.; Schlagenhauf, Josef; and Locher, Johannes, to
Robert Bosch GmbH. Fuel injection nozzle for internal combustion
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- Sturdy, Harry D.: See—
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- Sturdy Truck Equipment, Inc.: See—
Krueger, Ronald M.; and Sturdy, Harry D., 4,362,138, Cl.
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Method and apparatus for compressing digital data using non-adap-
tive predictive techniques. 4,363,036, Cl. 358-261.000.
- Suddeutsche Kuehlerfabrik Julius Fr. Behr GmbH & Co. K.G.: See—
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- Sudo, Sumio; Anan, Hiromichi; and Yamada, Masayuki, to Hitachi,
Ltd. Movable blade pump. 4,362,463, Cl. 415-129.000.
- Suen, Kwai W.: See—
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- Sugawara, Toru: See—
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chi; Miki, Masayuki; and Sasayama, Takao, 4,363,097, Cl.
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- Sugihara, Hirosada: See—
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- Sugino, Yoshito; and Yamamoto, Norihiko. Simulated shrimp meat and
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- Sugishima, Masayuki: See—
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- Sugiyama, Ikuo: See—
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yama, Ikuo; Tsujiuchi, Yoshio; and Hara, Shigeo, 4,362,362, Cl.
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- Sugiyama, Kazuo: See—
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- Sulc, Josef M. Dental attachment structure. 4,362,509, Cl. 433-181.000.
- Sullivan, Gerald V.: See—
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209-167.000.
- Sullivan, Thomas J. Method for treating skin disorders. 4,362,742, Cl.
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- Sullivan, William B., Jr., to Raytheon Company. Radio frequency
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- Sumi, Takeshi: See—
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- Sumida, Yasuji: See—
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- Sumitomo Chemical Company, Limited: See—
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- Sumitomo Electric Industries: See—
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- Torigai, Eiichi; Wakabayashi, Noboru; Kawami, Yoji; Kamijo, Eiji; Nishimoto, Tatsuya; and Tani, Katsuhito, 4,362,647, Cl. 252-425.300.
- Sumitomo Jukikai Envirotech, Inc.: See—
Ikari, Yoshikatsu; Yokoyama, Shiyochiro; Katoh, Keisuke; Itaya, Ryutaro; and Kaga, Toshio, 4,362,571, Cl. 127-55.000.
- Sun Metal Products, Inc.: See—
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- Sundstrand Corporation: See—
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- Sjölund, John R., 4,362,182, Cl. 137-85.000.
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- Superior Industries International, Inc.: See—
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- Surkamp, Paul; and Brock, Josef, to Maschinenfabrik Carl Zangs Aktiengesellschaft, Rotary dobby, 4,362,188, Cl. 139-76.000.
- Suzuki, Kihachi: See—
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- Suzuki, Masahiko: See—
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- Suzuki, Masatoshi: See—
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Shimada, Yukio; Suzuki, Naoyoshi; Ohashi, Toshio; and Inoshita, Yasushi, 4,362,268, Cl. 236-13.000.
- Suzuki, Nobuhiro, to Tomy Kogyo Co., Inc. Amusement device with fluid movable articulated member, 4,362,299, Cl. 273-1.00L.
- Suzuki, Ryozo; Murakami, Sadatoshi; Harada, Tatsumi; Fujiwara, Hiroyuki; and Yamasaki, Satoru, to Mitsubishi Denki Kabushiki Kaisha, Rotary roller vane pump made of specific materials, 4,362,480, Cl. 418-152.000.
- Suzuki, Tadao; and Yoshida, Tadao, to Sony Corporation, Digital gain control apparatus, 4,363,001, Cl. 330-107.000.
- Suzuki, Yujiro; Mirua, Norio; and Shimizu, Keiji, to Kasei Optomix Ltd., Radiographic intensifying screen, 4,362,944, Cl. 250-483.100.
- Suzuki, Zituo: See—
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- Svenska Traforskningsinstitutet: See—
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- Svoboda, Josef, to TMC Corporation, Safety-straplike connecting member, 4,362,314, Cl. 280-637.000.
- Svoma, Joseph H., Fishing line sinker and mold for making same, 4,361,976, Cl. 43-43.100.
- Swaidner, James A.; and Holzhauser, Wendell C., to Manville Service Corporation, Seal for heated enclosure, 4,362,676, Cl. 264-35.000.
- Swartz, William E., to Stauffer Chemical Company, Production of fermented type sausage, 4,362,750, Cl. 426-59.000.
- Swindler, David L., to Square D Company, Electric arc confining device, 4,362,915, Cl. 200-144.00R.
- Sybron Corporation: See—
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- Sykes, Richard B.; Wells, Jerry S.; and Parker, William L., to E. R. Squibb & Sons, Inc. Process for preparing 1-carba-2-penem-3-carboxylic acid, 4,362,814, Cl. 435-119.000.
- Sylvan, Richard: See—
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- Sylvester, Donald D., to Dentek Systems, Inc. Water-cooled light source, 4,363,080, Cl. 362-32.000.
- Syntronics Music Corporation: See—
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- Szalkiewicz, Andrew: See—
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- Sze, Daniel T. W.: See—
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- T. B. Wood's Sons Company: See—
Wisman, Franklin D., 4,363,089, Cl. 363-137.000.
- Taber, Ronald J.; Killgoar, Paul C., Jr.; and Lemieux, Marvin A., to Ford Motor Company, Soft, heat and fatigue resistant elastomeric articles, 4,362,840, Cl. 524-525.000.
- Tabb, David L.; and Tybach, Richard J., to Miles Laboratories, Inc. Homogeneous specific binding assay test device having copolymer enhancing substance, 4,362,697, Cl. 422-56.000.
- Tabor, Paul R., to Hydrocarbon Research, Inc. Method of in situ oil extraction using hot solvent vapor injection, 4,362,213, Cl. 166-267.000.
- Tacheny, John C.; Paulson, Gary F.; and Natzel, Jerome W., to Truth Incorporated, Patio door lock, 4,362,328, Cl. 292-36.000.
- Tacke, Peter: See—
Korber, Helmut; Tacke, Peter; Fahnler, Friedrich; Neuray, Dieter; and Heydenreich, Frieder, 4,362,846, Cl. 525-66.000.
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- Taguchi, Yoshiaki: See—
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- Takada, Hiroshi: See—
Yamazaki, Hitoshi; Ito, Hiroshi; Doi, Sadaharu; Imai, Jun; and Takada, Hiroshi, 4,362,123, Cl. 118-642.000.
- Takahashi, Kihei, to Yoshida Kogyo K.K. Apparatus for manufacturing slide fastener chains having solid sections, 4,362,487, Cl. 425-111.000.
- Takahashi, Naoyuki, to Olympus Optical Co., Ltd. Operating microscope assembly, 4,362,355, Cl. 350-84.000.
- Takamatsu, Hideo: See—
Minatono, Shobu; and Takamatsu, Hideo, 4,362,841, Cl. 524-531.000.
- Takamatsu, Tadahi, to Yoshida Kogyo K.K. Method of and apparatus for attaching sliders and top end stops for slide fasteners, 4,361,946, Cl. 29-408.000.
- Takano, Yashuharu: See—
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- Takasaki, Yasuto: See—
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- Takata, Masanobu: See—
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- Takeda Chemical Industries, Ltd.: See—
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- Kida, Makoto; Izawa, Motowo; and Nakahama, Kazuo, 4,362,663, Cl. 260-239.30P.
- Nagase, Hiroshi, 4,362,546, Cl. 71-88.000.
- Takeuchi, Tatsuro; Sokukawa, Masaki; and Kimoto, Ryuzo, 4,362,626, Cl. 210-670.000.
- Takeda, Masaaki: See—
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- Takei, Haruo: See—
Mihara, Yuji; Ikeda, Tadashi; Takei, Haruo; Okazaki, Masaki; and Aotsuka, Yasuo, 4,362,813, Cl. 430-550.000.
- Takei, Yutaka: See—
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- Takeuchi, Tatsuro; Sokukawa, Masaki; and Kimoto, Ryuzo, to Takeda Chemical Industries, Ltd. Ion exchanger of hydrated oxide of Ti, Zr, or Sn and cured polyester, and exchange method, 4,362,626, Cl. 210-670.000.
- Takeyama, Morio: See—
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- Takimoto, Hiroyuki: See—
Maeda, Masaya; Hirata, Norisugu; and Takimoto, Hiroyuki, 4,363,051, Cl. 360-33.100.
- Takimoto, Masaaki; Sawada, Kenichi; and Kawamura, Kouichi, to Fuji Photo Film Co., Ltd. Sensitized photoconductive compositions and electrophotographic photosensitive layers using such, 4,362,800, Cl. 430-83.000.
- Takiron Co., Ltd.: See—
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- Talon, Inc.: See—
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- Talres Development (N.A.) N.V.: See—
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- Tanabe, Kenjiro: See—
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- Tanaka, Kentaro; Kondo, Eiji; Matsumoto, Kouichi; Shoji, Jun'ichi; and Tsuji, Naoki, to Shionogi & Co., Ltd. Antibiotic PA-39504-X₁ and production thereof, 4,362,665, Cl. 260-245.20T.
- Tanaka, Masashi; Fujii, Nobuhiro; and Takano, Yashuharu, to Toshiba Electric Equipment Corporation, Screw-based incandescent lamp type fluorescent lamp, 4,363,083, Cl. 362-216.000.
- Tanaka, Masashi: See—
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- Tanaka, Masato: See—
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- Tanaka, Shosuke; and Abe, Fumiyoshi, to Sony Corporation, Time counting clock generator, 4,363,048, Cl. 360-137.000.

- Tanaka, Susumu; Nagai, Koji; and Inagaki, Sanzi, to Minolta Camera Kabushiki Kaisha, Powdery developing material for electrophotographic reproduction, 4,362,802, Cl. 430-106.600.
- Tanaka, Taku: See—
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- Taner, Mehmet T.; Koehler, Fulton; Anstey, Nigel A.; and Castelberg, Michael J., to Seiscom Delta, Inc. Seismic exploration with simulated plane waves, 4,363,113, Cl. 367-63.000.
- Tani, Katsuhito: See—
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- Taniel, Gerard: See—
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- Tanii, Hirokuni: See—
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- Tanner, Olof: See—
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- Tatarnikov, Viktor P.: See—
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- Taudt, Heinz, to Dr.-Ing. Rudolf Hell GmbH, Apparatus and process for recording an image free of line structure, 4,363,037, Cl. 358-296.000.
- Taylor, Chauncey D.; and Sims, Herbert E., to Hydrapak Corporation, Cotton loader and packer, 4,362,457, Cl. 414-345.000.
- Taylor, Patrick R.; and Vanderloop, Jonathan P., Cobalt leaching process, 4,362,704, Cl. 423-150.000.
- Taylor, Thomas Lee: See—
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- TDK Electronics Co., Ltd.: See—
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- Yamamoto, Hirotaka; Obara, Minoru; and Fujiwara, Shinobu, 4,363,088, Cl. 363-59.000.
- Technicon Instruments Corporation: See—
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- Techniques Industrielles et Minières: See—
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- Teitel, Robert J.: See—
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- Tellabs, Inc.: See—
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- Texaco Inc.: See—
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- Texas Gas Transmission Corporation: See—
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- Texas Instruments Incorporated: See—
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- Thalenfeld, David R., to Trion Industries, Inc. Positive locking merchandise hook, 4,362,249, Cl. 211-59.100.
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- Thalmann, Alfred, to George Fischer Aktiengesellschaft, Process and apparatus for making a welding sleeve, 4,362,684, Cl. 264-230.000.
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- Thompson, Thomas K., to Owens-Corning Fiberglass Corporation, Method and apparatus for producing glass fibers or filaments, 4,362,541, Cl. 65-2.000.
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- Thomson, Wallace B., to Rockwell International Corporation, Heat storage system and method, 4,362,149, Cl. 126-400.000.
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- Tiek, Fredericus J. A. M.; and Stienstra, Jan B., to OCE-Nederland B.V. Apparatus suitable for producing duplex copies from simplex originals, 4,362,379, Cl. 355-3.0SH.
- Tiffany Industries, Inc.: See—
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- Tillman, Jerry W. Wrench, 4,362,072, Cl. 81-57.290.
- Timex Corporation: See—
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- Timofeev, Vitaly M.: See—
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- Timony, Peter E.: See—
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- Tin, Kam C.: See—
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- Tinkelenberg, Arie; Vaessen, Henricus W. L. M.; and Suen, Kwai W., to Methanol Chemie Nederland V.O.F.; and Stamicarbon B.V. Manufacture of chipboard, 4,362,827, Cl. 524-9.000.
- Tissot, Pierre L. Chess clock, 4,362,393, Cl. 368-96.000.
- TMC Corporation: See—
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- Toho Beslon Co., Ltd.: See—
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- Turner, Joe S. Synchronous inverter compatible with commercial power. 4,362,950, Cl. 307-45.000.
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- Yamashita, Shuzo; Tanaka, Taku; Tani, Hirokuni; Kubotsu, Akira; and Kawai, Syuji, to Kuraray Co., Ltd. Method of producing ethylene-vinyl alcohol copolymer hollow fiber membranes, 4,362,677, Cl. 264-41.000.
- Yamazaki, Hitoshi; Ito, Hiroshi; Doi, Sadaharu; Imai, Jun; and Takada, Hiroshi, to Mitsubishi Denki Kabushiki Kaisha. Apparatus for manufacturing fluorescent lamps, 4,362,123, Cl. 118-642.000.
- Yanagi, Hisao: See—
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- Yanagida, Yoshinobu: See—
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- Yanagisawa, Isao: See—
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- Yane, Hideki: See—
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- Yashiki, Yuichi: See—
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- Yasuda, Hiroshi, to Fujitsu Limited. Electron beam exposure system and an apparatus for carrying out the same, 4,362,942, Cl. 250-398.000.
- Yavrouian, Andre H.: See—
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- Yellin, Tobias O.; Edwards, Philip N.; and Large, Michael S., to ICI Americas Inc.; and Imperial Chemical Industries Ltd. Haloguanidine compounds, pharmaceutical compositions and method of use, 4,362,728, Cl. 424-249.000.
- Yokogawa Electric Works, Ltd.: See—
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- Yokogawa, Shozo; Ohno, Isamu; and Kurita, Yoshio, to Yokogawa Electric Works, Ltd. Vortex shedding flow measuring device, 4,362,061, Cl. 73-861.240.
- Yokoyama, Shigeki: See—
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- Yokoyama, Shioichiro: See—
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- Yokoyama, Tadamasu: See—
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- Yokozeki, Shinichi: See—
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- Yonehara, Hiroyuki; Kimura, Yoshikazu; and Tanabe, Kenjiro, to Dainippon Seizo Kabushiki Kaisha. Method and an apparatus for color compensation exposure, 4,362,383, Cl. 355-71.000.
- Yonezawa, Kazuya; and Nagano, Hirosaku, to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha. Heat-resistant resin composition, 4,362,826, Cl. 525-426.000.
- Yonezawa, Kazuya; Ishizu, Junichi; and Matsuura, Miyuki, to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha. Method of producing polyether resins using phase transfer catalysts, 4,362,857, Cl. 528-174.000.
- Yoshida, Atsushi; and Nomura, Norimasa, to Dainippon Screen Mfg. Co., Ltd. Film processor with agitation means, 4,362,377, Cl. 354-320.000.
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- Yoshino, Toshikazu: See—
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- Young, Charles W., to Dominion Textile, Inc. Automatic mixing and cloth bleaching control, 4,362,033, Cl. 68-207.000.
- Young, Dale A., to Exxon Research and Engineering Co. Side stream monitoring, 4,362,630, Cl. 210-745.000.
- Young, David G.; and Finch, Peter D., to Sperry Limited. System and method of detecting the proximity of an alternating magnetic field, 4,362,992, Cl. 324-247.000.
- Young, Ian R.; Burl, Michael; and Clarke, Graham J., to Picker International Limited. Imaging systems, 4,362,993, Cl. 324-309.000.
- Young, Robert F.: See—
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- Yuen, Johnny S. C.: See—
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- Zahnradfabrik Friedrichshafen AG: See—
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- Zahnradfabrik Friedrichshafen, Aktiengesellschaft: See—
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- Zanni, Paolo, to FIAP S.r.l. Combined gas lighter-bottle opener, 4,361,920, Cl. 7-151.000.
- Zapf, Otto; and Kuchinke, Josef, to Zapf, Otto. Sliding chair, 4,362,336, Cl. 297-317.000.
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- Zeco, Incorporated: See—
Coggins, George G., 4,363,072, Cl. 361-231.000.
- Zeilon, Sten O. Rotary compressor for gas and liquid mixtures, 4,362,473, Cl. 417-68.000.
- Zendle, Bernard; and Petree, Marcella, to United States of America, Navy. Flush mounted low impedance grounding cone, 4,362,898, Cl. 174-35.00R.
- Zenith Radio Corporation: See—
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- Ziegler, Alfred, to Siemens Aktiengesellschaft. Apparatus and method for initiation of reciprocal remote feeding of intermediate stations of a communication installation, 4,362,952, Cl. 307-77.000.
- Ziman, Stephen D., to Chevron Research Company. Herbicidal and plant-growth-regulating N-substituted-N-(2,5-dialkylpyrrol-1-yl) haloacetamides, 4,362,548, Cl. 71-90.000.
- Zimmer, Peter. Provision for rotatable bearing of a cylindrical device in a bearing housing, 4,362,345, Cl. 308-207.00R.
- Zimmermann & Jansen Gesellschaft mit Beschränkter Haftung: See—
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- Zinkann, Paul J.; Tuttle, David R.; and Tuttle, Thomas G. Grating fastener, 4,362,422, Cl. 403-387.000.
- Zinnen, Norbert; Mirtain, Henri J.; and Arends, Harm J., to Uniroyal Englebert Reifen GmbH. Tread profile for pneumatic vehicle tires, 4,362,201, Cl. 152-209.00R.
- Zlatin, David A.: See—
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- Zwysig, Jules, to Georg Fischer Aktiengesellschaft. Ultrasonic testing method and apparatus, 4,362,059, Cl. 73-628.000.

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Cardiokinetics, Inc.: See—
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Forrester, James S.: See—
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Johnston, James R. Coupling device. Re. 31,096, Cl. 24-374.000.

Luciani, Luciano: See—
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Mast, Aquila D.; and Lyet, J. Paul, II, to Sperry Corporation. Feed material handling apparatus. Re. 31,098, Cl. 406-71.000.
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Tschudy, Donald B., to Hoover Company, The. Agitator chamber. Re. 31,095, Cl. 15-383.000.
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Reverchon, Christian, to Societe Anonyme Gaston Reverchon & Ses Fils. Amusement bumper car. 267,185, 12-7-82, Cl. D21-250.000.
Ronvik, John P., to Sears, Roebuck and Co. Single handle faucet and the like. 267,187, 12-7-82, Cl. D23-28.000.
Salce, Luigi C., to Woodstocker Heating Corp. Wood stove. 267,193, 12-7-82, Cl. D23-97.000.
Sambucetti, Eugene D.; and Mathews, Keith L., to Wesco Truck & Trailer Sales. Semi-trailer. 267,166, 12-7-82, Cl. D12-101.000.
Santa-Eulalia Carvajales, Javier B.: See—
Santa-Eulalia Carvajales, Jesus A.; and Santa-Eulalia Carvajales, Javier B., 267,164, Cl. D11-158.000.
Santa-Eulalia Carvajales, Jesus A.; and Santa-Eulalia Carvajales, Javier B., 267,165, Cl. D11-158.000.
Santa-Eulalia Carvajales, Jesus A.; and Santa-Eulalia Carvajales, Javier B., to John J. Madison Co., Inc. Figurine of a doberman pinscher. 267,164, 12-7-82, Cl. D11-158.000.
Santa-Eulalia Carvajales, Jesus A.; and Santa-Eulalia Carvajales, Javier B., to John J. Madison Co., Inc. Figurine of an olde English sheepdog. 267,165, 12-7-82, Cl. D11-158.000.
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Kinsell, William D., Jr., 267,150, Cl. D9-416.000.
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Ronvik, John P., 267,187, Cl. D23-28.000.
Siegel, Paul F.: See—
Bruce, Gordon P.; Danielson, David C.; Griffith, Robert E.; Hawthorne, Allen D.; Quedenfeld, Jeffrey L.; and Siegel, Paul F., 267,151, Cl. D18-1.000.
Smith, Philip W. Blind nail. 267,148, 12-7-82, Cl. D8-389.000.
Societe Anonyme Gaston Reverchon & Ses Fils: See—
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Suzuki, Toshiyuki; and Amaki, Kiyoshi, to Yamaha Hatsudoki Kabushiki Kaisha. Wheel for motorcycle. 267,169, 12-7-82, Cl. D12-205.000.
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Thompson, Bruce R. Bathroom tumbler. 267,140, 12-7-82, Cl. D7-6.000.
Thompson, Bruce R., to UPL Group Limited. Spout. 267,188, 12-7-82, Cl. D23-32.000.
Thompson, Bruce R., to UPL Group Limited. Spout. 267,189, 12-7-82, Cl. D23-32.000.
Thomson, Arthur E.: See—
Hanaford, Donald E., 267,139, Cl. D6-146.000.
Tomasello, Jeanne F. Pocket billiards rack ornament. 267,160, 12-7-82, Cl. D11-81.000.
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Towle Manufacturing Company: See—
Pollard, Ross, 267,142, Cl. D7-74.000.

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- Tsuyuki, Akio: See—
Takahashi, Hiromi; and Tsuyuki, Akio, 267,183, Cl. D21-12.000.
- UPL Group Limited: See—
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Thompson, Bruce R., 267,189, Cl. D23-32.000.
- Vincent, Michel D. Stove, 267,192, Cl. D23-92.000.
- Weinhart, Ronald, to Hartman Products. Combined lighted mirror and digital clock. 267,205, 12-7-82, Cl. D28-67.000.
- Wesco Truck & Trailer Sales: See—
Sambucetti, Eugene D.; and Mathews, Keith L., 267,166, Cl. D12-101.000.
- West, Robert F.; and Ziel, Richard E., to Stanley Works, The. Abrading tool blade. 267,146, 12-7-82, Cl. D8-90.000.
- Whelen Engineering Company, Inc.: See—
Phelps, Charles W., 267,156, Cl. D10-114.000.
- Whorton, Robert B., III; Crosby, Samuel C., Jr.; Iannelli, Frank M.; Denmark, James; and Jeans, Edward L., to Tannetics, Inc. Packaging container for syrup or the like. 267,149, 12-7-82, Cl. D9-370.000.
- Wilkinson Sword Limited: See—
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- Winqvist, Bengt G., to AGA Aktiebolag. Combined valve assembly and frame head for the transport and handling of gas cylinders. 267,186, 12-7-82, Cl. D23-20.000.
- Witte, Paul A.; and Johnson, Thomas, to AMF Incorporated. Tennis racket. 267,184, 12-7-82, Cl. D21-212.000.
- Woodstocker Heating Corp.: See—
Salce, Luigi C., 267,193, Cl. D23-97.000.
- Wright Line Inc.: See—
Moriarty, Frederick J.; and Paquette, Edmund T., 267,138, Cl. D6-132.000.
- Yamaguchi, Ryoji; and Kurita, Toshio, to Iwatsu Electric Company, Limited. Call processor for a telephone system. 267,179, 12-7-82, Cl. D14-66.000.
- Yamaha Hatsudoki Kabushiki Kaisha: See—
Suzuki, Toshiyuki; and Amaki, Kiyoshi, 267,167, Cl. D12-205.000.
Suzuki, Toshiyuki; and Amaki, Kiyoshi, 267,169, Cl. D12-205.000.
- Ziel, Richard E.: See—
West, Robert F.; and Ziel, Richard E., 267,146, Cl. D8-90.000.

LIST OF PLANT PATENTEEES

- Conard-Pyle Company, The: See—
Meilland, Marie L., 4,961, Cl. 9.000.
- Fischer, Arnold W., to Pan-American Plant Company. African violet named Patricia. 4,963, 12-7-82, Cl. 69.000.
- Fleischle, Gerhard, to Oglevee Associates, Inc. Distinct variety of streptocarpus named Aurora. 4,962, 12-7-82, Cl. 68.000.
- Meilland, Marie L., to Conard-Pyle Company, The. Miniature rose plant—Meijidiro variety. 4,961, 12-7-82, Cl. 9.000.
- Oglevee Associates, Inc.: See—
Fleischle, Gerhard, 4,962, Cl. 68.000.
- Pan-American Plant Company: See—
Fischer, Arnold W., 4,963, Cl. 69.000.

LIST OF DEFENSIVE PUBLICATIONS

APPLICANTS TO WHOM

DEFENSIVE PUBLICATIONS WERE ISSUED ON THE 7TH DAY OF DECEMBER, 1982

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O. G. 687.

- Oblich, Richard L.: See—
Simmonds, Leonard B.; Smith, James D. B.; and Oblich, Richard L., T102,503, Cl. 427-116.000.
- Simmonds, Leonard B.; Smith, James D. B.; and Oblich, Richard L. Organo-titanate gelation of epoxy resin coated articles. T102,503, 12-7-82, Cl. 427-116.000.
- Simmonds, Leonard B.; Smith, James D. B.; and Oblich, Richard L., T102,503, Cl. 427-116.000.
- Croft, Richard. Process of preparing a potassium stannate-stannic oxide sol tin electroplating solution. T102,501, 12-7-82, Cl. 204-96.000.
- Cullum, Clifton D., Jr. Gap elimination in memory data accession. T102,502, 12-7-82, Cl. 365-16.000.

CLASSIFICATION OF PATENTS

ISSUED DECEMBER 7, 1982

NOTE.—First number, class; second number, subclass; third number, patent number

18	CLASS 2	4,361,912	196	4,361,968	737	4,362,021	CLASS 81	642	4,362,123	625.17	4,362,185
	CLASS 3		88	4,361,969	742	4,362,022	3.46 R	698	4,362,124		4,362,186
13	4,361,913		106	4,361,970	3	4,362,023	57.29	712	4,362,125		
	CLASS 4		129	4,361,971	6	4,362,024	59.1		CLASS 119	109	4,362,187
605	4,361,914		131	4,361,972	148	4,362,025		1	4,362,126		
608	4,361,915		58	4,361,973	176 E	4,362,026	13	14.03	4,362,127		
	CLASS 5				197	4,362,027	42	28	4,362,128	76	4,362,188
62	4,361,916				390	4,362,028	285	7 R	4,362,129	336	4,362,189
68	4,361,917		158 B	4,361,974	497	4,362,029	453			370.2	4,362,190
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93 B	4,361,919								CLASS 122		
	CLASS 7								CLASS 123		
151	4,361,920								1 A	4,362,130	
	CLASS 8								41.1	4,362,131	
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406	4,362,528								179 K	4,362,133	
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529	4,362,530								193 P	4,362,135	
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	CLASS 16										
38	4,361,930										
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1 E	4,361,932										
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3 M	4,361,934										
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211 M	4,361,939										
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	4,361,942										
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256	4,361,944										
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408	4,361,946										
416	4,361,947										
517	4,361,948										
571	4,361,949										
572	4,361,950										
585	4,361,951										
594	4,361,952										
596	4,361,953										
611	4,361,954										
884	4,361,955										
	CLASS 30										
122	4,361,956										
124	4,361,957										
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385	4,361,960										
	CLASS 33										
1 H	4,361,961										
143 L	4,361,962										
	4,361,963										
478	4,361,964										
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99	4,361,966										
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94 R	4,362,902	776	4,362,631	396 R	4,362,945	404	4,362,312	51	3 SH
138 G	4,362,903			398	4,362,942	628	4,362,313	52	3 TR
	4,362,904	13	4,362,247	459.1	4,362,943	637	4,362,314	52	34
CLASS 175		50	4,362,248	483	4,362,946	650	4,362,315	54	34
402	4,362,217	59.1	4,362,249	483.1	4,362,944	656	4,362,316	66	34
				519.1	4,362,948		4,362,317	71	34
CLASS 177		247	4,362,250				4,362,318	71	34
154	4,362,218			46.4	4,362,633	718	4,362,319	77	34
245	4,362,219			49.5	4,362,634	779	4,362,320		34
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1 GD	4,362,906	10.81	4,362,918	56 S	4,362,637	804	4,362,322	39	34
1 PC	4,362,905	56	4,362,920	62.3 BT	4,362,637	821		341	34
1 VE	4,362,907	61.2	4,362,921	99	4,362,639			401	34
18 HB	4,362,908	137 R	4,362,919	135	4,362,640				34
170.2	4,362,909	369	4,362,922	174.16	4,362,641				34
		441	4,362,923	175	4,362,643				34
CLASS 180		497	4,362,924	389 R	4,362,644				34
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73 R	4,362,221	22	4,362,251	422	4,362,646				34
		270	4,362,252	425.3	4,362,647				34
CLASS 181		276	4,362,253	429 B	4,362,648				34
30	4,362,222	307	4,362,254		4,362,649				34
206	4,362,223			430	4,362,648				34
CLASS 187		107	4,362,255	431 C	4,362,650				34
29 R	4,362,224	383	4,362,256	432	4,362,651				34
		402.2	4,362,257	453	4,362,652				34
CLASS 188				455 R	4,362,653				34
218 XL	4,362,225	309	4,362,258	469	4,362,654				34
				474	4,362,655				34
CLASS 192		123	4,362,259	518	4,362,656				34
0.094	4,362,228	190	4,362,260	522 R	4,362,657				34
58 B	4,362,226			609	4,362,658				34
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98	4,362,229			631	4,362,660				34
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		263 A	4,362,263						34
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345	4,362,233								34
400	4,362,234								34
419	4,362,235								34
446	4,362,236								34
509	4,362,237								34
781	4,362,238								34
CLASS 200		51	4,362,925						34
5 A	4,362,911	92 CC	4,362,926						34
5 B	4,362,912	132 R	4,362,927						34
5 EA	4,362,910	375	4,362,928						34
61.45 R	4,362,913	432	4,362,929						34
144 B	4,362,914	487	4,362,930						34
144 R	4,362,915								34
153 T	4,362,916								34
CLASS 203		13	4,362,268						34
19	4,362,601	14	4,362,269						34
59	4,362,602	46 R	4,362,270						34
75	4,362,603								34
	4,362,604								34
CLASS 204		2 R	4,362,271						34
1 T	4,362,605	7	4,362,272						34
105 R	4,362,606	128	4,362,273						34
108	4,362,607	419.3	4,362,274						34
109	4,362,608	700	4,362,275						34
195 S	4,362,609								34
263	4,362,610	24	4,362,276						34
298	4,362,611	37.5	4,362,277						34
301	4,362,612								34
CLASS 206		55.3	4,362,278						34
45.14	4,362,239	147 R	4,362,279						34
188	4,362,240								34
210	4,362,241								34
219	4,362,242								34
373	4,362,243								34
507	4,362,244								34
621	4,362,245								34
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108	4,362,613								34
235	4,362,614								34
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167	4,362,615	221.3	4,362,285						34
		229	4,362,286						34
CLASS 210		563	4,362,287						34
225	4,362,616	613	4,362,288						34
275	4,362,617	656	4,362,289						34
360.1	4,362,618								34
378	4,362,619								34
450	4,362,620								34
486	4,362,622								34
493.5	4,362,623								34
497.2	4,362,624								34
521	4,362,625								34
670	4,362,626								34
676	4,362,627								34
712	4,362,628								34
714	4,362,629								34

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210	4,363,111	343	4,362,419	256	4,362,481	CLASS 426	83	4,362,504		
	CLASS 366		4,362,420			1	148	4,362,505	CLASS 525	
61	4,362,390	369	4,362,421			36	234	4,362,506	54.23	4,362,843
	CLASS 367	387	4,362,422	5	4,362,563	59	259	4,362,507	57	4,362,844
30		393	4,362,423			94				4,362,845
63	4,363,112			CLASS 422		104	CLASS 433		66	4,362,846
149	4,363,113	6	4,362,424	56	4,362,697	332	81	4,362,508	172	4,362,847
154	4,363,114	16	4,362,425	102	4,362,698	503	181	4,362,509	193	4,362,848
	CLASS 368	40	4,362,426	131	4,362,699	579	199	4,362,510	316	4,362,849
34		64	4,362,427	179	4,362,700	587	220	4,362,511		4,362,850
82	4,362,391		4,362,428	183.04	4,362,632	599			420	4,362,851
96	4,362,392	68	4,362,429	194	4,362,701	603	CLASS 435		426	4,362,852
118	4,362,393		4,362,430		4,362,702	632	119	4,362,814	437	4,362,852
146	4,362,394	117	4,362,431	41	4,362,702	641	172	4,362,815	533	4,362,853
203	4,362,395			116	4,362,703			4,362,816		
233	4,362,396	33	4,362,432	150	4,362,704	CLASS 427	223	4,362,817	CLASS 526	
240	4,362,397	107	4,362,433	167	4,362,705	2		4,362,818	228	4,362,854
255	4,362,398	128	4,362,434	178	4,362,706	14.1	CLASS 440			CLASS 528
	4,362,399	154	4,362,435	273	4,362,707		6	4,362,512	14	4,362,855
309	4,362,400	161	4,362,436	478	4,362,708	38	61	4,362,513	111	4,362,856
317	4,362,401	188	4,362,437	634	4,362,709	39	62	4,362,514	174	4,362,857
	CLASS 369	195	4,362,438		4,362,709	130	85	4,362,515	179	4,362,858
30		228	4,362,439	CLASS 424		307		4,362,516	188	4,362,859
43	4,363,116	269	4,362,440	14	4,362,710	322	CLASS 441		248	4,362,860
58	4,363,117			33	4,362,711	409	41	4,362,517	289	4,362,861
266	4,363,118	14	4,362,441	49	4,362,712	CLASS 428	60	4,362,518	314	4,362,862
267	4,363,119	71	Re.31,098	54	4,362,713	1			353	4,362,863
	4,363,120	109	4,362,442	70	4,362,714	36	CLASS 445		388	4,362,864
	CLASS 370	188	4,362,443	78	4,362,715		17	4,363,129	500	4,362,865
24	4,363,121			177	4,362,716	90		4,363,130		CLASS 536
81	4,363,122	17	4,362,444	178	4,362,717	159	27	4,363,131	16.8	4,362,866
	CLASS 371	182	4,362,445	180	4,362,718	213	42	4,363,132	27	4,362,867
5	4,363,123	211	4,362,446	219	4,362,719	222	52	4,363,133	66	4,362,868
21	4,363,124			222	4,362,720	224	131	4,363,134	122	4,362,869
71	4,363,125	200	4,362,447	246	4,362,721	240	161	4,363,135		CLASS 542
	CLASS 372	300	4,362,448	253	4,362,722	263	180	4,363,136	403	4,362,870
38	4,363,126			256	4,362,723	283	324	4,363,137	427	4,362,871
	CLASS 374	156	4,362,449	248.51	4,362,724	291	226	4,363,138	429	4,362,872
4	4,362,057	258	4,362,450	249	4,362,725	338		4,363,139		CLASS 544
	4,362,403			253	4,362,726	340	CLASS 464	4,362,520	103	4,362,873
39	4,362,404			256	4,362,727	480	181	4,362,521	317	4,362,874
	CLASS 375	23	4,362,451		4,362,728	572				CLASS 546
30	4,363,127	37	4,362,452	260	4,362,729	CLASS 429		4,362,522	146	4,362,875
	CLASS 376	268	4,362,453	263	4,362,730	13	82	4,362,523	155	4,362,876
148	4,362,689	280	4,362,454	270	4,362,731	42	88	4,362,524		CLASS 548
267	4,362,690	306	4,362,455	273 R	4,362,732	101	117	4,362,525	135	4,362,877
268	4,362,691	334	4,362,456	274	4,362,733	181			253	4,362,878
298	4,362,692	345	4,362,457		4,362,734	191	CLASS 493		473	4,362,879
	4,362,693	458	4,362,458		4,362,735	196	226	4,362,526	557	4,362,877
314	4,362,694	584	4,362,459	275	4,362,736		44	4,362,819		CLASS 549
417	4,362,695	745	4,362,460	281	4,362,737	9			79	4,362,880
	4,362,696	752	4,362,461	283	4,362,738	12	CLASS 518		271	4,362,881
	CLASS 415			305	4,362,739	55	700	4,362,820	274	4,362,882
48	4,362,935	1	4,362,462	319	4,362,740	59		4,362,821	460	4,362,883
150	4,362,947	129	4,362,463	330	4,362,741	67		4,362,822		CLASS 556
181	4,363,128	136	4,362,464	358	4,362,742	83	CLASS 521		446	4,362,884
	CLASS 400	144	4,362,465		4,362,743	106.6		4,362,823		4,362,885
121	4,362,405	152	4,362,466	4 C	4,362,744	122	116	4,362,824		CLASS 560
124	4,362,406	175 R	4,362,467	78	4,362,745	206	118	4,362,825	152	4,362,887
	4,362,407	186 R	4,362,468		4,362,746	226	172		162	4,362,888
481	4,362,408	191	4,362,469	79	4,362,747	272			221	4,362,889
625	4,362,409	197 A	4,362,470	110	4,362,748	308	9	4,362,827	222	4,362,890
		241 B	4,362,471	111	4,362,749	312	86	4,362,828		CLASS 562
	CLASS 401			113	4,362,750	384	101	4,362,830	495	4,362,891
67	4,362,410			127	4,362,751	455	102	4,362,831		CLASS 564
	CLASS 403	53	4,362,472	128	4,362,752	528	265	4,362,832	374	4,362,892
5		68	4,362,473	186	4,362,753	550	317	4,362,833	410	4,362,893
11	4,362,411	80	4,362,474	345	4,362,754	12	322	4,362,834	479	4,362,894
14	4,362,412	295	4,362,475	376 A	4,362,755	352	400	4,362,835	512	
24	4,362,413	360	4,362,476	379 R	4,362,756		444	4,362,836		CLASS 604
109	4,362,414	364	4,362,477	510	4,362,757		513	4,362,837	165	4,362,156
316	4,362,415	434	4,362,478	526	4,362,758		531	4,362,838	280	4,362,157
317	4,362,416	61 B	4,362,479	520	4,362,759			4,362,840		

CLASSIFICATION OF DESIGNS

D2—	233	267,128	45	267,141	D11—	115	267,157	314	267,170	D19—	3	267,152	97	267,193		
	361	267,129	74	267,142			5	267,158	326	267,171		77	267,153	127	267,194	
	405	267,130	76	267,143			81	267,159	2	267,172	D21—	10	267,182	163	267,195	
D4—	38.1	267,131	5	267,144		131	267,160	58	267,173		12	267,183		267,196		
	381	267,132	51	267,145		133	267,161	59	267,174		212	267,184	D24—	33	267,197	
D6—	37	267,133	90	267,146		133	267,162	60	267,175		250	267,185		38	267,198	
	63	267,134	303	267,147		145	267,163		267,176	D23—	20	267,186		53	267,199	
	78	267,135	389	267,148		158	267,164		267,177		28	267,187		64	267,200	
	95	267,136	D9—	370	267,149		267,165	63	267,178		32	267,188	D25—	33	267,201	
	122	267,137		416	267,150	D12—	101	267,166		66	267,179		D26—	35	267,202	
	132	267,138	D10—	60	267,154		110	267,168	D16—	14	267,180			60	267,203	
	146	267,139		74	267,155		205	267,167		26	267,181	D27—	08	267,204		
D7—	6	267,140		114	267,156		267,169	D18—	1	267,151		92	267,192	D28—	67	267,205

CLASSIFICATION OF PLANTS

P—	9	4,961	68	4,962	69	4,963				
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DEFENSIVE PUBLICATIONS APPLICATIONS
[Notice of Dec. 16, 1969, 869 O.G. 6877]

204—	96	T102,501	365—	16	T102,502	427—	116	T102,503		
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OF RESIDENCE OF INVENTORS

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(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

01 :	4,362,042	4,362,334	09 :	4,361,975	4,362,457	4,362,664	4,362,474
	4,362,072	4,362,348		4,362,022	4,362,608	4,362,697	4,362,553
	4,362,074	4,362,350		4,362,077	4,362,589	4,362,747	4,362,632
	4,362,361	4,362,366		4,362,179	4,362,704	4,362,818	4,362,674
	4,362,615	4,362,387		4,362,224	4,361,952	4,362,881	4,362,733
	4,362,759	4,362,393		4,362,254	4,361,956	4,363,009	4,362,794
04 :	4,362,091	4,362,398		4,362,261	4,361,985	4,363,016	4,362,829
	4,362,127	4,362,404		4,362,262	4,362,023	4,363,109	4,362,840
	4,362,458	4,362,414		4,362,381	4,362,065	4,362,168	4,362,850
	4,362,538	4,362,439		4,362,384	4,362,089	4,362,338	4,362,905
	4,362,584	4,362,441		4,362,415	4,362,113	4,362,346	4,362,910
	4,362,612	4,362,467		4,362,433	4,362,128	4,362,499	4,362,917
	4,362,928	4,362,477		4,362,444	4,362,145	4,362,703	4,362,949
	4,362,973	4,362,493		4,362,537	4,362,157	4,362,954	4,362,969
	4,363,076	4,362,497		4,362,559	4,362,180	4,362,238	4,362,970
	4,363,096	4,362,511		4,362,588	4,362,196	4,362,914	4,363,024
	4,363,108	4,362,520		4,362,788	4,362,198	4,362,118	4,363,056
	4,363,137	4,362,539		4,362,921	4,362,239	4,362,171	4,363,070
05 :	4,361,930	4,362,548		4,362,965	4,362,265	4,362,172	4,363,081
	4,362,358	4,362,564		4,362,978	4,362,284	4,362,186	4,363,095
06 :	Re. 31,096	4,362,569		4,363,026	4,362,300	4,362,516	4,363,128
	Re. 31,097	4,362,574		4,363,028	4,362,427	4,362,686	4,363,129
	4,361,913	4,362,577		4,363,121	4,362,431	4,362,210	4,363,151
	4,361,919	4,362,582		4,363,126	4,362,449	4,362,403	4,363,199
	4,361,924	4,362,583	10 :	4,362,464	4,362,512	4,362,421	4,362,045
	4,361,934	4,362,636		4,362,549	4,362,513	4,362,527	4,362,047
	4,361,947	4,362,652		4,362,656	4,362,552	4,362,625	4,362,053
	4,361,976	4,362,699		4,362,777	4,362,614	4,363,090	4,362,133
	4,361,992	4,362,787		4,362,836	4,362,653	4,362,902	4,362,134
	4,362,003	4,362,809	11 :	4,362,241	4,362,668	4,362,929	4,362,169
	4,362,036	4,362,860	12 :	4,361,915	4,362,770	4,362,106	4,362,218
	4,362,037	4,362,888		4,361,916	4,362,838	4,362,155	4,362,221
	4,362,039	4,362,895		4,361,972	4,362,859	4,362,510	4,362,226
	4,362,067	4,362,924		4,361,982	4,362,865	4,362,542	4,362,233
	4,362,079	4,362,971		4,361,983	4,362,893	4,362,659	4,362,256
	4,362,081	4,362,996		4,362,007	4,362,912	4,362,769	4,362,267
	4,362,094	4,362,999		4,362,032	4,362,957	4,362,889	4,362,317
	4,362,100	4,363,045		4,362,071	4,363,000	4,362,898	4,362,326
	4,362,131	4,363,072		4,362,330	4,363,008	4,362,932	4,362,332
	4,362,149	4,363,091		4,362,406	4,363,020	4,362,948	4,362,423
	4,362,152	4,363,104		4,362,432	4,363,063	4,362,994	4,362,442
	4,362,164	4,363,112		4,362,447	4,363,084	4,363,094	4,362,456
	4,362,187	4,363,127		4,362,486	4,363,087	4,361,921	4,362,483
	4,362,192	4,363,130		4,362,678	4,363,129	4,361,942	4,362,572
	4,362,240	4,363,138		4,362,745	4,363,135	4,361,974	4,362,576
	4,362,269	4,362,137	08 :	4,362,916	4,362,086	4,362,028	4,362,617
	4,362,274	4,362,246		4,362,918	4,362,202	4,362,096	4,362,644
	4,362,276	4,362,435		4,362,941	4,362,264	4,362,122	4,362,649
	4,362,296	4,362,798		4,362,950	4,362,309	4,362,130	4,362,670
	4,362,298	4,362,823		4,363,101	4,362,475	4,362,161	4,362,689
	4,362,301	4,362,935	13 :	4,361,998	4,362,492	4,362,243	4,362,690
	4,362,318	4,363,111		4,362,178	4,362,550	4,362,372	4,362,754
	4,362,324	4,363,125		4,362,302	4,362,568	4,362,407	4,362,816

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

4,362,817	4,362,640	4,362,598	4,362,543	4,362,532	4,362,824
4,362,834	4,362,645	4,362,611	4,362,544	4,362,551	4,362,848
4,362,849	4,362,651	4,362,634	4,362,586	4,362,575	4,362,896
4,363,067	4,362,666	4,362,641	4,362,592	4,362,585	4,362,940
4,363,106	4,362,669	4,362,643	4,362,603	4,362,692	4,362,951
4,361,959	4,362,671	4,362,657	4,362,619	4,362,724	4,362,984
4,362,026	4,362,706	4,362,662	4,362,675	4,362,728	4,363,029
4,362,132	4,362,711	4,362,726	4,362,676	4,362,750	4,363,036
4,362,167	4,362,712	4,362,734	4,362,707	4,362,781	4,363,113
4,362,182	4,362,713	4,362,735	4,362,768	4,362,782	4,362,425
4,362,266	4,362,715	4,362,744	4,362,780	4,362,783	4,362,570
4,362,328	4,362,723	4,362,756	4,362,786	4,362,808	4,363,054
4,362,347	4,362,755	4,362,761	4,362,792	4,362,872	4,362,739
4,362,479	4,362,757	4,362,796	4,362,835	4,362,879	4,363,110
4,362,591	4,362,762	4,362,806	4,362,876	4,362,884	4,361,912
4,362,698	4,362,814	4,362,819	4,362,887	4,362,886	4,361,955
4,362,729	4,362,828	4,362,861	4,362,904	4,362,919	4,362,170
4,362,785	4,362,851	4,362,903	4,362,907	4,362,974	4,362,204
4,362,870	4,362,854	4,362,925	4,362,911	4,362,980	4,362,667
4,362,922	4,362,877	4,362,946	4,362,915	4,362,991	4,362,805
4,363,038	4,362,883	4,362,963	4,362,959	4,363,015	4,362,852
4,363,044	4,362,943	4,362,977	4,363,022	4,363,030	4,362,938
4,363,057	4,362,966	4,363,064	4,363,050	4,363,050	4,362,968
4,363,068	4,363,027	4,363,031	4,363,061	4,363,061	4,363,004
4,361,917	4,363,082	4,363,033	4,361,964	4,363,066	4,363,077
4,361,953	4,363,085	4,363,124	4,361,993	4,363,075	4,363,078
4,361,970	4,363,102	4,361,994	4,362,095	4,363,089	4,363,114
4,362,005	4,363,117	4,362,001	4,362,097	4,363,071	4,361,935
4,362,027	4,363,118	4,362,009	4,362,478	4,363,071	4,361,963
4,362,073	4,363,139	4,362,080	4,362,633	4,363,115	4,362,197
4,362,200	4,361,922	4,362,138	4,362,648	4,362,424	4,362,258
4,362,289	4,361,939	4,362,303	4,362,763	4,362,681	4,362,418
4,362,342	4,361,996	4,362,422	4,361,971	4,362,856	4,362,509
4,362,547	4,362,020	4,362,578	4,362,090	4,362,867	4,362,595
4,362,753	4,362,030	4,362,590	4,362,151	4,362,894	4,362,660
4,363,014	4,362,035	4,362,613	4,362,195	4,361,991	4,362,691
4,362,979	4,362,044	4,362,774	4,362,247	4,362,147	4,362,696
4,361,926	4,362,058	4,363,086	4,362,557	4,362,953	4,362,748
4,361,928	4,362,130	Re.31,095	4,362,955	4,361,940	4,362,987
4,362,257	4,362,166	4,361,978	4,363,080	4,362,049	4,363,002
4,362,498	4,362,184	4,361,990	Re.31,098	4,362,111	4,363,055
4,362,622	4,362,212	4,362,004	4,361,944	4,362,211	4,363,098
4,362,623	4,362,249	4,362,087	4,361,945	4,362,214	4,362,288
4,362,995	4,362,270	4,362,088	4,361,997	4,362,214	4,362,820
4,361,950	4,362,278	4,362,156	4,362,057	4,362,325	4,361,960
4,361,981	4,362,280	4,362,181	4,362,069	4,362,413	4,362,098
4,362,016	4,362,282	4,362,193	4,362,116	4,362,443	4,362,101
4,362,085	4,362,349	4,362,205	4,362,194	4,362,446	4,362,148
4,362,213	4,362,352	4,362,228	4,362,209	4,362,482	4,362,245
4,362,234	4,362,380	4,362,250	4,362,263	4,362,506	4,362,251
4,362,236	4,362,382	4,362,255	4,362,272	4,362,533	4,362,333
4,362,252	4,362,428	4,362,295	4,362,290	4,362,610	4,362,451
4,362,285	4,362,429	4,362,329	4,362,353	4,362,618	4,362,514
4,362,308	4,362,437	4,362,344	4,362,356	4,362,627	4,362,515
4,362,364	4,362,470	4,362,351	4,362,388	4,362,628	4,362,524
4,362,367	4,362,507	4,362,526	4,362,434	4,362,654	4,362,593
4,362,597	4,362,526	4,362,408	4,362,445	4,362,682	4,362,638
4,362,621	4,362,545	4,362,496	4,362,461	4,362,821	4,362,958
4,362,630	4,362,580	4,362,525	4,362,489	4,362,822	4,363,060
4,362,639	4,362,596	4,362,541			

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267,143	267,151	267,177	267,162	267,195	42 : 267,184
267,147	267,156	267,187	267,202	267,196	267,194
267,155	267,193	267,199	34 : 267,171	267,161	45 : 267,149
267,163	267,154	267,138	36 : 267,130	267,150	47 : 267,134
267,166	267,198	267,142	267,133	267,152	48 : 267,129
267,168	267,160	267,159	267,135	267,174	55 : 267,180
267,205	267,173	267,197			

DEFENSIVE PUBLICATIONS APPLICATIONS

[Notice of Dec. 16, 1969, 869 O.G. 6877]

36 : T102,502	39 : T102,501	42 : T102,503			
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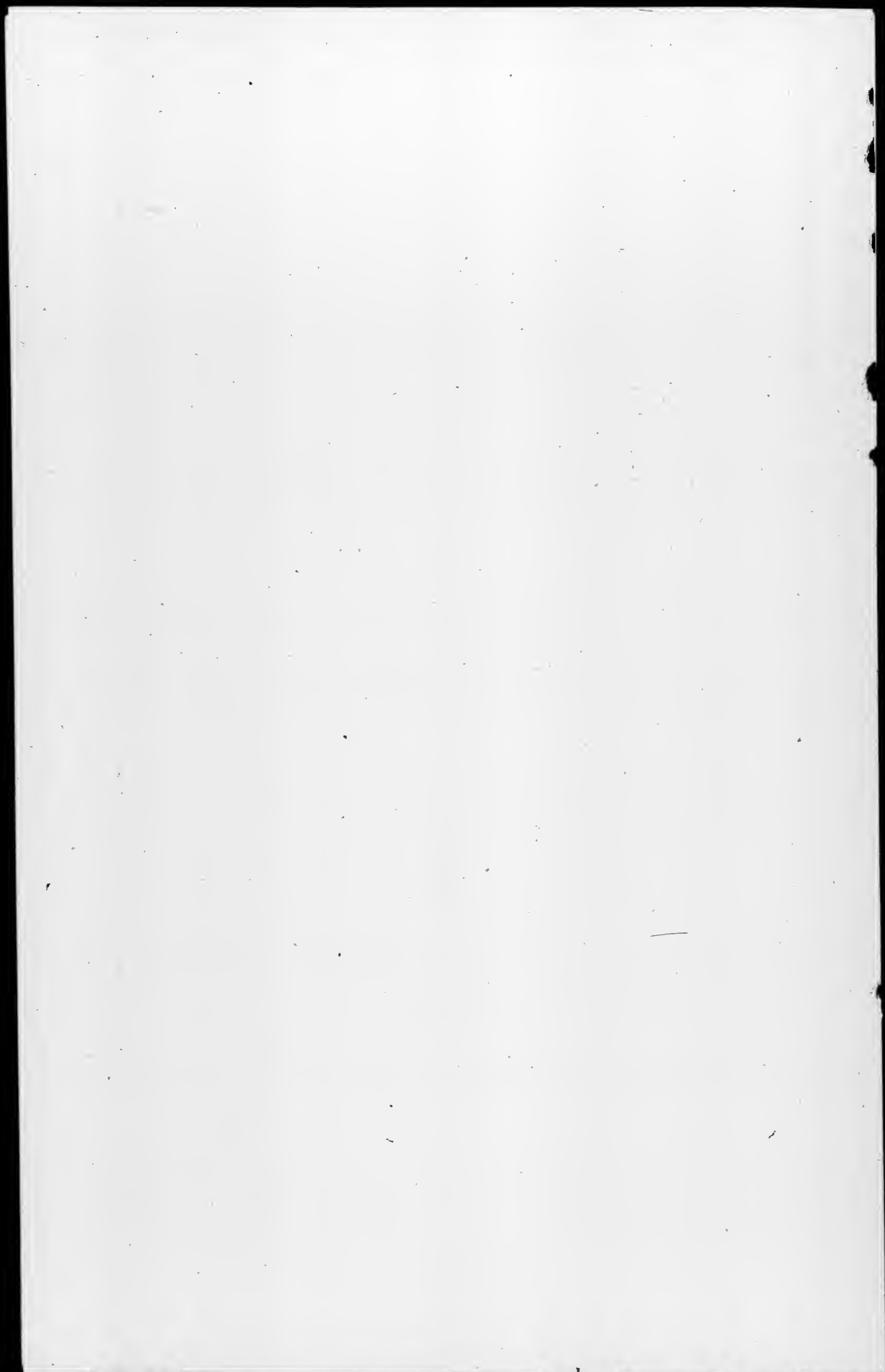
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Gerald J. Mossinghoff, Commissioner

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries and the most recent PCT rule changes, see the notices appearing in the Official Gazette at 1001 O.G. 14 on Dec. 9, 1980 and at 1012 O.G. 20 on Nov. 17, 1981. For use of the European Patent Office as a searching authority for PCT applications filed in the United States, see the notice in the Official Gazette of Sept. 28, 1982 at 1022 O.G. 52.

Note that the international fees have been increased as of Jan. 1, 1982 and that the domestic PCT fees have been increased as of Oct. 1, 1982. Domestic PCT fees were increased by a rule change which was published at 1021 O.G. 11 on Aug. 10, 1982. The current schedule of fees is as follows:

Transmittal fee	\$ 125.00
Search fee	
U.S. Patent and Trademark Office as Searching Authority	
• No corresponding prior U.S. national application filed	500.00
• Corresponding prior U.S. national application filed	250.00
European Patent Office as Searching Authority	
• All cases	710.00
International Fees	
Basic Fees (first 30 pages)	270.00
Basic Supplemental Fee (for each sheet over 30)	6.00
Designation fee (for each national or regional office)	65.00

Sept. 10, 1982. DONALD J. QUIGG,
Deputy Commissioner
of Patents & Trademarks.

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,807,602, Re. S.N. 427,083, Filed Sept. 29, 1982, Cl. 222/01, METHOD AND APPARATUS FOR DISPENSING A FLUIDIZABLE SOLID FROM A PRESSURE VESSEL, Walter Meichsner, Owner of Record: August Thyssen-Hütte Ag., Duisburg, Germany, Attorney or Agent: Arnold Sprung, et al., Ex. Gp.: 241

3,890,882, Re. S.N. 428,004, Filed Sept. 29, 1982, Cl. 91/487, FLUID DEVICE HAVING PLASTIC HOUSING AND MEANS FOR MOUNTING A CYLINDER BARREL, Wilfred S. Bobier, Owner of Record: Inventor, Attorney or Agent: John G. Batchelder, Ex. Gp.: 343

4,203,788, Re. S.N. 379,936, Filed May 19, 1982, Cl. 156/44, METHODS FOR MANUFACTURING CEMENTITIOUS REINFORCED PANELS, Theodore E. Clear, Owner of Record: Inventor, Attorney or Agent: Herbert C. Brinkman, Ex. Gp.: 161

4,281,952 Re. S.N. 379,633, Filed May 19, 1982, Cl. 414/82, METHOD AND APPARATUS FOR STACKING CEMENTITIOUS REINFORCED PANELS, Theodore E. Clear, Owner of Record: Inventor, Attorney or Agent: Herbert C. Brinkman, et al., Ex. Gp.: 310

4,330,334, Re. S.N. 424,682, Filed Sept. 27, 1982, Cl. 106/90, MODIFYING MORTARS OF INORGANIC BINDING AGENTS WITH ALKALATED SULPHONATED PHENOLFORMALDEHYDE CONDENSATION PRODUCT, Kurt Schaupp, et al., Owner of Record: Bayer Aktiengesellschaft, Leverkusen, Germany, Attorney or Agent: Arnold Sprung, et al., Ex. Gp.: 113

4,354,775, Re. S.N. 427,738, Filed Sept. 29, 1982, Cl. 222/193, PNEUMATIC LINE CLEAN OUT DEVICE, Leon C. Jalas, Owner of Record: Inventor, Attorney or Agent: Lucas J. de Koster, Ex. Gp.: 313.

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for re-examination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and re-examination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

3,292,235, Reexam. No. 90/000,282, Requested: Nov. 1, 1982, Cl. 29/26R, MACHINE TOOL WITH A COMBINED TOOL STORAGE AND CHANGING MECHANISM, Kurt A. Riedel, Owner of Record: Kearney & Trecker Corp., West Allis, Wis., Attorney or Agent: Cyril M. Hajewski, Ex. Gp.: 320, Requester: Owner

3,963,842, Reexam. No. 90/000,286, Requested: Nov. 10, 1982, Cl. 427/305, DEPOSITION OF COPPER, Christian Sivertz, et al., Owner of Record: London Laboratories Ltd. Co., Woodbridge, Conn., Attorney or Agent: Anthony P. DeLio, Ex. Gp.: 160, Requester: Daniel A. Boehnen, Chicago, Ill.

4,010,756, Reexam. No. 90/000,284, Requested: Nov. 8, 1982, Cl. 128/786, HEART PACER LEAD WIRE WITH BREAK-AWAY NEEDLE, Jacques DuMont, et al., Owner of Record: Ethicon, Inc., Somerville, N.J., Attorney or Agent: Robert L. Minier, Ex. Gp.: 330, Requester: Owner

4,071,987, Reexam. No. 90/000,288, Requested: Nov. 10, 1982, Cl. 52/94, GRAVEL STOP, John B. Hickman, Owner of Record: W. P. Hickman Co., Asheville, N.C. Attorney or Agent: John A. Artz, Ex. Gp.: 350, Requester: Owner

EXAMINATION

Pursuant to the provisions of 37 C.F.R. 1.341(c), an examination for persons seeking registration before the United States Patent and Trademark Office as patent attorneys or agents will be held on Tuesday, Apr. 12, 1983.

With the exception of those former patent examiners for whom the examination is waived, all persons recognized for practice before the Patent and Trademark Office in patent cases must pursuant to the noted rule, pass the examination. Those passing the examination do not thereby qualify for recognition for practice before the Patent and Trademark Office in trademark cases. Recognition for practice in trademark cases is governed by Rule 2.12 of the Trademark Rules of Practice, which does not require the passing of an examination.

DECEMBER 21, 1982

U.S. PATENT AND TRADEMARK OFFICE

1025 OG 13

37 C.F.R. 1.341(f) provides, in pertinent part, "Officers and employees of the United States who are disqualified by statute (18 U.S.C. 203, 205) from practicing as attorneys or agents in proceedings or other matters before Government departments or agencies, may not be registered, * * * but officers or employees whose official duties require the preparation and prosecution of applications for patent may be registered (on compliance with the regulations in this part) or recognized to practice, to the extent necessary to carry out their official duties." If you are an officer or employee of the United States who is not disqualified for registration under 37 C.F.R. 1.341(f) when you apply to take the examination, your application for registration must be accompanied by your supervisor's verified statement that your official duties as a United States officer or employee require that you prepare and prosecute applications for patent. After passing the examination, you will be considered eligible for registration. If you are disqualified for registration under 37 C.F.R. 1.341(f) when you apply, approval of your application to take the examination will be subject to the following conditions.

1. If you pass the examination, you will not be registered so long as you remain disqualified for registration under 37 C.F.R. 1.341(f). However, if within one (1) year from the date notification of passing is mailed, your status changes and you are

no longer disqualified under 37 C.F.R. 1.341(f), you will be considered eligible for registration upon satisfactory proof of your change in status.

2. If you have not become registered within one (1) year from the date notification of passing is mailed, you may not become registered thereafter except upon taking and passing another regularly scheduled examination.

The examination will be given under the supervision of the Office of Personnel Management (formerly Civil Service Commission), and may be taken in any of the cities in which the Office of Personnel Management regularly conducts examinations. Applications to take the examination must be filed in the Patent and Trademark Office together with a \$75 fee not later than Jan. 31, 1983.

Application blanks may be obtained from the Clerk of the Committee on Enrollment, Bldg. 3, 11th Floor, Room C16, Crystal Plz., Arlington, Va. or by mail addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231, and directed to the attention of the Clerk of the Committee on Enrollment.

Nov. 18, 1982. DONALD J. QUIGG,
Chairman, Committee
on Enrollment.

PATENT NOTICES

Certificates of Correction for the Week of Dec. 14, 1982

D. 266,478	4,313,951	4,332,876	4,344,654
4,160,840	4,314,287	4,333,041	4,344,775
4,163,015	4,314,773	4,333,296	4,344,827
4,177,448	4,317,920	4,334,472	4,345,284
4,229,252	4,318,514	4,334,950	4,345,626
4,242,473	4,320,064	4,336,318	4,346,099
4,254,095	4,320,459	4,336,719	4,346,342
4,263,762	4,320,936	4,337,449	4,348,090
4,271,604	4,321,492	4,339,903	4,348,411
4,277,370	4,321,922	4,339,987	4,349,001
4,293,350	4,325,746	4,340,676	4,349,354
4,293,482	4,326,813	4,340,794	4,349,488
4,293,705	4,326,851	4,341,036	4,350,958
4,296,597	4,328,686	4,341,638	4,351,002
4,297,959	4,329,029	4,341,723	4,351,027
4,300,177	4,329,600	4,341,890	4,352,147
4,302,845	4,329,765	4,342,360	4,352,631
4,310,531	4,330,432	4,342,608	4,352,808
4,310,726	4,330,662	4,342,612	4,353,598
4,311,153	4,331,894	4,343,697	4,353,833
4,311,616	4,332,173	4,343,889	4,354,106
4,312,862	4,332,177	4,344,003	4,354,163
4,313,035	4,332,197	4,344,050	4,354,255
4,313,880	4,332,808	4,344,631	

Disclaimers

3,315,040. —William J. Brorin, Whippany, N.J. RE-TRACTILE CORD GROMMET FOR TELEPHONE SUBSCRIBER HAND SETS. Patent dated Apr. 18, 1967. Disclaimer filed May 17, 1979, by the assignee, GK Technologies, Inc.

Hereby enters this disclaimer to the remaining term of said patent.

1025 OG 14

4,129,047. —Arthur E. Dornan, Ypsilanti, Mich. CONTROL ARRANGEMENT. Patent dated Dec. 12, 1978. Disclaimer filed Oct. 29, 1982, by the assignee, Massey-Ferguson Inc.

Hereby enters this disclaimer to claims 1, 2, 7, 8 and 9 of said patent.

4,194,023. —Donald R. Cushman, Wenonah; Charles A. Pagen, West Deptford and John W. Schick, Cherry Hill, N.J. CONTROLLED DEPOSITION OF ASPHALT EMULSIONS. Patent dated March 18, 1980. Disclaimer filed Oct. 7, 1982, by the assignee, Mobil Oil Corp.

Hereby enters this disclaimer to claims 1, 2, 4, 6 and 8 of said patent.

4,218,203. —Peter J. Tilgner, Akron, Ohio. MULTI-STATION REACTION INJECTION MOLDING APPARATUS. Patent dated Aug. 19, 1980. Disclaimer filed Jan. 7, 1982, by the assignee, The Upjohn Co.

Hereby enters this disclaimer to claim 1 of said patent.

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the

table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	Name of Library	Telephone Contact
Alabama	Birmingham Public Library	(205) 254-2555
Arizona	Tempe: Science Library, Arizona State University	(602) 965-7607
California	Los Angeles Public Library	(213) 626-7555 Ext. 273
	Sacramento: California State Library	(916) 322-4572
	Sunnyvale: Patent Information Clearinghouse*	(408) 738-5580
Colorado	Denver Public Library	(303) 571-2122
Delaware	Newark: University of Delaware	(302) 738-2238
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4508
Illinois	Chicago Public Library	(312) 269-2865
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library & Information Center	(612) 372-6552
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214, Ext. 215
Nebraska	Lincoln: University of Nebraska-Lincoln, Engineering Library	(402) 472-3411
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7814
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 255-7055 Ext. 212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1321**
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 226
South Carolina	Charleston: Medical University of South Carolina	(803) 792-2372
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 748-9071
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

*Collection organized by subject matter.

**Call only between the hours of 10:00 a.m. and 5:00 p.m.

1025 OG 15

PATENT EXAMINING CORPS
RENE D. TEGTMEYER, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner
CONDITION OF PATENT APPLICATIONS AS OF October 16, 1982

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal- lurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	11-12-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	7-20-81
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthodontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	5-13-81
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director Coating; Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	4-27-81
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170— R. F. WHITE, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufac- ture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-18-81
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	9-08-80
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Op- tics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy; Rocket Fuels; Special, Fuel, Explosive and Thermic Composi- tions; Thermal and Photoelectric Batteries.	3-02-81
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—EARL LEVY, Director Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-24-80
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240— G. M. FORLENZA, Director Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	2-02-80
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	11-26-79
DESIGN, GROUP 290—KENNETH L. CAGE, Director Industrial Arts; Household, Personal and Fine Arts.	10-20-80
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprin- kling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	5-01-81
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding; Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	2-06-81
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330— R. E. AEGERTER, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Infor- mation Dissemination.	2-13-80
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Gener- ation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	11-17-80
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350— A. L. SMITH, Director Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscel- laneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	8-22-80

Expiration of patents: The patents within the range of numbers indicated below expire during October 1982, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents Numbers 3,209,369 to 3,214,766, inclusive
 Plant Patents Numbers 2,558 to 2,565 inclusive

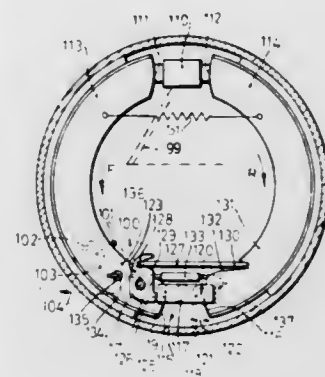
REISSUES

DECEMBER 14, 1982

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 31,100
TORQUE LIMITATION DEVICE FOR A DRUM BRAKE
 Leslie C. Chouings, Holly Croft, Bourton, near Rugby, War-
 wickshire, England
 Original No. 3,951,243, dated Apr. 20, 1976, Ser. No. 552,107,
 Feb. 24, 1975. Application for reissue Nov. 26, 1979, Ser. No.
 97,301
 Claims priority, application United Kingdom, Feb. 28, 1974,
 9197/74

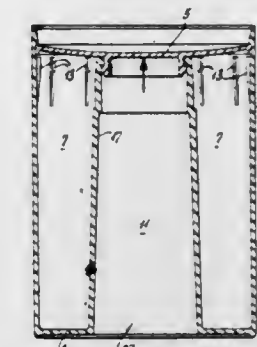
Int. Cl.³ F16D 51/20
 U.S. Cl. 188—328 5 Claims



7. [A brake according to claim 1] A drum brake comprising a drum, two shoes mounted within the drum for movement between operative and inoperative positions, spring means biasing the shoes to their inoperative positions, a shoe actuator interposed between adjacent one ends of the two shoes, a shoe abutment and torque limitation means arranged to provide a clearance having a predetermined value when the shoes are in their operative positions and the drum is rotating in one direction and to eliminate or substantially to eliminate said clearance in response to the reactive forces generated by the shoes due to their engagement with the drum when the shoes are in their operative positions and the drum is rotating in the opposite direction thereby producing a lower torque between said drum and said shoes than when said drum is rotating in said one direction so that, when the drum is rotating in said opposite direction, a greater movement apart is required of said one ends of the shoes by said actuator from the positions said ends occupy when the shoes are in their inoperative positions to obtain a given braking torque than is required to obtain said braking torque when the drum is rotating in the one direction and the torque limitation means being arranged so that, with the drum rotating in either of said directions and with the shoes in their operative positions, said reactive force generated by one of the shoes acts to tend to reduce said clearance, to torque limitation means comprising a lever mounted to pivot with respect to a fixed part of the brake and being connected with the other ends of the shoes, the engagement of the lever with said shoe ends being at different moment arms about the lever pivot for the two shoe ends, the lever being biased to a rest position which it takes up when the shoes are in their inoperative positions, whereas when the shoes are in their operative positions, said reactive forces (1) hold the lever substantially in its rest position when the drum is rotating in said one direction and (2) pivot the lever to eliminate or substantially eliminate the clearance when the drum is rotating in said opposite direction, said brake characterised by the provision of disabling means operable to prevent pivotal movement of the lever to reduce the clearance.

Re. 31,101
CHILD RESISTANT PACKAGE
 Walter G. Berghahn, and Martha L. Berghahn, both of Scotch
 Plains, N.J., assignors to Bristol-Myers Company, New York,
 N.Y.
 Original No. 4,109,785, dated Aug. 29, 1978, Ser. No. 853,609,
 Nov. 21, 1977. Application for reissue Jan. 29, 1981, Ser. No.
 229,686

Int. Cl.³ A45C 13/10, 13/18
 U.S. Cl. 206—1.5 14 Claims



1. A child resistant package comprising in combination a container body having an upper free margin and removable cap means having an upper surface; said container body being open at the top and being provided with a closed bottom and outer side wall; support means on said container body for supporting said cap means below said upper free margin of said container body when positioned on said container body whereby said upper surface of said cap means is spaced below said upper free margin of said container; a passageway through said body having an opening to the outside of said container body and extending from a point on an outside wall thereof remote from said cap to a point adjacent said cap means whereby access may be had to said cap means from outside said container body through said passageway; said passageway being wide enough to just about accommodate an average adult finger but longer than the average child's finger; the distance from said passage opening to the point on the cap means on which pressure may be applied to pop the cap means off the container being longer than the average child's finger but about as long as an average adult finger.

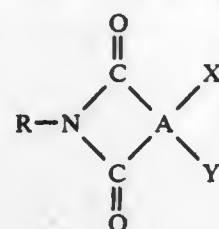
Re. 31,102
 Patent Not Issued For This Number

Re. 31,103
CROSSLINKING AGENT FOR POLYMERS AND WIRE CONSTRUCTION UTILIZING CROSSLINKED POLYMERS
 Alan J. Gotcher, Saratoga; Paul B. Germeraad, Palo Alto, and
 Viktors Jansons, Los Gatos, all of Calif., assignors to Ray-
 chem Corporation, Menlo Park, Calif.
 Original No. 4,121,001, dated Oct. 17, 1978, Ser. No. 759,473,
 Jan. 14, 1977. Application for reissue Oct. 16, 1980, Ser. No.
 197,660

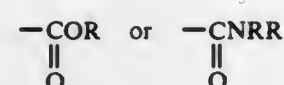
Int. Cl.³ B32B 15/00; H01B 7/00; C08F 2/46
 U.S. Cl. 428—35 27 Claims

1. A composition comprising an organic crosslinkable polymer having a melt processing temperature of at least 200° and

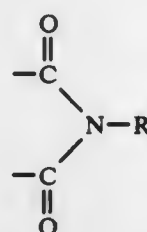
from about 0.1 wt % up to about 30 wt % of crosslinking agent said crosslinking agent comprising a compound of the formula



wherein X is hydrogen and Y is



and X and Y are substituents on adjacent carbon atoms of A or wherein X and Y together form the imide ring system



which is joined to A on adjacent carbons atoms, thereof,

wherein A is an aromatic, heteroaromatic, alicyclic, or heterocyclic system or an open chain aliphatic moiety, where R is vinyl, allyl, methallyl or propargyl and wherein R' is hydrogen, C₁ to C₁₂ alkyl or R, or a mixture of said compounds.

Re. 31,104

CATALYTIC STRUCTURE

Alfonso L. Baldi, Wynnewood, Pa., and Victor V. Damiano, Pennsauken, N.J., assignors to Alloy Surfaces Company, Inc., Wilmington, Del.

Original No. 4,154,705, dated May 15, 1979, Ser. No. 755,738, Dec. 30, 1976. Continuation-in-part of Ser. No. 576,981, May 13, 1975, Pat. No. 4,041,196, and Ser. No. 507,126, Sep. 18, 1974, abandoned, each is a continuation-in-part of Ser. No. 466,908, May 3, 1974, Pat. No. 3,958,047, and Ser. No. 328,378, Jan. 31, 1973, Pat. No. 3,867,184. Application for reissue Feb. 13, 1981, Ser. No. 234,315

Int. Cl.³ B01J 21/04, 23/42, 23/60, 23/74

U.S. Cl. 252-466 PT

19 Claims

1. A self-supported coherent structure essentially of metal selected from the class consisting of a platinum family metal [and nickel] having its surface in the form of a three-dimensional micro-fissured fragmentation into cells principally ranging from about 500 Angstroms to about 5000 Angstroms in size and produced by dissolving out from that surface a different metal introduced into that surface by activated pack diffusion.

PLANT PATENTS

GRANTED DECEMBER 14, 1982

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,964

BLACK WALNUT TREE

Walter F. Beineke, West Lafayette, Ind., assignor to Purdue Research Foundation, West Lafayette, Ind.

Filed Apr. 16, 1981, Ser. No. 254,905

Int. Cl.³ A01H 5/03

U.S. Cl. Plt.—32

1 Claim

1. A new and distinct variety of black walnut tree substantially as illustrated and described, which has fair to good timber quality, is fast growing, has fairly strong central stem tendency; earlier than average in time of leafing, pistillate flowers mid-season, pollen sheds early to mid-season, produces biennial crops of small nuts; averages 2 per cluster, the percentage of weight of kernel to nut averages approximately 15 percent; nut bearing begins early in life of tree.

4,965

PLUM TREE

John H. Weinberger, Fresno, Calif., assignor to Superior Farming Company, Bakersfield, Calif.

Filed Aug. 17, 1981, Ser. No. 293,301

Int. Cl.³ A01H 5/03

U.S. Cl. Plt.—38

1 Claim

1. A new and distinct variety of plum tree, substantially as illustrated and described, particularly characterized by the regular and very productive bearing of semi-freestone fruit which ripens about with, and most nearly resembles, the fruit of the Eldorado, but, in comparative distinction, the globose fruit of the present variety has red flesh, whereas the oblate fruit of the Eldorado has yellow flesh.

PATENTS

GRANTED DEC. 14, 1982

ERRATA

For CLASS	See PATENT NO.
604-281	4,363,323
436-019	4,363,633
436-527	4,363,634
436-132	4,363,635
420-454	4,363,659
426-262	4,363,810
200-302	4,363,965
378-110	4,363,971
372-053	4,364,015
361-175	4,364,111

PATENTS

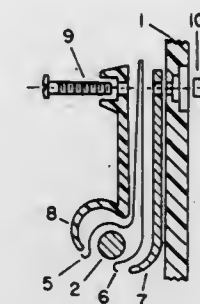
GRANTED DECEMBER 14, 1982

GENERAL AND MECHANICAL

4,363,140
FOOTBALL HELMET FACE GUARD
 James V. Correale, 4202 Lake Grove Dr., Seabrook, Tex. 77586
 Filed Jul. 27, 1981, Ser. No. 287,251
 Int. Cl.³ A63B 71/10

U.S. Cl. 2—9

5 Claims



1. In combination, a football helmet and the like, a grid-type face guard therefor, leaf spring steel side clips attached to the outside of each side of said helmet, said side clips each positioned and formed to clasp a vertical bar of the face guard when in its protective position, at least one forehead clip attached to the outside of the forehead portion of said helmet, said forehead clip comprising (a) a spring clip formed from an outer and inner leaf of spring steel, said spring clip positioned and formed to clasp the horizontal bar of the face guard extending across the lower portion of the helmet protecting the forehead, and (b) a strip of rigid metal positioned between the spring clip and the helmet, said strip of rigid metal being conformed to prevent any substantial downward movement of said horizontal bar of the face guard in response to a force applied to and toward the face guard, all of said clips formed to hold the face guard firmly in its protective position and release it from the helmet in response to a pull on the face guard and away from the helmet.

4,363,141
QUILT FOR USE IN WHEELCHAIRS
 Elizabeth Doster, 966 Glennan Dr., Redwood City, Calif. 94061
 Filed Nov. 28, 1980, Ser. No. 211,263
 Int. Cl.³ A41B 1/12

U.S. Cl. 2—69.5

4 Claims



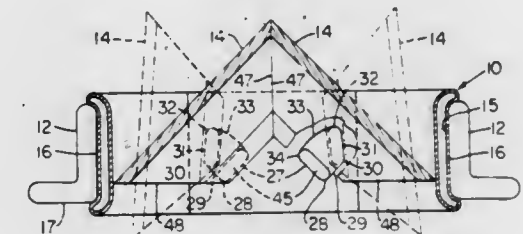
1. A quilt for use by wheelchair occupants, comprising a pouch for the lower legs of the occupant having a back panel which extends up behind the legs of the occupant and terminates at the back of the knees without extending under the buttocks, a front panel extending up over the knees and lap of the occupant, the bottom of the pouch being wide enough for the feet of the occupant, said back panel having a hem at the top and a drawstring in said hem to draw said hem around the knees of the occupant, said hem being formed with openings at

either side, said drawstring extending out through said openings.

4,363,142
PROSTHETIC HEART VALVE
 Louis C. Meyer, Denver, Colo., assignor to Mitral Medical, Inc., Wheat Ridge, Colo.
 Filed Oct. 12, 1979, Ser. No. 84,318
 Int. Cl.³ A61F 1/22

U.S. Cl. 3—1.5

17 Claims



1. A prosthetic heart valve comprising:
 an outer peripheral, generally annular body having an inner wall surface;
 a pair of occluder leaflets disposed in said body, each including opposed lateral edge surfaces and leading and trailing edge surfaces; and
 leaflet-supporting means operative to support said leaflets for movement in response to reversals in the direction of fluid flow through said body between an open position in which said leaflets are substantially parallel to one another within said body and a closed position in which said leaflets extend angularly across said body with said leading edges abutting one another, said leaflet-supporting means having lateral projections on opposed lateral edge surfaces elongated in a direction parallel to said lateral edge surfaces and guide pocket means for each of said lateral projections, each said guide pocket means being in the form of a shallow, multi-sided guide channel having opposite side edges divergent in a downstream direction, said lateral projections insertable in an associated channel and slidable through said channel between said opposite side edges, each pair of said guide channels on opposite sides of said leaflets formed symmetrically about a plane passing through the longitudinal axis of said valve body and immediately between each channel of a pair, each channel having a generally convex downstream edge and an oppositely disposed, relatively straight upstream edge, said guide pocket means operative to guide pivotal and limited translatory movement of each said leaflet between said open and said closed positions in response to reversals in the direction of fluid flow through said body.

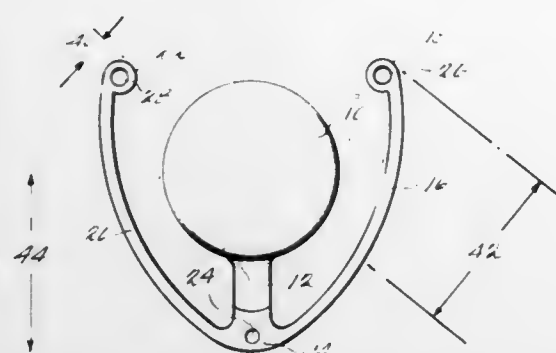
4,363,143
INTRAOCULAR LENS
 Wayne B. Callahan, 1135 Scenic Dr., Milton, W. Va. 25541
 Filed Sep. 9, 1981, Ser. No. 300,594
 Int. Cl.³ A61F 1/16

U.S. Cl. 3—13

10 Claims

1. An intraocular lens suitable for use as an artificial lens implant, comprising:
 a medial light focusing lens body having predetermined diameter and thickness and having a generally circular periphery;
 a stem protruding from the periphery of the lens body to an outer edge thereof formed as a stem footplate adapted to make contact with the eye tissue;

first and second flexible members extending from opposite sides of the stem substantially at the outer edge thereof from the lens body;
the end of each of the first and second flexible members



being formed as flexible member footplates for making contact with eye tissue at respective points substantially 120° from the outer edge of the stem, the three footplates forming a three-point equally spaced support system for the lens body.

4,363,144

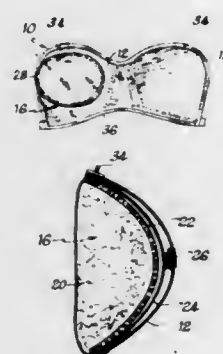
PROSTHETIC DEVICE FOR MASTECTOMY PATIENTS
Helen G. Goad, 9459 Mission Gorge Rd. #124, Santee, Calif. 92071

Filed Oct. 24, 1980, Ser. No. 200,204

Int. Cl.³ A41C 3/08

U.S. Cl. 3—36

1 Claim



1. A prosthetic device comprising:
 - (a) a brassiere with two cups having fastening means on the interior of at least one of the cups;
 - (b) a prosthetic pad having first releasable attachment means for removably attaching same to said fastening means, whereby said prosthetic pad is selectively wearable in said brassiere or removable from said brassiere for washing or replacement;
 - (c) said prosthetic pad being constructed of interior padding having a resilient form-retaining contoured front cover and a flexible cloth wrapper encapsulating said padding and front cover and said flexible wrapper has a frontal edge and is bunched and stitched together just short of said frontal edge to secure said padding and cover in place and so that the frontal edge itself is free to expand outwardly into a tuft to simulate a nipple;
 - (d) a slip having a second fastener means proximate the upper frontal portion thereof and wherein the top portion of said brassiere has second releasable attachment means releasably engageable by said second fastener means to support said brassiere, whereby the principal support for said brassiere is provided independently of body-encircling straps; and
 - (e) said brassiere having bottom edges and the sole rear support for said brassiere being a strap for fastening same to the body of the user, said strap being connected to the bottom edges of said brassiere and passing posteriorly of the wearer and being releasable from said brassiere from

either end to permit single-handed right or left handed operation.

4,363,145

TRACTION MEANS ON SHOWERING SURFACES AND METHOD OF PRODUCING THE SAME

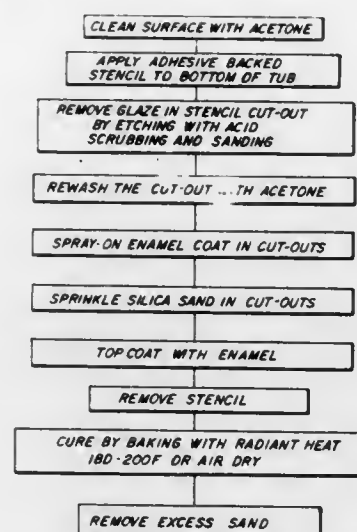
Stanley Kawesch, 3206 NW. 88 Ave., Sunrise, Fla. 33321

Filed Apr. 2, 1981, Ser. No. 250,180

Int. Cl.³ B05D 5/00

U.S. Cl. 4—583

10 Claims



1. The method of applying a traction means in a predetermined pattern to a glazed vitreous enamel surface including:
 - (a) cleaning the glazed vitreous enamel surface with a cleaning agent;
 - (b) securing a stencil having cutouts therein to the surface;
 - (c) removing the glaze adjacent the stencil cutouts by etching with acid;
 - (d) rewashing with the cleaning agent the cutout surfaces from which the glazing has been removed;
 - (e) applying a coat of acrylic urethane enamel on the cutout surfaces;
 - (f) sprinkling silica sand on the enamel coat of the cutout surfaces;
 - (g) top coating the silica sand with acrylic urethane enamel;
 - (h) removing the stencil;
 - (i) curing the resulting traction means of the previous steps; and
 - (j) removing any excess sand.

4,363,146

EYE WASH FOUNTAIN

John R. Liautaud, 180 Stonegate, Cary, Ill. 60013

Filed Jul. 6, 1980, Ser. No. 166,986

Int. Cl.³ A61H 33/00, 33/04

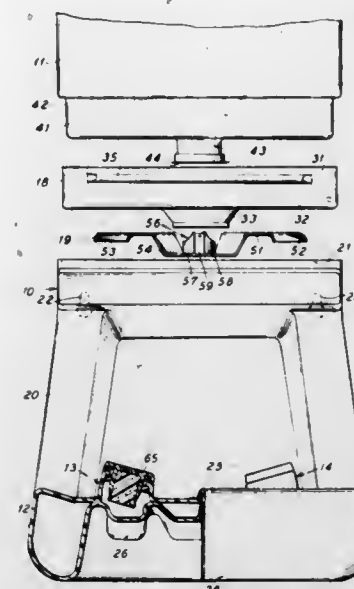
U.S. Cl. 4—620

13 Claims

1. A portable wash fountain adapted for quick refill comprising:
 - a basin housing having spray nozzle means positioned thereon, an open top defined by upstanding sidewalls of said housing, and flow channel means extending from an inlet end recessed in said upstanding sidewalls adjacent said open top to said spray nozzle means,
 - a separate tray member defining an open volume and having a bottom wall formed with an orifice for facing said inlet end of said flow channel means and sidewalls adapted to be fitted against said open top sidewalls,
 - a separately removable bottle means for containing a wash liquid having a neck opening at an upper end, said bottle means for being mounted through said open top and said upper end adapted to be received in said tray member for firm support thereof by said tray member and open top sidewalls such that said neck opening extends into said tray member orifice, and

cap means sealably fitting over said spray nozzle means to block flow therefrom and readily removable from said

with interlocking means, which upon the presser member reaching the shoe component becomes locked to the extending means characterized in that the interlocking means forms the



spray nozzle means when flushing with wash liquid is desired.

4,363,147

SURVIVAL TOOL

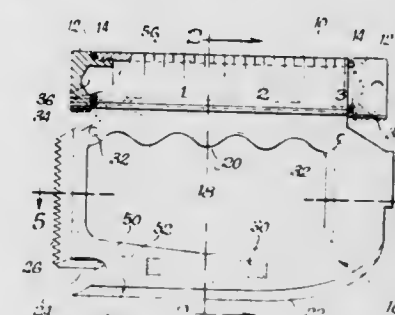
Melvin T. Dewesse, P.O. Box 157, Warner Springs, Calif. 92086

Filed Sep. 12, 1980, Ser. No. 186,679

Int. Cl.³ B25F 1/00

U.S. Cl. 7—158

6 Claims



1. A survival tool comprising:
 - (a) a body portion defining a central void;
 - (b) a cutting edge defined by one edge of said body portion;
 - (c) a hollow socket member integral with the edge of said body portion opposite said cutting edge to serve as an axe handle mount and convert said tool to a serviceable axe and serviceable also as a handgrip usable by extending the fingers through said void and gripping said socket member with the hand;
 - (d) cap means for enclosing said socket to define a supply container when said kit is not in service as an axe; and
 - (e) said cap means including at least one cap with a smooth cavitated interior whereby said cap is useful as the upper pivot bearing of a rotated fire starter stick.

4,363,148

SHOE SOLE ATTACHING PRESS

Anton Muhlbach, Frankfurt am Main, Fed. Rep. of Germany, assignor to USM Corporation, Farmington, Conn.

Filed Feb. 13, 1981, Ser. No. 234,112

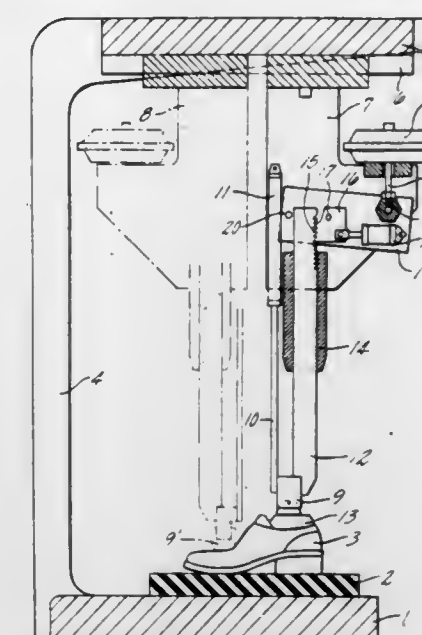
Claims priority, application Fed. Rep. of Germany, Feb. 29, 1980, 3007830

Int. Cl.³ A43D 89/00

U.S. Cl. 12—33

7 Claims

1. A press for attaching shoe components having an abutment supporting the shoe components concerned and a presser member movable by extending means in the direction toward the abutment into engagement with the respective shoe component, whereby the extending means operates in conjunction



link between the extending means and additional pressure means which upon becoming interlocked exerts a higher pressure onto the presser member than the extending means.

4,363,149

EARTHQUAKE-PROOF SHOE FOR BRIDGES

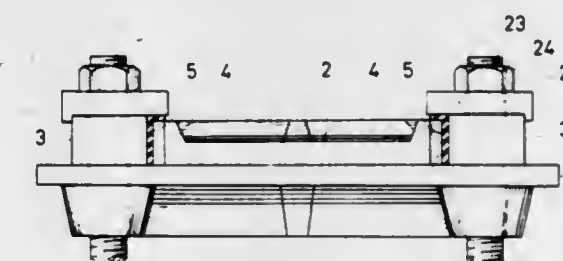
Tokio Kondo, 3-35-1-1003, Hamadayama, Suginami-ku, Tokyo, and Ryuma Morishige, 270-47, Fuse, Kashiwa-shi, Chiba-ken, both of Japan

Filed Feb. 5, 1981, Ser. No. 231,761

Int. Cl.³ E01D 19/06

U.S. Cl. 14—16.1

8 Claims



1. An earthquake oscillation absorbing shoe including: a lower shoe member having a pair of upstanding claws, one adjacent each end of said central portion; an upper shoe member seated on said lower shoe member between said claws, the ends of said upper shoe member being spaced from each of said claws to form a gap therebetween; a pair of packing elements, one seated in each of said gaps and contacting both said upper shoe member and the adjacent one of said claws; said packing elements each having a resilient rubber body characterized by a plurality of truss-like webs separated by openings to absorb relative oscillatory motion between said upper and lower shoes in the direction of the plane of the top surface of the lower shoe such as would be generated by an earthquake.

4,363,150

SHIP'S EMBARKATION DEVICE

Emanuel Nilsson, Västra Frölunda, Sweden, assignor to AB Welin, Göteborg, Sweden

PCT No. PCT/SE79/00052, § 371 Date Nov. 17, 1979, § 102(e) Date Nov. 13, 1979, PCT Pub. No. WO79/00784, PCT Pub. Date Oct. 18, 1979

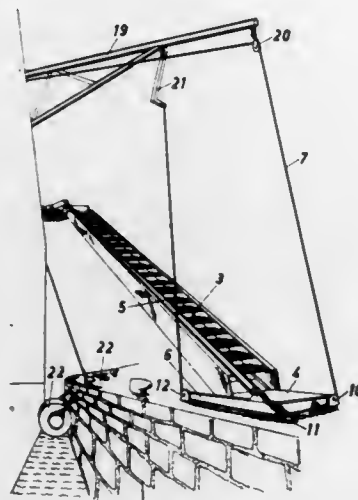
PCT Filed Mar. 12, 1979, Ser. No. 185,905

Claims priority, application Sweden, Mar. 17, 1978, 7803135

Int. Cl.³ E01D 1/00

U.S. Cl. 14—69.5

10 Claims



2. A ship's embarkation device comprising at least one projecting means, e.g. a ladder, to the one end of which there is pivotally attached a first platform connected to the ship's deck, and to the opposite end of which a second platform is pivotally attached, at least one torsion bar disposed under said projecting means, members on the ends of said torsion bar extending perpendicular thereto pivotally attached to the respective first and second platforms by first and second pivot axles, said torsion bar being arranged to strengthen the torsional resistance of the device and to take up the torsional forces between the platforms when the device is turned to and from the stowing position on deck, and means for hoisting and lowering the device and for turning the device to and from a stowing position on deck, including an attachment for a wire from a winch arrangement on the ship's deck arranged on said second platform, a roller arranged at the side of said second platform facing the ship's side, means with a curved path for the roller being arranged on the ship's deck catching the roller when the device is hoisted up to a substantially horizontal position, whereby the device is turned to the stowing position on the deck by further pulling of the wire.

4,363,151

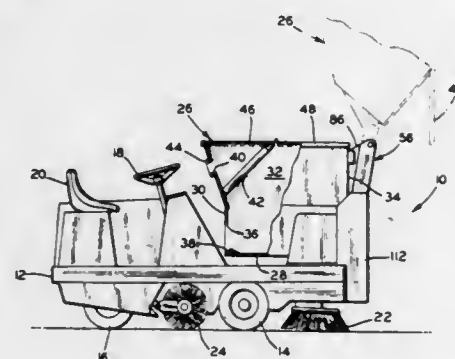
RIDING SWEEPER WITH HIGH DUMP MECHANISM
Christopher M. Knowlton, Toledo, Ohio, assignor to The Scott & Fetzer Company, Lakewood, Ohio

Filed Mar. 16, 1981, Ser. No. 244,074

Int. Cl.³ A47L 11/24

U.S. Cl. 15—83

10 Claims



1. A surface sweeping machine comprising a body, wheel

means for supporting said body on the surface, a rotatable drum broom supported under an intermediate portion of said body, track means at forward, side portions of said body and extending upwardly therefrom, a carriage extending across said body and movably guided by said track means, means connected between said body and said carriage for raising said carriage, a hopper pivotally connected to said carriage, means connected between said hopper and said carriage for pivoting said hopper relative to said carriage, fluid-operated means for rotatably driving said drum broom, a valve controlling the flow of fluid to said fluid-operated means, said valve being engagable by said hopper to be opened when said hopper is in its lowest position and closed when said hopper is raised.

4,363,152

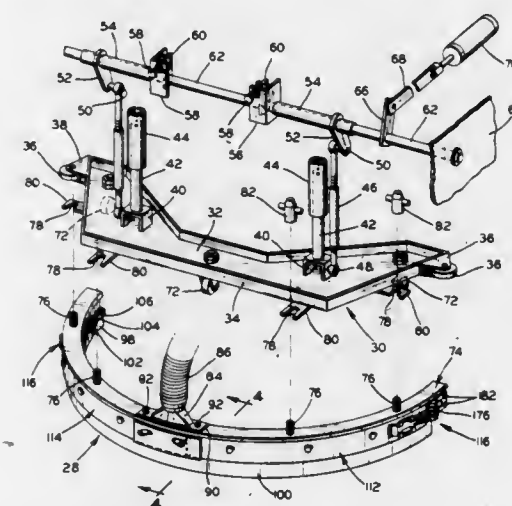
SQUEEGEE ASSEMBLY FOR A SCRUBBING MACHINE
David J. Karpanty, Toledo, Ohio, assignor to The Scott & Fetzer Company, Lakewood, Ohio

Filed Feb. 19, 1981, Ser. No. 235,436

Int. Cl.³ A47L 7/00

U.S. Cl. 15—98

12 Claims



1. Squeegee apparatus for a scrubbing machine comprising a squeegee supporting member, means for connecting said squeegee supporting member to said machine, said squeegee supporting member having forward outer end portions and a rear intermediate portion, said supporting member having a downwardly-extending rear wall, a squeegee blade which is substantially continuous and uninterrupted from one end to another, two clamping bands extending along the rear wall of said supporting member and having inner ends near the rear intermediate portion of said supporting member and having outer ends near the forward outer end portions of said supporting member, means located at the rear intermediate portion of said supporting member and cooperating with inner end portions of said clamping bands for moving said bands toward said rear wall when said bands are moved toward said forward outer end portions of said supporting member, and means engagable with outer end portions of both of said clamping bands near said forward outer end portions of said supporting member for moving said outer end portions of said bands transversely toward said supporting member and toward said forward outer end portions of said supporting member, whereby said clamping bands hold said squeegee blade against said rear wall when said clamping bands are so moved by said engagable means.

4,363,153

INK TUB CLEANER

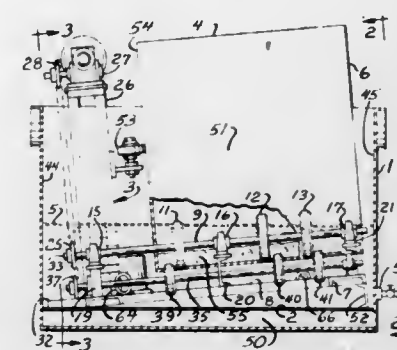
Sam S. Carava, 7 Pembroke La, Oak Brook, Ill. 60521

Filed Feb. 9, 1981, Ser. No. 232,670

Int. Cl.³ B08B 9/18

U.S. Cl. 15—101

17 Claims



1. An apparatus for removing residual material from a cylindrical container which comprises:

A. moving means for supporting and rotating said container, said moving means comprising:

1. a base having an upper surface;
 2. a pair of substantially parallel shafts rotatably coupled to said base above said upper surface;
 3. at least two support wheels of substantially the same diameter rigidly attached to each of said shafts in a wheel-and-axle relationship, said shafts, support wheels, and base being situated so as to enable support of said container at its exterior curved surface on the outer perimeter of said support wheels;
 4. at least one driven wheel rigidly attached to each of said shafts in a wheel-and-axle relationship;
 5. an elongated frame attached to said base and extending above said upper surface of said base;
 6. a rotational driving means coupled to said frame;
 7. a driving wheel rotatably coupled to said driving means; and
 8. a closed loop flexible tensile member engaged with the outer perimeters of said driving wheel and said driven wheels of each of said shafts so as to effect rotation of said driven wheels of each of said shafts in the same direction which in turn effects rotation of said support wheels via said respective shafts to effect rotation of said container when resting on said support wheels; and
- B. a tank means having a bottom surface on which said moving means is rested, said bottom surface being adapted to accommodate said moving means with said container supported on said moving means, said tank means being capable of containing solvent to a sufficient depth to submerge at least a portion of said container when supported on said moving means and to effect contact of said residual material with said solvent.

4,363,154

MACHINE FOR REMOVING INK FROM OVERHEAD PROJECTOR ROLLS

Robert K. Lee, 1312 Parsnip Crescent, Prince George, British Columbia, Canada (V2M 4C41)

Filed May 14, 1981, Ser. No. 263,695

Claims priority, application Canada, Jun. 16, 1980, 354058

Int. Cl.³ B08B 11/20

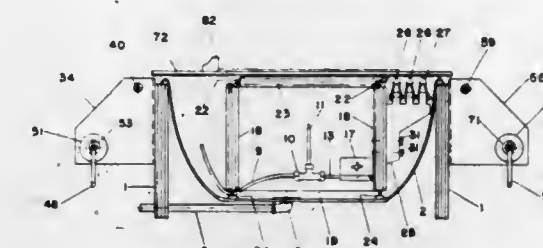
U.S. Cl. 15—102

22 Claims

1. A machine for removing ink from an overhead projector roll of writing-film, comprising:

- (a) means for holding the overhead projector roll of writing-film, the holding means permitting the roll of writing-film to rotate longitudinally and to be unrolled;
- (b) a rotatable take-up spool for rerolling the writing-film, whereby the writing-film is transferred unrolled from the holding means to the take-up spool;

- (c) means for turning the take-up spool;
- (d) a basin located between the holding means and the take-up spool so as to permit the writing-film to travel unrolled across the basin as the writing-film is being transferred unrolled from the holding means to the take-up spool;
- (e) a cover over the basin, a space between the cover and the



basin permitting the writing-film to pass unrolled between the cover and the basin;

- (f) means, located in the basin, for spraying solvent of the said ink onto the writing-film as the writing-film travels unrolled across the basin to the take-up spool; and
- (g) means for removing said solvent from the writing-film as the writing-film travels unrolled to the take-up spool.

4,363,155

ICE BREAKER

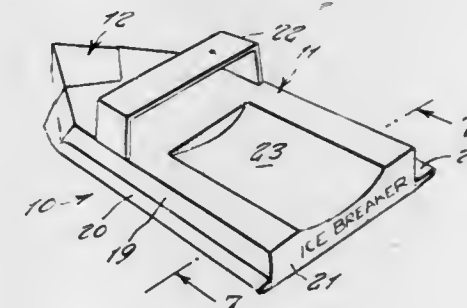
Matthew J. Regina, 147-32 72nd Rd., Flushing, N.Y. 11367

Filed Nov. 3, 1980, Ser. No. 202,929

Int. Cl.³ B60S 1/04; A47L 17/06

U.S. Cl. 15—236 R

1 Claim



1. An ice breaker comprising in combination, a main body member molded of rigid plastic material, and a tip member made of stainless steel, said tip member being affixed to a front end of said main body member; said main body member front end being tapered forwardly by means of forwardly converging flanged sides, said tip member being installed within a tapered point of said main body member, said tip member being sharpened to a forward apex; a rear wall of said main body member extending flat transversely across, an inverted, U-shaped handle across a top of said main body member, a curved depression on a top wall of said main body member extending rearwardly of said handle to said rear wall, and a recess hollowed out on an underside of said main body member.

4,363,156

VACUUM CLEANER DUST CONTAINER HAVING COMPRESSING MEANS ASSOCIATED THEREWITH

Karl E. Leinfelt, Stockholm, Sweden, assignor to Aktiebolaget Electrolux, Stockholm, Sweden

Filed Apr. 14, 1981, Ser. No. 254,066

Claims priority, application Sweden, Apr. 18, 1980, 8002906

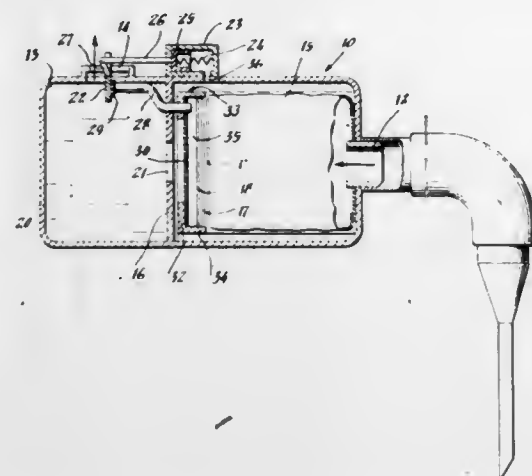
Int. Cl.³ A47L 9/12

U.S. Cl. 15—327 R

6 Claims

1. In a vacuum cleaner having a working implement and having a suction chamber provided with an inlet for dust-laden air, a suction hose, a dust container, an outlet opening for cleaned air, and a motor-fan unit for transport of air from said

working implement through said suction hose and dust container, the improvement comprising: a housing constituting a pressure chamber and said suction chamber, said pressure chamber in said housing having said outlet opening and said motor-fan unit therein, said suction chamber having said dust container and an air non-pervious, closed bellows, a partition in said housing separating said suction chamber from said pressure chamber, said bellows being arranged between said dust container and said partition, a suction opening for said



motor-fan unit in said pressure chamber located in said partition, means for selectively closing the outlet opening for cleaned air, means for removably sealing the suction opening in said partition, and an air conduit disposed so as to conduct pressurized air from said pressure chamber to the interior of said bellows when said suction opening and said outlet opening are closed to thereby expand said bellows and compress said dust container whereby accumulated dust in the dust container is compressed.

4,363,157

BUFFING PAD CLEANING TOOL

Richard F. McGrath, Shoreview, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed May 11, 1981, Ser. No. 262,481

Int. Cl.³ A47L 5/14

U.S. Cl. 15—388

3 Claims



1. A cleaning tool for removing debris from buffing pads comprising:

- a frame having a first end portion adapted for manual engagement and a second projecting end portion;
- a plurality of spaced star wheels rotatably coaxially mounted in side-by-side spaced relationship on the second end portion of said frame;
- an air nozzle mounted on said frame and positioned to direct air passing through said nozzle generally toward one side of said star wheels;
- means affording coupling of a supply of high pressure air to said nozzle comprising a valve assembly having inlet and outlet ports and mounted on said frame, a passageway connecting the outlet port of said valve with said nozzle,

and means for coupling the inlet port of said valve assembly to a supply of high pressure air; and means mounted on said frame for manually activating said valve means.

4,363,158

DEVICE FOR INSTALLING HANDLE STICKS IN THE ENDS OF WIENERS

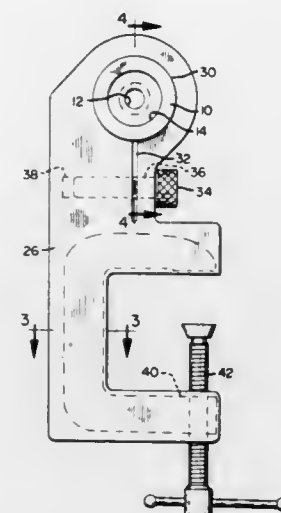
Carl P. Gerdlund, Rt. 3, Box 3956, Warren, Oreg. 97053

Filed Dec. 5, 1980, Ser. No. 213,234

Int. Cl.³ A22C 11/00

U.S. Cl. 17—1 S

6 Claims



1. A device for installing handle sticks in the ends of wieners comprising

- (a) a body member having opposite ends,
- (b) a first bore leading in from one end of said body member and extending through a partial length of the latter,
- (c) and a uniform diameter second bore leading in from the other end of said body member,
- (d) said second bore joining with said first bore and being of enlarged diameter relative to said first bore forming an internal shoulder in said body member,
- (e) said second bore being of a size arranged to freely receive a wiener endwise therein and arranged to stabilize the wiener against lateral movement with one end of the wiener abutted against said shoulder,
- (f) said first bore being of a size which is arranged to slidably receive a handle stick and guide the stick substantially axially relative to a wiener in said second bore for installing a stick in piercing relation in end projecting relation in a wiener.

4,363,159

SEPARABLE FASTENING DEVICE

K. Edward Lischick, 306 White Ave., Northvale, N.J. 07647

Filed May 27, 1980, Ser. No. 153,017

Int. Cl.³ A44B 17/00

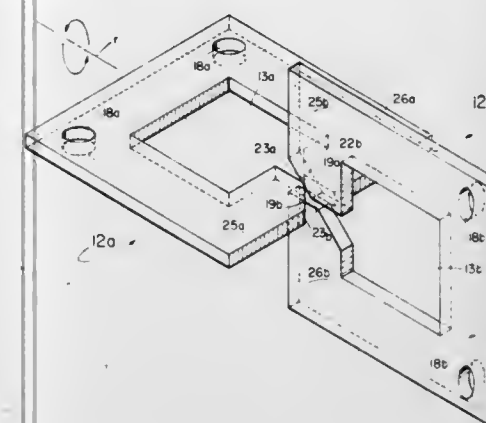
U.S. Cl. 24—201 HH

5 Claims

1. A separable fastening device comprising a pair of clasp members, each of said members being comprised of a rigid, bendable material having a central aperture extending there-through and at least one substantially flat edge section, each flat edge section having:

- (a) an internal angular notch;
- (b) an external angular notch; and
- (c) a slot in said edge section connecting the vertexes of said internal and external angular notches and dividing each edge section into split edge portions, said slot forming a gap having a thickness less than the thickness of the edge section of said other of said clasp members; whereby said clasp members are connected by engaging the external angular notches of each of said edge sections; rotating at least one of said clasp members toward the

other of said clasp members until the split end portions of each edge section are flexed apart axially and oppositely at each slot sufficient to allow lateral movement of one of said members with respect to the other of said members and moving the edge section of at least one of said clasp members inwardly with respect to said other member until said edge section of each of said clasp members enters the central aperture of said other member; and whereby said clasp members are disconnected by engaging the internal angular notches of each of said edge



sections, rotating at least one of said clasp members toward the other of said clasp members until the said split end portions of each edge section are flexed apart axially and oppositely at said slots sufficient to allow lateral movement of one of said members with respect to the other of said members and moving the edge section of at least one of said clasp members outwardly with respect to the other of said members until the edge section of said one of said clasp members lies outwardly of said edge section of said other of said clasp members.

4,363,160

FASTENING ELEMENT OF SYNTHETIC MATERIAL

Günter Wibrow, Norderstedt, Fed. Rep. of Germany, assignor to ITW Ateco GmbH, Norderstedt, Fed. Rep. of Germany

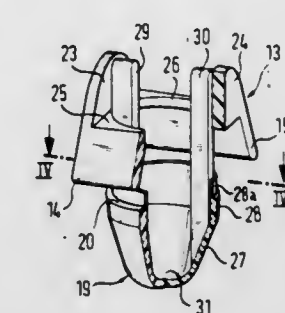
Filed Oct. 9, 1979, Ser. No. 83,050

Claims priority, application Fed. Rep. of Germany, Sep. 20, 1978, 2840878

Int. Cl.³ A44B 17/00

U.S. Cl. 24—297

5 Claims



1. A one piece plastic fastening element, adapted to be received in a complementary hole of a predetermined diameter in a plate-like support, including a cup-shaped hollow insert member open at one end, said insert member having a continuous wall and an external substantially continuous circumferential shoulder formed integrally intermediate the ends of said insert member for engaging beneath the underside of the plate adjacent the edge of the hole, a head member connected in spaced relation to the insert member having means for fastening an article to the carrier plate with either the article to be fastened or the head member lying in close contact against the side of the plate-like support opposite the side engaged by said circumferential shoulder, and connection means extending between, and substantially parallel to the axis of, the insert

member and the head member, said connection means extends along the inside of the insert member axially below the circumferential shoulder, said connection means includes at least two connecting webs which are circumferentially spaced and connected at the upper ends thereof to the head member and at the lower ends thereof to the interior of the insert member below a plane passing transversely to the axis of the fastening element and through said circumferential shoulder, said insert member further includes a lower cup-shaped portion having an upwardly and radially flaring wall extending from a closed end, a generally cylindrical portion extending axially from said upwardly flaring wall, and a portion extending axially from said generally cylindrical portion having a reduced external diameter forming said continuous circumferential shoulder, whereby said reduced diameter portion forms an axially extending thin walled annular extension with a substantially unrestricted open end, said external diameter of said reduced diameter portion being slightly greater than the diameter of said complementary hole whereby said extension is adapted to aggressively seal against the side wall of said hole, said head having an opening therein axially aligned with the interior of said cup-shaped hollow insert member thereby permitting access to said interior through said head.

4,363,161

METHOD AND APPARATUS FOR THE COMPRESSIVE TREATMENT OF FABRIC

Frank Catallo, 84 Wheatley Rd., Old Westbury, N.Y. 11568

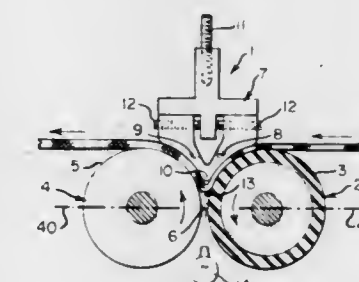
Continuation-in-part of Ser. No. 95,090, Nov. 16, 1979,

abandoned. This application Oct. 8, 1980, Ser. No. 195,301

Int. Cl.³ D06C 21/00

U.S. Cl. 26—18.6

18 Claims



1. A method for the compressive treatment of a fibrous thread interlaced web material wherein said material is forced into a stuffing chamber formed by a space between a first movable uninterrupted cylindrical surface and a second movable uninterrupted surface and a smooth arcuate apex of a confining means extending in part between and spaced from the first and second surfaces with the confining means having a concave confining surface connecting with said apex spaced from and opposite the first surface and subtending an angle therewith, comprising the step of moving the first surface at a first rate of speed in a first direction to move said material between it and said confining surface towards and into said stuffing chamber, and the step of moving the second surface in a second direction opposite to said first direction at a second rate of speed slower than said first rate of speed to move said material in said second direction around said apex and out of said stuffing chamber.

8. An apparatus for the compressive treatment of a fibrous thread interlaced material where the apparatus comprises a first movable uninterrupted cylindrical surface, means for moving the first movable surface in a first direction at a first rate of speed, a second movable uninterrupted surface spaced from the first movable surface, means for moving the second movable surface in a second direction opposite to said first direction at a second speed rate of speed slower than said first rate of speed and a confining means spaced from the first and second movable surfaces having a smooth arcuate apex extending between and towards the first and second surfaces to form a stuffing chamber therewith into which material is adapted to

be moved by the first movable surface and from which material is adapted to be moved by the second movable surface around the apex, said confining means including a concave confining surface connecting with said apex spaced from and opposite the first movable cylindrical surface and subtending an angle with said first movable cylindrical surface.

4,363,162

INFRARED HEAT TREATMENT OF PLASTIC FILM CAPACITORS

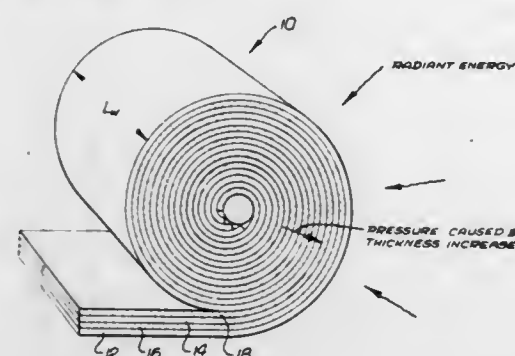
Rick A. Price, R.R.#2, Box 35-H-13, Ogallala, Nebr. 69153

Filed Nov. 3, 1980, Ser. No. 203,523

Int. Cl.³ H01G 7/00

U.S. Cl. 29—25.42

12 Claims



9. A process for manufacturing plastic film capacitors comprising the steps of:

- (a) winding alternating layers of thermoplastic dielectric film and metal to form a cylinder, each cylinder having a plurality of turns of dielectric film and metal, respectively;
- (b) applying radiant energy of a predetermined wavelength to the cylinder thereby causing shrinkage of the dielectric film, wherein the metal and dielectric windings transmit a portion of said applied radiant energy sufficient to cause the inner dielectric turns to receive an amount of energy per unit area which will cause shrinkage of the dielectric film to occur progressively from the inner turns to the outer turns.

4,363,163

QUENCH ROLL INCLUDING HELICALLY WRAPPED SUPPORT

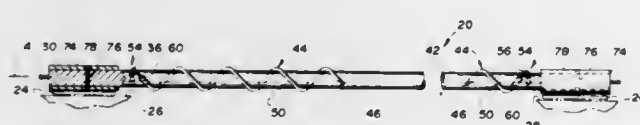
Harold A. McMaster, 707 Riverside Dr., Woodville, Ohio 43469

Filed Nov. 13, 1980, Ser. No. 206,405

Int. Cl.³ B21B 27/02; C03B 35/18

U.S. Cl. 29—127

17 Claims



1. A quench roll for a quench unit of a roller conveyor type system for tempering glass sheets, said quench roll comprising: an elongated shaft that extends transversely to the direction of conveyance through the quench unit and which has a rotational axis so as to convey glass sheets supported by the shaft upon driving thereof about said rotational axis; an elongated support that is wrapped about the shaft in a helical configuration; said support including a core having opposite ends that are secured to the shaft; and the support having an outer covering of a nonmetallic material that is stable at a sufficiently high temperature so as to be capable of supporting a hot glass sheet on the shaft upon cooling thereof at the quench unit.

4,363,164

DEVICE FOR REMOVING DUMP NUT FROM BOLT

Hiroshi Okada, Seto, Japan, assignor to Mitsuchi Corporation, Nagoya, Japan

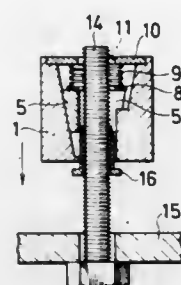
Filed Mar. 30, 1981, Ser. No. 248,668

Claims priority, application Japan, Apr. 9, 1980, 55-48021

Int. Cl.³ B25B 27/00

U.S. Cl. 29—270

1 Claim



1. In a dump nut having a casing provided therein with a longitudinally extending tapered through bore of an upwardly increasing diameter, a plurality of separated nut segments slidably inserted in said tapered bore and adapted to be constantly urged in the downward direction by a spring, and a threaded bore defined by said nut segments into which a bolt is screw-fitted, a cylindrical nut removing device comprising two cross-sectionally arcuate complementary members which are oscillably joined together at their adjacent side edges, said nut removing device being slidably fitted around said bolt to thereby push said nut segments in the upward direction against said spring.

4,363,165

WIRE HARNESS

Yoshitsugu Suzuki, Mishima; Syogo Iizuka, Gotenba; Shigeo Kajiyama, Shizuoka; Kenji Usui, Gotenba, and Masahiro Kobayashi, Susono, all of Japan, assignors to Yazaki Corporation, Tokyo, Japan

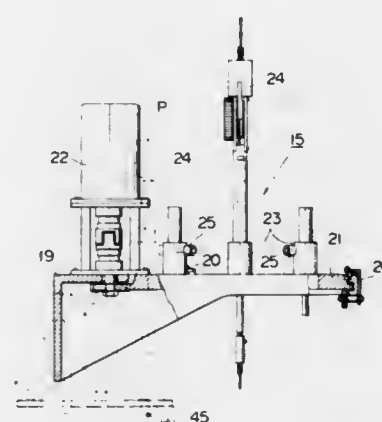
Division of Ser. No. 80,682, Oct. 1, 1979. This application Jan. 8, 1981, Ser. No. 223,233

Claims priority, application Japan, Sep. 29, 1978, 53-120280; Nov. 20, 1978, 53-142212; Nov. 20, 1978, 53-142213

Int. Cl.³ H01B 13/06

U.S. Cl. 29—564.8

7 Claims



1. A device for manufacturing a wire harness comprising: a wiring head body mounted to travel over a work table; a wiring jig mount provided on said wiring head body and mounted to circulate in a horizontal plane; a plurality of wiring jigs each inserted through a guide pipe vertically provided on said wiring jig mount to open above and below the wiring jig mount, said wiring jigs having a covered wire paid out therethrough;

a means for raising and lowering selected one of said wiring jigs at a predetermined position; and a clamping jig for contacting a wire, said jig being provided on the wiring head and mounted for vertical movement relative to the said wiring head and circular movement about the selected wiring jig positioned at said predetermined position, said clamping jig having a cutting edge.

4,363,166

AUTOMATIC TOOL EXCHANGER

Norbert Hiller, Wendlingen, Fed. Rep. of Germany, assignor to Gebrüder Heller Maschinenfabrik GmbH, Nuertingen, Fed. Rep. of Germany

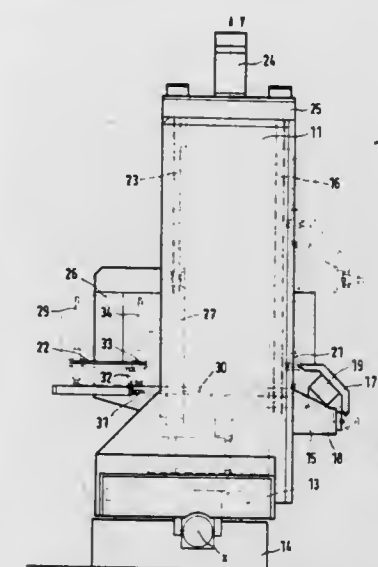
Filed Aug. 18, 1980, Ser. No. 179,019

Claims priority, application Fed. Rep. of Germany, Sep. 3, 1979, 2935523

Int. Cl.³ B73Q 7/00

U.S. Cl. 29—568

4 Claims



1. A machine tool with an automatic tool exchange, comprising frame means including two upright columns (11, 12), yoke means (25) rigidly interconnecting said columns substantially at the top of the columns to rigidly hold said columns at a predetermined spacing from each other, said columns defining a central vertical plane extending substantially centrally through both upright columns, horizontal spindle means (15) movably located in said spacing between the upright columns (11, 12) and having a spindle axis (18) extending horizontally and perpendicularly to said central vertical plane, said spindle axis (18) extending from said columns on one side of said frame means, first guide means (15') operatively mounted in said frame means adjacent to said one side of said frame means for guiding said spindle means (15) in its up and down movement centrally in said spacing along said one side of said frame means, separate tool magazine means (22), magazine support means (26) for movably mounting said separate tool magazine means to said frame means above said spindle means and in a constant spacial relationship to said spindle means but independently of said spindle means, said tool magazine means holding tools in a direction extending perpendicularly to said spindle axis (18), second guide means (27, 28; 35, 36) operatively mounted in said frame means substantially opposite said first guide means (15) adjacent the other side of said frame means opposite said one side of said frame means for guiding said magazine support means and with it the tool magazine means (22) so that the spindle means (15) and the magazine support means are both guided by both columns, grapple claw means (17) including an angular double claw operatively arranged on said horizontal spindle means (15) for swinging a tool into said spindle axis (18), drive means (16, 23, 24) operatively connected to said horizontal spindle means and to said magazine support means for moving said spindle means (15) and said tool magazine means (22) in unison, and wherein the tools are supplied to said spindle means through said spacing.

4,363,167

METHOD OF TERMINATING LEADING ENDS OF A PLURALITY OF WIRES

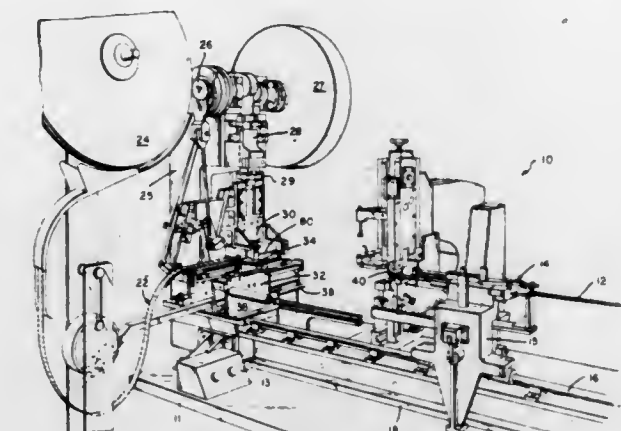
Andrew G. Boutcher, Jr., and Kenneth F. Folk, both of Harrisburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Aug. 11, 1980, Ser. No. 176,812

Int. Cl.³ H01R 43/04; B23P 19/00

U.S. Cl. 29—863

11 Claims



1. Apparatus for terminating the leading ends of a plurality of wires to a like plurality of terminals comprises: an operating zone having a terminating station therein; a wire delivery shuttle which is reciprocable on a first path from said operating zone to a point remote therefrom, said shuttle having a leading end closest to said operating zone, said shuttle having a like plurality of elongated wire guide tubes in a planar parallel array, said guide tubes having a first fixed spacing, each guide tube having two telescoping parts, the innermost part extending to the leading end of the shuttle, each guide tube closely accommodating a single wire, said shuttle having releasable wire gripping means effective to hold the wires stationary with respect to the outermost of the telescoping parts, whereby, said shuttle may reciprocate on said path toward and away from said operating zone and deliver said leading ends of said wires to said operating zone in a planar array at said first fixed spacing, said leading ends being extruded from the guide tubes into the operating zone for termination by stopping the leading end of the shuttle at the operating zone and collapsing the telescoping parts by continued movement of the shuttle while the wire gripping means hold the wires stationary with respect to the outermost of the telescoping parts.

8. A method of terminating the ends of a plurality of wires to a like plurality of terminals having a second fixed spacing in a linear array and inserting the terminated ends into a like plurality of cavities having a first fixed spacing in a linear array in a connector housing comprises the steps of:

gripping said wires in a planar parallel array at said first fixed spacing at portions thereof remote from said ends and delivering said ends to a terminating station, said wires being gripped so that the ends are in a rectilinear array when the wires are parallel between said gripped portions and said ends.

deflecting said wires transversely of the planar array at a point between said terminating station and said gripped portions, the innermost wires being deflected more than the outermost wires, said ends thereby being modified to an arcuate array when the wires are parallel between said gripped portions and said ends,

spreading said ends to a second fixed spacing in a planar guide template having grooves therein, said grooves having first portions at said first fixed spacing remote from said terminating station and second portions at said second fixed spacing adjacent to said terminating station, said second spacing being sufficient to align ends to a rectilinear array when the wires are spread into the grooves, said wires being spread into the grooves by a wiper assembly

which wipes the wires into the grooves from the first portions toward the second portions, positioning a like plurality of terminals at said second-fixed spacing at said terminating station adjacent said ends and terminating said ends to said terminals, restoring said ends to said first fixed spacing and inserting said ends into cavities in a connector housing at an insertion station, said ends being inserted by relative axial movement between the ends and the housing.

4,363,168

METHOD OF FORMING AN ELECTRICAL CONNECTION UNDERWATER

James E. Bryer, Millom; Alan P. Mayes, and Keith Allen, both of Barrow-in-Furness, all of England, assignors to VO Off-shore Ltd., Barrow-in-Furness, England

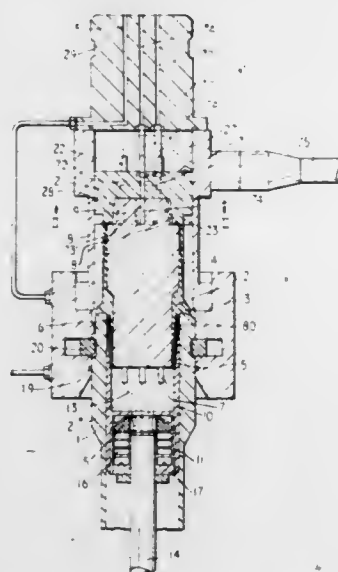
Filed Jun. 9, 1980, Ser. No. 157,538

Claims priority, application United Kingdom, Jun. 16, 1979, 7921020

Int. Cl.³ H01R 43/00

U.S. Cl. 29—869

8 Claims



1. A method of forming an electrical connection underwater between first and second cables, which method comprises:

- providing a first connector portion including a first electrical contact connected to the first of the cables;
- providing a second connector portion including a second electrical contact connected to the second of the cables;
- engaging together the first and second connector portions under water so as to electrically connect the first and second contacts and form a closed free space between the connector portions within which space the first and second contacts are disposed;
- flushing out the free space between the connector portions;
- drying the free space; and
- introducing electrically insulating liquid into said free space.

4,363,169

ELECTRIC SHAVER

Sataro Nasu, Hikone; Hikoyoshi Hara, Shijonawate, and Kouichi Iwanaga, Hikone, all of Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan

Filed Mar. 3, 1981, Ser. No. 240,074

Claims priority, application Japan, Mar. 3, 1980, 55-26857

Int. Cl.³ B26B 19/38

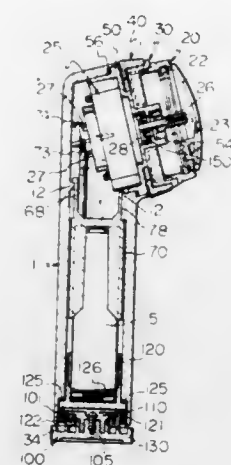
U.S. Cl. 30—41

13 Claims

1. An electric shaver wherein a motor is watertightly housed in an opening at one end of a housing, a shaving blade assembly is mounted to said one end with inner blades operably coupled to a rotary shaft of said motor projected out of the one end through a watertight sealing means, power source batteries are housed within said housing, a switch is provided in the housing

so as to open and close a circuit between the motor and said batteries by means of a handle watertightly provided as exposed on the outer periphery of the housing, and a battery covering mounted to the other end opening of the housing for holding the batteries therein includes a watertight sealing means,

said housing having in the inner peripheral wall along said the other end opening means for holding said battery



covering to the housing, and said battery covering being provided with a lock means moved in directions transversing the axial line of the other end opening responsive to mounting operation of the covering to the opening so as to be locked in said holding means and with a seal means moved in said axial directions responsive to said mounting operation for achieving a watertight abutment between the other end opening of the housing and the battery covering over the entire periphery of them.

4,363,170

BLADE HOLDER FOR MEAT TRIMMING KNIFE

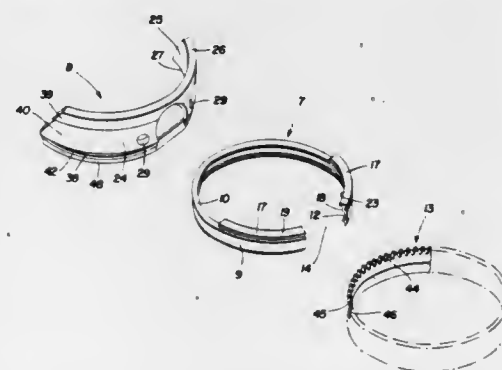
Timothy J. McCullough, Box 295, Lake Rd., Vermilion, Ohio 44089

Filed Nov. 3, 1980, Ser. No. 202,947

Int. Cl.³ A22C 17/04

U.S. Cl. 30—276

4 Claims



1. A blade holder construction for a meat-cutting tool of the type having a power-driven handle assembly with a concave arcuate surface at one end formed with two tapped holes therein and having a drive gear rotatably supported in the handle assembly for driving a gear toothed ring blade adapted to be rotatably supported by the blade holder construction, said blade holder construction including:

- a split annular-shaped ring;
- an interior, annular groove formed in the ring for rotatably mounting a complementary-shaped cutting blade therein;
- inwardly projecting arcuate flange means formed integrally with the ring;
- exterior arcuate groove means formed in the ring for engagement with alignment keys mounted on the concave arcuate surface of the power-driven handle;

(e) an arcuate-shaped plate formed with a drive gear-receiving recess and a pair of holes, said holes being adapted to align with the tapped holes of the power-driven handle for receiving a pair of screws therethrough for removably attaching the plate on the concave surface of said handle, and said plate having a smooth concave inner surface and a generally smooth convex outer surface; in which said outer surface is formed with an end portion having a larger radius of curvature than an adjacent intermediate portion with said larger end portion providing a contact pressure zone engageable with the arcuate end surface of the handle when the blade holder is attached to said handle; and

(f) arcuate groove means formed in the plate, said plate groove means being complementary to and removably engaged with the inwardly extending arcuate flange means of the ring to removably mount said ring on the plate.

4,363,171

COILABLE RULE AND REPLACEMENT CARTRIDGE THEREFOR

Louis Scandella, Marnay, France, assignor to Stanley Mabo, S.A., Besancon, France

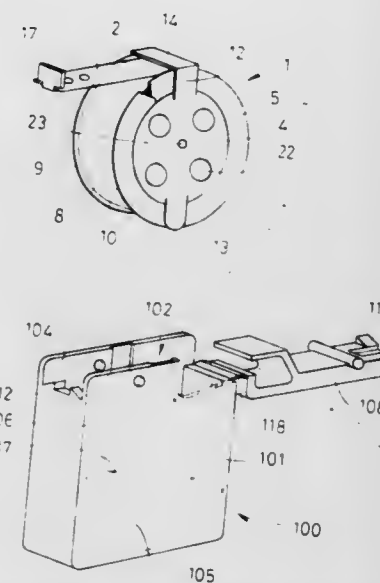
Filed Nov. 24, 1980, Ser. No. 209,882

Claims priority, application France, Nov. 23, 1979, 79 28905; Apr. 29, 1980, 80 09585

Int. Cl.³ B65H 75/48; G01B 3/10

U.S. Cl. 33—138

20 Claims



1. A coilaible-rule linear measuring instrument with a coiled return spring, comprising a cartridge detachably mounted in a casing provided with a tape outlet slot, said cartridge having mounted therein a tape provided with a hook at its outer end, said cartridge having a central post having one end rigid with a lateral flange and a spool having a lateral flange formed with a central aperture and adapted to pivot about said central post, said spool further having a peripheral wall provided with generally annular side flanges between which the measuring tape is wound on said outer peripheral wall; a tape return spring mounted in an annular chamber defined by said central post and said peripheral wall, said peripheral wall having an aperture through which said spring is connected to said tape, said cartridge including an element for retaining the free end of said tape on said spool, whereby said cartridge constitutes a compact unit, said retaining element being formed integrally with said lateral flange rigid with said central post, the end of said central post which is opposite said lateral flange projecting externally from the lateral flange of said spool, said central post lateral flange being provided with at least one radial holding lug, said cartridge being slidably fitted in said casing, said casing including a one-piece case having a groove formed in one of its main sidewalls, said groove extending at a right angle to the open side of said casing and being adapted to be engaged by said central post and to constitute a recess engageable

thereby, the opposite main sidewall being provided with a hollow portion engaged by said at least one radial lug for positioning and holding against movement said lateral flange rigid with said central post in said casing, said casing further including a cover for closing said case.

4,363,172

APPARATUS FOR MEASURING ECCENTRICITY OF ROLLS

Kenneth D. Ives, Murrysville, Pa., assignor to United States Steel Corporation, Pittsburgh, Pa.

Filed Apr. 17, 1981, Ser. No. 255,130

Int. Cl.³ G01B 5/14

U.S. Cl. 33—174 Q

10 Claims



1. An apparatus for measuring the eccentricity of a circumferential face of an axially rotatable roll, said apparatus comprising:

- a housing adapted for transport substantially tangent to the roll face in a direction normal to the roll axis, said housing including means (a) for guiding said housing during transport so that an axis thereof is maintained coincident with the transport direction and said transport direction is maintained constant at least for sufficient of the portion of said transport for determining eccentricity of the roll, and (b) for contacting said roll and causing rotation thereof at a circumferential speed equal to the rate of housing transport,
- an elongated measuring runner projecting laterally from said housing so as to be abutted and traversed by said roll along an outer longitudinal surface thereof, said longitudinal surface being parallel to the direction of housing transport and of length sufficient for measurement of eccentricity of said roll,
- means for mounting said measuring runner displaceably in the housing and maintaining said runner parallel to the housing axis in the transport direction, and
- means for measuring the displacement distance of said measuring runner from a reference position in the housing.

4,363,173

BOLT HOLE LOCATING AND MARKING TOOL

Joseph B. Caldera, 427 W. 10th, Escondido, Calif. 92026

Filed Oct. 17, 1977, Ser. No. 842,684

Int. Cl.³ B25H 7/04; B25D 1/00

U.S. Cl. 33—180 R

1 Claim

1. A self contained hand actuated inertial impact marking tool for establishing and marking predetermined distances on concrete and the like, comprising:

- an elongated generally flat rectangular base member having a support face and an aperture therein intermediate the ends thereof, the length thereof between said aperture and said ends defining means for establishing predetermined distances;
- an elongated tubular guide member secured at one end to, and extending upward from said base member in alignment with said aperture;
- a hand actuated inertial impact member defined by an elon-

gated bar having a sharp point on the lower end and an elongated, cylindrical grip handle adapted to extend through and be gripped by the hand on the upper end mounted in said tubular guide member on said base member and having said sharp point positioned for extending through said aperture for establishing a mark upon impact engagement with a surface, said bar and said tubular member having sufficient length extending from said base member to extend from said base member at the foot of a workman upward to his waist, to enable a workman in the upright position to grasp the grip handle in his hand and



said elongated bar having sufficient mass to enable hand actuation to mark on a concrete floor at the feet of said workman; and
a coil spring disposed between a pair of opposed annular flanges disposed respectively on the upper end of said tubular member and adjacent said handle on said elongated bar for normally supporting said impact member so that said point does not protrude beyond said support face, a semi-circular cut out at each end of said base member for receiving a bolt, and
clamping means for clamping said elongated bar to said tubular member.

4,363,174

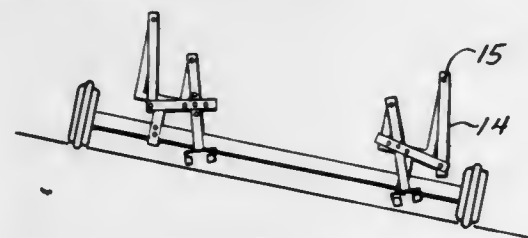
GRAVITY ACTUATED GUIDING DEVICE FOR FARM MACHINES

Ralph H. Curtis, P.O. Box 132, Princeton, Iowa 52768
Filed Aug. 11, 1980, Ser. No. 176,994

Int. Cl.³ B62D 15/02

U.S. Cl. 33—264

7 Claims



7. A gravity actuated apparatus for providing a visual guide to an operation of a traction vehicle pulling a cultivator for a row crop, comprising:

- a frame adapted to be mounted to the front of a vehicle and defining first and second pivotal connections spaced laterally from each other in a plane transverse of the direction of travel of said vehicle;
- a weighted pendulum member suspended downwardly from said first pivotal connection of said frame for movement relative to said frame to be maintained by gravity in a generally vertical position as the slope of the terrain on which the tractor rides varies;
- gauge means extending below said pendulum member; and
- a mechanism for locating said gauge means at a predeter-

mined spacing relative to the crop, and being linked to said pendulum member to respond to the movement of said pendulum member as the slope of the terrain varies, said mechanism, gauge means, and weighted pendulum member being so linked to each other that the arc of movement of the gauge means is increased relative to the arc of movement of the pendulum member for increasing the displacement of said gauge means beyond the vertical and in the direction of sloping terrain to compensate for the tendency of the rear of the vehicle to slide downhill with increasing slope; whereby said gauge means indicates the transverse position of the cultivator relative to the crop.

4,363,175

TRUCK WHEEL CLAMP

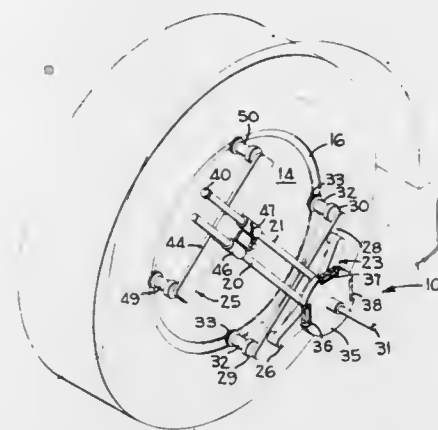
Richard N. Hedahl, Bismarck, N. Dak., assignor to FMC Corporation, Chicago, Ill.

Filed Feb. 23, 1981, Ser. No. 237,341

Int. Cl.³ G01B 5/255, 11/275

U.S. Cl. 33—288

4 Claims



1. A clamp for supporting a wheel aligning tool on a wheel rim, said clamp comprising:

- a frame;
- a lower bracket attached to one end of the frame; means attached to the lower bracket for engaging the wheel rim by which the one end of the frame can be removably attached to the wheel rim;
- a shaft attached to the lower bracket, said shaft being configured to support the wheel aligning tool rotatably thereon; means attached in fixed relationship with said frame for indicating a plurality of predetermined angular positions of said frame;
- an upper bracket slidably mounted at the opposite end of the frame, the distance between the upper and lower brackets being adjustable to correspond to the diameter of the wheel rim; and
- means mounted on the upper bracket for engaging the wheel rim by which the opposite end of the frame can be removably attached to the wheel rim.

4. A wheel clamp system for simultaneously supporting a first wheel aligning tool from a first vehicle wheel rim and a second wheel aligning tool from a second vehicle wheel rim, said first and second wheel rims being transversely opposite one another with respect to the vehicle axis, said wheel clamp system comprising:

- a first wheel clamp including a first bracket affixed to one end of said clamp, said first bracket carrying means to engage said first wheel rim, a first aligning tool support shaft on said first bracket configured to accept the first aligning tool for rotation thereon whereby said first shaft is situated on said wheel clamp at a location closer to the perimeter of the wheel rim than to the rotational axis of the wheel rim, and a first level indicator attached to said

first bracket at a predetermined orientation with respect to the wheel clamp, whereby the wheel and clamp may be rotated to a predetermined angle with respect to horizontal as indicated by said level indicator so that the wheel aligning tool is supported on said first support shaft at a particular elevation and attitude below the axis of the wheel; and

a second wheel clamp including a second bracket affixed to one end of said clamp, said second bracket carrying means to engage said second wheel rim, a second aligning tool support shaft on said second bracket configured to accept the second aligning tool for rotation thereon whereby said second shaft is situated on said second wheel clamp at a location closer to the perimeter of the wheel rim than to the rotational axis of the wheel rim, and a second level indicator attached to said second bracket with an orientation opposite to that of the first level indicator on the first wheel clamp, whereby the second wheel aligning tool will be supported on said second support shaft at the same elevation and attitude as the first wheel aligning tool when the second wheel and clamp are rotated to the angle determined by the second level indicator.

4,363,176

ANTIBUCKLING APPARATUS FOR LITHOGRAPHIC PRINTING PLATES

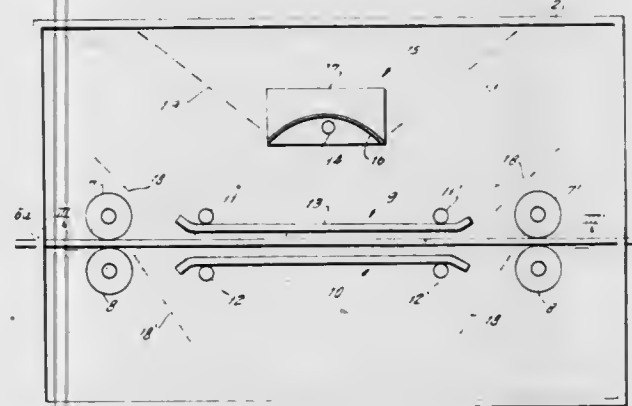
Paul Jargiello, Orange, N.J., and William Boschardt, Armonk, N.Y., assignors to Polychrome Corporation, N.Y.

Filed Apr. 10, 1981, Ser. No. 252,739

Int. Cl.³ F26B 23/04, 3/30

U.S. Cl. 34—4

19 Claims



1. A UV curing apparatus for post-curing lithographic plates, or the like, the apparatus comprising:

- a UV radiation source; means for moving a lithographic plate, or the like, the plate having two opposite surfaces and at least one of the surfaces should be exposed to UV radiation, with the plate moving along predetermined path, with the plate moving beneath and with one of the surfaces of the plate being spaced from the radiation source as the plate moves past the radiation source;
- antibuckling means for preventing buckling of the plate due to radiation from the radiation source impinging on the one surface of the plate, the antibuckling means comprising:

- lower antibuckling means spaced from the surface of the plate away from the radiation source for being engaged by that surface of the plate to prevent buckling of the plate;
- upper antibuckling means disposed between the radiation source and the one surface of the plate and being spaced from the one surface of the plate for being engaged by that surface of the plate to prevent buckling of the plate; the upper antibuckling means comprising:

- a support; a plurality of antibuckling bars supported by the support and normally spaced above the one surface of the plate, and the antibuckling bars being supported by the support at an orientation generally along the path of the plate and obliquely inclined across and with respect to the

path of the plate, whereby radiation is not blocked by the antibuckling bars from impinging upon any line along the path of the plate on the one surface of the plate, and the support being shaped and positioned so as to generally avoid blocking radiation from the radiation source from irradiating the one surface of the plate past the antibuckling bars.

4,363,177

STYLE CONVERTIBLE FOOTWEAR

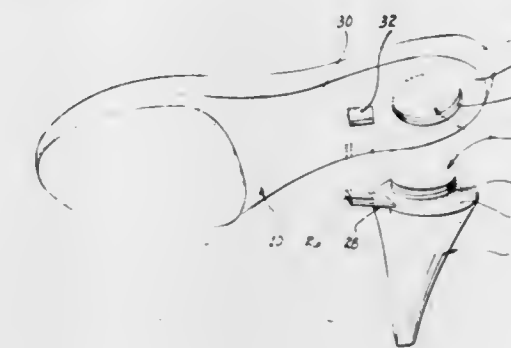
Leslie A. Boros, 7074 E. Aster Dr., Scottsdale, Ariz. 85254

Filed Jun. 2, 1980, Ser. No. 155,408

Int. Cl.³ A43B 3/24, 3/12, 21/36

U.S. Cl. 36—101

24 Claims



1. Convertible footwear, said footwear comprising in combination:

- a sole;
- a replaceable heel;
- means for detachably attaching said heel to said sole, said attaching means comprising a threaded stud extending from the upper end of said heel and a threaded cavity disposed in said sole for receiving said stud, each said stud and said cavity including single turn threads for effecting attachment therebetween;
- means for locking said heel to said sole upon attachment to prevent inadvertent detachment of said heel, said locking means comprising a male detent and a female detent engageable with one another upon threaded engagement between said stud and said cavity, said male detent engaging said female detent upon one turn engagement of said stud with said cavity;
- a replaceable upper having opposed extremities;
- a channel disposed in each of the opposed sidewalls of said sole; and
- means for releasably engaging one of the extremities of said upper with each of said channels.

4,363,178

TRENCH TOOTH QUICK ATTACHMENT

Terry D. Erickson, Wichita, Kans., assignor to J. I. Case Company, Racine, Wis.

Filed Jun. 11, 1981, Ser. No. 272,812

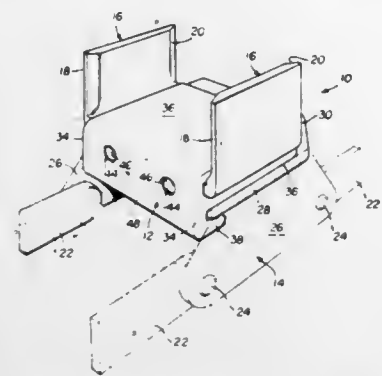
Int. Cl.³ E02F 3/14

U.S. Cl. 37—191 A

6 Claims

- A support assembly for digging teeth comprising:
- a bracket support having a top wall and an up-turned vertical projection formed at one end;
 - a digging tooth mounting bracket having a body portion, opposed side walls, opposed end walls, and top and bottom surfaces, said mounting bracket being secured to said top wall of said bracket support, one end of said mounting bracket including a downwardly depending hook-like projection which engages and locks against an end of said bracket support top wall and the opposite end of said mounting bracket abutting against said up-turned vertical projection on said bracket support, and fastening means for securing said opposite end of said mounting bracket against said up-turned vertical projection, and said op-

posed side walls of said mounting bracket including elongated openings into said body portion;
a digging tooth being secured to said mounting bracket, said digging tooth including leading and trailing cutting edges and said digging tooth including a mounting leg portion which extends into one of said elongated openings in one side of said body portion, retaining means mounted be-



tween said opposed end walls of said mounting bracket and lockingly engaging said mounting leg portion to fix said digging tooth in place on said mounting bracket; and said digging tooth being removable from said one side of said mounting bracket for remounting in the other side of said mounting bracket such that said leading and trailing cutting edges are reversed when said digging tooth is mounted to said other side of said mounting bracket.

4,363,179

PROMOTIONAL CAN END

John Ruemer, Jr., Baltimore, Md., and Vinson S. Potts, Cherry Hill, N.J., assignors to Crown Cork & Seal Company, Inc., Philadelphia, Pa.

Filed Jul. 27, 1981, Ser. No. 286,866

Int. Cl.³ G09F 3/18

U.S. Cl. 40—307

6 Claims



1. In a can end of the type comprising a fixed portion and an openable portion defined by a score line and adapted to be pivotable about a hinge portion by pressure exerted by a tab member pivotable about a hinged section, the improvement which comprises promotional printed matter printed on said end and concealed under said tab until said tab is pivoted so as to open said can.

4,363,180

CABLE FERRULE IDENTIFICATION

Gerard Lucas, Croissy sur Seine, and Pierre Hardouin, Asnieres, both of France, assignors to la Telemecanique Electrique, France

Filed Feb. 26, 1981, Ser. No. 238,408

Claims priority, application France, Feb. 29, 1980, 80 04536

Int. Cl.³ G09F 3/00

U.S. Cl. 40—316

8 Claims

1. The assembly of a ferrule for the end of an electric cable having a conductive end portion and a sheath and of removable identification means, said ferrule comprising a tubular conductive portion having an axis of revolution and adapted to receive the said conductive end portion of the cable and a coaxial insulating skirt having a tubular hollow portion which

is adapted to cover the said sheath of the cable, the said skirt further having a channel portion located outside the tubular hollow portion and adjacent thereto, said channel portion being substantially parallel to the said axis, and said identification means including an elongated tag having first and second ends and intermediate length portion, said first end being shaped for removable engagement into the said channel to



secure the tag along the said sheath, at a distance thereof, in a direction substantially parallel to the said axis, the said intermediate portion, forming a plurality of uniformly spaced projections, the cross section of which is decreasing in the direction of the said second end and each comprising an inclined ramp and a transverse abutment surface; said identification means further comprising a plurality of character-bearing rings removably slipped on said tag.

4,363,181

ELECTRONIC MUSICAL MOBILE

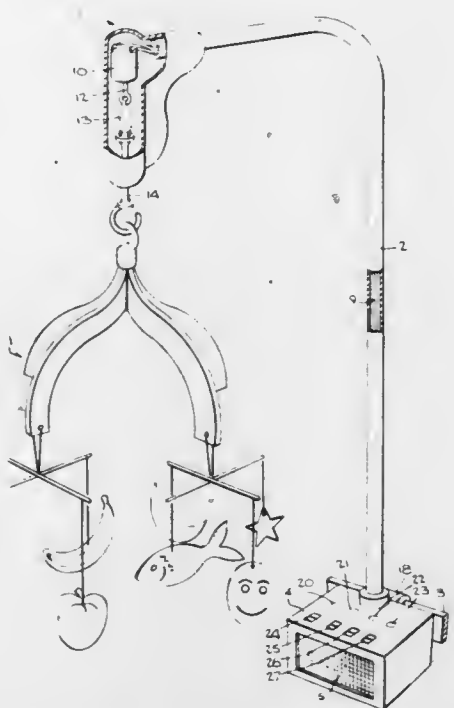
Gregory E. Hyman, 12 Chester Pl., Bronxville, N.Y. 10708, and Lawrence J. Greenberg, 64 Mountain Ave., Larchmont, N.Y. 10538

Continuation-in-part of Ser. No. 929,530, Jul. 31, 1978, Pat. No. 4,207,696. This application Jun. 16, 1980, Ser. No. 159,519. The portion of the term of this patent subsequent to Jun. 17, 1997, has been disclaimed.

Int. Cl.³ G09F 11/00; A63H 33/26, 13/20

U.S. Cl. 40—466

17 Claims



1. A musical mobile comprising: a rotatable mobile, electric drive means, power transmitting means including energy storage means operatively connecting said mobile to said electric drive means for rotating said mobile in response to release of energy previously stored in said energy storage means and a control circuit means operatively connected to said electric drive means for periodically activating said electric drive

means during the operating cycle of said control means and for simultaneously electronically generating music during said operating cycle, said control circuit means having manual control means for selecting the duration of said operating cycle.

4,363,182

MOUNTING BRACKET FOR PEDESTRIAN CROSSING SWITCH AND SIGN

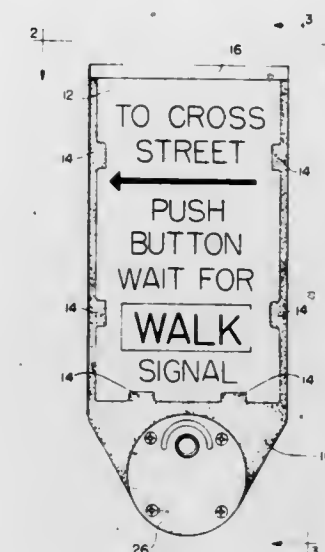
Clyde C. Berkus, Van Nuys, Calif., assignor to Building Components, Inc., Van Nuys, Calif.

Filed Jun. 8, 1981, Ser. No. 271,417

Int. Cl.³ G09F 15/00

U.S. Cl. 40—607

3 Claims



1. A plastic bracket assembly for mounting a pedestrian crossing switch and accompanying sign on a pole, said assembly including: a frame formed of plastic material and having side members defining an open top; a top member removably secured to said frame, said top member having an arcuately-shaped rear side conforming with the arcuate shape of the pole on which the bracket assembly is mounted; a sign enclosing said open front; a plurality of inwardly extending tabs formed integral with said frame at predetermined locations adjacent to the sides of the open front and said top member having a rim extending across the top of said open front, both said tabs and said rim serving to retain the sign in the frame; a strip member integral with the frame and extending across the frame, said strip member having holes therein for receiving screws for mounting the bracket assembly on the pole; and a switch housing mounted on said frame adjacent to said open front.

4,363,183

ANIMAL TRAP

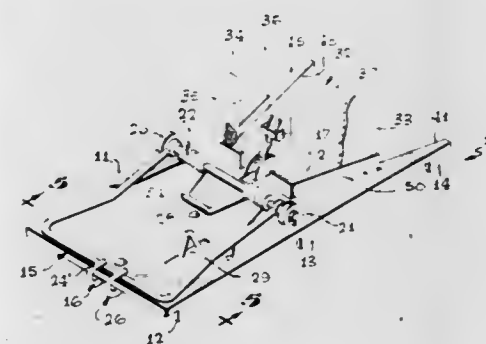
Frank J. Drdlik, 3634 San Jose La., Santa Barbara, Calif. 93105

Filed Oct. 27, 1980, Ser. No. 201,132

Int. Cl.³ A01M 23/30

U.S. Cl. 43—81.5

5 Claims



1. An animal trap comprising:
a base having a sizable V-shaped cut-out portion defined by

opposing base edges converging from a rear edge to terminate at a mid-section area between opposite ends of said base;

a jaw pivotally carried on said base adapted to pivot about said mid-section;

resilient means operably coupling said jaw to said base wherein said jaw is normally biased to pivot across said V-shaped cut-out;

a bait actuator means movably carried on said base at its mid-section immediately adjacent to the termination of said converging opposing base edges and being operably coupled to said jaw to yieldably restrain said jaw from pivoting;

a safety latch movably carried on said jaw to hold said jaw against the bias of said resilient means independent of and in addition to said bait actuator means;

said bait actuator means includes a bait treadle pivotably carried on said base mid-section and having a bait carrying end and an actuator slidably carried on said base between said jaw and said bait treadle being engagable with said jaw and adapted to release said jaw in response to pivoting of said bait treadle;

a cage-like structure fixedly carried on said base partially enclosing said bait treadle in spaced apart relationship and serving as a guide along with said opposing base edges to direct an approaching animal into a predetermined orientation occupying said V-shaped cut-out portion whereby said jaw when released will strike a vital area of the animal.

4,363,184

DISPOSABLE RODENT TRAP

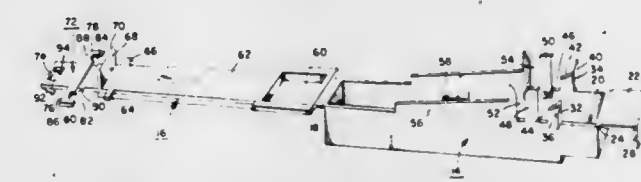
Gene A. Marcolina, Wyndmoor, Pa., assignor to Gordon D. Holl, North Wales, Pa., a part interest

Filed Aug. 18, 1980, Ser. No. 178,962

Int. Cl.³ A01M 23/00

U.S. Cl. 43—85

3 Claims



1. A portable, disposable rodent trap comprising:
means providing a housing having an internal, elongated tunnel-like passageway defined by a plurality of elongated walls each having long sides and narrow ends, the long sides extending in the direction of the length of the passageway said passageway having an entrance opening through which a rodent can enter the passageway;
means, secured within the passageway, for strangling the rodent; and
means, triggerable by the rodent, for activating said strangling means;
said strangling means being located at a distance from said entrance opening such that substantially the entire body of the rodent is located within the passageway when the strangling means is activated and in contact with the neck of the rodent;
in which one of the elongated walls defining the passageway is a movable wall connected to the other parts of the housing by a hinge;
the strangling means comprises a blade having an edge extending in a direction transverse to the direction of elongation of the passageway, and means opposed to the edge of the blade, said blade and opposed means being relatively movable toward each other whereby the neck of the rodent can be compressed between the blade edge and the opposed means;
one of said blade and said opposed means constitutes part of

said movable wall and is located at an location along the length of said movable wall and spaced from the narrow ends thereof, and the other constitutes part of another wall of said passageway;

and including means connected to said triggerable means for urging the movable wall in a direction such that the edge of the blade means and the opposed means approach each other, and releasable detent means for holding the movable wall in a first position such that the rodent can move its head between the blade edge of the opposed means; and in which said triggerable means comprises means actuable by the rodent, when its neck is located between the blade edge and the opposed means, for releasing the detent means, whereby the urging means causes the blade edge and the opposed means to approach each other compressing the rodent's neck and choking the rodent to death.

4,363,185

VEHICLE WITH GEAR-CHANGING MECHANISM INCLUDING TWO DISPLACEABLE GEARS

Hiroshi Masubuchi, Utsunomiya, Japan, assignor to Tonka Corporation, Minneapolis, Minn.

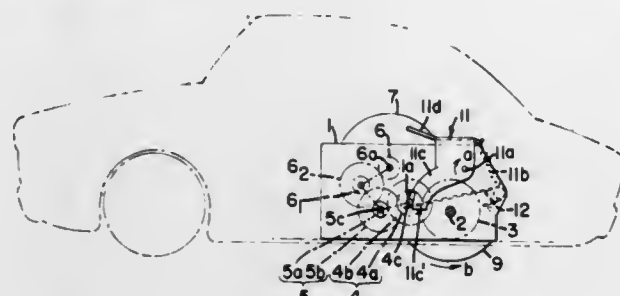
Division of Ser. No. 942,428; Sep. 14, 1978. This application Dec. 19, 1980, Ser. No. 218,296

Claims priority, application Japan, Oct. 14, 1977, 52-138565[U]

Int. Cl.³ A63H 17/00, 29/20

U.S. Cl. 46—209

10 Claims



1. A toy vehicle comprising a body supported on a plurality of wheels, said body including a power source, said power source comprising a flywheel secured on an axle; gear means interconnecting said flywheel to said toy vehicle wheels, said gear means including gears engageable in a first gear path to interconnect said flywheel to said wheels when said vehicle is moved in one direction and gears engageable in a second gear path to interconnect said flywheel to said wheels when said flywheel drives said wheels; said gear means including shifting means for changing said gear means from one path to the other path, said shifting means including a radially displaceable idler gear, said idler gear being shiftable from a position of non-engagement in said first gear path to a position of engagement in said first gear path, said idler gear being radially displaceable from a position of non-engagement in said second gear path to a position of engagement in said second gear path and said idler gear being radially displaceable from a position of engagement in said second gear path to a position of non-engagement in said second gear path, said shifting means further including a second radially displaceable idler gear, said first idler gear being rotatable independent of said second idler gear when engaged in said second gear path, and said second idler gear being engageable in said first gear path by the driving action of said first-mentioned idler gear when said first idler gear is being driven by said wheels.

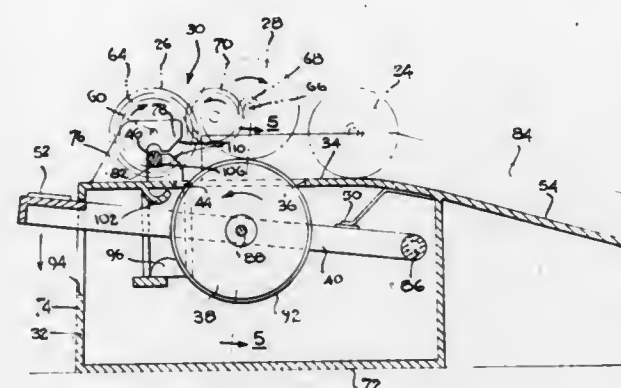
4,363,186
TOY MOTORCYCLE AND LAUNCHER
Adolph E. Goldfarb, 4614 Monarca Dr., Tarzana, Calif. 91356, and Delmar K. Everitt, Woodland Hills, Calif., assignors to Adolph E. Goldfarb, Tarzana, Calif.

Filed Feb. 12, 1981, Ser. No. 233,825

Int. Cl.³ A63H 29/20

U.S. Cl. 46—209

44 Claims



1. Toy motorcycle play apparatus comprising:

- (a) a two-wheeled toy motorcycle having a frame and a generally aligned rotatable front-rear ground-engaging wheels and an intermediate flywheel, all mounted on the frame and rotatable about generally horizontal transverse axes; said motorcycle being non-selfstanding in the stationary position; one of said ground-engaging wheels being a drive wheel; the flywheel and the drive wheel being operatively coupled together by a gear train which reduces the speed and increases the power and duration of rotation at the drive wheel; the flywheel, gear train and the drive wheel comprising an energy-storing drive-train mechanism; the toy motorcycle, when in operation, being powered and gyroscopically balanced by the flywheel; said frame having engagement means thereon; and
- (b) a launcher having a platform and control means for releasably supporting and holding the motorcycle on the platform in an upright forwardly aligned position with its drive wheel out of engagement with the platform so that the drive wheel can rotate freely; for imparting rotation to the flywheel; and for releasing the motorcycle and allowing the rotating drive wheel to engage the platform to propel the motorcycle forwardly said control means including generally vertically movable engagement means on the launcher for movement to an upper position where it releasably engages said motorcycle engagement means to elevate the drive wheel above the platform, to support the motorcycle in said upright position and to restrain forward movement of the motorcycle while rotation is being imparted to the flywheel, and for movement to a lower position where it disengages from said motorcycle engagement means to lower the drive wheel and release the motorcycle.

4,363,187

TOY CAPABLE OF REPEATEDLY UPSETTING AND THEN RIGHTING ITSELF

Masao Shinohara, Tokyo, Japan, assignor to Tomy Kogyo Co., Inc., Tokyo, Japan

Continuation of Ser. No. 52,631, Jun. 28, 1979, abandoned. This application Sep. 22, 1981, Ser. No. 304,617

Claims priority, application Japan, Jul. 1, 1978, 53-91565

Int. Cl.³ A63H 17/26

U.S. Cl. 46—211

9 Claims

1. A toy adapted to move from an upright position through at least a semi-inverted position and then back to said upright position at periodic intervals as said toy moves in a forwardly direction along a supporting surface which comprises:

- a body having a front, rear, top, bottom and sides, said body being shaped so as to include a pivot surface located

adjacent to said bottom of said body and so as to include a curved exterior surface extending generally along at least a part of the top of said body;

wheel means attached to said body for supporting said body in said upright position on said supporting surface;

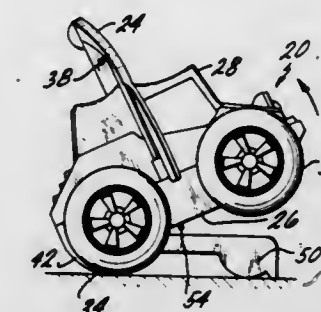
motor means mounted on said body;

means for transmitting mechanical power from said motor means to said wheel means so as to move said toy in said forward direction when said toy is in said upright position, said means for transmitting mechanical power being connected to said wheel means and to said motor means;

a lever means for pivoting said body from said upright position about said pivot surface until such time as the weight of said body causes said body to roll on said curved surface, said lever means being pivotally mounted on said body and being capable of being pivoted along the longitudinal axis of said body between a retracted position in which said lever means is located generally adjacent to said bottom of said body and an extended position in which said lever means extends outwardly from said bottom of said body;

means for periodically pivoting said lever means from said retracted to said extended position and then back to said retracted position as said motor means is operated, said means for periodically pivoting said lever means being connected to and driven by said motor means and being connected to said lever means;

said pivot and said curved surfaces and said lever means being proportioned so that as said lever means is moved from said retracted position to said extended position, said



body will be moved so that said pivot surface contacts said supporting surface and will be pivoted about said pivot surface until such time as the instability of said body causes said body to roll on said curved surface back to said upright position;

said body and said wheels being proportioned so that said toy will automatically roll on said curved surface back to said upright position after said lever means has been extended from said body so as to pivot such body about said pivot surface;

said means for periodically pivoting said lever means being capable of automatically returning said lever means to said retracted position during the time that said toy is rotating about said curved surface;

said motor means comprises a motor having a rotating output shaft;

said means for activating includes a clutch means mounted on said shaft and a linking means operatively connected to said clutch means, said linking means in combination with said clutch means activating said means for levering in response to movement of said shaft;

said clutch means includes a disc member fixedly mounted to said shaft and having at least one ratchet tooth located on said disc member;

said linking means including a sliding member slidably mounted in said body, said sliding member including at least one ratchet engaging means capable of operably interacting with said ratchet tooth such that said sliding member slides when said ratchet tooth engages said ratchet engaging means.

4,363,188

ENHANCEMENT OF IN VITRO GUAYULE PROPAGATION

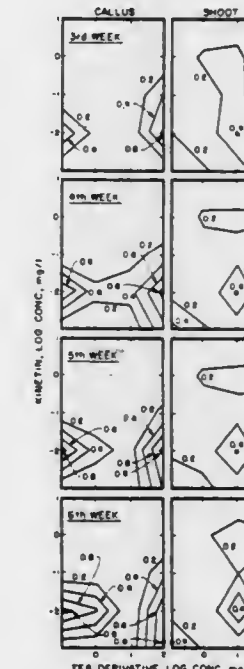
Alan M. Lovelace, Administrator of the National Aeronautics and Space Administration, with respect to an invention of; Minoo N. Dastoor, San Marino, Calif.; Wayne W. Schubert, Los Angeles, Calif., and Gene R. Petersen, Pasadena, Calif.

Filed Jun. 30, 1981, Ser. No. 280,153

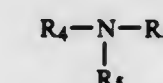
Int. Cl.³ A01N 9/12; A01G 1/00

U.S. Cl. 47—58

9 Claims



1. A method of stimulating the in vitro propagation of polyisoprene containing plants from a nutrient medium containing polyisoprene containing plant tissue comprising the step of: adding to said nutrient medium an amount effective to stimulate propagation of said polyisoprene containing plant of a bioinducing agent of the formula;



where R_5 and R_6 are selected from phenyl, $-CH_2(CH_2)_qR_7$ where q is an integer from 1 to 6, R_7 is hydrogen; phenyl; an electron withdrawing group; R_9 phenyl—where R_9 is alkyl of 1 to 6 carbon atoms or an electron withdrawing group; $-(CH_2)_pOR_8$ or $-(CH_2)_pS-R_8$ where p is an integer from 2 to 6, R_8 is hydrogen, alkyl of 1 to 4 carbon atoms, phenyl or phenyl R_9 , and R_4 is hydrogen or R_5 , and at least one of R_4 , R_5 and R_6 has the structure: $-CH_2-(CH_2)_q-R_7$.

4,363,189

TRANSPLANTABLE PLANTER

John T. O'Donnell, III, 1518 Crestwood Rd., Mayfield Heights, Ohio 44124

Filed Jun. 30, 1980, Ser. No. 164,299

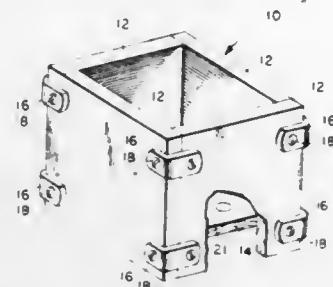
Int. Cl.³ A01G 9/02

U.S. Cl. 47—73

2 Claims

1. A planter apparatus comprised of a base member, a plurality of side members arranged in a surrounding relationship to said base member, each of said side members being substantially perpendicular to said base member, means for supporting said base member attached to all but one said side member, and means for attaching adjacent side members together, said attaching means comprising flexible straps connected to said adjacent side members, said flexible straps being selectively

detachable from said adjacent side members permitting said one side member to be swung outwardly with respect to said



planter apparatus allowing the removal of a plant contained within said apparatus without inversion thereof.

4,363,190

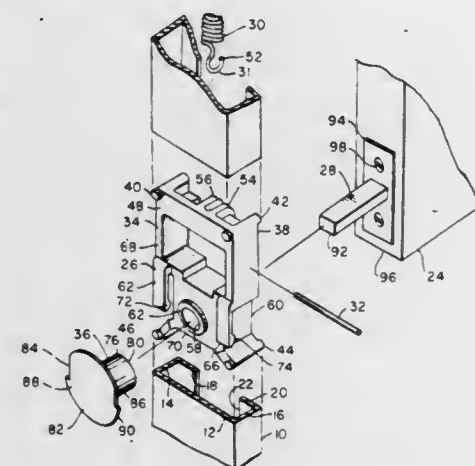
PIVOTED SASH WINDOW SASH GUIDE AND BALANCE LOCK STRUCTURE

Richard N. Anderson, Owensboro, Ky., assignor to V. E. Anderson Mfg. Company, Owensboro, Ky.

Filed Jun. 21, 1979, Ser. No. 50,816

Int. Cl.³ E05D 15/22

U.S. Cl. 49—181



1. Window structure comprising at least one elongated jamb member including a rear wall, side walls and front wall flanges defining a generally rectangular hollow cross section with an elongated slot in the front wall thereof, a pivot shoe positioned within the recess for guided reciprocal movement therein longitudinally of the jamb member, a cylinder cam operably associated with the pivot shoe for expanding the pivot shoe into engagement with both the rear wall and front flanges of the jamb member on relative rotation of the cylinder cam and pivot shoe, said pivot shoe including a generally rectangular body portion having an upper part including means for securing a sash balance thereto and a lower part having a transverse opening therein for receiving the cylinder cam and tab portions extending from one side of the body portion and longitudinally of the jamb member in spaced relation to the bottom part of the body portion of the pivot shoe at the sides of the opening therein terminating in cam parts extending toward the body portion, a sash positioned adjacent the jamb member for pivotal movement relative to the jamb member, and actuating means secured to the window sash and engaged with the cylinder cam for producing rotation of the cylinder cam relative to the pivot shoe on pivoting of the window sash relative to the jamb member.

4,363,191

HINGED WINDOW ASSEMBLY

Cleon C. Morgan, Holland, Mich., assignor to Donnelly Mirrors, Inc., Holland, Mich.

Filed Apr. 23, 1980, Ser. No. 143,127

Int. Cl.³ E05D 15/00

U.S. Cl. 49—381

25 Claims



1. A hinge for pivoting vehicle windows and the like, comprising:

rigid support means for supporting a vehicle window, said support means having a base adapted for connection with a window frame, and a body extending rigidly from said base and shaped to extend over and protect an exterior portion of said hinge;

flexible connection means for connecting said rigid support means with a pane of glass, said connection means including a first portion adhered to one area of said body of said rigid support means adjacent a free edge thereof to pivotally mount the window pane in the frame, and a second portion disposed over another area of the body of said rigid support means and extending from said first portion to said base to form a flexible seal between said rigid support means and the window; and wherein

said second portion of said connection means is unattached to said other area of said support means body, and can flex away from said other area when the window pane is pivoted to a position beyond a normally fully open window position such that the base of said rigid support means can be attached to the window frame without damaging said seal.

4,363,192

WINDOW MOUNTING SYSTEM

Armand L. Soucy, 337 Maple St., Lynn, Mass. 01904

Filed Mar. 30, 1981, Ser. No. 249,008

Int. Cl.³ E05D 15/16

U.S. Cl. 49—453

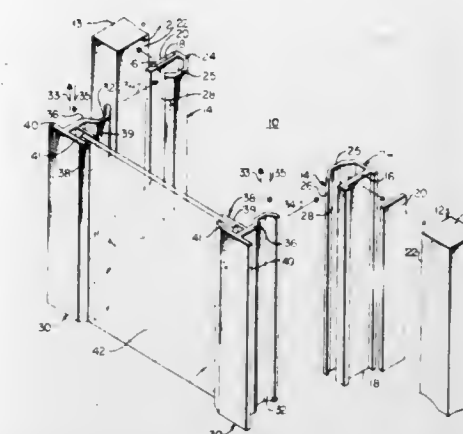
54 Claims

1. A window mounting system comprising:

a track member having a base for attachment to a window frame, a side wall extending transversely to said base, and a cover extending from said side wall parallel to said base and having a curved shape facing said base, the distal end of said cover being spaced from the base to form an opening; and

a slide member including a runner having a curved shape for nesting in said track member and slidingly engaging therewith, the width of said runner being greater than the

width of said opening between said cover and base of said track member to allow for snap-insertion, a runner exten-



sion, and glazing support means fixed to said runner extension.

4,363,193

UNIVERSAL GRINDING MACHINE

Peter Herzig, Niederörs, Switzerland, assignor to Ewag A.G., Maschinen- und Werkzeugfabrik, Solothurn, Switzerland

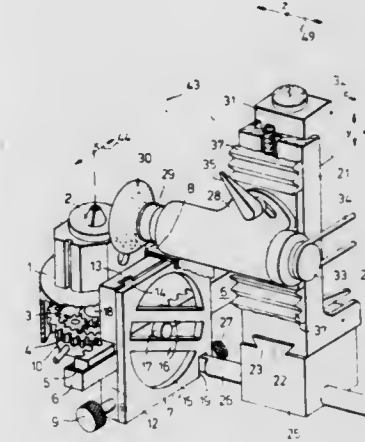
Filed Sep. 17, 1980, Ser. No. 188,116

Claims priority, application Switzerland, Sep. 20, 1979, 8479/79

Int. Cl.³ B24B 3/00; B23C 3/28, 3/36

U.S. Cl. 51—48 HE

4 Claims



1. A universal grinding machine comprising:

a workpiece holding means including a workpiece head provided with a rotatable chuck,

a grinding-wheel spindle having a grinding wheel secured thereto,

a vertically displaceable grinding-wheel spindle holder, guide means associated with said grinding-wheel spindle holder, and

motion-conversion means associated with said grinding-wheel spindle holder and with said chuck, said grinding-wheel spindle holder being disposed for solely vertical displacement along said guide means, and said motion-conversion means being arranged to effect positive conversion of vertical displacement motion of said grinding-wheel spindle holder into rotary motion of said chuck, wherein said motion-conversion means comprise a planetary gear housed within said workpiece head and including a gear rim,

a rack meshing with said gear rim,

a vertically displaceable sine bar,

a roller secured to said rack and engaging said sine bar,

means for vertical guidance of said sine bar, and a rod detachably connected at one end to said sine bar and at the other end of said grinding-wheel spindle holder, whereby said vertical displacement motion of said grinding-wheel spindle holder is transmitted to said sine bar.

4,363,194

VERTICAL SELF-SEPARATING CENTRIFUGAL FINISHING APPARATUS WITH AUTOMATIC MEDIA RETURN

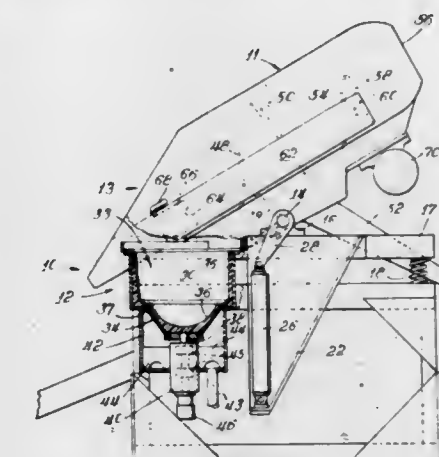
Gunther W. Balz, Kalamazoo, Mich., assignor to Roto-Finish Company, Inc., Kalamazoo, Mich.

Filed Feb. 26, 1981, Ser. No. 238,443

Int. Cl.³ B24B 19/00

U.S. Cl. 51—163.1

20 Claims



1. A finishing machine for finishing the surface of unfinished parts with finishing media comprising a housing which is rotatable about a substantially horizontal axis, a finishing chamber in said housing for receiving unfinished parts and finishing media and for finishing of parts when said housing is in finishing position, a storage chamber in said housing adapted to receive finishing media from said finishing chamber when said housing is rotated to a parts-separation or ejection position, a foraminous member disposed in said housing for separating finishing media from parts, means for rotating said housing about a substantially horizontal axis from a finishing position to a parts-separation position and return, and means for transfer of finishing media from said storage chamber to said finishing chamber upon return of said housing from said parts-separation position to said finishing position, characterized in that said finishing chamber comprises an annular spinner member constituting a lower portion of said finishing chamber and a tub member upwardly arranged with respect to said spinner member and comprising an upper portion of said finishing chamber, said spinner member being adapted to rotate about a generally vertical axis when said housing is in finishing position, a rotational motion-producing assembly operatively associated with said finishing chamber and comprising rotatable support means for said spinner member adapted to rotate about substantially the same axis as its complementary spinner member when said housing is in finishing position and associated drive means for rotation of said rotatable support means, whereby said spinner member may be rotated with respect to said tub member for carrying out a finishing operation in said finishing chamber, and

vibratory means operatively associated with said foraminous member for vibration of said foraminous member when said housing is in parts-separation position for separation of finishing media from parts, and

a parts exit associated with said foraminous member for exit of finished parts from said machine when said housing is in parts-separation or ejection position and under the influence of said vibratory means.

4,363,195

INTERNAL GRINDING MACHINE WITH WEDGE FEED MECHANISM

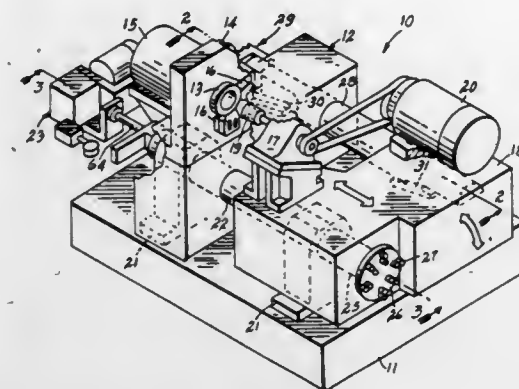
Herbert R. Uhtenwoldt, West Boylston, Mass., assignor to Cincinnati Milacron - Heald Corp., Worcester, Mass.

Filed Dec. 15, 1980, Ser. No. 216,322

Int. Cl.³ B24B 49/00

U.S. Cl. 51—165.77

3 Claims

**1. A grinding machine, comprising:**

- (a) a base;
- (b) base journal means including an elongate first support bar and longitudinal first support axis together with a substantially parallel spaced-apart elongate second support bar and longitudinal second support axis;
- (c) a table journaled with said base journal means for relative movement along said axes;
- (d) a work support carried by one of said base and table;
- (e) a wheelhead carried by the other of said base and table; and
- (f) ramp feed means, moveable generally along said second support axis, including at least one ramp surface canted to said second support bar to form an oblique angle with said second support axis and affixed to one of said second support bar and base, and further including a ramp surface reaction member affixed to the other of said second support bar and base,

wherein relative movement of said surface and said reaction member generally along said second support axis and parallel to said first support axis causes said second support bar to undergo radial translatory movement relative to said base, thereby effecting pivotal movement of said table about said first support axis.

4,363,196

GAGE CONTROLLED GRINDING METHOD

Herbert R. Uhtenwoldt, West Boylston, Mass., assignor to Cincinnati Milacron-Heald Corp., Worcester, Mass.

Filed Dec. 15, 1980, Ser. No. 216,783

Int. Cl.³ B24B 1/00, 49/04

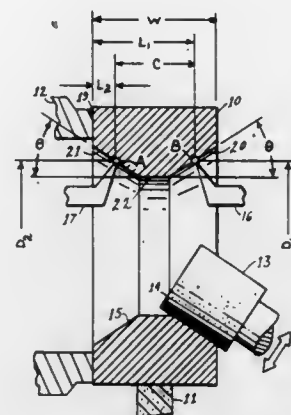
U.S. Cl. 51—291

1 Claim

1. A method for grinding oppositely disposed tapered end bores in a workpiece, comprising the following steps:

- (a) choosing a reference bore diameter and corresponding reference distance from the end face of a theoretical workpiece master;
- (b) locating a first end face of said workpiece on a driveplate;
- (c) grinding a first tapered bore in said workpiece at the second opposite end face of said workpiece while located on said drive plate;
- (d) gaging said first bore with a first gage finger at a first predetermined gage distance from said driveplate corresponding to said reference distance while grinding said first bore;
- (e) interrupting said first bore grinding when said first gage finger indicates a first predetermined diameter corresponding to said reference bore diameter at said first gage distance;

- (f) turning said workpiece end-for-end and locating said second end face on a drive plate;
- (g) sampling the diameter of said first bore with a second gage finger at a predetermined second gage distance corresponding to said reference distance from said second end face while located;
- (h) comparing said sampling diameter with a second predetermined stored diameter value corresponding to said reference bore diameter;
- (i) subtracting said sampling diameter from said second predetermined stored diameter to generate a difference value;



- (j) adjusting the value of said first predetermined diameter by adding said difference value to said first predetermined diameter value to generate a third predetermined diameter value;
- (k) grinding a second tapered bore in said workpiece at said first end face while said second face is located;
- (l) gaging said second bore with said first gage finger at said first gage distance while grinding said second bore;
- (m) interrupting said second bore grinding when said first gage finger indicates said third predetermined diameter at said first gage distance.

4,363,197

ADJUSTABLE SUPPORT ROLLAWAY BLEACHER

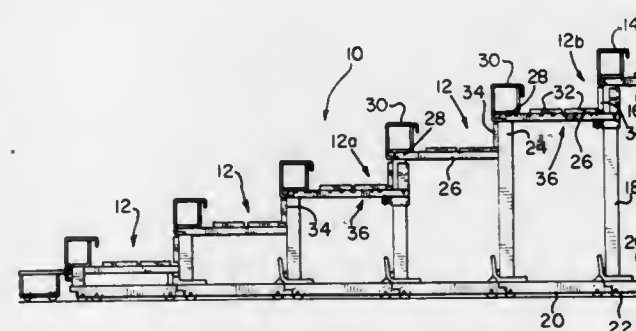
Dale Aurit, 3101 S. Lincoln, Sioux Falls, S. Dak. 57102

Filed Dec. 4, 1980, Ser. No. 212,830

Int. Cl.³ E04H 3/12

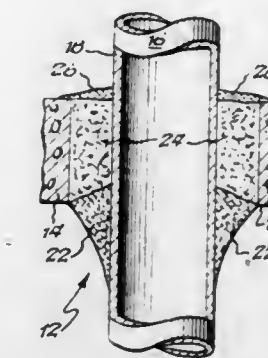
U.S. Cl. 52—9

6 Claims



1. A folding bleacher assembly comprising, in combination, a plurality of individually movable seating units, each seating unit including a pair of support columns, with each column having a wheeled support truck assembly forming the lower portion thereof, and a seat-and-floorboard assembly comprising a plurality of horizontally extending frame elements secured at their inner ends to the upper portions of said support columns, a floor panel assembly resting on the upper surfaces of the intermediate portions of said frame elements, and a seating bench disposed at the outer end of said frame elements and being supported thereby, each of said seat-and-floorboard assemblies further including at least one reinforcing assembly, each of said reinforcing assemblies having a vertically extend-

ing portion fixedly attached to said upper portion of said support columns, said vertically extending portion having a face plate forming a portion of the lower end thereof, said face plate lying in use along the outer surface of said column, said reinforcing element also including a horizontally extending support portion adjacent the lower end thereof, said horizontally extending support portion having an upper surface adapted to engage and support said floorboard assemblies and said bench and a sidewall flange extending downwardly from said upper surface thereof, said horizontally extending element further including, adjacent its inner end, a vertically extending adjustment assembly positioning flange, and an adjustment support mechanism having a portion extending through said positioning flange and having a movably positionable inner end portion adapted to engage said face plate to limit the downward movement of said horizontally extending support portion, and to provide for adjustment of horizontally extending support portion.



ceramic fiber filling the interstices between said member and said dividing structure.

4,363,198

ANCHOR SYSTEM

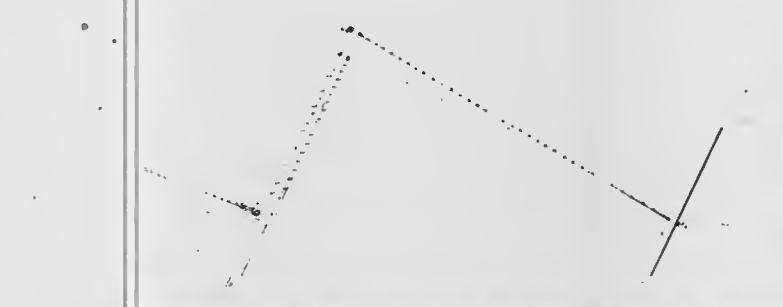
Gordon R. Meyer, Rte. 1, Box 7, Cotulla, Tex. 78014

Filed Sep. 22, 1980, Ser. No. 189,064

Int. Cl.³ B66D 1/04

U.S. Cl. 52—155

7 Claims



- 1. A portable anchor apparatus for a motor vehicle wench which may be carried and stored on the vehicle, comprising: first and second anchor members for insertion in the ground in spaced relationship;
- said first and second anchor members each having a lower spade portion for insertion in the ground and an upwardly extending, elongated post portion for receiving a slide hammer;
- a slide hammer means having an elongated portion for slidably receiving the elongated post portion of the anchor members to operatively engage the post portion of each anchor member for driving the same into the ground upon applying a sliding hammering force thereto and for retaining the slide hammer means on the elongated post portion when the slide hammer means is retainably positioned on an anchor member; and
- a cable means secured to the slide hammer means and to the second of the anchor means to interconnect the anchor means when the slide hammer means is positioned in its retaining position on the post portion of the first anchor means.

4,363,199

FIRE RESISTANT SEALING SYSTEM FOR HOLES IN FIRE RESISTANT BUILDING PARTITIONS

Chhattar S. Kucheria, and Russell D. Smith, both of Grand Island, N.Y., assignors to Kennecott Corporation, Stamford, Conn.

Filed May 5, 1980, Ser. No. 146,826

Int. Cl.³ E04B 5/48

U.S. Cl. 52—221

8 Claims

1. A fire-resistant seal at least partially surrounding a member passing through a fireproof building dividing structure comprising an adhesive fire-resistant molding compound, said molding compound comprising an aluminum trihydrate endothermic material, ceramic fiber and colloidal silica, spanning

the opening between said member and said dividing structure at about the plane of at least one surface of said structure and

4,363,200 PRE-CAST BUILDING ELEMENT AND METHOD

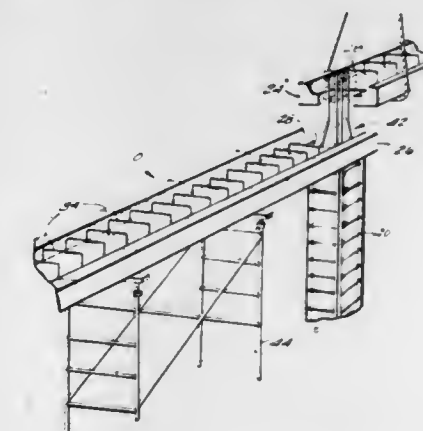
Joseph Goldenberg, Hyattsville, Md., assignor to Construction Products Research and Development Corporation, Reno, Nev.

Filed Aug. 19, 1980, Ser. No. 179,563

Int. Cl.³ E04B 1/00

U.S. Cl. 52—251

13 Claims



- 1. A method of forming a building structure of the type having a plurality of substantially vertical components of cast cementitious material for supporting a horizontal surface of the structure comprising the steps of: erecting a plurality of forms for the vertical components at selected spaced locations, with the forms including reinforcing means for cementitious material protruding from the top of at least some of the forms, disposing precast beam means so as to span the space between at least some of the adjacent forms for the vertical components, adjusting the reinforcing means of the forms for the vertical components to a selected condition to cooperate with additional reinforcing means associated with the precast beam member, filling the forms for the vertical components with cementitious material to a level sufficient to cover both said reinforcing means at least in the area where said means are adjusted to cooperate, and after curing of the cementitious material, removing said forms from the cast vertical components.

4,363,201

PANEL JOINTS

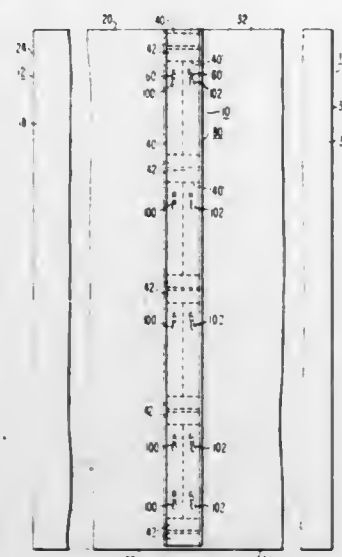
Gurdip S. Bains, Bonneville, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 7, 1980, Ser. No. 175,974

Int. Cl.³ E04C 1/10

U.S. Cl. 52—584

2 Claims



1. A panel joint for quickly assembling, or disassembling, two upstanding, in-line, non-metallic panel members via a vertical motion which produces only metal-to-metal contact between the joint elements, comprising:

first and second adjoining, upstanding wall panel members having front and rear surfaces, and adjacent edges, with said adjacent edges in contact with one another, and with the front surfaces of the panel members in a common plane,

a plurality of metallic alignment plates fixed in vertically spaced relation to the rear surfaces of said first and second wall panel members, along their adjacent edges, with a portion of each alignment plate extending outwardly from its associated wall panel member to contact the rear surface of the other wall panel member, a plurality of metallic spacer members having head and shank portions, said spacer members being fixed in vertically spaced relation to the rear surfaces of said first and second wall panel members, along their adjacent edges,

and an elongated metallic joining member having first and second ends and a flat major surface which extends between its ends, said metallic joining member being constructed such, and of sufficient rigidity, that said flat major surface lies in a flat plane which resists deformation, said joining member further including first and second columns of spaced elongated slots disposed in a common plane on opposite sides of a longitudinal axis, with the slots in said first column having sides parallel with the longitudinal axis, and with the slots in said second column having sides which are parallel with one another, but inclined relative to the longitudinal axis,

said joining member being in slideable, metal-to-metal contact with said plurality of alignment plates, with the spacer members on said first wall panel member captured by the slots in said first vertical column, and the spacer members on said second wall panel member captured by the slots in said second vertical column,

said joining member being in a downwardly displaced frictionally locked position, with said spacer member and elongated slots being configured to force the flat major surface of said metallic joining member tightly against said metallic alignment plates, to force the surfaces which contact the metallic joining member, and the front surfaces of the panel members, into a common plane, and with the inclined slots in the second vertical column forcing the associated spacer members on the second wall panel member towards the first wall panel member to urge

the adjoining edges of said first and second wall panel members tightly together, said joining member being releasable from said locked position by an upward force applied thereto.

4,363,202

APPARATUS FOR LINING KILNS, TUNNELS AND THE LIKE

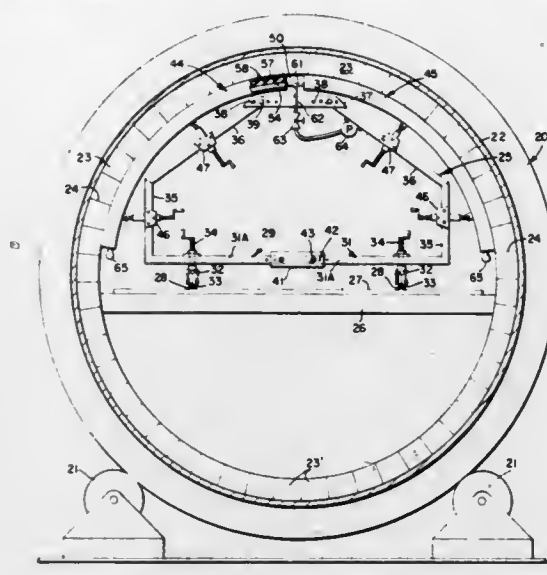
Eugene B. Kenyon, Rte. 1, Box 34, Star Tannery, Va. 22654

Filed Jun. 16, 1980, Ser. No. 159,635

Int. Cl.³ E04G 21/22

U.S. Cl. 52—749

12 Claims



1. Apparatus for lining with brick a kiln, tunnel or like arcuate surface comprising a frame adapted to be mounted within the surface to be lined, means for mounting on said frame at least one arcuate member adapted to extend in spaced relation to the surface to be lined and adapted to locate and support a column of brick substantially in the space between said member and said surface, said arcuate member being supported on the frame and comprising a continuous base member which is longitudinally deformable so that it may be adjusted to fit the contour of the surface to be lined, an elongated tubular expandable member extending in overlying relation along said base, and a relatively solid flexible member loosely overlying said expandable member, said flexible member being in the form of a length of solid rubber or rubber-like material, whereby said apparatus is adaptable for any of various irregularities of the brick or the surface to be lined.

4,363,203

LIQUID FILL APPARATUS

Steven Marshall, Glen Waverley, and Vincent Papaluca, Camberwell, both of Australia, assignors to ACI Operations Pty. Ltd., Melbourne, Australia

Filed Aug. 19, 1980, Ser. No. 179,466

Claims priority, application Australia, Aug. 20, 1979, PE0093

Int. Cl.³ B65B 31/06; B67B 1/00; B65B 7/28

U.S. Cl. 53—109

6 Claims

1. Apparatus for liquid filling flexible, collapsible containers, said containers having a pouring spout and a closure for said spout, said apparatus comprising:

a left holding means and a right holding means each for holding a separate spout during the steps of closure removal, filling of the container with liquid, and closure replacement on said spout;

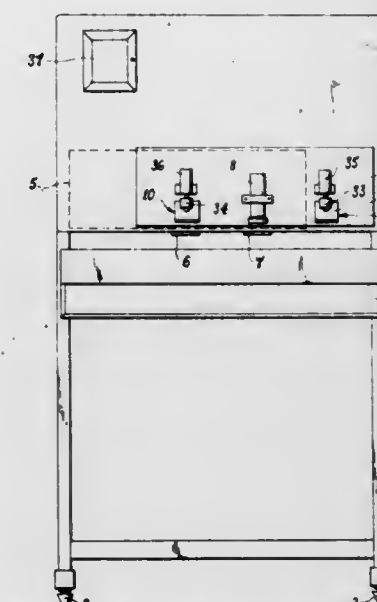
a left closure removal means and a right closure removal means each for gripping and removing said closures and for replacing same;

a fill head having nozzle means for passing liquid into said container through said spout; and

frame means having said fill head mounted thereon between said left closure removal means and said right closure

removal means, said frame means being moveable between (i) a left position where said fill head is adjacent said left holding means and said right closure removal means is adjacent said right holding means and (ii) a right position where said fill head is adjacent said right holding means and said left closure removal means is adjacent said left holding means;

said apparatus being arranged for a sequence of operations where (i) with said frame in its right position said fill head cooperates with a spout held in said right holding means to fill the associated container with liquid, whilst said left closure removal means replaces a closure on a spout held in said left holding means, said left holding means releases said spout, a further container is moved into position



adjacent said left holding means, the spout of which is gripped thereby, and said left closure removal means removes the closure therefrom and (ii) said frame is moved to its left position where said fill head cooperates with the spout held in said left holding means to fill the associated container with liquid, whilst said right closure removal means replaces a closure on the spout held in said right holding means, said right holding means releases said spout, a further container is moved into position adjacent said right holding means the spout of which is gripped thereby and said right closure removal means removes the closure therefrom, and so on, wherein a container held in the left holding means is filled by the same fill head nozzle means as a container held in the right holding means.

4,363,204

APPARATUS FOR SIMULTANEOUS OPERATION OF UNCASING AND CAP REMOVING

Masao Ohude, Kanazawa, and Duro Kawamura, Uchinada, both of Japan, assignors to Shibuya Kogyo Co., Ltd., Ishikawa, Japan

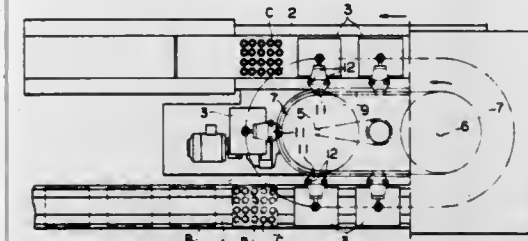
Filed Aug. 6, 1980, Ser. No. 175,748

Claims priority, application Japan, Aug. 13, 1979, 54-102947

Int. Cl.³ B67B 7/16

U.S. Cl. 53—381 A

8 Claims



1. An apparatus for uncasing and uncapping bottles, comprising:

(a) a movable holding head unit including a bottom plate

provided with a plurality of bottle grippers and a top plate fixedly connected to said bottom plate, wherein each of said bottle grippers includes cylinder means and elastic member means provided on the inner surface of said cylinder means and the bottom end of each of said cylinder means is engageable with a part of a bottle stored in a box when said unit is located at a lowered position;

(b) means for moving said holding means unit between a first position where a plurality of bottles, some of which may have caps thereon, are contained in a box and a second position where said bottles are placed with the caps removed and in an uncased condition;

(c) means for vertically moving said holding head unit while said unit moves between said first and second positions; and

(d) means, attached to said holding head unit, for removing caps from the bottles while being transferred from the first position to the second position, said means for removing caps including an intermediate plate interposed between said top and bottom plates, said intermediate plate being movable with respect to said top and bottom plates in order to carry out a cap removing operation and provided with cap removers corresponding in position to respective said bottle grippers.

4,363,205

PACKAGING METHOD

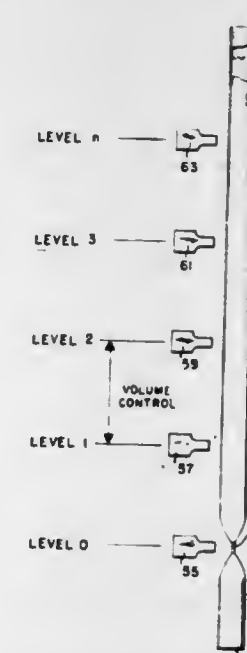
Edward F. Hollander, Jr., Broomall, Pa., assignor to John P. Glass, Essington, Pa.

Filed Nov. 8, 1976, Ser. No. 739,475

Int. Cl.³ B65B 3/16, 3/18, 31/06, 51/22

U.S. Cl. 53—434

6 Claims



1. A method of making a package having contents, comprising the steps of taking a tube of flexible material having a top and a bottom end, ultrasonically sealing a bottom band seal across the tube, inserting the contents into the tube, and ultrasonically sealing an upper band seal across the tube at a location spaced away from the bottom end of the tube, with the contents contained between the upper and bottom band seals, the contents-inserting step comprising inserting tablets or the like into the tube, and said method including the further steps of folding the tube across itself between tablets to form fold lines in the tube, and ultrasonically sealing said fold lines to form compartments for a series of tablets.

4,363,206

**METHOD AND APPARATUS FOR CONTROLLING
BLADE CLUTCH ASSEMBLY**

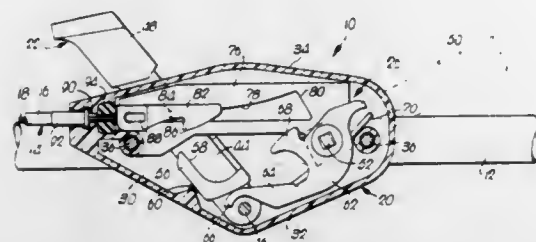
Larry D. Schmitt, Newton, Kans., assignor to Conchemco Incorporated, Lenexa, Kans.

Filed Apr. 23, 1981, Ser. No. 256,902

Int. Cl.³ A01D 50/02

U.S. Cl. 56—11.3

8 Claims



1. A power lawnmower control apparatus for connection to a disengageable clutch coupling the lawnmower motor and blade, said apparatus comprising:

first shiftable handle means;
second shiftable handle means;
cable means for operative connection to said clutch including a first end portion adapted for connection to said clutch and a second end portion having structure for selective coupling and decoupling of the second end portion to said first handle means, said end portions shiftable between first and second positions respectively corresponding to the disengaged and engaged positions of said clutch; and

operating mechanism, including
coupling means selectively shiftable to a position coupling said first handle means and said second cable end portion for thereafter causing movement of said second cable end portion from said first to said second position thereof upon shifting of the first handle means; and
structure associated with said second handle means for shifting of said coupling means to the coupling position thereof in response to shifting of said second handle means.

4,363,207

TENSION REGULATOR IN DOUBLE TWISTER

Mitsuo Fukunaga, Kyoto, Japan, assignor to Murata Kikai Kabushiki Kaisha, Japan

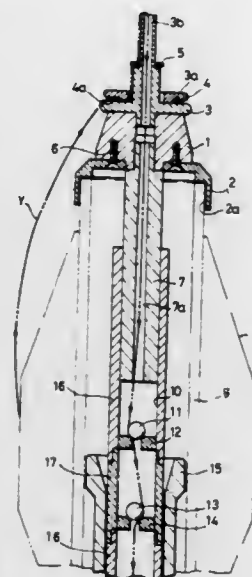
Filed Oct. 2, 1980, Ser. No. 193,031

Claims priority, application Japan, Oct. 3, 1979, 137787/79

Int. Cl.³ D01H 7/86, 13/10

U.S. Cl. 57—58.86

4 Claims



1. A double twister including a tension regulator and a spindle, a stationary disk disposed above the spindle adapted to

receive a cop placed at the center of the stationary disk, a guide tube with a yarn passage at the center thereof extending axially of and within the stationary disk, said tension regulator comprising a tenser body having a multi-staged cylindrical shape and a yarn guide hole communicating with the yarn passage of the guide tube adapted to be mounted on the top end of a cop placed at the center of a stationary disk disposed above the spindle, and ring tensers freely fitted on the respective stages of the tenser body with clearances allowing passage of yarn between the ring tensers and the tenser body.

4,363,208

CERAMIC COMBUSTOR MOUNTING

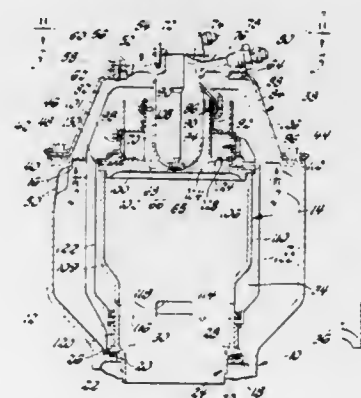
Melvin G. Hoffman, Speedway, and Frank W. Janneck, Danville, both of Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 10, 1980, Ser. No. 205,417

Int. Cl.³ F23R 3/60

U.S. Cl. 60—39.32

4 Claims



1. In a gas turbine engine having a spool with an air compressor and a turbine for driving said compressor and a metal engine block for enclosing the spool the improvement comprising: a combustor wall portion of the metal engine block forming an inlet air plenum for supplying air to a combustor and adapted to be fluidly connected to the air compressor, said combustor wall portion including an annular resilient seal thereon, a ceramic combustor outlet transition tube having a thermal expansion coefficient less than that of the metal engine block and extending through said annular resilient seal and having a bearing flange thereon supportingly received by the resilient seal, a ceramic combustor liner supported on said transition tube in axial alignment therewith and including an upper open end, a ceramic bypass plate having a coefficient of expansion corresponding to that of said transition tube and said combustor liner and vertically supported on said upper open end to define a high temperature reaction chamber within said ceramic combustor liner, and means including a plurality of equidistantly spaced spring supports located externally of the metal engine block to be cooled by ambient air and operative to position and seal the ceramic combustor liner to the outlet transition tube and the ceramic bypass plate to the upper open end and to position them together against mechanical and thermal expansion induced loading therebetween during combustor operation.

4,363,209

**AIR-FUEL CONTROL METHOD AND APPARATUS FOR
INTERNAL COMBUSTION ENGINE**

Takeshi Atago, Katsuta, and Taiji Hasegawa, Nakaminato, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 19, 1980, Ser. No. 161,153

Claims priority, application Japan, Jun. 27, 1979, 54-80159

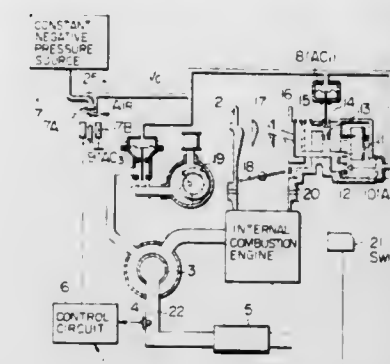
Int. Cl.³ F01N 3/22; F02B 75/10; F02M 7/24

U.S. Cl. 60—274

8 Claims

1. An air-fuel ratio control apparatus for an internal combustion engine comprising: a carburetor including a low speed fuel

system and a main fuel system and serving for controlling the air-fuel ratio of a fuel-air mixture supplied to said internal combustion engine; a thermal reactor in which exhaust gas from said internal combustion engine is reacted with secondary air supplied to said reactor; a three-way catalyst tube connected to said thermal reactor; an exhaust gas composition sensor disposed in an exhaust passage between said thermal reactor and said three-way catalyst tube; a control circuit for producing a control signal in response to the output signal from said sensor; a negative pressure generator for producing a negative pressure in response to said output signal from said



control circuit; means for controlling said low speed fuel system and said main fuel system, respectively, in response to said negative pressure produced from said negative pressure generator; means for controlling the quantity of said secondary air supply in response to the negative pressure produced from said negative pressure generator; and means, responsive to the speed of operation of said engine and, upon detecting that the engine is operating in a high speed of operation region, for generating an output signal which is applied to said control circuit and causes said control circuit to control said negative pressure generator so as to reduce the quantity of said secondary air supply.

4,363,210

**EXHAUST GAS PURIFYING SYSTEM FOR INTERNAL
COMBUSTION ENGINES**

Hisasi Kawai, Toyohashi; Kazuhiro Sakurai, Susono, and Muneaki Matsumoto, Okazaki, all of Japan, assignors to Nippon Soken, Inc., Nishio and Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, both of Japan

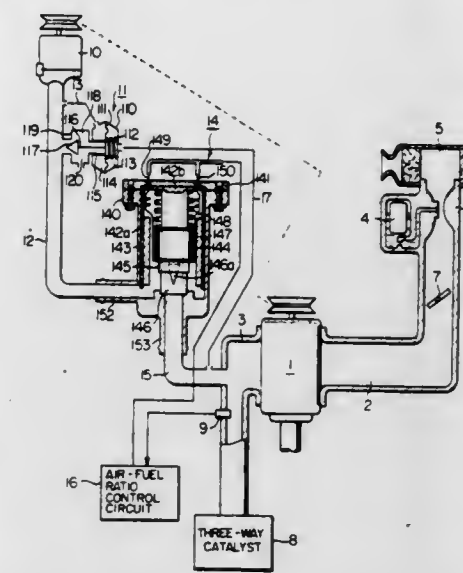
Continuation of Ser. No. 62,147, Jul. 30, 1979, abandoned. This application Jun. 8, 1981, Ser. No. 271,224

Claims priority, application Japan, Aug. 2, 1978, 53-94419

Int. Cl.³ F01N 3/22

U.S. Cl. 60—276

2 Claims



1. An exhaust gas purifying system for internal combustion engines comprising:

air supply means for supplying secondary air to an exhaust gas system of an internal combustion engine,
a three-way catalyst for purifying polluting components in the exhaust gas,
an air-fuel ratio detector for detecting an air-fuel ratio from the component of the exhaust gas after being supplied with said secondary air,
an air-fuel ratio control circuit for determining whether said air-fuel ratio is higher or lower than a predetermined level at every predetermined period of time determined by a clock signal from an oscillator in response to an output signal of said air-fuel ratio detector, and for producing a control signal increasing or decreasing stepwisely by adding a predetermined value to or subtracting it from a previous value in accordance with a determination signal at said every predetermined period of time,
an air control valve having a spool adapted to be displaced continuously in proportion to said control signal of said air-fuel ratio control circuit by driving said spool by said stepwisely increasing or decreasing control signal thereby controlling the amount of the secondary air supplied to said exhaust gas system of said engine from said air supply means, and
pressure regulating means for regulating at a predetermined value the pressure difference of said secondary air between the upstream and downstream of said air control valve through which said secondary air passes.

4,363,211

**QUASI-OPEN LOOP HYDRAULIC RAM INCREMENTAL
ACTUATOR WITH POWER CONSERVING PROPERTIES**

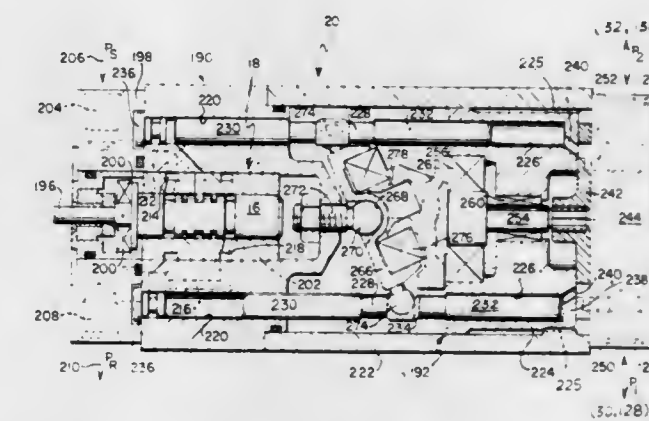
Curtiss W. Robinson, and Eugene T. Raymond, both of Seattle, Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Feb. 1, 1980, Ser. No. 117,551

Int. Cl.³ F15B 13/044

U.S. Cl. 60—476

17 Claims



7. An electrohydraulic mechanism, comprising:
an electric stepping motor operable by digital command signals to rotate in increments, and including a rotary output;
pumping means comprising a plurality of cylinders, and pistons within said cylinders movable axially;
hydraulic motoring means including a plurality of cylinders, pistons within said cylinders, and means operable in response to sequenced pressurization of the cylinders, and attendant piston movement, to apply driving forces to the pistons of said pumping means;
distributor valve means including a rotary control member and port means controlled by rotation of said rotary control member for communicating hydraulic pressure to a group of said motoring means cylinders which are in series while venting the rest of said cylinders;
means connecting the rotary output of the electric stepping motor to the rotary control member of the distributor valve means; and
valve means for said pumping cylinders, communicating each pumping cylinder with a hydraulic fluid inlet port

during retraction of the pistons and with an outlet port during extension of the pistons.

4,363,212

BUOYANCY PRIME MOVER

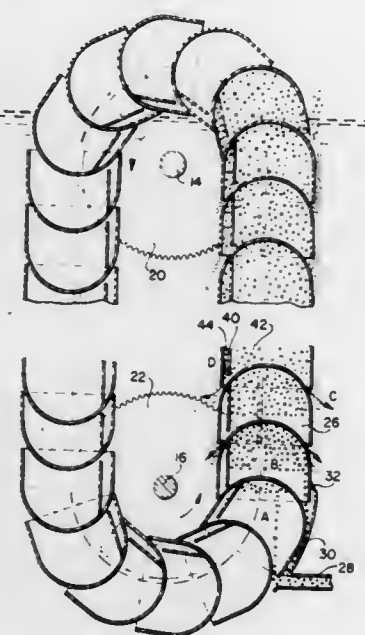
Thomas D. Everett, P.O. Box 29097, Indianapolis, Ind. 46229

Filed May 4, 1981, Ser. No. 260,390

Int. Cl.³ F03G 7/00; F03B 9/00

U.S. Cl. 60—496

8 Claims



1. An apparatus for converting the potential energy of a gas buoyant within a liquid into rotating mechanical energy comprising:

- (a) rotating means supported by a frame including at least two upper and lower sprockets freely rotatable about shafts mounted on said frame and being at least partially immersed within the liquid, each of said upper and lower sprockets supporting a continuous chain for movement about a horizontal axis of rotation; and
- (b) a plurality of adjacent buckets immersed in the liquid and coupled at each end to one of said continuous chains such that the buckets are equidistant and each bucket is in close proximity with an adjacent bucket to nest within said adjacent bucket for streamlined vertical movement about the horizontal axis of rotation, each bucket containing a vertical member to divide the bucket into a first chamber and a second chamber

whereby upon filling the first chamber of each bucket with a volume of the gas to displace the liquid from the first chamber of each bucket, the gas can expand when the bucket rises vertically through the liquid to flow from the first chamber into the second chamber and to prevent the gas from spilling from the bucket during the vertical rise so that the buckets move through the liquid with minimal turbulence and revolve the rotating means about the horizontal axis of rotation to generate power.

4,363,213

COMBINED BODY AND POWER GENERATING SYSTEM

George E. Paleologos, 9211 Georgia Ave., Silver Spring, Md. 20910

Filed Mar. 11, 1981, Ser. No. 242,439

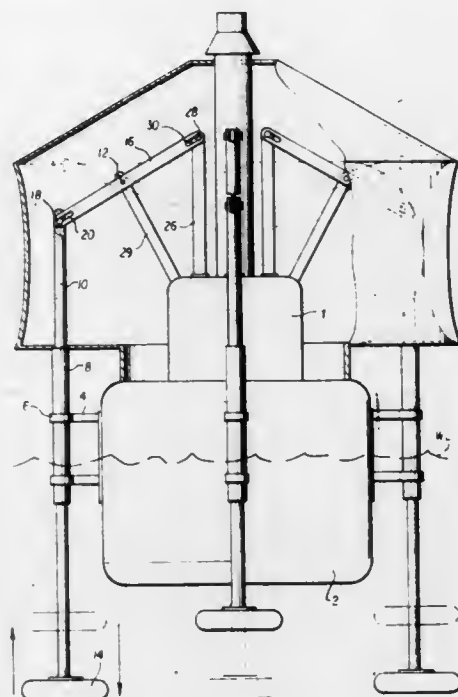
Int. Cl.³ F03B 13/12

U.S. Cl. 60—505

6 Claims

1. An apparatus for producing power, comprising: a hollow buoy; electric generator means in said buoy; pneumatic turbine means in said buoy and operatively connected to said generator;

at least two pneumatic pump means in said buoy and operatively connected to said turbine means; at least two vertical arms; means connected to said buoy and adapted for constraining each of said arms and for permitting reciprocation of said arms in the vertical direction; linkage means connecting one end of each of said arms to one of said pneumatic pump means;



means for sealing said linkage means in a water tight manner; and

foot means on the other end of each of said arms, said foot means adapted to resist movement in said vertical direction wherein said arms, said means for constraining said arms, said means for sealing and said foot means are formed of lightweight non-corrosive plastic material.

4,363,214

TURBO-LUBRICATION SYSTEM

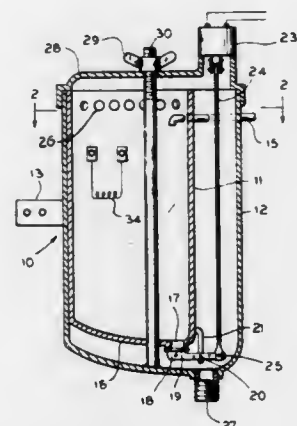
Robert W. Kiser, 564 Buckeye Dr., Livermore, Calif. 94550

Filed Jul. 7, 1980, Ser. No. 166,244

Int. Cl.³ F01M 1/18; F02B 37/00

U.S. Cl. 60—605

14 Claims



1. Apparatus for the lubrication of a turbo charger unit of the type having an impeller rotatably supported on bushings, said turbo charger unit mounted to an internal combustion engine, said engine of the type being lubricated by motor oil and having a pump for the circulation thereof throughout said engine, said apparatus comprising:

an outer, liquid-tight vessel;
an inner vessel smaller than said outer vessel and positioned within said outer vessel;

means to provide a portion of the flow of said lubricating oil to said inner vessel;
means to direct said lubricating oil from said inner vessel to said outer vessel during operation of said engine;
means to selectively drain oil retained in said inner vessel to said outer vessel; and
means to conduct a flow of oil from said outer vessel to said turbo charger unit.

4,363,215

H₂S ABATEMENT PROCESS

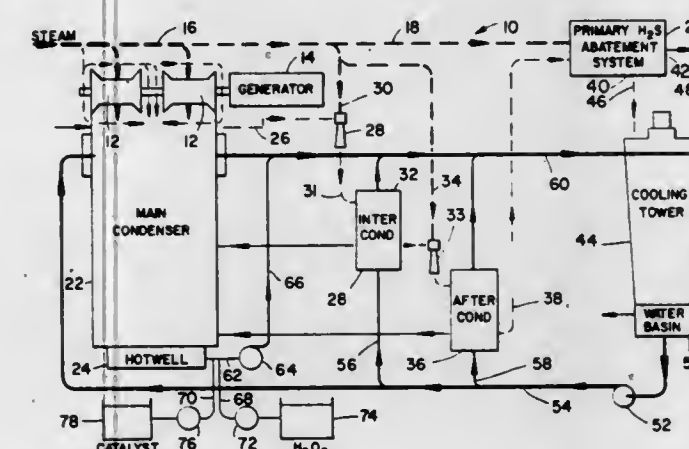
Spencer G. Sharp, Fairfax, Calif., assignor to Pacific Gas and Electric Company, San Francisco, Calif.

Filed Jan. 30, 1981, Ser. No. 230,263

Int. Cl.³ F03G 7/00

U.S. Cl. 60—641.2

6 Claims



1. In a process for utilizing geothermal steam from drilled wells producing waste gases vented to the atmosphere containing not over environmentally acceptable amounts of volatile sulfur contaminants as normally contained in said steam, a method for converting said volatile sulfur contaminants into water-soluble, less volatile sulfur compounds which are environmentally less objectionable and are substantially all retained in recirculated steam condensate, the steps which consist essentially of:

- (a) introducing geothermal steam to a work zone and utilizing energy therein,
- (b) withdrawing a stream of exhaust steam from said work zone to a first condensing zone to form a condensate and residual gases,
- (c) separately withdrawing said gases to a series of further condensing zones to form further condensates and residual gases,
- (d) recycling said further condensates to said first condensing zone and mingling with said first-mentioned condensate,
- (e) continuously admixing with said mingled condensates from 1 mole to 2.5 moles hydrogen peroxide per mole of volatile sulfur contaminant expressed as hydrogen sulfide, and
- (f) as catalyst from 0.5 to 1.0 parts per million of ferrous sulfate hydroxyacetic acid,
- (g) to provide gases vented to the atmosphere containing volatile sulfur contaminants in not over environmentally acceptable amounts and a circulating condensate substantially free of corrosive solids.

4,363,216

LUBRICATING SYSTEM FOR ORGANIC FLUID POWER PLANT

Lucien Bronicki, P.O. Box 68, Yavne, Israel

Filed Oct. 23, 1980, Ser. No. 199,841

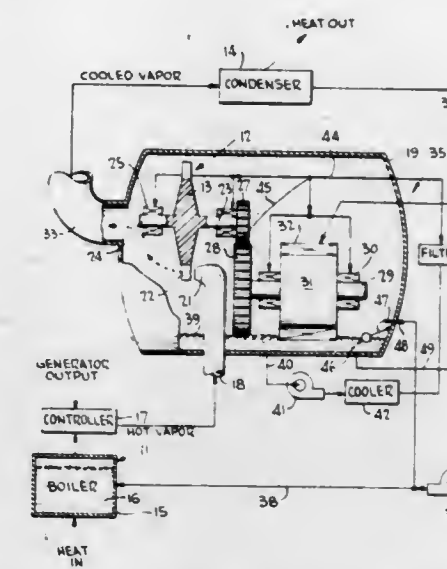
Int. Cl.³ F01B 31/00

U.S. Cl. 60—657

13 Claims

1. In a closed Rankine cycle power plant including a boiler for converting liquid working fluid into hot vapor, a prime

mover responsive to the hot vapor for producing power, a condenser for receiving vapor exhausted by the prime mover and converting the vapor into condensate, means for returning condensate from the condenser to the boiler, and means to



lubricate the bearings of the prime mover with condensate, the improvement comprising:

- increasing the viscosity of the condensate used to lubricate the bearing to a level greater than the viscosity of the condensate returned to the boiler.

4,363,217

VIBRATION DAMPING APPARATUS

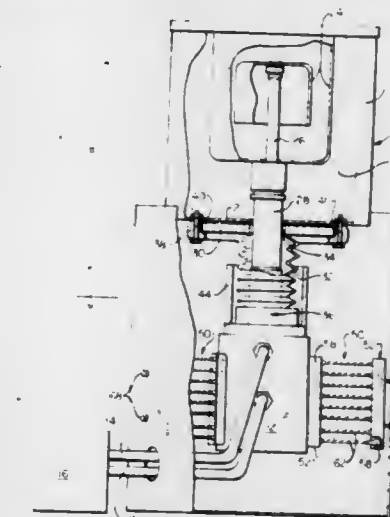
Guy S. Venuti, 56 Putnam St., Watertown, Mass. 02172

Filed Jan. 29, 1981, Ser. No. 229,735

Int. Cl.³ B01D 8/00

U.S. Cl. 62—55.5

10 Claims



1. In apparatus for connecting the expander module of a cryogenic vacuum pump assembly to an opening in the bottom of the housing of a vacuum chamber, and including support means disposed about said pump, the improvement comprising, in combination:

a tubular, elastic bellows formed with opposite open ends; means for vacuum-sealing one of said ends to said opening to communicate therewith; means for vacuum-sealing the other of said ends to and in communication with said expander module so that said module is suspended by said bellows below and spaced from said housing; and a plurality of vibration isolators for coupling said module to said support means, said isolators being arranged symmetrically around said module for constraining vibratory movement of said module.

4,363,218 HEAT PUMP USING SOLAR AND OUTDOOR AIR HEAT SOURCES

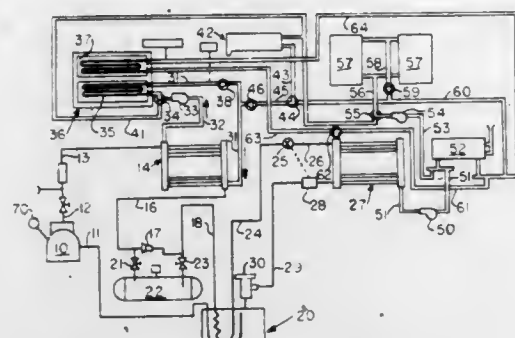
Otto J. Nussbaum, Huntsville, Ala., assignor to Halstead Industries, Inc., Scottsboro, Ala.

Filed Apr. 10, 1981, Ser. No. 252,799

Int. Cl.³ G05D 23/00; F25B 27/02

U.S. Cl. 62—79

10 Claims



	3-WAY VALVE	PUMPS
CYCLE	34 55 62 44	33 54 50
COOLING	ON OFF ON OFF	ON OFF ON
DIRECT	OFF OFF ON OFF	OFF ON ON
SOLAR HEAT		
WATER SOURCE	OFF OFF ON ON	ON ON ON
HEAT PUMP	OFF ON OFF ON	ON ON ON
AIR SOURCE		
HEAT PUMP		

1. A heat pump including the combination of: an outdoor air heat exchanger for supplying heat to a fluid medium only at a high coefficient of performance, a solar energy heat exchanger for supplying heat to a fluid medium at times other than the operation of said outdoor air heat exchanger, means including a storage container for selectively circulating fluid medium to either of said outdoor air heat exchanger or said solar energy heat exchanger, first and second indoor heat exchangers, means forming a non-reversing refrigeration cycle for transferring the heated fluid medium between said storage container and either said first indoor heat exchanger or said outdoor air heat exchanger, and conduit means including valves for selectively circulating fluid medium between said second indoor heat exchanger and said storage container.

4,363,219 METHOD AND SYSTEM OF HEAT ENERGY CONVERSION

Yasuo Koseki; Akira Yamada; Yuusaku Nishimura, and Sankichi Takahashi, all of Ibaraki, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

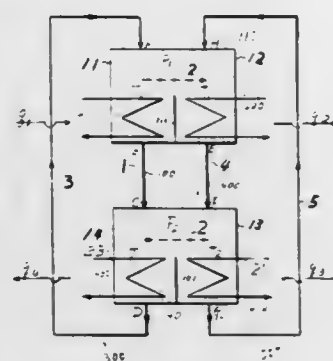
Filed Mar. 17, 1981, Ser. No. 244,678

Claims priority, application Japan, Mar. 17, 1980, 55-32757; Mar. 31, 1980, 55-40331

Int. Cl.³ F25B 15/00

U.S. Cl. 62—101

14 Claims



1. A method of converting low temperature heat energy into high temperature heat energy comprising steps of, concentrating a heat medium of liquid having components of unequal boiling points through evaporation of lower-boiling liquid

under a first predetermined pressure, and absorbing vapor generated under a second predetermined pressure into higher-boiling liquid concentrated, wherein the improvement comprises the steps of:

absorbing vapor of the lower-boiling liquid generated in the concentrating step into an intermediate medium of liquid while cooling, said intermediate medium of liquid being different from both the lower-boiling liquid and higher-boiling liquid and having a boiling point between the lower boiling point and the higher boiling point of the heat medium; evaporating the intermediate medium diluted with the lower-boiling liquid to generate vapor; and absorbing the vapor generated from the diluted intermediate medium of liquid into the concentrated higher-boiling liquid.

4,363,220 ICE MAKING APPARATUS

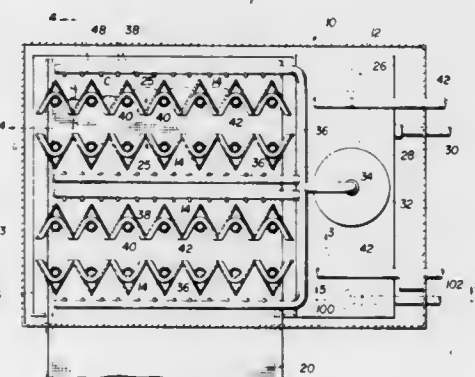
Wayne H. Ripley, P.O. Box 2666, San Angelo, Tex. 76902

Filed Sep. 25, 1981, Ser. No. 305,689

Int. Cl.³ F25C 1/12

U.S. Cl. 62—138

10 Claims



1. Ice making apparatus comprising: an upstanding, corrugated freezing plate defining a plurality of substantially vertically extending ice cube forming channels on one side thereof, a plurality of vertically spaced lugs in engagement with the opposite side of said freezing plate, each of said lugs being angled and having legs substantially parallel to and in close engagement with the adjacent surfaces of said freezing plate on said opposite side thereof so that legs of adjacent lugs surround said ice cube forming channels on said one side of said freezing plate to define vertically spaced ice cubes forming areas in said channels, a refrigeration line in engagement with said lugs, means for supplying water to said one side of said plate at the upper end thereof, whereby water flows down said one side of said plate into said channels and is frozen to form ice cubes thereon at vertically spaced locations adjacent to said lugs, and means to effect removal of the ice cubes from said plate when they reach a predetermined size.

4,363,221 WATER HEATING SYSTEM HAVING A HEAT PUMP

Kanwal N. Singh, 720 Grandview Ave., Columbus, Ohio 43215

Continuation of Ser. No. 67,615, Aug. 20, 1979; abandoned. This application Feb. 17, 1981, Ser. No. 234,820

Int. Cl.³ F25B 27/02

U.S. Cl. 62—238.6

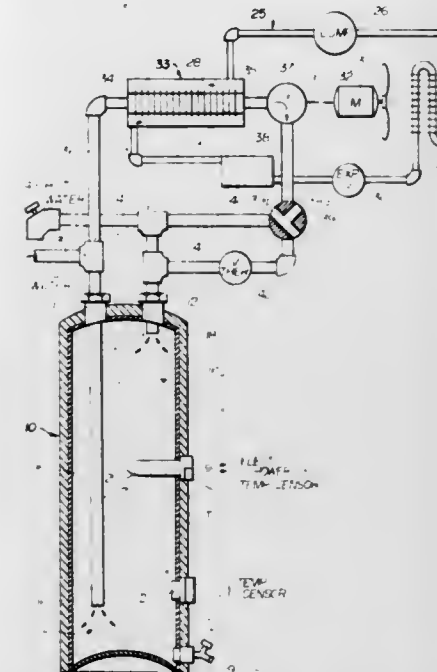
16 Claims

1. A water heating system for interconnection into a water system having a pressurized cold water source and a hot water utilization device comprising

a water storage tank with relatively lower and upper zones therein and having first conduit means for interconnecting

said tank in series flow relationship in the water system to permit inflow of cold water to said tank at said lower zone and outflow of water from said tank at said upper zone in response to requirements of a utilization device, and water heating means including second conduit means connected in fluid flow relationship with said storage tank, fluid flow inducing means coupled with said second conduit means in operative relationship for effecting circulation of water therethrough from the lower to the upper

a first valve and conduit system selectively interconnecting the refrigeration system, pump and refrigerant receiving container to evacuate refrigerant from the refrigeration system for storage in said receiving container and evacuation of the refrigeration system, and a second valve and conduit system selectively interconnecting the refrigeration system, pump, refrigerant metering container and refrigerant supply container for selectively transferring refrigerant from said supply container to said metering container and from said metering container to said refrigeration system charging the refrigeration system with refrigerant therefrom.



zone of said tank, and a closed loop heat pump system including heat obtaining means positionable in heat transferring relationship to a heat source to derive heat therefrom and control means responsive to the water temperature in the storage tank to control operation of said water heating means, said second conduit means and said heat pump system interconnected for effecting a transfer of heat only to water circulating through said second conduit means.

4,363,222 ENVIRONMENTAL PROTECTION REFRIGERANT DISPOSAL AND CHARGING SYSTEM

Robert L. Cain, Bryan, Ohio, assignor to Robinair Manufacturing Corporation, Montpelier, Ohio

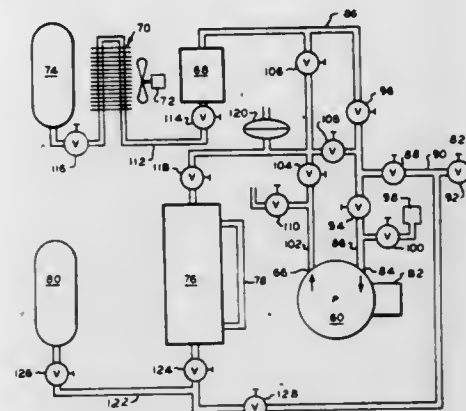
Division of Ser. No. 4,657, Jan. 19, 1979, Pat. No. 4,261,178.

This application Nov. 19, 1980, Ser. No. 208,182

Int. Cl.³ F25B 45/00

U.S. Cl. 62—292

7 Claims



1. A refrigerant disposal and charging system for a refrigeration system comprising, in combination, a single electrically operated pump having a vacuum producing inlet and a pressure producing outlet, a refrigerant receiving container, a refrigerant supply container, a refrigerant metering container,

1. Apparatus for producing and dispensing cold products, comprising:

a cylinder having an inner forming wall; a piston mounted for reciprocation in the cylinder and having a scraper in scraping engagement with the surrounding forming wall during movement of the piston, said scraper being at and surrounding the outer end of said piston; power means connected to the piston for moving said piston axially in the cylinder; a first spray nozzle mounted on an outer end of the piston and directed towards the forming wall around said end; supply means for selectively making available at the piston a predetermined quantity of a substance in fluid form at a predetermined and constant pressure; control means operable to supply the selected substance to the nozzle during movement of the piston, said first nozzle spraying the substances at an even rate over the forming wall during said movement, and said substance forming an even layer on the wall and being scraped off the wall by the scraper as the latter is moved by the piston over the wall with the substance thereon; a second spray nozzle mounted on the piston and directed towards the scraper, said first and second nozzles being positioned centrally of said outer end of said piston, and means for selectively supplying a cleansing fluid under pressure to the second nozzle, said second nozzle spraying the fluid over the scraper member and the scraper for cleansing purposes.

4,363,224

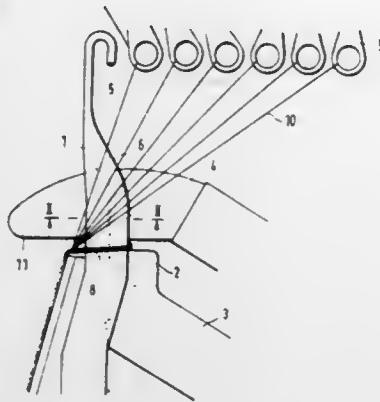
WARP KNITTING MACHINE WITH SLIDER NEEDLES
 Roland Wunner, Bernstein, Fed. Rep. of Germany, assignor to
 Liba Maschinenfabrik GmbH, Naila, Fed. Rep. of Germany
 Filed Feb. 17, 1981, Ser. No. 234,624

Claims priority, application Fed. Rep. of Germany, Feb. 15,
 1980, 3005787

Int. Cl.³ D04B 35/04

U.S. Cl. 66—120

3 Claims



1. Warp knitting machine with slider needles which have a needle shank of channel form with hook head and a slider which covers the hook opening of the needle shank with a cover part fitted on a slider shank, where the needle shank and slider are moved in relation to one another so that the slider does not come into contact with the bottom of the channel of the needle shank, characterized in that the cover part (4, 14) is so far shorter than the hook opening that on closure of the hook opening by placing of the end of the cover part (4, 14) opposite to the hook head (5) the transition (7) of the cover part (4, 14) into the slider shank (2, 3) has come out of the region of the channel, while the slider (2) possesses such a cross-section that it carries the stitch (8) in each case without supporting on the needle shank (1) and/or hook head (5).

4,363,225

CREEL FOR CIRCULAR KNITTING MACHINES
 Giovanni Marchisio, Turin, Italy, assignor to Giovanni Marchisio & C. S.r.l., Turin, Italy

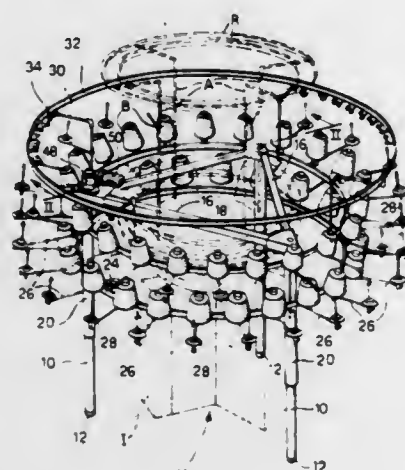
Filed Sep. 17, 1980, Ser. No. 188,156

Claims priority, application Italy, Sep. 17, 1979, 68825 A/79

Int. Cl.³ D04B 15/40

U.S. Cl. 66—125 R

5 Claims



1. A creel for use with a circular knitting machine, said creel comprising a frame carrying a plurality of bobbin-carriers arranged in at least one horizontal row adapted to extend around said knitting machine, wherein said frame includes:

- a plurality of vertical columns adapted to be disposed around said knitting machine, each said column being tubular and having a vertical slit therein;
- a framework rigidly interconnecting the upper ends of said

columns at a height such as not to interfere with the movement of personnel about said knitting machine;

- a respective slide comprising a sleeve surrounding and slidable vertically along, each said column;
- a bobbin-carrier support structure supporting said bobbin-carriers and surrounding and rigidly interconnecting said slides; and

drive means connected to said slides to effect the sliding movement thereof between an upper position, in which said bobbin-carrier support structure is located at a height such as not to interfere with the movement of personnel about said knitting-machine, and a lower position in which said bobbin-carrier support structure is adapted to surround said knitting-machine and is located at a height such as to allow manual access to said bobbin-carriers, said drive means comprising

respective, vertical, screw-threaded shafts housed one in each said tubular column for rotation therein, said shafts being constrained against vertical sliding movement; respective internally screw-threaded nuts engaged one with each said screw-threaded shaft, each said nut being slidable in a respective said column; connecting means rigidly connecting each said nut with the sleeve surrounding the respective column, said connection means extending through the vertical slit in the column; respective sprocket wheels keyed one to each said shaft; an endless transmission chain engaged with and interconnecting said sprocket wheels;

a reversible motor connected to drive said transmission chain.

4,363,226

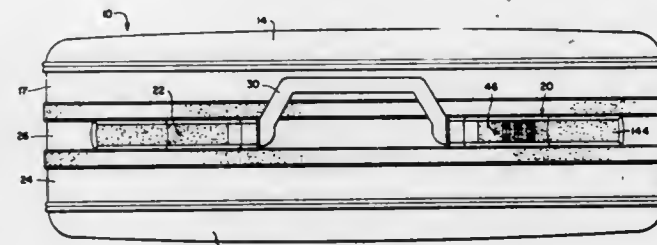
LATCHING SYSTEM FOR LUGGAGE ARTICLES
 Richard C. Remington, Pompton Plains, and Lazo Bako, Woodcliff Lake, both of N.J., assignors to Presto Lock, Inc., Garfield, N.J.

Filed Oct. 23, 1980, Ser. No. 200,000

Int. Cl.³ E05B 65/52, 37/02

U.S. Cl. 70—70

37 Claims



1. In a latching system for a luggage article, comprising a pair of spaced latches, means mounting each of said latches for, reversible swiveling movement between latching and unlatching positions, drive means connecting said latches for swiveling movements in unison between the respective latching and unlatching positions and for reverse swiveling movements in unison between the respective unlatching and latching positions, and a manual actuator for operating the latches in unison, the improvement wherein said drive means includes a pulley portion formed on each of said latches and an endless drive element looped around the respective pulley portions.

4,363,227

DOOR LOCK CONSTRUCTION
 Jiung-P'eng Lo, No. 12, La. 1020, Chen Teh Rd., Taipei, Taiwan
 Filed May 14, 1980, Ser. No. 149,665

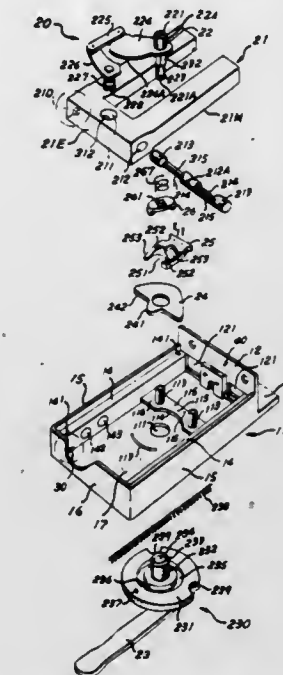
Int. Cl.³ E05B 55/00

U.S. Cl. 70—144

16 Claims

1. An improved construction of a door lock comprising: a lockbolt formed in U shape operable in association with an actuating mechanism having a drive shaft to be driven by the tail piece of a lock cylinder, an inter-locking device operable in

cooperation with said actuating mechanism in relation with the movement of said lock bolt to interlock the lock bolt in locking positions, a plurality of compression springs urging said lock bolt forward, an operating handle capable of selectively engaging with and disengaging from said drive shaft, a housing and a cover plate, a dog device comprising a dog plate formed with a trigger piece, said dog plate being urged by a spring to engage with a notch formed in the front end position of the lock bolt when the lockbolt is fully retracted, said trigger piece being adapted to be hit by the jamb to disengage said dog plate



from the notch in the lockbolt when the door is closed, to enable the automatic locking of the door on closing, and second locking position setting means for moving said lockbolt into a second locking position, said second position setting means including disengaging means disengaging said operating handle from said drive shaft so that said bolt cannot be operated by said operating handle, jamming means for preventing operation of said bolt by said operating handle, and key means for rotating said drive shaft for moving said bolt into and out of said second locking position.

4,363,228

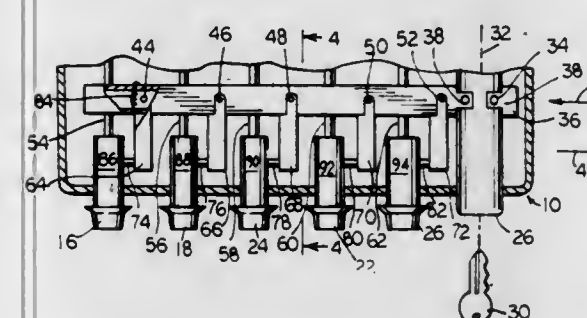
LOCKING MECHANISM FOR RANGES
 Carlton Serrao, 535 Parkside Ave., Apt. 6N, Brooklyn, N.Y. 11226

Filed Nov. 24, 1980, Ser. No. 209,594

Int. Cl.³ F16K 35/00; F24C 3/12

U.S. Cl. 70—177

3 Claims



1. In a range having a plurality of individually operated knob controlled operated shafts, each of the shafts rotatable and controlling the turning on and off of an individual cooking or heating apparatus, the improvement comprising:

- an elongated bar, the longitudinal axis of said bar being disposed tangentially slidable relative to the surface and transverse to the longitudinal axis of each of the shafts, each of the shafts being disposed in spaced apart parallel relationship to one another,
- a plurality of arms, one end of each of said arms pivotally

secured to said bar at pivot axes located adjacent to each of the shafts,

means to bias the other end of each of said arms towards an adjacent shaft thereto,

a lock, said lock locking the pivot axes of said arms a greater distance radially outwardly from the adjacent shaft thereto when in a locked position than the distance between the adjacent shaft and the pivot axes when said lock is in an unlocked position, and

a plurality of fingers, one end of one of said fingers fixedly secured to the other end of one of said arms, the other end of said one finger being located intermediate the adjacent shaft and the arm adjacent thereto, each of the shafts having an opening extending radially inwardly from the exterior surface thereof, said other end of said one finger being disposed located within the opening of the adjacent shaft when the opening is rotatably aligned with the longitudinal axis of said one finger and when said lock is in the locked position, said other end of said one finger being disposed outwardly of the opening when said lock is in the unlocked position.

4,363,229

RECEPTACLE FOR PAPER CURRENCY, COINS AND THE LIKE

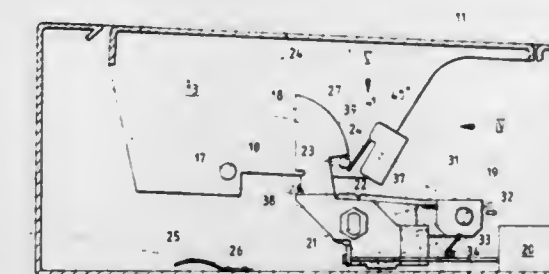
Gunter Baitz, Berlin, Fed. Rep. of Germany, assignor to Nixdorf Computer AG, Paderborn, Fed. Rep. of Germany
 Filed Feb. 15, 1980, Ser. No. 121,846

Claims priority, application Fed. Rep. of Germany, Feb. 27,
 1979, 2907643

Int. Cl.³ E05B 47/00

U.S. Cl. 70—279

8 Claims



1. A lockable cash container suitable for use in combination with but mechanically remote from a cash register or the like comprising:

- a generally rectangular box-like casing (12) of oblong configuration having a closed bottom, front, rear and sides and at least a partially open top;
- a cover (11) for closing the top of the casing (12);
- pivot means (17) defining a pivot axis extending across the width of casing (12) between the front and rear thereof and between the top and bottom thereof for mounting the cover (11) to the casing (12) for pivotal motion between a first stable position flush with and closing the open top and a second stable position which is angularly displaced from the first position and in which the casing top is open and at least a portion of the cover is recessed into the casing;
- thrust spring means (42, 43, 44, 45) within the casing (12) for urging the cover (11) toward the second position;
- a locking bar (18) pivotally mounted within the casing (12) for rotation between a first locking position in which the bar (18) may be lockingly engaged with the cover (11) and a second unlocking position in which the bar (18) and cover (11) are disengaged;
- means (38) biasing the locking bar (18) into the first position;

key lock means (21) mounted within the casing but externally accessible for manually operating the locking bar (18); and
electromagnetic means (20) mounted within the casing (12) for remotely electrically operating the locking bar (18).

4,363,230

CYLINDRICAL LOCKS

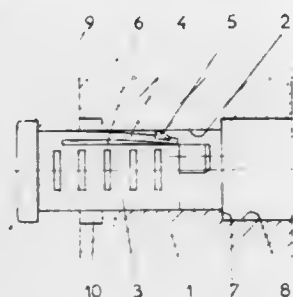
Paul Lipschutz, Croissy, France, assignor to SODEX-MAGISTER, Societe d'Exploitation des Brevets Neiman, Croissy, France

Filed Sep. 30, 1980, Ser. No. 192,289

Claims priority, application France, Oct. 8, 1979, 79 24951
Int. Cl.³ E05B 9/08

U.S. Cl. 70—370

3 Claims



1. In a cylinder lock of the type comprising a body and a barrel journaled within a bore in said body, the provision of
 - a resilient tongue extending longitudinally of the barrel, said tongue being formed integrally with said barrel and having an exterior surface of part cylindrical shape conforming to the cylindrical shape of the exterior of the barrel when in its normal position;
 - a shoulder formed within the bore of the body remote from the end of the bore through which the bore enters during assembly of the barrel within the bore; and
 - a nose formed integrally with said tongue at the distal end thereof, whereby on initial entry of the barrel into the bore during assembly the distal end of the tongue deforms away from its normal position towards the barrel and on completion of the barrel assembly operation, the tongue returns to its normal position whereupon the nose engages the shoulder to prevent withdrawal of the barrel.

4,363,231

DOOR LOCK

John R. Kaveney, Jr., East Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US80/00854, § 371 Date Jul. 7, 1980, § 102(e)
Date Jul. 7, 1980

PCT Filed Jul. 7, 1980, Ser. No. 262,062

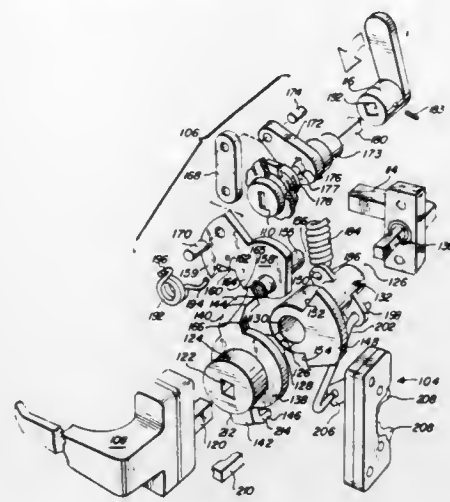
Int. Cl.³ E05B 55/04

U.S. Cl. 70—484

10 Claims

1. A lock assembly for a latch structure (104) which latches a vehicle door (100), said lock assembly comprising:
 - a first handle (108);
 - a lock ring (124) affixed to said first handle (108);
 - spaced apart means (140, 142) carried by said lock ring (124);
 - rigid stop means (210) extending into position to be contacted by one of said spaced apart means (142);
 - a second handle (114) extending in a direction opposite to said first handle (108);
 - a bellcrank (132) fixed to said second handle (114) and being coaxially aligned with said lock ring (124) and being rotatably mounted relative thereto;
 - an actuator rod (202) connecting said bellcrank (132) and said latch structure (104) for operating said latch structure (104);
 - locking means (158) mounted to prevent rotation of said lock ring (124) by engaging one of said spaced apart means

(140), said locking means (158) being pivotable between a locked position and an unlocked position;
a key lock means (110) operably mounted on the outside of said vehicle;
means (168, 172) connecting said locking means (158) to said key lock means (110); and



- a third handle (116) operable from inside said vehicle and connected to and coaxially aligned with said key lock means (110);
said third handle (116) and said key lock means (110) each being operable to pivot said locking means (158) into a locked or unlocked position on said lock ring (124).

4,363,232

TOOL FOR SHAPING SHEET METAL

Erhardt Reitter, Sulzfeld, Fed. Rep. of Germany, assignor to Uniplanung Metall- und Kunststoff-Engineering GmbH & Co. KG, Dumersheim, Fed. Rep. of Germany

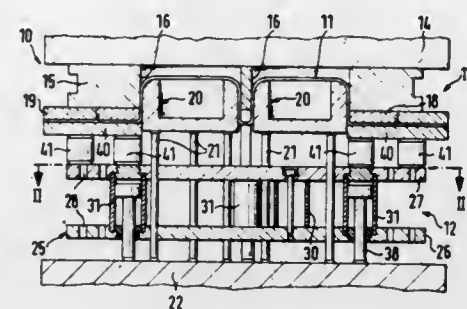
Filed Dec. 1, 1980, Ser. No. 211,895

Claims priority, application Fed. Rep. of Germany, Dec. 1, 1979, 2948396

Int. Cl.³ B21D 22/00

U.S. Cl. 72—350

4 Claims



1. Tool for shaping—particularly drawing—of sheet metal, comprising a movable upper tool section mounting a die and a field lower tool section mounting a punch mounted for movement towards and away from one another; a sheet metal holder provided on one of said sections and movable relative to a sheet metal-shaping contour thereof; and pressure distributing means also movable relative to said shaping contour and including two spaced-apart plates and spacers connecting said plates and maintaining them at a predetermined distance, said pressure distributing means constituting an abutment for said holder; said spacers comprising tubular spacing sleeves arranged between said plates; said sleeves each comprising a cylinder of a fluid-operated cylinder and piston unit, and a piston slidable back and forth in said cylinder; said piston being supported at one side of said pressure distributing means by a piston rod extending through one of said spaced-apart plates.

4,363,233

METHOD AND APPARATUS FOR COLD FORMING STABILIZER BLADE MEANS FROM ELONGATED MEMBERS

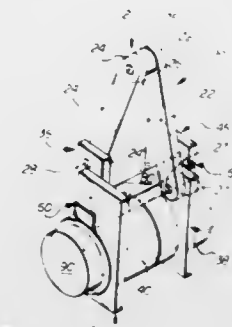
Ernest G. Evans, P.O. Box 52144, Lafayette, La. 70505

Filed Dec. 23, 1980, Ser. No. 219,528

Int. Cl.³ B21D 11/14

U.S. Cl. 72—383

5 Claims



1. An apparatus for cold forming stabilizer blades from elongated members comprising:
 - a toggle joint means including:
 1. first and second bar means pivotally connected adjacent one end;
 2. first sleeve means pivotally secured to the other end of said first bar means; and
 3. second sleeve means pivotally secured to the other end of said second bar means;
 - b. first and second clamping means on said first and second sleeve means respectively including retaining means to receive and position an elongated member for forming the stabilizer blade; and
 - c. mandrel means for receiving said sleeve means so that a force applied to spread apart said first and second bar means rotates said first and second sleeve means in opposite directions on said mandrel to rotate said first and second bar means away from each other to bend the elongated member to form a stabilizer blade.

4,363,234

METHOD AND APPARATUS FOR FORGING SECTIONS

Per-Olof Strandell, Bockstigen 3, 183 51 Täby, Sweden

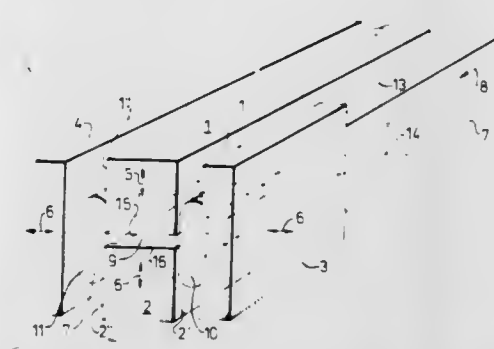
Filed Dec. 2, 1980, Ser. No. 212,126

Claims priority, application Sweden, Dec. 10, 1979, 7910161

Int. Cl.³ B21D 41/00

U.S. Cl. 72—402

10 Claims



1. A method of manufacturing sections, preferably beam preforms, where a blank with preferably rectangular cross-section is forged between a pair of web tools moved to and from each other for forming a web portion on said blank, and is simultaneously forged between at least one flange tool and the web tools, where each flange tool is moved to and from the web tools in a direction perpendicular to the direction of movement of the web tools (1, 2) for upsetting the blank portion located between the web tools and the flange tool to form a flange portion between the flange tool and the sides of the

web tools, and wherein the blank successively and in steps is fed in between the web tools (1) and successively and in steps is deformed by means of said web and flange tools, characterized in that: forging, at least partly, is performed by means of simultaneous movement of the web tools and said at least one flange tool and in that the material of the width of the blank is moved laterally by forging the blank (7) between two opposing ridges on the web tools, each ridge on each web tool including an inclined entrance part of the associated web tool, the initial forging by said ridges taking place before the blank is deformed by the residual portion of said inclined entrance parts, the longitudinal direction of the ridge being in parallel with the direction, in which the blank is advanced.

4,363,235

SAMPLING APPARATUS FOR A PRODUCTION LINE

Philipp Vulliens, Palezieux, and Guy Siggen, Juriens, both of Switzerland, assignors to Baumgartner Papiers S.A., Switzerland

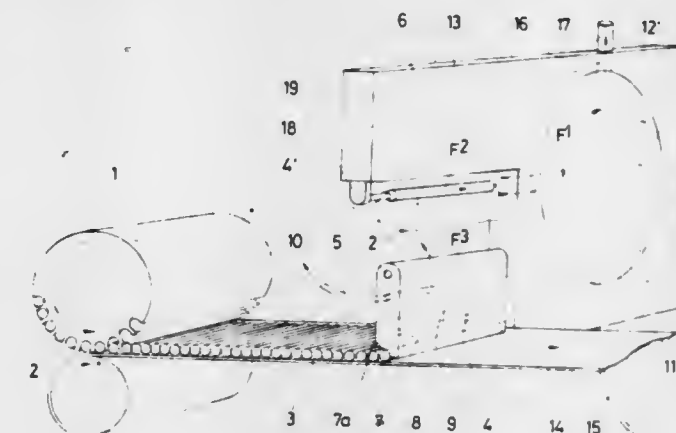
Filed Oct. 21, 1980, Ser. No. 199,235

Claims priority, application Switzerland, Jan. 24, 1980, 557/80

Int. Cl.³ G01N 15/08

U.S. Cl. 73—38

9 Claims



1. Apparatus for the automatic removal of a sample from a production line comprising a rotary removal arm connected to a vacuum source, the removal arm being provided with a concave rounded edge forming an abutment for the samples to be removed, at least one tubular member intended to receive the sample removed, means for driving the removal arm in an oscillating movement between a first removal position and at least one second position in which the sample is placed opposite the tubular transfer member, means for introducing the sample into the tubular transfer member, said concave rounded edge serving to guide the sample at the time of this latter introduction, the removal arm being mounted to pivot about a spindle parallel to its concave edge, and the tubular transfer member being constituted by a diametral bore in a rotary disc oscillating between a first horizontal position in which the sample is introduced into said bore and a second transfer and/or checking position.

4,363,236

METHOD AND APPARATUS FOR DETECTING LEAKS IN A STRUCTURE

Harry W. Meyers, 843 Kings Croft, Cherry Hill, N.J. 08034

Filed Apr. 28, 1980, Ser. No. 144,743

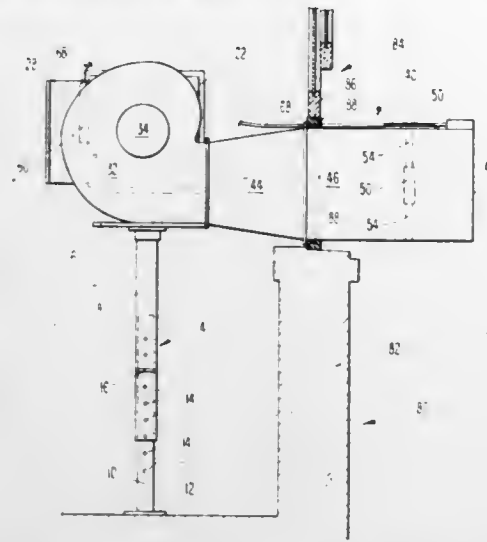
Int. Cl.³ G01M 3/26

U.S. Cl. 73—40

23 Claims

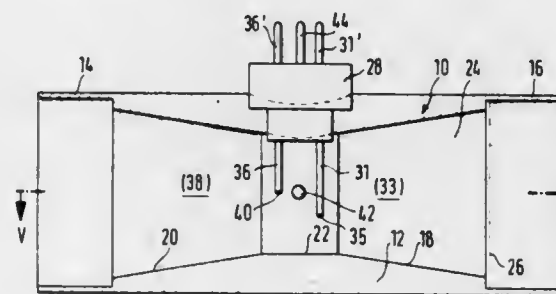
1. An apparatus for detecting the breathing characteristics of a structure having at least one aperture available to the atmosphere outside said structure, said apparatus comprising:
 - a first duct having first and second open ends, said first end opening to the atmosphere within said structure;
 - an evacuation means, said evacuation means having an inlet portion and an outlet portion said inlet portion of said

evacuation means being in a sealed relationship with said second open end of said first duct;
 a second duct having a first end, said first end being in a sealed relationship to said outlet portion of said evacuation means, and a second open end which is open to the atmosphere without said structure;



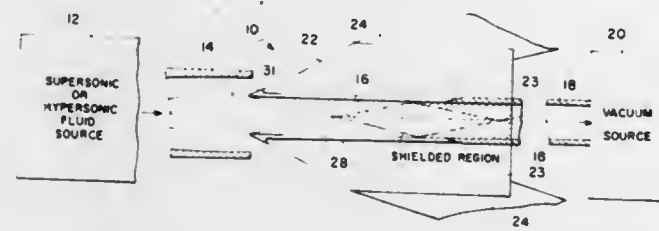
4,363,238
DEVICE FOR MEASURING THE BREATH OF PATIENTS
 Franz Willam, Haubenschlossstrasse 17, D-8960 Kempten, Fed. Rep. of Germany
 Filed Aug. 12, 1980, Ser. No. 177,375
 Claims priority, application Fed. Rep. of Germany, Aug. 16, 1979, 2933116
 Int. Cl.³ G01F 1/68; A61B 5/08
 U.S. Cl. 73—204 **2 Claims**

air velocity gauge means positioned approximate to said open end of said second duct; and
 air gauge means for determining relative differences in pressure within and without said structure.



4,363,237
SOUND SHIELD
 Theodore R. Creel, Jr., Yorktown, and Ivan E. Beckwith, Gloucester Point, both of Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed May 28, 1981, Ser. No. 267,935
 Int. Cl.³ G01M 9/00
 U.S. Cl. 73—147 **5 Claims**



1. A noise shielding system for high speed transition research in supersonic and hypersonic wind tunnels provided with a source of supersonic or hypersonic fluid flow, a nozzle area through which the fluid flows, a test section for receiving the fluid flow and subjecting a test model positioned therein to the fluid flow and an exit area for the fluid flow, the improvement therewith comprising:

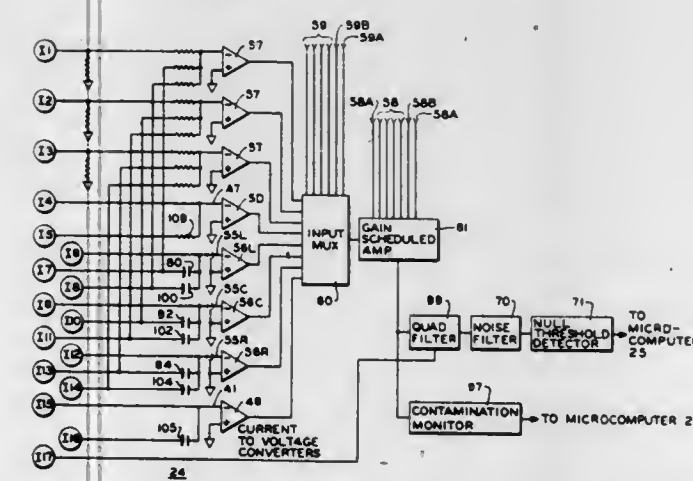
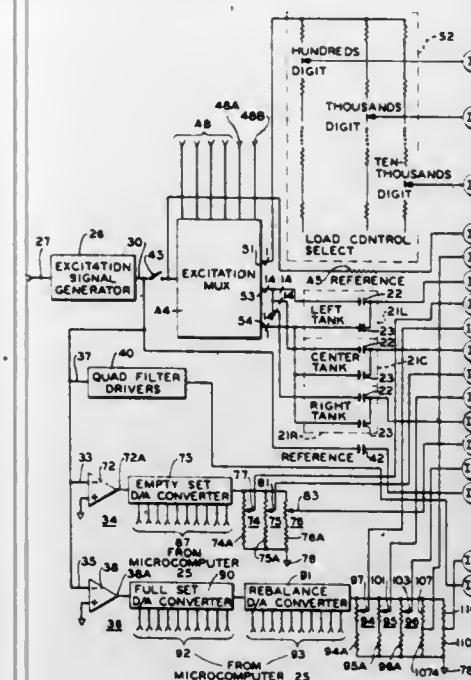
- said test section being substantially a rectangular configuration;
- a vacuum chamber surrounding each side of the test chamber and having conduits leading therefrom to a vacuum source;
- a plurality of spaced individual rod elements forming the four sides of said test chamber thereby providing fluid communication between said test chamber and said vacuum chamber;
- one end of each said spaced rod elements terminating and merging with a faired entrance shield portion of said vacuum chamber at the end of said test chamber receiving the fluid flow;
- the other end of each said rod element terminating and merging with a rectangular passageway leading to the wind tunnel exit;
- said rod elements and said entrance shield portion being

1. An improvement in a fluid flow measuring apparatus for detecting direction of flow and the magnitude thereof, the apparatus comprising a conduit, a pair of temperature sensors arranged in the conduit, a flow resistance member arranged between radial planes of said pair of temperature sensors and axially aligned with one of said pair of temperature sensors and means for tending to maintain the temperature of each sensor at a predetermined high level above the temperature of the fluid, the improvement comprising an arrangement in which the other one of said pair of temperature sensors is radially offset with respect to the axial alignment plane intersecting the one temperature sensor and said flow resistance member.

4,363,239
LIQUID GAGING SYSTEM CONTAMINATION MONITOR
 Jerome A. Fahley, Fridley, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
 Filed May 14, 1980, Ser. No. 149,790
 Int. Cl.³ G01F 23/26
 U.S. Cl. 73—304 C **46 Claims**

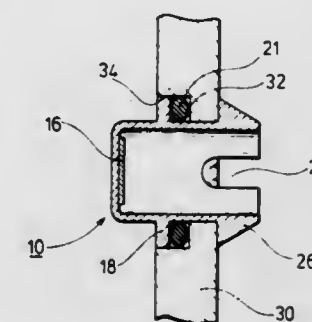
1. In a liquid gaging system, an apparatus for monitoring a quadrature signal from a capacitive sensor, comprising:
 a capacitive sensor for providing a liquid measurement signal related to a liquid in a tank, the liquid measurement signal comprising a capacitive signal and a quadrature signal; and
 means for monitoring the quadrature signal through null

detection of the capacitive signal, the null detection being implemented through a successive approximation se-



quence, the means for monitoring being connected to the sensor.

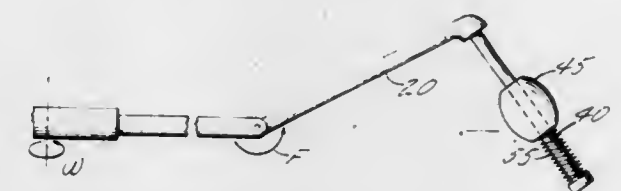
4,363,240
LIQUID-LEVEL INDICATING WINDOW
 Yoshinobu Mizusaki, Ueda, Japan, assignor to Nippon Kogyo Co., Ltd., Naganoken, Japan
 Filed Sep. 29, 1980, Ser. No. 192,019
 Claims priority, application Japan, Sep. 29, 1979, 54-135473[U]
 Int. Cl.³ G01F 23/02
 U.S. Cl. 73—334 **12 Claims**



1. A liquid-level indicating device adapted to be mounted substantially horizontally in an aperture provided in the wall of a liquid container which comprises:
 a liquid level body,
 a liquid-level indicating window provided at one end of said

liquid level body for projection from the wall of the liquid container a sufficient distance to provide maximum exposure to light from the front and side directions, compressible attachment means containing an enlarged end portion provided at the other end of said liquid level body, said enlarged end portion being compressed for insertion through the wall aperture and expanded for pressure engagement with the inside wall of the container, mounting flange disposed on the body of the indicating device for engagement with the wall of the container at said aperture, said mounting flange cooperating with said compressible attachment means to effect said mounting in said aperture, and
 a liquid level sign portion disposed on said liquid-level indicating window said liquid level sign portion having a refractive index substantially the same as that of the liquid disposed in the liquid container and having a different light refractive index than the remaining portion of said liquid-level indicating window, whereby changes in the liquid level in the container can be visually observed from outside of the container.

4,363,241
ROTATIONAL SPEED GOVERNOR
 Thomas A. Egolf, East Hartford, Conn., assignor to United Technologies Corporation, Hartford, Conn.
 Filed Dec. 23, 1980, Ser. No. 219,755
 Int. Cl.³ G05D 13/14
 U.S. Cl. 73—536 **11 Claims**



1. A governor providing actuation of a body in response to the rotational speed of said governor, said governor being characterized by:

- a control arm connected to said body and pivotable about an axis therethrough, said body applying a restoring force to said control arm,
- a weight, carried by said control arm and under conditions of centrifugal loading thereof, due to rotation of said governor, being urged outwardly along a path extending from an outer end of said control arm toward the plane of rotation of said body thereby pivotally biasing said control arm in a direction opposite that of said restoring force, and means carried by said control arm for restraining said weight in a fixed position with respect to said control arm at rotational speeds less than a first predetermined speed and accommodating centrifugal loading of said weight at rotational speeds greater than said first predetermined speed by displacement of said weight relative to said control arm, said centrifugal loading of said weight at speeds less than said predetermined speed overcoming said restoring force to effect pivoting of said control arm in one direction, said centrifugal loading at selected speeds greater than said predetermined speed being overcome by said restoring force thereby causing pivoting of said control arm in a direction opposite said one direction.

4,363,242

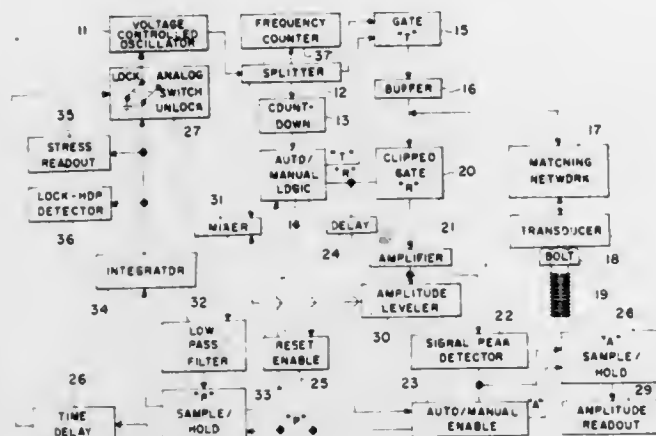
PULSED PHASE LOCKED LOOP STRAIN MONITOR
Joseph S. Heyman, Gloucester, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Oct. 23, 1980, Ser. No. 199,767

Int. Cl.³ F16B 13/02; G01H 1/00; G01N 29/00

U.S. Cl. 73-761

10 Claims U.S. Cl. 73-766



1. An instrument for measuring changes in strain of a sample comprising:

transducer means attached to said sample for converting electrical signals into acoustic signals in said sample and for converting the acoustic signals reflected by said sample into electrical signals;

a continuous wave RF electrical source means for periodically gating said RF source to said transducer means;

means for periodically gating away from said transducer means the signals produced by the acoustic signals reflected by said sample such that the times that the signals are gated away from said transducer means do not overlap the times that the RF source is gated to said transducer means;

means receiving the RF signals from the RF source and said signals periodically gated away from said transducer means for producing a DC electrical signal proportional to the change from a fixed difference in phase of the two received signals;

means receiving said signals periodically gated away from said transducer means for producing a pulse during each period that signals are gated away from said transducer means and during a time that a reflected signal is received, the duration of said produced pulse being substantially less than the duration of the gating away time;

means receiving said DC electrical signal and said pulse for sampling said DC electrical signal at the time said pulse is received and holding the sampled signal until the next pulse is received; and

means receiving said sampled and held signal for changing the frequency of said RF source to maintain said fixed difference between the phases of said RF source and said signals periodically gated away from said transducer means whereby the changes in frequency of said RF source are proportional to the changes in strain in said sample.

4,363,243

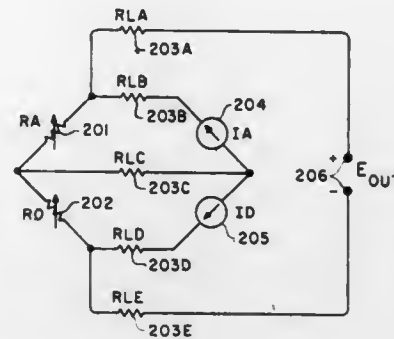
STRAIN GAGE MEASUREMENT CIRCUIT FOR HIGH TEMPERATURE APPLICATIONS USING DUAL CONSTANT CURRENT SUPPLIES.

Ronald I. Poff, West Covina, Calif., assignor to Eaton Corporation, Cleveland, Ohio

Filed May 1, 1981, Ser. No. 259,565

Int. Cl.³ G01B 7/16

6 Claims



1. A strain gage circuit, comprising:

(a) a first resistor referred to as the active resistor having two terminals, the active resistor being subject to an applied strain force which produces an accompanying change in the value of its resistance,

(b) a second resistor, referred to as the dummy resistor, having two terminals, the dummy resistor having one terminal connected to a terminal of the active resistor to form a first junction,

(c) a first constant current power supply having two terminals,

(d) a second constant current power supply having two terminals, one terminal of which is connected to a terminal of the first power supply having a like polarity to form a second junction,

(e) first means for connecting which joins the unconnected terminal of the first power supply to the unconnected terminal of the active resistor to form a third junction,

(f) second means for connecting which joins the unconnected terminal of the second power supply to the unconnected terminal of the dummy resistor to form a fourth junction,

(g) third means for connecting which joins the first and second junctions, and

(h) fourth means for connecting which joins the third and fourth junctions to a means for measuring voltage, the means for measuring voltage being of the type which has an internal impedance substantially higher than resistance of the sum of the active resistor, dummy resistor and the fourth means for connecting to make the voltage reading of the means for measuring voltage substantially independent of the value of the sum of these resistances.

4,363,244

FLUID VELOCITY METER

Riadh H. A. Rabeh, Mitchel Hall, Cranfield Institute of Technology, Cranfield, Bedfordshire, and John Hemp, 5 Henson Close, Wharley End, Cranfield, Bedfordshire, both of England

Filed Nov. 7, 1980, Ser. No. 204,902

Claims priority, application United Kingdom, Nov. 8, 1979, 7938714

Int. Cl.³ G01F 1/64

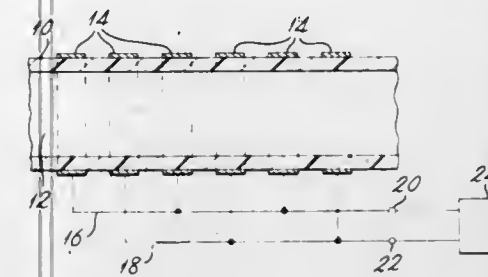
U.S. Cl. 73-861.08

8 Claims

1. A method of sensing the flow of a fluid comprises receiving a noise signal generated by the presence in the flowing fluid of field-generating parts; and determining the mean frequency of the received signal.

4. Apparatus for sensing the flow of a fluid comprises means for receiving a noise signal generated by the presence of field-

tube is positioned over the receptacle to immerse said tube in the liquid contained in said receptacle.



generating parts of the flowing fluid; and means for determining the mean frequency of the received signal.

4,363,245

SAMPLING APPARATUS

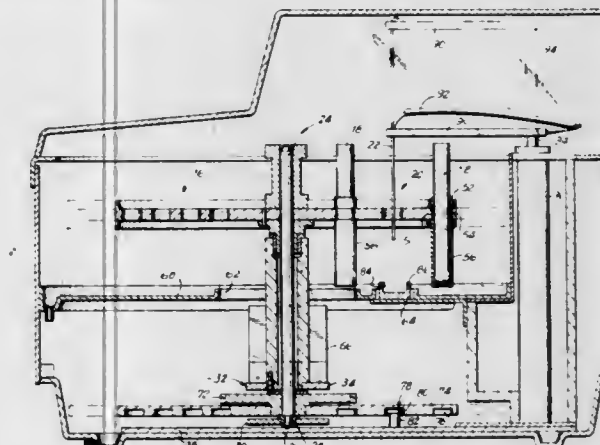
Carl J. Schmid, Port Washington, N.Y., assignor to Peerless Electronics Research Corp., Westbury, N.Y.

Filed Nov. 18, 1980, Ser. No. 207,908

Int. Cl.³ G01N 1/00

U.S. Cl. 73-864.22

14 Claims



8. Liquid sampling apparatus comprising a sampling station, a support arm pivotally mounted in said apparatus, a sample carrier disk rotatably mounted on said support arm for carrying a plurality of sample containers thereon arrayed in a generally spiral pattern about the pivot mounting of said disk, said spiral pattern being located on said disk to pass through said sampling station when rotation of the disk is coordinated with oscillation of said arm; a cam disk rotatably mounted on said support arm in spaced parallel relation to said carrier disk and operatively engaged with said carrier disk for simultaneous rotation therewith; said cam disk having a generally spirally shaped cam slot formed therein which is generally complementary to the spiral array of said containers; a cam follower engaged in said slot and located in a fixed position in said apparatus; means for intermittently rotating said disks on said arm whereby the arm is pivoted upon rotation of the disk as a result of engagement of said cam disk slot and follower thereby to successively move said containers through said sampling station; a receptacle for containing a wash liquid movably mounted in said apparatus for vertical movement between upper and lower positions adjacent said sampling station; and means for removing a sample of liquid from a sample container at said sampling station including a sampling tube, means for mounting said sampling tube adjacent said sampling station for both vertical and horizontal pivotal movement; means for moving said sampling tube vertically with respect to said sampling station between a lower position wherein the tube is inserted in a sample container at said station and a raised position above the sampling station, and means for pivoting said tube from said raised position over the sampling station to a position over said receptacle; and means for moving said receptacle between its lower position and its upper position

4,363,246

MULTI WORM-RACK APPARATUS

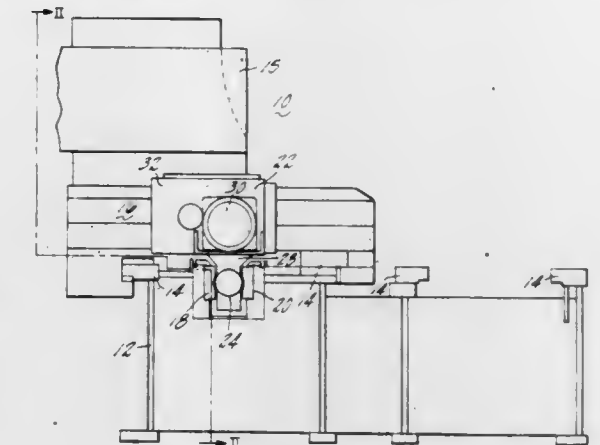
Richard S. Szewczyk, Rochester, N.Y., assignor to USM Corporation, Farmington, Conn.

Filed Sep. 12, 1980, Ser. No. 186,611

Int. Cl.³ F16H 29/20, 35/06

U.S. Cl. 74-89.14

2 Claims



1. Apparatus for moving a carriage on a machine comprising a driven worm, a pair of worm racks arranged at opposite sides of the worm and extending generally parallel to the axis of rotation of the worm, a drive assembly mounting the worm for rotation to cause relative movement of the carriage and the racks, and means including a pivotal connection with the carriage mounting the assembly for limited movement to permit a swingable diametrical self-centering action of the worm between the racks.

4,363,247

TRANSMISSION WITH A FIRST-STAGE HYDROSTATIC MODE AND TWO HYDROMECHANICAL STAGES

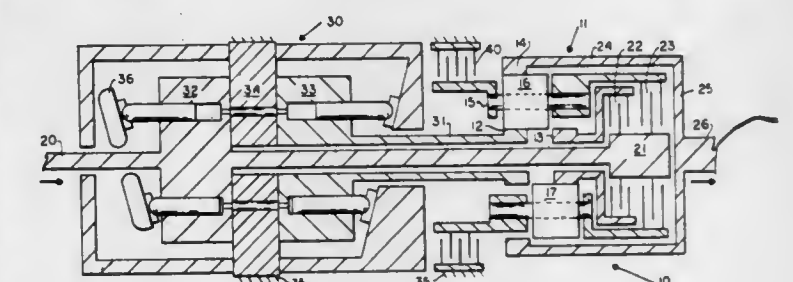
William E. Weseloh, San Diego, Calif., assignor to Orshansky Transmission Corporation, New York, N.Y.

Filed Nov. 19, 1979, Ser. No. 95,304

Int. Cl.³ F16H 47/04, 3/44

U.S. Cl. 74-687

7 Claims



1. A three-range power transmission with two shift points, comprising:

a stationary frame, input means, output means, a single Ravigneau-type planetary assembly having a single ring gear and a single carrier with first and second sets of planet gears intermeshed with each other, said first set of planet gears being in mesh with said ring gear, first and second sun gears, said first set of planet gears engaging with said first sun gear and said second set of planet gears engaging with said second sun gear, said ring gear being directly connected to said output means, a reversible speed-varying module at all times directly and

rigidly connected on one side to said input means and, on its other side, connected at all times directly and rigidly to said first sun gear, thereby connecting said input means to said first sun gear at all times,

braking means for releasably connecting said planetary assembly to said frame in a first, forward starting range and in a reverse range, whereby when said braking means is engaged, said output means is driven from said input means through said speed-varying module, said first sun gear and said first set of planet gears,

first releasable clutching means for synchronously connecting, at a first shift point, said second sun gear of said planetary assembly directly to said input means, in a second, forward intermediate range, with release of said braking means after engagement of said first clutching means,

second releasable clutching means synchronously connecting, at a second shift point, said carrier to said input means in a third forward high-speed range, with release of said first clutching means after engagement of said second clutching means.

4,363,248

TRANSMISSION DIFFERENTIAL GEAR

Roger Brisabois, Clamart, France, assignor to Regie Nationale des Usines Renault, Boulogne Billancourt, France

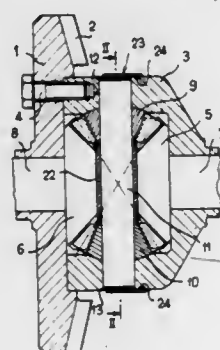
Filed May 16, 1980, Ser. No. 150,682

Claims priority, application France, May 18, 1979, 79 12723

Int. Cl.³ F16H 1/40, 1/38

U.S. Cl. 74-713

9 Claims



1. A transmission differential gear comprising a cage enclosing a pair of driven bevel sun gears and a plurality of bevel planet pinions for driving said sun gears, said planet pinions being rotatably mounted on at least one pin fitted through corresponding bores formed through the walls of said cage, wherein said pin is held in position by means of an annular member encircling said cage and closing partially the outer ends of said bores to permit visual inspection of said pin, said annular member retaining said at least one pin in said bores and permitting free rotation of said at least one pin.

4,363,249

SAFETY APPARATUS FOR VEHICLES HAVING AUTOMATIC TRANSMISSIONS

Jerald L. Stugart, P.O. Box 1447, Greeley, Colo. 80632

Filed Jun. 30, 1980, Ser. No. 164,252

Int. Cl.³ F02N 15/10; B60K 28/00; G08B 21/00

U.S. Cl. 74-850

8 Claims

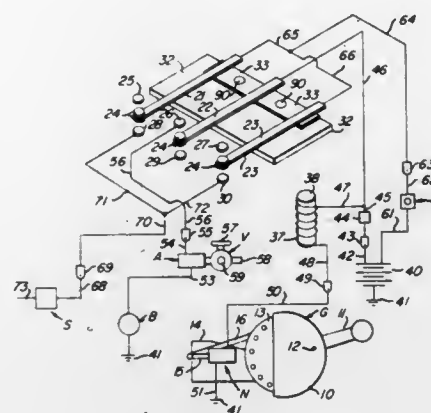
1. Safety apparatus for a truck or tractor having an engine, an automatic transmission, air brakes and alternative brakes which set when air brake pressure is reduced to a predetermined value, for producing a signal when such transmission is shifted away from neutral while the engine is running for an extended period of time and such alternative brakes are utilized for parking purposes, comprising:

a neutral safety switch which is moved to a closed position upon shifting of the automatic transmission to a neutral

position but moved to an open position when the automatic transmission is shifted to a drive position;

an air pressure responsive switch which is moved to a closed position when air brake pressure is reduced to said predetermined value;

means for producing a signal and connected in series with said air pressure responsive switch;



current supply means; and

means controlled by said neutral safety switch for causing current to be supplied to said air pressure switch and said signal producing means when said neutral safety switch is moved to an open position.

4,363,250

DEVICE FOR DRIVING SCREW, PIN, RIVET OR THE LIKE

Asakichi Suga, 20-7,3-chome, Chuo, Ota-ku, Tokyo, Japan

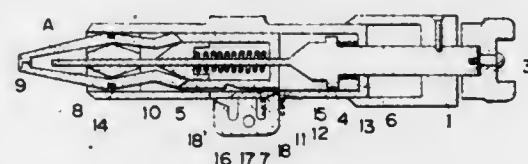
Filed Apr. 1, 1981, Ser. No. 250,028

Claims priority, application Japan, Apr. 4, 1980, 55-45628[U]

Int. Cl.³ B25B 23/10; B25C 3/00

U.S. Cl. 81-455

6 Claims



1. A device for driving a screw, pin, rivet or the like comprising

a stationary cylinder in the form of hollow cylinder;

a rotary cylinder to which a grip end cylinder is rotatably attached, said rotary cylinder being telescopically fitted on said stationary cylinder so that relative sliding and rotational movement are ensured therebetween;

a center rod with its one end secured to the rotary cylinder, having a flange-shaped collar at the middle part and a reduced diameter extension which is extended from said collar to the free end thereof;

a thrust sleeve axially displaceably arranged in front of the collar of the center rod in the stationary cylinder, said thrust sleeve being formed with an inner tapered part around its front edge and a locking recess in position on the outer surface thereof;

a conical headed press block axially displaceably arranged on the reduced diameter extension of the center rod in the thrust sleeve to move forwards by means of a spring means;

a nozzle consisting of a pair of upper and lower nozzle halves, each of which has an inclined rear part which is so formed as to come in engagement to the inner tapered part of the thrust sleeve at its outer side and to the conical headed part of the press block at its inner side;

a support block arranged on the fore part of the reduced diameter extension of the center rod to support the nozzle,

siad support block being formed with upper and lower axially extending grooves in which the upper and lower nozzle halves are received to perform swinging movement over the convexity in the grooves; and

a control lever in the form of twin lever arms having tapered ends and being pivotally arranged on the stationary cylinder, one of the lever arms extending through an aperture on the stationary cylinder to the thrust sleeve to displace the same forwards by means of its tapered end, while the other lever arm extending through another aperture on the stationary cylinder into said recess formed on the thrust sleeve to lock the same by means of its tapered end.

4,363,252

MULTIPLE BLADE CIRCULAR SAWING MACHINE

Karl Volk, Freiburg, Fed. Rep. of Germany, assignor to Interholz Technik GmbH, Fed. Rep. of Germany

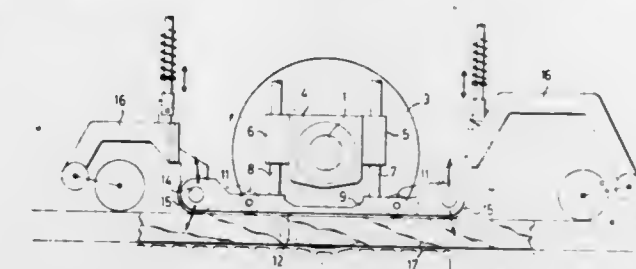
Filed Mar. 19, 1981, Ser. No. 245,695

Claims priority, application Fed. Rep. of Germany, Mar. 27, 1980, 3011926

Int. Cl.³ B27B 5/04

U.S. Cl. 83-422

7 Claims



1. A multiple blade circular saw machine comprising

(a) conveyor means for continuously advancing a workpiece in a given direction;

(b) a driving shaft extending transversely to the advancing direction, above the conveyor means;

(c) at least two circular saw blades coaxially mounted on the driving shaft at spaced-apart positions, the saw blades rotating with the shaft;

(d) at least two elongate depresser members extending parallel to the advancing direction, between the driving shaft and the conveyor means, each depresser member having a longitudinal slot through which a respective one of the saw blades extends, at least one presser roller being mounted on the depresser member upstream of the shaft with respect to the advancing direction, and at least one presser roller being mounted on the depresser member downstream of the shaft, the presser rollers extending beneath the depresser member adjacent the respective saw blade so as to press the workpiece against the conveyor means; and

(e) at least one displacer head defining the location of a respective one of the saw blades along the shaft, the displacer head being movable along the shaft together with the respective saw blade and being fixable at a given position, the respective depresser member being mounted on the respective displacer head.

4,363,251

METHOD AND APPARATUS FOR CUTTING BREAD

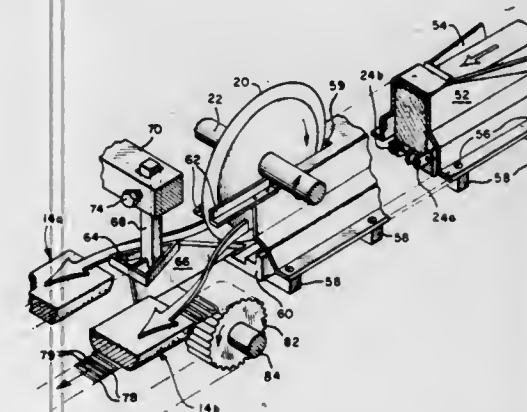
John L. Carlson, Duluth, Minn., assignor to Jeno's Inc., Duluth, Minn.

Filed Jul. 3, 1980, Ser. No. 165,779

Int. Cl.³ B26D 3/30

U.S. Cl. 83-105

5 Claims



1. An apparatus for cutting a loaf of bread, comprising:

(a) a circular cutting blade mounted on an axis for rotation in a substantially vertical plane;

(b) a first conveying means for conveying the loaf of bread from upstream of said cutting blade to downstream of said blade in a direction substantially perpendicular to said axis;

(c) a channel upstream of said blade and extending into cooperating relationship with said blade for guiding the loaf of bread as it is conveyed to said cutting blade whereby the one piece loaf is cut through vertically on its centerline into only two pieces of bread by said cutting blade;

(d) said channel confining the outer periphery of said loaf while said cutting blade cuts it into two pieces and enclosing the major portion of said blade below said shaft;

(e) a second conveying means extending in the same direction as said first conveying means for receiving said two pieces and conveying them downstream of said blade away from said blade; and

(f) bread piece displacement means downstream of said blade;

(g) said bread piece displacement means including means which engage the upper portion of each of said pieces of bread and cause the pieces of bread to separate and drop downwardly onto said second conveying means with the cut face of each piece of bread facing upwardly.

4,363,253

AUTOMATIC HOLLOW PUNCH RESEARCH DEVICE AND RELEVANT CONTROL, FOR DIE-CUTTING MACHINES, PARTICULARLY FOR FOOTWEAR PRODUCTION

Emiliano Cantella, Vigevano, Italy, assignor to Atom S.p.A., Vigevano, Italy

Filed Apr. 14, 1980, Ser. No. 140,087

Claims priority, application Italy, Apr. 27, 1979, 22220 A/79

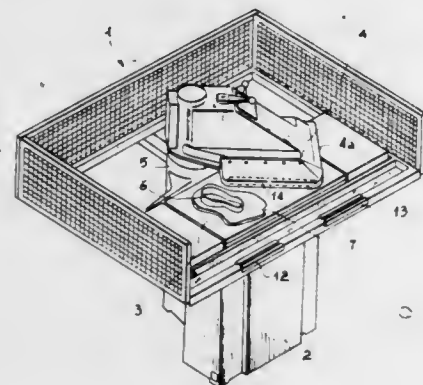
Int. Cl.³ B26F 1/40

U.S. Cl. 83-537

3 Claims

1. In combination, a die cutting machine particularly for cutting materials for footwear, said machine comprising a fixed faceplate on which the material to be cut is placed and a mobile head mounted for motion in a horizontal plane above substantially the entire surface area of said faceplate, said machine being of the type that uses separate hollow punches positioned by the operator on the material to be cut on said faceplate, means to cause said mobile head to move downwardly and upwardly towards and away from said faceplate, whereby said head will press a hollow punch through said material to cut said material when a hollow punch is located between said head and said material when said head makes a downward stroke, an element mounted on said mobile head for sensing a hollow punch therebelow as said head is moved in said horizontal plane, circuit means including said sensitive element for

controlling the horizontal and vertical motion of said head, and manual starting means for starting operation of said machine, said circuit means comprising means adapted to cause said head to move in a continuous and automatic cycle of operation wherein said head starts from a rest position, moves in a said horizontal plane until said sensitive element senses a hollow punch, stops the motion of said head in said horizontal plane after said head passes over said sensed hollow punch, causes said head to move down and then back up to said horizontal plane in a vertical cutting stroke, and then returns said head to said rest position, said sensitive element comprising an inductive surface switch arranged in bar form, means to mount said inductive bar switch on said head in such a way that said switch will sweep over substantially the entire surface of said faceplate as said head is moved in said horizontal plane during said cycle of operation, said circuit means comprising a pair of condensers, said sensitive element generating a signal from the time it first senses a said hollow punch until the time it passes over a said hollow punch, one of said condensers being of relatively large capacity, and the other of said condensers being of relatively small capacity, both of said condensers



being arranged in parallel circuits within said circuit means and arranged so that either one, upon discharging, will operate means to cause said head to cease its motion in said horizontal plane and to commence its motion in said vertical cutting stroke, and means to adjust the capacity of said condenser of relatively small capacity, whereby said large capacity capacitor will not discharge until said head has completely passed over punches of normal to larger than normal size, and whereby said adjusted capacity of said capacitor of relatively smaller capacity will cause stoppage of motion in the horizontal plane and initiation of a vertical cutting stroke when said sensitive element senses a punch of relatively small size, said machine comprising a vertically disposed upright on which said mobile head is mounted, means to cause said head to rotate about the axis of said vertically disposed upright, said sensitive element comprising inductive switch means mounted on the leading edge of said head as it rotates over said faceplate, and said circuit means comprising means to stop the rotation of said head over said faceplate only after said inductive switch means has passed over a said hollow punch on the material to be cut on said faceplate.

4,363,254

HORIZONTAL BANDSAW MACHINE

Tsuneo Aizawa, and Kenji Onishi, both of Isehara, Japan, assignors to Amada Company, Limited, Japan

Filed Dec. 29, 1980, Ser. No. 221,358

Claims priority, application Japan, Dec. 28, 1979, 54-170418

Int. Cl.³ B23D 55/08; B27B 13/10

U.S. Cl. 83—800

1 Claim

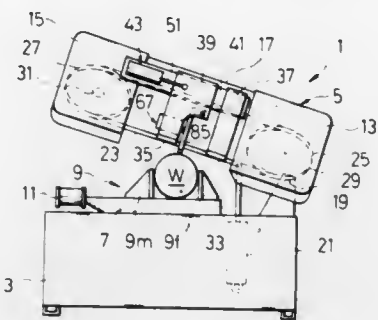
1. In a horizontal bandsaw machine, having a base means for supporting a workpiece to be cut at a cutting zone and a head assembly mounted for movement relative thereto, said head assembly comprising:

an endless bandsaw supported for movement at the head assembly;

a pair of means for guiding the endless bandsaw at the cutting zone;

means for carrying at least one of the pair of guiding means adjustably on the head assembly;

means, mounted on the head assembly, for detecting changes in the cross-sectional length of the workpiece to be cut at the cutting zone; and



means, controlled by the detecting means, for driving at least one of the carrying means;

whereby at least one of the pair of guiding means is automatically moved in conformance with detected changes in the cross-sectional length of the workpiece to be cut at the cutting zone.

4,363,255

PIANO ACTION MAGNETIC TAPE RECORDING PROCESS AND APPARATUS FOR PLAYER PIANO PLAYBACK

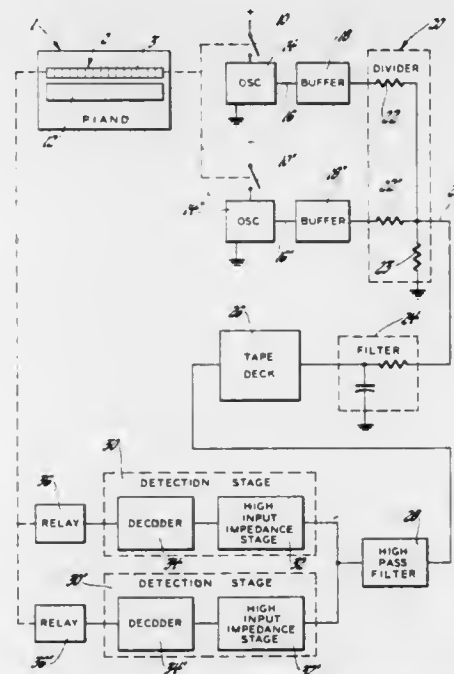
Gary T. Brush, Sault Ste. Marie, Ontario, Canada (P6A 4J9) assignor to Sounds Aline Systems, Inc. Houston Lake, Mich.

Filed May 7, 1980, Ser. No. 147,489

Int. Cl.³ G10F 1/00

U.S. Cl. 84—1.03

11 Claims



1. A process for recording electric signals corresponding to a unique operation sequence of a set of keys that each have first and second positions comprising, in combination, the steps of generating a discrete frequency AC signal as each of said keys is switched from said first position to said second position; algebraically adding said AC signals; filtering the sum of said algebraic addition through a low pass filter so as to generate a filtered signal in which the energy level components of each AC signal are equal; and recording said filtered signal in a recording medium.

7. Apparatus for indicating operational sequence of a set of keys from a prerecorded signal in which operation of each of said keys between a first position and a second position is represented by an AC signal having a predetermined energy

level and a unique frequency, the energy levels of said AC signals being substantially equal, comprising, in combination, a high pass filter responsive to said prerecorded signal for generating a filtered signal that is the algebraic sum of each and energy AC signal component in said prerecorded signal; a plurality of frequency responsive detectors that are each responsive to one of said AC signal frequencies, said filter being connected to each of said detectors so as to enable each of said detectors to monitor said filtered signal; and a plurality of indicators that are each responsive to one of said detectors for indicating when one of said AC signals is detected by one of said detectors whereby operation of said keys between said first position and said second position is indicated.

4,363,256

EASY FRET

Robert L. Smith, 1037 East Beddell St., Ft. Worth, Tex. 76115

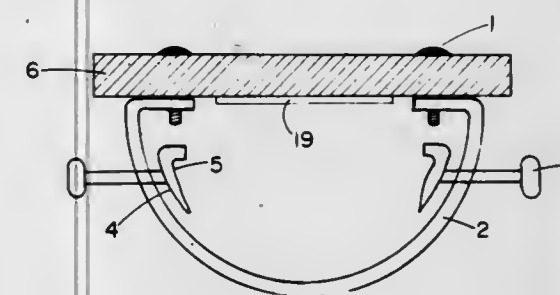
Continuation-in-part of Ser. No. 960,955, Nov. 15, 1978,

abandoned. This application Mar. 6, 1980, Ser. No. 127,588

Int. Cl.³ G10D 3/08

U.S. Cl. 84—317

4 Claims



1. A manual, mechanical fretting device for fretted, stringed musical instruments, comprising:

a brace having a plurality of apertures formed therethrough; means for adjustably clamping said brace to the neck of said stringed instrument, said clamping means holding said brace a fixed distance above the strings of said instruments;

a plurality of fretting means, each of said fretting means including a string deflecting element located below said brace and above said string, a pressure panel located above said brace, at least one bolt connecting said deflecting element and said pressure panel, said bolt passing through one of said apertures, and means for biasing said panel, bolt, and element upwardly away from said string; and

leverage means for facilitating depression of said pressure panels, said leverage means comprising: a stationary frame fixedly connected to said brace, a pair of fulcrum bars fixed to said frame, a pressure bar fixed to the end of said frame remote from said brace, and a plurality of pairs of leverage bars, each of said pair of leverage bars having one leverage bar fulcrumed on one of said fulcrum bars and the other leverage bar fulcrumed on the other of said fulcrum bars, an expandable joint connecting the ends of said leverage bars between said fulcrum bars, the unjointed end of said one leverage bar being located above said pressure bar and the unjointed end of said other leverage bar being located above said pressure panel, whereby manual pressure on said unjointed end of said one leverage bar will cause the unjointed end of said other leverage bar to depress its associated pressure panel, thereby fretting the stringed instrument.

4,363,257

STRIKEDOWN SERVICE MECHANISM FOR A VERTICAL LAUNCHING SYSTEM

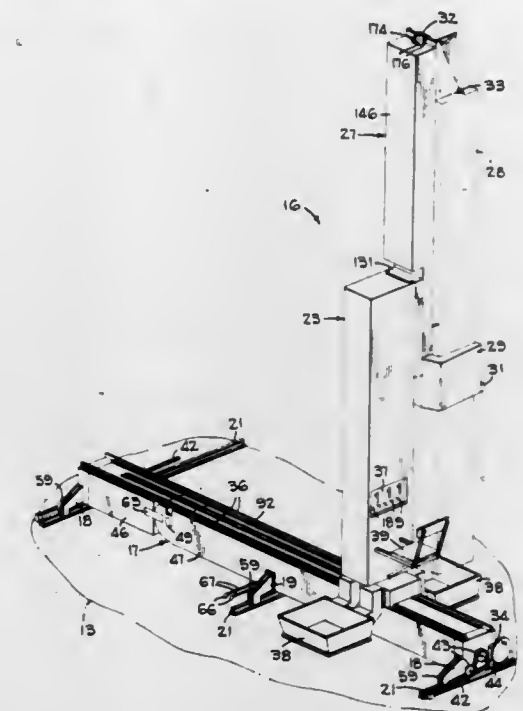
Robert M. Harris, New Hope, and Edward R. Betzold, Golden Valley, both of Minn., assignors to FMC Corporation, Chicago, Ill.

Filed May 28, 1980, Ser. No. 153,995

Int. Cl.³ F41F 3/04, 9/00

U.S. Cl. 89—1.802

27 Claims



14. A service mechanism for a vertical missile launching system having an array of missile canister housings wherein tracks are laid out on a surface adjacent the array of housings and a power receptacle is accessible on the surface, comprising a base including means adapted to engage the tracks so that said base may be moved over the surface on the tracks, a carriage supported on said base for movement therealong in a direction angularly disposed from the direction of the tracks, an upper portion on said carriage being movable in azimuth with respect to a lower portion, a cradle movably mounted on said carriage upper portion adapted to engage and transport a missile canister between a receiving position and one of the canister housings, and means coupled to the power receptacle for moving said carriage and cradle to effect transport of the canisters, said base, carriage and cradle being selectively movable relative to each other and the array to assume a stowed configuration.

4,363,258

HYDRAULIC IMPACTOR

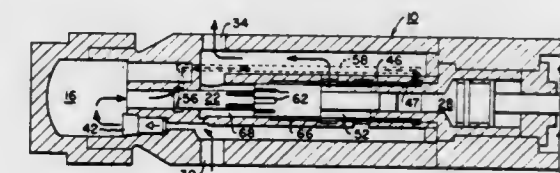
John Duff, Corbeil, Canada, assignor to Joy Manufacturing Company, Pittsburgh, Pa.

Filed Apr. 17, 1980, Ser. No. 141,023

Int. Cl.³ F01L 17/00, 25/04

U.S. Cl. 91—165

7 Claims



1. A hydraulic impactor comprising:

a cylinder,

a hydraulic accumulator at one end of said cylinder,

a differential area piston reciprocable within said cylinder, said piston having a large diameter central portion and

reduced-diameter shank portions extending axially from its opposite sides,
 said piston large diameter central portion having a first annular face at one end and a second annular face at the other end with said second annular face being disposed closer to said hydraulic accumulator than is said first annular face,
 a first one of said shank portions being adapted to impart an impact to an anvil element,
 a second of said shank portions being adapted to slide into said hydraulic accumulator to compress a fluid therein,
 a sleeve valve surrounding said piston and reciprocable along the axis of said cylinder,
 means responsive to movement of said piston to a position where it is farthest removed from said accumulator for moving said sleeve valve to a position where it connects a source of liquid under pressure to said first annular face of said large diameter piston portion,
 means responsive to movement of said piston to a position where it is closest to said accumulator for moving said sleeve valve to a position where it connects said first annular face of said large diameter piston portion to a hydraulic reservoir,
 means for causing said liquid under pressure to act on the total area of said first annular face of said large diameter piston portion and said first shank portion during movement of said piston toward said accumulator and said second shank portion being reciprocable within a cylindrical bore and having an area less than that of the combined areas of said first annular face of said large diameter piston portion and first shank portion.

4,363,259

BRAKE BOOSTER

Atsushi Ohmi, Anjo, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Japan

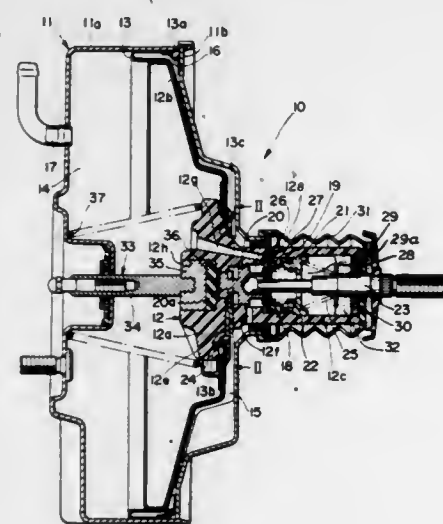
Filed Apr. 4, 1980, Ser. No. 137,815

Claims priority, application Japan, May 15, 1979, 54-59251

Int. Cl.³ F15B 9/08

U.S. Cl. 91-422

1 Claim



1. A brake booster comprising:
 a housing,
 an annular diaphragm having its outer periphery sealingly attached to said housing,
 power piston means axially movable within said housing and including a cylindrical hollow shaft, said annular diaphragm having its inner periphery sealingly attached to said power piston,
 a valve mechanism mounted in said cylindrical hollow shaft and including valve means located in axial alignment with a manually operable push rod,
 a key inserted in a slot of said power piston means to engage said valve means, and
 a plurality of radially directed, elongated projections circumferentially spaced about and proximate to the inner

periphery of said diaphragm, said projections being integrally formed on the surface of said diaphragm adjacent said housing and disposed to contact said housing to limit axial movement of said diaphragm in one direction, the distance between the adjacent projections being less than the width of said key such that the inner peripheral ends of at least two of said projections hold said key in position.

4,363,260

AIR CYLINDER

Yoshitaka Sakai, Nagoya, Japan, assignor to Sakai Manufacturing Co., Ltd., Nagoya, Japan

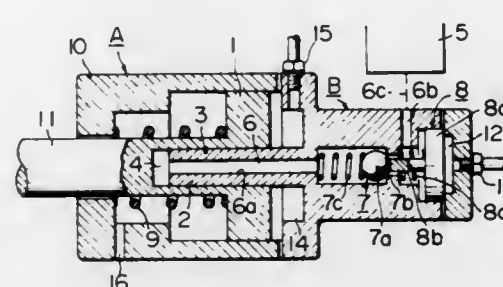
Filed Feb. 13, 1981, Ser. No. 234,181

Claims priority, application Japan, Mar. 19, 1980, 55-36622[U]

Int. Cl.³ F15B 15/26

U.S. Cl. 92-13

1 Claim



1. An air cylinder comprising:
 an air cylinder member of an automatic return type including a piston slidably fitted therein and biased by a return spring, said piston being formed in the center of one end thereof with a hydraulic cylinder chamber;
 a hydraulic cylinder member including a hydraulic fixed piston snugly fitted in said hydraulic cylinder chamber to allow said piston of said air cylinder of the automatic return type to move freely in sliding movement relative to said hydraulic fixed piston;
 an oil chamber defined between the end of said hydraulic fixed piston and the end of said hydraulic cylinder chamber;
 a check valve automatically opening in response to movement of said slidably fitted piston in one direction and mounted in a communicating passageway connecting said oil chamber with an oil tank; and
 pressing means for opening said check valve as desired.

4,363,261

CYLINDER ASSEMBLY AND METHOD OF REPLACING SEALS AND BEARINGS

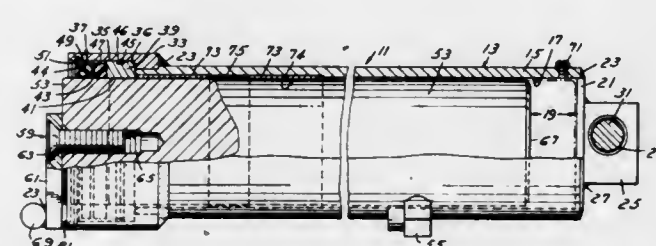
Mehar K. Mehta, Miami Springs, Fla., assignor to Equipment Company of America, Hialeah, Fla.

Filed Sep. 10, 1980, Ser. No. 185,847

Int. Cl.³ F15B 15/24; F16J 15/18; F01B 29/00

U.S. Cl. 92-128

16 Claims



1. A cylinder assembly comprising a cylinder open at one end and closed at the other end and having a bore and a bore extension therein;
 a head secured upon said cylinder open end;
 a gland assembly nested, sealed and retained within said head;

said gland assembly including a rod seal and rod wiper;
 a piston rod reciprocally and guidably mounted within said cylinder bore and cooperatively extending through said seal and wiper;
 said piston rod having a length less than the length of said head and cylinder;
 and a thrust angle stop assembly mounted upon and secured to said piston rod and engageable with said head when said piston rod is manually retracted;
 said thrust angle stop assembly being removable from said piston rod;
 said piston rod being manually retractible into said bore extension and clearing said rod wiper and seal to facilitate removal and replacement of said wiper and seal.

4,363,262

APPARATUS FOR STORAGE AND DISPENSING COFFEE

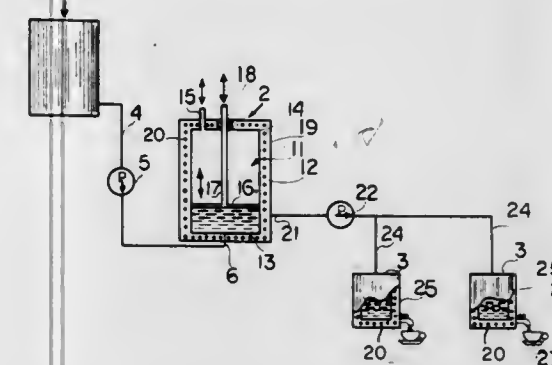
Marion E. Pinckley, 801 E. Jefferson St., Louisville, Ky. 40206, and William G. Carlin, 1617 Speed Ave., Louisville, Ky. 40205

Filed Oct. 17, 1980, Ser. No. 198,170

Int. Cl.³ A47J 31/00

U.S. Cl. 99-290

13 Claims



8. A coffee dispensing system, which comprises in combination:
 A. a coffee brewing station;
 B. a coffee storage receptacle in the form of a closed container and having a movable liquid-gas separation member mounted therein;
 C. a coffee dispensing station;
 D. conduit for transporting coffee from said coffee station to said coffee storage receptacle;
 E. conduit for transporting coffee from the bottom of said storage receptacle to said coffee dispensing stations;
 F. said liquid-gas separation member being floatingly disposed on the top of the level of brewed coffee in said container and vertically movable with the level of brewed coffee therein; and
 G. vent means being located in the top of said container for the passage of air into and out of said storage receptacle upon the introduction and withdrawing of coffee therefrom.

4,363,263

EFFICIENT HIGH HUMIDITY FOOD PROCESSING SYSTEM WITH SANITIZING IMPROVEMENTS

Charles E. Williams, Moorefield, W. Va., assignor to Hester Industries, Inc., Moorefield, W. Va.

Filed Jul. 26, 1979, Ser. No. 60,988

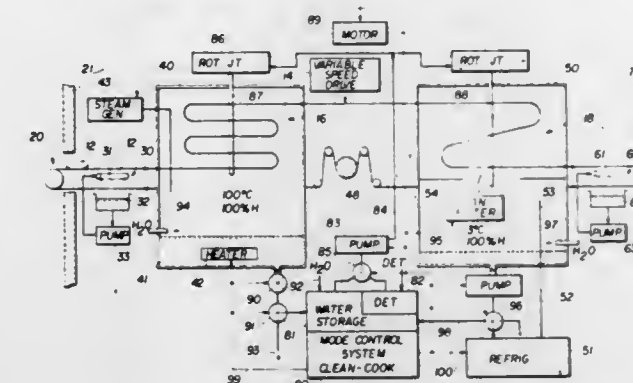
Int. Cl.³ A47J 37/00

U.S. Cl. 99-352

11 Claims

1. A food processing system for heating and chilling unpackaged food products such as fish, meat, poultry and produce passing in sequence on a common conveyor belt through heating and chilling stations, comprising in combination,
 a continuously running single conveyor belt passing com-

monly through food loading, cooking, chilling and unloading stations,
 a heating chamber having a heating spiral conveyor belt path therethrough for carrying said unpackaged food products loaded at said loading station,
 a chilling chamber separately disposed from said heating chamber having a cooling spiral conveyor belt path therethrough for carrying said unpackaged food products on said belt heated in said heating chamber to present chilled food products at said unloading station,
 steam heat means for heating said products on said heating spiral with water carried solely in gaseous form in a steam



bath at a temperature approaching 100° C. and a humidity approaching 100% without loss of moisture and food essences in said unpackaged food products and,
 a mechanically operable sanitizing system for said heating and chilling chambers including means for pumping and spraying detergent solutions inside the chambers over the spiral pathway of the conveyor belt therethrough wherein the mechanically operable sanitizing system includes rotatable spray nozzle means extending within the spiral belt paths respectively inside the heating and chilling chambers to rotate and scan the spray about the insides of the chambers, and means operating both the rotatable spray means in a cleaning mode simultaneously.

4,363,264

COUNTER CURRENT DIFFUSION EXTRACTOR

Timothy R. Lang, Pymble, and Donald J. Casimir, Killara, both of Australia, assignors to Howden Equipment Services Pty. Ltd., Sydney and Commonwealth Scientific and Industrial Research Organisation, Campbell, both of Australia

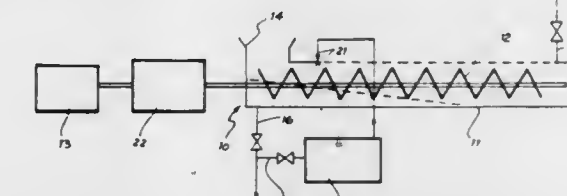
Filed Sep. 29, 1980, Ser. No. 192,130

Claims priority, application Australia, Feb. 15, 1980, PE2383; Jul. 7, 1980, PE4410

Int. Cl.³ A23N 1/00

U.S. Cl. 99-510

8 Claims



1. A counter current extractor comprising: an elongate housing in the form of a trough or tube and having an inlet at or adjacent one end and an outlet at or adjacent the other end, the longitudinal axis of the housing being inclined upwardly from the one end to the other end, a screw conveyor having at least one substantially helical flight disposed within the housing and rotatable about its longitudinal axis for moving material to be extracted, which has been introduced into the housing through the inlet, from the said one end to the said other end of the housing, means for introducing an extracting liquid into the

said other end of the housing in a manner such that introduced fluid will flow down the housing to the one end thereof and in counter current with the material being extracted, drive means for causing the screw conveyor to rotate and for causing the direction of rotation of the screw conveyor to be intermittently reversed while providing a net forward motion of material to be extracted from the one end to the other end, and means being provided for withdrawing extracting liquid from the housing at a point at or adjacent the one end thereof, for heating the withdrawn liquid, and for returning the heated liquid into the housing such that the returned heated liquid will contact the material being extracted.

4,363,265

ADJUSTABLE PULP OUTLET FOR JUICE EXTRACTOR
Susumu Tanioka, Yokohama; Akiyoshi Sasaki, Tokyo, and Shoji Hoshino, Sagami-hara, all of Japan, assignors to Tokyo Electric Co., Ltd., Tokyo, Japan

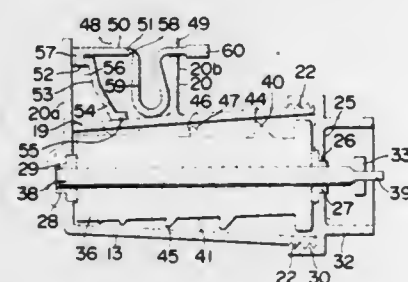
Filed May 28, 1981, Ser. No. 268,004

Claims priority, application Japan, May 31, 1980, 55-75282[U]; May 31, 1980, 55-75283[U]

Int. Cl.³ A23N 1/02

U.S. Cl. 99—510

7 Claims



1. An apparatus for separating liquid and residual matter from a material comprising a case having upper, lower and lateral sides and opposite end walls and having a bore with an inner peripheral surface, said case being provided on the upper side with a material inlet opening communicating with said bore, with a juice outlet opening on the lower side having a filter and communicating with said bore, and with a residual matter outlet opening formed on one lateral side and communicating with said bore, a rotary member rotatably mounted in said bore and having a spiral cutting blade portion for cutting material to be processed which is inserted into the bore through the material inlet opening and a pressing portion continuing from said cutting blade portion for pressing the material to be processed, said rotary member feeding said material to be processed toward an end of the bore while cutting and pressing the material to be processed, an adjusting open and close member which is arranged on the outside of the bore adjacent the residual matter outlet opening and movable between one position wherein it effects substantial closure of said residual matter outlet opening and another position wherein it effects opening of said residual matter outlet opening, said member defining an exit opening smaller in area than said residual matter outlet opening through which residual matter can flow when said member is in its one position, and biasing means operatively connected to said member to bias said member toward said one position, said member being urged by pressure of residual matter discharged from said residual matter outlet opening to effect opening of the residual matter outlet opening.

4,363,266

MACHINE FOR SLICING UNPEELED APPLES INTO RINGS

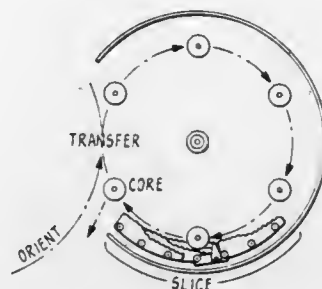
Oldrich J. Tichy, Concord, and Iraj Teranchi, Glen Ellen, both of Calif., assignors to Atlas Pacific Engineering Company, Emeryville, Calif.

Filed Oct. 7, 1980, Ser. No. 194,777

Int. Cl.³ A23N 3/00, 4/14

U.S. Cl. 99—545

6 Claims



1. A machine for cutting an apple into annular segments including a conveyor for moving an unpeeled apple continuously along a path past a cutting station, means for continuously rotating each apple on the conveyor about its major axis, a plurality of flat fixed knives spaced along the path at the cutting station for cutting the apple transversely to its major axis into segments and means for coring the apple to release the several annular segments.

4,363,267

VERTICAL BALER WITH IMPROVED SAFETY GATE AND DOOR LATCH SYSTEM

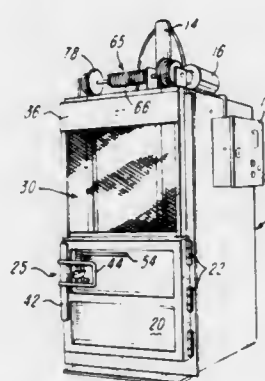
Charles H. Greer, Piqua, Ohio, assignor to Piqua Engineering, Inc., Piqua, Ohio

Filed Dec. 29, 1980, Ser. No. 220,900

Int. Cl.³ B30B 15/00

U.S. Cl. 100—255

7 Claims



1. In a baler adapted for compacting scrap material and including a vertical housing having opposite side walls connected by a rear wall and a top wall and defining a compacting chamber having a front opening, a door member supported for pivotal movement between an open position and a closed position covering a lower portion of said front opening, latch means for securing said door member in said closed position, a gate member supported for movement between a retracted position providing for adding successive batches of material over said door member and a closed position covering an upper portion of said front opening, a power operated generally horizontal platen movable vertically within said chamber between a retracted upper position and a lower position for compacting the material within said chamber into a bale, the improvement wherein said latch means comprise a first latch member including a handle portion, pivot means connecting said first latch member to said housing adjacent one of said side walls and providing for moving said first latch member be-

tween a released position for opening said door member and a clamped position where said first latch member clamps said door member to said housing, a lever actuated member supported by said door member for rotation on an axis extending substantially parallel to said door member, a second latch member connected to said lever actuated member for pivotal movement eccentric to said axis of rotation, and said second latch member being movable between an outer released position engageable with said first latch member and a retracted locked position locking said first latch member in said clamped position in response to rotation of said lever actuated member.

4,363,268

DRUM TYPE BAR CODE LINE PRINTER

Yo Sato, Tokyo, and Tooru Shibayama, Sagami-hara, both of Japan, assignors to Kabushiki Kaisha Sato, Japan

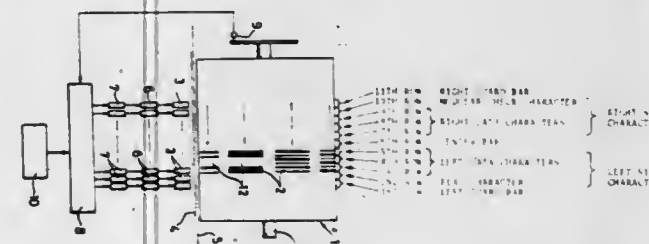
Filed Jul. 17, 1980, Ser. No. 169,750

Claims priority, application Japan, Jul. 19, 1979, 54-90920

Int. Cl.³ B41J 5/00

U.S. Cl. 101—110

11 Claims



1. A drum type bar code printer, comprising:
a drum which is rotatable about the axis thereof;
imprintable bar code types arranged in circumferential rows around the drum; the rows being arrayed along the axial direction of the drum; the drum having a plurality of axial lines, and the bar code types in all of the rows being arrayed on respective ones of the lines;
each bar code type having opposite ends along the axial direction of the drum; each bar code type being comprised of a plurality of modules in series along the axial direction of the drum; each bar code type being comprised of an imprintable black bar portion occupying a first respective plurality of the modules of that type and a non-printable portion occupying a second respective plurality of the modules of that type, with these black bar and non-printable portions of each bar code type being arranged next to each other along the axial direction of the drum;
the bar code types in any of the lines thereof being arranged so that a non-imprintable area is defined, between two of the bar code types, the area essentially corresponding in width along the axial direction of the drum to a first predetermined number of modules of a bar code type, and the area being adjacent to that end of each of the bar code types in that line where any of the first plurality of modules is within a second predetermined number of modules from that end of that type.

4,363,269

INDEX WHEEL FOR PRINTING DEVICE

Yo Sato, Tokyo, Japan, assignor to Kabushiki Kaisha Sato, Japan

Filed Mar. 30, 1981, Ser. No. 248,691

Claims priority, application Japan, Apr. 2, 1980, 55-43200[U]

Int. Cl.³ B41J 1/32

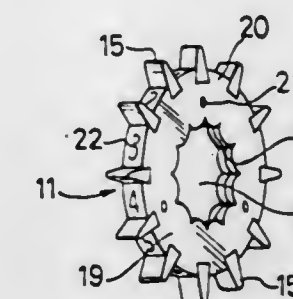
U.S. Cl. 101—110

15 Claims

1. An index wheel for a printing device, wherein the printing device comprises:

a type wheel; means mounting the type wheel for rotation about the axis thereof; the type wheel having a first outer circumference; a plurality of type bearing first lands defined on the first outer circumference of the type wheel; a plurality of grooves defined in the first outer circumfer-

ence, with a groove being formed between adjacent ones of the first lands;
the printing device further comprising the index wheel; means mounting the index wheel for rotation about its axis, and the index wheel axis being different than the type wheel axis; the index wheel being engageable with the type wheel for rotationally driving the type wheel;
the index wheel comprising:
a toothed wheel member having a body with a second outer circumference; a plurality of teeth being defined on a second outer circumference, and the teeth being circumferentially spaced apart such that each tooth is engageable with a groove of the type wheel; each tooth extending out from a root at the second outer circumference;



a printed wheel member including a body and a plurality of second lands for defining a third outer circumference of the printed wheel member body; the second lands being circumferentially spaced by the distance of the roots of adjacent teeth on the tooth wheel member;
index characters borne on the second lands, the index characters being printed on the second lands; and
retaining means for retaining the toothed wheel member and the printed wheel member in side-by-side relationship for defining the entire index wheel, and such that the second lands are fitted into the spaces between the teeth of the toothed wheel member.

4,363,270

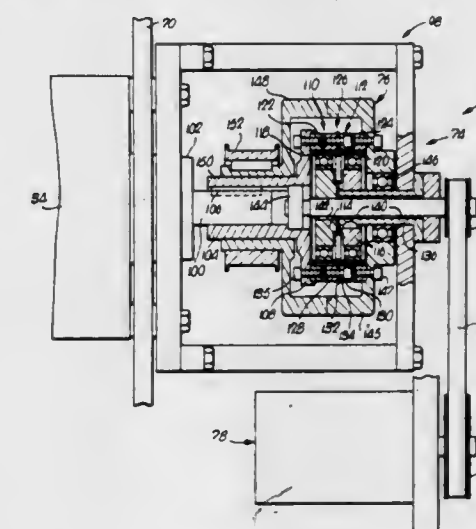
HARMONIC PHASING DEVICE FOR PRINTING PRESS
Frank Ury, Olpe; Howard L. Prophet, and Carlton A. Bird, both of Emporia, all of Kans., assignors to Didde Graphic Systems Corporation, Emporia, Kans.

Filed Sep. 24, 1980, Ser. No. 190,272

Int. Cl.³ B41F 5/06, 13/14

U.S. Cl. 101—180

8 Claims



1. A web-handling station, comprising:
a pair of elongated, axially rotatable rollers;
first motive means for rotation of said rollers;
transmission and phasing apparatus for coupling said first motive means and said rollers, and for selectively changing the phase of at least one of said rollers, including

a 1:1 gear ratio phasing device having first and second, rotatable, coaxial, juxtaposed harmonic drive gears each including an elliptical wave generator, a flexible, toothed, rotatable spline disposed about said wave generator, and a first-rigid, rotatable toothed spline about said flexible spline and for engagement therewith;

a second, rigid rotatable spline bridging said first and second harmonic gears and disposed for simultaneous meshing engagement with the flexible spline of each harmonic gear;

selectively operable second motive means; and

means coupling said second motive means and the wave generator of one of said harmonic gears for rotation of the coupled wave generator to effect said phase change upon operation of said second motive means, including means for selectively and intermittently operating said second motive means only in response to the need to effect said phase change, and for maintaining said coupled wave generator stationary during normal rotation of said rollers;

drive input structure operatively coupling said first motive means and the first spline of one of said harmonic gears; and

drive output structure operatively coupling said one roller and the first spline of the other of said harmonic gears, including first and second gears respectively secured to said rollers, said first and second gears being in meshed, driving engagement and having a gearing ratio for driving said rollers at the same surface speed.

4,363,271

PATTERN REGISTRATION CONTROL BARS

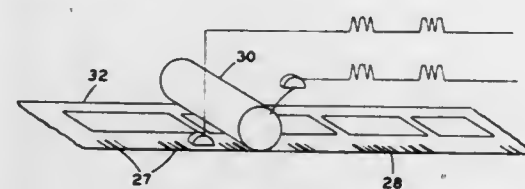
Robert L. Horst, Lancaster, Pa., assignor to Armstrong World Industries, Inc., Lancaster, Pa.

Continuation-in-part of Ser. No. 40,033, May 17, 1979, abandoned. This application Sep. 2, 1980, Ser. No. 183,004

Int. Cl.³ B41F 13/24

U.S. Cl. 101—181

1 Claim



1. An apparatus for controlling the register between a pattern about to be placed upon a web of material and a pattern which is already existing on the web of material, the pattern which is to be placed upon the web of material to be placed thereon in register with the preexisting pattern comprising:

(a) a means for moving a web of material,

(b) a preexisting pattern with a registration marking on the web of material and a new pattern with the same registration marking on a rotary means for applying the new pattern in registration with the preexisting pattern,

(c) a scanner means for scanning the registration markings,

(d) said registration markings being a variable bar mark composed of a plurality of variable width parallel bars of variable spacing between the bars,

(e) said variable bar mark being provided at least at the beginning of the preexisting pattern and the new pattern, with both patterns being of the same repeat length and the mark being set forth in arrangement only once on the periphery of the rotary pattern applying means such that there can only be match-up in the registration marks when the pattern to be placed on the web of material and the preexisting pattern are in exact registration, and

(f) means connecting the scanning means and the means moving the web so that the registration markings sensed may affect the means moving the web for controlling register.

4,363,272

DEVICE FOR AN ELECTRIC IGNITER

Björn Simmons, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden

Division of Ser. No. 895,406, Apr. 10, 1978, Pat. No. 4,239,005.

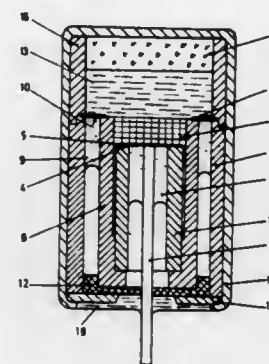
This application Dec. 7, 1979, Ser. No. 101,400

Claims priority, application Sweden, Apr. 19, 1977, 7704436

Int. Cl.³ F42C 11/00

U.S. Cl. 102—202.13

9 Claims



1. Electric ignition apparatus for igniting a pyrotechnical ignition charge at particular time delays after a triggering voltage is applied, comprising:

at least one pyrotechnical delay charge for burning at a particular rate after being ignited and having dimensions defining a particular time delay;

ignition means for igniting said pyrotechnical delay charge in response to an applied voltage at least equal to a first triggering voltage level, said delay charge burning to ignite said pyrotechnical ignition charge in a delayed manner, and for igniting both said pyrotechnical ignition charge and said pyrotechnical delay charge in response to an applied voltage at least equal to a second triggering voltage level, said ignition means comprising:

a first unit of electrically conductive material, said first unit having a first end surface;

a second unit of electrically conductive material, said second unit having a second end surface and being disposed inside of said first unit;

a first insulating body disposed between said first and second units, said first insulating body having a third end surface;

a first heating element electrically connecting said first and second units, said first heating element being supported on said first, second and third end surfaces in contact with said pyrotechnical delay charge;

a third unit of electrically conductive material, said third unit having a fourth end surface;

a fourth unit of electrically conductive material, said fourth unit having a fifth end surface and being disposed inside said third unit, said fourth unit also being disposed around and electrically connected to said first unit;

a second insulating body disposed between said third and fourth units, said second insulating body having a sixth end surface; and

a second heating element electrically connecting said third and fourth units, said second heating element being supported on said fourth, fifth and sixth end surfaces in contact with said ignition charge.

4,363,273

AMMUNITION WITH PROTECTIVE SURFACE LAYER AND METHOD OF MAKING SAME

Manfred Luebben, Celle, and Wolfram Witt, Duesseldorf, both of Fed. Rep. of Germany, assignors to Rheinmetall GmbH, Duesseldorf, Fed. Rep. of Germany

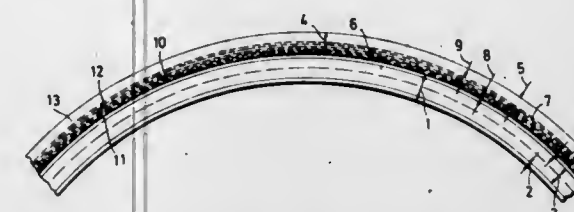
Continuation-in-part of Ser. No. 885,323, Mar. 10, 1978, abandoned. This application Jan. 14, 1980, Ser. No. 112,110

Claims priority, application Fed. Rep. of Germany, Mar. 10, 1977, 2710451

Int. Cl.³ F42B 5/18

U.S. Cl. 102—431

14 Claims



1. Porous nitrocellulose combustible ammunition cartridge permeated with a first polymer, said cartridge having deposited thereon a protective coating including successively a first layer of metal particles bonded to said cartridge with a second polymer containing air pockets, and a second layer comprising a cured resin.

4,363,274

CENTER LINE FOLLOWER

Raymond R. Lund, West Columbia, S.C., assignor to Canon Corporation, West Columbia, S.C.

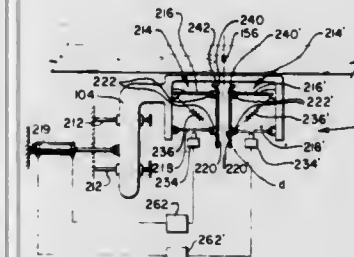
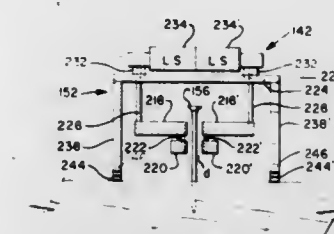
Continuation of Ser. No. 951,131, Oct. 13, 1978, abandoned.

This application Jan. 23, 1981, Ser. No. 227,975

Int. Cl.³ E01B 29/00

U.S. Cl. 104—2

12 Claims



2. A rail mounted machine provided with a main frame and a secondary frame mounted for lateral movement on the main frame, the secondary frame carrying two similar track operating means for carrying out a specific operation at two respective lateral locations relative to the centre line of the track, means for moving the secondary frame laterally relative to the main frame to position the track operating means at the respective lateral locations, and a centre line follower connected to said moving means and having a housing having an open bottom, two spaced sliders contained in the housing and extending generally longitudinally relative to the main frame for sensing individual members of a row of discrete, spaced members on ties along the predetermined centre line of the track which is independent of the rails of the track on which said machine is mounted, said housing having sides extending downwardly for engaging the ties, the lower edges of said sliders being slightly above the lower edges of said sides, and said sides being longer

than the spacing between ties, means mounting each slider on the housing for relative movement in a direction towards and away from the other slider, means biasing the sliders to a relatively proximate position in which the sliders define a longitudinal channel of predetermined width and location, and means deriving electrical signals which indicate which slider has been moved laterally away from the proximate position.

4,363,275

CONVEYOR SYSTEM AND VEHICLE FOR USE THEREIN

Kazusuke Kaji, Kawasaki, Japan, assignor to SI Handling Systems, Inc., Easton, Pa.

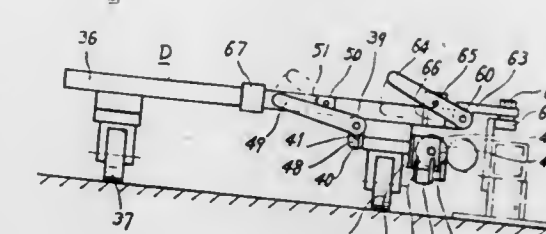
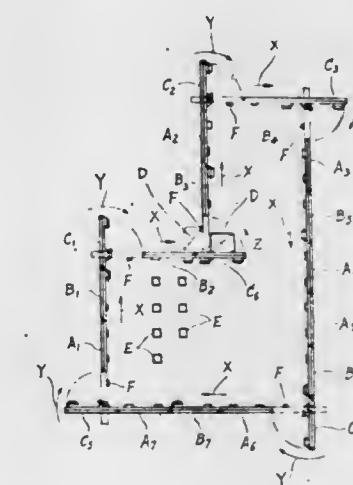
Filed Dec. 11, 1980, Ser. No. 215,581

Claims priority, application Japan, Dec. 18, 1979, 54-165100

Int. Cl.³ B61B 13/12

U.S. Cl. 104—166

6 Claims



1. A driverless vehicle comprising a horizontally disposed base supported by wheels therebelow which are adapted to ride on a floor, guide rollers supported by the base and projecting from one side of the base for contact with a guide, at least one drive wheel at an elevation above the elevation of the axis of said wheels and being supported by the base adjacent said one side of the base, control means for oscillating said drive wheel about a generally horizontal axis between a drive position and an accumulation position, and means on the base for selectively moving the drive wheel generally horizontally between an operative position wherein it can frictionally contact a rotating drive shaft to be disposed alongside the base and an inoperative position wherein it is out of contact with a drive shaft.

6. A conveyor system comprising a plurality of aligned drive shafts, frame sections supporting said shafts at an elevation above a floor, one of said shafts being supported by a frame section oscillatable through an arc of 90° about a vertical axis for alignment with each of two mutually perpendicular frame sections, a driverless vehicle having a horizontally disposed base supported by wheels therebelow which ride on said floor, guide rollers supported by the base and projecting from one side of the base for contact with a guide supported by said frame sections, at least one drive wheel at an elevation above the elevation of the axis of said support wheels, said drive

wheel being supported by the base adjacent said one side of the base, control means for oscillating said drive wheel about a generally horizontal axis between a drive position and an accumulation position, means on the base for selectively moving the drive wheel generally horizontally at said elevation between an operative position wherein it can frictionally contact said drive shaft and an inoperative position wherein it is out of contact with said drive shafts, means on said oscillatable frame section for selectively actuating said control means on the base to cause a vehicle moving therealong to accumulate, and said vehicle support wheels being caster wheels so that the vehicle may oscillate with the last-mentioned frame section.

4,363,276

RAILROAD CAR TRUCK SIDE FRAME - BOLSTER CONNECTION

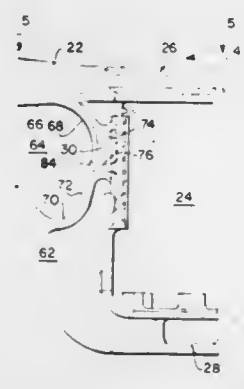
Otto W. Neumann, Itasca, Ill., assignor to AMSTED Industries Incorporated, Chicago, Ill.

Filed Sep. 15, 1980, Ser. No. 187,586

Int. Cl.³ B61F 5/052

U.S. Cl. 105-197 R

1 Claim



1. A railroad car truck comprising a pair of spaced side frames formed with pedestal jaws to receive in a journaled relationship axle ends of a pair of wheelsets, each said side frame having formed therein a centrally located window for disposition of end portions of a bolster transversely positioned between said side frames, an upper compression member and a lower tension member, spaced side frame columns joining said compression and tension members to define said side frame window, two wear plates each fastened to an inner side of each said side frame column,

spaced side frame inner and outer end walls joining outer sides of said side frame columns,

an opening formed in each said end wall with each said opening defined in part by an inner edge portion positioned in proximate alignment with said side frame column, and

a horizontal support rib formed on each of said column outer sides with said rib having ends joining said side frame inner and outer end walls so as to minimize torsion twisting,

said horizontal support rib having an outer edge defined by a middle portion positioned in substantial alignment with said side frame column wear plate and radiused ends joined to said middle portion with an outer end point of each radiused portion joined to said side frame inner and outer end wall opening edges,

wherein said side frame columns tend to remain substantially aligned during rotation of said bolster with respect to said side frames to cause contact therebetween with said wear plates remaining substantially flat to provide a substantial area of contact with friction shoes carried by said bolster.

4,363,277

STABILIZING HIGH SPEED RAILWAY TRUCK SAFETY DEVICE

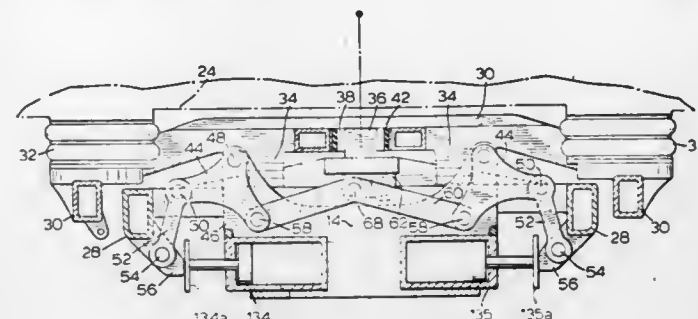
Henry Martin, Hamilton, and Charles R. Thompson, Lynden, both of Canada, assignors to Dofasco Inc., Hamilton, Canada

Filed May 13, 1980, Ser. No. 149,367

Int. Cl.³ B61F 3/08, 5/20, 5/24

U.S. Cl. 105-201

11 Claims



1. For use in a railway truck assembly comprising:

a frame;

at least two wheel and axle assemblies mounted by the frame and on which the vehicle runs;

a bolster member mounted on the frame and adapted to support a vehicle body thereon for pivoting and tilting movement relative to the frame;

mounting means connecting the bolster member and the frame for the said tilting movement of the bolster member relative to the frame;

first motor means connected between the bolster member and the frame and operative upon the supply of power thereto from a power source to produce the said tilting movement therebetween; and

a safety device comprising hydraulic second motor means mounted by the frame and operable between a first condition in which it engages the bolster member to inhibit tilting thereof relative to the truck frame and a second condition in which said tilting is permitted; a control circuit for said hydraulic second motor means, said control circuit comprising a pressure line connected to a source of pressurized fluid, a return line connected to a sump for the pressurized fluid, a pair of hydraulic service lines connected to opposite sides of said hydraulic second motor means, valve means connected to said service lines and said pressure and return lines and operable in a first position to direct fluid from said pressure line to one of said service lines to move said motor means to said first condition and in a second position to direct fluid from said pressure line to the other of said service lines to cause said motor means to move to said second condition, control means to move said valve means between said first and second positions and a pressurized fluid reservoir connected to said pressure line and operable to supply pressurized fluid to said valve means whereby, upon movement of said valve means to said first position, said pressurized fluid reservoir supplies fluid to said one service line to move said cylinder to said first condition, said pressurized fluid reservoir including a variable volume fluid receiving chamber and biasing means to reduce the volume of said chamber to a minimum.

10. For use in a railway truck assembly comprising:

a frame;

at least two wheel and axle assemblies mounted by the frame and on which the vehicle runs;

a bolster member mounted on the frame and adapted to support a vehicle body thereon for pivoting and tilting movement relative to the frame;

mounting means connecting the bolster member and the frame for the said tilting movement of the bolster member relative to the frame; and

first motor means connected between the bolster member and the frame and operative upon the supply of power thereto from a power source to produce the said tilting movement therebetween;

a safety device comprising hydraulic second motor means

mounted by the frame and operable between a first condition in which it engages the bolster member to inhibit tilting thereof relative to the truck frame and a second condition in which the said tilting is permitted; the safety device including a control circuit for said hydraulic second means, said control circuit comprising a pressure line connected to a source of pressurized fluid, a return line connected to a sump for the pressurized fluid, a pair of hydraulic service lines connected to opposite sides of said hydraulic second motor means, valve means connected to said service lines and said pressure and return lines and operable in a first position to direct fluid from said pressure line to one of said service lines to move said motor means to said first condition and in a second position to direct fluid from said pressure line to the other of said service lines to cause said motor means to move to said second condition, control means to move said valve means between said first and second positions and a pressurized fluid reservoir connected to said pressure line and operable to supply pressurized fluid to said valve means whereby, upon movement of said valve means to said first position, said pressurized fluid reservoir supplies fluid to said one service line to move said cylinder to said first condition, said pressurized fluid reservoir including a variable volume fluid receiving chamber and biasing means to reduce the volume of said chamber to a minimum.

4,363,278

RESILIENT RAILWAY TRUCK BEARING ADAPTOR

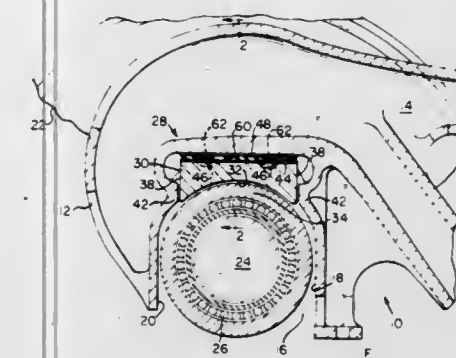
Harry W. Mulcahy, Griffith, Ind., assignor to AMSTED Industries Incorporated, Chicago, Ill.

Filed Sep. 11, 1980, Ser. No. 186,218

Int. Cl.³ B61F 5/30, 5/52, 15/02

U.S. Cl. 105-218 R

2 Claims



1. A connection arrangement for joining an axle end to a side frame pedestal jaw of a railroad car truck wherein said axle end is journaled in a bearing positioned within said pedestal jaw, said arrangement comprising,

an adapter means carried on an upper portion of said bearing, said means including spaced downward depending semicircular side members to interact with ends of said bearing and prevent relative movement thereof, end walls each having a vertical recess formed therein joining said side member, and a substantially flat top surface containing indentations,

an elastomeric device comprising an elastic pad affixed between spaced lower and upper plates to cushion relative horizontal movements of said plates and maintain said movements within set limits, said upper plate and said lower plate having indentations on the upper surface thereof and having downwardly extending bases on lower surfaces thereof said lower plate downwardly extending bosses fitting with said adapter means top surface indentations upon said device being disposed on said adapter top surface, and

said side frame pedestal jaw defined by a substantially flat roof joined by end walls spaced to receive said adapter therebetween with a loose fit, each said pedestal jaw end wall carrying an outwardly projecting rib to fit within

said adapter end wall recess with a loose fit, said pedestal jaw roof having downwardly projecting bosses fitting with complementary indentations of said elastomeric device upper plate upon said axle end, said adapter, and said elastomeric device being disposed in said pedestal jaw.

4,363,279

METHOD OF POSITIVELY CONTROLLING, STORING AND TRANSPORTING BANKNOTES, AND A SAFETY CASSETTE AND BANKNOTE-INFEED UNIT FOR CARRYING OUT THE METHOD

Sven L. Johansson, Stockholm, Sweden, assignor to Innovationsteknik, Stockholm, Sweden

PCT No. PCT/SE79/00211, § 371 Date Jun. 20, 1980, § 102(e)

Date Jun. 20, 1980, PCT Pub. No. WO80/00887, PCT Pub. Date May 1, 1980

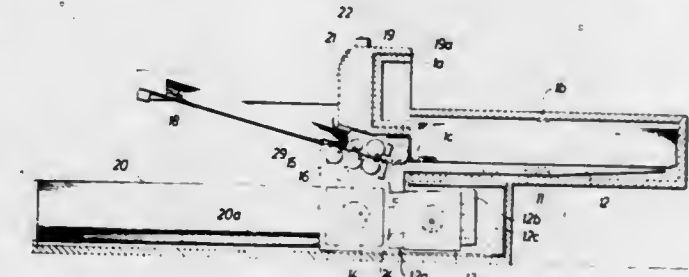
PCT Filed Oct. 19, 1979, Ser. No. 199,783

Claims priority, application Sweden, Oct. 20, 1978, 7810981

Int. Cl.³ G07D 9/00; G07F 9/06; E05G 1/00, 1/12

U.S. Cl. 109-29

10 Claims



1. A method of providing safe control, storage and transport of banknotes when using a closeable cassette provided with a lock means and being of the kind which includes a container which has safety means with an electric circuit which is arranged, when an attempt is made to force the cassette open, to ignite a detonator causing a dye container or like element to rupture to thereby render the banknotes unusable, characterized by:

releasably connecting the cassette to a separate infeed unit, which is preferably provided with a counter, while exposing an infeed opening;

at least partially inserting an associated infeed and packing means (12) of the infeed unit into the infeed opening of the cassette;

introducing banknotes or other valuable sheets into the cassette;

releasing the at least partially filled cassette from the infeed unit while closing said opening and priming said safety means; and

transporting the cassette to a collecting station, e.g. a bank, where an authorized person equipped with a key or having knowledge of the code for unlocking the cassette, empties the cassette of its contents.

4,363,280

SEWING MACHINE ATTACHMENTS

Carl Lindquist, Lake Ariel, Pa., assignor to Pennsylvania Sewing Research Corp., Lake Ariel, Pa.

Filed Aug. 11, 1980, Ser. No. 176,914

Int. Cl.³ D05B 3/18

U.S. Cl. 112-105

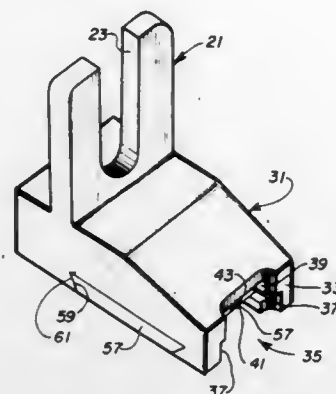
7 Claims

1. A sewing machine attachment for locating and holding a magnetizable accessory in a predetermined position for sewing comprising

(a) a substantially horizontal-extending positioning member having an open cavity therein, at least a portion of the walls of said cavity defining a seat for said accessory

(b) and magnetic means within said positioning member for

producing a magnetic flux which extends from said seat through the opening of said cavity,



characterized in that at least a portion of one wall of said cavity is removably mounted on said positioning member.

4,363,281

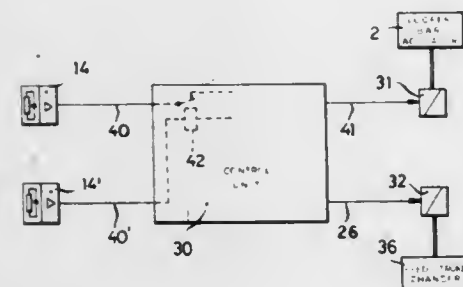
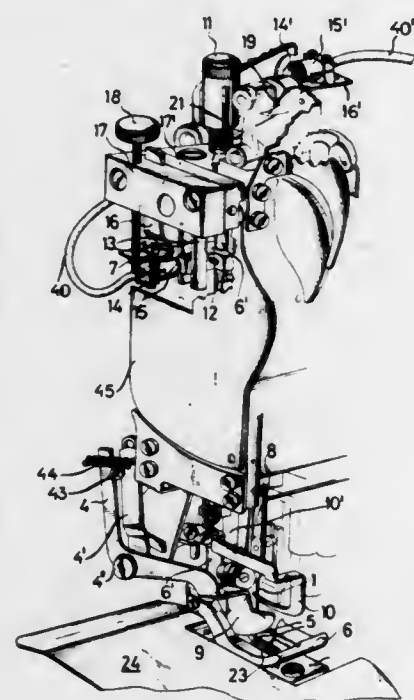
SEWING-MACHINE SYSTEM FOR CONTINUOUSLY MONITORING WORKPIECE THICKNESS

Kurt Reinke, Bielefeld, Fed. Rep. of Germany, assignor to Dürkoppwerke GmbH, Bielefeld, Fed. Rep. of Germany
Filed Oct. 17, 1980, Ser. No. 198,148

Claims priority, application Fed. Rep. of Germany, Oct. 18, 1979, 2942166

Int. Cl.³ D05B 19/00

U.S. Cl. 112—121.11



1. In a sewing machine provided with a frame and a stitch plate, a bottom feeder below a workpiece-supporting surface of said stitch plate intermittently rising through a slot thereof to advance a workpiece resting thereon, a needle bar vertically oscillatable on said frame in synchronism with said bottom

feeder for stitching said workpiece, drive means for operating said bottom feeder and said needle bar, a presser foot with a stem vertically slidable in said frame and spring-urged from above against said workpiece during operation of said drive means, and control means for activating ancillary equipment in the presence of a workpiece below said presser foot exceeding a predetermined thickness,

the improvement wherein said control means comprises: position-sensing means coacting with said presser foot for continuously monitoring the thickness of a workpiece entrained by said bottom feeder;

switching means responsive to a signal from said position-sensing means for activating said ancillary equipment upon detection of a rise of said presser foot to a predetermined level above said surface; and

inhibiting means responsive to said drive means for deactivating said position-sensing means whenever said bottom feeder projects above said surface.

4,363,282

DEVICE FOR RETAINING INNER SHUTTLE MEMBER AGAINST ROTATION

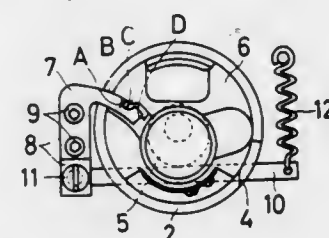
Yoshinori Satake, 1-13-31, Santanda-cho, Amagasaki-shi, Hyogo-ken, Japan

Filed Jul. 15, 1980, Ser. No. 169,188

Int. Cl.³ D05B 57/08, 57/26

U.S. Cl. 112—184

2 Claims



1. In a rotating shuttle having an outer shuttle (2), mounted on a base (1), having a shaft (3) carrying a cam (5) thereon and bobbin case member (6) rotatably fitted in the outer shuttle (2), in combination:

(a) a side wall (A) defining a circular arc contact face extending inwards from the outer periphery of the bobbin case member (6) to a terminal end;

(b) a thread passing large diameter point (D) formed at said terminal end;

(c) a lever (10) attached to said base (1), with a pivot (11), at one end outside the periphery of said outer shuttle (2), a retainer support plate (9) at said pivot one end connected to said lever (10), an elongated bobbin case retaining member (7), coupled at one end to said lever (10) extending inwards, said retaining member (7) having an acting side face (B) opposed to said side wall (A), spring means (12) biasing said lever (10) into contact with said cam (5).

(d) an engaging edge (4) formed in the outer shuttle (2); and, (e) a recess in one of said members (6, 7) at about the mid-portion of said elongated retaining member (7);

whereby said edge (4) can capture a thread to form a loop (13) which advances along the outer periphery of the bobbin case member (6) with the rotation of said outer shuttle (2) until the thread enters said recess to be finally released as said recess forms a space between the retaining member (7) and the large-diameter portion (D).

4,363,283

SUPPORTING PAD FOR HATCH COVERS OF SHIPS

Hans P. Tietgen, Sevetal, and Gunter Riese, Hamburg, both of Fed. Rep. of Germany, assignors to Bastian Belzona Verfahrenstechnik, Wolfgang Bastian, Hamburg, Fed. Rep. of Germany

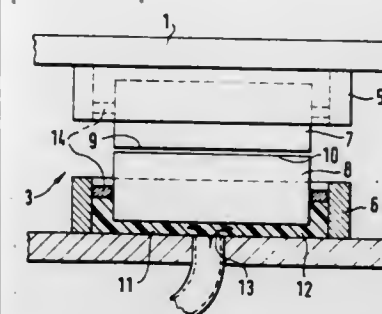
Filed Feb. 12, 1981, Ser. No. 233,719

Claims priority, application Fed. Rep. of Germany, Feb. 21, 1980, 3006504

Int. Cl.³ B63B 19/26

U.S. Cl. 114—201 R

10 Claims



1. A supporting pad for a hatch cover of a ship, having a pair of bearing blocks provided with cooperating bearing surfaces and arranged respectively at the rim of a hatch of the ship and at the rim of the hatch cover, a relative movement being performable between the hatch and the hatch cover in a glide plane defined by the bearing surfaces, said supporting pad comprising

- (a) a first receptacle (6,106) firmly connected to the ship;
- (b) a first slide block (8,108) displaceably arranged in the first receptacle;
- (c) a second receptacle (5) firmly connected to the hatch cover (1);
- (d) a second slide block (7) displaceably arranged in the second receptacle;
- (e) a variable accommodation space (11) provided at least between the first receptacle (6,106) and the first slide block (8,108);
- (f) an inlet opening (13,113) oriented toward the variable accommodation space (11), and
- (g) pump and conduit means for feeding a volume-stable curable composite material (12) into the variable accommodation space (11) for displacing and adjusting said slide block in said receptacle.

4,363,284

DOCK-SIDE BOAT COVER

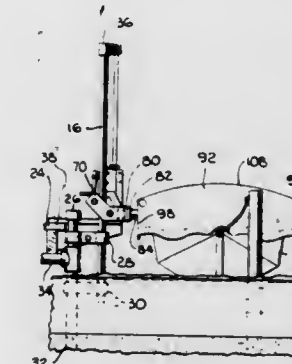
William E. Monroe, R.R. #3, Box 386, Syracuse, Ind. 46567

Filed Jan. 15, 1981, Ser. No. 225,351

Int. Cl.³ B63B 17/02

U.S. Cl. 114—361

12 Claims



1. A cover for protecting the interior of a boat from the surrounding environment, said boat being in the water and secured to a dock, the improvement comprising:

- a first vertical support connected to the dock;
- a first bracket having a first roller bearing member that

engages said first vertical support and a second roller bearing member that engages said first vertical support at a position substantially opposite said first roller bearing member;

a second vertical support connected to the dock;

a second bracket having a third roller bearing member that engages said second vertical support and a fourth roller bearing member that engages said second vertical support at a position substantially opposite said third roller bearing member;

a first arm connected to said first bracket and having an end that extends over the water in a plane substantially perpendicular to said first vertical support;

a second arm connected to said second bracket and having an end that extends over the water in a plane substantially perpendicular to said second vertical support;

a canopy secured to said ends of said first and second arms, said canopy acting through said arms to develop a moment that causes said first, second, third and fourth roller bearing members to engage said first and second vertical supports and hold said first and second arms in said perpendicular plane; and

means for moving the first and second brackets with respect to the first and second vertical supports to correspondingly move the canopy from a first position, where the canopy surrounds that portion of the boat out of the water, to a second position, which allows unhampered ingress and egress between the dock and the boat.

4,363,285

DEVICE FOR COATING GRANULAR SOLIDS

Kazuyuki Yoshida, Fujieda; Shizuo Kaneko; Mikio Okawara, both of Shizuoka, and Terushige Hiroki, Shimada, all of Japan, assignors to Ohkawara Mfg. Co., Ltd., Tokyo and Daiichi Seliyaku Company, Limited, Shizuoka, both of Japan

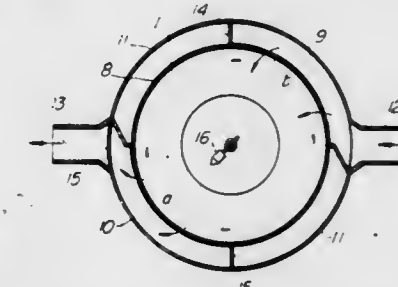
Filed Aug. 19, 1980, Ser. No. 179,668

Claims priority, application Japan, Sep. 6, 1979, 54-114848

Int. Cl.³ B05C 5/00

U.S. Cl. 118—19

3 Claims



1. A rotary drum type device for coating granular solids comprising

a drum with a perforated cylindrical section,

a supporting ring surrounding said perforated cylindrical section for rotatably supporting said drum,

inlet duct means and outlet duct means defined in said supporting ring and being open to said perforated cylindrical section of said drum in such a way that gas is directed from the top of said drum toward a tumbling bed of granular solids formed in said drum and exhausted from the bottom of said drum through said tumbling bed of granular solids formed in said drum, said inlet duct means and said outlet duct means being diametrically opposed,

an inlet pipe connected to said inlet duct means,

a prime mover for rotating said drum,

spray means disposed within said drum for spraying a coating liquid,

said perforated cylindrical section of said drum being divided into a first area which is only in communication with the opening of said inlet duct means and a second area which is only in communication with the opening of said outlet duct means, such that different areas of said

perforated cylindrical section operate in conjunction with said inlet means and said outlet means of the supporting ring, respectively.

4,363,286

FINGER-PRINTING PACKET

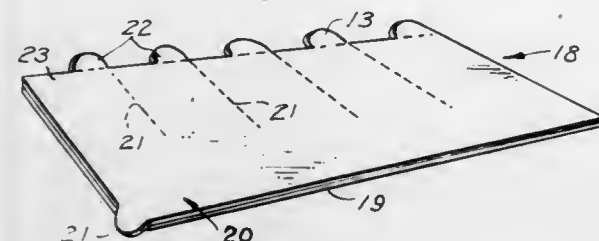
Larry J. Leavitt, 3854 S. Parkway #3A, Northbrook, Ill. 60062, and John E. Madigan, Arvada, Colo., assignors to Larry Leavitt, Northbrook, Ill.

Filed Jun. 12, 1981, Ser. No. 273,228

Int. Cl.³ B41K 1/00

U.S. Cl. 118—31.5

1 Claim



1. A fingerprinting packet, comprising, in combination, a rectangular-shaped, inked sheet, against which fingers are impressed so as to form fingerprints thereupon, and a same-shaped foil cover adhered to an inked side thereof, an arcuate cut-out at one corner of said inked sheet, a projecting finger tab on a corresponding corner of said foil cover; said finger tab being at a corner of a first side edge of said foil cover which is opposite a foil second side edge having a plurality of spaced-apart tabs, a row of perforations at each said tab which is along said second edge, each said row of perforations extending at right angles from said second edge and partially across said foil cover, so as to form foil strips therebetween.

4,363,287

PATTERN PRINTING CEMENTERS

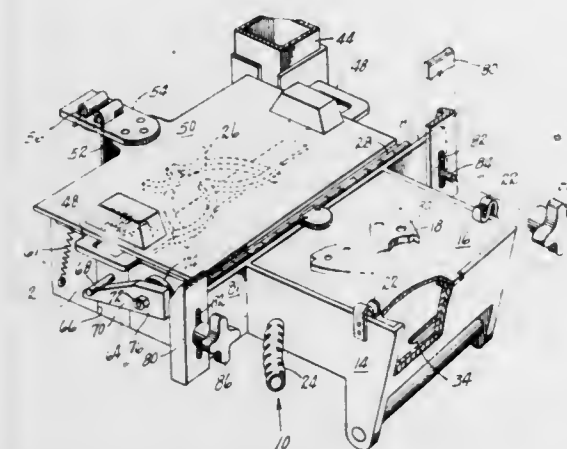
Malcolm M. Ewing, East Rd., Atkinson, N.H. 03811, and Alton R. Copithorne, Weathersfield St., Rowley, Mass. 01969

Filed Apr. 29, 1980, Ser. No. 145,011

Int. Cl.³ B05C 1/02, 13/02

U.S. Cl. 118—50

10 Claims



1. Apparatus for imprinting a pattern of cement upon an irregularly shaped workpiece, comprising a base containing a quantity of cement, a work support contoured at least in part to match the contour of the workpiece and providing a target for the placement of the workpiece, an imprinting plate normally submerged in the cement and shaped to apply a pattern of cement only to a pre-determined area of the workpiece when it is raised out of the cement to an imprinting position, a carrier hinged directly upon the base and upon which the work support is mounted for movement between a loading position where the workpiece is adjustably received and an imprinting

position in which the work support is in register with the imprinting plate and in which the workpiece on the work support is brought into contact with cement carried by the imprinting plate, means coupling the carrier and the imprinting plate together for causing the imprinting plate to rise above the level of the cement as the work support pivotally approaches the imprinting position and to be submerged as the work support is returned to its loading position, and vacuum means for retaining the workpiece on the work support.

4,363,288

DEVICE FOR APPLYING A COATING LAYER TO A STRIP OF CONTINUOUSLY MOVING MATERIAL

Jacques P. Fara, Le Vesinet, France, assignor to D.C.M., Rueil Malmaison, France

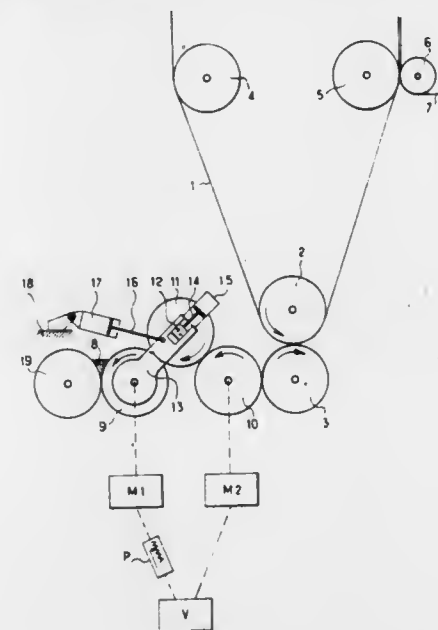
Filed Mar. 26, 1981, Ser. No. 247,937

Claims priority, application France, Apr. 16, 1980, 80 08553

Int. Cl.³ B05C 1/00; B41F 1/46, 31/00

U.S. Cl. 118—210

6 Claims



1. A device for continuously applying a coating layer on a strip of material travelling between two rotary cylinders bearing one against the other and having a rotational speed equal to the travelling speed of the strip, one of said rotary cylinders being an applicator cylinder applying the coating layer to the strip, comprising:

- a reserve containing a coating product,
- a take-up roller controlled in rotation for continuously taking from the reserve a specific amount of product,
- means for transferring the product taken by the take-up roller to said applicator cylinder, the transfer means including a second roller (10) situated between and extending parallel to the take-up roller (9) and the applicator cylinder (3) and bearing only against the applicator cylinder, and a third roller (11) bearing against the take-up roller and the second roller,
- first means for rotating the take-up roller at a constant preadjusted speed of rotation, and
- second means for rotating the second roller (10) in the same direction as the take-up roller, at a speed equal to the travelling speed of the strip (1), the third roller (11) being loosely mounted.

4,363,289

PRINTING SCREEN COATING METHOD AND APPARATUS

Rudolf Gasser, Schljenen, Switzerland, assignor to Firma Ernst Harlacher, Urdorf, Switzerland

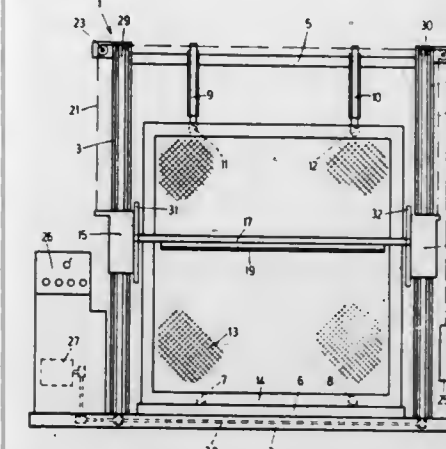
Filed Sep. 29, 1980, Ser. No. 191,773

Claims priority, application Switzerland, Oct. 2, 1979, 8879/79

Int. Cl.³ B05C 3/02

U.S. Cl. 118—696

6 Claims



1. Apparatus for coating both sides of a vertically disposed flat printing screen with liquid material, comprising means for holding said screen in a vertical plane, two horizontally disposed squeegees, both including container means to contain said liquid material, drive means for causing said squeegees to move vertically along opposite sides of said screen and to apply said liquid material from each container means to opposite surfaces of said screen, and control means for controlling said drive means.

4,363,290

METHOD AND APPARATUS FOR AUTOMATED IMMERSION TREATMENT OF FISH

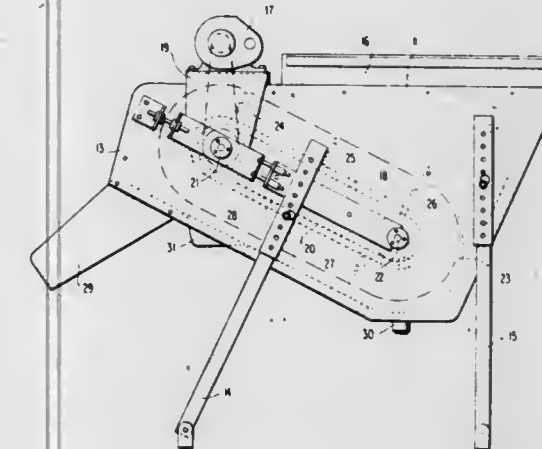
Lee R. Kunz, Golden, and Guy L. Tebbit, Lakewood, both of Colo., assignors to Wildlife Vaccines, Inc., Wheat Ridge, Colo.

Filed Jun. 26, 1981, Ser. No. 277,534

Int. Cl.³ A01K 63/00

U.S. Cl. 119—3

13 Claims



11. A method for treating fish to prevent or treat various diseases of fish comprising placing fish on a moving conveyor belt which automatically conveys the fish down into a reservoir of liquid containing a health and/or welfare enhancing agent for the fish, immersing the fish for a sufficient period of time and then conveys the fish up out of the reservoir at a predetermined time and thereupon permitting the treating

liquid to drain from the fish and thereafter returning fish to their environment.

4,363,291

AUTOMATIC CATTLE FEEDING DEVICE

Jan H. Harmsen, Hengelo, Netherlands, assignor to Brinkmann & Niemeyer N.V., Zutphen, Netherlands

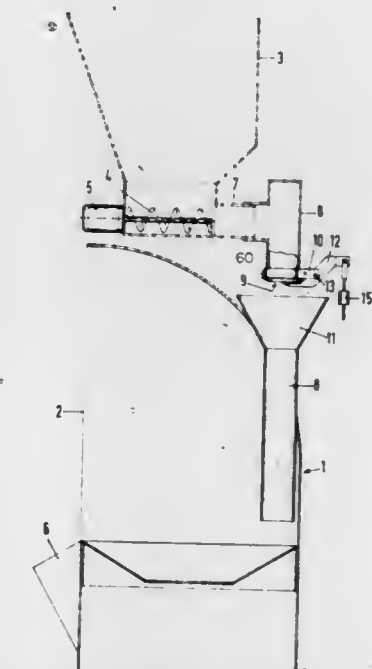
Filed Nov. 18, 1980, Ser. No. 208,080

Claims priority, application Netherlands, Nov. 19, 1979, 7908442

Int. Cl.³ A01K 5/02

U.S. Cl. 119—51 R

3 Claims



1. In animal feeding apparatus including a supply container for holding food, a dosing device disposed below said supply container and in communication therewith, and a housing located below said dosing device, said dosing device being operable to remove food from said container and deliver same to a dosing device outlet communicating with said housing, said housing having an opening therein through which an animal can insert its head to obtain access to food delivered to the housing, the improvement comprising an interrupted tube assembly having an upper tube part connected communicatively to said dosing device outlet and receiving food therein when said device operates, and a lower tube part spaced below said upper tube part and communicating with said housing, a tumbler flap mounted for pivoting movement adjacent the bottom of said upper tube part and connected with a counterweight normally pivoting said tumbler flap in a first direction to a position thereof where it closely engages the bottom of said upper tube part and retains thereon food delivered to said upper tube part, presence of a pre-determined quantity of food on said tumbler flap overcoming the effect of said counterweight and causing said tumbler flap to pivot in a second opposite direction to a second position remote from said upper tube part bottom and thereby drop the food therefrom into said lower tube part, and a switch operable upon movement of said tumbler flap from its closure position to second position to stop operation of said dosing device.

4,363,292

FLUIDIZED BED REACTOR

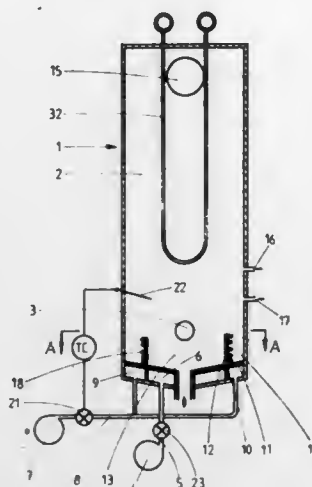
Folke Engström, Karhula, Finland, assignor to A. Ahlstrom Osaakeyhtiö, Noormarkku, Finland

Filed Oct. 27, 1980, Ser. No. 200,766

Int. Cl.³ F22B 1/02

U.S. Cl. 122—4 D

5 Claims



1. A fast fluidized bed multifuel reactor comprising: a housing forming a combustion chamber, a distributor plate provided with a plurality of orifices disposed in the bottom part of said housing for introducing fluidizing gas into said combustion chamber, at least one partition wall which is disposed adjacent to the upper surface of the distributor plate, which defines a first and second fluidization zone in the bottom part of said combustion chamber, means for operating only the first fluidization zone or both the first and the second fluidization zone, means for supplying gas to a first wind box disposed under a portion of the distributor plate through which gas is supplied to said first fluidization zone, means for supplying gas to a second wind box under a portion of the distributor plate through which gas is supplied to said second fluidization zone, heat transfer surfaces disposed in said second fluidization zone connected to a steam generator system, cooling means within the combustion chamber located above the part of the first fluidization which is free of internal obstructions, said cooling means being connected to the same steam generation system, to which said heat transfer surfaces are connected, wherein said second fluidization at least partially encloses said first fluidization zone forming an inner fluidization zone.

4,363,293

PISTON FOR A RECIPROCATING PISTON MACHINE, PARTICULARLY AN INTERNAL COMBUSTION ENGINE

Bernard Munoz, Puiseux, and Eric Tavenne, Paris, both of France, assignors to Societe d'Etudes de Machines Thermiques S.E.M.T., Saint Denis, France

Filed Apr. 15, 1981, Ser. No. 254,381

Claims priority, application France, May 30, 1980, 80 12148

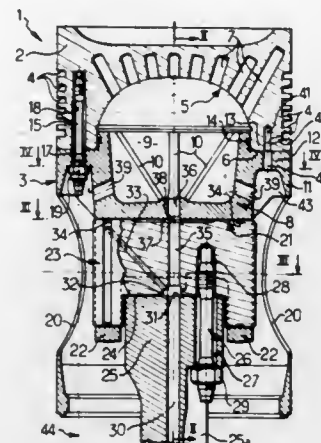
Int. Cl.³ F01D 3/10

U.S. Cl. 123—41.38

10 Claims

1. A piston for a reciprocating piston machine, said piston being swivelled by means of a piston pin to an associated connecting rod small end and including a piston head and a piston skirt assembled together by stud bolts, the piston head comprising on its end surface adjacent to the piston skirt a central hollow forming a portion of a cooling chamber, the other portion of said chamber being formed by a central hollow provided in the adjacent end surface of the central portion of the piston skirt, said chamber comprising part of a cooling and lubricating system wherein said central portion of the piston skirt is constituted by a substantially cylindrical hollowed central boss provided with radial ribs to better distribute the force transmitted by the piston head, the connection of said central boss to the peripheral cylindrical surface of said piston

skirt is by means of a peripheral annular crown with a flat upper surface perpendicular to the axis of the piston and delimited inwardly by a shoulder which is centered in the piston head hollow, the upper surface of said crown constituting the joint surface between the piston skirt and the piston head, and upon which bears the peripheral annular flat surface of the



piston head delimited around said piston head hollow, each of said assembling stud bolts extending throughout an associated orifice machined in the annular crown of said central boss of the piston skirt and engaged into a tapped blind orifice machined in the piston head, said assembling stud bolts being accessible directly from the outside through the piston skirt and in the axial direction of said stud bolts.

4,363,294

PISTON AND CYLINDER MACHINES

Russell J. Searle, 1, Thames Corner, Thames Street, Sunbury-on-Thames, Middlesex, England

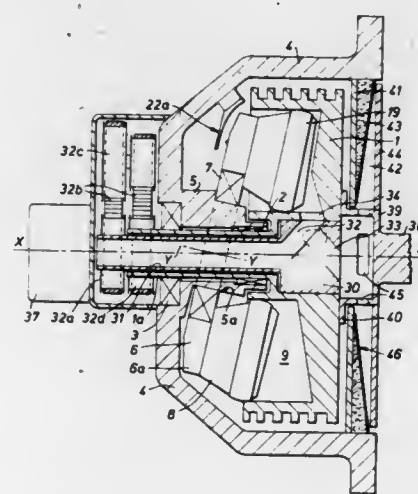
Filed May 22, 1979, Ser. No. 41,902

Claims priority, application United Kingdom, May 25, 1978, 22849/78; Dec. 14, 1978, 48553/78

Int. Cl.³ F02B 57/00, 75/26

U.S. Cl. 123—43 A

6 Claims



1. A machine comprising:

- (a) a cylinder having a straight sided cylinder bore spaced from a first axis;
- (b) a piston assembly including a piston shaped to define a peripheral recess having a floor with two opposite flat portions, said piston being disposed within said cylinder bore to form a chamber therein, said piston assembly further including a connecting member connected to said piston and restraining means for resisting any tendency for the piston to move in relation to said cylinder about said first axis;
- (c) an inclined member mounted such that relative rotation between said inclined member and said cylinder occurs

about said first axis, said inclined member being inclined to said first axis along a second axis, said connecting member being coupled to said inclined member such that said relative rotation of said cylinder and said inclined member is accompanied by reciprocation of said piston within said cylinder;

(d) valve means for fluid moving through said machine in the use thereof;

said piston assembly also including a piston ring disposed around said piston, said piston ring being moveable as a whole laterally with respect to said piston, and said restraining means comprising a ring-shaped member having two flat internal surface portions which match said two opposite flat portions of said floor of said recess, said ring-shaped member being engaged in said recess in such a way that lateral movement of said piston ring relative to said piston is restricted to a to-and-fro direction which is radial, or which has a major component which is radial, with respect to said second access.

4,363,295

MOVABLE HEAD ENGINE

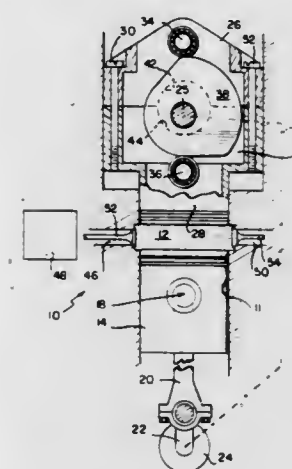
Ernest B. Brandly, 900 S. A St., Suite 314, Richmond, Ind. 47374

Filed Sep. 10, 1980, Ser. No. 185,742

Int. Cl.³ F02B 25/10

U.S. Cl. 123—51 AA

5 Claims



1. An internal combustion engine including a cylinder having means for the intake of fuel and air, means for the exhaust of combustion by-products, a reciprocable drive piston in said cylinder, a crankshaft, a connecting rod connecting said piston to said crankshaft, a camshaft, means for synchronizing the movement of the camshaft with the crankshaft, a single cam provided on said camshaft, a movable cylinder head piston reciprocally mounted in said cylinder in opposed relation to said drive piston, said movable head piston having separable upper and lower portions, and having a roller follower on each portion of said movable cylinder head piston, said roller followers being disposed within said movable cylinder head piston on opposite sides of the axis of rotation of said camshaft, movement of said camshaft in engagement with said roller followers causing reciprocating movement of said movable cylinder head piston wherein said movable cylinder head piston is projected toward said drive piston during at least and substantially for 45° of camshaft rotation, is held at a point of maximum projection during at most and substantially for 135° of camshaft rotation, is retracted during at least and substantially for 45° of camshaft rotation, and is held at a point of maximum retraction during at most and substantially for 135° of camshaft rotation.

4,363,296

COMBUSTION CHAMBER PRESSURE TAP

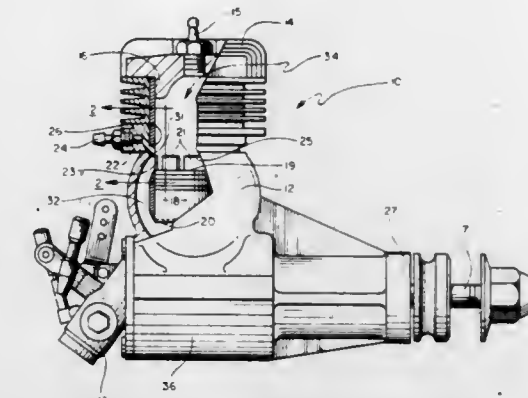
James P. Nightingale, 218 Via El Centro, Oceanside, Calif. 92054

Filed Sep. 15, 1980, Ser. No. 187,443

Int. Cl.³ F04B 35/02

U.S. Cl. 123—59 BM

2 Claims



1. An apparatus to obtain a source of gas under high pressure from an operating, piston type internal combustion engine comprising:

- an engine block,
- at least one cylinder containing a piston connected to said engine block, said piston having a crown at a first end and a skirt portion below said crown terminating at a second end of said piston,
- at least one cylinder head connected to said cylinder,
- a combustion chamber formed within said cylinder between said cylinder head and said crown of said piston,
- at least one exhaust port being downwardly spaced from said cylinder head and communicating with said combustion chamber through said cylinder,
- at least one fuel intake port communicating with said combustion chamber through said cylinder,
- at least one pressure tap orifice formed in said at least one cylinder communicating with said combustion chamber positioned immediately above said exhaust port between said cylinder head and said exhaust port, said pressure tap orifice being exposed to said high exhaust gas pressure when said crown of said piston moves past said orifice when said piston is substantially at the end of its power stroke, said high pressure gas being directed to pressure accumulation means just prior to expelling said high pressure exhaust gases through said at least one exhaust port.

4,363,297

IGNITION TIMING CONTROL DEVICE FOR INTERNAL COMBUSTION ENGINE

Hiroyasu Naito, Sayama, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 5,331, Jan. 22, 1979, abandoned. This application Aug. 14, 1980, Ser. No. 178,084

Claims priority, application Japan, Feb. 3, 1978, 53-12517

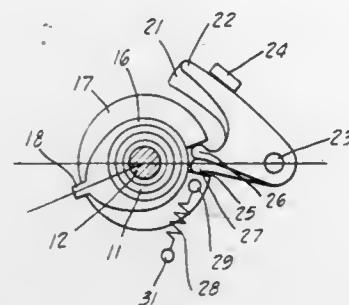
Int. Cl.³ F02P 5/04

U.S. Cl. 123—146.5 A

3 Claims

1. In an internal combustion engine, an ignition timing control device comprising in combination a stationary pulse generator, a rotary member, a drive means coupled with said rotary member for rotation in timed relation with the engine crankshaft, a timing control element pivotally mounted coaxially on said rotary member, said stationary pulse generator being proximal to said timing control element, a first pivot pin fixed to said rotary member and aligned parallel to the axis of said rotary member, a plurality of eccentric weights pivotally and eccentrically mounted to said first pivot pin, each of said eccentric weights having a finger projecting to said timing control

element for coupling therewith to pivot said element relative to said rotary member with pivotal movement of each said eccentric weight, said eccentric weights being of different effective weight one from another, a stop fixed to said rotary member and positioned to interfere with the pivotal movement of said eccentric weights, each



said weight being allowed by said stop to pivotally move a distance relative to each other said weight by inverse relation to its effective weight, and spring means acting between said rotary member and said timing control element to resist pivotal movement of said timing control element resulting from movement of said eccentric weights.

4,363,298

LAWN MOWER BRAKE AND STARTER

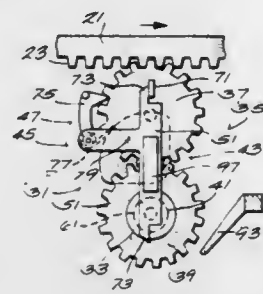
John B. Kuhn, Beaver Dam, Wis., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed Dec. 18, 1980, Ser. No. 217,586

Int. Cl.³ F02N 5/02

U.S. Cl. 123—179 S

16 Claims



1. A lawn mower including an engine having a first rotatable member, an energy storage and delivery mechanism connected to said engine and comprising energy storage means, an assembly including rotatably mounted second and third members in direct driving engagement with each other and with one of said members of said assembly being connected to said energy storage means, said assembly being displaceable between a stop position wherein one of said second and third members is in direct driving engagement with said first member so as, in response to rotation of said first member, to rotate said second and third members in the direction which is effective to store energy in said storage means and a start position wherein the other of said second and third members is in direct driving engagement with said first member so as, in response to delivery of energy to said assembly from said storage means, to rotate said first member in the engine operating direction, releasable means movable selectively between positions engaged with and disengaged from said energy storage and delivery mechanism for permitting delivery of energy to said storage means and preventing delivery of energy from said storage means when in the engaged position and for permitting delivery of energy from said storage means when in disengaged position, and means for selectively displacing said releasable means from said engaged position in response to movement of said assembly to said start position and to said engaged position in response to assembly movement from said start position.

4,363,299

CRANKLESS INTERNAL COMBUSTION ENGINE

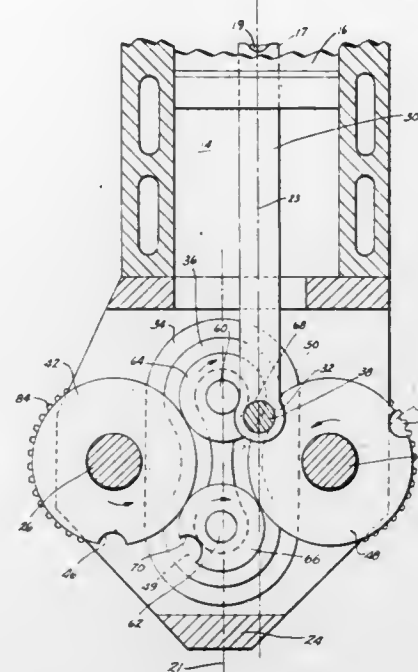
Robert D. Bristol, P.O. Box 337, Beulah, Mich. 49617

Filed Jun. 9, 1980, Ser. No. 157,870

Int. Cl.³ F02B 75/32

U.S. Cl. 123—197 AB

13 Claims



1. A mechanism for converting linear reciprocating motion of a member to rotary output movement, said mechanism comprising:

an elongated rod having an upper end and a lower end, said upper end being connected to said member; guide means operatively connected to said rod lower end for guiding and moving said rod along a path having first and second, horizontally spaced, essentially vertical runs, said guide means including a fixed cam member defining an elongated, closed loop cam track, said lower end of said rod having a pin extending into and riding along said cam track;

an output shaft;

means for rotatably supporting said output shaft adjacent said first run of said guide means and offset from a vertical centerline of said member; and

an output means secured to said output shaft and having an outer periphery extending along said first run for operatively connecting said output shaft to said elongated rod lower end so that torque is transmitted to said output shaft as said rod moves along said first essentially vertical run as said member reciprocates.

5. An internal combustion engine of the type including a cylinder, a piston reciprocal within the cylinder, an elongated rod having an upper end connected to the piston and a lower end, and driven means operatively connected to the lower end of the rod for converting reciprocating movement of the piston and rod to rotary output movement, said driven means comprising:

guide means operatively connected to the lower end of the rod for guiding and moving the lower end of said rod along a predetermined, generally vertical, closed loop path having first and second, horizontally spaced, essentially vertical runs, said guide means including a fixed cam member fixed with respect to said cylinder and which defines an elongated, closed loop cam track, said rod lower end having a pin extending into and riding along said cam track so that said lower end moves along said cam track;

an output shaft;

means for rotatably mounting said output shaft adjacent said first run of guide means and offset from a vertical centerline of said cylinder and said piston;

a generally circular driven member on said output shaft, said

driven member having an outer periphery extending along said first run of said guide means; and drive means engaging said driven member for rotating said driven member as said rod lower end moves from a first position to a second position along said cam track during a power stroke of said engine so that torque is transmitted to said output shaft as said rod moves along said first essentially vertical run as said piston reciprocates.

4,363,300

FOUR-CYCLE INTERNAL COMBUSTION ENGINE AND ASSOCIATED METHODS OF FUEL COMBUSTION

Shoichi Honda, Tokyo, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

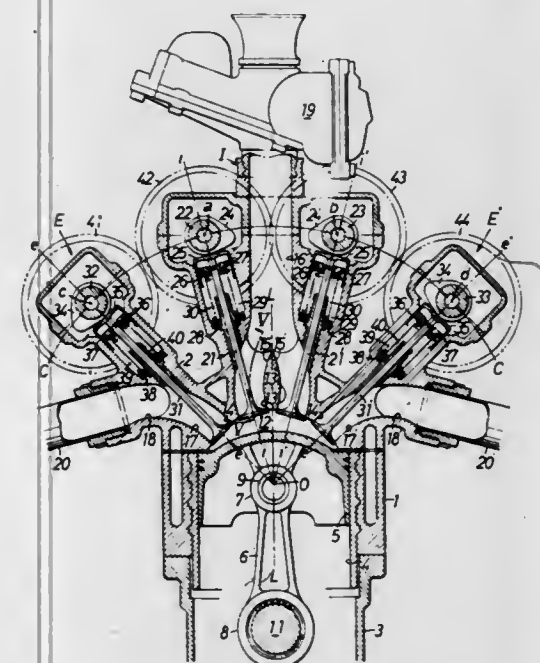
Filed Aug. 25, 1980, Ser. No. 180,821

Claims priority, application Japan, Sep. 10, 1979, 54-115842

Int. Cl.³ F02F 3/28; F02B 15/00

U.S. Cl. 123—315

25 Claims



1. A four-cycle internal combustion engine comprising a cylinder block having a cylinder bore therein, a piston slidably fitted in said bore, a cylinder head on said block, said cylinder head being provided with a combustion chamber merging with said cylinder bore, said piston, cylinder bore and combustion chamber having a transverse cross-section of non-circular shape with a major longitudinal axis and a minor transverse axis, vertical planes passing through said longitudinal and transverse axes intersecting along a central axis passing through the center of the cylinder bore and combustion chamber, said combustion chamber having a central region and an outer region, inlet means for introducing fuel mixture into said central region of the combustion chamber on opposite sides of said vertical plane passing through said longitudinal axis and discharge means for discharging exhaust gases at said outer region of said combustion chamber on opposite sides of said vertical plane passing through said longitudinal axis, said inlet means being arranged around said central axis at a distance therefrom which is less than the distance of said discharge means from said central axis, said inlet means comprising a pair of inlet valves on opposite sides of said vertical plane passing through said transverse axis, said discharge means comprising a pair of exhaust valves on opposite sides of said vertical plane passing through said transverse axis in said outer region outside said inlet valves.

4,363,301

BRAKING DEVICE FOR A FOUR-CYCLE ENGINE OF A VEHICLE

Hugo Stock, and Paul Tholen, both of Bergisch Gladbach, Fed. Rep. of Germany, assignors to Klöckner-Humboldt-Deutz Aktiengesellschaft, Cologne, Fed. Rep. of Germany

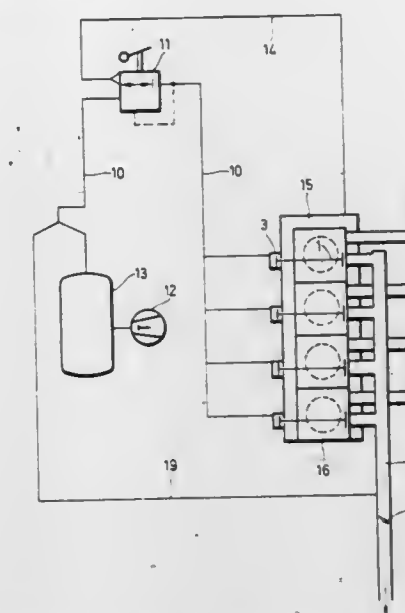
Filed Feb. 13, 1981, Ser. No. 234,326

Claims priority, application Fed. Rep. of Germany, Feb. 14, 1980, 3005456

Int. Cl.³ F02D 9/06

U.S. Cl. 123—321

8 Claims



1. A braking device for a four-cycle engine of a vehicle, particularly for an internal combustion Diesel engine, having a motor brake adjustment member, and respective exhaust valves for the cylinders of said engine, said exhaust valves having valve shafts, said braking device comprising: pressure cylinders respectively associated with said exhaust valves; an exhaust conduit connected to said exhaust valves and provided with a shutoff element which is connected to said motor brake adjustment member; a pressure conduit connected to said pressure cylinders and provided with a control element which is likewise connected to said motor brake adjustment member, said connection of said pressure cylinders with said pressure conduit occurring after said control element; and compensating pistons respectively connected to said valve shafts and associated with said pressure cylinders, said pistons being subjected to pressure in said pressure cylinders for closing said exhaust valves thereby preventing uncontrolled lifting thereof, said motor brake adjustment member having a first adjustment range for actuating said shutoff element, and a second adjustment range for actuating said control element.

4,363,302

FEED CONTROL BY MEANS OF A FLAT SLIDE VALVE

Franz Pischinger, Aachen, Fed. Rep. of Germany, assignor to Klöckner-Humboldt-Deutz Aktiengesellschaft, Cologne, Fed. Rep. of Germany

Filed Jul. 17, 1980, Ser. No. 169,821

Claims priority, application Fed. Rep. of Germany, Jul. 19, 1979, 2929195

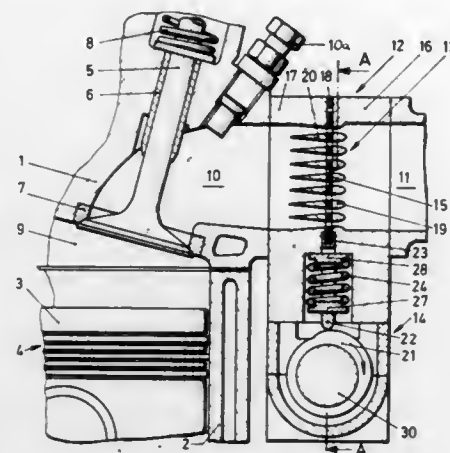
Int. Cl.³ F02B 3/00

U.S. Cl. 123—337

18 Claims

1. A device utilized with a fuel source and a combustion-air source for feed control of valve-controlled internal combustion engines having at least one cylinder and cylinder head arrangement, each of which has a combustion chamber and a housing attached to said cylinder head and provided with an intake passage and an intake pipe for providing communication between said fuel source and combustion-air source and said

combustion chamber, each of said cylinder/cylinder head arrangements also being provided with an intake valve for shutting off communication between said combustion chamber and said intake passage, said device comprising a further shut-off element, in the form of a manifold slotted flat slide valve,



for shutting off communication between said combustion chamber and said intake pipe, said slide valve being located in said intake passage and said intake pipe, being movable in an oscillating manner, and cooperating with manifold slot-shaped ports in a portion of said housing located in said intake passage and intake pipe.

4,363,303

THROTTLE VALVE OPENING CONTROL DEVICE

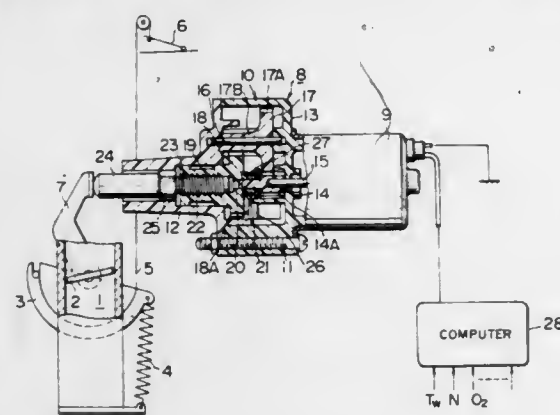
Teruo Takayama, Katsuta, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 18, 1981, Ser. No. 294,056

Claims priority, application Japan, Sep. 3, 1980, 55-121084; Sep. 10, 1980, 55-124602

Int. Cl.³ F02D 11/10

U.S. Cl. 123—339



1. A device for controlling an opening degree of a throttle valve of an internal combustion engine, comprising:
 - a computer for generating electric signals in response to operating parameters of the engine;
 - an electric rotary machine driven in response to the electric signals from said computer;
 - an initial stage speed reducing gear rotated around its rotational axis by said electric rotary machine and having first gear teeth arranged circumferentially of said initial stage speed reducing gear;
 - an intermediate speed reducing gear having a rotational axis thereof offset from the rotational axis of said initial stage speed reducing gear, said intermediate speed reducing gear having arranged circumferentially thereof second gear teeth in mesh with said first gear teeth of said initial stage speed reducing gear, said intermediate speed reducing gear further having arranged circumferentially thereof third gear teeth;
 - a final stage speed reducing gear having a rotational axis thereof in coaxial relation to the rotational axis of said

- initial stage speed reducing gear, said final stage speed reducing gear having arranged circumferentially thereof fourth gear teeth in mesh with said third gear teeth of said intermediate speed reducing gear;
- a shaft extending in coaxial relation to the rotational axes of said initial and final stage speed reducing gears, said shaft having one end thereof secured to an end surface of one of said initial and final stage speed reducing gears, and a bearing section formed in an end surface of the other speed reducing gear opposite to the end surface of said one speed reducing gear for rotatably supporting the other end of said shaft;
- a threaded portion formed in an end of said the other speed reducing gear opposite to the end surface thereof having formed therein said bearing section and extending in concentric relation to the rotational axis of said the other speed reducing gear;
- an output shaft having thereon a threaded portion threadably engageable with said threaded portion in said the other speed reducing gear for converting the rotational movement of said the other speed reducing gear to the reciprocal movement of said output shaft;
- a case attached in unitary relation to said electric rotary machine for surrounding at least said initial, intermediate and final stage speed reducing gears; and
- said throttle valve being operative in response to the reciprocal movement of said output shaft for adjusting flow rate of fluid introduced into the engine.

4,363,304

ENGINE IGNITION SYSTEM WITH ANTI-KNOCK TIMING SHIFT

Adolf R. Fritz, Stuttgart; Michael Gottschick, Freudental; Alfred Krappel, Ismaning, and Johannes Guggenmos, Dirlwang, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

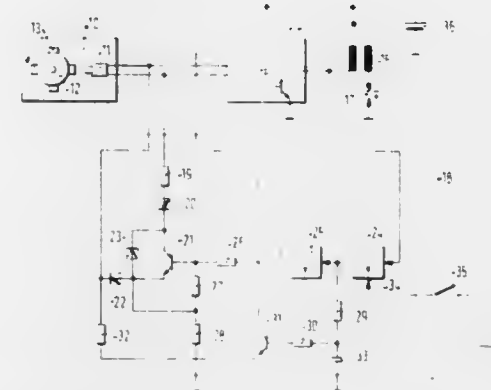
Filed Jun. 1, 1981, Ser. No. 268,826

Claims priority, application Fed. Rep. of Germany, Jun. 2, 1980, 3020868; Dec. 6, 1980, 3046100

Int. Cl.³ F02P 5/04; F02B 5/02

U.S. Cl. 123—418

16 Claims



1. An ignition system for an internal combustion engine having an inductive ignition timing wave generator (10) arranged to control an electronic switch (15) in the primary current circuit of an ignition coil (16) and provided with circuit means for ignition timing shift by loading of the output of said wave generator, said system also comprising the improvement which consists in that:
 - first timing means (24, 50, 51) are provided for deriving from the current wave in said primary circuit a signal delayed by a first timing period (11) with respect to a periodic reference point of said current wave, and
 - second timing means (25, 50, 51) are provided for supplying a time period signal (12) beginning with the occurrence of said delayed signal and applying said time period signal to said timing shift circuit (19, 20, 21) for loading down said wave generator output, during and only during, any part

of a half wave of a predetermined polarity of said output coincident with said time period signal.

4,363,305

CONTROL SYSTEM

Masaaki Ohgami, Musashino, and Hitoshi Suzuki, Chofu, both of Japan, assignors to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

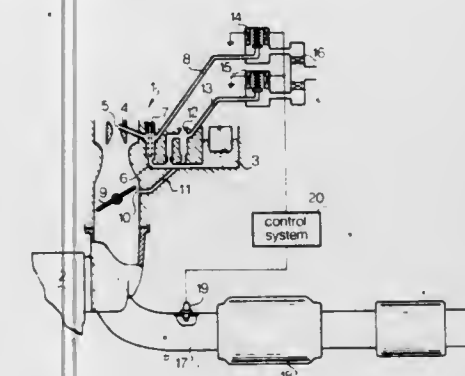
Filed Aug. 1, 1980, Ser. No. 174,387

Claims priority, application Japan, Aug. 2, 1979, 54-98854

Int. Cl.³ F02B 3/08, 32/00

U.S. Cl. 123—440

5 Claims



1. In an air-fuel ratio control system for an internal combustion engine having an intake passage, an exhaust passage, air-fuel mixture supply means, and electromagnetic means for correcting the air-fuel ratio of the air-fuel mixture supplied by said air-fuel mixture supply means, the system comprising:
 - dither signal generating means for producing a periodical dither signal having a pattern which comprises a plurality of positive excursions and negative excursions, at least one of said positive excursions being lower than another of said positive excursions and at least one of said negative excursions being lower than another of said negative excursions;
 - a shift control circuit means for shifting the level of a center line of said dither signal,
 - driving circuit means for producing a driving output according to said dither signal for driving said electromagnetic means,
 - detecting means for sensing the concentration of a constituent of the exhaust gases passing through said exhaust passage,
 - said detecting means including means for distinguishing a higher value than a reference value corresponding to the stoichiometric air-fuel ratio from a lower value with a steep change,
 - comparing circuit means for comparing the shape of waveform of the output signal of said detecting means with said pattern of said dither signal for detecting a portion removed from the dither signal for producing a first signal corresponding to the detected portion,
 - reference period generating circuit means having a reference period and for controlling the period of said dither signal and the operation of said comparing circuit means,
 - an engine speed sensor for reducing said reference period as the engine speed increases, and
 - shift signal generating circuit means operative for producing a shift signal dependent on said first signal for adjusting said shift control circuit means.

4,363,306

SYSTEM FOR FEEDBACK CONTROL OF AIR/FUEL RATIO IN IC ENGINE HAVING MEANS FOR SUPPLYING CONTROLLED CURRENT TO OXYGEN SENSOR

Kohki Sone, Tokyo; Kenji Okamura, Zushi, and Toyoaki Nakagawa, Yokohama, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

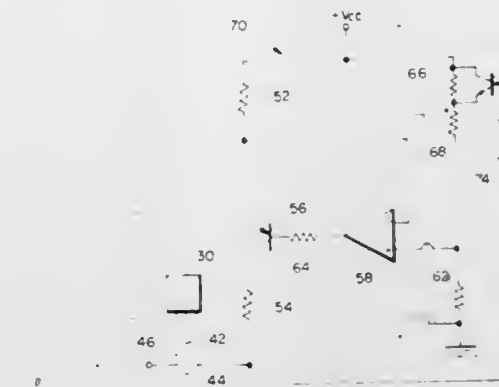
Filed Sep. 26, 1980, Ser. No. 190,980

Claims priority, application Japan, Sep. 28, 1979, 54-134084[U]

Int. Cl.³ F02M 7/00

U.S. Cl. 123—440

6 Claims



1. A system for feedback control of the air/fuel ratio of an air-fuel mixture supplied to an internal combustion engine, the control system comprising:
 - an electrically controllable fuel supply means provided in the intake system of the engine;
 - an air/fuel ratio detector disposed in an exhaust passage for the engine and having an oxygen-sensitive element of a concentration cell type comprising a substrate, a microscopically porous reference electrode layer formed on the substrate, a microscopically porous layer of an oxygen ion conductive solid electrolyte formed on the substrate so as to cover the reference electrode layer substantially entirely and a microscopically porous measurement electrode layer formed on the solid electrolyte layer;
 - operating condition detecting means for detecting at least one of (i) an exceedingly high air/fuel ratio condition where the air/fuel ratio is above an upper boundary of an expected range of fluctuations of air/fuel ratio under feedback control and (ii) an exceedingly low exhaust temperature condition where the temperature of the exhaust gas in the exhaust passage is below a lower boundary of a temperature range for effective function of the oxygen-sensitive element, and for generating a command signal indicative of the existence of the detected condition; and
 - control means for providing a control signal to the fuel supplying means to control the rate of fuel feed to the engine so as to maintain a predetermined air/fuel ratio by utilizing the output of the air/fuel ratio detector as a feedback signal, the control means including a circuit for providing a DC current of a predetermined intensity to flow through the solid electrolyte layer of the oxygen-sensitive element to thereby establish a reference oxygen partial pressure at the interface between the reference electrode layer and the solid electrolyte layer, the control means further comprising a current-intensity altering means for decreasing the intensity of said DC current from said predetermined intensity while the operating condition detecting means continues to generate said command signal whereby an undesirable rise of said reference oxygen partial pressure is precluded.

4,363,307

METHOD FOR ADJUSTING THE SUPPLY OF FUEL TO AN INTERNAL COMBUSTION ENGINE FOR AN ACCELERATION CONDITION

Matsuo Amano, Hitachi; Yasunori Mouri; Osamu Abe, both of Katsuta; Seiji Suda, Mito, and Takao Sasayama, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

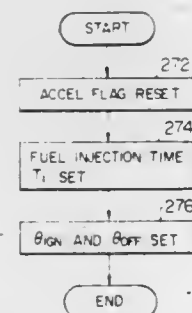
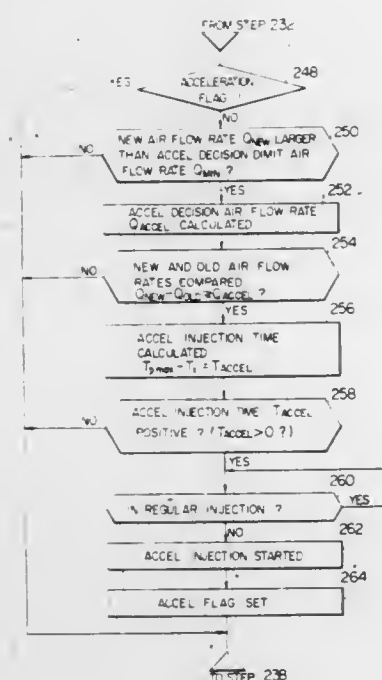
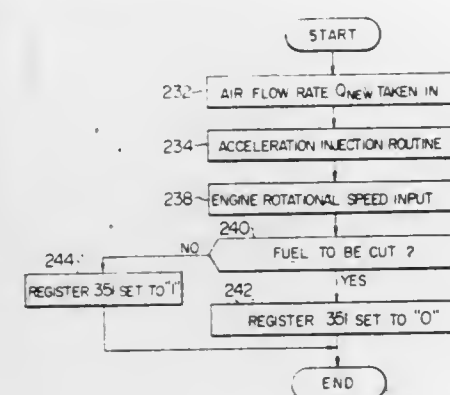
Filed Mar. 5, 1981, Ser. No. 240,857

Claims priority, application Japan, Mar. 7, 1980, 55-27936

Int. Cl.³ F02D 5/00; F02B 3/00; G05B 15/02

U.S. Cl. 123-492

5 Claims



1. In an engine control system with a processor comprising a plurality of sensors each indicating a parameter including at least load information of an engine, said each sensor generating a signal to be applied to said processor, actuator means for controlling the amount of the fuel injected to said engine according to the data calculated by said processor, and an input-output device for connecting said sensors, said actuator means and said processor; an engine operation control method comprising a first step of activating said actuator means in accordance with the regular fuel injection time calculated on the basis of a parameter representing said load information of the engine in cycles corresponding to the intake process of the engine cylinder, a second step of deciding in predetermined

cycles whether the engine is in an accelerated condition, and a third step of injecting the fuel by activating said actuator means for a length of time equal to a predetermined reference maximum fuel injection time less said regular fuel injection time, said fuel injection being effected only once in each interval of the operation of said first step, in the case where it is decided at said second step that the engine is in an accelerated condition.

4,363,308

FUEL INJECTION APPARATUS

Klaus-Dieter Emmenthal; Otto Schäfer, both of Wolfsburg, and Rudolf-Helmut Strozzyk, Helmstedt, all of Fed. Rep. of Germany, assignors to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Fed. Rep. of Germany

Division of Ser. No. 942,416, Sep. 14, 1978, Pat. No. 4,224,915.

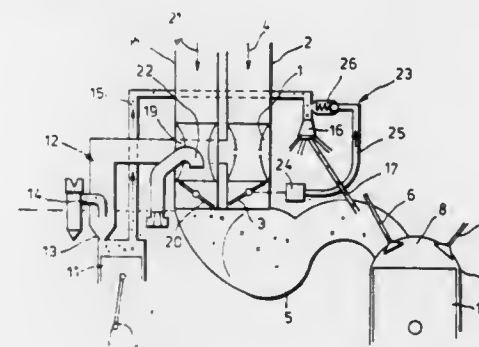
This application May 5, 1980, Ser. No. 146,201

Claims priority, application Fed. Rep. of Germany, Apr. 19, 1978, 2817049

Int. Cl.³ F02M 39/00

U.S. Cl. 123-533

9 Claims



1. Apparatus for injecting fuel into the intake pipes of an internal combustion engine, said engine having an intake line for conducting air to said intake pipes with an arbitrarily adjustable throttle flap arranged therein, said fuel injection apparatus comprising, in combination:

- an air channel branching off from said intake line at a point ahead of said throttle flap, as viewed in the direction of air flow through said intake line, and having at its opposite end a narrowed cross section;
- fuel metering means for supplying fuel to said air channel in dependence upon engine load;
- a fuel distributor and means, connected to said distributor, for supplying a fuel-air mixture to the individual intake pipes of the engine;
- a fuel delivery pump connected between said narrowed cross section of said air channel and said distributor for supplying fuel and air to said distributor;
- auxiliary fuel supply means for supplying additional fuel to said engine for idling and/or cold starting operation; and
- a fuel float chamber connected to supply fuel both to said fuel metering means and to said auxiliary fuel supply means, the fuel level in said float chamber being arrested at a height with respect to said auxiliary fuel supply means that the fuel pressure head is sufficient to ensure a proper fuel supply thereto.

4,363,309

VALVE, PARTICULARLY CROSSOVER PASSAGE VALVE

George C. Ludwig, Florence, S.C., assignor to AVM Corporation, Jamestown, N.Y.

Filed Aug. 11, 1980, Ser. No. 176,758

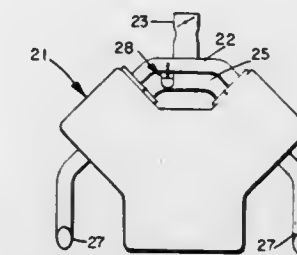
Int. Cl.³ F16K 1/22

U.S. Cl. 123-552

11 Claims

1. In a metal engine manifold unit having an exhaust gas

passage, the provision of a butterfly-type valve having a stem rotatably mounted in the unit and carrying a gas flow modifying valve element disposed in said passage, and means for sealing against escape of exhaust gases along said stem comprising: means including a stem boss mounting said valve element on said unit; an annulus of a combined sealing and bearing material with a cylindrical hole and a flat radial annular face mounted on the end of said boss in surrounding radial bearing



relationship to said stem; said stem including a portion with an enlarged flat radial annular face; said mounting means including means resiliently urging said stem portion against said annulus with the two flat radial annular faces in axial bearing engagement; said annulus being an integral annulus of compressed graphite providing heat resistant sealing at said bearing engagements.

4. The manifold unit defined in claim 1, wherein said passage is an exhaust gas crossover passage in said unit.

4,363,310

DIESEL ENGINE WITH BLOWBY SCAVENGING

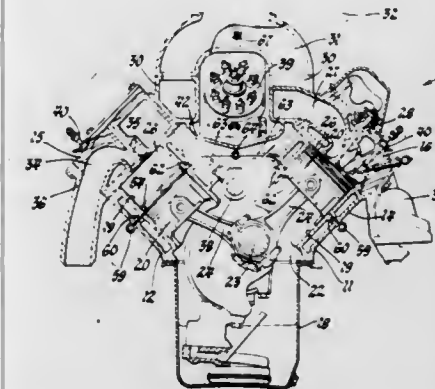
Kelly W. Thurston, Okemos, Mich., assignor to General Motors Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 165,712, Jul. 3, 1980, abandoned. This application Feb. 17, 1981, Ser. No. 234,637

Int. Cl.³ F02B 33/00

U.S. Cl. 123-572

5 Claims



1. In a diesel engine of the type having a cylinder with closed and open ends, a piston reciprocable in the cylinder and defining therewith a variable volume combustion chamber at the cylinder closed end, means at the cylinder closed end for admitting charging fluids to and exhausting residual products from the combustion chamber, a lubricant chamber at the open end of the cylinder, the piston having a skirt bearing on the cylinder under side thrust loading, and at least two spaced sealing rings on the piston and engaging the cylinder to limit the passage of combustion blowby products and lubricant from their respective chambers to the other, at least the top one of said sealing rings being located between the skirt and the combustion chamber end of the piston, and the improvement comprising

an annular recess around the piston between the skirt and said top sealing ring, said recess comprising a blowby storage space of volume sufficient to collect a substantial amount of the blowby gases which escape from the com-

bustion chamber past the top one of said sealing rings during each cycle of piston reciprocating motion, and blowby scavenging means intermittently communicating with said recess to carry away blowby gases collected therein and thereby reduce contamination of the lubricant with particulates from the combustion products, said blowby scavenging means including an air supply passage in the cylinder and positioned to communicate with the piston recess near the bottom position of piston motion and to be closed by the piston skirt during other portions of the piston motion.

4,363,311

GOLF BALL DRIVING DEVICE

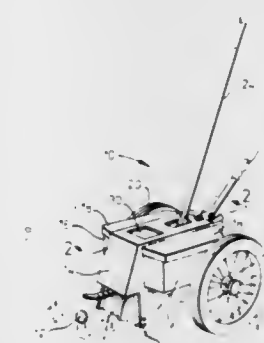
Peter W. Rodney, 66 Elmcrest Rd., Etobicoke, Ontario, Canada (M9C 3R9)

Filed Aug. 28, 1981, Ser. No. 297,153

Int. Cl.³ F41B 7/00; A63B 53/00

U.S. Cl. 124-16

14 Claims



1. A golf ball driving device having a frame, wheels secured to said frame for mobility of said device, and at least one support means for said frame when said device is at rest; and having:

- compression means for storing compressed energy;
- means for compressing said compression means;
- means for releasing the compression of said compression means;
- striker plate means associated with said compression means and adapted for forward motion in such a manner that the path of said striker plate generally describes a downwardly and forwardly directed arc, the lowest point of the arcuate movement of said striker plate so defined being at a position when said compression means has its least compression;
- said means for compressing said compression means being a driving ratchet on a cam associated with a moveable and drivable ratchet bar; said driving ratchet and cam being moveable to a position where said driving ratchet is out of engagement with said ratchet bar;
- said means for releasing the compression of said compression means being a follower arm in contact with said ratchet bar; said follower arm being disengageable from said ratchet bar; and,
- first handle means for driving said cam and ratchet means so as to compress said compressor means; and second handle means for moving said follower arm out of contact with said ratchet bar.

4,363,312

BOW MOUNTED QUIVER

Arthur Spitzke, Troy, Mich., assignor to Schmelzer Corporation, Flint, Mich.

Filed Dec. 26, 1978, Ser. No. 973,229

Int. Cl.³ F41B 5/06

U.S. Cl. 124-45

5 Claims

1. An archery quiver for attachment and detachment to an archery bow in which the quiver can hold a plurality of arrows having heads and shafts, said quiver comprising: spaced apart

housing and rack members, said housing having a portion for arrow heads and said rack member being adapted to engage and grip arrow shafts, a first mounting member formed integrally with said quiver at a point intermediate said housing and rack members, a second mounting member being adapted to be mounted on the handle of said bow, one of said mounting members including a socket and the other of said mounting members including a complementary prong to be detachably



received in said socket, a latch element formed as a unit with said prong and being deflectable relative to said prong and into engagement with a latch receiving portion associated with said socket to prevent removal of said prong from said socket, and deflectable means associated with a wall of said socket for manual movement into engagement with said latch element to deflect said latch element out of engagement with said latch receiving portion to permit removal of said prong from said socket during detachment of said quiver from the bow.

4,363,313

PORTABLE CAMPFIRE FIREPLACE

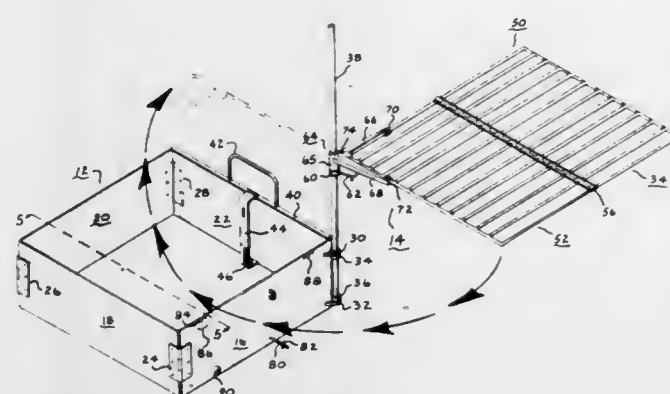
Robert J. Smith, 58444 S.R. 15, Goshen, Ind. 46526

Filed Nov. 24, 1980, Ser. No. 209,522

Int. Cl.³ F24C 15/00; A47J 37/00

U.S. Cl. 126—9 R

8 Claims



1. A portable campfire fireplace comprising a firebox including four walls, hinge means for interconnecting said walls at three corners to permit said walls to be moved between an open position in which the walls are disposed adjacent each other at their end edges to define a substantially enclosed inner area in which the fire may be built and a closed position in which said walls are compactly arranged for storage, releasable fastening means connecting the walls at the fourth corner including eyes disposed on each of said adjacent end edges of said walls at said fourth corner and overlapping each other when said firebox is in the open position, an elongated post removably inserted into said overlapping eyes to lock said eyes together and to hold said post in a vertical position on the firebox, a cooking unit mounted on said post and including a cooking surface on which meals can be prepared, and means

for adjusting the position of said cooking surface vertically and horizontally with respect to said firebox.

4,363,314

HEATING APPARATUS

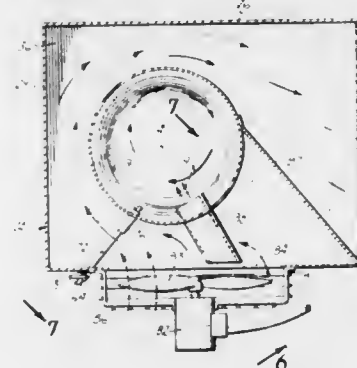
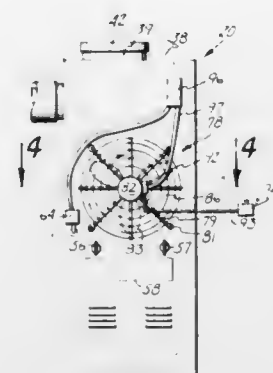
Robert V. Albertson, 2100 Shadywood Rd., Wayzata, Minn. 55391

Filed Dec. 15, 1980, Ser. No. 216,658

Int. Cl.³ F24H 3/02

U.S. Cl. 126—110 B

41 Claims



22. An apparatus for heating fluid comprising: a housing having a fluid heating chamber, a fluid inlet opening, and a fluid exit opening open to said chamber, casing means having a combustion chamber, said casing means being located in said heating chamber, exhaust means connected to the casing means for carrying gas from the combustion chamber, means for supplying fuel to said combustion chamber, said fuel, when burned, heating the casing, fluid moving means mounted on the housing for moving fluid through the fluid inlet opening, the fluid heating chamber, and the fluid exit opening, said fluid in the heating chamber being heated by the casing means, solid wall means in said fluid heating chamber extended between the case and housing providing a one-way passage for directing fluid around the casing means, and means having a passage for directing fluid from the fluid moving means into the combustion chamber to promote burning of fuel in the combustion chamber.

4,363,315

OVEN WITH VISIBLE DISPLAYS

Georg von Blanquet, Baden-Baden, Fed. Rep. of Germany, assignor to Gaggenau-Werke Haus- und Lufttechnik GmbH, Gaggenau, Fed. Rep. of Germany

Filed Oct. 17, 1980, Ser. No. 198,282

Claims priority, application Fed. Rep. of Germany, Oct. 31, 1979, 2943917

Int. Cl.³ A21B 1/00

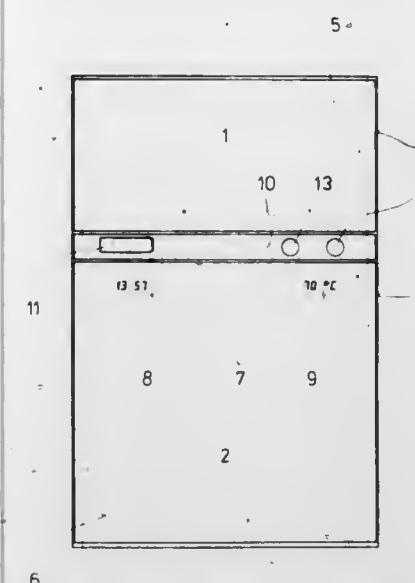
U.S. Cl. 126—273 R

10 Claims

1. In an oven of the type including an oven structure having an oven interior, an oven door for closing said oven interior, and visible adjustment and display elements for setting and

displaying parameters relating to the operation of the oven, the improvements wherein:

said oven structure includes a support;
said adjustment and display elements are visual elements mounted on said support;
said oven door comprises a transparent or translucent front plate for allowing viewing therethrough;



said support and said visual elements are covered by said front plate when said oven door is closed; and said front plate has light absorbing or reflecting means for imparting to said front plate properties such that only said visual elements and said oven interior when illuminated are visible through said front plate, and such that said visual elements and oven interior when not illuminated are not visible through said front plate.

4,363,316

VESSEL FOR FOOD PREPARATION

Tiina Aakenus, Vantaa; Pekka Mertanen, and Reijo Peltonen, both of Helsinki, all of Finland, assignors to Oy Wartsila AB, Helsinki, Finland

Continuation of Ser. No. 953,458, Oct. 23, 1978, abandoned.

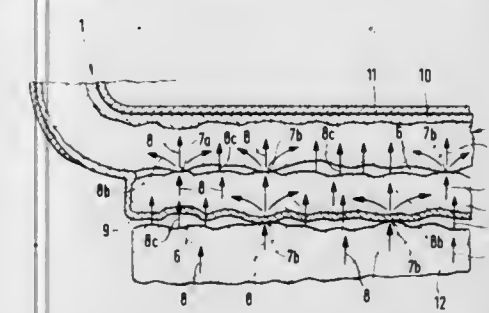
This application Dec. 18, 1980, Ser. No. 217,916

Claims priority, application Finland, Nov. 11, 1977, 773277

Int. Cl.³ A47J 27/00

U.S. Cl. 126—390

12 Claims



1. A vessel for food preparation having a side wall structure and a bottom, said bottom comprising:

two plate members;
a first of said two plate members forming an inner portion integral with said side wall structure and having an outer portion with a uniform surface;
a second of said two plate members which is a separate member and has a surface facing the outer portion of said first plate member and being uniform therewith, said second plate member being rigidly attached to an in contact with the uniform surface of said first plate member;
several spaced-apart small-area attachment points for rigidly attaching said first plate member to said second plate member, said spaced-apart small-area attachment points having therebetween, at least in one direction along the

mutual contact surfaces of said two plate members, an area of considerable length being free of attachment points between said two plate members; and the thickness of said second plate member and the distance between said attachment points being related so as to allow buckling of said second plate member due to thermal expansion thereof, thereby introducing an air gap between said two plate members.

4,363,317

WATERTIGHT CAST COVER

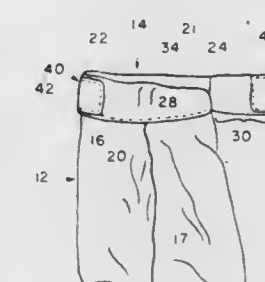
Daniel M. Broucek, 3010 Shaffer Rd., SE., Grand Rapids, Mich. 49508

Filed Apr. 16, 1981, Ser. No. 254,971

Int. Cl.³ A61F 13/00

U.S. Cl. 128—82

8 Claims



1. A watertight cover for protecting a cast, bandage or the like on an individual's limb, said cover comprising: an elongated, generally tubular waterproof member having an open end, said member dimensioned to receive the limb of the individual; and adjustable, resilient seal means joined to and extending around the periphery of said open end of said member for sealing the open end of said member to the limb, said seal means being adjustable in circumference to accommodate different size individuals and insure a comfortable seal to the limb, said adjustable seal means being an elongated elastic band having a first lateral edge extending around and joined to substantially the entire periphery of said open end, said band including a fixed end portion which defines an upper lateral edge, a portion of said upper lateral edge being angled toward the periphery of said open end, said band having a free end portion overlapping the fixed end portion thereof, whereby said free end portion may be stretched over said fixed end portion and said band at said fixed end portion may be folded upon itself, thereby insuring that an effective leak proof seal may be obtained, and wherein said seal further includes detachable securing means for detachably securing said free end portion in overlapping relationship with said fixed end portion.

4,363,318

CUSTOM VALVED CERVICAL CAP

Robert A. Goepp, Chicago, and Uwe E. Freese, Oak Park, both of Ill., assignors to University Patents, Inc., Norwalk, Conn.

Division of Ser. No. 108,319, Dec. 31, 1979, Pat. No. 4,322,463.

This application Jul. 30, 1981, Ser. No. 288,393

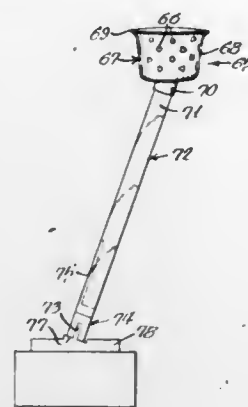
Int. Cl.³ A61F 5/46

U.S. Cl. 128—130

15 Claims

1. An impression tray suitable for making an impression of a cervix uteri which comprises a hollow cup for receiving the cervix and having a flexible well terminating in a peripheral, outwardly flared anterior lip and a bottom aperture;

a posterior sleeve integral with said cup and surrounding said bottom aperture; and



a hollow elongated stem having a proximal end thereof received within said posterior sleeve and defining a passageway communicating with the interior of said cup.

4,363,319

READY-TO-USE BANDAGE INCORPORATING A COAGULANT COMPOSITION AND METHOD OF PREPARING SAME

John H. Altshuler, Englewood, Colo., assignor to Applied Medical Devices, Inc., Englewood, Colo.

Continuation-in-part of Ser. No. 164,821, Jun. 30, 1980, abandoned. This application Apr. 20, 1981, Ser. No. 255,953

Int. Cl.³ A61L 15/00

U.S. Cl. 128—156

16 Claims



1. A coagulant adaptable for use as a dressing for wounds comprising a solution of 50–2000 units of thrombin per ml of an aqueous solution containing sodium chloride in about isotonic quantities and from 10–50% by weight of a straight chain 3 to 6 carbon fully hydroxylated polyol.

4,363,320

BREATHING AIRWAY

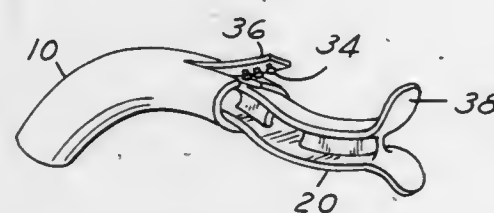
Michael Kossove, 1101 162nd St., Whitestone, N.Y. 11357

Filed Sep. 17, 1980, Ser. No. 187,970

Int. Cl.³ A61M 25/00

U.S. Cl. 128—207.14

14 Claims



1. An improved breathing array for insertion into the mouth and pharynx comprising a substantially tubular and substantially arcuate first element, a second element having an arcuate portion telescopically inserted into said first element for sliding engagement to provide a selectable length for said airway, said second element including means for providing fluid flow into

said first element, the length of said first and second elements together being such that said airway is adjustable, when in use, to extend from the mouth of a patient and terminate in the region of the throat defined by the pharynx, the curvature of said arcuate elements being approximately that of the mouth and pharynx, and separate mutually engageable securing means on said first and second elements adapted to fixedly secure the first and second elements together at one of a plurality of selectable lengths.

4,363,321

I.V. ADMINISTRATION FLOW RATE GAUGE

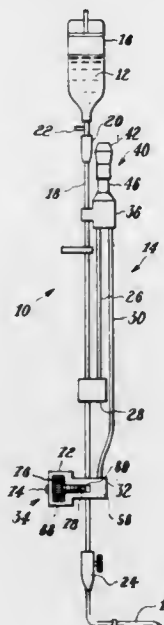
Richard M. Chittenden, Grayslake, Ill., assignor to Abbott Laboratories, North Chicago, Ill.

Continuation of Ser. No. 157,919, Jun. 9, 1980, Pat. No. 4,312,342. This application Dec. 18, 1981, Ser. No. 332,070

Int. Cl.³ A61M 5/00

U.S. Cl. 128—214 R

7 Claims



1. An apparatus for the measurement of the rate of flow of medical liquids within a gravitational flow system for the sequential administration of said liquids to a patient comprising:

a primary tube having its distal end in fluid communication with the source of said medical liquid, said primary tube being disposed substantially downwardly therefrom;
a secondary tube having its proximal end in fluid communication with said primary tube;
constrictor means reducing the inside diameter of said primary tube at a selected point and thereby impeding the flow of liquid therethrough;
pressure gauge means for measuring the relative difference in pressure between said secondary tube and said primary tube whereby the rate of flow of said medical liquid may be determined, said pressure gauge means comprising a pressure transducer attached to said secondary tube; and electrically activated valve means for controlling the rate of flow of liquid through said primary tube.

4,363,322

DEODORIZING AND DISINFECTING LIQUID-ABSORBING PRODUCT AND PROCESS FOR PRODUCTION THEREOF

Bror A. E. Andersson, Österängsvägen 24, S-180 10 Enebyberg, Sweden

Filed Apr. 12, 1979, Ser. No. 29,433

Claims priority, application Sweden, Apr. 13, 1978, 7804195; Aug. 28, 1978, 7809038

Int. Cl.³ A61F 13/16

U.S. Cl. 128—290 R

10 Claims

1. Liquid-absorbing product, which is designed to be able to

be provided with an insert or filler of a material which gives off oxygen in moisture, said product having the form of an essentially rectangular or square pad and comprising one or more layers of absorbent material, and a thin jacket around this material, characterized in that the product is divided into two essentially identical, essentially rectangular or square parts of a



thickness less than that of the product, which are joined along one side of each part by a thin flexible joint in such a manner that the parts can be placed on top of one another by folding the joint and then form the product in the form in which it is to be used, and the material which gives off oxygen in moisture is in direct contact with the absorbent material.

4,363,323

NASOGASTRIC TUBE ADAPTED TO AVOID PRESSURE NECROSIS

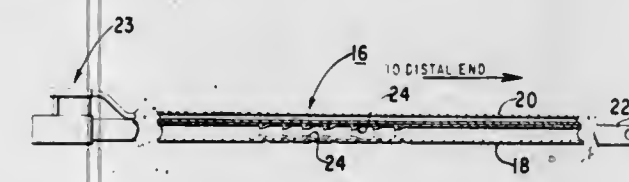
Alan C. Geiss, 50 Brampton La., Great Neck, N.Y. 11023

Filed Dec. 4, 1980, Ser. No. 213,028

Int. Cl.³ A61M 25/00

U.S. Cl. 604—281

11 Claims



1. A nasogastric tube, comprising:
an elongated tube having a distal end and a proximal end;
the tube having sufficient length to permit placement of the distal end in a patient's gastrointestinal tract while the tube extends therefrom through the patient's esophagus and nostril to its proximal end outside the patient's body;
the distal end having at least one port for communicating fluids to or from the gastrointestinal tract and the proximal end being adapted for communicating such fluids to or from a device exterior to the patient;
the elongated tube further having an intermediate portion spaced axially from the distal end to extend through the patient's nostril for placement adjacent the patient's nostril when the tube is in place in the gastrointestinal tract for communicating fluids to or from the tract; and
means in said intermediate portion for assuming and retaining an axial bend;
whereby the tube may be fixedly bent to extend from the patient's nostril in a desired direction without affixation to the nose to maintain said bend, to thereby avoid the possibility of pressure necrosis in the nose due to force exerted by the bend in the tube.

4,363,324

ELECTROMEDICAL APPARATUS

Bernd Kusserow, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

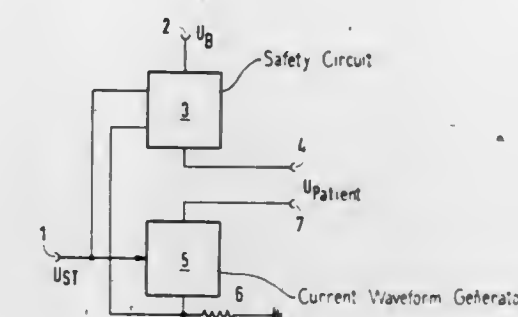
Filed Aug. 25, 1980, Ser. No. 181,097

Claims priority, application Fed. Rep. of Germany, Aug. 31, 1979, 2935309

Int. Cl.³ A61N 1/18

U.S. Cl. 128—419 R

15 Claims



1. Electromedical apparatus, in particular stimulation current apparatus, comprising a patient output, an operating voltage circuit comprising operating voltage input means for supplying an operating voltage (U_B) to the patient output, a control input means for supplying a preselected control value (U_{S7}), a patient current sensing means for supplying a measure of patient current, an output stage as current waveform generator operatively associated with the patient output and responsive to the preselected control value (U_{S7}) for controlling patient current in accordance therewith, and for effecting constant-current supply of such patient current, and a protection installation associated with the operating voltage circuit which protection installation disconnects the patient output from the operating voltage when a specifiable maximum value of the patient current has been exceeded, said protection installation comprising a safety circuit having switching means for the purpose of disconnecting the patient output from the operating voltage (U_B), said safety circuit having control means for actuating said switching means when the patient current deviates from the preselected control value (U_{S7}), said control means comprising comparator means connected with said patient current sensing means for receiving a measure of patient current and connected with said control input means for receiving a measure of said preselected control value (U_{S7}), the switching means comprising a bistable switching circuit controlled by the comparator means, said bistable switching circuit connecting the patient output with the operating voltage (U_B) in one switching state, and disconnecting the patient output from the operating voltage (U_B) in the other switching state, said comparator means being connected with said bistable switching circuit for controlling switchover of said bistable switching circuit between said one switching state and said other switching state, characterized in that said bistable switching circuit comprises first and second transistor means, said first transistor means (31) being disposed in said operating voltage circuit between said operating voltage input means (2) and said patient output (4), and being conductive in said one switching state of said bistable switching circuit, said second transistor means (32) being nonconducting in said one switching state and being coupled with said comparator means (41) so as to become conductive when the patient current deviates from the preselected control value (U_{S7}), said second transistor means (32) being coupled with said first transistor means (31) so as to render said first transistor means nonconducting and to switch said bistable switching circuit to said other switching state when said second transistor means becomes conducting, said operating voltage circuit having voltage drop means (33) therein for producing a voltage drop as a function of a patient current in the operating voltage circuit, said voltage drop means (33) being connected with said second transistor means (32) such that with a patient current exceeding said

4,363,331

TOBACCO PRODUCTS CONTAINING OXYGENATED
IONONE DERIVATIVES

Roman Kaiser, Uster, and Dietmar Lamparsky, Wangen-Dubendorf, both of Switzerland, assignors to Givaudan Corporation, Clifton, N.J.

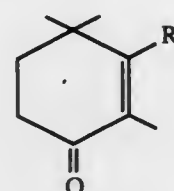
Division of Ser. No. 68,801, Aug. 22, 1979, Pat. No. 4,311,718, which is a division of Ser. No. 889,070, Mar. 22, 1978. This application Aug. 28, 1981, Ser. No. 297,447

Claims priority, application Austria, Mar. 28, 1977, 2158/77
Int. Cl.³ A24B 3/12, 15/30

U.S. Cl. 131—275

9 Claims

1. A tobacco product comprising an effective amount of a compound of the formula



wherein R represents a butyl but-2-enyl or 1,3-butadienyl group, with the exception that the compound is not added as part of a naturally occurring mixture.

4,363,332
DETECTION OF ROD-LIKE ARTICLES

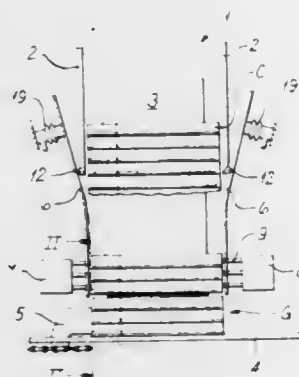
Edward G. Preston, and Jan A. Rakowicz, both of London, England, assignors to Molins Limited, London, England
Filed Mar. 17, 1980, Ser. No. 80,956

Claims priority, application United Kingdom, Mar. 21, 1979, 7909918

Int. Cl.³ A24C 5/00, 5/35

U.S. Cl. 131—282

13 Claims



1. In apparatus for forming groups of cigarettes comprising a cigarette hopper, and an ejection pusher at the bottom of said hopper for ejecting successive groups of cigarettes therefrom, the improvement of a device for detecting said groups of cigarettes, said device being mounted at a side of said hopper above said ejection pusher and comprising a plurality of plungers engageable with the ends of a group of cigarettes, a body in which said plurality of plungers are mounted for independent movement, the body being fixed in a direction axial of the plungers, pneumatic means operable on the plungers to move each plunger against the end of the respective cigarette of said group, and piezoelectric transducer means to detect movement of any plunger beyond a predetermined distance into said group.

4,363,333

TOBACCO-SMOKE FILTERS

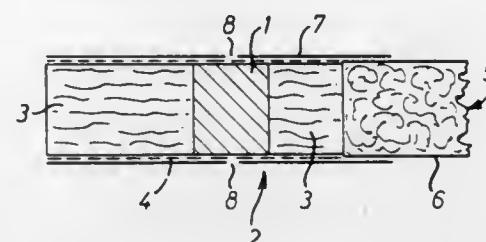
David A. Matkin, Southampton, England, assignor to British-American Tobacco Company Limited, London, England
Filed Nov. 3, 1980, Ser. No. 203,424

Claims priority, application United Kingdom, Nov. 13, 1979, 7939185; Jun. 13, 1980, 8019460

Int. Cl.³ A24D 3/00, 3/08, 3/16

U.S. Cl. 131—334

16 Claims



1. A nitric oxide filtration material which comprises; activated carbon upon which has been adsorbed a C-nitroso compound, said compound having at least one nitroso group which will react to remove said nitric oxide.

4,363,334

COMBING CURLER

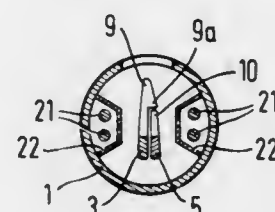
Frank Popp, Niefern-Öschelbronn, Fed. Rep. of Germany, assignor to Forflex Alfred Popp Haarpflegegeräte GmbH, Niefern-Öschelbronn, Fed. Rep. of Germany
Filed Jul. 28, 1981, Ser. No. 287,787

Claims priority, application Fed. Rep. of Germany, Aug. 5, 1980, 3029619

Int. Cl.³ A45D 2/12

U.S. Cl. 132—33 R

17 Claims



1. In a combing curler comprising a curler tube formed with a longitudinal slot, a dressing comb extending longitudinally in said curler tube and having teeth adapted to protrude through said slot, and advancing spring means accommodated in said curler tube and urging said dressing comb to a position in which said teeth protrude from said slot, said teeth being adapted to be entirely retracted into said curler tube against the force of said advancing spring means, the improvement residing in that a clamping comb is provided, which extends longitudinally in said curler tube and parallel to said dressing comb and has teeth adapted to protrude through said slot and is urged by said advancing spring means to a position in which the teeth of said clamping comb protrude from said slot, and said teeth of said clamping comb are adapted to be entirely retracted into said curler tube against the force of said advancing spring means.

4,363,335

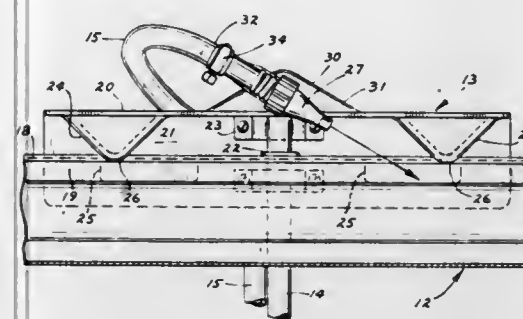
GUTTER CLEANER

William R. Tapper, 3935 Walden La., Wayzata, Minn. 55391
Filed May 21, 1981, Ser. No. 265,855

Int. Cl.³ B08B 9/00

U.S. Cl. 134—167 C

10 Claims



9. A device for cleaning leaves and other debris from eave troughs and similar gutters which comprises:

(A) a longitudinally movable carrier adapted for engagement with the forward lip of an eave trough, said carrier including:

(1) a horizontal component,
(2) a first vertical component extending downwardly from the outer edge of said horizontal component, said horizontal and first vertical carrier components being rigid plates joined along a common longitudinal edge, and
(3) a second rigid vertical component extending upwardly from the horizontal component,

(B) at least a pair of skid or runner guide means formed as indentations in the horizontal component of the carrier and adapted to engage the top surface of the trough lip,

(C) at least a pair of skid or runner guide means formed as indentations in the first vertical component of the carrier and adapted to engage the outer trough wall adjacent to the lip,

(D) an elongated handle connected at its top end to said carrier and extending vertically downward therefrom,

(E) hose clamping means supported from the inside surface of said second vertical carrier component and comprising:
(1) a first arm pivotally secured to said second vertical component for rotation about a transverse horizontal axis,

(2) a second longitudinally extending arm connected to and laterally off-set from said first arm, and

(3) a clamp for securing a hose to said second arm, and

(F) a high pressure water nozzle adapted to be connected to the end of the hose held by said clamping means to extend longitudinally relative to said carrier and positioned to overlie the trough.

4,363,336

KEG-TAPPING STRUCTURE

Vincent J. Cerrato, Pomona, N.Y., assignor to Vending Components, Inc., Hackensack, N.J.

Filed Apr. 7, 1981, Ser. No. 251,955

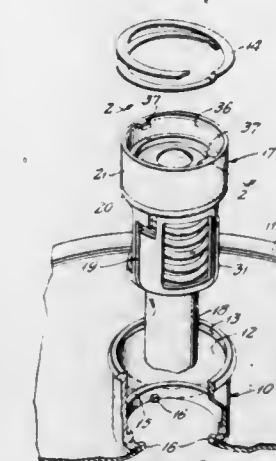
Int. Cl.³ F16K 35/00

U.S. Cl. 137—212

8 Claims

1. In structure adapted for removable connection of a tapping unit to a keg, wherein the keg has a cylindrical annular neck with a bore having near its upper end a circumferential groove adapted to removably receive a retaining ring and with a seal-seating radially inward flange near the lower end of the bore; and wherein a valve and down-tube subassembly is removably receivable in said neck with the down-tube thereof projecting through and downwardly of said flange, the valve of said subassembly comprising an annular seat seated at the upper end of said tube and means including an upper annular housing, a compression spring and an elongate lower annular cup surrounding and compressionally loading the engagement of said seat and tube, the improvement in which the inner contour of said flange is characterized by one or more integral

radially inward lugs, and in which said cup has one or more longitudinal slots engageable with said lugs on tube insertion through said neck, each slot terminating in an angular bayonet offset and in a further longitudinally upward offset, whereby subassembly insertion involves a first lug-keyed longitudinally downward displacement followed by angular rotation through



the bayonet offset and ending with a second lug-keyed longitudinally downward displacement, so that independent of any retention of said subassembly via a retaining ring in said groove, the longitudinally limited extent of lug engagement in the further slotted-offset relation will assure against removal or expulsion of said subassembly, in the absence of a deliberate bayonet-dislocating angular displacement.

4,363,337

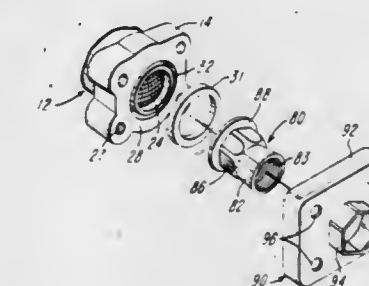
FLUID CONTROL VALVE AND INLET FITTING
ASSEMBLY

James F. Pease, 5805 Folkestone Dr., Dayton, Ohio 45459
Continuation-in-part of Ser. No. 25,869, Apr. 2, 1979, Pat. No. 4,266,567, which is a continuation-in-part of Ser. No. 818,433, Jul. 25, 1977, Pat. No. 4,149,554. This application Apr. 8, 1981, Ser. No. 252,074

Int. Cl.³ F16K 51/00; F16L 3/00

U.S. Cl. 137—343

17 Claims



1. In a valve assembly for controlling the flow of a fluid and including a molded plastic valve body having an inlet portion defining an inlet and an outlet portion defining an outlet and means forming a valve seat therebetween, means supported by said valve body and cooperating with said valve seat for controlling the flow of fluid from said inlet to said outlet, a metal fitting including a tubular threaded portion projecting from an integral flange portion disposed adjacent said inlet portion of said valve body, means forming a fluid-tight seal between said flange portion and said inlet portion of said valve body, a sheet metal retaining bracket having an aperture aligned with said tubular portion of said fitting, and means for securing said bracket to said valve body, the improvement wherein said fitting comprises a drawn sheet metal tubular fitting including a tubular portion integrally connecting said flange portion to said tubular threaded portion, said connecting portion having a non-circular cross-sectional configuration, said retaining bracket including an axially projecting drawn sheet metal tubular socket portion defining said aperture and having a

non-circular cross-sectional configuration, and said socket portion closely surrounding said tubular connecting portion of said fitting and cooperatively shaped to prevent rotation of said fitting relative to said retaining bracket.

4,363,338

LIQUID FILLING MACHINE

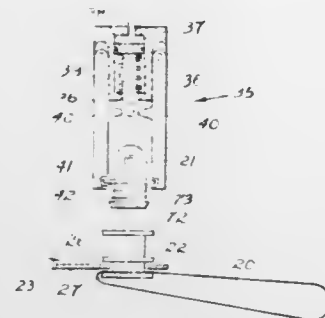
Albert M. Brown, 3 Blackburn Ave., Elizabeth South, State of South Australia, Australia

Filed Sep. 8, 1980, Ser. No. 185,156

Int. Cl.³ B67C 7/00; B65B 3/04

U.S. Cl. 141—2

11 Claims



11. A method of filling, with liquid, a container of the type which has a dispensing closure axially movable into or out of a flanged sleeve, comprising:

locating the sleeve on sleeve retaining means so as to releasably retain the sleeve in a position fixed relative to a frame of a liquid filling machine,

lowering closure grip means of a head assembly of said machine from an upper level to an intermediate level over said closure and gripping said closure with said grip means,

raising said closure grip means vertically to said upper level to remove said closure from said flanged sleeve, moving said closure grip means in a horizontal plane away from alignment with said flanged sleeve and at the same time bringing a filling head into alignment therewith,

lowering said head assembly to said intermediate level and thereby bringing said filler head into sealable engagement with an upper surface of said flanged sleeve, evacuating air from said container through said filler head, and filling the container with liquid,

lifting said head assembly back to its upper level and returning said closure grip means to vertical alignment with said flanged sleeve, and

lowering said head assembly to a lower level to reinsert said closure into said flanged sleeve, releasing said closure grip means from said closure, raising said filler head to its upper level, and removing the filled container from said sleeve retaining means.

4,363,339

FILLING VALVE ARRANGEMENT FOR COUNTER-PRESSURE CONTAINER FILLING APPARATUS

Stanley J. Puskarz, Clearwater, Fla., assignor to Barry-Weh-miller Company, St. Louis, Mo.

Filed Apr. 9, 1981, Ser. No. 252,341

Int. Cl.³ B65B 31/00; B67C 3/06

U.S. Cl. 141—39

15 Claims

6. A filling valve arrangement for counterpressure container filling apparatus in which a bowl for holding a liquid under pressure from a gas for delivery to a container is provided with a bottom outlet, said filling valve comprising:

(A) a base positioned in the bottom outlet of the bowl and supporting a movable primary sleeve projecting into the bowl to position with its end above the liquid level;

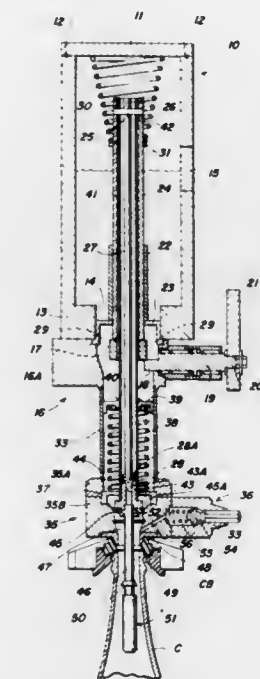
(B) a tubular extension depending from said base and communicating with the bowl through said base for receiving liquid from the bowl;

(C) a filling head connected to said tubular extension and

formed with a valve seat and a flow passage extending outwardly from said valve seat;

(D) a secondary sleeve disposed inside said primary sleeve and extending from an open end above the liquid level in the bowl to an opposite end adjacent said valve seat, said secondary sleeve carrying a body at its opposite end which is carrying a valve element in position to cooperate with said valve seat, and said body being formed with a second valve seat;

(E) resilient means operably disposed in said tubular extension and connected to said secondary sleeve in position for moving said valve element off said valve seat in said filling head; said resilient means being normally opposed by the liquid under gas pressure in said tubular extension and the liquid head from the bowl;



(F) gas flow control means disposed in said secondary sleeve and extending from one end operatively connected to said primary sleeve to a valve end cooperating with said second valve seat, said gas flow control means being movable with said primary sleeve and independent of said secondary sleeve;

(G) operating means in said base in position for initiating movement of said primary sleeve in a direction to move said gas flow control means for opening said second valve seat to release gas therethrough;

(H) and a gas vent tube connected to said body carried by said secondary sleeve, said vent tube extended through said filling head flow passage and to a position therebeyond for entering a container to receive the liquid.

4,363,340

APPARATUS FOR COLLECTING FLUIDS

Henry Naftulin, 8341 N. Kenton Ave., Skokie, Ill. 60076

Filed May 21, 1981, Ser. No. 263,474

Int. Cl.³ B65B 31/02; A61M 1/00

U.S. Cl. 141—51

11 Claims

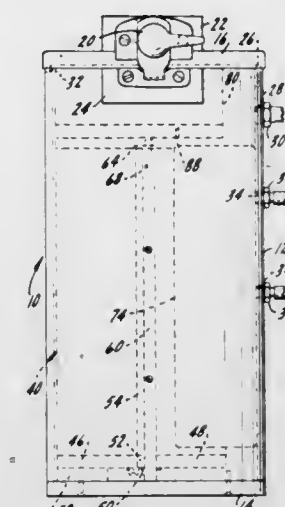
1. Apparatus for collecting and storing biological fluids in a flexible container, comprising:

(a) a rigid outer chamber having a fluid inlet opening and a vacuum port, said flexible container being disposed within said outer chamber in communication with said fluid inlet opening for receipt of fluid therein upon creation of a vacuum within said outer chamber through said vacuum port;

(b) inner chamber means disposed within said outer chamber for receipt of said flexible container therein, said inner chamber being split into at least two segments which are movable between a closed position and an open position, said inner chamber means defining a smaller volume when in its closed position than when in its open position;

(c) bladder means disposed within said outer chamber between

said inner chamber means and said outer chamber, the interior of said bladder means being in communication through an opening in said outer chamber with the atmosphere so as to cause said bladder means to expand and fill a space between said inner chamber and said outer chamber upon the application of a vacuum to said outer chamber so as to exert a pressure on said inner chamber sections and thereby move said sections toward one another into its closed position; and



(d) retainer means depending downward from the underside of a lid member, said lid member being pivotally mounted to said outer chamber adjacent to the upper end thereof so as to close off the upper end of said outer chamber when in its closed position, said retainer means extending downward towards said inner chamber means and being effective to limit the expansion of said flexible container.

4,363,341

PLANT CONTAINER FILLING MACHINE

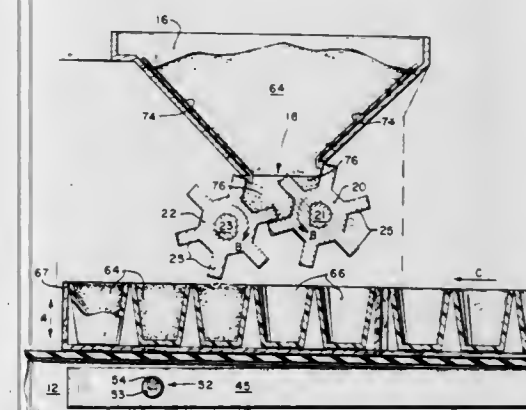
Calvin F. Powell, 100 N. H St., Oxnard, Calif. 93030

Filed Jan. 21, 1981, Ser. No. 226,799

Int. Cl.³ B65B 3/04

U.S. Cl. 141—78

10 Claims



1. A system for continuously metering predetermined amounts of particulate matter to moving containers comprising an overall framework;

a conveyor mounted on said framework;

a hopper having an outlet located above said conveyor, said hopper including first and second rotating wheels having radially extending blade members closing said outlet; and, drive means connecting said conveyor and wheels to regulate the movement thereof, said wheels being spaced apart from each other a distance sufficient to allow overlap of corresponding blade members on each respective wheel, said hopper including a resilient portion extending into said outlet a distance sufficient to allow contact with at least one of said blades.

9. The system of claim 1 including means for agitating containers of particulate material on said conveyor comprising a frame located beneath the conveyor and connected to said

overall framework at one end with a resilient connector and having a free end connected to said framework by an eccentric means which is supported by a rotatable shaft journaled to said frame whereby rotation of said shaft will cause the angular displacement of said frame against said conveyor or containers.

4,363,342

LOG MILLING APPARATUS

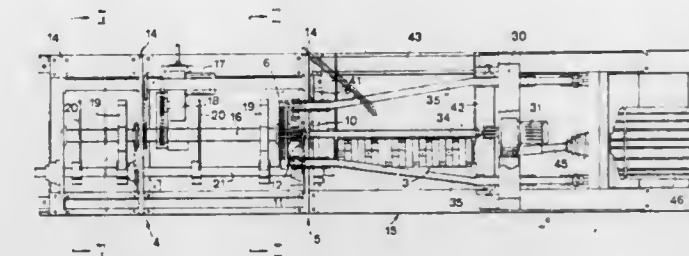
Harding Tannerstal, Söderhamn, Sweden, assignor to Bruks Mekaniska AB, Arbra, Sweden

Filed Jun. 6, 1980, Ser. No. 157,036

Int. Cl.³ B27C 9/00

U.S. Cl. 144—2 R

21 Claims



1. A log milling apparatus comprising, means for receiving a log and supporting the same from below with the swelled root end thereof overhanging therefrom, said receiving means having spaced apart first and second ends defining the length thereof, means for rotating said log relative to said receiving means, and

a milling cutter arranged beside said receiving means and under said overhanging root end of said log so as to machine said overhanging swelled root end of said log from below and along a line which is located in the extension of the length of said receiving means.

4,363,343

COMBINATION GUARD AND RABBETING DEPTH GAUGE ASSOCIATED WITH POWER PLANER

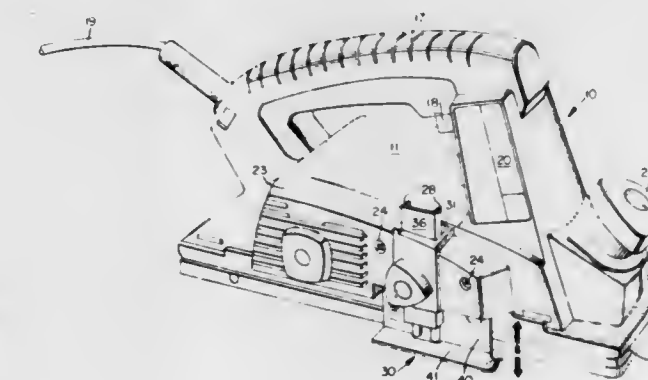
Giuseppe Cuneo, Calolziocorte, Italy, assignor to Black & Decker Inc.

Filed Sep. 24, 1980, Ser. No. 190,228

Int. Cl.³ B27C 1/10; B27G 21/00; B27C 1/14

U.S. Cl. 145—4

12 Claims



1. A portable handheld planer for planing a workpiece, comprising:

a housing containing a substantially cylindrical planing tool rotatably mounted for rotation about a horizontal axis; a motor supported by said housing for driving the planing tool;

shoe means, connected to said housing, for supporting the planer on the workpiece, and in conjunction with said planing tool determining the size of the cut produced by each pass during the planing operation;

guard means, disposed adjacent the planing tool, for block-

ing access to one end thereof during the planing operation, said guard means being connected to the housing for movement relative to said shoe means in a direction transverse to said horizontal axis;

resilient means for resiliently urging said guard means downwardly for engagement with an unplanned portion of the workpiece and yieldably allowing upward movement of said guard means relative to said shoe means while a rabbet is being cut;

stop means for controlling the extent to which the guard means can be moved upwardly to set the depth to which the completed rabbet will be cut; and

adjustment means for adjusting the position of said stop means whereby said depth of the rabbet can be adjusted to any value within a predetermined range of values.

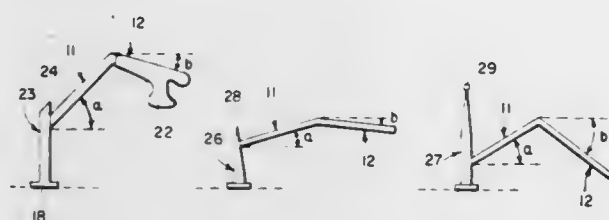
4,363,344 HAMMER

I. Scott Pollak, 14 Greenway Rd., Armonk, N.Y. 10504
Continuation-in-part of Ser. No. 869,060, Jan. 13, 1978, Pat. No. 4,154,273. This application May 9, 1979, Ser. No. 37,344
The portion of the term of this patent subsequent to May 15, 1996, has been disclaimed.

Int. Cl.³ B25C 1/00

U.S. Cl. 145—29 R

12 Claims



1. A hammer comprising a head having on one end a planar striking face, a proximal handle portion rigidly secured at its inner end to said head and angularly disposed to said face, and a distal handle portion angularly and rigidly secured at its inner end to the outer end of said proximal handle portion, said handle portions and head having given lengths and being disposed in a first plane that is perpendicular to said planar striking face, said proximal handle portion describing a proximal angle from 10° to 80° above a second plane parallel to said planar striking face and passing through the intersection point of said head and the longitudinal axis of said proximal handle portion, said distal handle portion describing a distal angle from 5° to 80° below a third plane parallel to said planar striking face and passing through the intersection point of the longitudinal axes of said handle portions, all being such that the outer end of said distal handle portion is spaced from the plane of said planar striking face, said distal handle portion constituting a hand-grip member for hammer manipulation by a user.

4,363,345

RECLOSABLE CONTAINER

Gerald H. Scheibner, Downers Grove, Ill., assignor to Union Carbide Corporation, Danbury, Conn.
Continuation of Ser. No. 155,233, Jun. 2, 1980, abandoned. This application Nov. 18, 1981, Ser. No. 322,722

Int. Cl.³ B65D 33/24

U.S. Cl. 150—3

14 Claims

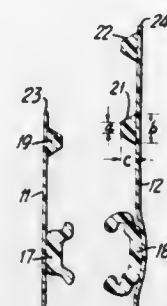
1. In a container having a reclosable end, comprising flexible first and second sidewalls, and a closure fastening device including first and second closure profiles positioned on respective first and second sidewalls and operable for being occluded and disengaged with respect to each other to close and open said container,

said first sidewall extending beyond the end edge of said second sidewall at said reclosable end; the improvement which comprises:

first and second ridges spaced apart from each other on the

surface of said first sidewall and arranged substantially parallel to said first closure profile;

said first ridge being positioned near the end edge of said first sidewall, and said second ridge being positioned substantially opposite the end edge of said second sidewall when said closure profiles are occluded; and



a third ridge on the surface of said second sidewall and arranged substantially parallel to said second closure profile;

said third ridge being positioned near the end edge of said second sidewall.

4,363,346

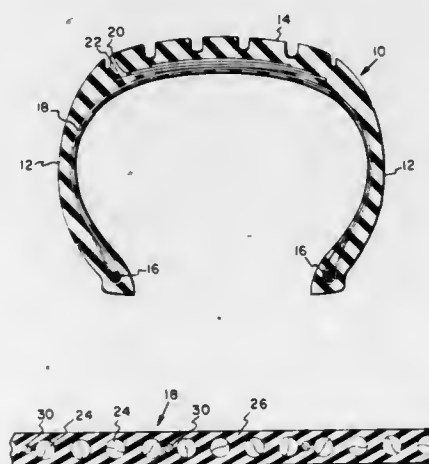
PNEUMATIC TIRE INCLUDING GAS ABSORBING CORDS

Richard J. Pepe, Hartville, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Sep. 23, 1981, Ser. No. 304,729

Int. Cl.³ B60C 9/04; B29H 17/28; B32B 25/02

U.S. Cl. 152—356 R

10 Claims



1. An elastomeric article comprising at least one reinforcement ply wherein said reinforcement ply includes a plurality of reinforcing cords embedded in rubber or rubber-like material, said reinforcing cords extending in parallel spaced apart relation; the improvement wherein said reinforcing ply further includes a plurality of gas absorbing cords, each gas absorbing cord extending parallel to and being disposed between a pair of reinforcing cords in spaced relation thereto, each gas absorbing cord lying generally in the same plane as that defined by the reinforcing cords on opposite sides thereof, each gas absorbing cord consisting of a multiplicity of staple filaments of a material or materials selected from the group consisting of nylon, rayon, polyester or glass and being of a diameter no greater than one-third the diameter of one of said reinforcing cords and having a break strength no greater than about 10 percent the break strength of one of said reinforcing cords, each gas absorbing cord being completely surrounded by rubber or rubber-like material, said gas absorbing cords being located alongside only every third to sixth reinforcing cord.

8. A method of manufacturing an elastomeric article containing at least one reinforcement ply comprising locating in a common plane a plurality of reinforcing cords in parallel

spaced apart relation; locating alongside only every third to sixth reinforcing cord a gas absorbing cord with the gas absorbing cord being in parallel spaced relation to and lying in the same general plane as that of the reinforcing cords on opposite sides thereof and with said gas absorbing cord being of a diameter no greater than about one-third the diameter of one of said reinforcing cords and having a break strength of no greater than about 10 percent of one of said reinforcing cords and consisting of a multiplicity of staple filaments of one or more materials selected from the group consisting of nylon, rayon, polyester or glass; and passing the array of reinforcing cords and gas absorbing cords through a calender to embed and completely surround each of said reinforcing and gas absorbing cords in rubber or rubber-like material to form said reinforcement ply.

4,363,347

MOTOR VEHICLE WHEEL

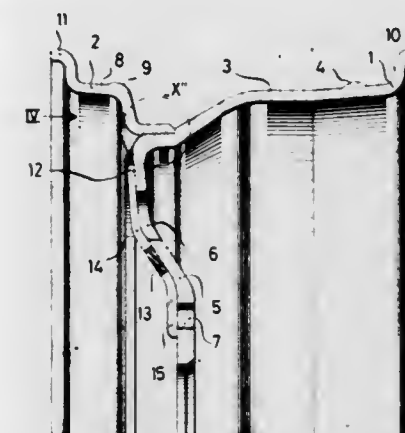
Heinrich Baumgartner, Schenkzell, Fed. Rep. of Germany, assignor to BBS-Kraftfahrzeugtechnik GmbH, Schiltach, Fed. Rep. of Germany

Filed Oct. 31, 1979, Ser. No. 89,770

Int. Cl.³ B60B 21/02

U.S. Cl. 152—411

8 Claims



1. A motor vehicle wheel having a wheel disc and a rim bed for mounting a tire, said wheel consisting of two permanently connected, preformed parts composed of distinct materials, one wheel part comprising a single integral inner part forming both the wheel disc and the inner and larger portion of the rim bed and the other wheel part comprising an outer part forming the remaining and smaller portion of the rim bed, said two wheel parts being connected together along their respective rim bed portions to provide a complete rim bed, wherein

(a) said inner wheel and outer wheel parts are connected together in an air-tight manner, without soldering or welding, by contiguous and continuous connection surfaces comprising a generally annular connection surface formed on one wheel part and a complementary generally annular connection surface formed on the other wheel part;

(b) the two wheel parts consist of similar light metal alloys constituted of the same base metal but of different alloying elements, whereby the creation of a corrosion inducing electrolytic effect between the inner and outer wheel parts, which would impair the integrity of the air-tight connection between said two parts, is prevented;

(c) the light metal alloy of the inner wheel part has a relatively higher tensile strength and a relatively lower resilience than the light metal alloy of the outer wheel part to enable said inner wheel part to transmit forces from the tire inwardly through the rim bed and the wheel disc to the hub of the wheel without interruption; and

(d) the light metal alloy of the outer wheel part has a relatively lower tensile strength and a relatively higher resilience than the light metal alloy of the inner wheel part to enable said outer wheel part to absorb shock forces occurring when the wheel is in use.

4,363,348

LIFT WALL PROVIDED WITH LIFTING MACHINERY

Hämäläinen Heikki, SF-31300 Tammela, Finland

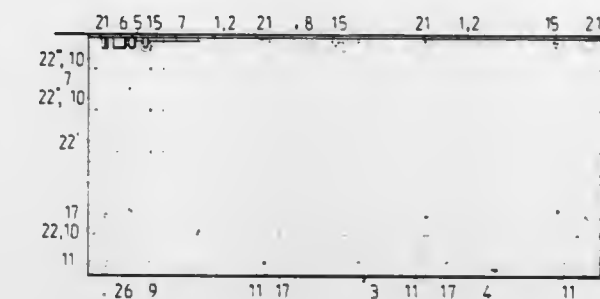
Filed Jul. 21, 1981, Ser. No. 285,529

Claims priority, application Finland, May 22, 1981, 811590

Int. Cl.³ A47H 5/00

U.S. Cl. 160—84 R

7 Claims



1. A lift wall provided with lifting machinery, comprising two wall cloths each made of resilient material and suspended by their upper edges from a ceiling with substantially constant mutual spacing;

lower edge means to which lower edges of both wall cloths are attached;

lifting means provided with power means and at least two rope-like lifting members affixed to said lower edge means for lifting and lowering the wall with the aid of said lifting means driven by said power means and supported by said lifting members;

a ceiling module to which said wall cloths are attached and in which said lifting means with its said power means are accommodated;

said lift wall with said ceiling module constituting a unitary entity mountable on the ceiling;

said lower edge means comprising an elongated lower edge element in the horizontal plane and paralleling the wall, and to which said wall cloths and said lifting members are affixed;

a lower edge connector element; and

two elongated lower bracing arms paralleling said lower edge element and connected to said lower edge element by the aid of linkage arms thereto pivotally attached in a vertical direction at right angles to the plane of the wall to be displaceable with reference to said lower edge elements parallelly upward and in braced fashion to either side, and bracing arms been placed between said wall cloths in such manner that said cloths are folded to the sides, supported by said bracing arms, when said lower edge element is lifted up with the aid of said lifting members.

4,363,349

SASH PORTLIGHT FOR MARINE USE

John M. Childs, 13031 Deva St., Coral Gables, Fla. 33156

Filed Oct. 30, 1980, Ser. No. 202,274

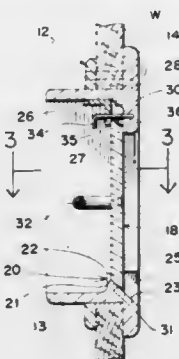
Int. Cl.³ E06B 9/00, 5/00, 3/60

U.S. Cl. 160—90

9 Claims

1. A sash portlight for marine use, comprising, in combination, a rectangular frame member, said frame member being integrally formed with a tubular spigot portion defining a rectangular through opening, said tubular spigot portion having integrally formed therewith, about its outer periphery, a perpendicularly-outwardly-extending flange, a rectangular sash light receivable within the said rectangular through opening, said flange comprising a perpendicularly-inwardly-extending top portion and opposed perpendicularly-inwardly-extending side portions serving as abutment surfaces for marginal outer surface portions of said sash light upon installation in said frame member, means defining a longitudinal groove at the inside upper wall portion of said spigot portion and comprising said perpendicularly-inwardly-extending top portion of said flange, means along the inside lower wall portion of said spigot

portion and extending upwardly thereof for seating a lower marginal end portion of said rectangular sash light upon its installation in said frame member, said seating means being vertically opposed to said longitudinal groove means, the width of said longitudinal groove and the top-to-bottom overall height of said sash light being such as to permit the insertion of an upper marginal portion of said light upwardly within said longitudinal groove and a lower marginal portion thereof over said seating means for placement in abutment with said abutment surfaces and, after subsequent downward movement, in abutting engagement with said seating means for the retention



in place of said sash light in said frame member, said seating means comprising a rectangular upper end portion merging, at the outside, with a longitudinally-extending, downwardly and outwardly-directed, beveled surface portion extending through to the outer surface of the bottom portion of said flange, said sash light being beveled along its lower edge to define an angle of inclination substantially equal to that of said beveled surface portion, whereby, upon the seating of said sash light in place upon its installation in said frame, its beveled edge will seat face-to-face in abutting engagement against said beveled surface portion of said seating means.

4,363,350

SELF-DRAINING BOAT WINDOW

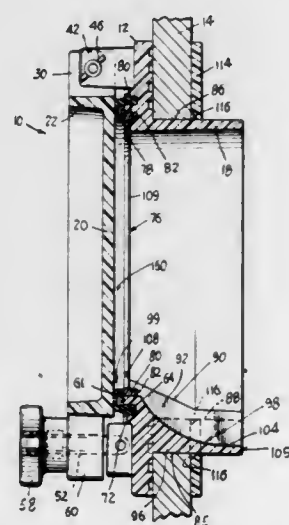
Frank S. Beckerer, 134 Far Horizons Dr., Easton, Conn. 06612

Filed Nov. 3, 1980, Ser. No. 203,046

Int. Cl.³ E06B 7/14

U.S. Cl. 160—92

13 Claims



1. In a self-draining, leak-resistant boat window, in combination:

- (a) a frame body comprising a continuous mounting flange for engagement with an inner surface surrounding an opening in the wall of a boat;
- (b) said body including a spigot connected with said flange and defining the window opening and having a lower portion characterized by an upwardly-facing drain surface constituting a sill, said spigot being adapted to extend through said wall opening of the boat,

- (c) a window pane for closing off the window opening formed by the spigot, and
- (d) means hingedly connecting said window pane to said mounting flange;
- (e) said sill of the spigot having a portion which is downwardly offset with respect to remaining areas of the sill, said downwardly offset portion being provided with a sloping drain groove extending from a high location closely adjacent said mounting flange to a low location disposed remote from the mounting flange
- (f) said drain groove being open at the top for a substantial portion of its length, thereby defining an open channel which resists the tendency for residue to form therein and cause possible clogging.

4,363,351

THERMAL INSULATING SHUTTER ASSEMBLY

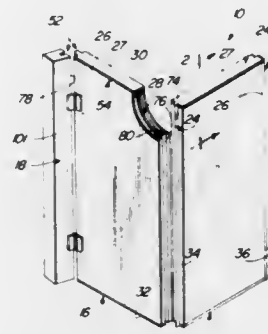
George Eriksen, 201 E. Hopkins, Aspen, Colo. 81611

Filed Mar. 10, 1980, Ser. No. 129,018

Int. Cl.³ E05D 15/26; E04C 1/16

U.S. Cl. 160—187

1 Claim



1. A thermal insulating shutter assembly for selective covering of the interior of a wall opening, said assembly comprising: at least one set of shutter elements, each said set including first and second shutter elements; each said shutter element comprising a pair of spaced, substantially parallel panel members having congruent end edges, peripheral end means interconnecting the end edges of said panel members to form top and bottom end members interconnected by oppositely disposed side members and to define an enclosed interior chamber therewithin, core means centrally disposed between and spaced from said panel members within said chamber and bounded on all sides by said peripheral end means for providing thermal insulation and to define an enclosed, dead air space between said core means and each said panel member, said core means and panel members being formed so as to define the size and shape of said dead air spaces to prevent convection currents from forming there-within and being sufficiently sealed to substantially prevent condensation within said dead air spaces, and thermal reflective means disposed on the outer surfaces of said core means for substantially preventing thermal radiant energy loss, said reflective means being spaced from and facing the inner surfaces of said panel members;
- a shutter jamb element for supporting said set of shutter elements and adapted for mounting adjacent said wall opening;
- elongated tongue means disposed along the length of one side member of each said shutter element;
- channel means disposed along the length of said jamb element and along the length of the other side member of said second shutter element for receiving the tongue means of said second and first shutter elements, respectively, when said shutter assembly is in a closed position wherein said jamb element and said shutter elements of said set of elements are in substantially co-planar alignment and covering said wall opening, said channel means including a layer of insulation along the bottom thereof adapted to

be compressed by and flow around said tongue member when engaged within said channel means to provide firm mechanical and thermal sealing of said assembly when in said closed position;

first hinge means interconnecting said jamb element and said second shutter element to permit pivotal movement of said second shutter movement relative to said jamb element between said closed position and an open position wherein said second shutter element is disposed adjacent the inner face of said jamb element substantially parallel to said wall;

second hinge means interconnecting said first and second shutter elements to permit pivotal movement of said first shutter element relative to said second shutter element between said closed position and said open position wherein said first shutter element is disposed adjacent and congruent with said second shutter element;

lap joint means disposed along the length of the other side member of said first shutter element for sealing and locking said first shutter element in said closed position; and a layer of insulation disposed along said top and bottom end members of each said shutter element to provide thermal sealing in said closed position, said insulation creating in conjunction with said tongue and channel means insulation an enclosed, substantially sealed air space between said shutter assembly and said window to reduce thermal energy conduction losses.

4,363,352

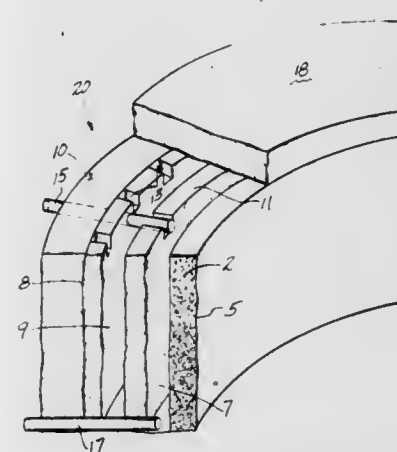
CONTINUOUS LUBRICATION CASTING MOLDS
Michael J. Pryor, Woodbridge, and Derek E. Tyler, Cheshire, both of Conn., assignors to Olin Corporation, New Haven, Conn.

Filed Oct. 15, 1979, Ser. No. 84,768

Int. Cl.³ B22D 11/07

U.S. Cl. 164—418

4 Claims



1. A casting apparatus for continuously casting molten metals or alloys comprising:
- a continuous lubrication casting mold, said casting mold including a permeable casting mold section having an inner casting surface, a molten metal or alloy inlet end and an outlet end;
 - said permeable casting mold section comprising a porous body having a continuous open pore fraction associated therewith for establishing passages for lubricant, said open pore fraction of said casting mold section varying along the length thereof so that said open pore fraction of said casting mold section is larger at said molten metal or alloy inlet end of said casting mold section as compared to said outlet end of said casting mold section; and
 - means for supplying lubricant to said permeable casting mold section along substantially its entire length whereby lubricant continuously transfers onto said inner casting surface along substantially the entire length thereof.

4,363,353

EXHAUST PIPE HEAT EXCHANGER

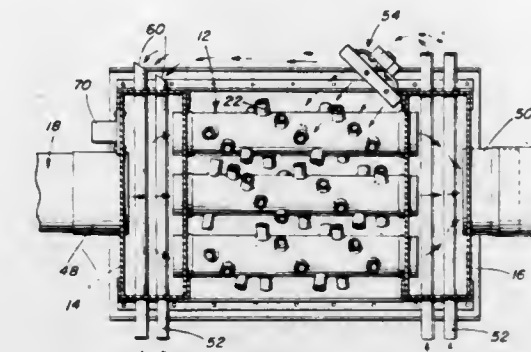
Ronald B. Pranaitis, 2525 E. 223rd St., Sayk Village, Ill. 60411

Filed Aug. 8, 1980, Ser. No. 176,779

Int. Cl.³ F28D 7/02

U.S. Cl. 165—39

15 Claims



1. A heat exchange unit for connection in the exhaust line of a fuel burning apparatus comprising: an elongated tubing section having an inlet end and an outlet end; a plurality of exchange tubes disposed between an inlet plenum and an outlet plenum, each of said exchange tubes being further disposed transversely through said elongated tubing section with said exchange tubes, being spaced longitudinally of said tubing section, and further wherein adjacent ones of said exchange tubes are offset with the ends of said exchange tubes being disposed in a helical conformation longitudinally of the tubing section, and second heat exchange tubes being disposed transversely of each of said inlet and outlet plenums.

4,363,354

SOLAR FURNACE SUPPORTING APPARATUS

Benjamin W. Strickland, Box 30, Joliet, Mont. 59041

Continuation-in-part of Ser. No. 64,482, Aug. 7, 1979, Pat. No. 4,145,021. This application Mar. 16, 1981, Ser. No. 244,244

Int. Cl.³ F28F 9/00; F24J 3/02

U.S. Cl. 165—67

10 Claims



1. Solar furnace supporting apparatus including a frame portion, a furnace holding portion and an actuating portion, said frame portion including a base section and an upstanding section; said furnace holding portion being pivotally carried by said frame portion, said furnace holding portion including spaced longitudinal members, cross members connecting said longitudinal members adjacent the ends thereof, supporting shaft means disposed substantially perpendicular to said longitudinal members adjacent the centers thereof, said supporting shaft means being engageable with said frame portion adjacent the top of said upstanding section thereof, said actuating portion including cooperating flexible connecting means operatively connected to at least one of said longitudinal members at points along the length thereof substantially equidistant from said supporting shaft means, each of said cooperating flexible connecting means having one end attached to said longitudinal member and extending downwardly in a converging relationship to at least one pair of adjoining parallel pulleys mounted

on a freely rotatable first shaft disposed directly below and spaced from said supporting shaft means and aligned substantially parallel thereto, each of said flexible connecting means passing around at least a portion of the periphery of one of said adjoining pulleys, said flexible connecting means passing around its respective pulley in a direction opposite to that the other flexible connecting means passes around its pulley, each of said flexible connecting means extending from said pulleys to one of adjoining parallel drum means affixed to a drum shaft disposed below and substantially parallel to said first shaft, said drum shaft being operatively connected to drive means; whereby actuating said drive means rotates said drum shaft causing one of said flexible connecting means to wind onto one drum while simultaneously delivering said flexible connecting means from the other of said drums, with the lengthening and shortening of the effective lengths of said flexible connecting means causing one end of said furnace holding portion to be lowered while the opposite end of said holding portion is raised to an elevated position.

4,363,355

HEAT EXCHANGER

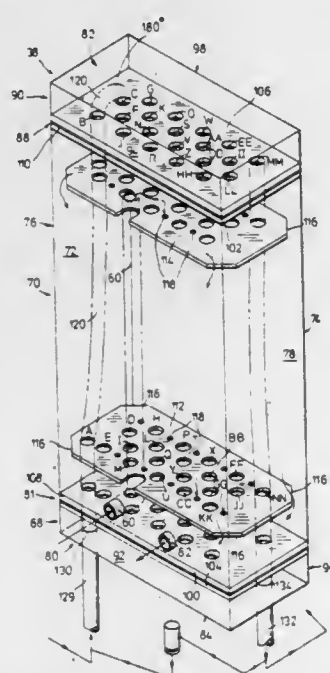
Martin D. Prucyk, Woods Rd, P.O. Box 58, Nobel, Ontario, Canada

Filed May 9, 1980, Ser. No. 148,366

Int. Cl.³ F28F 9/16

U.S. Cl. 165—81

30 Claims



1. A heat exchanger comprising a housing defining a cavity therein, the housing having an inlet and outlet for feeding fluid into, and removing fluid from, the cavity of the housing, a pair of fixed spaced head plates fixed to the housing at either end of the cavity to preclude passage of fluid past the plates between the housing and plates, a pair of second head plates, one for each fixed head plate and secured to the side of the fixed head plate remote the other fixed spaced head plate, at least one of which second plates being removably secured to the fixed head plates, a gasket positioned between the fixed head plates and second plates, the housing further comprising covers for covering the head plates and providing a space between the head plates and cover, a pair of spacer plates secured to the housing between the fixed head plates, each spacer plate positioned adjacent each fixed head plate, the spacer plates permitting fluid within the cavity to flow therethrough, each of the fixed and secured removable head plates having a plurality of aligned apertures therethrough, the apertures being arranged in staggered rows of apertures through the plates, each spacer plate adjacent each set of head plates having staggered rows of apertures oriented with respect to the staggered rows of apertures in the head plates and the staggered row of apertures through the other spacer plates to secure lengths of tubing extending between opposed head plates, through apertures in

the spacer plates, lengths of heat conducting metal tubing secured to open into the staggered apertures in the opposed head plates and extending through the apertures in the spacer plates to provide staggered rows of tubing, the tubing being bowed in their length between the spacer plates to extend into spaces created in the cavity arising from the staggering of the rows of tubing, so as not to interfere with one another during the tubings' expansion, 180° heat conducting metal U-bends secured in the spaces between the removably secured head plates and cover for connecting the apertures through the removable head plates to connect the lengths of tubing to create a continuous flow path for fluid passing therethrough, from the tubing inlet to the tubing outlet leading into and out of the heat exchanger and an inlet and outlet into and from the tubing passing through the exchanger.

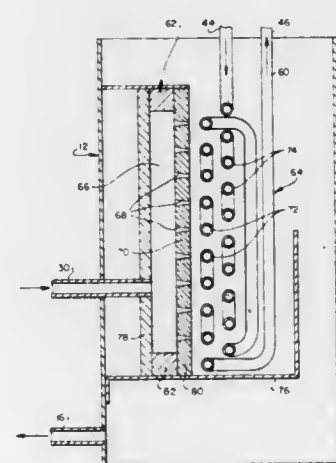
4,363,356

HYDRAULIC FLUID COOLING SYSTEM

P. G. Johansing, Jr., 14069 Bayside Dr., Norwalk, Calif. 90650
Division of Ser. No. 3,873, Jan. 16, 1979, Pat. No. 4,220,015, which is a continuation of Ser. No. 824,418, Aug. 15, 1977, abandoned. This application Aug. 28, 1980, Ser. No. 182,009
Int. Cl.³ B22D 19/00

U.S. Cl. 165—110

5 Claims



1. A heat exchange system comprising the combination of: a reservoir capable of containing a first fluid and including means for discharging the first fluid therefrom; and a distributor disposed within the reservoir, the distributor having a hollow interior coupled to receive a supply of the first fluid and having a plurality of orifices in a generally planar wall thereof for directing fluid received therein out of the distributor in a plurality of streams in a substantially completely liquid form, a coil of hollow tubing having opposite first and second ends and disposed within the reservoir adjacent the distributor and in the path of the plurality of streams, the hollow tubing having a central axis, each of the orifices having a central axis, the central axes of some of the orifices substantially intersecting the central axis of the hollow tubing, portions of the hollow tubing adjacent at least some of the orifices being spaced apart from the distributor by a distance not substantially greater than the outer diameter of the hollow tubing, the coil being adapted to receive a second fluid therein, whereby heat exchange occurs between the first and second fluids.

4,363,357

ROTARY DRILLING HEAD

Joseph M. Hunter, 25 Mobile Manor, Getty Ave., Indiana, Pa. 15701

Filed Oct. 9, 1980, Ser. No. 195,633

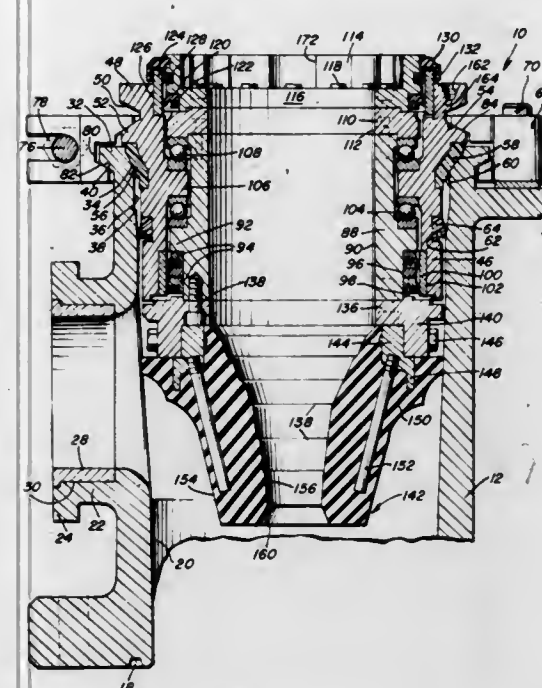
Int. Cl.³ E21B 33/03

U.S. Cl. 166—84

14 Claims

1. A rotary drilling head comprising a tubular base adapted

to be connected to a well casing, or the like, and including a lateral discharge outlet, said base including a generally vertical passage open at the upper end, a housing inserted into the upper end of said base in sealed relation thereto, means removably securing said housing in said base, a spindle mounted in said housing, bearing means rotatably supporting the spindle in said housing, sealing means interposed between the spindle and housing, means associated with the spindle and housing to supply a continuous pressure lubricating material to the interface between the spindle and housing and to the bearing means and sealing means therebetween, and means connected with the upper end portion of the spindle and adapted to be driv-



ingly engaged by a Kelly bar extending therethrough for rotatably driving said spindle, said housing being generally cylindrical in configuration and provided with a generally centrally located inwardly extending annular flange, said bearing means including a pair of ball-type thrust bearing assemblies engaged with the upper and lower surfaces of the flange on the housing respectively, said spindle including a generally cylindrical exterior with an outwardly extending flange adjacent the lower end thereof engaged with the lower thrust bearing assembly, and a bearing retaining ring releasably mounted on the spindle engaging the upper thrust bearing assembly thereby enabling assembly of the housing, spindle and bearing assemblies.

4,363,358

SUBSURFACE TUBING HANGER AND STINGER ASSEMBLY

Gary D. Ellis, Richardson, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Division of Ser. No. 117,585, Feb. 1, 1980, Pat. No. 4,305,465.

This application May 18, 1981, Ser. No. 264,993

Int. Cl.³ E21B 33/128, 33/129

U.S. Cl. 166—212

17 Claims

1. In combination, a hanger for a tubing string including a tubular body having opposite ends, a head with an inverted, generally frusto-conical section connected to one end of said body, a series of slip segments slidably mounted on said one end and engaging said frusto-conical section for generally radial movement relative to said body when sliding upon said frusto-conical section, means for sliding said segments on said section between retracted and set positions in response to hydraulic pressure, a tubular expansion receptacle connected to said head, a stinger having a hollow body telescoped with said receptacle, means slidably connecting said stinger with said receptacle for selective adjustment of the overall exterior length of said receptacle and said stinger together, means carried by one of said stinger and receptacle for sealing against pressure fluid loss therebetween, a releasable catch in said slidable connecting means movable between a lock position for

holding the stinger against axial separation from said receptacle and an unlocked position releasing said stinger for axial separation from said receptacle, and a latch carried by said



4,363,359

LOCKING ASSEMBLY FOR WELL DEVICES

Donald F. Taylor, and William G. Boyle, both of Dallas, Tex., assignors to Otis Engineering Corporation, Dallas, Tex.

Filed Oct. 20, 1980, Ser. No. 199,034

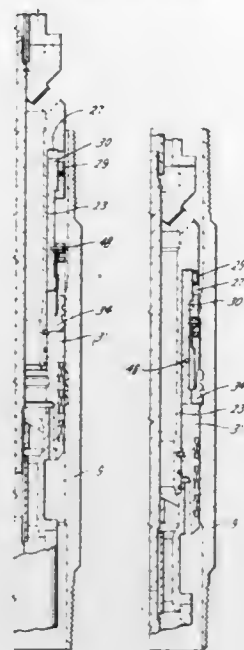
Int. Cl.³ E21B 23/02

U.S. Cl. 166—214

13 Claims

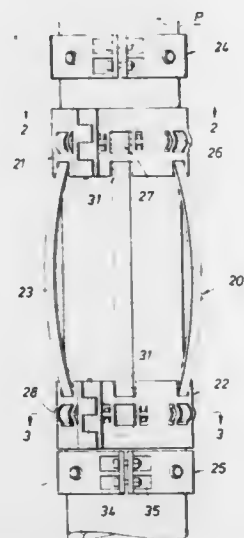
1. A locking assembly for locking equipment having a rotating element within a well bore including a motor housing having the rotating element extending therethrough, a tubular support having its upper end connected with said housing, an outer tubular body encircling a portion of said support, a plurality of locking keys mounted in said body and movable radially into a locking position within a well fluid conductor extending through said well bore, an expander member interposable between the tubular support and the locking keys and movable relative to said keys from a first position in which the keys are unlocked to a second position where the keys are locked, means connecting said expander member to the motor housing having the rotating element of said equipment extending therethrough whereby the torque forces developed by said rotating element are transmitted to the expander member and apply a rotative force thereto, and coacting means between said expander member and said

locking keys for converting the rotative force applied to the expander member into a radial force acting upon the



locking keys to urge said keys into tighter locking position.

4,363,360
APPARATUS FOR USE IN MAINTAINING A WELL PIPE
CENTERED WITHIN A WELL BORE
 Vernon T. Richey, 1111 Blalock, #29, Houston, Tex. 77055
 Filed Jan. 15, 1981, Ser. No. 225,301
 Int. Cl.³ E21B 17/10
 U.S. Cl. 166—241
 13 Claims



1. A centralizer for maintaining a well pipe centered within a well bore, comprising upper and lower sleeves adapted to be disposed about the pipe in axially spaced relation, a plurality of springs having bowed portions intermediate their opposite ends, each sleeve having windows thereabout, the opposite ends of the springs having portions which protrude outwardly into the windows, arcuate rods also being received within the sleeve and fitting within the protruding portions of the spring, and means on the sleeves for limiting endwise as well as radial movement of the rods away from the protruding portions of said springs within said windows, whereby the ends of the springs are connected to the sleeves with their bowed portions arranged to yieldably engage the well bore at circumferentially spaced locations about the well bore.

4,363,361
SUBSTOICHIOMETRIC COMBUSTION OF LOW
HEATING VALUE GASES

Ajay M. Madgavkar, Irvine, Calif., and Roger F. Vogel, Jefferson Township, Butler County, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Mar. 19, 1981, Ser. No. 245,529
 Int. Cl.³ B01D 53/34; E21B 43/243, 43/34
 U.S. Cl. 166—256
 8 Claims

1. The in situ combustion process for recovering hydrocarbons from subterranean formations which comprises injecting a stream of combustion air into at least one injection well leading to a combustion zone in said subterranean formation, producing liquid and/or gaseous hydrocarbons and combustion gas from at least one production well, separating any liquid hydrocarbons from the stream of combustion gas whereby a separated stream of flue gas is obtained having a heating value between about 15 Btu/scf and about 200 Btu/scf and containing at least one aliphatic hydrocarbon having from one to about seven carbon atoms, passing said gas stream admixed with air for combustion in contact with an oxidation catalyst in each of one or more combustion zones at a temperature high enough to initiate and maintain combustion of said gas stream, the total amount of combustion air being sufficient to provide an air equivalence ratio of between about 0.20 and about 0.95,

at least one of said oxidation catalysts having the perovskite-type ABO_3 crystal structure wherein the A sites are substantially fully occupied by one or more metals selected from Group IIA and the lanthanides, the B sites are occupied by (a) about one to about 20 atomic percent of a platinum group metal and (b) about 80 to about 99 atomic percent of one or more non-platinum group metals having an atomic radius between about 0.4 and about 1.4 Angstroms, and the total valence charge of the A and B site metals is equal to the total valence charge of the oxygen present.

3. A process for the recovery of energy from a gas stream having an average heating value in the range of about 15 to about 200 Btu/scf and having a combustible component comprising up to about 100 mol percent methane, from about 0 to about 75 mol percent carbon monoxide, from about 0 to about 50 mol percent hydrogen and from about 0 to about 50 mol percent aliphatic hydrocarbons having from two to about seven carbon atoms, which comprises the steps

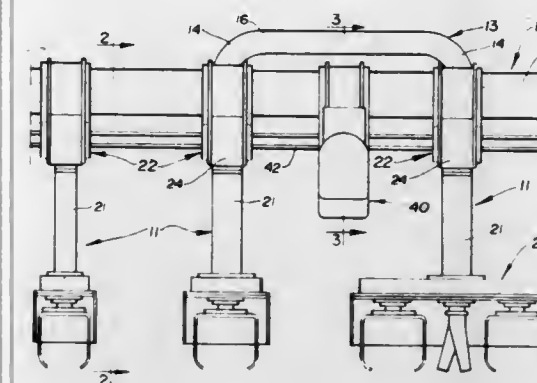
(a) passing said gas stream admixed with air for combustion in contact with an oxidation catalyst in each of one or more combustion zones, at an overall average air equivalence ratio of between about 0.2 and about 0.95 and at a temperature high enough to initiate and maintain combustion of said gas stream,

at least one of said oxidation catalysts having the perovskite-type ABO_3 crystal structure wherein the A sites are substantially fully occupied by one or more metals selected from Group IIA and the lanthanides, the B sites are occupied by (a) about one to about 20 atomic percent of a platinum group metal and (b) about 80 to about 99 atomic percent of one or more non-platinum group metals having an atomic radius between about 0.4 and about 1.4 Angstroms, and the total valence charge of the A and B site metals is equal to the total valence charge of the oxygen present,

(b) utilizing the heat energy produced in said gas stream by said combustion and

(c) discharging the incompletely combusted gas stream into the atmosphere.

4,363,362
MULTIPLE MACHINE FOR ROW-CROPPING WITH
VERTICALLY OPERATING AXES
 Paolo Barato, Via Madonna della Salute, 136, Padova, Italy
 Filed Mar. 7, 1980, Ser. No. 128,192
 Claims priority, application Italy, Mar. 7, 1979, 41526 A/79
 Int. Cl.³ A01B 33/06, 39/08
 U.S. Cl. 172—59
 11 Claims

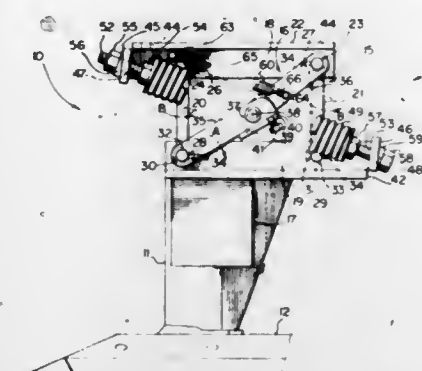


1. An earth tilling machine comprising an elongated frame extending in a direction transverse to the normal direction of movement of the machine, a plurality of earthworking units carried on said frame and selectively movable thereon in a direction transverse to the direction of travel of the machine, each of said earthworking units including a vertically extending support strut mounted on said frame and projecting a distance laterally with respect to said frame, and an earthworking head carried on said support strut in relatively remote relationship to said frame, said earthworking head including a plurality of earth tilling rotors with each rotor supported for revolution about a respective vertically extending axis with all rotor axes of a respective head being mutually parallel, said plurality of rotors of each earthworking head disposed in a generally longitudinally extending alignment whereby the rotors of each head have a cumulative effective length greater than the effective working diameter of a single rotor, each rotor of each earthworking head provided with a plurality of angularly spaced apart, vertically extending tilling elements positioned radially outward with respect to the rotor's axis of revolution with the rotors relatively oriented with respect to each other such that the circle of revolution of the tilling elements of a rotor overlaps the circle of revolution of a next adjacent rotor's tilling elements, said earthworking head being mounted on said strut for revolution about a vertical axis disposed parallel to the axis of said rotors whereby said rotors may be revolved in a horizontal plane to a predetermined position relative to said frame, and power transmission means operatively coupled with said rotors for effecting revolution thereof.

4,363,363
TRIP MECHANISM
 John D. Dyck, 1125 N. Hill Dr., Swift Current, Canada
 Filed Nov. 20, 1980, Ser. No. 209,215
 Int. Cl.³ A01B 61/04
 U.S. Cl. 172—264
 9 Claims

1. A trip mechanism adapted to allow deflection of a ground working tool, said mechanism comprising a shank adapted to be connected to said ground working tool, a support frame adapted to support said shank and ground working tool, a parallel-type deflection linkage comprising upper, lower, forward and rearward arms, a detent linkage connected to said deflection linkage to hold said deflection linkage in an undeflected position and adapted to allow movement of said deflection linkage when a predetermined load on said ground working tool is exceeded, said detent linkage comprising first and second links each adapted for relative rotational movement about an axis said links being pivotally connected together by

adjacent ends thereof, and means for adjusting the position of said axis towards and away from a dead center position and only on one side thereof, spring means to return said deflection



linkage to said undeflected position after said predetermined load is no longer exceeded, and further spring means to return said detent linkage to its position before movement of said deflection linkage.

4,363,364
PLOW CHISEL WITH POINTED SHANK HAVING
POINTED CHISEL CAP SECURED THERETO BY WELD
 Halsey J. Wetmore, Guymon, Okla., assignor to Adams Hard-Facing Company, Inc., Guymon, Okla.
 Filed May 29, 1981, Ser. No. 269,406
 Int. Cl.³ A01B 15/02
 U.S. Cl. 172—732
 3 Claims



1. A plow chisel comprising: an elongated arcuate shank portion having opposed parallel side edges and having a point at one end thereof formed by the convergence of said side edges; a pointed chisel cap including a relieved base portion defining a recess complementary in configuration to, and receiving, the point of said shank portion, said chisel cap further including: a pointed tip on the opposite end thereof from said base portion; an upper surface; a lower surface which extends substantially parallel to the upper surface and having a relief therein forming the recess in the base portion, said relief having a configuration complementary to the configuration of the point of said shank portion and having a depth, as measured from said lower surface toward the upper surface, which is less than the thickness of said shank portion whereby said shank portion projects to a location below said lower surface; a pair of opposed, substantially parallel rear side surfaces disposed on opposite sides of the recess and extending between the upper surface and the lower surface; a pair of convergent forward side surfaces each extending normal to the lower surface and projecting upwardly therefrom and extending from the rear side surfaces to the tip; and a pair of convergent beveled surfaces projecting upwardly from the forward side surfaces to the upper surface and inclined toward each other and meeting in a line of con-

vergence at an upper forward edge inclined at an acute angle to said lower surface; and weld metal in the angular corner space defined between said shank portion and the lower surface of said chisel cap for securing said chisel cap to said shank portion.

4,363,365

IMPACT TOOL WITH DAMPING CHAMBERS

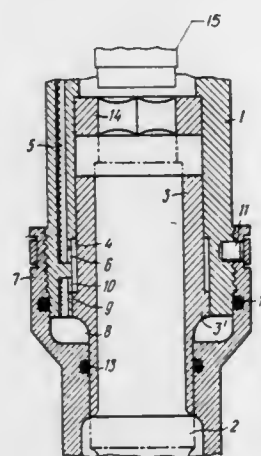
Igor V. Nikolaev, ulitsa Fadeeva, 5, kv. 37; Vladimir A. Evpolov, ulitsa Papernika, 7, kv. 19, both of Moscow; Lidia M. Dronova, ulitsa Kalarash, 5, kv. 68, Ljubertsy Moskovskoi oblasti; Anatoly I. Lednikov, Korovinskoe shosse, 9, korpus 2, kv. 51; Mikhail A. Moskvina, Petrovsko-Razumovskaya alleya, 16, kv. 101, both of Moscow; Oleg Y. Sutyagin, ulitsa Dekabristov, 5, kv. 51, Sverdlovsk; Oleg A. Yankovsky, ulitsa Kuibysheva, 102, kv. 17, Sverdlovsk; Viktor E. Kilin, Posadskaya ulitsa, 44, korpus 2, kv. 40, Sverdlovsk; Evgeny S. Kolmyk, ulitsa 6 Okolotok, 1, Sverdlovsk; Konstantin K. Tupitsyn, Krasny prospekt, 51/3, kv. 25, and Alexei M. Makarov, Vostochny poselok, 18a, kv. 16, both of Novosibirsk, all of U.S.S.R.

Filed Mar. 3, 1980, Ser. No. 126,562

Int. Cl.³ B25D 17/24

U.S. Cl. 173-139

6 Claims



1. A pneumatic percussive tool, comprising:
 - a barrel;
 - a hammer piston reciprocatingly mounted in said barrel;
 - a sleeve in said barrel;
 - said sleeve having an external annular projection defining with said barrel an auxiliary damping chamber and a second damping chamber;
 - said sleeve being axially movable between two extreme positions;
 - a working tool having a collar engaging the end of said sleeve on the side of said auxiliary damping chamber;
 - a supply passage in said barrel permanently connecting said second damping chamber with a compressed fluid source;
 - a first part in said barrel for connecting said supply passage with said auxiliary damping chamber;
 - a second port in said barrel communicating with said second damping chamber;
 - said compressed fluid acting with greater force on said sleeve on the side of said auxiliary damping chamber than on the side of said second damping chamber;
 - both said ports communicating with said auxiliary damping chamber when said sleeve 18 is in the first of said extreme positions;
 - said first port being closed when said sleeve is in the second of said extreme positions.

4,363,366
SCREENED HOLLOW STEM AUGER FOR USE IN WELL DRILLING AND TESTING PROCESS

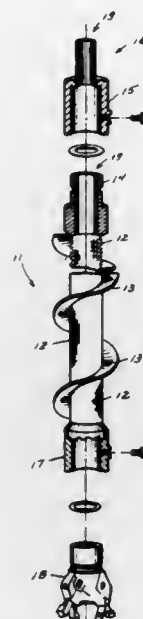
Robert D. Hilty, Williamston, Mich., assignor to Keck Consulting Services, Inc., East Lansing, Mich.

Filed Jun. 13, 1980, Ser. No. 159,042

Int. Cl.³ E21B 17/22, 43/08

U.S. Cl. 175-314

5 Claims



1. A vertically oriented screened hollow stem auger for use in the simultaneous drilling and testing of wells so as to detect and monitor the existence of hazardous and toxic waste at subsurface levels comprising:

an elongate cylindrical hollow stem body member defining a longitudinal axial bore therethrough, said body member having a central screened portion in open communication with the interior thereof so as to permit the selective intake of fluids into said bore, said body member having an upper end portion adapted for selective lockable end-to-end engagement with a vertical solid wall hollow stem auger element positioned thereabove, said body member having a lower end portion adapted for selective lockable engagement with a drilling component; and

a continuous auger flight element provided on the external surface of the hollow stem body member so as to extend longitudinally therealong across said central screened portion, said central screened portion being the sole support of the portion of said auger flight element extending thereacross.

4,363,367

LARGE DIAMETER DRILL BIT

Robert L. Dixon, Brea, and Malcolm D. Maxsted, Harbor City, both of Calif., assignors to Smith International, Inc., Newport Beach, Calif.

Filed Oct. 26, 1981, Ser. No. 314,803

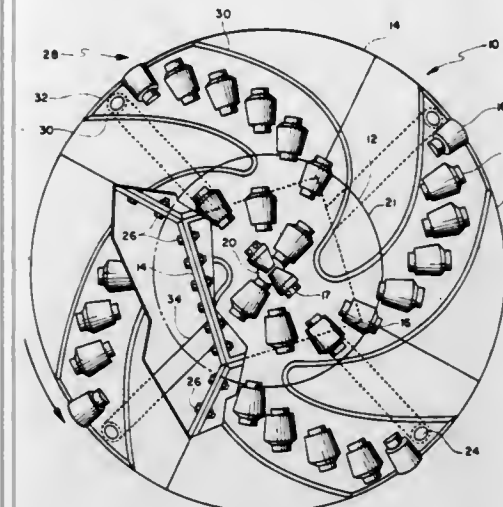
Int. Cl.³ E21B 10/10, 10/18

U.S. Cl. 175-340

14 Claims

1. A large diameter rotary drill bit comprising:
 - a main bit body adapted for connection with a dual-string drill column, said dual-string drill column consisting of a first outer drill pipe and a second concentric inner drill pipe spaced from said outer drill pipe, said body forming a central opening in communication with said second inner drill pipe of said dual-string drill column,
 - means to confine a supply of drilling fluid directed through said drill column outwardly to a peripheral edge of said bit body, said drilling fluid subsequently being directed along at least one arcuate flow path from said peripheral edge to said center opening formed in said bit body, a first wall

member mounted to a lower surface of said bit body, said first wall member being mounted substantially 90° to said lower surface of said bit body, forming a first side of said arcuate path, and a second wall member substantially parallel with said first wall member mounted to said bit body forming a second enclosing side of said arcuate path, and



- a plurality of cutter assemblies rotatably mounted to said lower surface of said bit body within said first and second wall members, said plurality of said cutter assemblies being strategically positioned along said arcuate flow path to form a cutting plane for contacting and disintegrating an earth formation, said drilling fluid serves to direct detritus material along said at least one arcuate path and to clean and cool said plurality of cutter assemblies during operation of said bit.

4,363,368

MEDICAL PATIENT WEIGHING SCALE

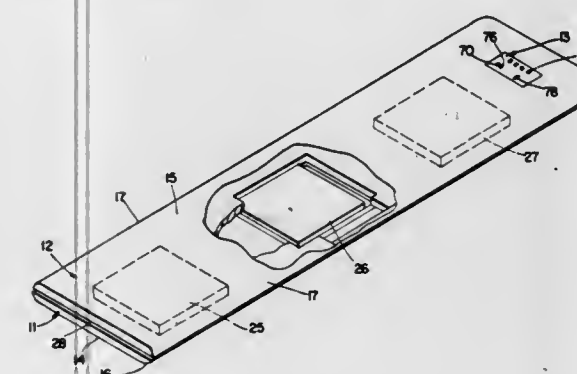
Christopher M. Paddon, Denver, Colo., and Donald C. Wetzel, Berea, Ohio, assignors to Health Care Innovations, Inc., Medina, Ohio

Filed Mar. 13, 1981, Ser. No. 243,634

Int. Cl.³ G01G 19/44

U.S. Cl. 177-144

14 Claims



1. A medical patient weighing scale comprising:
 - an elongated, flat, rigid pan capable of supporting the weight of a patient, the pan being at least five feet long and adapted to be supported on a bed mattress;
 - a plurality of thin, electronic load cells mounted in the pan, each load cell being spaced at least one foot apart along the length of the pan;
 - a rigid, elongated flat cover freely supported on the load cells, the cover being at least the same size as the pan and being of sufficient size to support a patient in a supine position, the cover attached to the pan by extendable attachment means;
 - electronic summing means mounted between the cover and the pan and connected to each of the load cells, the summing means receiving signals from each of the load cells

and producing a signal corresponding to the sum of the weight sensed by all of the load cells; digital display means on the cover and connected to the summing means for displaying the weight corresponding to the signal from the summing means; and internal power supply means for the load cells, the summing means, and the display means.

4,363,369

OVERHEAD TRACK SCALE

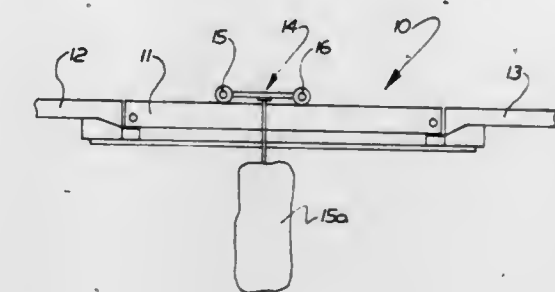
William C. Susor, Westerville, Ohio, assignor to Masstron Scale Inc., Columbus, Ohio

Filed Feb. 2, 1981, Ser. No. 230,434

Int. Cl.³ G01G 19/06

U.S. Cl. 177-163

12 Claims



1. A track scale for weighing a load on a track, said scale comprising a live rail for supporting said load to be weighed, a pair of load cells spaced longitudinally of said live rail and supporting said live rail, said load cells having sensing means for sensing shear stresses and providing a signal indicative of the load supported by said load cells, each of said load cells having a projecting portion extending transverse to said live rail and supporting said live rail, and means interposed between the projecting portion of each load cell and said live rail for ensuring that the load is applied to said load cell at the same axial position along the length of said load cell and normal to the neutral axis of the load cell.

4,363,370

ACCURATE WEIGHT MEASUREMENT USING DIGITAL TO ANALOG CONVERTER MEANS AND ANALOG TO DIGITAL CONVERTER MEANS

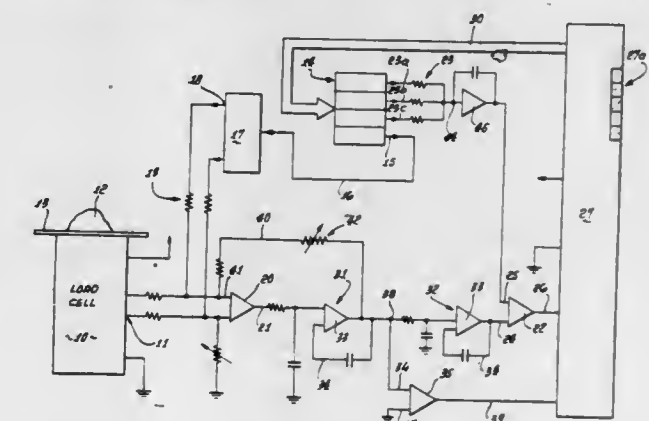
Warren Sarkison, Huntington Beach, Calif., assignor to Load Cells Inc., South El Monte, Calif.

Filed Apr. 7, 1981, Ser. No. 247,525

Int. Cl.³ G01G 3/14

U.S. Cl. 177-210 R

9 Claims



1. In an electronic scale apparatus, the combination comprising:
 - (a) a force transducer having a first analog output that is ultimately converted to a digital output;
 - (b) the digital output being fed to a digital to analog converter means having a second output;
 - (c) a first differential amplifier operatively connected with the second output of the digital to analog converter means and the first analog output of the force transducer.

said transducer and converter to receive, as inputs, signals corresponding to said first and second outputs, and to produce a third output corresponding to the amplified difference between said first and second outputs, (d) and a second differential amplifier operatively connected with the output of said first differential amplifier and with said output of the converter means to receive, as inputs, signals corresponding to said third output and to a fourth output of the converter, and to produce a fifth output corresponding to the difference between said third and fourth outputs, said fifth output driven in a direction to balance the third and fourth outputs.

4,363,371

PEDIATRIC TRAY AND WEIGHING SCALE

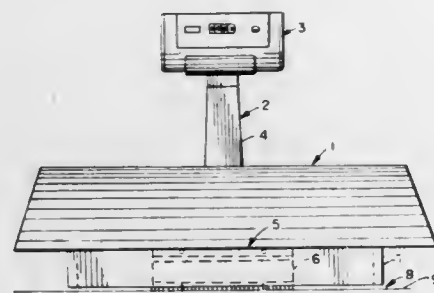
William Y. Hutchinson, Chicago, Ill., assignor to Continental Scale Corporation, Bridgeview, Ill.

Filed Feb. 5, 1981, Ser. No. 231,743

Int. Cl.³ G01G 21/22

U.S. Cl. 177—262

12 Claims



1. In a weighing scale having a weighing platform, support for said platform adapted to rest on a flat, horizontal surface, weighing mechanism responsive to the weight of an object placed on said platform, means for indicating weight in response to actuation of said weighing mechanism, and a tray to receive an object to be weighed, the improvement comprising an elongated tray to receive an object to be weighed, said tray having a bottom portion which is substantially flat and is mounted on said weighing platform with elongated bottom and sides extending outwardly from said weighing platform in opposite directions, said tray having a skirt on the bottom thereof extending at least partially around a major portion of the weighing platform and terminating a fraction of an inch from said flat horizontal surface on which said scale rests, whereby tipping and spilling of the object is avoided when an elongated object is placed in said tray to be weighed.

4,363,372

GAS-CUSHION VEHICLES

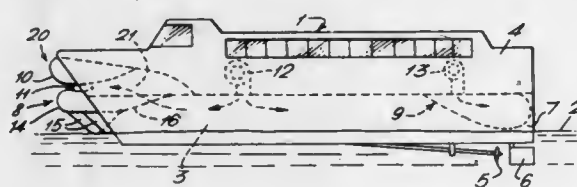
Edward G. Tattersall, Southampton, England, assignor to Vosper Hovermarine Limited, Great Britain

Filed May 20, 1980, Ser. No. 151,551

Int. Cl.³ B60V 1/11; B63B 1/38

U.S. Cl. 180—118

12 Claims



1. A gas-cushion vehicle provided with a means for forming a vehicle-supporting cushion of pressurized gas between the vehicle body and the surface over which the vehicle travels and provided with a means for containing the vehicle-supporting cushion about its periphery, the vehicle comprising: a gas-flow outlet connection through a portion of the vehicle between a space occupied by cushion gas and the atmo-

sphere, the gas-flow outlet connection having a sealing surface; and,

a flexible, hollow wall member disposed within the outlet connection and inflatable to an operating pressure, the sealing surface of the gas-flow outlet connection and the inflatable member together forming a valve which is automatically operable in response to variations in cushion pressure so as to allow cushion gas to escape to the atmosphere by collapsing when cushion pressure exceeds the operating pressure, and so as to impede the escape of cushion gas by reinflating when cushion pressure falls below the operating pressure, whereby dynamic variations in gas cushion pressure are substantially reduced without disturbing the vehicle-terrain interface.

4,363,373

VACUUM CONTROL APPARATUS

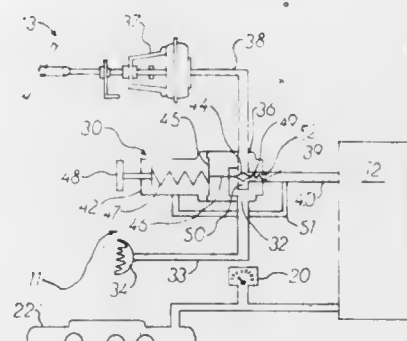
Ronald H. Haugeberg, River Rd., Glendive, Mont. 59330

Filed Sep. 8, 1980, Ser. No. 185,227

Int. Cl.³ B60K 31/00

U.S. Cl. 180—175

3 Claims



1. Control apparatus for a vehicle having a speed control unit, said speed control unit being responsive to the vacuum created by the engine of said vehicle and including a first vacuum line from the engine of said vehicle to said speed control unit and a second vacuum line from said speed control unit to a throttle servo of said engine; said control apparatus including vacuum measuring gauge means disposed in said first vacuum line from said vehicle engine to said speed control unit, flow restricting means disposed in said first vacuum line, an air supply line including a filter providing a supply of air at atmospheric pressure to said second vacuum line from said speed control unit to said throttle servo, adjustable valve means disposed in said air supply line for selectively metering said air into said second vacuum line; whereby said valve means is adjustable by the vehicle operator in relation to the engine vacuum as displayed on said vacuum measuring gauge so that a selected flow of air can be metered into said second vacuum line when the vehicle speed drops sufficiently to decrease the vacuum created by said engine and thereby prevent said speed control unit from opening said throttle excessively while enabling the operator to selectively control the operation of the engine.

4,363,374

TRACTOR

Howard J. Richter, and Graham J. Richter, both of 2 Church St., Boonah, Australia (4310)

Filed Oct. 10, 1980, Ser. No. 196,017

Claims priority, application Australia, Apr. 6, 1979, PD8339

Int. Cl.³ B62D 49/00

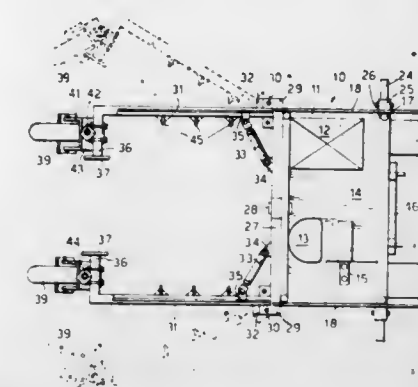
U.S. Cl. 180—209

9 Claims

1. A tractor including:

- (a) a frame;
- (b) an engine mounted on said frame;
- (c) at least one drive wheel supporting said frame;
- (d) transmission means operatively connecting said engine and said drive wheel;

- (e) at least one boom pivotally connected to said frame and extending in a direction away from said frame;
- (f) means for pivotally moving said boom toward or away from the longitudinal axis of said frame;



- (g) means on said boom to permit a farming implement to be secured thereto; and
- (h) a ground engaging wheel supporting said boom.

4,363,375

MOTORCYCLE

Tadashi Kamiya, Niiza, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

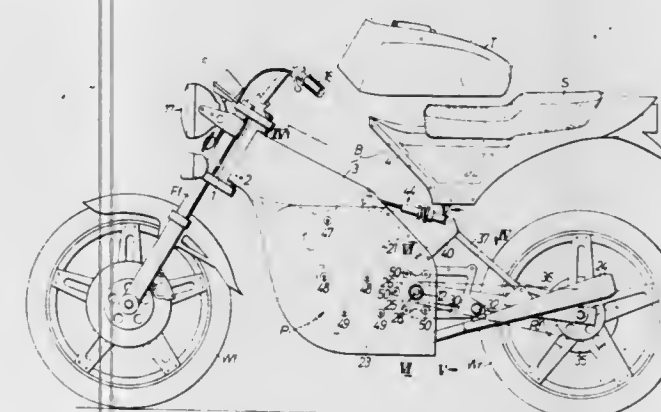
Filed May 21, 1980, Ser. No. 152,101

Claims priority, application Japan, May 26, 1979, 54/65235

Int. Cl.³ B62K 11/04

U.S. Cl. 180—227

9 Claims



- 1. A two-wheeled motorcycle comprising: a vehicle frame in the form of shell structure of thin sheet material having a pair of opposed side sections and a head pipe at the front end thereof to support a front wheel steering shaft;
- a rear wheel driving power unit accommodated in and interconnected with said opposite side sections of said shell structure for increased rigidity of latter;
- guide rail means disposed on the inside surfaces of said opposed side sections of said shell structure and extending longitudinally in a horizontal direction;
- a pair of slide members provided on each side of said power unit and adapted to be slidably engaged with said guide rail members for setting said power unit at a predetermined position in said shell structure; and
- power unit supporting members provided on said opposed side sections of said shell structure so as to be firmly fixed to opposite sides of said power unit, said supporting members including mounting bosses integrally formed in said shell structure in axial alignment with an output shaft of said power unit, said bosses each having a tool insertion window for tool insertion therethrough.

4,363,376

DEVICE ON A MOTOR-DRIVEN VEHICLE TO DETECT AN OBSTACLE IN THE WAY OF THE VEHICLE DURING BACKING

Ake L. Sjöberg; Per E. Sjöberg, both of Torsdagsgränd 15, S-302 53 Halmstad, and Frans B. Sjögren, PL 109 11 Vilshäräd, S-305 90 Halmstad, all of Sweden

PCT No. PCT/SE80/00142, § 371 Date Jan. 15, 1981, § 102(e)

Date Jan. 15, 1981, PCT Pub. No. WO80/02539, PCT Pub.

Date Nov. 27, 1980

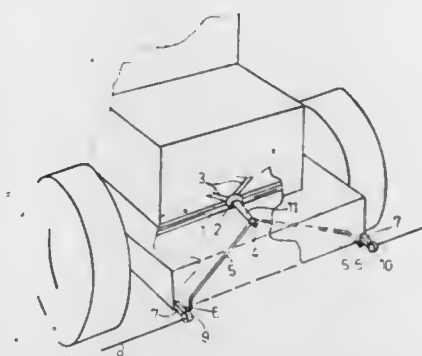
PCT Filed May 14, 1980, Ser. No. 229,573

Claims priority, application Sweden, May 18, 1979, 7904367

Int. Cl.³ B60T 7/12

U.S. Cl. 180—275

2 Claims



1. On a motor-driven vehicle having air brakes and quick-emptying brake valves releasing air on a braking operation a device to detect an obstacle in the way of the vehicle during backing, the device comprising in combination holders projecting backwards from each of the outer edges of the rear portion of the vehicle, one of which includes a transmitter for transmitting a pulsating light beam and one of which includes a receiver of such light beam, and means for mounting said transmitter and receiver on at least one of said holders for conveying the pulsating light beam between the holders for actuating said vehicle brakes when backing of the vehicle takes place and the light beam between said holders is interrupted by an obstacle external to said vehicle, means directed toward both holders comprising an air line fed with outflowing air from at least one of the quick-emptying valves of the vehicle on a braking operation for delivering a blast of air towards the holders to keep them free of dirt and the like which prevents transmission of the light beam between the holders.

4,363,377

ACTIVE SEAT SUSPENSION CONTROL SYSTEM

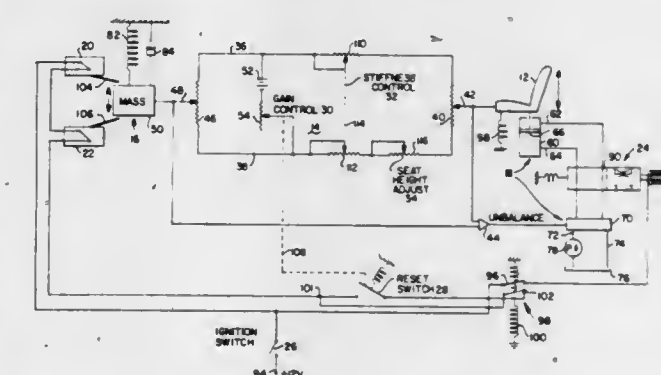
Harlan W. Van Gerpen, Cedar Falls, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Sep. 22, 1980, Ser. No. 189,637

Int. Cl.³ B60G 17/00

U.S. Cl. 180—282

21 Claims



1. An active seat suspension control system comprising the combination of: a vibrometer having a vertically movable mass therein and

operative to provide a signal representing the vertical position of the mass;
 a seat;
 means for providing a signal representing the vertical position of the seat;
 an electrical bridge circuit coupled to receive the signal representing the vertical position of the mass and the signal representing the vertical position of the seat and operative to provide a signal representing the difference between the signals;
 means for adjusting the height of the seat in accordance with the signal representing the difference; and
 means for disabling the means for adjusting the height of the seat when the mass of the vibrometer reaches either of an opposite pair of predetermined limits of vertical position of the mass.

4,363,378

LADDER SECURING DEVICES AND LADDER ASSEMBLY

Richard E. Williams, 106 Lourensriver Rd., and Kenneth J. Budden, 174 Lourensriver Rd., both of Strand, Cape Province, South Africa

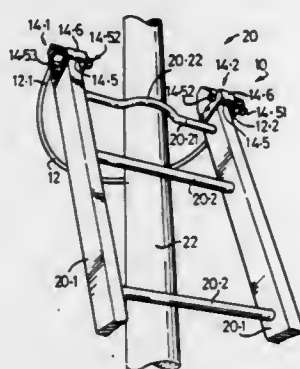
Filed Nov. 26, 1980, Ser. No. 210,626

Claims priority, application South Africa, Dec. 3, 1979, 79/6560; Jul. 31, 1980, 80/4666

Int. Cl.³ E06C 7/48

U.S. Cl. 182—93

8 Claims



1. A ladder securing device comprising a substantially rigid fastening element, a first connector for attachment to a ladder, said first connector comprising a first element for connection to the ladder, a second element connected to said first element and selectively rotatable with respect to the first element about a first axis, and a third element for rotatably securing said fastening element to said second element, capable of allowing rotation of said fastening element about a second axis perpendicular to said first axis, a second connector for attachment to a ladder, and means for releasably attaching said fastening element to said second connector.

4,363,379

Patent Not Issued For This Number

4,363,380

ELEVATOR AND METHOD OF LIFTING

Glen A. Rued, 5005 NE. First Ter., Pompano Beach, Fla. 33064, and Elmer J. Simpson, 1455 NW. 70th La., Margate, Fla. 33063

Filed Apr. 18, 1980, Ser. No. 141,377

Int. Cl.³ B66B 11/04

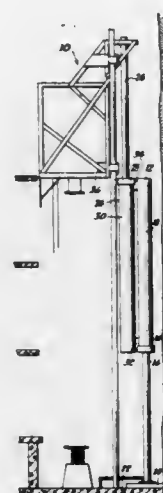
U.S. Cl. 187—17

9 Claims

1. An elevator system for raising items from a lower level and lowering items to the lower level, comprising:
 a lift member;
 at least a first hydraulic piston cylinder device and a second hydraulic piston cylinder device, said first device including at least two parts, said at least two parts of said first device including a first part which consists of a first casing

and a second part which consists of a first piston relatively movable in relation to one another, said second device including at least two parts, said at least two parts of said second device including a first part which consists of a second casing and a second part which consists of a second piston movable relative to one another;

said first part of said first device is fixedly connected to said first part of said second device allowing fluid communication therebetween;



said first device connected to said lift member;
 said second device connected to the lower level;
 control means for regulating the travel length of the second part of said first device and said second device respectively, said control means functions to displace the second device simultaneously with the first device when the second part of said second device moves relatively to said first part of said first device and said first part of said second device, said control means is connected to said second part of said first device and said second device respectively.

4,363,381

RELATIVE SYSTEM RESPONSE ELEVATOR CALL ASSIGNMENTS

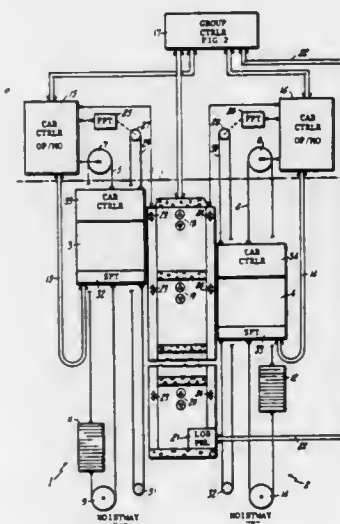
Joseph Bittar, Simsbury, Conn., assignor to Otis Elevator Company, Farmington, Conn.

Filed Dec. 3, 1979, Ser. No. 99,790

Int. Cl.³ B66B 1/18

U.S. Cl. 187—29 R

11 Claims



1. An elevator system including a group of elevators for servicing a plurality of floor landings in a building, comprising:

group controller means, including hall call means for registering calls for up and down service at each of said landings, for exchanging signals with each of said elevators, and for controlling the operation of said elevators in response to said hall call means and signals received from said elevators;

each of said elevators including a car, car motion means for providing and arresting the motion of said car, means registering car calls for service required by passengers therein, and a car controller means for providing signals indicative of conditions of said car, for controlling said car motion means to cause said car to move in a selected up or down direction and to stop in response to said signals indicative of conditions of said car and to signals received from said group controller means;

characterized by said group controller means comprising signal processing means responsive to said signals indicative of conditions of each of said cars for providing, for each car, with respect to each hall call registered, a signal representing the summation of relative system response factors, indicative of the relative degree to which the assigning of any hall call to said car is in accordance with a scheme of system response applicable to all of said cars, a first plurality of said relative system response factors registered being unrelated to the floor landing or direction of the hall call and a second plurality of said relative system response factors being indicative of service to be performed by each car in reaching the floor of the registered hall call, said relative system response factors being weighted with respect to one another to represent a reasonable increase in time expected for said group of elevators to answer a specific hall call in contrast with favoring another aspect of said scheme of system response identified with a respective one of said relative system response factors, and for assigning each registered hall call to the car provided with the lowest summation of relative system response factors with respect to such hall call for service to such hall call.

4,363,382

DISC BRAKES FOR VEHICLES

Robert A. Anderson, West Midlands, England, assignor to Lucas Industries Limited, Birmingham, England

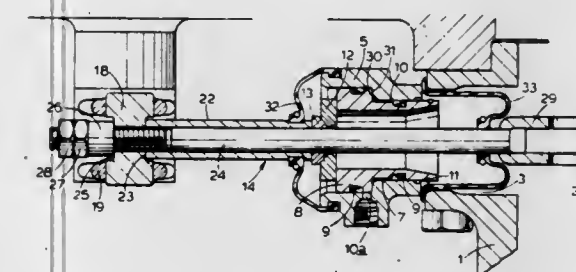
Filed Dec. 30, 1980, Ser. No. 221,262

Claims priority, application United Kingdom, Jan. 4, 1980, 8000258

Int. Cl.³ F16D 55/18

U.S. Cl. 188—71.4

10 Claims



1. A disc brake comprising a housing incorporating rotatable friction discs, opposed radial surfaces, pressure plates located between said friction discs and balls located in co-operating oppositely inclined recesses in adjacent faces of said pressure plates, and an actuator assembly of which the axis is substantially at right angles to the axis of the brake, said actuator comprising a first component fixed relative to said housing, and a second movable component movable with respect to said component, said actuator assembly hydraulically initiating application of the brake by effecting angular movement of said pressure plates in opposite directions whereby said pressure plates move apart into engagement with said friction discs which are urged into engagement with said radial surfaces in said housing, one of said pressure plates being provided with a lug which engages with a stop abutment to arrest said one

pressure plate, whereby continued angular movement of the other of said pressure plates provides a servo action, said actuator assembly incorporating a part-spherical rocking thrust coupling through which said movable component acts, and a pull-rod passing through said actuator assembly with a substantial clearance and with which said coupling co-operates, and a thrust member disposed between said movable component and said spherical rocking coupling, the inner end of said pull-rod being pivotally connected to the junction of a pair of toggle links connected between lugs on said pressure plates and the outer end of said pull-rod being extended for connection through a specifically defined point to a transmission member, and said thrust member being engageable with a thrust transmitting force on said movable component for sliding motion in a transverse direction with respect to the axis of said actuator assembly to accommodate angular movement of said pull-rod when the brake is applied.

4,363,383

BRAKE WITH AXIALLY EXPANDING BRAKE SHOES

Leonce E. R. Rogier, St Denis, France, assignor to Societe Anonyme Francaise du Ferodo, Paris, France

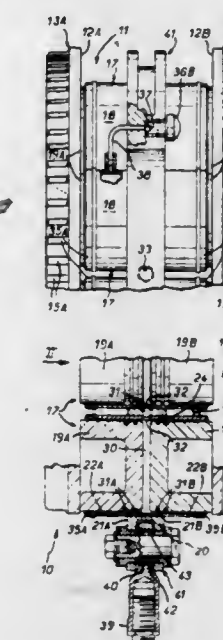
Filed Nov. 15, 1979, Ser. No. 94,548

Claims priority, application France, Nov. 16, 1978, 78 32329

Int. Cl.³ F16D 55/18

U.S. Cl. 188—72.5

16 Claims



1. A brake with axially expanding brake shoes comprising a rotatable member, a peripheral annular groove in said rotatable member, opposite radially extending faces of said rotatable member forming two braking surfaces, at least one actuating block radially engaged in said groove and connected to support means, said actuating block including for each of said braking surfaces, at least one actuating unit comprising a cylinder having at least one open end opening onto its associated braking surface, and a piston mounted for movement at said open end of each of said cylinders, each of said cylinders defining with its associated piston a fluid chamber which is in communication with a feed nozzle connectable to a pressurized fluid source, said actuating block being joined to said support means by a swivel joint having an internal and an external cage, said actuating block forming a yoke joined to one of said cages of said swivel joint, the other of said cages being joined to said support means and said yoke forming means cooperable with said support means for restricting movement of said actuating block.

4,363,384

BRAKE ASSEMBLY

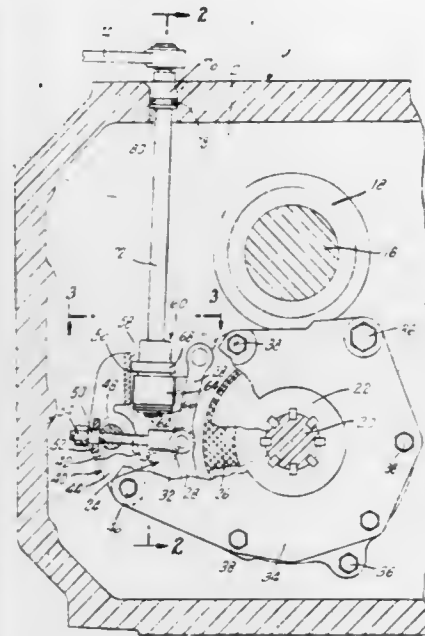
Leonard H. Richardson, Dearborn Heights; Otto Mueller, Jr., Detroit, and Lee E. Elfes, Bloomfield Hills, all of Mich., assignors to Massey-Ferguson Inc., Detroit, Mich.

Filed Aug. 2, 1978, Ser. No. 930,310

Int. Cl.³ F16D 55/08

U.S. Cl. 188—72.7

3 Claims



1. In a tractor, the combination comprising:
 - a differential housing;
 - a transmission including a transmission housing secured immediately forwardly of the differential housing, said transmission housing having a rear wall, and a drive shaft extending rearwardly from said rear wall and disposed within the differential housing;
 - brake discs mounted on the drive shaft;
 - a disc brake construction adapted to engage said disc brakes and hold them from rotation, said disc brake construction also including a shiftable brake applying link;
 - a mounting structure secured to the rear wall of said transmission housing and supporting said disc brake construction;
 - a lever having an intermediate portion engaged by said link, one end of said lever being pivotally connected to said mounting structure and the other end being provided with a cam follower surface;
 - a cam;
 - means rotatably supporting the cam in engagement with the cam follower surface; and
 - means operable to rotate said cam and capable of causing said drive shaft to be braked, said means including a rotatable shaft passing through an aperture in the differential housing.

4,363,385

TRANSMISSION BRAKE BAND END CONNECTION

Alfred Schlanger, 265 Wheatley Rd., Old Westbury, N.Y. 11729

Continuation-in-part of Ser. No. 173,228, Jul. 28, 1980,

abandoned. This application Feb. 9, 1981, Ser. No. 232,489

Int. Cl.³ F16D 65/04, 65/06

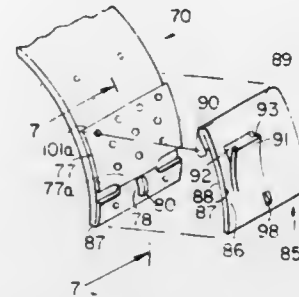
U.S. Cl. 188—249

11 Claims

1. A transmission brake band comprising:
 - a brake band formed with a friction lining on one side;
 - a strut seat disposed on the other side of the band, and at one end of the band, and comprising a first base plate fixed to the one end, said first base plate being formed with a hooked portion extending from the first base plate; said band being formed with a hole adjacent the other end of the band;
 - a second base plate formed on the other end and being formed with a hole coincident with said band hole, said

second base plate being formed with a rear edge disposed away from said hole; and

- a replaceable bracket being formed with a bent portion forming a tongue and extending away from the bracket so as to form an opening in the bracket so that a force exerting member engages the tongue, said bracket being formed with mounting means receivable in said coincident hole, said mounting means comprising an elongated tab member depending from said bracket, said elongated tab



member engaging said coincident hole, said hole being elongated so as to receive said tab, and said replaceable bracket being formed with a curved portion having an edge formed on the end of the bracket opposite from the hole, wherein said curved portion edge engages the rear edge of the second baseplate opposite the hole, whereby the force from said force exerting member is transferred from the tongue and curved portion to the second base plate and in turn to the band.

4,363,386

OVERRUNNING DRUM HAVING AN AMPLIFYING DEVICE

Josef Peitz, Sr., Pater Ewald Strasse 29, 4790 Paderborn, Fed. Rep. of Germany

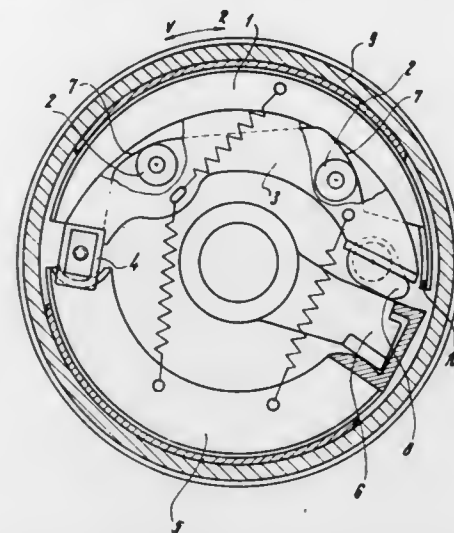
Filed Apr. 3, 1980, Ser. No. 136,970

Claims priority, application Fed. Rep. of Germany, Apr. 10, 1979, 2914468

Int. Cl.³ F16D 51/60

U.S. Cl. 188—331

7 Claims



1. A wheel brake, particularly an overrunning wheel brake, comprising a brake drum having an axis; a first brake shoe displaceable in forward and rearward directions and arranged to move toward said brake drum in a radial direction to be pressed against said brake drum with a pressure force; a support member which supports said first brake shoe; a second brake shoe connected with and together with said support member and displaceable in said forward and rearward directions and also arranged to be pressed against said brake drum with a pressure force; amplifying means arranged to cooperate with only said first brake shoe and to amplify the pressure force with which said first brake shoe is pressed against said

brake drum, said amplifying means including a first formation provided on said support member and a second formation provided on said first brake shoe and cooperating with said first formation so as to amplify the pressure force during movement of said first brake shoe in said forward direction, said second formation on said first brake shoe being formed by a curved outer surface portion adjacent said drum and a lifting track portion adjacent said support member, said curved outer portion and said lifting track portion forming a wedge-shaped portion on said first brake shoe converging in said forward direction, said first formation including a guiding member on said support member cooperating with said wedge-shaped portion; means for displacing said first brake shoe in said forward direction so that, upon the displacement in said forward direction, said first brake shoe cooperates with said amplifying means and is pressed against said brake drum with the amplified pressure force, said displacing means including a tightening member arranged to act on said support member so as to displace said support member together with said first brake shoe in said radial direction; and urging means provided on said first brake shoe and normally spaced from said second brake shoe, said urging means arranged so that, when said first brake shoe is displaced in said rearward direction, said urging means abuts an end portion of said second brake shoe and urges and displaces said second brake shoe in said rearward direction, said second brake shoe acts upon said support member and thereby on said amplifying means which, in turn, cooperates with said first brake shoe, thereby said first brake shoe is also pressed against said brake drum with the amplified pressure force, so that said first brake shoe is pressed against said brake drum with the amplified pressure force not only during the displacement in said forward direction but also during the displacement in said rearward direction, said first brake shoe having an open end portion facing toward said tightening member, and said urging means being provided on said end portion of said first brake shoe, and arranged to displace said second brake shoe in a circumferential direction.

4,363,387

WHEEL CYLINDER AND TORQUE PLATE CONSTRUCTION

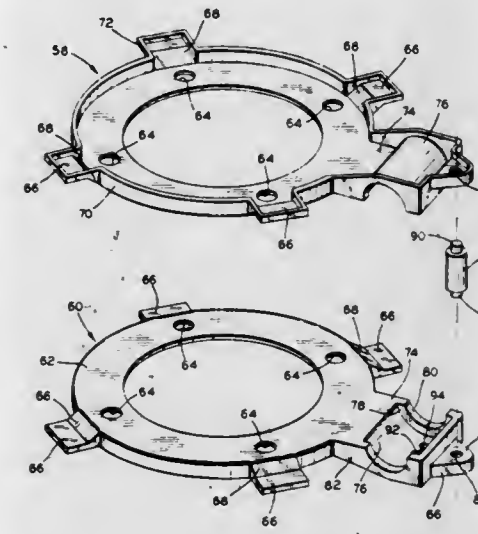
James K. Roberts, South Bend, Ind., assignor to The Bendix Corporation, Southfield, Mich.

Continuation of Ser. No. 93,361, Nov. 13, 1979, abandoned. This application Aug. 3, 1981, Ser. No. 289,547

Int. Cl.³ F16D 51/52, 65/14

U.S. Cl. 188—333

3 Claims



1. A wheel cylinder and torque plate combination for a drum brake assembly wherein the wheel cylinder receives a pair of pistons, said combination comprising two stamped torque plate parts, each having a central planar portion to be affixed to the other planar portion and to a wheel axle housing or the like, said torque plate parts also having integrally formed matching shells which form a complete cylindrical shell when said parts are assembled, and a plastic member having a cylindrical bore

therethrough mounted in said matching shells, said plastic member being substantially enclosed within and contiguously engaging said complete cylindrical shell to prevent expansion of said plastic member, said plastic member cylindrical bore receiving at least one piston to substantially define the wheel cylinder for the drum brake assembly, and said wheel cylinder being defined solely by said plastic member and said torque plate parts for receiving the pair of pistons.

4,363,388

GARMENT BAG UNIT

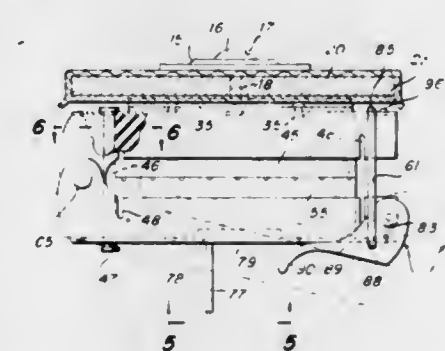
Wallace London, 641 S. Monroe St., Baltimore, Md. 21223, and Kurt L. Meyer, Ellicott City, Md., assignors to Wallace London, Baltimore, Md.

Filed Jul. 13, 1981, Ser. No. 282,714

Int. Cl.³ A45C 3/00; B65D 85/18; A44B 21/00

U.S. Cl. 190—41 B

14 Claims



1. A frame type garment bag unit having means on the outside of the top thereof for suspending the bag while loading therein or unloading therefrom a plurality of garments on hangers therefor, which may alternatively be of the type having a vertical wire shank extending upwardly from the center of the hanger and terminating in a downwardly extending curved hook portion, or a vertical wire shank having a bulbous enlargement at the upper end thereof, comprising:
 - (a) a jointed clamp disposed in a generally vertical plane and having an upper channel fixed to the garment bag and a lower channel pivotally mounted to said upper channel at the rear ends thereof, with the open edge of each channel facing the other,
 - (b) a horizontally disposed hinge pin at said rear ends extending beyond the external surfaces of said channels,
 - (c) a reinforcing sleeve surrounding said hinge pin between the internal surfaces of said channels,
 - (d) a strip of resilient material seated within each channel and protruding beyond the open edge thereof,
 - (e) a latching device of high mechanical efficiency at the front end of said jointed clamp for alternately permitting the spreading of said channels or the clamping thereof together, for embracing the hook portions of the garment hangers to maintain them in fixed position,
 - (f) means extending between said last-mentioned upper channel and said lower channel for limiting the pivotal movement of the latter in the open position of said jointed clamp, to provide an inclined support for the hook portions of the garment hangers in the course of loading and unloading the latter into and from the garment bag, and
 - (g) the bottom wall of said lower channel having an elongated keyhole-shaped slot for permitting the insertion and withdrawal of hangers having wire shanks with bulbous enlargements, to render the garment bag universally adaptable for enclosing garments on both types of hangers.

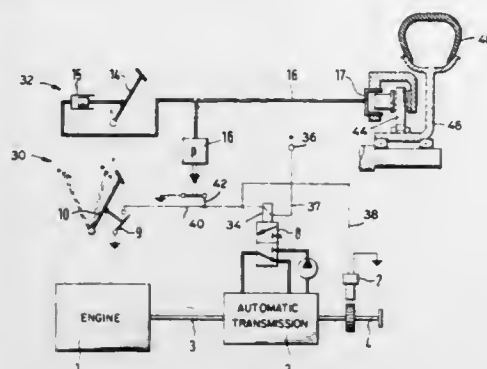
4,363,389

VEHICLE TRANSMISSION CONTROL SYSTEM
 Franz X. Zaunberger, and Artur Kugler, both of Augsburg, Fed. Rep. of Germany, assignors to Zahnradfabrik Renk A.G., Augsburg, Fed. Rep. of Germany
 Filed Aug. 13, 1980, Ser. No. 177,565
 Claims priority, application Fed. Rep. of Germany, Aug. 16, 1979, 2933075

Int. Cl.³ B60K 41/08, 41/28

U.S. Cl. 192—0.042

10 Claims



1. A transmission control system adapted for controlling the operation of a vehicle automatic transmission having a fluid coupling and means for interrupting the driving connection between a vehicle engine and a transmission output shaft, the control system including vehicle speed sensing means, brake sensing means for detecting when the vehicle brakes have been applied, control means, and means interconnecting the speed sensing means and the brake sensing means to the control means, the control means including means actuating the interrupting means when the speed sensing means indicates that the vehicle speed is at or below a predetermined value and simultaneously the brake sensing means indicates that a minimum predetermined braking force has been applied, the means for actuating the interrupting means including means for restoring the driving connection prior to complete release of braking force whereby reduced engine load will be achieved with smooth vehicle operation during braking and subsequent acceleration.

4,363,390

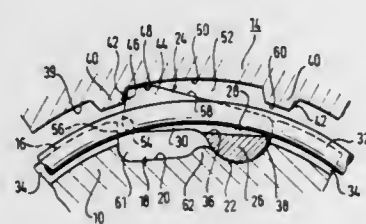
RATCHET GEAR FOR THE DRIVING HUB OF A BICYCLE

Ewald Eisend, Grafenrheinfeld, and Josef Keller, Schweinfurt, both of Fed. Rep. of Germany, assignors to Fichtel & Sachs AG, Schweinfurt, Fed. Rep. of Germany
 Filed Oct. 22, 1980, Ser. No. 199,455
 Claims priority, application Fed. Rep. of Germany, Nov. 7, 1979, 7931360[U]

Int. Cl.³ F16D 41/12

U.S. Cl. 192—46

5 Claims



1. A ratchet gear to be used in a bicycle hub and the like comprising:
 a pawl carrier (10) rotatable about a first axis (12),
 at least one pawl (24) pivotally mounted on said pawl carrier (10) about a second axis (28), a gear carrier (14) also rotat-

able about said first axis (12), entrainer teeth (40) on said gear carrier (14) for engagement with said pawl (24), said pawl (24) comprising a bearing base (26) and an engagement head (44), said bearing base (26) comprising a partly cylindrical segment-shaped convex bearing surface extending over an angle of less than 180° about the second axis,
 said pawl carrier (10) comprising a recess-like compartment (18) for receiving said pawl (24), said compartment (18) comprising a partly cylindrical segment-shaped concave bearing bushing (22) for receiving said convex bearing surface of said pawl (24),
 a sill portion (62) adjacent said bearing bushing (22), and a floor portion (20) adjacent said sill portion (62) on the side of said sill portion (62) remote from said bearing bushing (22),
 said engagement head (44) being provided with an entrainer surface (46) extending transversely of the circumferential direction of said pawl carrier for engagement with respective entrainer flanks (42) of said entrainer teeth (40), and said engagement head (44) being in contact with said gear carrier (14) when said convex bearing surface of said bearing base (26) is received in said bearing bushing (22),
 biasing means (32) for biasing said pawl (24) toward engagement with said entrainer teeth (40), said biasing means (32) comprising a spring ring circular about said first axis (12) and having an intermediate portion received within a slot (30) in said pawl (24) and engaging the floor (36) of said slot (30),
 said entrainer surface (46) of said engagement head (44) having a securing surface (54) extending inwardly therefrom and movable toward said floor portion (20) of said compartment (18), from the position where said engagement head (44) contacts said gear carrier (14), said floor portion (20) of said compartment (18) having an intercepting face (56) extending transversely of the circumferential direction of said pawl carrier, said securing surface (54) facing said intercepting face (56) in the direction extending transversely of the circumferential direction of said pawl carrier when said entrainer surface (46) of said engagement head (44) engages said entrainer flank (42) of a respective entrainer tooth (40),
 the spacing of said securing surface (54) and of said intercepting surface (56) when said engagement head (44) contacts said gear carrier (14) being such that on unintended approach of said pawl (24) toward said intercepting surface (56) until contact of said intercepting surface (56) and said securing surface (54) causing partial removal of said convex bearing surface out of said concave bearing bushing (22) said convex bearing surface is returned into said concave bearing bushing (22) by said biasing means and slides on the flank of said concave bearing bushing (22) adjacent said sill portion (62), and
 the radius of said convex bearing surface and of said concave bearing bushing being substantially greater than the spacing of said securing surface (54) and said intercepting surface (56) when said engagement head (44) contacts said gear carrier (14).

4,363,391

FEED PIPE FOR CONVEYING STICKY BULK MATERIAL

Peter Langen, Hanrathstrasse 43, 5303 Bornheim-Walberg, Fed. Rep. of Germany
 Division of Ser. No. 962,007, Nov. 20, 1978, Pat. No. 4,286,702.
 This application Jun. 15, 1981, Ser. No. 273,464
 Claims priority, application Fed. Rep. of Germany, Jun. 23, 1978, 2827602

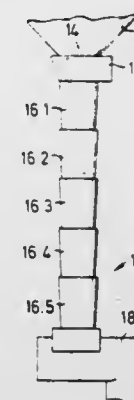
Int. Cl.³ B65G 11/00

U.S. Cl. 193—2 D

5 Claims

1. A straight, stationary feedpipe mounted vertically between a bunker outlet and an enclosed, pressurized conveyor system for feeding from a bunker to the pressurized conveyor

system bulk material of the type having a tendency to arch and for forming a pressure seal for the enclosed pressurized conveyor system, said feedpipe consisting of a plurality of serially connected, downwardly tapering tubular members of substantially identical design, rigidly connected together with the lower edge of each downwardly tapering tubular member laterally spaced around its entire periphery from the upper end of the adjacent lower tubular member by annular means extending completely around and filling the gap between adja-



cent tapered tubular members to form a portion of the interior surface of said feedpipe which extends outward and faces downward to the extent that sticky bulk material can not cling to this surface in forming an arch, and wherein each of said tubular members has a ratio of its axial length to its average diameter which is smaller than that required for arching of the bulk material within that tubular member such that the feedpipe can be continuously filled with the bulk material to a level which seals the pressurized conveyor system, yet the bulk material remains free-flowing for feeding the conveyor system.

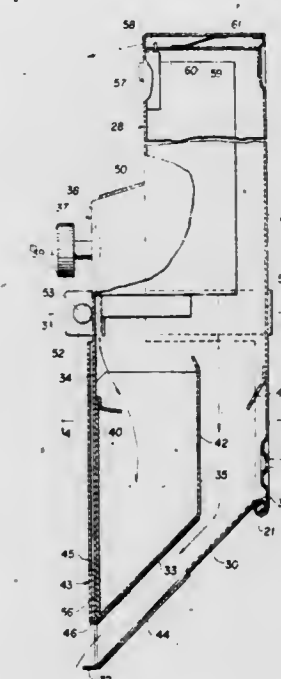
4,363,392

PRODUCT DISPENSER HAVING INCREASED COIN HOLDING CAPACITY

Winford G. McDonald, 128 Hill, Center, Tex. 75935
 Filed Nov. 25, 1980, Ser. No. 210,224
 Int. Cl.³ G07F 9/06

U.S. Cl. 194—1 B

4 Claims



1. A dispenser for product units comprising an elongated vertical wall-attached support plate having a hinge knuckle at its lower end for the rotational support of a dispenser assembly, an elongated dispenser body portion including at least one product storage hopper and a coin mechanism for the release of product units one at a time from the hopper, and said body portion including an inclined bottom wall extending down-

wardly and forwardly from the lower end of said support plate at an acute angle to the support plate, a hinge knuckle on the body portion at the top of the inclined bottom wall and being supportively and rotationally engaged with the hinge knuckle of the support plate, the body portion including a product outlet at its front and at the bottom of said inclined bottom wall, means within the lower part of the body portion forming a downwardly tapering coin box support pocket above said inclined bottom wall and above said product outlet, a vertically elongated coin box including a downwardly tapering lower end portion having an inclined bottom wall parallel to the bottom wall of the body portion and being removably engageable in said pocket, the coin box being disposed under the coin mechanism while resting in said pocket, the back of said body portion being open to permit removal of the coin box therefrom, means to releasably lock the top of said body portion to the top of the support plate with the body portion in an upright position and with said hinge knuckles supportively engaged, and a guard for the lower end portion of the dispenser comprising a three-sided structure adapted to extend around the front and side walls of the body portion and having a partial bottom wall which is inclined and parallel to the bottom wall of the body portion and adapted to engage under the bottom wall of the body portion, and the guard having a product outlet in registry with the outlet of the body portion, and means to releasably lock the guard on the dispenser.

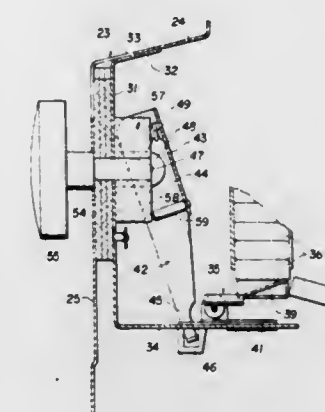
4,363,393

COIN CONTROLLED MECHANISM FOR VENDING MACHINE

Winford G. McDonald, 128 Hill, Center, Tex. 75935
 Filed Feb. 23, 1981, Ser. No. 237,502
 Int. Cl.³ G07F 5/04, 11/22

U.S. Cl. 194—63

10 Claims



2. A coin mechanism for a merchandise dispenser of the type having at least a single merchandise column from the bottom of which merchandise units are dispensed one at a time, said coin mechanism comprising a supporting body portion adapted for attachment to a dispenser, a combined unitary back plate and platform fixed to the body portion with the back plate spaced from a front wall of the body portion, a pocketed coin transport wheel disposed between said back plate and said front wall, a manual rotational drive shaft means for said wheel operable from the front of said body portion, a spring-urged anti-reverse blocking element for said wheel on said back plate, a lobed cam fixed to the drive shaft means at the side of the back plate away from said wheel, a cam lever rockably mounted on the unitary back plate and platform including a follower element in the path of movement of the cam, compressive coil spring return means for the cam lever between the cam lever and back plate, and a merchandise pusher slidably engaged with the platform and drivingly coupled with the end of the cam lever away from said coil spring return means.

4,363,394

APPARATUS FOR CONVEYING ROLLED STOCK

Hans Kirchhoff, Krefeld, Fed. Rep. of Germany, assignor to Schloemann-Siemag Aktiengesellschaft, Dusseldorf, Fed. Rep. of Germany

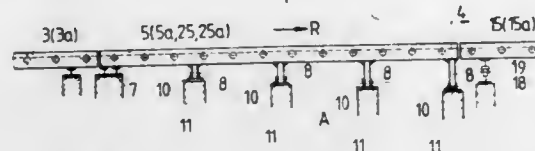
Filed Nov. 16, 1979, Ser. No. 94,773

Claims priority, application Fed. Rep. of Germany, Nov. 18, 1978, 2850174

Int. Cl.³ B65G 47/10

U.S. Cl. 198—369

9 Claims



1. In an apparatus for selectively conveying rolled stock of flexible and relatively bending resistant profiled cross-sections of different cross-sectional shape in continuous high grade steel and medium grade steel rolling trains, wherein two mutually approximately parallel conveying lines each convey rolled stock to a respective cooling bed, each conveying line comprising an inlet rollerway and a downstream outlet rollerway having an upstream end and a downstream discharge end, the respective cooling beds being arranged downstream and laterally of the outlet rollerways for receiving rolled stock discharged therefrom, each outlet rollerway having a conveying surface inclined across the conveying direction towards the respective cooling bed and each outlet rollerway being pivotable about said discharge end so that either both cooling beds are charged simultaneously by both inlet rollerways in approximately parallel conveying directions, or one or the other cooling bed is charged by one or the other inlet rollerway, the improvement comprising providing between the inlet rollerways and the outlet rollerways two tipping rollerways each having an upstream end and a downstream end, the upstream end of each tipping rollerway being fixedly aligned with a respective inlet rollerway, each tipping rollerway being swingable selectively into alignment with one or the other outlet rollerway and being constructed with pivotable support means and being provided at said downstream end with means for swinging said downstream end along an arcuate path about a swing axis which is inclined downwardly in the conveying direction, said arcuate path tracing substantially the surface of a cone along which said tipping rollerway is swingable, each tipping rollerway having a conveying surface having substantially the same inclination in the conveying direction as said conveying surface of the respective outlet rollerway when in line therewith for smooth conveyance of stock from the tipping rollerway to the respective outlet rollerway.

4,363,395

MATERIAL HANDLING DEVICE

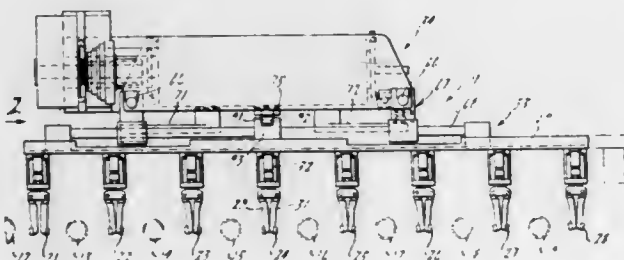
George Mink, 38296 Horseshoe Dr., Mt. Clemens, Mich. 48043

Filed Sep. 10, 1980, Ser. No. 185,986

Int. Cl.³ B65G 25/00

U.S. Cl. 198—486

6 Claims



1. A material handling device for moving a work piece in succession between a plurality of adjacent work stations positioned in aligned relationship, said material handling device

comprising a plurality of gripping means each adapted to selectively grip and release a work piece, a support, means for affixing said gripping means to said support, and motion transfer means for moving such support and said gripping means carried thereby from a home position in which said gripping means are positioned in aligned relation with the work stations and between the adjacent work stations, to a first operative position having at least a component of movement along the aligned path in which a work piece may be grasped at each work station, a second operative position having at least a component of movement along the aligned path wherein said gripping means move the work pieces gripped thereby from the first work stations to the next adjacent work stations for deposit upon release of said gripping means, and back to said home position between the work stations.

4,363,396

DEVICE FOR BUILDING-UP AND DISCHARGING AN ANNULAR DUMP OF BULK MATERIAL

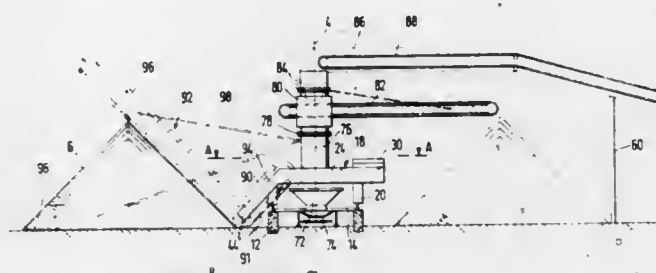
Helmut Wolf, Sielkamp 52, 3300 Braunschweig, Fed. Rep. of Germany, and Hans J. Schlegel, 6129 72nd La., North, Minneapolis, Minn. 55429

Continuation of Ser. No. 67,839, Aug. 20, 1979, abandoned, which is a continuation-in-part of Ser. No. 850,704, Nov. 10, 1977, abandoned. This application Feb. 12, 1982, Ser. No. 348,368

Int. Cl.³ B65G 65/06

U.S. Cl. 198—508

13 Claims



13. Apparatus for removing and building up of bulk material from and onto heaps on a circular storage site, comprising a foundation having a vertical axis, a circular support fixedly mounted on said foundation in concentric relation with respect to said vertical axis for receiving a load in bearing and rotating relation thereon, a frame mounted on said support for rotation therewith about said vertical axis, a central column mounted on said frame in generally coaxial relation with respect to said vertical axis and being rotatable with said frame about said vertical axis, a discharge hopper having an unobstructed upper receiving end, means for supporting said hopper in coaxial relation with respect to said vertical axis and independently of said central column, wherein said frame and column are rotated independently of said hopper, a material removal device mounted for rotation with said column and frame for removing said material from a heap and discharging it into said hopper without obstruction of said material by said hopper supporting means, and dumping means mounted on said column for independent rotation relative thereto and above said material removal device for selectively dumping material onto a heap for the removal therefrom by said removal device, said frame including parallel supports that extend generally parallel to the longitudinal axis of said material removal device, a structure joined to said supports on said frame and supporting said column thereon, wherein said column and frame are rotatable on said circular support.

4,363,397

Z-TRANSFER DEVICE FOR AMMUNITION

Earl D. Richey, Irvine, and Franklin A. Dobson, Costa Mesa, both of Calif., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Feb. 27, 1981, Ser. No. 238,721

Int. Cl.³ B65G 49/00

U.S. Cl. 198—655

4 Claims



1. A transfer device for rounds of ammunition comprising: a plurality of buckets each adapted for receiving one of the rounds of ammunition at a first location and for delivering it to a second location, said first and second locations being laterally offset from each other; means for linking said buckets in an endless chain; means for guiding said buckets from said first location to said second location; said means for linking being effective to permit adjacent ones of said buckets to be laterally displaced from each other and being further effective to maintain all of said buckets parallel to each other; and means for retaining said rounds in said buckets during transfer thereof.

4,363,398

SCRAPER-CHAIN CONVEYORS

Helmut Temme, Waltrop, Fed. Rep. of Germany, assignor to Gewerkschaft Eisenhütte Westfalia, Lunen, Fed. Rep. of Germany

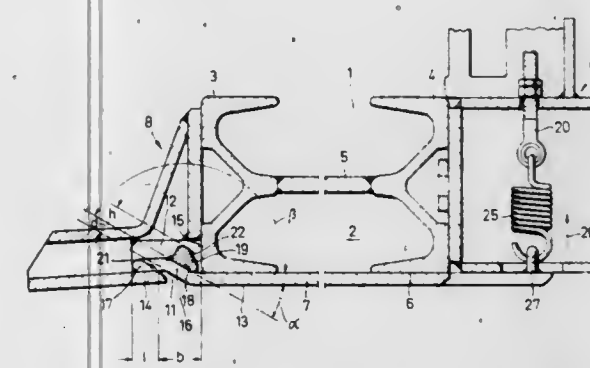
Filed Jun. 4, 1980, Ser. No. 156,242

Claims priority, application Fed. Rep. of Germany, Jun. 5, 1979, 2922826

Int. Cl.³ B65G 19/28

U.S. Cl. 198—735

17 Claims



1. A pan or channel section for a scraper chain conveyor comprising: side walls; a floor plate extending between said side walls defining upper and lower runs; and means permitting access to said lower run comprising a removable bottom plate which covers the lower run from beneath, said bottom plate having a main body having longitudinal side edges, wherein one of said edges is provided with at least one extension member angulated with respect to said bottom plate, means defining a pocket for receiving said extension member to secure said bottom plate in its normal operating position, said bottom plate being removable only after pivoting said bottom plate and said

extension member through an angle with respect to said pocket, and a dog forming a retention piece fixed to the upper surface of said at least one extension member to rotate at least closely adjacent to a roller extension portion of one of the side walls.

4,363,399

BELT CONVEYOR

Peter Ludwig, and Heinrich Hörstermann, both of Rosenweg 9, 5982 Neuenrade, Fed. Rep. of Germany

Continuation of Ser. No. 969,219, Dec. 13, 1978, abandoned.

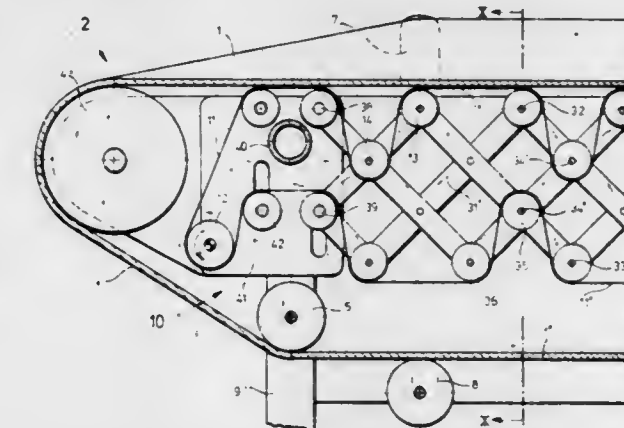
This application Oct. 14, 1980, Ser. No. 196,297

Claims priority, application Fed. Rep. of Germany, Dec. 17, 1977, 2756363

Int. Cl.³ B65G 23/14, 15/08

U.S. Cl. 198—833

4 Claims



1. A belt conveyor, comprising a carrying belt unit which includes an endless carrying belt having an upper load-carrying run adapted to carry loads and movable in a direction of transportation, and a plurality of supporting rollers arranged to support and guide said load-carrying run of said carrying belt unit; a friction belt unit which includes an endless friction belt having an upper run which is movable in said direction and is in frictional contact with said load-carrying run of said carrying belt, a plurality of bearing rollers arranged to support and guide said one run of said friction belt, and a plurality of deviating rollers which are located between and offset downwardly relative to said bearing rollers so that said one run of said friction belt moves about said deviating rollers and is alternately guided by the same into and out of frictional contact with said load-carrying run, said upper run of said friction belt being guided by said bearing rollers and some of said deviating rollers; a frame having side walls which are formed as a parallel linkage mounting said bearing rollers and said deviating rollers on said frame and including a plurality of flat bars which cross and are articulately connected with each other, said parallel linkage having upper knee points in which axes of said bearing rollers are located, and cross points in which axes of said deviating rollers are located; and a conveyor frame including a plurality of uprights and two longitudinal walls formed as a further parallel linkage extending between two adjacent uprights and each having a plurality of bars which cross and are articulately connected with each other, said longitudinal walls having end portions each connected to a respective one of said uprights, each of said end portions being connected to a respective one of said uprights by a fixed pivot extending in one plane and a displaceable pivot extending in another plane.

4,363,400

DISPLAY CARTON WITH INTERNAL SPACER

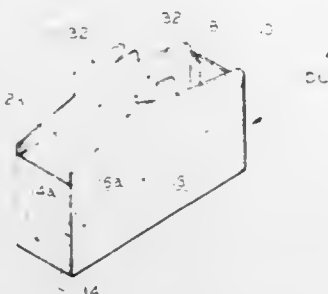
Phillip W. Lewis, Greensboro, N.C., assignor to Container Corporation of America, Chicago, Ill.

Filed Jul. 15, 1981, Ser. No. 283,432

Int. Cl.³ B65D 5/50

U.S. Cl. 206—44 R

3 Claims



1. In a collapsible display carton, formed of a unitary blank of foldable paperboard, for holding and displaying a plurality of articles such as carded packages, the combination comprising of:

- a bottom wall including an inner panel and an outer panel;
- pairs of opposed side and end walls foldably joined to each other, said side walls having lower edges thereof joined to the inner panel and the other panel of said bottom wall, said side and end walls upstanding from said bottom wall to form a box-like body structure open at the top;
- a spacer panel foldably joined to the free edge of the inner panel of said bottom wall, disposed to extend into said body structure inwardly adjacent one of said side walls, and presenting a plurality of spaced apertures for receiving portions of said packaged articles to maintain them in spaced relationship with each other; and
- certain of said side and end walls having detachable portions which can be removed to afford better viewing of the contents of the carton.

4,363,401

SLEEVE MARKER ASSEMBLY

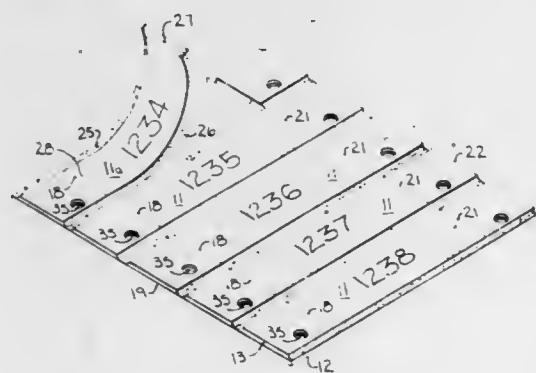
Michael D. Savagian, Milwaukee, Wis., assignor to W. H. Brady Co., Milwaukee, Wis.

Filed Sep. 28, 1981, Ser. No. 306,045

Int. Cl.³ B65D 85/20, 63/00

U.S. Cl. 206—345

4 Claims



1. A sleeve marker assembly comprising, in combination:
- (1) a base web and top web superposed upon one another, both webs being of equal width and having longitudinal axes arranged parallel to each other;
 - (2) a plurality of spaced transverse seals joining the base web and the top web together at preselected intervals, the transverse seals being arranged perpendicular to the longitudinal axes of the base web and top web;
 - (3) a first row of spaced longitudinal slits defined in a first marginal edge portion of the assembly, each said slit ex-

tending through the base web and top web and separated from one another by connecting lands comprising portions of the transverse seals;

- (4) a second row of spaced longitudinal slits defined in a second marginal edge portion of the assembly opposite from the first marginal edge portion and arranged parallel to the first row of spaced longitudinal slits, each said slit extending through the base web and top web and separated from one another by connecting lands comprising portions of the transverse seals;
- (5) each individual sleeve marker being manually detachable from the assembly and having opposed closed edge portions defined by portions of an adjacent pair of transverse seals and opposed open ends defined by said longitudinal slits.

4,363,402

OPEN-FACED WELDING ROD/STUB RECEPTACLE

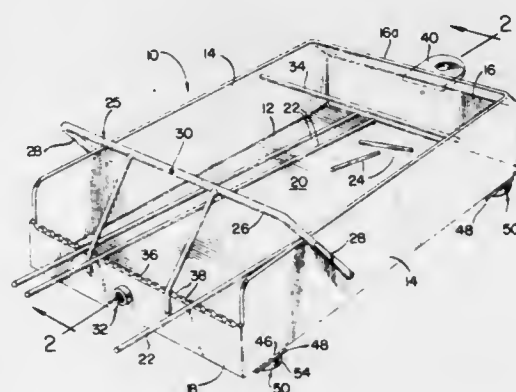
John V. Grzyll, 606 W. Roberta, Fullerton, Calif. 92632

Filed May 8, 1981, Ser. No. 261,879

Int. Cl.³ B65D 85/26

U.S. Cl. 206—380

9 Claims



1. A welding rod and stub apparatus, comprising:
- a receptacle having an open-faced compartment to receive welding rods and stubs therein;
 - means on said receptacle to retain said welding rods within said compartment;
 - a handle angularly attached to said receptacle, whereby said receptacle can be carried or secured angularly; and
 - means formed between said handle and said receptacle to selectively divide said rods in groups by size and type.

4,363,403

CASSETTE STORAGE CONTAINER

Charles C. Raucci, Jr., Wooddale, and Timothy J. Raucci, Handover Park, both of Ill., assignors to Village Mold Co., Inc., Addison, Ill.

Filed Aug. 7, 1981, Ser. No. 290,886

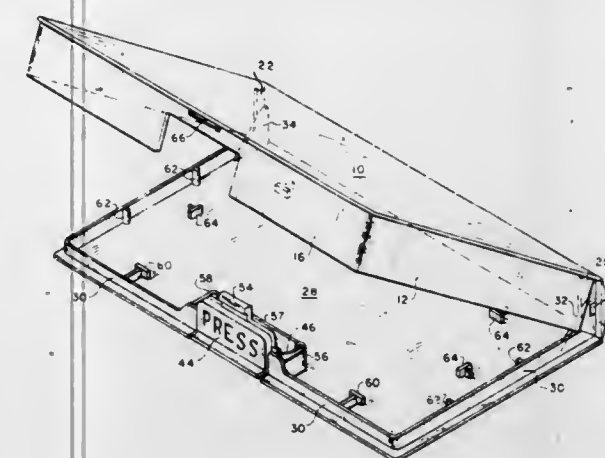
Int. Cl.³ B65D 85/67, 43/14; E05C 19/12

U.S. Cl. 206—387

9 Claims

1. An improved tape cassette storage container adapted for molding in a unitary structure, said container comprising
- a first substantially flat rectangular surface;
 - opposed end walls and a side wall disposed proximate the outer edge of said first surface;
 - a spine member hingedly molded to the edge of said first surface opposite said side wall, having upstanding tabs disposed proximate each end thereof, each said tab being disposed inwardly of the end walls on said first surface and having an aperture disposed therethrough;
 - a second substantially flat rectangular surface hingedly molded to the edge of said spine member opposite said first surface;
 - a lip member disposed proximate the edges of said second surface other than the edge adjacent said spine member, said lip member being in substantial linear alignment with said tabs on the ends of said spine member;

an upwardly extending member disposed at each end of said lip member adjacent said spine member, each said member having an outwardly extending tab disposed thereon such that rotation of said spine member and said second surface toward one another causes said outwardly extending tabs on said upwardly extending members to engage said apertures disposed in said upstanding tabs disposed at the ends



of said spine member, whereby said spine member is retained at substantially a right angle with respect to said second surface; and

whereby rotation of said first surface toward said spine member causes said end and side walls on said first surface to engage the outer surface of said lip member on said second surface to thereby provide a closed container.

4,363,404

END CLOSURE FOR STACKABLE FROZEN FOOD CONTAINERS

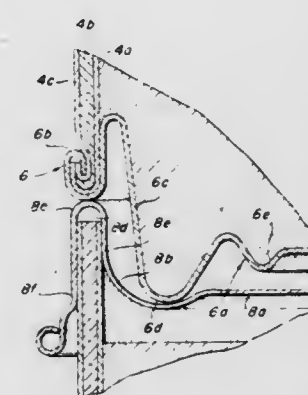
Teddy M. Westphal, Glencoe, Mo., assignor to Boise Cascade Corporation, Boise, Id.

Filed Mar. 30, 1981, Ser. No. 248,901

Int. Cl.³ B65D 21/02, 3/14

U.S. Cl. 206—508

6 Claims



1. A container adapted for institutional use for containing frozen foods, comprising:

- (a) a tubular composite body wall (4) including, in concentrically arranged relation, an inner liner layer, fibrous body wall layer, and an outer label layer;
- (b) a rigid bottom closure member (6) including
 - (1) a cylindrical generally vertical intermediate portion (6c);
 - (2) an annular rim portion (6b) connecting the upper end of said intermediate portion with the lower end of said body wall;
 - (3) a horizontal circular disk-shaped central panel portion (6a) arranged in concentrically spaced relation within said intermediate portion; and
 - (4) means connecting said central panel portion with the lower edge of said intermediate portion at a position having a higher elevation than that of the lower edge of the vertical intermediate portion and a lower elevation

than that of said annular rim portion, said connecting means cooperating with said intermediate portion to define a downwardly extending annular stacking rib (6d); and

- (c) a rigid top closure member (8) closing the upper end of said composite body wall, said top closure member containing an annular recess (8b) for receiving the stacking rib of a second container stacked vertically thereon, whereby when the container is provided with a liquid or fluent material that is subjected to progressively decreasing temperature, freezing of the material proceeds upwardly in the container from the rib and central panel portions of the bottom closure member.

4,363,405

DISPENSING CARTON FOR PLASTIC GROCERY BAGS

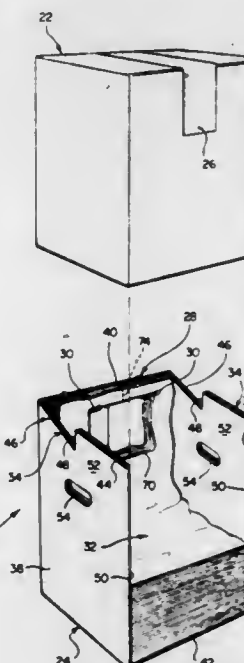
Eugene P. Christie, 543 Granville, Hillside, Ill. 60162

Filed Jul. 20, 1981, Ser. No. 284,941

Int. Cl.³ B65D 85/62; B65B 67/04; A47F 7/00

U.S. Cl. 206—554

5 Claims



1. A disposable shipper-dispenser for plastic film bags comprising: a carton top member comprising a parallelepipedon having an open bottom; and a carton bottom member adapted to be slidably telescopically received in said carton top member, including spaced sidewall elements and back panel and bottom panel elements interconnecting said sidewall elements, said elements defining a substantially open top and a substantially open front, each of said sidewall elements having a top edge which includes a downwardly and forwardly inclined bag-handle-guide edge portion and a substantially vertically extending intermediate edge portion defining a stop at the forward end of said inclined guide edge portion, each of said sidewall elements having a vertical front edge spaced forwardly apart from the respective vertically extending top edge stop portion to define a bag-handle spreader-hanger therebetween.

4,363,406

FLUID DRAINAGE BAG WITH TEAR TAB DRAIN

Lawrence A. Salvadori, Milwaukee, Wis., assignor to Plastronics, Inc., Milwaukee, Wis.

Continuation of Ser. No. 58,067, Jul. 16, 1979, abandoned. This application Apr. 16, 1981, Ser. No. 254,909

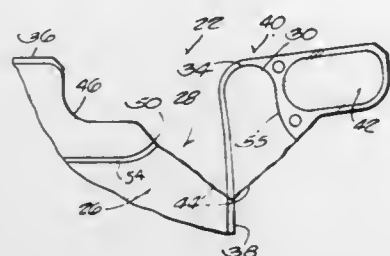
Int. Cl.³ B65D 33/02, 33/00

U.S. Cl. 206—604

5 Claims

1. A fluid drainage bag comprising:
- a bag body including a top edge and an adjoining side edge,

said top edge and said adjoining side edge together defining a corner section of said bag body;
 an internal fluid chamber within said bag body having an inlet port and an outlet port;
 an outlet extension portion communicating with said outlet port and having a sealed end portion spaced from said outlet port, said outlet extension portion located within said corner section of said bag body, the material of said outlet extension portion in the area of said outlet port is not weakened by a score line or similar means;



a seam in said corner section defining a preformed section of a tear line extending from said top edge of said bag body toward said outlet extension portion;
 a tab member formed intermediate said seam and said top edge of said bag body, said tear tab adapted when initially pulled laterally toward said outlet extension portion to cause the bag body to tear along said preformed tear seam and further adapted when pulled further to cause the bag body to tear across the previously unweakened material of said outlet extension portion to thereby create an opening at said outlet port to facilitate drainage of fluid from said internal fluid chamber within said bag body.

4,363,407

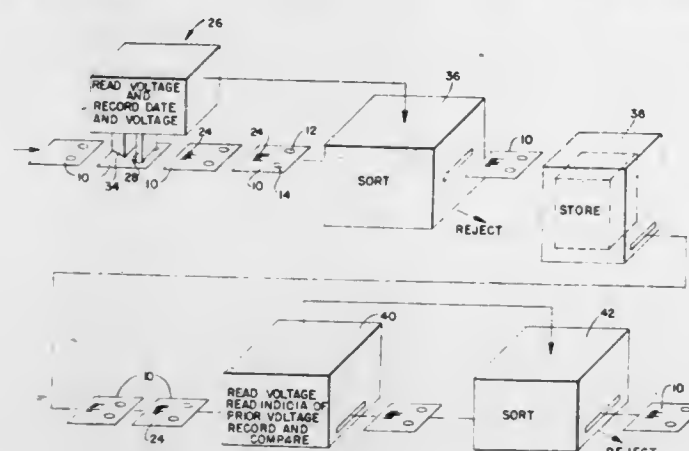
METHOD AND SYSTEM FOR TESTING AND SORTING BATTERIES

Sheldon A. Buckler, Brookline; Jeffrey B. Burns, Natic; Alfredo G. Kniazze, West Newton; Paul A. Plasse, Lexington, and David J. Sullivan, Bolton, all of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Jan. 22, 1981, Ser. No. 227,477
 Int. Cl.³ B07C 5/02, 5/344

U.S. Cl. 209—3.3

16 Claims



1. The method of testing and sorting a production run of electric batteries prior to assembly and packaging thereof with related goods to be merchandised with individual batteries of such a production run, said method comprising the steps of:
 (a) testing each individual battery of the production run to obtain a first value of electrical energy for each such battery;
 (b) forming machine readable indicia on each such battery corresponding to said first value;
 (c) storing the batteries after completion of steps (a) and (b);
 (d) retesting each of the individual batteries after passage of

an elapsed period of time following step (a) to obtain a second value of electrical energy for each battery;
 (e) machine reading said indicia and computing, in accordance with said elapsed period of time of each battery, the rate of decay of electrical energy for each individual battery as a function of the difference between said first and second values per unit time; and
 (f) sorting said batteries in accordance with said computed rate of decay to separate those individual batteries of the production run having a rate of stored energy decay extending an acceptable value from those batteries of the same production run having a rate of stored energy decay equal to or lower than said acceptable value.

4,363,408

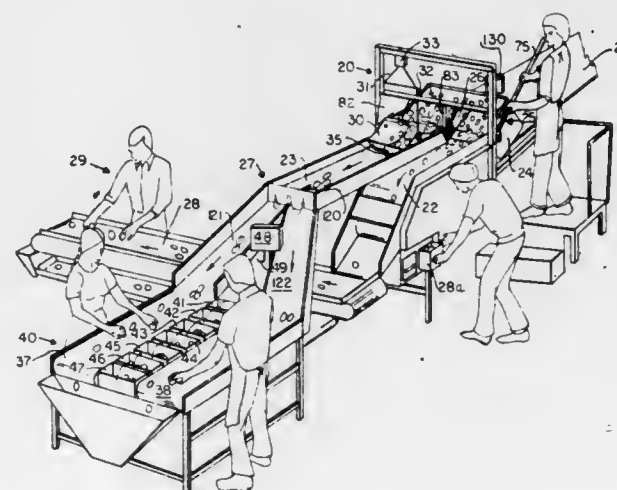
WEIGHING AND GRADING SAMPLES IN ORDER TO GRADE LARGE BATCHES OF FRUIT

Michael O'Brien; Nelson E. Smith, Jr., both of Davis, Calif., and Stanley E. Prussia, Griffin, Ga., assignors to The Regents of The University of California, Berkeley, Calif.

Filed Jan. 7, 1981, Ser. No. 223,161
 Int. Cl.³ B07C 5/00

U.S. Cl. 209—546

21 Claims



1. A method of grading large batches of fruit by sampling technique, comprising the steps of:
 withdrawing a sample from the large batch of fruit,
 weighing at least a portion of said sample, inspecting the weighed fruit,
 placing grade-defect material into separately classified grade-defect buckets,
 weighing each grade-defect bucket one by one,
 determining the grade-defect percentages at the computer, and
 determining, at least in part, the acceptance and grade of the large batch according to those percentages.

4,363,409

MULTI-PURPOSE UTILITY VEHICLE

Victor R. Laurich-Trost, 34600 McAfee Dr., Solon, Ohio 44139
 Filed Dec. 26, 1979, Ser. No. 106,468

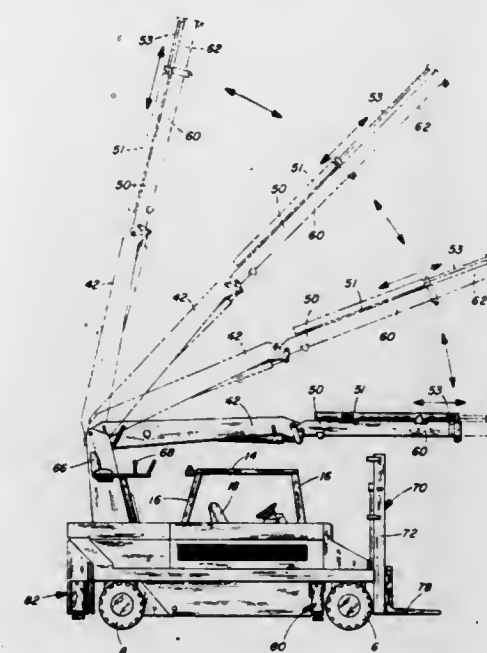
Int. Cl.³ B66C 23/00; B65S 9/00

U.S. Cl. 212—184

9 Claims

1. A Multi-Purpose Utility Vehicle comprising a vehicle chassis mounted for movement on a plurality of wheels, said chassis mounting adjacent the rearward end a telescopic boom assembly disposed for continuous rotation movement about a vertical axis through 360° a hydraulically actuated lift platform assembly disposed forwardly of such chassis, a pantograph-type outrigger assembly mounted at the rearward and forward ends of said chassis for supporting the vehicle during usage thereof said outrigger assembly including a rearward outrigger mechanism and a forward outrigger mechanism, said forward mechanism including a transverse outer tube section fixedly attached to said chassis, a pair of transversely extending inner tube sec-

tions disposed for telescopic sliding movement within said outer tube section, hydraulic motor means for transversely extending and contracting said inner tube sections in relation to said outer tube section, hydraulic jack means operably connected adjacent the outer ends of said inner tube sections adapted for vertical movement for raising and lowering said vehicle chassis, said rear outrigger mechanism including a pair of oppositely disposed longitudinally extending outer tube



sections fixedly mounted on said vehicle chassis with telescopic intersections disposed interiorly of said outer sections for telescopic extension and contraction in a longitudinal direction, a transverse outer section fixedly connected to the outer ends of said longitudinal sections, transverse intersections mounted for telescopic movement within said transverse outer section, and hydraulic jack means being operably connected to the outer ends of said transverse intersections for vertical movement for raising and lowering said vehicle chassis.

4,363,410

SPLIT TOPPING LIFT GEAR

Ernst-Helmuth Sprengel, Hamburg, Fed. Rep. of Germany, assignor to Blohm & Voss AG, Hamburg, Fed. Rep. of Germany

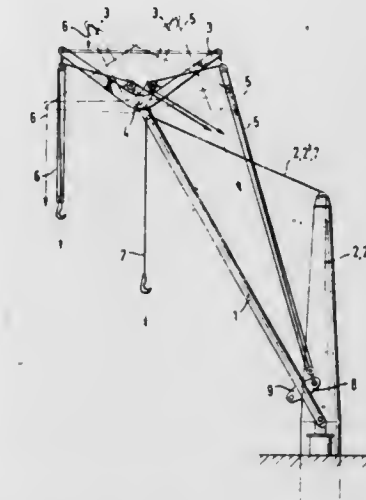
Filed Nov. 5, 1980, Ser. No. 204,192

Claims priority, application Fed. Rep. of Germany, Nov. 8, 1979, 2945012

Int. Cl.³ B66C 23/52

U.S. Cl. 212—190

4 Claims



1. Split topping lift gear, such as used on ships, comprising a cargo boom swingable through a plane between a pair of posts, said boom having a lower end and an upper end, a jib hingedly connected to said boom adjacent the upper end thereof, said jib

being elongated having a first end and a second end spaced apart in the elongated direction thereof and being connected to said boom at a position spaced from said first and second ends, a first relieving cargo tackle connected to the first end of said jib and a second relieving cargo tackle connected to the second end of said jib, said jib being movable in a vertical plane independently of the movement of said boom, a boom socket secured to said boom adjacent the lower end thereof, said boom socket having two parts each extending from an opposite side of said boom so that one of said first and second relieving tackles is fixed to one of said boom socket parts for adjusting the position of said jib and the other one of said first and second relieving cargo tackles is arranged to support a load.

4,363,411

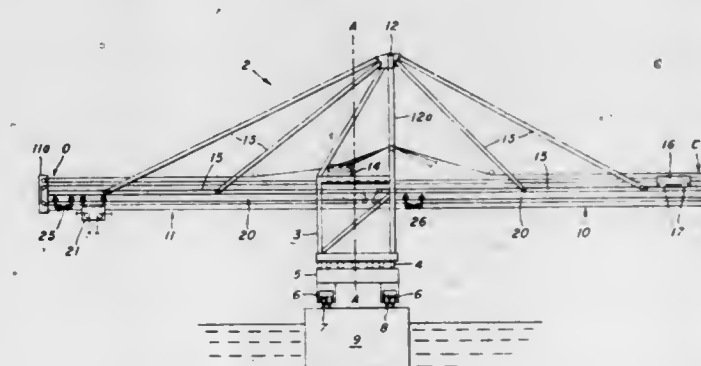
HAMMERHEAD CRANE WITH PLURAL SHUTTLE TROLLEYS, A LOAD TROLLEY AND MOVABLE COUNTERWEIGHT MEANS

Gilbert Blair; Roy A. Behling, both of Coraopolis, and Richard Collins, Allison Park, all of Pa., assignors to Dravo Corporation, Pittsburgh, Pa.

Filed Jul. 3, 1978, Ser. No. 921,787
 Int. Cl.³ B66C 23/52

U.S. Cl. 212—191

11 Claims



1. A hammerhead crane having a vertical tower with a pair of horizontal parallel spaced continuous members extending through said tower near the top thereof, said members defining pairs of cantilevered tracks that extend laterally from the vertical center of said tower, said cantilevered tracks including a fixed end structure at each end thereof with a plurality of sheaves mounted thereon comprising:

- a counterweight movably mounted on a first one of said tracks, a drum, cable means extending from said drum and attached to said counterweight to selectively move same between the ends of said first track;
- a load trolley movable along a second one of said tracks;
- a first and second shuttle trolley movably mounted on said second track and movable along said second track between a respective outer end and the middle portion of said second track, the range of travel of each shuttle trolley being one-half the total range of travel of said load trolley, a plurality of sheaves mounted on each of said shuttle trolleys;
- a first cable attached at one end to said counterweight and reeved about sheaves on one of said fixed end structure and then toward said tower and about a sheave on said first shuttle trolley, and then anchored to one of said fixed end structure;
- a second cable attached at one end to said counterweight and reeved about sheaves on the other one of said fixed end structure and then toward said tower and about a sheave on said second trolley, and then anchored to said other one of said fixed end structure;
- compensating cable means attached to said tower and operatively connecting each of said first and second shuttle trolleys with said load trolley, the arrangement of said drum, cable means, compensating cable means, first and second cables being such that when said counterweight is

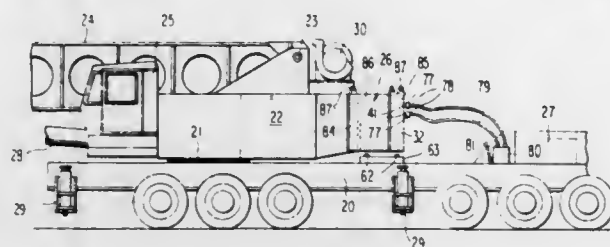
moved in one direction along said first track, said shuttle trolleys will move along said second track in an opposite direction at half the speed of said counterweight and said load trolley will move along said second track at the same speed as said counterweight.

4,363,412

CRANE COUNTERWEIGHT AND HANDLING METHOD
Ramesh P. Patel, Hagerstown, Md., and Alfred Bonnell, Jr., Greencastle, Pa., assignors to Kidde, Inc., Clifton, N.J.
Filed Aug. 14, 1980, Ser. No. 178,344
Int. Cl.³ B66C 23/76

U.S. Cl. 212—196

16 Claims



1. A crane counterweight assembly comprising a body portion adapted for supportive attachment to a crane superstructure to counterbalance the superstructure, and raising and lowering means for the counterweight assembly wholly mounted on and carried by the counterweight assembly forming a part of the counterweight mass and enabling its separation from and mounting on a crane superstructure, said raising and lowering means being carried by said counterweight assembly during its separated and mounted positions and adapted to be powered by a power means on a crane.

4,363,413

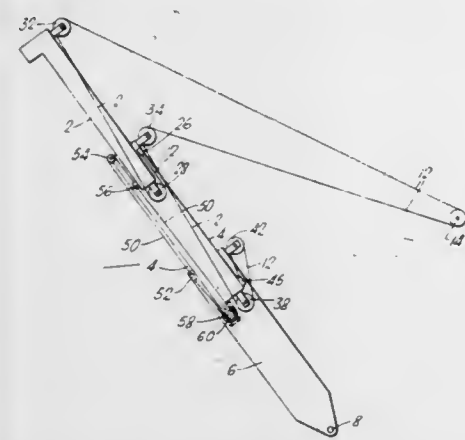
ENDLESS CHAIN DRIVE FOR TELESCOPIC JIB SECTIONS

Karl M. Gyomrey, Belmont, England, assignor to Coles Cranes Limited, Sunderland, England
Filed Aug. 18, 1980, Ser. No. 179,360
Claims priority, application United Kingdom, Aug. 27, 1979, 7928799

Int. Cl.³ B66C 23/04, 23/70, 23/82

U.S. Cl. 212—262

11 Claims



1. A telescopically extensible boom crane comprising:
a base boom section mounted to a crane platform;
an intermediate boom section telescopically mounted within said base boom section, said sectionry comprising at least one intermediate boom section;
a head boom section telescopically mounted within said intermediate sectionry;
flexible boom section extension means including a closed loop extending the length of said intermediate sectionry between an inner loop guide means mounted to a base end of said intermediate sectionry and an outer loop guide

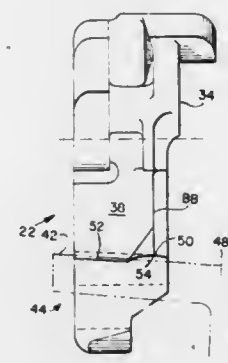
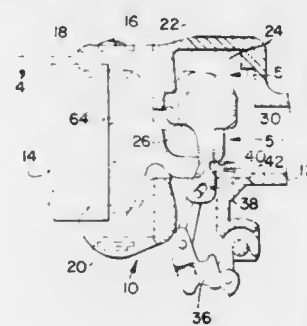
means mounted to a head end of said intermediate sectionry;
means for securing said loop to said head section and to said base section at fixture points; and
means mounted to said intermediate sectionry for driving said loop whereby actuation of said drive means to drive said loop extends or retracts said boom.

4,363,414

TYPE-E RAILROAD CAR COUPLER HEAD
John W. Kaim, Chicago, Ill., assignor to AMSTED Industries Incorporated, Chicago, Ill.
Filed Nov. 24, 1980, Ser. No. 209,896
Int. Cl.³ B61G 3/004

U.S. Cl. 213—147

3 Claims



1. In a railroad coupler having a coupler head having a guard arm side and a knuckle side including a knuckle swingable about a vertical axis, a tail portion extending from said knuckle, a coupler lock positioned within a vertical lock chamber formed within said coupler head between said guard arm side and said knuckle side, said coupler lock being movable within said chamber from a locking position wherein said lock is in the path of movement of said tail portion knuckle to maintain said knuckle in a closed position, a knuckle thrower having a leg lock seat, said lock having a lock set seat in engagement with said knuckle leg lock seat when moved to an unlocked position whereby said knuckle is free to swing toward an open position, the improvement comprising, said lockset seat of said lock being divided laterally into a guard arm side portion and a knuckle side portion, said guard arm side portion being laterally sloped to engage with said knuckle thrower leg lock seat to tilt said lock toward said guard arm side of said coupler head thereby to minimize the spacing between said lock and said knuckle tail portion and reduce inadvertent contact between said lock and said knuckle tail portion.

4,363,415

BLOW MOLDED CONTAINER WITH SEPARATE HANDLE

Dewey Rainville, Westfield, N.J., assignor to Rainville Company, Inc., Middlesex, N.J.
Division of Ser. No. 74,137, Sep. 10, 1979, Pat. No. 4,281,770.
This application Mar. 11, 1981, Ser. No. 242,423
The portion of the term of this patent subsequent to Aug. 4, 1998, has been disclaimed.
Int. Cl.³ B65D 25/28

U.S. Cl. 215—100 A

2 Claims



1. A plastic blow molded container made of stretchable material having a side wall, bottom, and an opening through which the contents of the container can be removed therefrom, a boss comprising an integral construction with the side wall of the blow molded container, a hollow chamber within the boss and with an entrance passage into the hollow chamber at the end of the hollow chamber which is remote from an outside surface of the container, the entrance passage being of less transverse cross section than the interior of the chamber normal to the longitudinal axis of said entrance passage, a handle that is a different piece from the container, a projection on the handle for insertion into the hollow chamber in the boss, said projection having a head larger than the cross section of said entrance passage, the walls of the chamber that terminate at the sides of said entrance passage being flexible and elastic enough to yield and stretch to pass the end of the projection into a portion of the chamber that is larger than the cross section of the passage, and said head being shaped to exert a cam action that stretches the entrance into the hollow chamber of the boss when the head of the projection is pushed into the chamber, said head being also shaped to obtain less cam action at the rear of the head so that it cannot be pulled out of the boss as easily as it is pushed in.

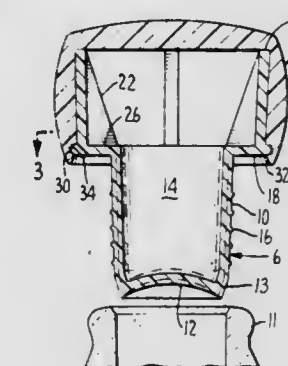
4,363,416

WINE CORK

Bert E. Loughmiller, Benicia, Calif., assignor to APM, Inc., Benicia, Calif.
Filed Jul. 15, 1981, Ser. No. 283,501
Int. Cl.³ B65D 39/00

U.S. Cl. 215—364

1 Claim



1. A two piece wine cork comprising in combination:
a. a bottom portion, said bottom portion having a plug portion of a size to fit into a wine bottle, said plug portion having a hollow interior and a closed bottom and having a plurality of circumferential ridges thereon, a flat rim

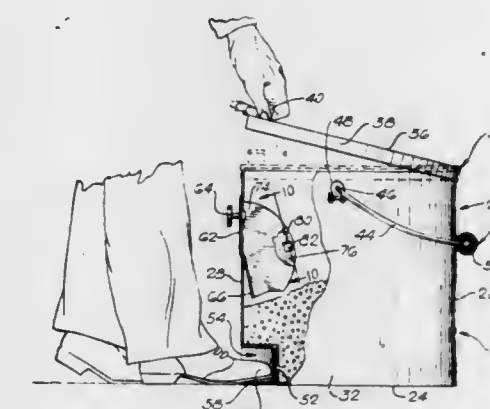
portion extending outwardly from the top of said plug portion and a cylindrical upstanding shoulder above said rim, said shoulder being smaller in diameter than said rim and being larger in diameter than said plug portion, and a plurality of radial buttress elements within said shoulder, starting at the top of said shoulder and sloping inwardly and downwardly to connect with the inner surface of said rim,
b. a top portion fitting over said shoulder having a curved outer surface of pleasing design and a cylindrical inner surface complementary to said shoulder to form a tight fit with said shoulder, both at the top and sides,
c. a groove on the inside of said top portion near the bottom terminal edge adapted to snap over said rim and hold the two parts together and,
d. mating radial ridges and depressions on said rim and said groove to prevent the two parts from turning relative to each other.

4,363,417

DUSTLESS CONTAINER FOR ASHES OR THE LIKE
Deo A. Rhoades, and Betty L. Rhoades, both of Rte. 1, Grand Junction, Mich. 49056
Filed Oct. 30, 1980, Ser. No. 202,164
Int. Cl.³ B65D 25/28

U.S. Cl. 220—1 T

7 Claims



4. A dustless container for ashes or the like, comprising a receptacle having a bottom wall, side wall means extending upwardly from said bottom wall and enclosing the sides of said receptacle, said side wall means including a substantially flat vertical wall, a cover for opening and closing the top of said receptacle, said wall having an entry opening in the upper portion thereof, a flat plate-like door for opening and closing said entry opening, a plate-like deflector connected to the lower end portion of said door and extending through the lower portion of said entry opening into said receptacle for deflecting ashes into said receptacle and away from said opening when said door is open, said door being swingable about its lower end portion between a closed position against the outside of said wall to close said opening and an open position with the upper portion of said door swung away from said wall to open said opening, said deflector being of a width corresponding generally to the width of said opening to fit through said opening, said door being of a width greater than the width of said opening to remain outside of said opening, a pair of plate-like side members connecting with the back of said door and extending from said door and through said opening into said receptacle for guiding the ashes into said receptacle, said door together with said deflector and said side members

forming a downwardly sloping conveyance chute for conveying the ashes into said receptacle, and stop means on at least one of said side members for limiting the outward swinging movement of said door, said stop means being engageable with the inner side of said vertical wall adjacent said opening.

4,363,418

KNIFE BLADE APPARATUS FOR SEVERING RUPTURE DISKS

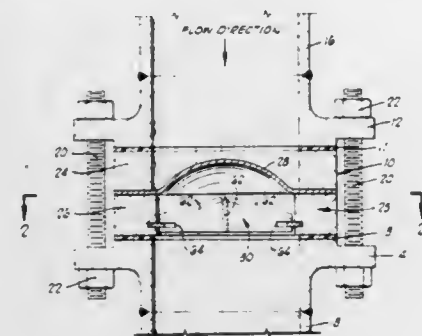
Duane G. Matz, Broken Arrow, Okla., assignor to BS&B Safety Systems, Inc., Tulsa, Okla.

Filed Feb. 11, 1982, Ser. No. 348,083

Int. Cl.³ F16K 17/40

U.S. Cl. 220—89 A

11 Claims



1. An improved knife blade apparatus adapted to be installed in a rupture disk assembly whereby upon failure of a rupture disk in the assembly, the disk is severed by the knife blade apparatus comprising:

an annular support member adapted to be installed in said assembly, said support member including an annular groove disposed interiorly therein;

knife blade means disposed interiorly of said support member, said knife blade means including one or more exterior portions each of which includes a groove therein complementary to and positioned adjacent the interior of said support member and the annular groove disposed therein; and

an annular snap ring disposed in said annular groove in said support member and in said grooves in said one or more exterior portions of said knife blade means whereby said knife blade means are held within the interior of said support member but are not rigidly attached thereto.

4,363,419

SELF-STORING PERMANENTLY ATTACHED CAN OPENING MEANS

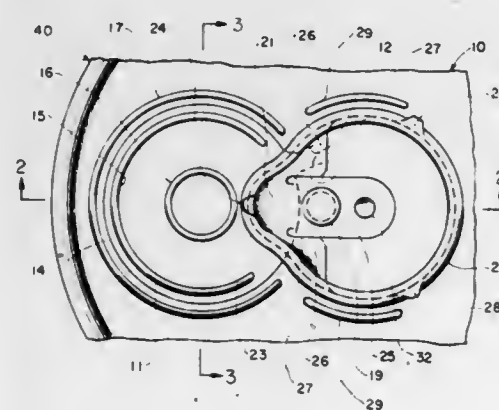
Karl Walz, Sr., 24 Purchase St., Worcester, Mass. 01606

Filed Sep. 8, 1981, Ser. No. 300,052

Int. Cl.³ B65D 41/32

U.S. Cl. 220—269

7 Claims



1. On a hollow container for pourable contents contained

therein sealably closed by a thin-walled cover therefor, and having attached thereto manually operable opening means therefor,

the combination on the thin-walled cover thereof, of:

a relatively movable flap portion delineated by a continuously arcuately curved breakaway peripheral edge with mutually spaced hooked ends together defining a first self-hinged portion flexibly supporting the flap portion of said cover for movement from a first stored position in sealed engagement with the surrounding relatively fixed portion of said cover to a second open position substantially perpendicular to the surrounding relatively fixed portion of said cover and within a container to which said cover is attached,

a pull tab having an annular ring portion with a continuously arcuately curved periphery so shaped and sized it may be mutually engaged and interfitted with the continuously arcuately curved edge of the access opening through said cover provided by rotating said flap portion from its first to its second position,

said annular ring portion of said pull tab supporting a relatively smaller flap actuating portion projecting outwardly therefrom and being supported resiliently by a pull tab mounting portion projecting inwardly therefrom to which said annular ring portion is connected by a second flexible self-hinged portion for manually actuated movement from a first ready position with the annular ring portion of said pull tab disposed adjacent to and spaced slightly from the outer surface of said cover to a second protective position with its periphery mutually engaged and interfitted with the edge of the access opening through said cover, and attachment means securely connecting said pull tab mounting portion of said pull tab to said cover with the flap actuating portion of said pull tab overlying said flap portion of said cover,

whereby manual movement of said pull tab from its first ready position to its second protective position so moves the flap actuating portion of said pull tab as to move the flap portion of said cover from its first stored position sealably closing said cover to its second open position to release the pourable contents of a container to which said cover is attached.

4,363,420

APERTURE PLUGS

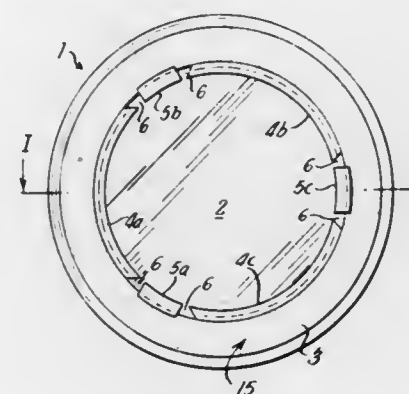
Sydney A. Andrews, Stapleford, England, assignor to TRW Inc., Cleveland, Ohio

Filed Jan. 30, 1981, Ser. No. 229,896

Int. Cl.³ B65D 39/00

U.S. Cl. 220—307

6 Claims



1. A plug for an aperture in a panel comprising:

an insert portion adapted for insertion into the aperture,

a flange portion having an under surface adapted to overlie an upper surface region of the panel adjacent the aperture, and

a body of sealant material in contact with said under surface of said flange portion,

said insert portion comprising a plurality of neck portions, and a plurality of resiliently flexible elements arranged between said neck portions so as to be resiliently flexed during insertion of said insert portion into the aperture and so as, thereafter, to retain said insert portion within the aperture.

4,363,421

SECURITY SEAL FOR CONTAINERS

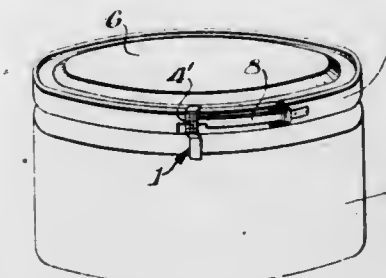
Richard G. Shoemaker, Noank, Conn., assignor to Pfizer Inc., New York, N.Y.

Filed Jun. 2, 1981, Ser. No. 269,927

Int. Cl.³ B65D 45/32

U.S. Cl. 220—319

5 Claims



1. A security seal for a container closure device comprising a strip of resilient plastic film whose lengthwise dimension exceeds the width of said closure device, said strip having on the inner surface thereof a coating of tamper-resistant adhesive, said coating having an adhesive-free gap intermediate the ends thereof, the length of said gap being at least equal to the width of said closure device, whereby said strip may be adherently fixed to said container across said closure device with said adhesive-free gap held closely over said closure device and under convex flexural tension.

4,363,422

HELICAL VENDING MACHINE WITH EXPANSIBLE DIVIDER

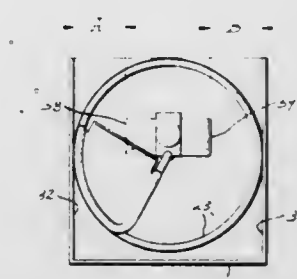
William C. Boettcher, Foley, Mo., assignor to D.O.V.E. Equipment Corporation, Winfield, Mo.

Continuation-in-part of Ser. No. 35,421, May 2, 1979, Pat. No. 4,258,860, and Ser. No. 139,991, Apr. 14, 1980, Pat. No. 4,312,460. This application Mar. 27, 1981, Ser. No. 248,556

Int. Cl.³ G07F 11/36

U.S. Cl. 221—75

8 Claims



1. A vending machine item discharge unit comprising:

(a) a tray means having side, rear and bottom walls,

(b) helical means having a plurality of convolutions along its length to retain articles to be dispensed in the convolutions,

(c) drive means connected to the helical means to rotate said helical means in predetermined increments upon activation by a customer, and

(d) adjustable divider means positioned within the helical means and having elements movable laterally toward the tray side walls to change the spacing between the divider means and the tray side walls to compensate for articles of different width in the convolutions of the helix.

4,363,423

DIAPHRAGM DISPENSER

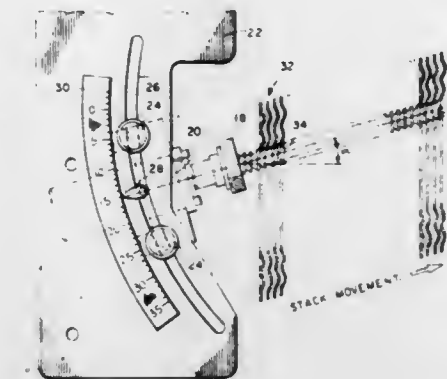
Richard R. Larsen, Daytona Beach, Fla., assignor to Pacific Scientific Company, Anaheim, Calif.

Continuation of Ser. No. 45,537, Jun. 1, 1979, abandoned. This application Jan. 19, 1981, Ser. No. 225,923

Int. Cl.³ B65G 59/10

U.S. Cl. 221—82

3 Claims



1. A device for separating thin nested objects each having a central aperture therein and one or more ripples on the surface thereof comprising means having grooves formed by threads provided thereon, said thread means being received through said apertures in said objects, and means for rotating said thread means, said thread means being oriented at an upward angle with respect to the horizontal resulting in the individual axis of each of said nested objects becoming noncolinear as said thread means is rotated causing said ripples on each of said objects to move relatively radially with respect to said ripples on adjacent objects, said relative radial movement of said ripples resulting in said objects becoming individually sufficiently separated from their nested configuration to cause said objects to be received in said grooves as said thread means is rotated.

4,363,424

QUICK COUPLING DEVICE FOR A GAS PRESSURIZATION SYSTEM

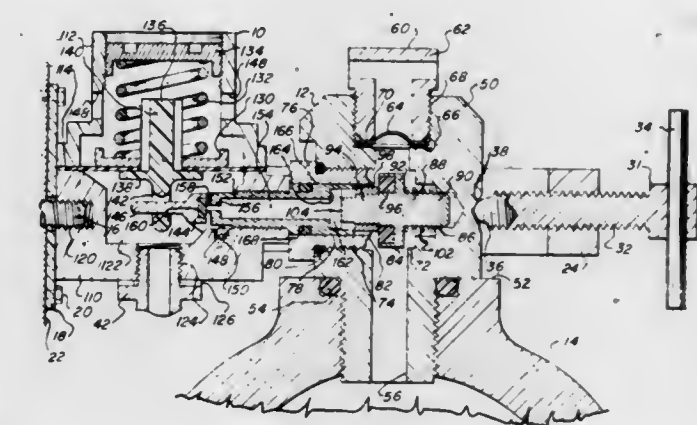
Clair D. Holben, Denver, Colo., and Edward L. Jeans, Spartanburg, S.C., assignors to Cadbury Schweppes PCL, London, England

Filed Oct. 23, 1980, Ser. No. 200,020

Int. Cl.³ B67D 1/12

U.S. Cl. 222—4

23 Claims



1. A regulated gas pressurization system for providing a continuous supply of gas at a predetermined pressure from a source of high pressure gas stored in a pressurized cylinder, said system comprising:

(a) a fitting means arranged to be attached to a valve means which is mounted on a storage cylinder providing a gas tight closure for said cylinder,

(b) a pressure regulator means having an outlet port, and

- (c) a coupling means which is arranged to quick connect said regulator means and said cylinder fitting means whereby the pressurized gas is allowed to flow from the cylinder through the regulator means and outlet port so as to supply and maintain a predetermined gas pressure;
- (d) said coupling means including a connecting boss having a passageway therethrough, a pivotable retaining yoke mounted on said regulator means, and a receiving passageway means which is arranged to slidably receive the connecting boss, said yoke having a retaining means and being pivotable from a raised position, said connecting boss contacting said valve means when slidably moved into said receiving passageway means to automatically open said valve means as said valve means is joined to said pressure regulator means using said retaining means and said passageway of said connecting boss conducting the flow of gas from said valve means to said pressure regulator means.

4,363,425

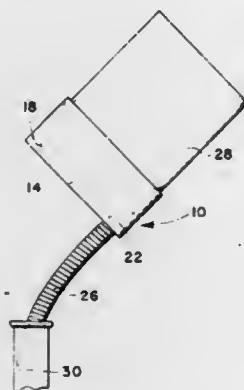
FUNNEL FOR DIESEL OIL CANS

Burt J. Ehrenrich, 110 S. 129th East Ave., Tulsa, Okla. 74128
Filed Feb. 11, 1980, Ser. No. 120,716

Int. Cl.³ B65B 7/28

U.S. Cl. 222-85

1 Claim



1. An apparatus for opening a fluid-filled cylindrical container of one gallon size or larger and pouring said fluid therefrom being comprised of:

- a circular cylindrical member slightly larger than said container, said member closed at one end to define an inner surface to be placed over said fluid-filled container;
- A container opening means disposed on said inner surface of the end of said member;
- an opening through said end cooperable with said container opening means;
- a flexible tubular funnel attached to said end thereof around said opening, said funnel being of sufficient flexibility to be positioned by hand pressure yet of sufficient rigidity to not bend under the weight of said apparatus and said fluid-filled container thereby supporting said apparatus and said container at any desired angle while fluid is being poured therefrom and a piercing means opposite said container opening means.

4,363,426

DEVICE FOR CONVEYING AND DISPENSING LIQUID MEDIA

Alfred Heinzl, and Heinz Stadler, both of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Oct. 6, 1980, Ser. No. 194,335

Claims priority, application Fed. Rep. of Germany, Nov. 9, 1979, 2945283

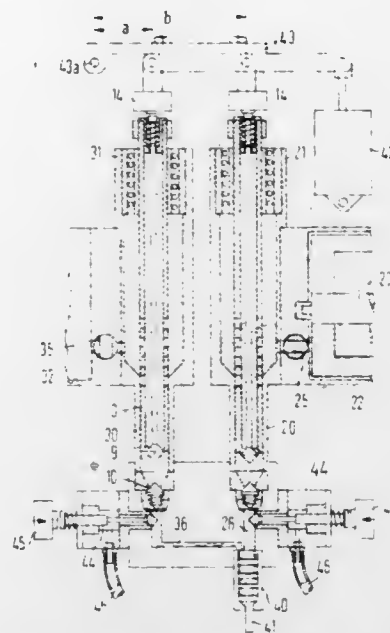
Int. Cl.³ B67D 5/46, 5/52

U.S. Cl. 222-134

10 Claims

1. A device for conveying and dispensing liquid media containing a granulated filler comprising at least one piston pump having a cylinder chamber and a tubular piston slidably re-

ceived therein such that an annular gap exists between said cylinder chamber and said piston, said gap being larger than the average size of the particles of said granulated filler, said cylinder chamber having a widened upper portion forming an annular feed zone and having an input opening at a side thereof communicating with a feed container for receiving said liquid media from said feed container and having an output opening for dispensing said liquid media, said piston having a plurality



of wall perforations in the region of said input opening for admitting said liquid media to the interior of said piston, and said piston further having an open lower end in the region of said output opening, and an inlet valve for opening and closing said lower end of said piston for admitting said liquid media from the interior of said piston to said output opening, whereby said piston is continuously completely surrounded by said liquid media and is sealed thereby.

4,363,427

ASPHALT DISPENSER VEHICLE

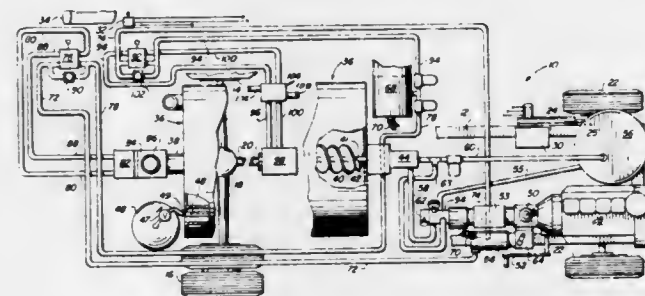
Gaius P. Crosby, Mesa, Ariz., assignor to Crafcro, Inc., Chandler, Ariz.

Filed Jun. 6, 1980, Ser. No. 157,040

Int. Cl.³ B67D 5/62

U.S. Cl. 222-146 H

10 Claims



1. A specialized vehicle for movement in a path alongside a plurality of containers for dispensing liquified molten asphalt from the vehicle into the containers, said vehicle comprising:

- (a) a frame having a front and a back;
- (b) drive wheels mounted at the back of said frame;
- (c) first motor means coupled to said drive wheels for driving thereof;
- (d) first control means coupled to said first motor means for variable speed operation thereof in selectively opposite directions;
- (e) a materials tank mounted on said frame for receiving liquified molten asphalt;
- (f) an asphalt delivery pump connected to said materials tank

- at the back of said frame for dispensing liquified molten asphalt from said tank;
- (g) second motor means coupled to said asphalt delivery pump for operation thereof;
- (h) second control means coupled to said second motor means for variable speed operation thereof in selectively opposite directions;
- (i) an engine means mounted on said frame;
- (j) power supply means driven by said engine for producing power which is coupled through said first and said second control means to operate said first and said second motor means;
- (k) an operator's seat located at the back corner of said frame; and
- (l) said first and said second control means mounted on said frame adjacent said operator's seat.

4,363,428

BULK BIN FEED DELIVERY APPARATUS

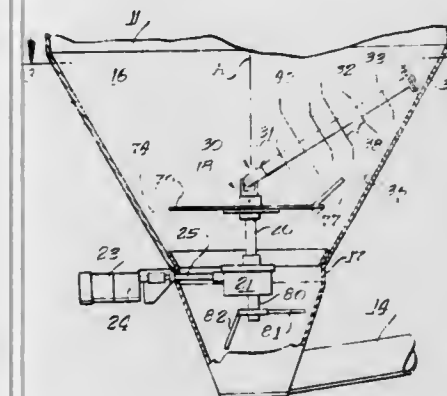
Joseph A. Kruger, Warsaw, Ind., assignor to Brock Manufacturing, Inc., Milford, Ind.

Filed Sep. 4, 1980, Ser. No. 184,131

Int. Cl.³ B65G 65/48

U.S. Cl. 222-227

22 Claims



1. Apparatus for positively delivering a steady flow of feed from a bin through a conically sided bin exhaust, comprising, in combination, first rotatable shaft means, second rotatable shaft means connected to the first shaft means so as to be driven by the first shaft means, and a plurality of separated polygonal disc members mounted on and extending from the second shaft means for engaging packed feed and dislodging the packed feed, whereby to permit the dislodged feed to fall downwardly through the bin exhaust, the second rotatable shaft means comprising an inner non-circular shaft element, and at least one outer non-circular shaft element adapted to slip over the inner shaft element and space apart adjacent polygonal disc members.

4,363,429

POUCH FILLER NOZZLE AND VALVE

Peter V. Schindler, Northridge, Calif., assignor to Angelus Sanitary Can Machine Company, Los Angeles, Calif.

Filed Jul. 18, 1980, Ser. No. 170,000

Int. Cl.³ B67D 5/37; F16K 23/00

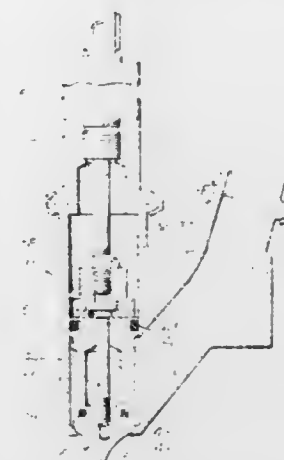
U.S. Cl. 222-504

3 Claims

1. A nozzle and valve construction for filling product into containers comprising,

- a body having a cylindrical bore extending vertically of said body, said body being formed with a reduced diameter seat at its lower end, said seat being formed with a taper converging downwardly-inwardly in a conical shape, said body being formed with a side port for product slanting downwardly-inwardly and opening into said bore to one side of said body and in close proximity to said seat, a piston reciprocable in said bore from an open position substantially above said port to a closed position, said piston having a cylindrical, reduced diameter portion slightly smaller than said bore extending upward from its

lower end to adjacent the top of said piston, and having an enlarged diameter portion in sliding-sealing engagement with said bore above said reduced diameter portion, said piston having a tip formed with a concave conoidal shaped lower portion merging with an upwardly-outwardly curved seating portion having a maximum diameter equal to said reduced diameter portion so that in cross-section said reduced diameter portion, said curved seating portion and said lower portion form a continuous S-curved shape,



said tip terminating in a rounded lower end, there being approximately a 90° angle between two lines in a vertical plane through the axis of said piston, said lines interconnecting said lower end and said curved seating portion, said seating portion engaging said seat in closed position of said piston, and means to reciprocate said piston, the shape of said tip preventing drip of product after said valve is closed, whereby product is drawn upward along said S-shaped curve by surface tension of said product.

4,363,430

ANTITHEFT GARMENT HANGER AND DEVICE

Alexander Radlin, 1770 Parent Ave., Windsor, Ontario, Canada (N8X 4K1)

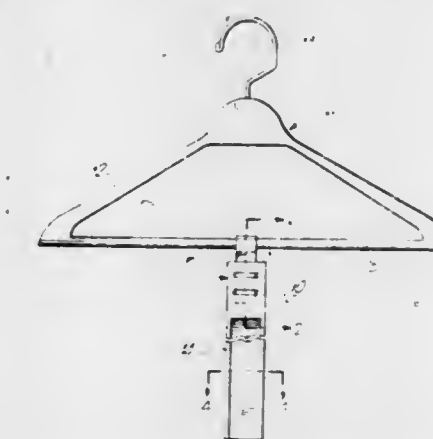
Filed Oct. 9, 1979, Ser. No. 82,791

Claims priority, application Canada, Aug. 24, 1979, 334404

Int. Cl.³ A47J 51/082, 51/097, 51/142

U.S. Cl. 223-88

13 Claims



1. An antitheft garment hanger comprising:
- a body portion having a pair of rigid arms oppositely directed and adapted to suspend a garment, said arms having each a free end, a cross member joining the free ends of the arms, means disposed intermediate the free ends of the arms for suspending the body portion, and
 - a single substantially rigid and inflexible bar having one end swingably attached to the cross member intermediate the free ends of the arms and depending downwardly therefrom, said bar having a smooth non-supportive regular surface to prevent snagging the garment and a length

substantially greater than the distance separating the free ends of the arms to prevent rolling up the hanger and garment into a small size preparatory to theft thereof, wherein said bar is swingably attached to the cross member by means of a latch, said latch having thin sidewalls defining a split cylindrical clasp portion adapted to swingably attach to said cross member and a tab portion extending outwardly from each split end of the clasp portion for fixed attachment to an end of said bar.

4,363,431

PICKUP TRUCK SPARE TIRE RACK

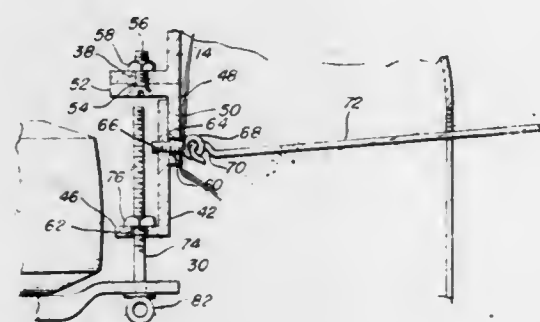
Ben E. Muschalek, Box 198, McCamey, Tex. 79752

Filed May 12, 1981, Ser. No. 263,345

Int. Cl.³ B62D 43/04

U.S. Cl. 224—42.23

8 Claims



1. In combination with a vehicle chassis including rear opposite side portions, an elongated horizontal tire support member having first and second ends, each end of said support member having upstanding bores formed therethrough, an upstanding bolt passing loosely upwardly through each of said bores and including a threaded upper end, one of said threaded upper ends being removably threadingly supported from one of said side portions, the lower ends of said bolts including enlarged abutments upwardly abuttingly engaged with downwardly facing surfaces of said ends of said support member, the other side portion including first upright flange disposed transverse to said support member and having a generally horizontal smooth bore formed therethrough generally paralleling said tire support member, a mounting member, the other threaded upper end being threadedly supported from said mounting member, said mounting member including a second upstanding flange generally paralleling and disposed closely inwardly of said first flange, said second flange having a threaded horizontal bore formed therein registered with said smooth bore, and a threaded fastener shank passed through said smooth bore from the outside of said first flange and removably threaded in said threaded bore.

4,363,432

CIGARETTE LIGHTER SUPPORT

William H. Warthen, 5050 W. Harvard, Clarkston, Mich. 48016

Filed Nov. 18, 1980, Ser. No. 207,978

Int. Cl.³ A45F 5/02

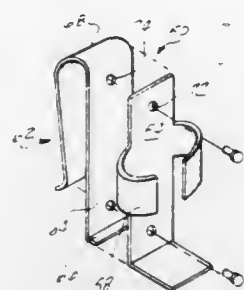
U.S. Cl. 224—247

2 Claims

1. A cigarette lighter support for securing the lighter to an article of apparel comprising:

- a vertical wall abutting the lighter;
- a bottom wall to support the lighter bottom integral with and extending forward from the vertical wall, said bottom wall narrower than said lighter bottom allowing said lighter bottom to project beyond said bottom wall a pair of opposed arcuate arms extending transversely from and integral with the vertical wall, said arms curving forward then inward to snugly embrace the lighter;
- a horizontal planar flange integral with and extending forward from one of said arms;
- a garment engaging clip formed from an upward extension of the vertical wall curving arcuately rearward then

downward then downward and inward toward the vertical wall, terminating proximate the vertical wall; the lighter snugly insertable between the arcuate arms with the lighter bottom resting on the bottom wall; and



wherein the lighter is removable from the support with one hand with the user's thumb pressing downward on said horizontal flange and the user's forefinger pressing upward on the lighter bottom.

4,363,433

PAINTER'S HOLSTER

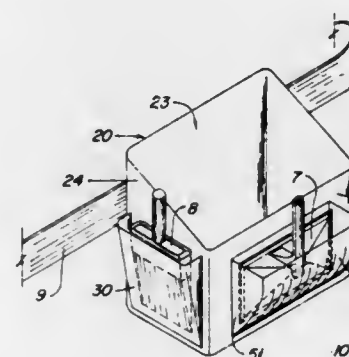
Dean Jaques, P.O. Box 19, Burns, Oreg. 97720

Filed Mar. 31, 1978, Ser. No. 892,374

Int. Cl.³ B44D 3/00

U.S. Cl. 224—253

4 Claims



1. An improved painter's holster comprising:

- a rigid, substantially rectangular paint reservoir having a substantially planar bottom wall, side walls and front and rear walls, each sealingly connected to one another, and having a top opening downwardly declining from said rear wall to said front wall;
- at least two loop members attached to the exterior rearward-most planar surface of said rear wall, horizontally spaced from one another adjacent the top of said rear wall and operable to slidingly engage a belt; and
- a brush holding means sealingly engaging the exterior planar surface of one of said side walls, said brush holding means including a pair of planar, triangular side portions and a rectangular end portion sealingly connected thereto to define a substantially V-shaped enclosure having a top opening below the level of the top opening of said paint reservoir for receiving a conventional paint brush.

4,363,434

CONTINUOUS SOLDERING INSTALLATION

Karl Flury, Bergstr. 61, 8953 Dietikon, Switzerland

Filed Jan. 22, 1980, Ser. No. 114,152

Claims priority, application Switzerland, Jan. 23, 1979, 642/79

Int. Cl.³ H05K 03/34; E: K 03/00

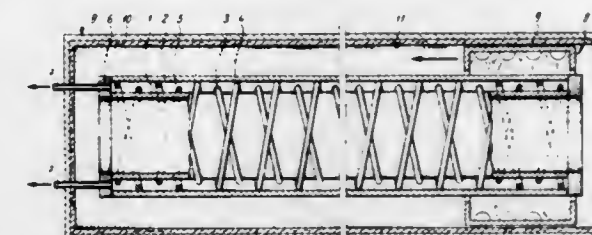
U.S. Cl. 228—7

4 Claims

1. A continuous soldering installation particularly for the soldering of printed circuit boards, said installation comprising: a soldering machine that includes support means for carrying frames adapted to carry printed circuit boards along a path

of travel from a front input end of said support means to a rear output end of said support means, means associated with said support means near the front input end for fluxing printed circuit boards, means associated with said support means for preheating a fluxed printed circuit board and means associated with said support means for soldering fluxed and preheated printed circuit boards; a feeder mechanism for transporting frames that are adapted to carry the printed circuit boards; said mechanism disposed at the front input end of the support means, having at least the length of two frames and being equipped with at least one programmable sub mechanism operatively associated with the feeder mechanism for holding the frame at a holding station; a program controlled trigger mechanism associated with the feeder mechanism and operated by the sub mechanism to release the frame for movement by the feeder mechanism to the soldering machine; a discharge device disposed at the rear output end of the support means; a transfer device traversing the support means for moving frame

sisting of a material capable of withstanding excessive compressive and tensile forces acting on the tube; placing an outer tube about said reinforcement, said outer tube consisting of a material capable of withstanding both an excessive pressure and an excessive temperature that may prevail outside the outer tube; exerting a pressure of such a magnitude on the inner



surface of the inner and on the outer surface of the outer tube in a pressure furnace and furthermore heating these tubes to such a high temperature that the limit of stretching strain of the tube materials is surpassed, whereby the two tubes are bonded together by pressure or fusion welding in the openings or passages between the reinforcement parts.

4,363,436

METHOD OF MAKING MUFFLER CLAMPS

Ralph K. Evans, Plantsville, and Roy S. Florian, Southington, both of Conn., assignors to Nickson Industries, Inc., Plainville, Conn.

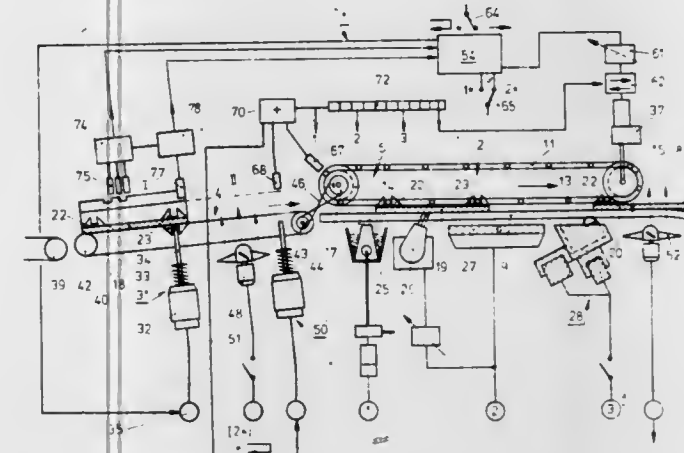
Division of Ser. No. 25,340, Mar. 30, 1979, Pat. No. 4,270,251.

This application Nov. 5, 1980, Ser. No. 204,484

Int. Cl.³ B23K 31/02

U.S. Cl. 228—144

5 Claims



therethrough; a program controlled variable speed reversible electric motor, which drives at least the transfer device, and which for selective operation of the installation can function in continuous throughput fashion or in a back-and-forth operation; switchboards associated with said installation with relatively operable switches and adjustable regulators for changing soldering parameters and selecting operational modes for said installation; said modes including a simple through processing mode and a back-and-forth processing mode; said soldering parameters including operation levels of said fluxing means and said preheating means, and speed of said soldering means; frames adapted to carry printed circuit boards, each of said frames equipped with a code bearing strip; said feeder mechanism at a front end thereof being equipped with a reading device which reads the code on said strip, said reading device transmitting said code to a program control station, said program control station matching said code with an appropriate routine for processing a printed circuit board attached to said read frame.

4,363,435

METHOD FOR PRODUCING A TUBE FOR A CRACKING PLANT

Johannus J. Broodman, Breskens, Netherlands, assignor to B.V. Koninklijke Maatschappij "De Schelde", Vlissingen, Netherlands

Filed Mar. 3, 1980, Ser. No. 126,205

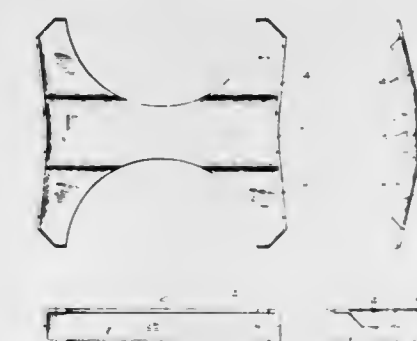
Claims priority, application Netherlands, Mar. 2, 1979, 7901691

Int. Cl.³ B23K 20/14

U.S. Cl. 228—131

8 Claims

1. A method for producing a tube for a cracking plant which comprises the steps of providing an inner tube consisting of a material capable of withstanding an excessive interior pressure and an excessive internal temperature within the inner tube; placing a reinforcement about said inner tube, said reinforcement being provided with a plurality of openings, holes or passages arranged between the reinforcement parts and con-



1. A method of manufacturing a saddle member for a saddle clamp comprising the steps of;

- a. folding an integral sheet-metal blank having opposite first edges and second edges extending between said first edges, said folding being along lines extending along and adjacent said second edges to form upstanding flange portions extending over at least a major portion of the length thereof;
- b. folding said blank between said second edges along a pair of parallel lines extending transversely thereof to form a generally U-shaped portion provided by a pair of spaced-apart, generally parallel side wall portions and a base portion, extending therebetween, said flange portions thereby providing oppositely extending side-wall flange regions on the side margins of said side wall portions extending over at least a major portion of the vertical length thereof and base flange regions extending from said base portion toward said side-wall flange regions; and
- c. welding said side-wall flange regions together at said second edges thereon and said base flange regions to said side-wall flange regions, thereby forming end wall portions of the saddle member that include said side-wall flange regions and said base flange regions of said flange portions and that form a continuous surface with said side wall portions and said base portion.

4,363,437

WEB OF BAGS

Wilhelm Scherz, Bergwerkstr. 5, D 7180 Crailsheim, Fed. Rep. of Germany

PCT No. PCT/DE79/00021, § 371 Date Oct. 10, 1979, § 102(e) Date Oct. 10, 1979, PCT Pub. No. WO79/00655, PCT Pub. Date Sep. 6, 1979

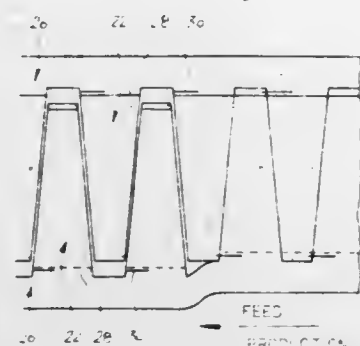
PCT Filed Feb. 22, 1979, Ser. No. 169,116

Claims priority, application Fed. Rep. of Germany, Feb. 22, 1978, 2807590; Jul. 4, 1978, 2829364

Int. Cl.³ B65D 27/10, 30/00

U.S. Cl. 229—53

16 Claims



1. In a web of bags comprising
 - (a) an elongated continuous carrying strip,
 - (b) a plurality of parallel spaced apart consecutive bags suspended therefrom, each bag having an upper opening, and
 - (c) a plurality of spaced apart slits located above the upper openings of said bags, said slits extending along a line which is parallel to the longitudinal direction of movement of said carrying strip,
 the improvement which comprises
 - only one slit extending above each bag,
 - each slit being located near the rear edge of each bag when viewed in the direction of travel of the carrying strip, and
 - each bag is open at the bottom,
 whereby, as said web of bags passes under a downwardly directed air stream each bag will in turn be opened by said air stream and each bag will be rolled forwardly about its axis a limited amount under the influence of the inflating air stream.

4,363,438

MAIL BOX

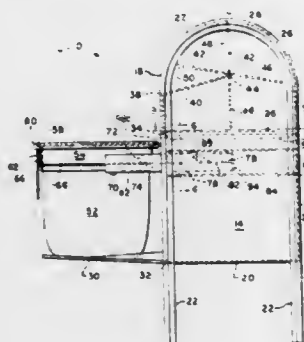
Charlie Connor, Roxbury, Boston, Mass. 02119

Filed Jul. 7, 1980, Ser. No. 166,398

Int. Cl.³ B65D 91/00

U.S. Cl. 232—30

4 Claims



1. In a mail box a pair of side walls with substantially semicircular upper ends, straight bottom ends and vertical forward and rear edges; a bottom wall extending horizontally between the bottom edge portions of the side walls; a rear wall extending vertically up between the rear edge portions of the side walls and a top wall extending from the rear wall upwardly and forwardly along the semicircular ends of the side walls and

terminating slightly forward of a plane passing vertically through the center of said semicircular upper ends, a door pivoted at the forward edge of said bottom wall and extending upwardly between the front edges of the side walls to the bottom edge of a front wall between forward edge portions of the side walls; a top wall front portion extending rearwardly from the top edge of the front wall at an upward inclination and terminating below and rearwardly of the forward edge of the top wall, a normally vertical closure member pivoted at the rear edge of the top wall front portion and having an upper and lower sections forming a mail receiving chute, said upper section being of a width to extend from one side wall to the other; horizontally disposed slide means inside said mail box at each of said side walls; mailbag holding means comprised of a rigid frame carried by and between the respective ones of said slide means and having an opening for receiving the upper portion of a mailbag and adapted for removeably holding said mailbag in open position in said opening and beneath said closure member lower section, said slide means having capacity for movement and support of said mailbag holding means with said mailbag held thereon forwardly to a position substantially completely outside of said mailbox when said door is in open position; and baffles at the side, front and rear walls above said mailbag holding means and below said closure member lower section and having deflection members extending downwardly from said walls to a position overlapping the opening of said mailbag.

4,363,439

MAIL DELIVERY SIGNAL DEVICE FOR MAILBOXES

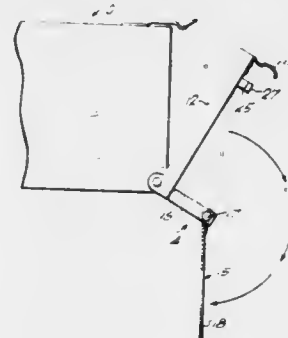
Harry Manian, 84 NE. 151 St., North Miami Beach, Fla. 33162

Filed Jan. 29, 1979, Ser. No. 7,465

Int. Cl.³ A47G 29/12

U.S. Cl. 232—35

4 Claims



1. In a mailbox the combination comprising a horizontally-extending housing, an opening at one end of the housing for the placement of mail endwise therein, a closure door hingedly journaled to the housing along the lower end of the housing opening and swingable vertically upwardly against said opening for normally maintaining the housing opening in closed condition, an elongated mail delivery signal arm member, and means for hingedly journaled one end of said signal arm member with respect to a lower front portion of said closure door so as to be swingable between upper and lower positions of rest, the relative positions of said closure door when closed and the journaled axis of said signal arm member journaled means being such that the free end of said signal arm member gravitationally abuts the front of said closure door when said arm member is in its upper position of rest, whereby, upon the downward swinging opening motion of the closure door for the insertion of mail through said opening, the surface portion of said door against which the free end of said signal arm member abuts will be brought to a position forwardly of the vertical plane defined by said signal arm member journaled axis so as to cause said signal arm member to fall automatically to said lower position of rest, and said journaled axis of said signal arm member journaled means further being so inclined as to define an angle with the journaled axis of said closure door, whereby said signal arm member, when in its lower

position of rest, projects angularly downwardly and outwardly to one side beyond the outer periphery of said housing when viewed from behind said housing.

4,363,440

COMBUSTION CONTROL SYSTEM

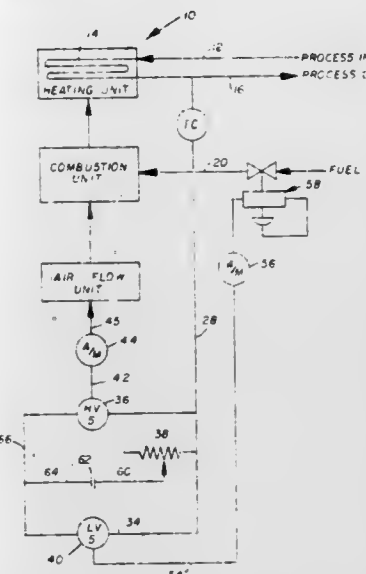
George C. Broach, Tulsa, Okla., assignor to The G. C. Broach Company, Tulsa, Okla.

Continuation-in-part of Ser. No. 40,946, May 21, 1979, abandoned. This application Feb. 6, 1981, Ser. No. 231,964

Int. Cl.³ F23N 1/08, 5/00

U.S. Cl. 236—20 R

3 Claims



1. A combustion control apparatus, comprising:
 - a signal generating device adaptable to generate a signal from a condition of a process, the signal generating device coupled in parallel to a resistance, a first electro-responsive device, and a second electro-responsive device,
 - the first electro-responsive device adapted to be responsive to a signal of a first characterization,
 - the second electro-responsive device adapted to be responsive to a signal of a second characterization,
 - the resistance coupled to a first plate of a capacitance, the capacitance adaptable to provide a signal of a first characterization and a signal of a second characterization,
 - a second plate of the capacitance coupled in parallel to the first electro-responsive device and to the second electro-responsive device,
 - the first electro-responsive device being further coupled to an air control device adaptable to control a flow of combustion air in response to a signal from the first electro-responsive device, and
 - the second electro-responsive device being further coupled to a fuel control device adaptable to control a flow of fuel in response to a signal from the second electro-responsive device.

4,363,441

THERMAL ENERGY USAGE METER FOR MULTIPLE UNIT BUILDING

Emanuel Feinberg, 24316 Martha Washington, Southfield, Mich. 48076

Filed Apr. 23, 1980, Ser. No. 142,937

Int. Cl.³ G01K 17/00; G05D 23/00

U.S. Cl. 236—36

7 Claims

1. A system for measuring the thermal energy dissipated in each of a plurality of units, each having a separate fluid circulating circuit served from a common pressurized main, comprising: thermostatically controlled electric shut-off valves disposed in each fluid circuit; an automatic constant flow regulating orifice in each fluid circuit; means for generating electrical signals representative of the inlet and outlet temperatures of the fluid medium in each circuit; and a digital computer connected to each of the shut-off valves and operative to

receive the electric signals representative of the inlet and outlet fluid temperatures from each circuit, the computer being programmed to successively scan the outputs of the thermostatically controlled shut-off valves and temperature sensors asso-



4,363,442

HEATER USING HOT WASTE FLUE GASES

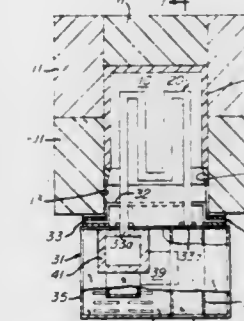
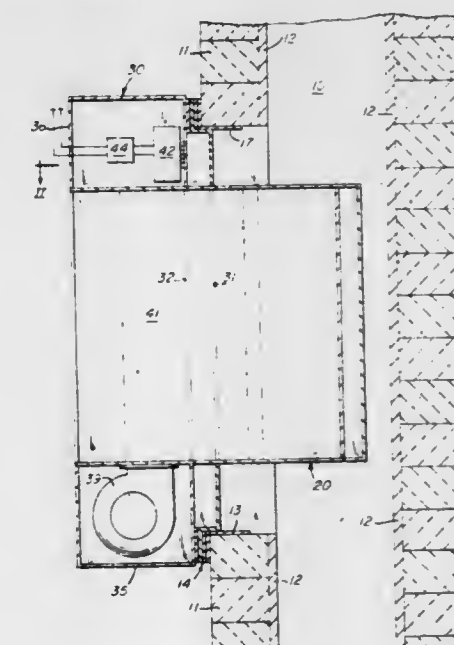
Larry J. Condon, 307 E. End Ave., Pittsburgh, Pa. 15221

Filed Oct. 22, 1980, Ser. No. 199,580

Int. Cl.³ F24B 7/00

U.S. Cl. 237—55

9 Claims



1. Apparatus to heat a forced-air supply with hot waste gases while conducted by a chimney having a side wall with an opening for access to the stream of flue gases, the combination including:

a frame supported by the side wall of said chimney to surround said opening therein,
a flue closure housing supported by said frame to form a

gas-tight enclosure for the opening in the side wall of said chimney,
 a heat exchanger having walls forming an internal passageway to conduct air along a path transverse to the stream of flue gases in said chimney, said heat exchanger being supported by said flue closure housing,
 a cold-air supply header supported by said flue closure housing while coupled to communicate with the internal passageway of said heat exchanger,
 a hot-air discharge header supported by said flue closure housing while coupled to communicate with the internal passageway of said heat exchanger, and
 blower means to force air through said heat exchanger.

4,363,443

GAS-TORCH CONSTRUCTION

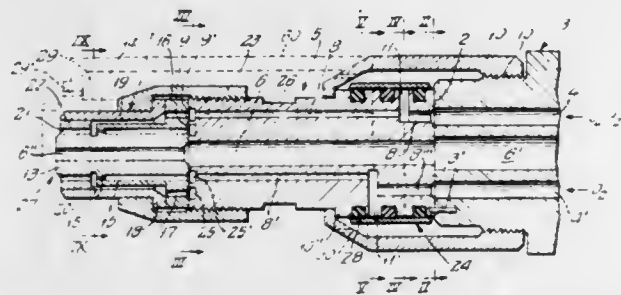
Erwin D. Huehne, Schallstadt, Fed. Rep. of Germany, assignor to Eutectic Corporation, Flushing, N.Y.

Filed Sep. 26, 1980, Ser. No. 191,132

Int. Cl.³ B05B 7/20

U.S. Cl. 239—79

19 Claims



1. Backfire-resistant gas-torch apparatus, comprising a torch body having an independent supply passage for each of two combustible-gas components, which passages extend to a replaceable nozzle at the head end of the apparatus, with the gas-components supply passages extending independently into and interconnecting within the nozzle for mixing the gas components, characterized in that the upstream end of the nozzle and the downstream end of the torch body terminate in flat radial planes, and that an intermediate adapter element (5) with flat radial-plane upstream and downstream ends is coupled between the upstream end of the internally mixing nozzle (1) and the downstream end of the torch body (3), said adapter element (5) having corresponding passages (8, 8') which independently extend via said adapter element (5) and interconnect the orifices of the connecting end (7) of the nozzle (1) with the corresponding connecting orifices of the connecting face (2) of the torch body (3), and fastening means removably securing the nozzle (1) and the adapter element (5) to each other and to the torch body (3) via the respective flat downstream and upstream ends of the adapter element (5).

4,363,444

MOBILE IRRIGATION BAR

Paul Dejoie, Labouheyre, and Bernard Lamarque, Montesquieu, both of France, assignors to Perrot-France, Paris, France

Filed Oct. 14, 1980, Ser. No. 196,450

Claims priority, application France, Oct. 23, 1979, 79 26290

Int. Cl.³ B05B 3/02, 3/18

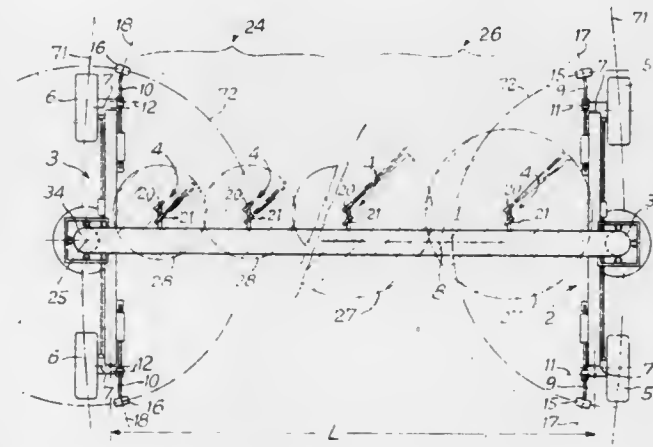
U.S. Cl. 239—177

7 Claims

1. A mobile irrigation bar displaceable on a ground surface, said mobile irrigation bar having at least one inlet section being coupled to a water supply and at least one outlet section for passage of fluid external of said mobile irrigation bar, comprising:

first connector means for coupling said bar to said water supply, said bar having a pair of opposing ends, said first connector means being located at a first end of said bar;
 second connector means for coupling said bar to said water

supply, said second connector means being located at a second end of said bar;
 first displacement means for supporting and displacing said bar on said ground surface, said first displacement means being located near said second end of said bar, said first displacement means being oriented to follow an initial path perpendicular to an extended length between said first and second ends of said bar for displacement of said second end of said bar along a circumference having a center constituted by said first connector means;
 second displacement means for supporting and displacing said bar on said ground surface, said second displacement means being located near said first end of said bar, said second displacement means being oriented to follow said initial path perpendicular to said extended length between



said first and second ends of said bar for displacement of said first end of said bar along a circumference having a center constituted by said second connector means;
 first and second auxiliary displacement means for supporting and displacing said bar on said ground surface, said first and second auxiliary displacement means being respectively located near said second and first ends of said bar, said first and second auxiliary displacement means being oriented to follow paths which are substantially perpendicular to said paths of said first and second displacement means respectively; and,
 means for selective actuation of (1) said first displacement means and said second auxiliary displacement means, and (2) said second displacement means and said first auxiliary means.

4,363,445

THRUST-VECTORING NOZZLE FOR JET PROPULSION SYSTEM

Jean G. Bouiller, Brunoy; Jacques A. J. Pous, Le Mee sur Seine, and Raymond J. M. Joubert, Savigny sur Orge, all of France, assignors to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, "S.N.E.C.M.A.", Paris, France

Filed Nov. 24, 1980, Ser. No. 209,986

Claims priority, application France, Nov. 23, 1979, 79 29208

Int. Cl.³ B64C 15/06

U.S. Cl. 239—265.35

11 Claims

1. A thrust-vectoring nozzle for a jet propulsion system comprising:

a first fixed part connected with the propulsion system;
 a second pivoting part pivotably mounted on said fixed part;
 an intermediate connecting ring;
 tightening means arranged between the fixed part and the pivoting part;
 at least one control jack for moving the pivoting part operably associated therewith; and
 a multidirectional steering device comprising separated elastic elements arranged between the fixed part and the pivoting part of the nozzle, each elastic element further comprising two essentially parallel extended ends, the

multidirectional steering device further comprising at least three sets wherein each set comprises two of said elements, uniformly distributed at the periphery of the nozzle, one of the ends of the elastic elements being inte-

oscillations in either of said other two sections are substantially confined to that section; and
 (ii) the ratio of the cross sectional areas of the three sections is approximately 7:4:10.

4,363,447

CHIP SPREADER

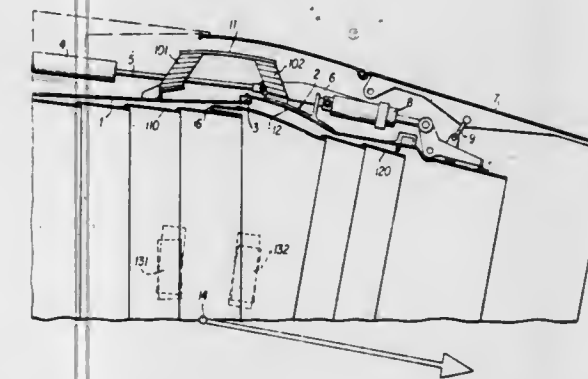
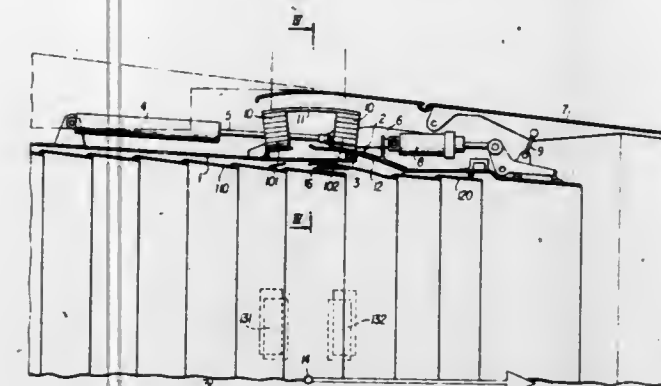
Clayton E. Schulze, P.O. Box 135, Corry, Pa. 16407

Filed Oct. 1, 1980, Ser. No. 192,847

Int. Cl.³ A01C 15/00

U.S. Cl. 239—659

7 Claims



gral with said intermediate connecting ring independent of the fixed part and pivoting part, the other end of each of the two elements being affixed on the fixed part and the pivoting part, respectively, of the nozzle.

4,363,446

FUEL INJECTION NOZZLE

Günther Jäggle, Stuttgart; Ernst Lang, Gerlingen, and Heinrich Knapp, Leonberg, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

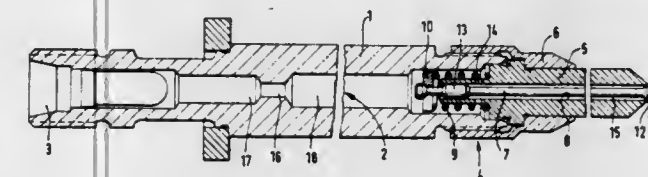
Filed Feb. 13, 1981, Ser. No. 234,143

Claims priority, application Fed. Rep. of Germany, Feb. 16, 1980, 3005857

Int. Cl.³ F02M 61/08

U.S. Cl. 239—453

2 Claims



1. In a fuel injection nozzle for an internal combustion engine, having a nozzle holder defining an inner longitudinal bore through which fuel flows under pressure, one end of said longitudinal bore including a fuel inlet; and a valve group connected to the nozzle holder at the other end of the longitudinal bore, said valve group including a nozzle body and a valve needle which opens outwardly of the injection nozzle, the improvement wherein:

(i) the inner longitudinal bore includes three sections, one of which has a cross sectional area greatly reduced relative to the cross sectional area of the other two sections, said section of greatly reduced cross sectional area being situated between the other two sections and thus decoupling the other two sections from one another, so that pressure

4,363,448

MILLING OF CEREALS AND THE LIKE

Ernst Mächler, Zuzwil, and Emanuel Kummer, Gossau, both of Switzerland, assignors to Gebrüder Bühler AG, Uzwil, Switzerland

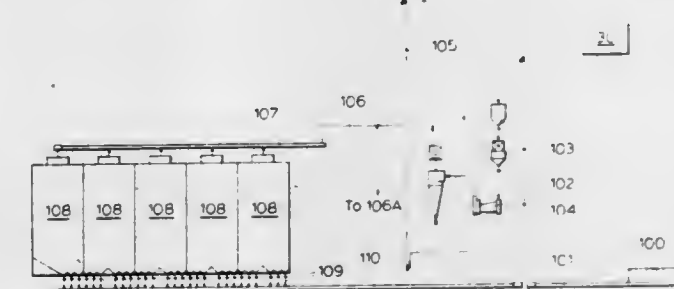
Filed Dec. 26, 1979, Ser. No. 106,939

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1978, 2855715

Int. Cl.³ B02C 9/04

U.S. Cl. 241—10

30 Claims



1. An improved method of operating a cereal or grain milling plant having a plurality of processing zones selected from cleaning, roller milling, moistening, sifting or silo storage for the production of a milled product to a given specification such as flour, semolina and ground flour from initial cereal or grain having given characteristics wherein at least some of said zones have a plurality of sensors arranged to give output values in response to operating conditions of said zones of said plant

the improved method comprising the steps of; optimally processing a plurality of types of grains and storing in a control device the output-values from said sensors in association with the characteristics of the type of grain and the specification of the finished product during each of said optimal processings; selecting one of said optimal processes to be performed on an incoming cereal or grain to be milled having regard to the type of grain and of the finished product to be produced from it; associating each of the stored outputs of said sensors with said selected process in order to obtain a desired series of operating conditions; outputting from said control device a plurality of signals to control operating conditions in each of said zones so that said sensors read in accordance with said desired series of operating conditions.

4,363,449

PROCESS FOR RECLAIMING JELLY-FILLED TELECOMMUNICATION CABLES

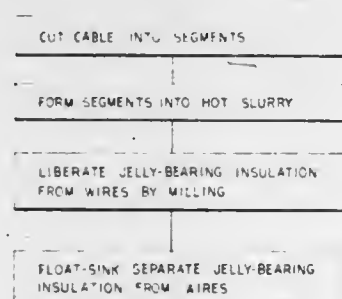
Susan H. Carr, Mercer; Monique A. Schobert, Hunterdon, both of N.J., and John J. Taylor, Lexington, S.C., assignors to Western Electric Co., Inc., New York and Nassau Recycle Corporation, Staten Island, both of N.Y.

Filed Jan. 5, 1981, Ser. No. 222,438

Int. Cl.³ B02C 19/00

U.S. Cl. 241—21

7 Claims



1. A process for reclaiming a jelly-filled telecommunication cable comprising the steps of:

- cutting the cable into segments of jelly-bearing insulated wires;
- forming a slurry of the segments heated to a temperature sufficient to soften the jelly;
- milling the slurry in a manner so as to shear and thereby liberate insulation from the wires with a substantial portion of the softened jelly adhering to the liberated insulation; and
- separating the jelly-bearing liberated insulation from the wires.

4,363,450

METHOD FOR MANUFACTURE OF RUBBER GRANULATE FROM OLD TIRES

Peter Schmidt, Seb.-Bach-Str. 6, 8264 Waldkraiburg, Fed. Rep. of Germany.

Filed Mar. 20, 1980, Ser. No. 131,909

Claims priority, application Fed. Rep. of Germany, Mar. 22, 1979, 2911251

Int. Cl.³ B02C 19/12

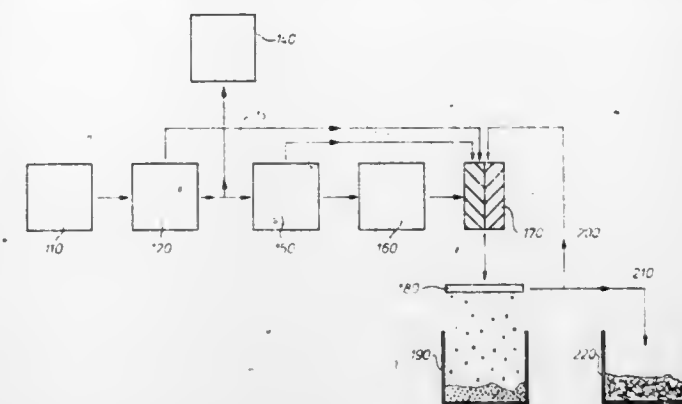
U.S. Cl. 241—24

24 Claims

1. A method for the manufacture of rubber granulate from tires of the type having a bead with a steel wire insert and a carcass comprised of rubber and steel cord, in which the tire is disintegrated into pieces in sequential cutting operations, the pieces are torn by stretching, and the rubber is separated from the steel wire of the carcass, said method comprising:

- pressing side-wall parts of the tire against each other;
- removing a marginal strip from the tire containing the bead and steel wire insert;
- cutting the remaining portion of the tire in a first cutting operation into strips extending along its perimeter;
- rejecting bead strips which contain a steel cord;
- cutting through at least strips which extend substantially in

the direction of the tire perimeter and contain textile fibres in a second cutting operation in a direction which is oblique to the direction of cutting during the first cutting operation;



separating from all cut up tire pieces of the carcass the rubber portion in a crushing mill; and sorting the pieces according to size in a sieving operation.

4,363,451

DEVICE FOR BREAKING A HARD MATERIAL

Barry E. Edney, Servion, and Alain Zurcher, Pampigny, both of Switzerland

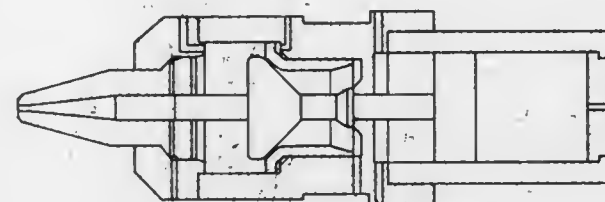
Filed Oct. 23, 1980, Ser. No. 199,937

Claims priority, application Sweden, Oct. 23, 1979, 7908750

Int. Cl.³ B02C 19/00

U.S. Cl. 241—39

5 Claims



1. A device for breaking a hard material, said device comprising a housing (2, 3, 4), a gas pressure accumulator (19) in said housing, a piston device (6) reciprocally movable in said housing and a valve means (11), characterized thereby that said piston device (6) comprises a first piston (8) being situated between a first chamber (15) and a second chamber (17) in said housing (2, 3, 4) and a second piston (10) acting as a movable end wall of said gas pressure accumulator (19), said valve means (11) being movable between a closed position in which it cooperates with said first piston (8) to prevent pressurized liquid from flowing from said first chamber (15) to said second chamber (17) and an open position establishing a flow communication (39) between said first and second chambers, whereby said first chamber is rapidly depressurized so that the gas pressure in said gas pressure accumulator (19) drives said piston device (6) in a power stroke to cause, directly or indirectly, breakage of the hard material.

4,363,452

CENTRIFUGAL CRUSHER WITH A ROTATING GRATE HAVING GRATE BARS ADAPTING THE GRATE FOR SEPARATING THE GRIT ALSO ACCORDING TO ITS WIDTH

Egon Nagy, Budapest, Hungary, assignor to CHEMIMAS Vegyipar Tervezo es Fovalalkozo Vallalat, Budapest, Hungary

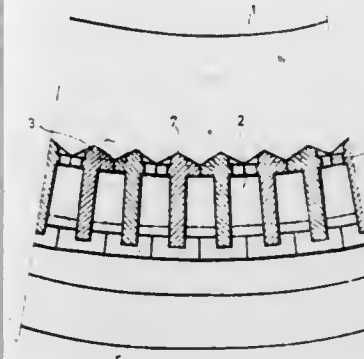
Continuation of Ser. No. 76,836, Sep. 19, 1979, abandoned. This application Mar. 13, 1981, Ser. No. 243,481

Claims priority, application Hungary, Sep. 25, 1978, CE 1184

Int. Cl.³ B02C 17/02

U.S. Cl. 241—91

3 Claims



1. A rotatable grate means for a centrifugal crusher apparatus, said grate means comprising a plurality of grate bars, each of said grate bars having on opposite sides thereof cam means formed thereon, said cam means having the configuration of one half of a circle, wherein means are provided on said grate bars for assembling adjacently lying ones of said grate bars into a continuous cylindrical hollow body forming said grate means, wherein said cam means of said adjacently lying bars form a plurality of apertures, each of said apertures having a predetermined conicity, said conicity having a larger dimension lying in the direction of grit passage through said aperture, and wherein a side of said grate bars lying in the direction of grit passage through said apertures has formed thereon between adjacently lying apertures roof-shaped projections for crushing and for guiding the grit material toward the adjacently-lying apertures, each of said projections running along the substantial length of the bar, wherein said cam means are formed on one side of said bars in a predetermined geometrical relationship with the cam means on the other side of said bars for allowing a predetermined distribution of the apertures in each row with respect to the apertures in the other row, when said bars are assembled into said grate means.

4,363,453

APPARATUS FOR CHOPPING SCRAP STRIP MATERIAL INTO SMALL PIECES

Herbert M. Hill, 5801 Lathrop Pl., Cincinnati, Ohio 45239, and Donald R. Shrader, P.O. Box 301, Oxford, Ohio 45056

Continuation of Ser. No. 4,995, Jan. 22, 1979, Pat. No. 4,230,281. This application Oct. 27, 1980, Ser. No. 201,340

The portion of the term of this patent subsequent to Oct. 28, 1997, has been disclaimed.

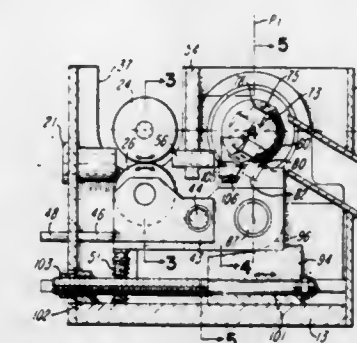
Int. Cl.³ B02C 13/06, 18/06

U.S. Cl. 241—222

11 Claims

1. A scrap chopper adapted to receive a narrow strip of scrap metal being fed from a slitting machine, said chopper comprising means for directing the strip along a predetermined path, a first cutting bar having a straight cutting edge, a rotor including a second cutting bar having a straight cutting edge, means supporting said rotor for rotation on an axis to orbit said second cutting bar adjacent said path, means supporting said first cutting bar adjacent said path and with its corresponding said cutting edge having a progressively decreasing radius relative to said axis of rotation and forming an acute angle with respect to both horizontal and vertical reference planes including said axis of rotation, said rotor having means positioning said second cutting bar with its corresponding said cutting

edge having a progressively decreasing radius relative to said axis of rotation and forming an acute angle with respect to both horizontal and vertical reference planes including said axis of rotation.



4,363,454

TISSUE ROLL STORAGE AND DISPENSER APPARATUS

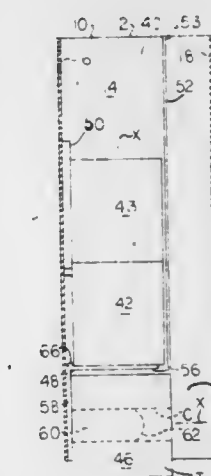
Louis Mohar, 5713 N. 72 St., Milwaukee, Wis. 53218

Filed Aug. 21, 1980, Ser. No. 179,972

Int. Cl.³ B65H 19/00, 19/04

U.S. Cl. 242—55.53

10 Claims



5. Storage and dispenser apparatus for tissue rolls having hollow axial core members comprising:

- a cabinet defining a storage space wherein a plurality of tissue rolls can be slidably stored one on top of another with their axes vertical, said cabinet having an opening at the bottom thereof;
- a support and dispenser device in said cabinet below said storage space and including a support member on which a lowermost tissue roll in said storage space can rest and further including a roll holder spaced from said support member and on which a tissue roll can be disposed, said support member and roll holder each having a free end;
- means for pivotably mounting said device in said cabinet to enable said device to be movable between a roll-dispensing position wherein said support member and said roll holder are generally horizontally disposed with the roll holder beneath the support member and a roll-receiving position wherein said support member and said roll holder are generally vertically disposed with their free ends extending upwardly;
- means connected to said device and extending outwardly of said cabinet for selectively moving said device between said roll-dispensing position and said roll-receiving position;
- and alignment means in said storage space for aligning the core of the lowermost tissue roll in said storage space with

said roll holder when the latter is in roll-receiving position, said alignment means being movable to enable passage therepast of a tissue roll on said roll holder as the latter moves from roll-receiving position to roll-dispensing position.

4,363,455

TAKE-UP ROLL MANDREL SLIP CLUTCH TENSIONING DEVICE

Matthew A. Del Bianco, Chesapeake Isle, North East, Md., and Henry J. Tancredi, Gwynedd, Pa., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Feb. 17, 1981, Ser. No. 235,413

Int. Cl.³ B65H 59/38

U.S. Cl. 242—75.5

1 Claim



1. A tensioning device for a roll adapted to wrap a web thereupon, the tension imparted to the web being functionally related to the velocity of the roll, the device comprising: a drive member able to be driven at a first predetermined angular velocity; a clutch member connectable to a first end of the roll, the clutch member having a clutch material thereon; means for imposing a predetermined bias force for biasing the clutch member and the drive member into abutting contact along a friction interface between the clutch material and the drive member, the clutch member continuously slipping along the interface with respect to the drive member as the drive member is driven at the first angular velocity to impart a second lesser, angular velocity to the roll, a socket movable with respect to the second end of the roll from a first, engaged, position to a second, released, position with respect to the roll; and means for biasing the socket to the first, engaged, position.

4,363,456

MAGNETIC RECORDING TAPE CASSETTE

Shinichi Goto, Takatsuki, Japan, assignor to Hitachi Maxell, Ltd., Osaka, Japan

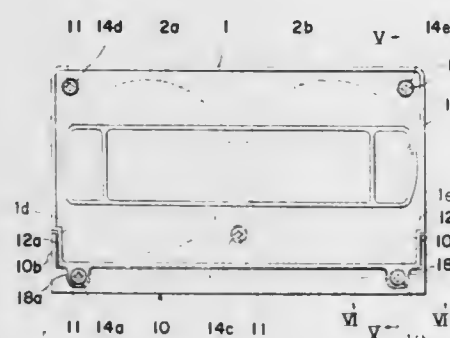
Filed Nov. 14, 1980, Ser. No. 206,689

Claims priority, application Japan, Nov. 15, 1979, 54/158928[U]

Int. Cl.³ G03B 1/04; G11B 23/04

U.S. Cl. 242—197

5 Claims



1. A magnetic recording tape cassette which comprises a bottom case half, a top case half mated with said bottom case half to form a cassette case having a front wall with a plurality of openings defined therein, a pair of guide pins provided near

the respective front corners of said cassette case, means provided in each of said top case half and bottom case half for receiving screw fastening means for fastening said top case half to said bottom case half, a pair of reels accommodated within said cassette case for receiving a magnetic recording tape, said magnetic recording tape being adapted to be wound about said reels so as to pass along said plurality of openings defined in the front wall of said cassette case and along said pair of guide pins provided near the respective front corners of said cassette case, a protective lid member movably mounted on the front portion of said top case half so as to close or open said openings of said cassette case, said lid member including a horizontal upper plate and a vertical lid plate to form a reverse L configuration in cross-section, a pair of legs formed on each end of said horizontal plate extending perpendicular to the longitudinal direction of said horizontal plate, each of said legs being provided with a means for engaging with corresponding engaging means formed on the side walls of said top case half, said horizontal plate being placed on the frontmost portion of said top case half and a pair of openings defined in the rear edge of said horizontal plate juxtapositioned to each of said legs, each of said openings having an arcuate configuration which allows for the expansion of said legs of said lid member outwardly for engaging said leg engaging means with said corresponding side wall engaging means of said top case half.

4,363,457

WEB TENSIONING SYSTEM

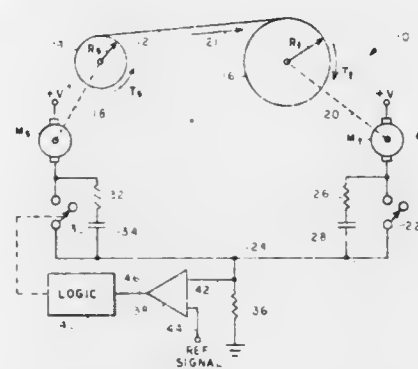
John R. Flint, Barrington; Kenneth L. Hendrikson, Chicago, and K. George Rabindran, Morton Grove, all of Ill., assignors to Bell & Howell Company, Chicago, Ill.

Filed Nov. 4, 1980, Ser. No. 203,934

Int. Cl.³ G03B 1/04; G11B 15/32

U.S. Cl. 242—203

1 Claim



1. In a web transport which advances a web from a supply spool to a take-up spool and in which the spools are coupled, respectively, to a supply motor and a take-up motor for advancing the web, a system for holding the tension in the web substantially constant, comprising: means coupled to both motors for developing an output signal indicative of the sum of the motor currents; means for generating a reference signal indicative of a value of summed motor currents calculated to create a given tension on the web as the web is collected on the take-up spool; a comparator receiving the reference signal and the output signal for generating a control signal indicative of differences between the output signal and the reference signal; and means responsive to the control signal for applying, to the supply motor, current pulses which are width-modulated so as to bring the value of the summed motor currents to within at least a selected range of the reference signal and thereby maintain a substantially constant tension in the web.

4,363,458

AIRFOIL STRUCTURE

Andrew W. Jones, 16 Saxon Rd., Cambridge CB5 8HS, England, and Raymond Merry, 18 Orkney Close, Haverhill, Suffolk, both of England

Filed Jul. 18, 1980, Ser. No. 170,109

Claims priority, application United Kingdom, Jul. 19, 1979, 25158

Int. Cl.³ B64C 31/06; B64D 17/02

U.S. Cl. 244—153 R

10 Claims



1. An air-inflatable airfoil structure, comprising an elongate container having elongate leading and trailing edge regions, said structure being formed so as to provide an airfoil cross section between the leading and trailing edge regions when the container is inflated, elongate stiffening means connected to the leading edge region to maintain the container in an extended condition, said stiffening means further including at each end an anchorage for one of a pair of control lines for the structure, said stiffening means being constructed so that the deformation characteristics of said stiffening means permit a considerably higher degree of deformation at the end region of said stiffening means than at the central region of the stiffening means, said stiffening means comprising a spar having a substantially rigid center section extending along a substantial portion of the central region of the leading edge of said airfoil structure and serving to keep the central region substantially undeformed during flight of the structure, a connector at either end of said center section, and a substantially deformable end section connected to each said connector.

4,363,459

ADJUSTABLE WALL MOUNTED BRACKET

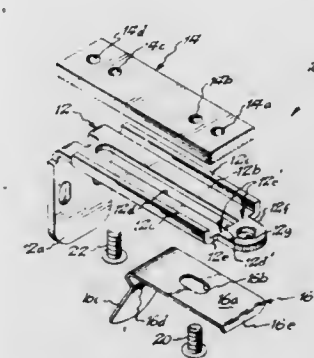
Joseph C. Holzer, Liverpool, N.Y., assignor to Joanna Western Mills Company, Chicago, Ill.

Filed Dec. 5, 1980, Ser. No. 213,397

Int. Cl.³ A47M 1/10

U.S. Cl. 248—265

8 Claims



1. A bracket assembly for adjustably mounting a device in spaced relation to a wall, said assembly comprising: a fixed bracket member having a support portion formed with an elongated slot and a break-away tab extending from an outer end of said support portion and closing one end of said slot, said tab having a mounting aperture; an adjustable extension arm mounted on said support portion

for adjustment lengthwise of said slot, said arm being elongated and having a plurality of mounting apertures spaced apart lengthwise thereof and disposed for vertical alignment with a longitudinal axis of said slot; a coupling device having a mounting opening therethrough and means for coupling same to said device; and fastener means including means received within said slot and mounting apertures for releasably securing said arm in all adjusted positions thereof to said support portion and means selectively received within said mounting opening, said slot and said mounting apertures and within said mounting opening, said mounting aperture and said mounting apertures and within said mounting opening and said mounting apertures for selectively securing said coupling device to said arm in all said adjusted positions thereof.

4,363,460

TELEVISION STAND

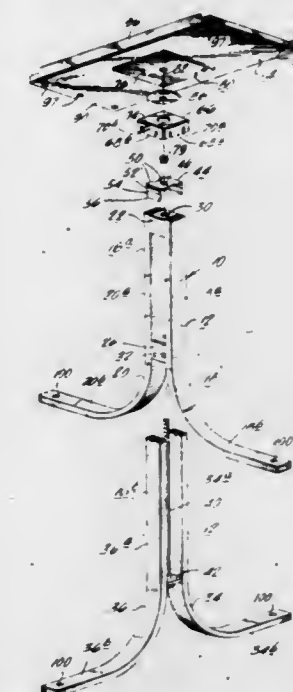
Joseph W. Carroll, West Chester, Pa., assignor to Kim Manufacturing Company, Downingtown, Pa.

Filed Jan. 2, 1980, Ser. No. 109,146

Int. Cl.³ F16M 13/00

U.S. Cl. 248—415

10 Claims



1. A stand assembly comprising a pair of inverted generally T-shaped first and second leg sections, each leg section comprising a pair of hollow members of generally L-shaped configuration consisting of a vertical portion and a horizontal portion defining a pedestal member and a connecting member securing the vertical portions in spaced generally coplanar parallel relation to form a T-shaped leg section, a cap assembly secured to the upper ends of the vertical portion of said first leg section and having means engaging in the open terminal ends said second leg section thereby to align the vertical portions of the leg sections and position the horizontal portion in generally the same plane when the leg sections are interengaged and nested to form a four-legged assembly, a bolt member cooperating with said connecting members and engaging through said closure cap assembly and locking means engageable with the bolt member to secure the leg sections together.

4,363,461

TAPE READER MOTOR MOUNT

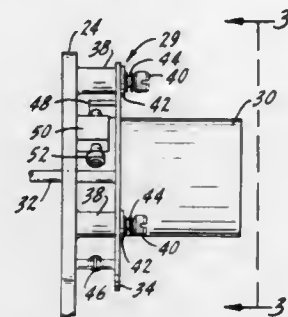
George Smejkal, Mt. Prospect, Ill., assignor to Extel Corporation, Northbrook, Ill.

Filed Sep. 2, 1980, Ser. No. 182,968

Int. Cl.³ F16M 1/00

U.S. Cl. 248-655

7 Claims



1. In a motor-driven photoelectric tape reader or like device in which precise angular orientation of the drive motor about its shaft axis is critical to effective operation, a motor mount comprising:

- first and second base plates, the drive motor being affixed to one of the base plates;
- the first base plate having a plurality of mounting slots therein, each mounting slot being of arcuate configuration symmetrical with respect to an arcuate segment of a given circle;
- a corresponding plurality of retainers each engaging the first base plate, extending through one of the mounting slots, and affixed to the second plate;
- first and second aligned fixed stop elements, each affixed to a different one of the base plates;
- adjustable length stop means interposed between the first and second stop elements, in engagement with both;
- and a biasing spring, interconnecting the two base plates and biasing the two base plates for relative rotary movement to maintain both fixed stop elements in engagement with the adjustable stop means, permitting adjustment of the angular orientation of the motor over a continuous range, without releasing the retainers, by adjustment of the adjustable stop means.

4,363,462

RECOVERABLE FORMWORK PART FOR FORMING THE ANCHORING LOCATION OF A TENDON IN A CONCRETE STRUCTURAL COMPONENT

Johann Wlodkowski, and Dieter Jungwirth, both of Munich, Fed. Rep. of Germany, assignors to Dyckerhoff & Widmann Aktiengesellschaft, Munich, Fed. Rep. of Germany

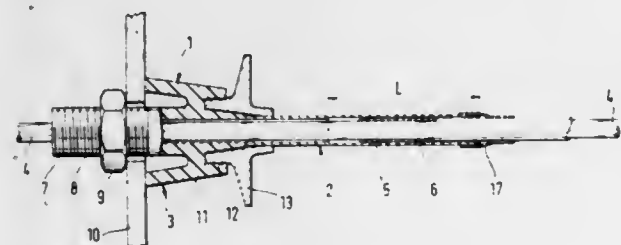
Filed Jan. 21, 1981, Ser. No. 227,136

Claims priority, application Fed. Rep. of Germany, Jan. 26, 1980, 8002045[U]

Int. Cl.³ E04G 17/08, 17/04, 11/06

U.S. Cl. 249-190

5 Claims



1. Recoverable formwork part constituting a portion of formwork for forming a concrete structural member and the formwork part being used for forming the location at which a tendon is anchored in the structural member and at which location an anchoring member is used having a passage there-through for the tendon, said formwork part comprising an axially elongated tubular sheath arranged to enclose an axially

extending portion of the tendon when the concrete is poured into the formwork and a cup-shaped part extending in the axially elongated direction of said sheath and arranged to form a recess within the concrete structural member when the concrete is poured into the formwork, said sheath having a first end arranged to be located within the concrete when the concrete is poured and a second end arranged to be located exteriorly of the formwork when the concrete is poured into the formwork, said cup-shaped part having a first open end facing toward the first end of said sheath and a second open end facing toward the second end of said sheath, said first end of said sheath being spaced for a considerable axial length thereof from the first end of said cup-shaped part and said second end of said sheath being spaced in the axial length direction from the second end of said cup-shaped part, said sheath arranged to enclose the tendon in closely fitting relation for a relatively long portion of the axial length of said sheath from a location at least between the first ends of said sheath and cup-shaped part to a location at least within the axial extending length of said cup-shaped part, means engageable with said sheath for securing said sheath to the formwork, said cup-shaped part integral with said sheath intermediate the first and second ends of said sheath and the first open end of said cup-shaped part being threaded therein for receiving a threaded section of the anchoring member so that the anchoring member can be screwed into the threaded first open end of said cup-shaped part for securing the anchoring member in form-locking engagement with said cup-shaped part.

4,363,463

PLUNGER SEAL ASSEMBLY AND METHOD OF MAKING THE SAME

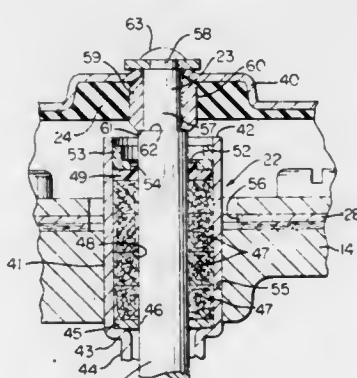
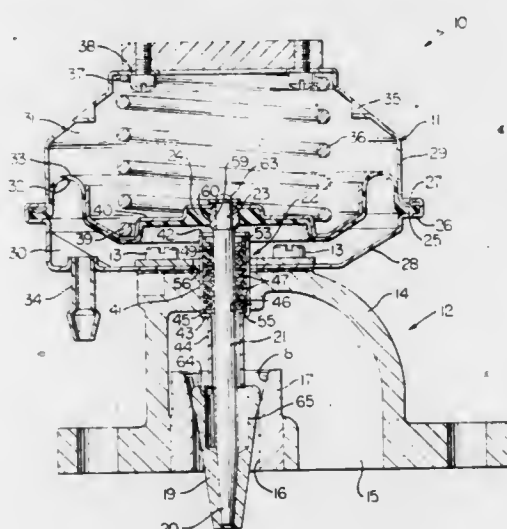
William T. Moon, Jr., Knoxville, Tenn., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Jun. 8, 1977, Ser. No. 804,598

Int. Cl.³ F16K 31/165

U.S. Cl. 251-61

8 Claims



1. In a method of making an assembly of a seal means and a

4,363,465

EXTREME TEMPERATURE, HIGH PRESSURE BALANCED, RISING STEM GATE VALVE WITH SUPER PRELOADED, STACKED, SOLID LUBRICATED, METAL-TO-METAL SEAL

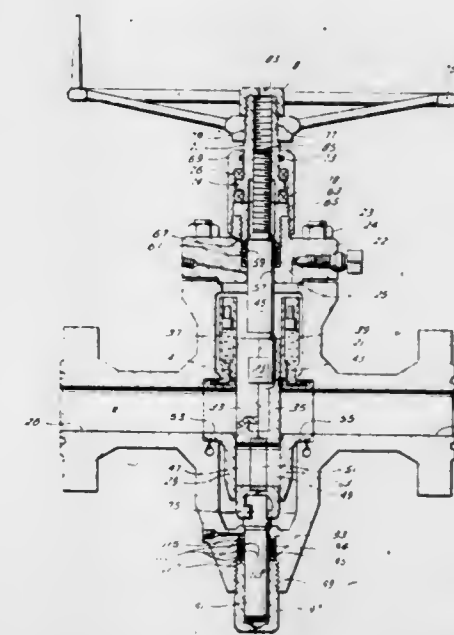
Charles D. Morrill, Bellaire, Tex., assignor to Smith International, Inc., Newport Beach, Calif.

Filed Jun. 16, 1976, Ser. No. 697,084

Int. Cl.³ F16K 41/04

U.S. Cl. 251-214

28 Claims



plunger movable relative to said seal means, the improvement comprising the steps of forming said seal means with a relatively thin and substantially flat washer-like resilient seal member having an opening therethrough, forming said seal means from a cup-like member through which said plunger extends, disposing said washer-like member in said cup-like member to be carried thereby, disposing a plurality of ring-like seal members in stacked relation in said cup-like member so as to receive said plunger therethrough, causing one of said ring-like seal members to abut said washer-like seal member, disposing a ring-like keeper in said cup-like member to sandwich said washer-like seal member between said keeper and said one ring-like seal member, and press-fitting said plunger through said opening in such a manner that an inner peripheral portion of said washer-like member is turned into substantially parallel sealing and wiping engagement with said plunger while being substantially transverse to the remainder of said washer-like member, said washer-like seal member initially extending radially inboard of said ring-like seal members and said keeper and said step of press-fitting said plunger through said opening of said washer-like seal member taking place after said washer-like seal member, said ring-like seal members and said keeper are disposed in said cup-like member.

4,363,464

ANGLE GLOBE VALVE

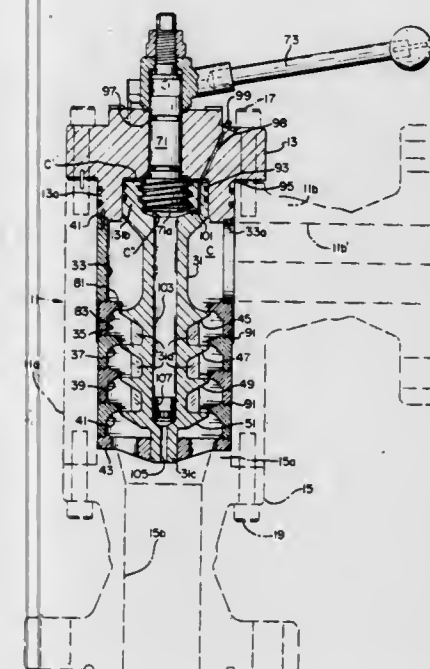
Richard W. Spils, 2225 Spenard Rd., Anchorage, Ak. 99503

Filed Jul. 3, 1980, Ser. No. 165,694

Int. Cl.³ F16K 47/04

U.S. Cl. 251-121

7 Claims



1. In a multiple stage valve having walls defining a cavity, a stack of separate stage rings arranged within said cavity, said stage rings defining a flow passageway for conducting fluid from an inlet in said body axially through said stack to an outlet from said body, and a valve member within said cavity cooperatively related to said stage rings to control said axial fluid flow through said valve, each stage ring having a ring portion and an inwardly projecting annular flange, said flange having an upstream face, a downstream face, and an intermediate face, said downstream face of at least certain rings being formed with plural stepped portions.

4,363,466

REPLACEMENT VALVE ASSEMBLY

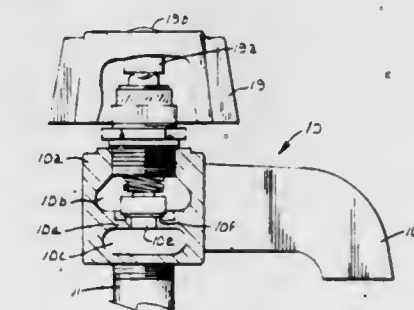
Joseph E. Bartlett, 215 S. Parker (Hwy. 7), Olathe, Kans. 66601

Filed Feb. 17, 1981, Ser. No. 234,943

Int. Cl.³ F16K 31/44, 25/00

U.S. Cl. 251-357

4 Claims



1. A replacement valve assembly for a faucet body having an internally threaded valve port, said replacement assembly comprising:

- a sleeve member threadably received by said valve port to adjustably penetrate the faucet body, said sleeve member

having first and second threaded interior bores separated by an annual interior shoulder;

a gasket encircling said sleeve member;

a lock nut carried on said sleeve member to urge said gasket to engagement with the faucet body and to lock the position of said sleeve with respect to the faucet body;

a valve stem disposed centrally through said sleeve member and threadably received by said first threaded interior bore; said stem having upper and lower ends and said lower end having an axial bore therein;

a washer retaining member having a shank portion received by said axial bore of the valve stem and a cup portion joined to said shank portion, said shank portion of the washer retaining member having an integrally formed hemisphere on the upper end thereof and said axial bore having a central recess in the upper end thereof to receive said hemisphere to provide a friction-free pivot of said washer retaining member with said valve stem, said cup portion of said washer retaining member so positioned such that the distance between said interior shoulder of said sleeve member and the threads of the valve stem is less than the distance between said sleeve member and said cup portion;

an O-ring retainer holding the shank portion of said washer retaining member within said axial bore of the valve stem; a valve closure washer removably secured to the washer retaining member within said cup portion;

an exteriorly threaded packing nut encircling said valve stem and received by said second threaded interior bore of said sleeve member;

a jam nut carried on said packing nut to lock the position of said packing nut with respect to said sleeve member; and a packing gasket encircling said valve stem and urged to sealing engagement with said valve stem and said interior shoulder of said sleeve member by said packing nut, to provide a leak-proof seal.

4,363,467

FASTENING DEVICES FOR GUARDRAILS

Andre Bos, Toulouse, France, assignor to Technal International, France

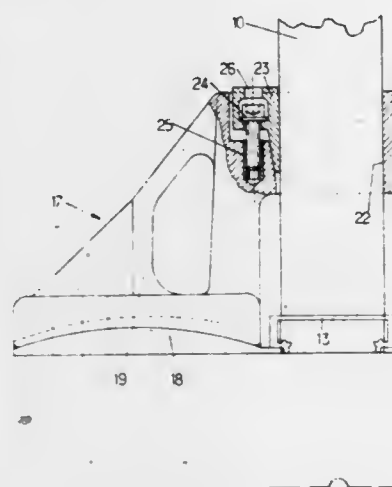
Filed Sep. 9, 1980, Ser. No. 185,595

Claims priority, application France, Sep. 14, 1979, 79 23046

Int. Cl.³ E04H 17/14; E04F 11/18

U.S. Cl. 256—68

7 Claims



1. A device for fastening a guard rail and the like to a building element, said guard rail having fastening posts and at least a bottom rail connecting the posts, said device comprising: an anchor plate constructed to be securable to the building element and having an upper support surface; a base plate having a lower support surface adapted to be received by said support surface of the anchor plate and having fastening means for retaining said fastening posts in vertical position, wherein said fastening means projects horizontally with respect to the anchor plate and to the rest of the base plate by an amount in

excess of the size of said guard rail in the projecting direction and is located at a distance from said building element, whereby the post may be supported on the building element and the bottom rail may be placed at any level between the building element and said fastening means; and a locking member for locking said one post in said fastening means.

4,363,468

CUTTING TORCH HEIGHT CONTROL APPARATUS

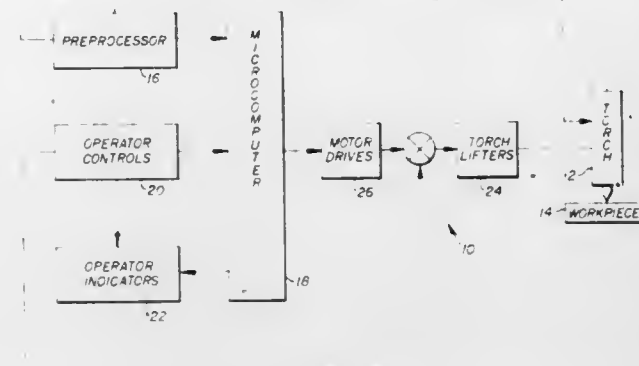
Stephen L. Noe, Metamora, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Mar. 20, 1979, Ser. No. 84,951

Int. Cl.³ B23K 7/10

U.S. Cl. 266—76

18 Claims



1. An apparatus (10) for controlling the distance of at least one cutting torch (12) from an associated reference point (14), comprising:

means (24, 26) for moving the torch (12) toward and from the reference point (14);

means (16) for generating a position signal representative of the distance the torch (12) is spaced from the reference point (14);

means (64) for generating a reference signal representative of a preselected distance between the torch (12) and the reference point (14);

means (18) for comparing the position and reference signals and energizing the moving means (24, 26) for moving the torch (12) until the actual torch position substantially equals the preselected torch position, said torch (12) moving at a variable speed according to the difference between the actual and desired torch positions; and

means (68, 70, 72) for indicating a loss of cut when said torch is positioned relative to a workpiece such as to cut the same, and yet is not causing a cut.

4,363,469

CUTTING TORCH GUIDE

Robert E. Cruzan, II, R.R. #2, Box 87D, Arcadia, Ind. 46030

Filed Jul. 24, 1981, Ser. No. 286,326

Int. Cl.³ B23K 7/10

U.S. Cl. 266—77

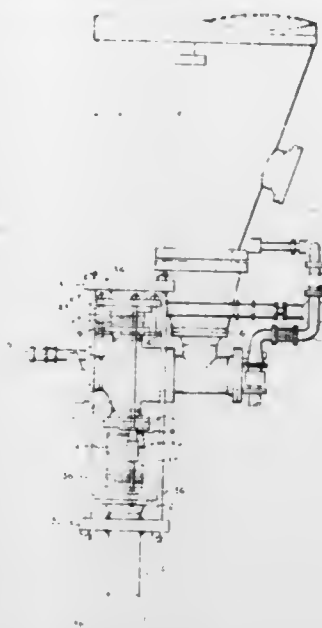
1 Claim

1. A cutting torch guide comprising an upward opening channel having two ends and having provided lengthwise thereon guide means adapted to engage a guide block wherein each of the said ends is closed by an end plate joined to the said channel and wherein each of the said end plates has provided therethrough a hole adapted to receive a bushing, a body portion of a shoulder nut, and a threaded rod inserted therethrough; a rod adapted to and extending lengthwise within the said channel and inserted and extended through the aforesaid holes in the aforesaid end plates and having provided thereon external threads adapted to engage a torch holder assembly and adapted to receive thereon a plurality of shoulder nuts and a plurality of jam nuts and being adapted at one end thereof to be coupled to a power source for rotational movement about the longitudinal axis thereof; connector means for detachably and rotatably coupling the aforesaid rod to the aforesaid end

plates comprising a pair of bushings, a pair of shoulder nuts and a pair of jam nuts; and a torch holder assembly comprising a vertical plate having two opposing surfaces and having a hole therethrough adapted to receive the aforesaid rod inserted therethrough and adapted for reciprocating lengthwise movement within the said channel and adapted to engage the aforesaid guide means on the aforesaid channel and having provided on each of the said opposing surfaces thereof a nut-stop; a pair of nut-stops mounted on the aforesaid opposing surfaces of the aforesaid plate and adapted to engage a pair of rod support nuts mounted on the said rod and on opposite sides of the said plate and adapted to prevent the said nuts from rotating on the said rod and to prevent the said rod from making contact with the said plate; a pair of rod support nuts adapted to be threaded onto the aforesaid rod and adapted to engage the aforesaid nut-stops and to cooperate with the said nut-stops to prevent the said rod from coming into contact with the aforesaid plate; a torch support bracket mounted on the aforesaid guide block

purposes without restraint by said pipe system, and (b) absorbing reaction forces on said valve due to flow of pressurized gas through the outlet thereof,

the improvement in said apparatus which comprises:



means for applying sufficient compressive prestress to said spacer bar means to substantially prevent extension thereof during feeding of particulates to said vessel, whereby, weight measurements of said container are not significantly affected by reaction forces on said valve.

4,363,471

STEEL STRIP CONTINUOUS ANNEALING APPARATUS

Fumiya Yanagishima; Yuji Shimoyama; Hideo Sunami; Yukio Ida; Goji Katsushima; Munetoshi Suzuki, and Takeo Ohnishi, all of Chiba, Japan, assignors to Kawasaki Steel Corporation, Hyogo, Japan

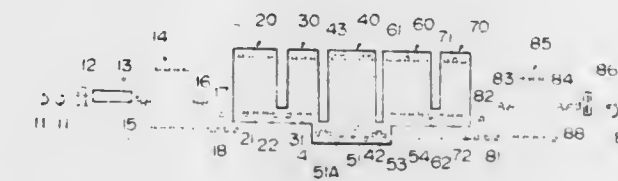
Filed Oct. 21, 1980, Ser. No. 199,199

Claims priority, application Japan, Oct. 31, 1979, 54-141505

Int. Cl.³ C21D 9/56

U.S. Cl. 266—111

9 Claims



1. A steel strip continuous annealing apparatus comprising:

a heating-soaking zone for heating a steel strip to a predetermined temperature and for soaking the steel strip at said temperature;

a first cooling zone subsequent to said heating-soaking zone for rapidly cooling the steel strip at a predetermined cooling rate;

first forcible cooling means incorporated in said first cooling zone for operation of the rapid cooling;

a second cooling zone subsequent to said first cooling zone for slowly cooling the steel strip or holding the steel strip at a predetermined temperature;

hot-cold change-over means in said second cooling zone for selectively either slowly cooling the steel strip or holding the steel strip at a predetermined temperature;

a third cooling zone subsequent to said second cooling zone for cooling the steel strip to substantially room temperature;

second forcible cooling means incorporated in said third cooling zone for operation of the cooling to substantially room temperature;

4,363,470

GAS-ENTRAINED PARTICULATE FEED SYSTEM

Kenneth D. Ives, Valparaiso, Ind., assignor to United States Steel Corporation, Pittsburgh, Pa.

Filed Dec. 2, 1981, Ser. No. 326,733

Int. Cl.³ C21B 7/24

U.S. Cl. 266—81

5 Claims

1. In apparatus for feeding particulates entrained in a pressurized gas to a process vessel, said apparatus including a container for holding a supply of particulates, means for indicating differential weight of said container in order to measure particulate feed rate to the vessel, a pipe system connecting said container to the process vessel, means for supplying gas to said container and pipe system, a valve having inlet and outlet ports connected in said pipe system for regulating flow of gas and particulates to the vessel, and an assembly including cooperating expansion means and spacer bar means for (a) permitting free vertical movement of said container for weighing

a steel strip feeder for feeding the steel strip into said heating-soaking zone;
a steel strip carry-out device for carrying the steel strip out of said third cooling zone;
means for directly bypassing the steel strip from the heating-soaking zone through a first bypass passageway to said second cooling zone; and
means for directly bypassing the steel strip from the first cooling zone through a second bypass passageway to said steel strip carry-out device, whereby different grades of steel may be processed.

4,363,472

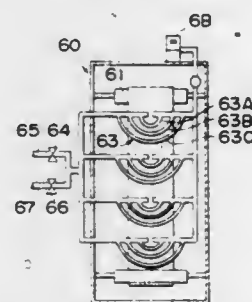
STEEL STRIP CONTINUOUS ANNEALING APPARATUS
Yuji Shimoyama; Fumiya Yanagishima, both of Ichihara; Hideo Sunami, Chiba; Yukio Ida, Chiba; Goji Katsushima, Chiba; Takeo Ohnishi, Chiba, and Takeo Fukushima, Hiroshima, all of Japan, assignors to Kawasaki Steel Corporation, Hyogo, Japan

Filed Oct. 28, 1980, Ser. No. 201,586

Claims priority, application Japan, Oct. 31, 1979, 54-141499
Int. Cl.³ C21D 9/573

U.S. Cl. 266—111

11 Claims



1. A steel strip continuous annealing apparatus for annealing a steel strip comprising:
a steel strip feeder;
a heating-soaking zone for heating and soaking the steel strip at a predetermined temperature;
a first cooling zone including first forcible cooling means for rapidly cooling the steel strip at a predetermined cooling rate, said first forcible cooling means provided thereon with self-cooling means for cooling said first forcible cooling means;
a second cooling zone including hot-cold change-over means for selectively either slowly cooling the steel strip or applying heat to the steel strip to hold the steel strip at a predetermined temperature;
a third cooling zone including second forcible cooling means for cooling the steel strip to substantially room temperature; and
a steel strip carry out device.

4,363,473

APPARATUS FOR REDUCING IRON ORE OR THE LIKE
Toshio Nanjo, Tokyo; Akinori Nakamura, Kamakura, and Hidekazu Ishikawa, Iwakuni, all of Japan, assignors to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 111,107, Jan. 10, 1980, abandoned. This application Aug. 24, 1981, Ser. No. 295,571

Claims priority, application Japan, Jan. 19, 1979, 54-5187

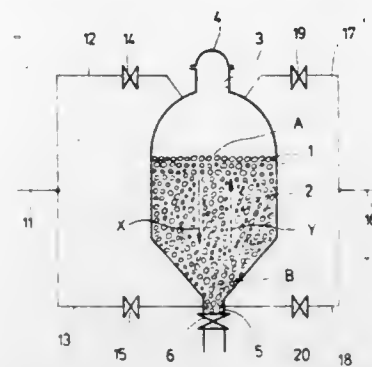
Int. Cl.³ F27B 1/06

U.S. Cl. 266—187

4 Claims

1. An apparatus for reducing the iron ore or the like wherein at least two pairs of reductant blowing and discharging pipes are communicated with a shaft reactor or the like and are communicated with a reductant supply line and a spent reductant discharge line through valving means adapted to selectively communicate said blowing and discharging pipes with said supply and discharge lines so that the reductant may be blown into said reactor or the like from an upper end thereof

through said blowing or discharging pipe toward a lower end of the reactor and may be discharged from said reactor or the like from the lower end thereof through said discharging or blowing pipe, and after a predetermined time interval the reductant may be blowing into said reactor or the like from the lower end thereof and discharged from said reactor or the like



4,363,474

ANTI-PULL-OUT BUMPER

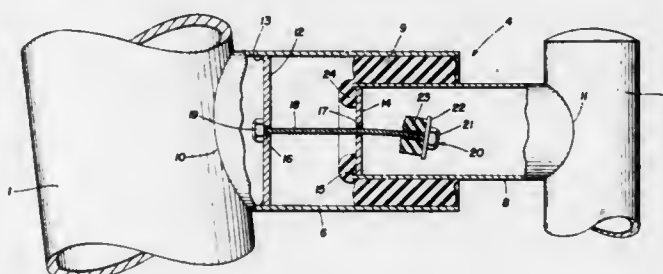
Raymond F. Leblanc, North Canton, and William T. Cummins, Mogadore, both of Ohio, assignors to Teledyne Industries, Inc., Calif.

Filed Apr. 29, 1981, Ser. No. 258,610

Int. Cl.³ F16M 7/00; E02B 3/22

U.S. Cl. 267—140

4 Claims



1. An anti-pull-out mechanism for a shock cell having inner and outer metal pipe members each of which has inner and outer ends joined by a rubber sleeve-like body between the outer end of the outer pipe member and the inner end of the inner pipe member; including first rigid metal limit means mounted in fixed position within the inner end of said outer pipe member, second rigid metal limit means mounted in fixed position within the inner end of said inner pipe member, there being aligned openings formed in said first and second limit means, a flexible metal snub member extending through said aligned openings having inner and free ends and having an enlarged head at its inner end engaged with the first limit means and having an enlarged head at its free end located within the inner pipe member, said snub member having a length between enlarged heads greater than the normal space between said first and second limit means to define a predetermined snub distance, and stop means associated with the enlarged head at the snub member free end engageable with the second limit means when the inner pipe member moves telescopically out of said outer pipe member said predetermined snub distance to prevent further movement of said inner pipe member out of said outer pipe member.

4,363,475

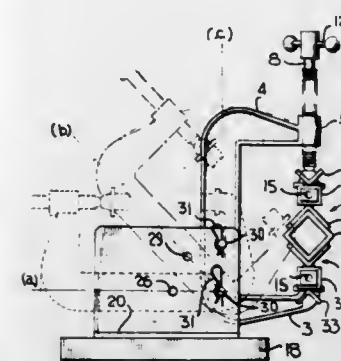
WISE-LIKE C-CLAMP FOR GRIPPING VARIOUSLY SHAPED WORK PIECES IN VARYING POSITIONS
Robert W. McCarty, 26903 Cook Rd., Olmsted Falls, Ohio 44138

Filed Sep. 8, 1980, Ser. No. 185,325

Int. Cl.³ B23Q 1/04

U.S. Cl. 269—69

5 Claims



1. A vise-like C-clamp for gripping variously regularly and irregularly shaped elongated work pieces therein comprising a shank with laterally extending arms at the opposing ends thereof, one of said arms having a fixed flattened clamping jaw, and the other of said arms formed with boss means supporting adjusting screw means therein, said screw means having clamping head means on an inner end thereof opposing said fixed clamping jaw, a pair of elongated generally square-shaped bar means extending transversely of and fixedly secured to said clamping head means and said jaw, said bar means being generally parallel and in alignment with each other, a pair of generally square-shaped tubular gripping head means spacedly sleeveably and removably arranged on each of said bar means and each formed with clamping surfaces for interfitting and coacting with contoured work pieces to be clamped therein and therebetween whereby adjustment of said screw means moves said bar means and said gripping means thereon relative to the other of said bar means on said fixed clamping jaw to effect clamping of a work piece therebetween, at least one pair of said gripping head means formed with generally V-shaped clamping cavities and flat clamping surfaces on opposing sides of the square tubing means thereof, retaining means arranged on the ends of said bar means for preventing displacement of said gripping head means, and flat base means for supporting said C-clamp including spaced apart flat parallel plate means having bent flat base flanges securable to said flat base surface whereby said plate means is upstanding therefrom, said shank being insertable between said plate means, and said shank and plate means being apertured to receive locking pin means therethrough to selectively retain and support said C-clamp in generally horizontal, angled, and vertical positions.

4,363,476

HAND TOOL ACTUATOR

William C. Whittle, 1052 Bonner Ct., La Verne, Calif. 91750

Filed Nov. 17, 1980, Ser. No. 207,136

Int. Cl.³ B23Q 3/02

U.S. Cl. 269—96

4 Claims

1. A bench adapter for hand operated squeeze type tools comprising a base adapted to be supported by a work surface; said base defining a longitudinal channel;
clamp means for securing one handle of a hand operated tool in said channel with the working portions of the hand tool extending out of the channel into a work position;
link means pivotally connected to said base for rotating about a generally horizontal axis;
handle means pivotally connected to said link means;
clamp means pivotally connected to said handle means;
said clamp means adapted to receive a second handle of the tool to be actuated;
said handle including an extended portion adapted to be

manipulated by the operator to pivot said clamp, said handle, and said link to advance the second handle of the work tool toward the first handle thereof to operate the tool;



4,363,477

EXTRA SHEET FEEDER FOR COPYING MACHINE
Kiyoshi Miyashita, Hachioji, Japan, assignor to Olympus Optical Company, Ltd., Tokyo, Japan

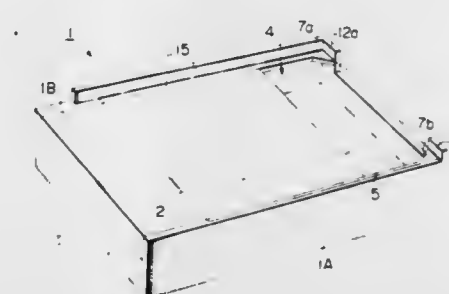
Filed Dec. 21, 1979, Ser. No. 105,902

Claims priority, application Japan, Feb. 2, 1979, 54-11136

Int. Cl.³ B65H 5/20, 1/04

U.S. Cl. 271—9

20 Claims



1. An extra sheet feeder for a copying machine comprising a feed mechanism disposed to be movable toward and away from a stack of record sheets in a container for movement into engagement with an uppermost one of the record sheets in the stack to remove it from the container, an uppermost stop against which the uppermost sheet of said stack may be biased, means defining a path disposed above the stack of record sheets and into which an extra sheet not associated with said stack can be inserted, and a positioning member, separate from said uppermost stop and stationary with respect thereto, against which the front edge of said extra sheet may be abutted, said positioning member being located above said uppermost stop and at the forward end of said path to position an inserted extra sheet at a feed position.

within said liquid in response to movement of said pivoting member when said pivoting member is caused to pivot by being impinged upon by said liquid ejected from its associated nozzle;

two independent target means located within the interior of said housing within said liquid, each of said target means capable of serving as a target for said movable member; at least a portion of said flow of the stream of the liquid which is diverted by said pivoting members being directed toward an area located within said housing between said nozzles and said target means;

each of said target means includes a vertically oriented opening, said opening sized to allow said movable member to pass through said opening into said target means;

two interference means positioned within said housing, one of said interference means positioned in association with the opening of one of said target means and the other of said interference means positioned in association with the opening of the other of said target means, each of said interference means positioned in association with one of said nozzles such that streams of liquid passing within said body of said liquid which have been ejected through said nozzle cause said interference means associated with said nozzle to move from a first location to a second location;

each of said interference means being positioned in front of said opening in said target means with which it is associated and being capable of essentially closing off a portion of said opening in said target means with which it is associated to entry of said movable member into said opening;

said first location corresponding to positioning of said interference means with respect to said target means such that said interference means is located such that it inhibits entry of said movable member into one side of said opening, said second location corresponding to positioning of said interference means with respect to said target means such that said interference means is located such that it inhibits entry of said movable member into the other side of said opening;

said one of said target means being positioned above one of said pivoting members and said other of said target means being positioned above the other of said pivoting members and said streams of liquid being ejected from said nozzle being generally directed upwardly within said housing toward said interference means;

said housing further including two vertically oriented interference track means, one of said interference means located in one of said track means, the other of said interference means located in the other of said track means, each of said interference means biased downwardly within its respective track means by gravity from said second location to said first location;

each of said interference means including at least one baffle means, said baffle means capable of being acted upon by currents within said liquid such that currents within said liquid are capable of moving said interference means against the bias of gravity from said first location to said second location.

4,363,484

ELECTRONIC TABLE TENNIS GAME APPARATUS
Jeffrey D. Breslow, Highland Park, Ill.; Rex M. Harper, Portland, Me., and David A. Glickson, Chicago, Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed Nov. 19, 1980, Ser. No. 208,192

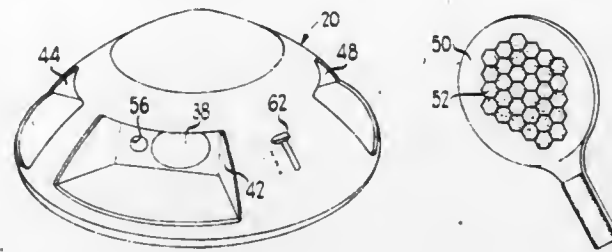
Int. Cl.³ A63F 7/06

U.S. Cl. 273—85 G

66 Claims

1. A player response game apparatus, comprising means for selectively generating beams of radiant energy in one of at least two different directions relative to a player station, player operated reflector means for intercepting a light beam from said generating means, means for detecting radiant energy which is reflected back from a player operated reflector means

to a location adjacent the source of said one beam, and means responsive to said detecting means for controlling said selec-



4,363,485

TIME BASED PINBALL GAME MACHINE

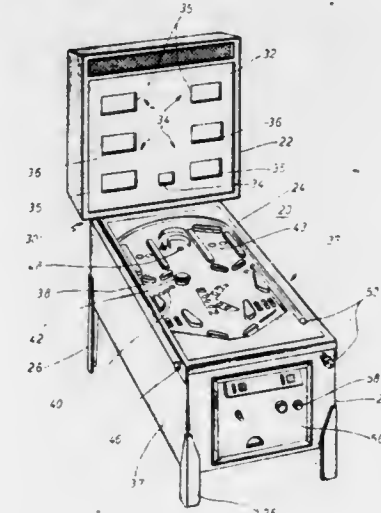
Allen G. Edwall, Elk Grove, Ill., assignor to D. Gottlieb & Co., Northlake, Ill.

Filed Jul. 31, 1980, Ser. No. 174,029

Int. Cl.³ A63F 7/00

U.S. Cl. 273—121 A

47 Claims



1. An electronic digital processor controlled pinball game machine for at least two players, comprising:

- (a) a playfield having scoring targets thereon;
- (b) a ball for moving on the playfield and engaging and actuating the scoring targets thereby defining ball play, a succession of ball plays defining a game play;
- (c) a plurality of displays for indicating values representing game play status of the two players;
- (d) an electronic digital processor for energizing said displays to manifest said values in response to the actuation of said scoring targets and in response to bonus signals;
- (e) player controlled means actuatable at the end of a given ball play for generating said bonus signals upon achievement of selected game play conditions during previous ball play said digital processor including means for detecting said achievement of selected game play conditions and enabling operation of said player control means; and
- (f) said processor being responsive to said bonus signals input by one of said players for changing the display values corresponding to another of said players.

4,363,486

ELECTRONIC GAMING APPARATUS

Jagdish C. Chaudhry, and Lorena Chaudhry, both of 1198 Fremont Ave., Los Altos, Calif. 94022

Filed Oct. 30, 1980, Ser. No. 202,115

Int. Cl.³ A63F 5/04

U.S. Cl. 273—143 B

7 Claims

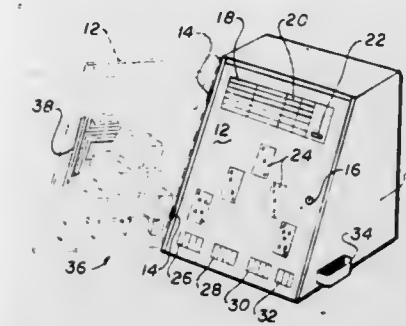
6. Multi-image display means for selectively positioning one

of several individual images forming communicative indicia behind a viewing aperture comprising:

first reel means;

second reel means;

elongated web means carrying a series of discrete indicia disposed along its length and having one end affixed to said first reel means and its other end affixed to said second reel means; said web means being wound about said first and second reel means so as to be transportable from one to the other, each said indicia being positioned upon said web means at spaced intervals along the length thereof with the spaces between adjacent indicia increasing in the direction of the end attached to said second reel means, the increased spacing serving to maintain the cen-



ter of each indicia coincident with a particular radial of said first reel means as said web means is wound thereupon;

first gear means rigidly affixed to said first reel means;

second gear means resiliently coupled to said second reel means;

drive gear means driveably coupled to both said first and second gear means; and

motor means coupled to said drive means and operative to simultaneously drive said first and second reel means so that said web is unwound from one reel and wound onto the other, the resilient coupling between said second gear means and said second reel means being operative to accommodate any reel rotation differential required to maintain tautness in said web means.

4,363,487

GAME TOP

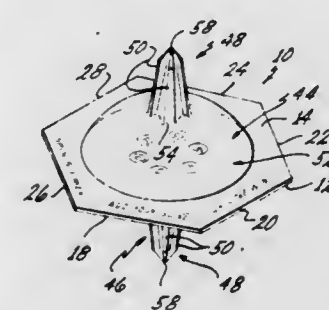
Henry H. Hall, Racine, Wis., assignor to Mattel, Inc., Hawthorne, Calif.

Filed Sep. 15, 1980, Ser. No. 187,109

Int. Cl.³ A63F 5/04

U.S. Cl. 273—147

3 Claims



1. A game top comprising:

a polygonal shaped plate having an upper surface and a lower surface;

game indicia printed on at least one of said surfaces;

first and second transparent, unitary hemispherical dome and spindle assemblies fixed to said upper and lower surfaces of said plate along a lower edge of said domes;

each of said dome and spindle assemblies comprising a hollow hemispherical dome having a crown which carries a spindle, said spindles being hollow and having a plurality of spines and a pointed tip; and an annular flange encom-

passing said lower edge of each of said domes, said flanges being heat sealed to said surfaces of said plate.

4,363,488

SWING FORCE INDICATOR FOR PLAYING PIECE OF SPORTS EQUIPMENT

Arthur M. Maroth, and Sybil Maroth, both of 1101 SW. 13th Pl., Boca Raton, Fla. 33432

Continuation-in-part of Ser. No. 96,326, Nov. 21, 1979, Pat. No. 4,270,753. This application May 18, 1981, Ser. No. 264,456

The portion of the term of this patent subsequent to Jun. 2, 1998, has been disclaimed.

Int. Cl.³ A63B 69/36

U.S. Cl. 273—186 A

8 Claims



1. A swing-force indicator for a playing piece of sports equipment intended to be swung in the playing of a game, comprising, in combination:

- (a) an elongate turnable shaft having a lateral abutment spaced inwardly from one of its ends,
- (b) a finger piece rigid with the shaft and carried by said one end;
- (c) said shaft having a bearing area between the rigid finger piece and the abutment,
- (d) a pair of bearings for the shaft,
- (e) one of said bearings engaging and supporting said bearing area of the shaft between said finger piece and lateral abutment, and the other bearing engaging and supporting the other end of the shaft,
- (f) a torsion spring encircling the shaft at a location inwardly of said one bearing, one end of said spring engaging the abutment on the shaft and the other end of the spring reacting against said one bearing, thereby to bias the shaft for turning in said one bearing,
- (g) a weight member having an indicator, slidable along the shaft,
- (h) a compression spring on the shaft, engaging the weight member to bias the latter toward one end of the shaft,
- (i) said weight member having a pawl and said shaft having a row of teeth cooperable with the pawl to hold the weight member in various adjusted positions against the action of said compression spring,
- (j) said shaft having a smooth track on which the pawl can alternately ride when the shaft is turned against the action of said torsion spring, thereby to enable return of the weight member to a starting position under the action of said compression spring, and
- (k) a housing carrying said bearings and enclosing the said shaft, weight member and springs.

4,363,489

ELECTRONIC STOCK MARKET TERMINAL GAME

Jan B. Chodak, Rancho Palos Verdes, and Luan G. Tran, Redondo Beach, both of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Oct. 17, 1980, Ser. No. 197,882

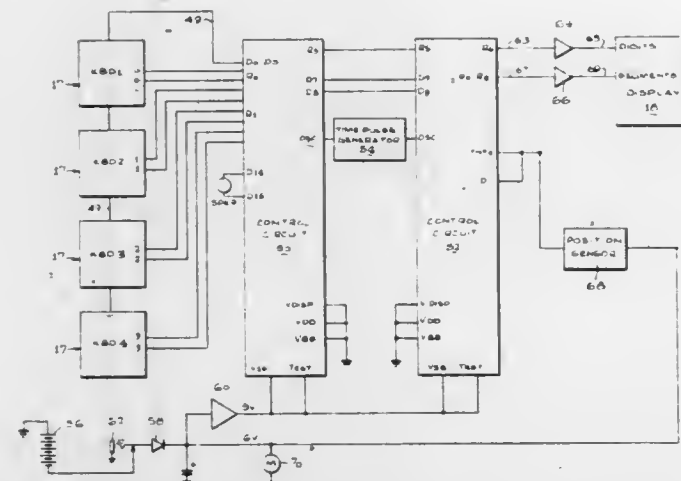
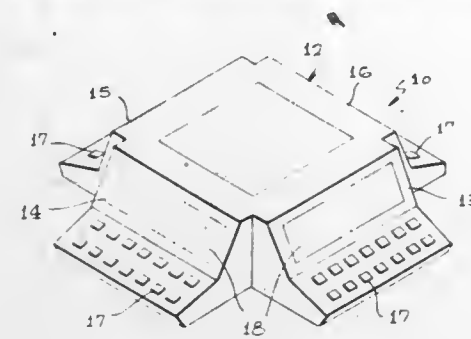
Int. Cl.³ A63F 3/00, 9/00

U.S. Cl. 273—237

29 Claims

1. A market game comprising at least two player positions each including display means for simulating a stock market terminal, control circuit means adapted to cause the display to indicate stocks available in the game and the prices thereof, and input means associated with each player position for signaling the control circuit means to purchase and sell shares of stock available, and in which the control circuit means includes means for automatically detecting whether a player

position is occupied, including means for determining whether the input means associated with that player position has been



actuated, and means for automatically simulating the play of a human player at any position at which the associated input means has not been actuated.

4,363,490

CROWN ROLL SEAL ARRANGEMENT SEALED BY LUBRICATING OIL IN LABYRINTH

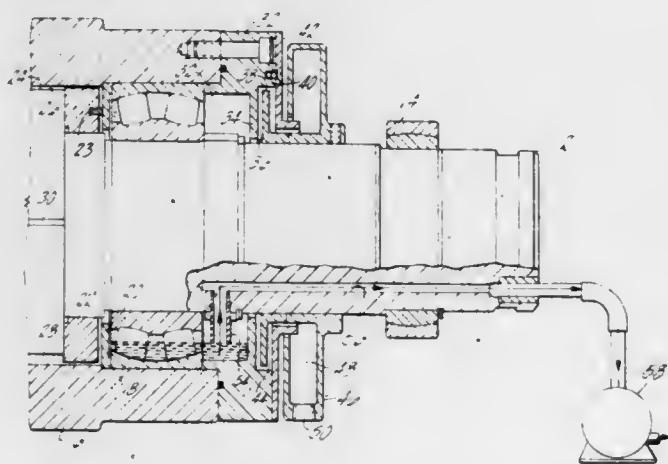
Howard E. Kuehn, Orange, Conn., assignor to USM Corporation, Farmington, Conn.

Filed Sep. 26, 1980, Ser. No. 190,946

Int. Cl.³ F16J 15/40

U.S. Cl. 277-15

5 Claims



1. A seal arrangement for a calender roll comprising:
 - a stationary roll shaft;
 - a roll shell rotatively journaled in a bearing at each end about said roll shaft;
 - a fluid passageway for permitting said bearings to receive lubricating fluid from a lubricating chamber;
 - a labyrinthian non-contact seal arranged on the outer side of said bearings on said shaft between said shaft and said roll shell; and
 - a fluid discharge system for maintaining a predetermined level of lubricating fluid about said bearings in said cham-

ber and preventing passage of excess fluid through said labyrinthian seal.

4,363,491

SHAFT SEAL ASSEMBLY

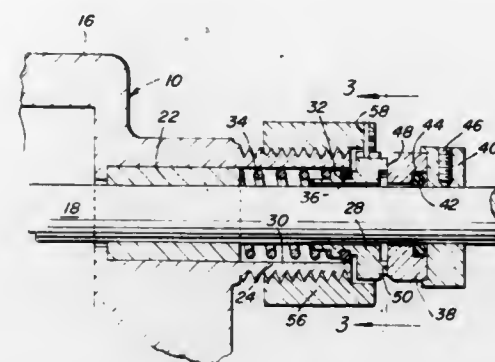
Vincent E. Secor, Port Ewen, N.Y., assignor to Stavo Industries, Inc., Kingston, N.Y.

Filed Dec. 18, 1980, Ser. No. 217,793

Int. Cl.³ F16J 15/34

U.S. Cl. 277-81 R

5 Claims



1. In combination with a housing component defining a bore formed therethrough including an outer end portion opening outwardly of said housing component, said outer end portion of said bore defining an enlarged counterbore whose outer end opens outwardly through an outwardly projecting externally threaded stuffing box on said housing portion, a shaft including a first end portion projecting through said bore and counterbore, bearing means seated in said counterbore journaled said first end portion from said housing component, first sleeve means loosely telescoped over said first end portion and including first and second ends with at least said first end projecting into the outer end portion of said counterbore, first seal means establishing a fluid-type seal between said first end portion of said first sleeve means and said counterbore while allowing slight axial and angular displacement of said first sleeve means relative to said stuffing box, a keying sleeve threaded on said stuffing box, said keying sleeve and said first sleeve means including a radial pin and slot connection keying said first sleeve means to said stuffing box against rotation relative thereto while allowing axial shifting of said first sleeve means relative to said stuffing box, second sleeve means mounted on said first end portion of said shaft outwardly of said first sleeve means and including first and second ends corresponding to the first and second ends of said first sleeve means, said second and first ends of said first and second sleeve means including opposing end faces normal to the axial center lines of said sleeve means and disposed in sliding contacting relation, said second sleeve means being mounted on said first end portion of said shaft for rotation therewith and against axial shifting therealong, means operatively connected between said housing component and said first sleeve means yieldingly biasing the latter toward said first end of said second sleeve means, and second seal means establishing a fluid-type seal between said second sleeve means and said first end portion of said shaft.

4,363,492

ROLLER SKI FOR TRAINING LONG DISTANCE SKIING

Arne Eriksson, Fornminnesvägen 3, Älvängen, Sweden (446 00)

PCT No. PCT/SE80/00062, § 371 Date Nov. 8, 1980, § 102(e)

Date Nov. 7, 1980, PCT Pub. No. WO80/01880, PCT Pub.

Date Sep. 18, 1980

PCT Filed Mar. 4, 1980, Ser. No. 216,996

Claims priority, application Sweden, Mar. 8, 1979, 7902070;

Finland, Mar. 7, 1980, 800712

Int. Cl.³ A63C 17/26, 5/00

U.S. Cl. 280-11.1 BT

3 Claims

1. A roller ski for training skiers of the type having a foot

plate with binding means adapted to retain the user's ski shoe in such a manner that the heel portion is freely pivotable about the firmly fixed toe portion, and which foot plate has rotatably mounted thereon a forward and a rear wheel, comprising supporting members arranged to extend upwards from the foot plate to form side supports for the user's lower legs, said supporting members being rigid side members which extend on



4,363,493

UNI-WHEEL SKATE

Paul S. Veneklasen, Santa Monica, Calif.

Filed Aug. 29, 1980, Ser. No. 182,486

Int. Cl.³ A63C 17/08, 17/14

U.S. Cl. 280-11.2

21 Claims



1. A uni-wheel skate, comprising
 - (a) a circular wheel having a rim arranged to rotate about a generally tilted axis so that the rim rotates in a plane which is generally tilted relative to vertical,
 - (b) a frame relative to which the rim rotates,
 - (c) satellite rollers rotatably attached to the frame and engaging the rim so as to determine the relative rotation of the rim with respect to the frame, and
 - (d) support means carried by the frame to receive the load of the rider's foot for transmission of the rider's body load to and through the frame and rollers to the wheel, said support means comprising a foot plate which is rotatably mounted to the frame to be rotatable relative thereto,
 - (e) and including a separate support associated with the frame to be rotatable relative to the frame, said separate support engageable with the rider's leg to maintain stability.

4,363,494

ROLLER SKATE

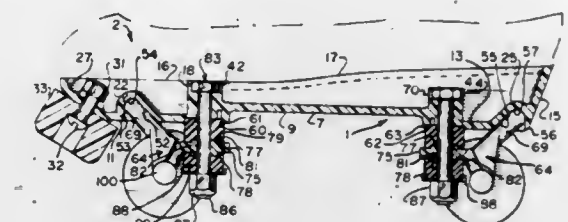
Ronald R. Klawitter, Hermann, Mo., assignor to Steven Manufacturing Company, Hermann, Mo.

Filed Jun. 16, 1980, Ser. No. 159,775

Int. Cl.³ A63C 17/02

U.S. Cl. 280-11.28

1 Claim



1. In a steerable roller skate of the shoe skate variety, the improvement comprising an elongated, one-piece sole plate in the form of an open-topped dish with a bottom wall and a side wall and, at the upper edge of said side wall, a continuous rim, rising from the toe end toward the heel end to meet with a heel-less shoe sole uninterruptedly around said sole, a pair of support-shaft bosses extending upwardly from said bottom wall no higher than the said rim, each with an open-ended, smooth-walled, vertical passage, each boss being crowned with a lip around said passage defining a non-circular seat to receive the complementarily shaped head of a bolt threaded at its other end and each having reinforcing cross ribs integral with said bottom wall and integral with and extending between said bosses and said side wall, and a pair of bearing tongue seats formed in said bottom wall, said seats and bosses having no reentrant surface with respect to the adjacent surfaces of the bottom wall, whereby the sole plate can be made in a simple two-piece mold with a straight draw.

4,363,495

SLOPING-TERRAIN VEHICLE

Kenneth A. Henson, 1 Regency Ct., Dundas, N.S.W., 2117, Australia

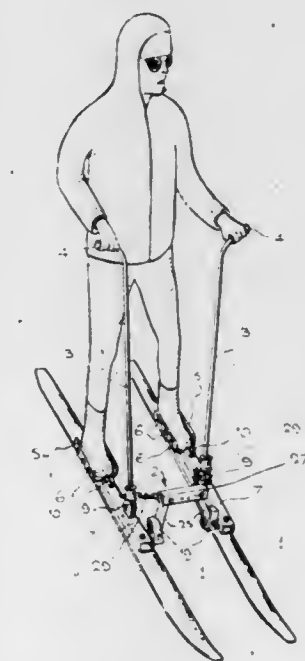
Filed Aug. 11, 1980, Ser. No. 176,806

Claims priority, application Australia, Aug. 20, 1979, PE0087

Int. Cl.³ B62B 13/16

U.S. Cl. 280-12 H

12 Claims



1. A sloping-terrain vehicle comprising a pair of terrain-engaging elements; flexible coupling means joining said pair of terrain-engaging elements in generally side-by-side relationship to thereby permit limited movement of said terrain-engaging elements with respect to each other; a handlebar extending

upwardly from each terrain-engaging element; and a foot-locating member mounted upon the upper-surface of each said terrain-engaging element, said flexible coupling means including an elongated, hollow member rigidly attached to the upper surface of each terrain-engaging element parallel to the longitudinal axis thereof; a pair of journal boxes each having a tongue extending from its lower side, said tongue being accommodatable within a said elongated, hollow member, adjacent its leading end, via an aperture formed in the inner wall of said elongated, hollow member; a pin extending through each elongated, hollow member and passing through a slot in a said tongue to thereby secure said tongue in said elongated, hollow member; a pair of linkage arms, the lower end of each of which is journaled in a said journal box for pivoting movement in a plane transverse to the said longitudinal axes of said terrain-engaging elements; and a cross-member, to each end of which is pivoted an upper end of a said linkage arm; whereby each said tongue is permitted three limited degrees of freedom of movement with respect to its associated elongated, hollow member.

4,363,496

MATERIAL HANDLING CART

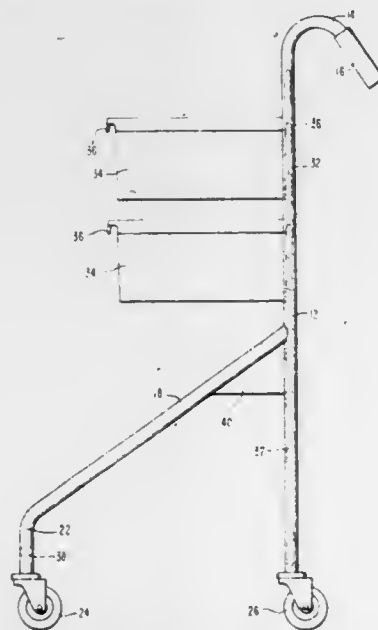
Charles P. Schreiner, Saugatuck, Mich., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 4, 1980, Ser. No. 212,954

Int. Cl.³ B62B 3/10

U.S. Cl. 280—47.35

5 Claims



1. A material handling cart for storing and supporting a plurality of material handling totes of different depths, said cart comprising:

- a pair of spaced parallel vertical members;
- a plurality of equidistantly spaced horizontal support rails interconnecting said pair of spaced parallel vertical members constructed and arranged to support material handling totes of different depths, said horizontal support rails being tubular and including a flat back portion and a front portion that is parallel with said back portion for its lower half and tapered towards said back portion for its upper half;
- a forwardly and downwardly projecting support leg connected to each of said vertical members, said forwardly and downwardly projecting support legs terminating in a vertical portion remote from their connection to said vertical member; and
- a first pair of casters, one each mounted in the bottom of each of said vertical members and a second pair of casters one each mounted in the end of each of said vertical portions of said support legs.

4,363,497

SKI TRACTION DEVICE

Gilles Lacelle, 32 Glenwood Dr., Aylmer, Quebec, Canada (J9H 1H7)

Filed Dec. 3, 1980, Ser. No. 212,423

Int. Cl.³ A63C 7/00

U.S. Cl. 280—604

2 Claims



1. A traction assist device for skis comprising a base member fixedly mounted on said ski ahead of a ski harness, and a substantially rigid arm extending from said base member and terminating at its outer end in a loop adapted to receive the tip of a ski pole, the inner end of said arm being pivotally mounted on said base to be selectively movable between a first position above the ski and a second position wherein said loop is extended to one side of the ski;

said base member including resilient means and detent means for maintaining said arm in each of said first position above said ski and said second position to one side of said ski;

means for pivotally mounting said arm to said base member for movement between an upper position slightly above the top plane of said ski and parallel therewith to a lower position wherein said loop is below said ski; and spring means for biasing said arm in said upper position, whereby said arm, when in said second position to one side of said ski, is adapted to be moved to said lower position under the urging of a ski pole tip placed in said loop.

4,363,498

CROSS COUNTRY SKI BINDING

Peter Biermann, Warmbronn; Otto Ewald, Griesheim; Rudi Feucht, Weissach, and Manfred Schmidt, Sindelfingen, all of Fed. Rep. of Germany, assignors to Geze GmbH, Leonberg, Fed. Rep. of Germany

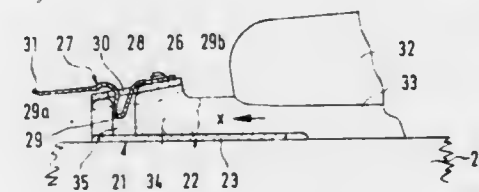
Filed Jul. 25, 1977, Ser. No. 818,741

Claims priority, application Fed. Rep. of Germany, Jul. 24, 1976, 2633373

Int. Cl.³ A63C 9/00

U.S. Cl. 280—615

39 Claims



1. Cross country ski binding assembly comprising: forward ski boot support element means fixedly attachable to a ski, said support element means including forwardly converging guiding sidewall portions supportingly engageable with a flexible forward sole extension of a ski boot in such a manner as to permit lifting of the rear part of said ski boot from the ski, with a pivotal elastic rolling movement of the ski boot and sole extension about a cross-axis located at the sole extension forwardly of the toe part of the boot, and a holding portion for surrounding holding a thickened end portion of said forward sole extension, and resiliently biased latching means for latching said thickened end portion of the sole extension to said ski, said latching means including a resilient latching member on

one of said holding portion and thickened end portion for automatically engaging with a surface on the other of said holding member and thickened end portion in response to insertion of said thickened end portion into said holding portion to resiliently force said sole extension forwardly against said converging portions to retain said sole extension in a position with said portions of said support element means supportingly engaging said sole extension to assist said latching means in maintaining said forward sole extension and therewith the ski boot in an in-use skiing position.

4,363,499

TILTABLE STEERING MECHANISM FOR AUTOMOBILES

Kenichi Watanabe; Kazuo Katayama, and Takao Kijima, all of Hiroshima, Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima, Japan

Filed Feb. 13, 1980, Ser. No. 120,982

Claims priority, application Japan, Feb. 14, 1979, 54-18156[U]

Int. Cl.³ B62D 1/18

U.S. Cl. 280—775

7 Claims



1. A tiltable steering mechanism comprising a steering shaft, a steering column rotatably supporting said steering shaft and mounted on an instrument panel of an automobile at a lower portion thereof through adjusting means which provides adjustments at least in vertical directions, an intermediate shaft transversely immovably journaled on a stationary part of the automobile through bearing means and having one end connected through a first universal joint with an end of the steering shaft and the other end through a second universal joint with a steering gear mechanism so that the steering shaft is tiltable movable about the first universal joint upon adjustment of the adjusting means without corresponding movement of said intermediate shaft.

4,363,500

AUTOMATIC SEAT BELT DEVICE

Hisashi Ogawa, Okazaki, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Oct. 15, 1980, Ser. No. 197,016

Claims priority, application Japan, Jul. 18, 1980, 55-101527[U]

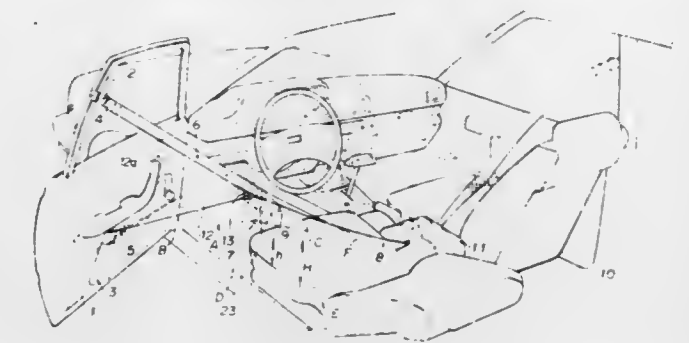
Int. Cl.³ B60R 21/10

U.S. Cl. 280—802

2 Claims

1. An automatic seat belt device comprising: an upper anchor and a lower anchor secured to the upper and lower portions of an automotive door; an outer belt connected at upper and lower ends thereof to said upper and lower anchors, respectively; an inner belt connected at one end thereof through a ring joint to said outer belt and at the other end thereof to a retractor provided at the center of an automotive floor to extend from the retractor; an outer belt weaving provided between the ring joint on said outer belt and said lower anchor attached to the lower portion of the door; and a stopper secured to said outer belt weaving for preventing

the ring joint from sliding down along said outer belt and located in such a range that the ring joint confines an occupant at his front abdominal portion when the seat belt of the three end type is mounted on the occupant and that the ring joint is retained sufficiently at the upper portion of said outer belt, wherein said stopper comprises an upper piece and a lower piece disposed at the upper and lower



side surfaces of said outer belt weaving along said outer belt weaving for gripping said outer belt weaving therebetween, said upper and lower pieces secured at both side ends thereof to each other, and said stopper is elevationally swelled at said pieces upward and downward from the surface of said outer belt weaving thereby preventing the ring joint from sliding down along said outer belt.

4,363,501

PASSIVE TYPE VEHICLE OCCUPANT RESTRAINT BELT SYSTEM

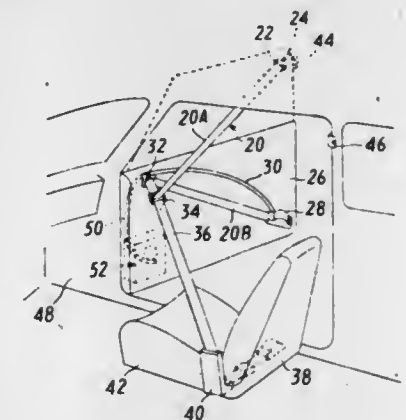
Juichiro Takada, 3-12-1, Shinmachi, Setagayaku, Tokyo, Japan

Filed Jan. 30, 1981, Ser. No. 230,267

Int. Cl.³ B60R 21/10

U.S. Cl. 280—804

8 Claims



1. In a passive vehicle occupant restraint belt system having a belt guide member that is coupled to a restraint belt and is movable between a restraint location in which the belt engages an occupant and a release location in which the belt releases the occupant, a reversible drive motor, control means for activating the motor to drive it in one direction in response to opening of the vehicle door and in the opposite direction in response to closing of the vehicle door, a semi-flexible drive element coupled to the guide member, and a reduction device for transmitting power from the motor to the drive element, the improvement wherein the reduction device comprises a housing having first and second closed compartments separated by a common dividing partition, an output shaft journaled in the partition and having a first portion located in the first compartment and a second portion located in the second compartment; an output drive element affixed to the first portion of the output shaft and coupled to the guide element to drive it; an input shaft having its axis disposed orthogonally to the axis of the output shaft and extending into the second

compartment; a worm gear affixed on the input shaft; a worm wheel rotatably carried on the second portion of the output shaft and meshing with the worm gear; and an enclosed friction coupling received within the second compartment and interposed between the worm wheel and the output shaft, the compartmentalization of the casing and enclosing of the friction coupling enabling the input and output gears to be lubricated while excluding lubricant from the friction coupling.

4,363,502

ILLUMINATIVE SKATE WHEEL

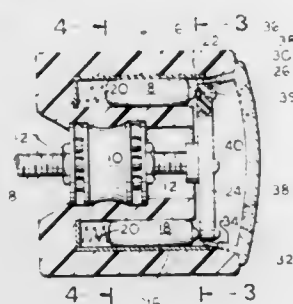
David Bakerman, 1530 Palisade Ave., Fort Lee, N.J. 07024

Filed Nov. 10, 1980, Ser. No. 205,381

Int. Cl.³ A63C 17/26

U.S. Cl. 280—816

3 Claims



1. In a skate having an axle, and a wheel rotatably mounted on said axle, the improvement which comprises a pair of terminals mounted within said wheel and adapted to have an electrical potential applied thereacross, and light emitting means operatively connectable to said terminals, mounted on said wheel and responsive to application of said electrical potential thereto for emitting light, a source of electrical potential removably mounted within said wheel, contact means connected between said source of potential and at least one of said terminals, said contact means being operative between an open state in which application of said electrical potential to said one of said terminals is interrupted for extinguishing said light emitting means and a closed state in which said potential is applied to said one of said terminals or illuminating said light emitting means, and a translucent cap member mounted over the hub of said wheel and being illuminated by said light emitting means when said potential is applied to said terminal, said cap member being selectively engageable with said contact means and movably mounted on said wheel for movement between a first position in which said contact means is caused to be in said open state and a second position in which said contact means is caused to be in said closed state.

4,363,503

PYRIDINE COLOR FORMERS

Paul J. Schmidt, Sharonville, and William M. Hung, Cincinnati, both of Ohio, assignors to Sterling Drug Inc., New York, N.Y.

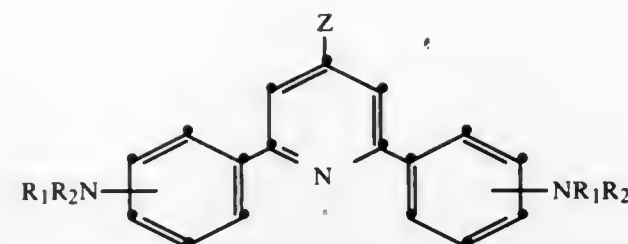
Filed Mar. 16, 1981, Ser. No. 243,798

Int. Cl.³ B41M 5/16, 5/18, 5/22

U.S. Cl. 282—27.5

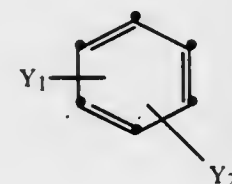
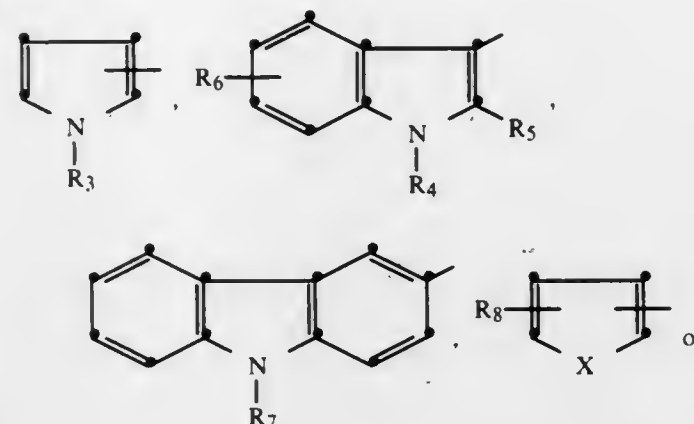
5 Claims

1. A pressure-sensitive carbonless duplicating system or thermal marking system containing a support sheet coated with a color-forming substance comprising a compound having the formula



wherein:

R₁ and R₂ are the same or different and are selected from the group consisting of lower-alkyl and benzyl, or NR₁R₂ is pyrrolidinyl, piperidinyl, or morpholinyl; Z is naphthyl, 9-julolidinyl or a substituent having the formula



wherein

R₃, R₄, R₇ and R₈ are hydrogen or non-tertiary lower-alkyl; R₅ is hydrogen, phenyl or non-tertiary lower-alkyl; R₆ is hydrogen, non-tertiary lower-alkyl or non-tertiary lower-alkoxy; X is O or S; Y₁ and Y₂ are the same or different and are selected from the group consisting of hydrogen, lower-alkyl, lower-alkoxy, halo, nitro, lower-alkoxycarbonyl, phenyl or NR₉R₁₀; R₉ is lower-alkyl or benzyl; R₁₀ is lower-alkyl, benzyl, cyano-lower-alkyl, or NR₉R₁₀ is pyrrolidinyl, piperidinyl, morpholinyl or isindolinyl.

4,363,504

HIGH TEMPERATURE LINED CONDUITS, ELBOWS AND TEES

Angelo De Feo, Passaic, and Edward Drewniany, Bergen, both of N.J., assignors to Curtiss-Wright Corporation, N.J.

Filed Jan. 4, 1980, Ser. No. 109,628

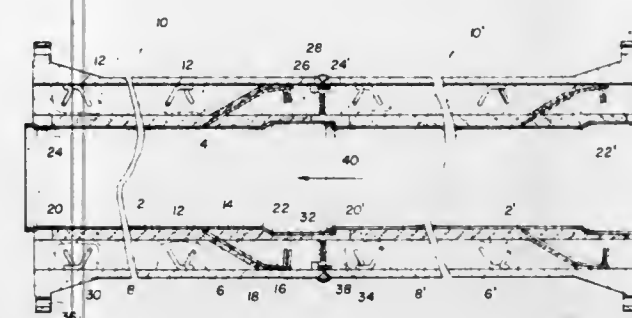
Int. Cl.³ F16L 59/14

U.S. Cl. 285—47

29 Claims

24. A high temperature lined conduit comprising, a liner member, a flexible insulating blanket around and in contact with said liner member, a pipe member around said blanket and spaced therefrom, a castable rigid refractory material between said pipe member and said blanket, a fixing member connected between said liner member and said pipe member adjacent one end thereof for substantially holding said liner member with respect to said pipe member in the vicinity of said fixing member and permitting the thermal expansion of said liner member with respect to said pipe member, said fixing member compris-

ing a truncated cone having an inner diameter end connected to said liner member and an outer diameter end connected to



said pipe member, and at least one anchor extending from said cone and into said castable material.

4,363,505

PIPE COUPLING

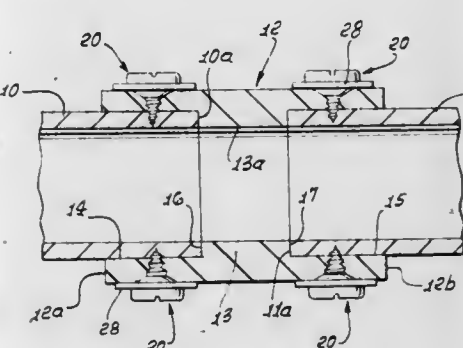
Alvin J. Smith, 228 Cordova Dr., Santa Barbara, Calif. 93109

Filed Apr. 20, 1981, Ser. No. 255,685

Int. Cl.³ F16L 47/02

U.S. Cl. 285—369

7 Claims



1. In a coupling for interconnecting plastic pipe ends, (a) a tubular coupling member consisting of plastic, and having a bore at its mid-portion, two counterbores respectively intersecting opposite ends of the member, and two annular step shoulders respectively between the counterbores and said bore, (b) plastic pipe ends inserted into the counterbores to extend proximate the step shoulders, the pipe ends adhesively joined to the counterbores, (c) threaded fasteners extending generally radially through the coupling member to intersect the counterbores, the fasteners having tapered threads and tips that penetrate radially into the pipe ends, (d) the fasteners having heads and there being seal means sealing off between the fasteners and the coupling member and pressurized therebetween, (e) each fastener having an annular tapered shoulder spaced from the head and located between said head and said tapered thread, the shoulder interfitted a tapered shoulder on the coupling and closer to said thread than said seal means, to limit said pressurization and the penetration of the tips into the pipe ends, the tapered shoulder flaring widely toward the seal means, the seal means comprising elastomeric washers.

4,363,506

LATCH HAVING A RELEASABLE ACTUATING ROD

Jean Rosell, "Le Mesnil Sterling", Etalondes 76260 Eu, France, assignor to La Perche, Escarbotin, France

Filed Jul. 28, 1980, Ser. No. 172,829

Claims priority, application France, Jul. 30, 1979, 79 19525

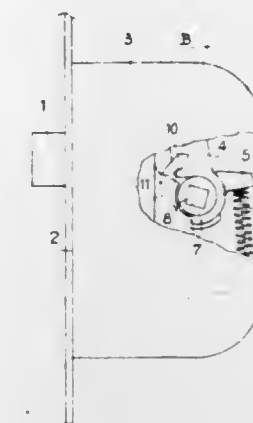
Int. Cl.³ E05C 21/00

U.S. Cl. 292—336.3

3 Claims

1. A latch comprising a case, a mechanism for actuating at least one bolt comprising a door-knob hub, an actuating rod

received in the door-knob hub, an intermediate member rotatively mounted in the door-knob hub in the case, which rotatively mounts said door-knob hub the intermediate member having an aperture for receiving the actuating rod and being provided with a nose portion, the door-knob hub having a



branch with which the nose portion is capable of engaging when the actuating rod is rotated in a direction for actuating the latch, and an abutment for preventing the rotation of the nose portion after a given angular displacement of the actuating rod in a direction opposed to said direction for actuating the latch.

4,363,507

AUTO BODY PROTECTOR

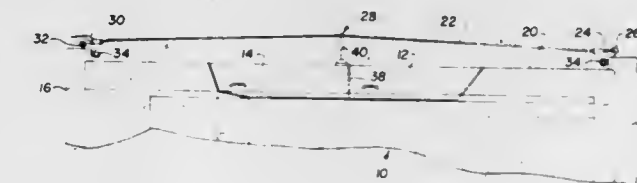
Marvin J. Bays, P.O. Box 1104, Richardson, Tex. 75080

Filed Oct. 23, 1980, Ser. No. 199,960

Int. Cl.³ B60R 19/00, 27/00; E04H 17/00

U.S. Cl. 293—128

3 Claims



1. Apparatus for protecting the finish of the side of a vehicle having a door along the side of said vehicle comprising: a wire rope; means detachably securing first end of said wire rope to an end of the vehicle; tensioning means detachably securing a second end of said wire rope to the other end of the vehicle said tensioning means adapted to pull the wire rope tight when secured to the vehicle; a center post having an outwardly extending post member rigidly secured to an angle member; a rubber cover formed about said angle member forming a shoulder adjacent to said angle member and a protective surface on the inside of said angle member such that the shoulder is engaged by said door when closed trapping the cover and the angle between the door and the door opening such that the post member extends outwardly from the vehicle, the center post member having a passage formed through in the outer end through which the wire rope passes to space the wire rope from the side of said rope.

4,363,508

ANIMAL WASTE COLLECTION APPARATUS

Jesse C. Duke, 2773 The Fontainebleau, Atlanta, Ga. 30331

Filed Feb. 25, 1981, Ser. No. 237,886

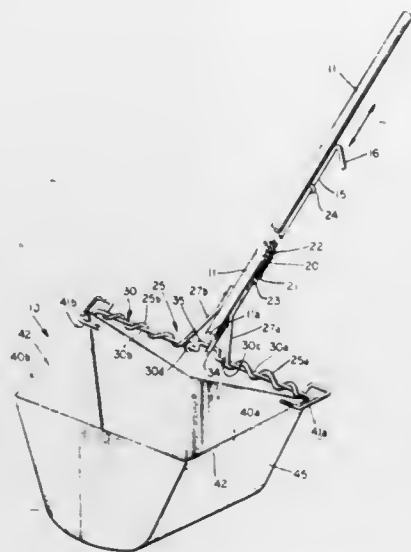
Int. Cl.³ A01K 29/00

U.S. Cl. 294—1 BB

10 Claims

1. An animal waste collection apparatus comprising:

a handle with an upper part and a lower part, said upper part to be held by the operator of the apparatus;
a frame connected to said lower part of said handle;
hinge means pivotally connected to said frame;
a plurality of supporting arms attached to said hinge means and extending outwardly therefrom, said supporting arms being capable of assuming either a first position or a depending second position;
removable disposable waste containment means slidably receivable on said supporting arms and including a portion to be retained between said supporting arms and said



frame when said supporting arms assume said first position;
release means operatively engaging and retaining said hinge means when said supporting arms are in said first position; and
activation means selectively operative to release said release means from engagement with said hinge means, thereby allowing said hinge means to pivot, said supporting arms to drop downwardly to said second depending position, and said waste containment means to be removed from said supporting arms.

4,363,509

CHAIN GRAB HOOK PROVIDING FOR A FLAT LAY CROSS-OVER LINK

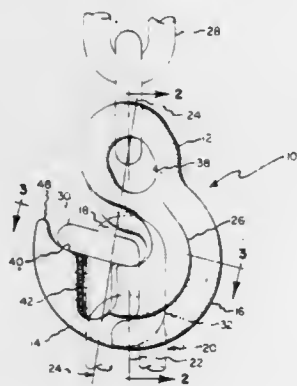
Kenneth D. Schreyer, Clarence, N.Y., assignor to Columbus McKinnon Corporation, Tonawanda, N.Y.

Continuation of Ser. No. 121,588, Feb. 14, 1980, abandoned, which is a continuation of Ser. No. 901,142, Apr. 28, 1978, abandoned. This application Feb. 9, 1981, Ser. No. 232,845

Int. Cl.³ B66C 1/34

U.S. Cl. 294—82 R

1 Claim



1. A chain grab hook for suspending a load, which comprises:

a hook body including a shank having an eye by means of which the hook is suspended in vertical attitude, a bight integrally joined with said shank and a free end portion integrally joined with said bight; said shank, bight and free

end portion lying in a common plane generally forming a C-shape to define a throat;
said free end portion having a substantially flat upwardly facing support surface defining the lower side of said throat and said free end portion having generally vertically extending depression in its opposite sides whereby said support surface in plan view presents a widthwise elongate support surface portion at the innermost end of said throat and a narrowed portion of reduced width, said elongate surface portion supporting the barrel portion of a chain link received in said throat and the width of said narrowed portion being such as to receive bight portions of adjacent chain links;
said shank overlying said support surface to define the upper side of said throat and having downwardly and laterally outwardly facing abutment surfaces on opposite sides thereof to engage the bight of one of said adjacent links to thereby force such bight also against an edge of said narrowed portion when the other of said adjacent links has a load suspended therefrom; and
said depressions being laterally offset from said eye whereby the hook is both rotated in its vertical plane and tilted to one side relative thereto when the chain supports a load.

4,363,510

COVER FOR PASSENGER CAR TRUNKS

Hermann Burst, Rutesheim, and Leo Macho, Hemmingen, both of Fed. Rep. of Germany, assignors to Dr. Ing. h.c.F. Porsche A.G., Stuttgart, Fed. Rep. of Germany

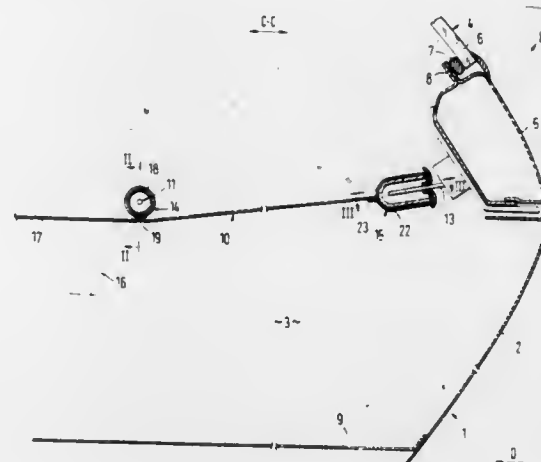
Filed Oct. 10, 1980, Ser. No. 195,856

Claims priority, application Fed. Rep. of Germany, Oct. 10, 1979, 2941018

Int. Cl.³ B60R 5/04

U.S. Cl. 296—37.16

9 Claims



1. A cover arrangement for passenger car trunks that are accessible, through a rear lid that is movable about a horizontal hinge axis, comprising a cover formed of an elastic material and means for attaching the cover to a trunk body portion and to the rear lid, characterized in that said attachment means comprises elastic members for fastening the cover, said elastic members being spaced from each other on the cover and being located in hollow elements that are connected to the cover and extend perpendicularly to a vehicle longitudinal axis, wherein the elastic member in one of said hollow elements fastens the cover to opposite lateral walls of the body and elastic members in another of the hollow elements fastens the cover to the lid.

4,363,511

BEARING FOR A SUN VISOR FOR A VEHICLE HAVING A MIRROR ILLUMINATED BY AN ELECTRIC SOURCE OF LIGHT

Lothar Viertel, Saarlouis; Klaus-Peter Kaiser, Wermelskirchen, and Manfred Nowak, Solingen, all of Fed. Rep. of Germany, assignors to Gebr. Happich GmbH, Fed. Rep. of Germany

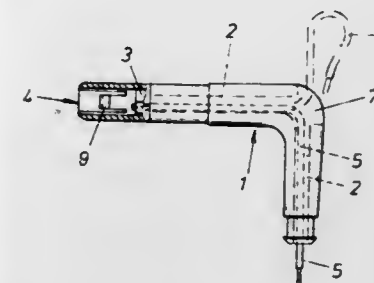
Filed Jul. 9, 1980, Ser. No. 166,804

Claims priority, application Fed. Rep. of Germany, Aug. 9, 1979, 2932302

Int. Cl.³ B60J 3/02

U.S. Cl. 296—97 K

20 Claims



1. Mounting pin means for a sun visor for an automotive vehicle, wherein the sun visor includes an electrified light source in the body of the sun visor; the sun visor having swivel bearing means;

the swivel bearing means including a mounting pin connected to the body of the sun visor and around which the visor body is swivelable for defining the swivel bearing means there; the mounting pin being for connecting the sun visor body to the body of an automotive vehicle; the mounting pin being hollow and being comprised of electrically non-conductive material;

the swivel bearing means further including an electric conductor guided through the hollow of the mounting pin, the mounting pin including an end portion thereof at the sun visor body; an electric switch contact receptacle being defined in the mounting pin end portion;

a first electric switch contact being supported in the receptacle and being electrically connected with the conductor; the receptacle and the first switch contact are respectively so shaped that the first switch contact is prevented from swiveling in and with respect to the receptacle;

a second electric switch contact being supported on the visor body at the swivel bearing means; the second electric switch contact being electrically connected with the light source; and the first and second electric switch contacts being so shaped and positioned that at one swivel position of the visor body, the contacts engage, and at another swivel position of the visor body, the contacts disengage.

4,363,512

AUXILIARY VISOR

Konrad H. Marcus, Holland, Mich., assignor to Prince Corporation, Holland, Mich.

Continuation of Ser. No. 31,549, Apr. 19, 1979, Pat. No.

4,275,917, This application Dec. 15, 1980, Ser. No. 216,077

The portion of the term of this patent subsequent to Jun. 30, 1998, has been disclaimed.

Int. Cl.³ B60J 3/02

U.S. Cl. 296—97 G

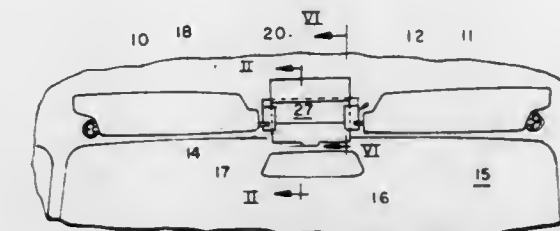
1 Claim

1. An auxiliary visor for a vehicle having a pair of sun visors supported at opposite sides and above the vehicle windshield and a rearview mirror mounted between the sun visors, said visor comprising:

a mounting member adapted to be mounted to said vehicle above the windshield and centrally between the vehicle's visors; and

a unitary shield supported by said member for movement with respect to said mounting member from a stored

position above the windshield between the vehicle's visors to an operating position extended from said mounting member and between the rearview mirror and the windshield and in which said unitary shield covers the area of the windshield near the top thereof and between the visors and above the rearview mirror, said shield being shaped to



extend substantially to the edge of the existing visors and to the rearview mirror to substantially fill in the gap left between the visors and above the rearview mirror when in the lowered sun blocking position, said shield being located between the rearview mirror and the windshield when in the lowered sun blocking position permitting easy access to and adjustment of the rearview mirror.

4,363,513

AUTOMOBILE PROTECTING SUN SHADE

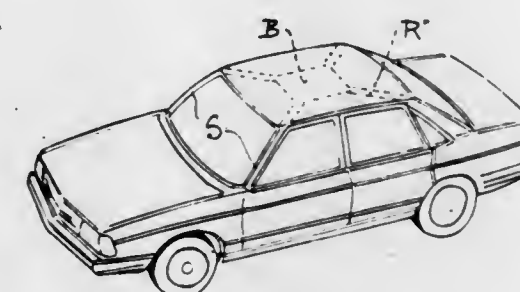
Raphael Sahar, 39 Ahuzath Kinnereth, Tiberias, Israel

Filed Oct. 2, 1979, Ser. No. 81,130

Int. Cl.³ B60J 3/02

U.S. Cl. 296—140

8 Claims



1. In an automobile—an installation which comprises a casing affixed to the car's roof at its inside, four curtains to be contained in such casing, one for the windshield, two oppositely disposed ones for the sides of the car, and one for the rear window, the said curtains being provided with guiding members for their lateral edges, which guiding means travel in rails extending within the car along members supporting the roof of the car, pull ropes being attached to said curtains for moving them relative to the said casing, said pull-ropes being connected to springs at one end thereof, and drive means connected to the other end of each said pull-rope and being provided for moving the curtains, which drive means are operable from the interior of the car, said drive means including electrical motor means to simultaneously drive a plurality of said curtains, and means to selectively disconnect said drive means for one or more of said plurality of curtains, so that said electric motor acts on a lesser number of said curtains.

4,363,514

CARRIER FOR SKATES

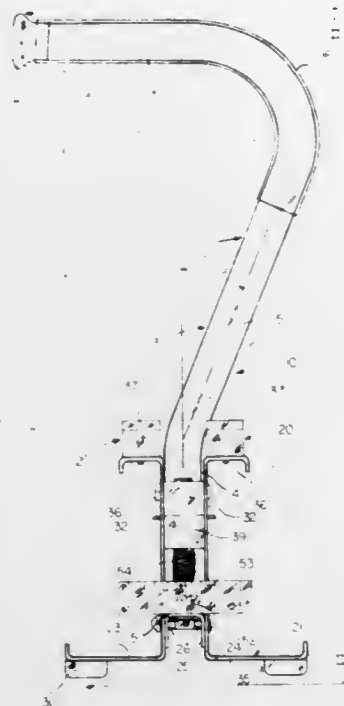
Richard J. Buffum, 50 Carver Dr., Magalia, Calif. 95954

Filed Aug. 18, 1980, Ser. No. 178,999

Int. Cl.³ B65D 71/00

U.S. Cl. 294—162

7 Claims



1. A carrier for supporting a pair of shoe type roller skates for carrying the same in a side-by-side horizontal relationship wherein each skate includes a pair of spaced support plates, said carrier comprising:

an elongated support member having an upper handle portion and a downwardly extending bottom portion;
skate retaining means fixedly secured to the bottom portion for retaining a pair of skates thereon in a side-by-side horizontal relationship, said retaining means including upper flange means adapted to abut against the underside of one of said support plates of each skate and adjusting means adapted to be movable against the other of said support plates of each skate to thereby securely clamp said other of said support plates between the lower surface of said upper flange means and the upper surface of said adjusting means.

4,363,515

MOTOR VEHICLE SLIDING TOP

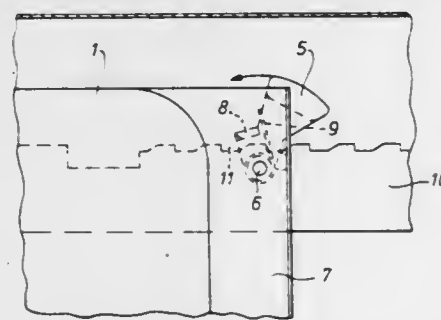
Alfons Lutz, Emmering, and Hans Jardin, Inning, both of Fed. Rep. of Germany, assignors to Webasto-Werk W. Baier GmbH and Co., Munich, Fed. Rep. of Germany

Filed Oct. 6, 1980, Ser. No. 194,228

Claims priority, application Fed. Rep. of Germany, Oct. 8, 1980, 2940565

Int. Cl.³ B60J 7/10

U.S. Cl. 296—222



1. A motor vehicle sliding roof comprising a rigid sliding cover for closing an opening in the roof in a closed position, and mounted for dropping out of said opening and sliding

under a fixed rear portion of the roof, said sliding cover being provided with protection means for preventing the unintentional shifting of the cover toward said closed position under the effect of high inertial forces, such as occur in a crash, wherein a rear edge of the sliding cover is connected to a shifting yoke by erecting levers, said protection means comprising the erecting levers and one or more stabilizing levers mounted between the erecting levers in the vicinity of the vehicle longitudinal median plane, and pivoted at one end on the rear portion of the sliding cover and an opposite end on said shifting yoke, whereby unintentional sliding motion of the sliding cover related to bending of said shifting yoke is prevented.

4,363,516

THRUST SUPPORT FOR BICYCLE SEATS

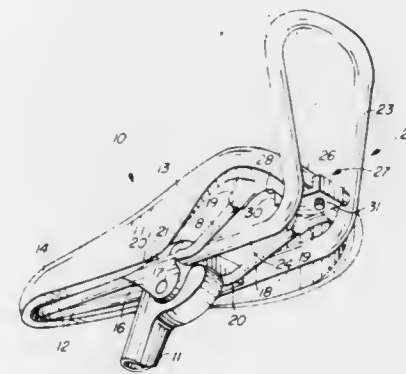
Douglas E. Braly, and James A. Stein, both of 1875 E. Kirkland La., Tempe, Ariz. 85281

Filed Aug. 21, 1980, Ser. No. 180,100

Int. Cl.³ B62J 1/00

U.S. Cl. 297—195

5 Claims



1. A thrust support for attachment to a conventional cycle seat comprising:

a U-shaped member having a pair of spaced legs interconnected at one end by a bight,
said member comprising a hollow tubular configuration bent along its length to cause the free end of its legs to extend laterally therefrom in a common direction,
means secured to and extending between the legs of said member,
said means detachably engaging the back edge of the seat for limiting relative motion between the seat and the thrust support, and
the free ends of each of said legs being cut away to form concave configurations along a given part of their lengths which surround a part of a tubular frame of the seat when the thrust support is clamped in position.

4,363,517

PORTABLE BACK REST

Janet Scott, 18502 Haas Ave., Torrance, Calif. 90504

Filed Apr. 6, 1981, Ser. No. 251,355

Int. Cl.³ A47C 1/024, 1/14

U.S. Cl. 297—377

4 Claims



1. An elongate horizontal head and back support structure

with front and rear ends and engageable on and within substantially horizontal sand and turf planes with top surfaces; said support structure includes an elongate upwardly and rearwardly inclined panel with a substantially flat forwardly and upwardly disposed head and back engaging front surface, substantially longitudinally extending sides, substantially horizontally extending ends and a releasable coupling part at the rear of the panel positioned substantially midway between the sides and ends thereof; an elongate substantially T-shaped strut comprising an elongate, longitudinally extending normally forwardly and upwardly inclined post with an upper forward end releasably engaged with said coupling part of the panel and a lower rear end to occur adjacent the top surface of a related sand or turf plane in rearward spaced relationship from said panel, an elongate flat transversely extending foot with an upper central portion joined with the lower rear end of the post, a horizontal transversely extending lower edge spaced below the lower rear end of the post, a flat normally rearwardly and downwardly disposed rear surface and opposite ends spaced laterally outward from the central longitudinal axis of the post, the lower portion of the foot defined by said lower edge and rear surface occurs below the lower rear end of the post to penetrate and establish anchored engagement in a sand or turf plane with which the support is related.

4,363,518

METHOD AND APPARATUS FOR FRACTURING ROCK BEDS

Joji Nakamura, Kamakura, and Shigetake Akanuma, Chigasaki, both of Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

PCT No. PCT/JP79/00299, § 371 Date Nov. 13, 1980, § 102(e)

Date Sep. 16, 1980, PCT Pub. No. WO80/01931, PCT Pub.

Date Sep. 18, 1980

PCT Filed Mar. 13, 1979, Ser. No. 209,704

Claims priority, application Japan, Mar. 13, 1979, 54-28210;

Sep. 28, 1979, 54-123793; Sep. 28, 1979, 54-133269

Int. Cl.³ E21C 37/12

U.S. Cl. 299—14

11 Claims



1. A preliminary fracturing method of a rock bed, comprising the steps of:

- (a) drilling a hole in said rock bed to be fractured by means of a drilling rod, said drilling rod having a bit mounted thereon at the leading end thereof and a passage formed therein along the entire length of said rod, said bit having a slanted surface formed at an intermediate portion thereof and said passage leading to a nozzle formed in said bit;
- (b) dumping a powder material such as rock muck or sand in the drilled hole with said drilling rod remaining inserted in the hole thereby allowing the powder material to accumulate on the slanted surface of said bit;
- (c) causing a vibration to said drilling rod thereby tightly sealing a leading end portion of the hole by the powder material by consolidating the powder material accumu-

lated on the slanted surface of said bit, said leading end portion including said nozzle;
(d) spouting a high viscosity fluid from said nozzle thereby allowing said high viscosity fluid to intrude into cracks existing in said rock bed and clogging them; and
(e) spouting a highly pressurized high viscosity fluid from said nozzle thereby expanding said cracks or seams and producing a lot of new cracks in said rock bed.

4,363,519

CONTINUOUS MINING MACHINE

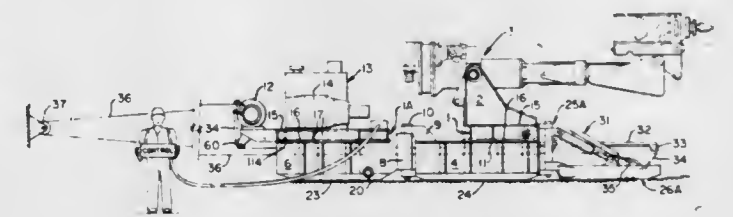
Thomas E. Howard, Wheatbridge, Colo., assignor to Joy Manufacturing Company, Pittsburgh, Pa.

Filed Oct. 14, 1980, Ser. No. 196,513

Int. Cl.³ E21C 29/00, 33/00

U.S. Cl. 299—31

11 Claims



1. A mining machine for underground mining in relatively hard rock formations, comprising a first section supporting a mining implement capable of breaking ore from the solid, said first section having a first deck supported on first side beam members on each side of the machine and having ground engaging skid surfaces, and a second section supporting a source of power for said mining implement, said second section having a second deck supported on second side beam members on each side of the machine and having ground engaging skid surfaces, said first and second side beam members on the respective same side of the machine being substantially alignable with each other and said first and second sections being detachably joined to each other by a pivot mounted near each side of said machine, support means associated with said first deck for supporting the mining implement on said first deck and means for moving along the ground at least one of said first and second sections.

4,363,520

WHEEL COVER RETENTION

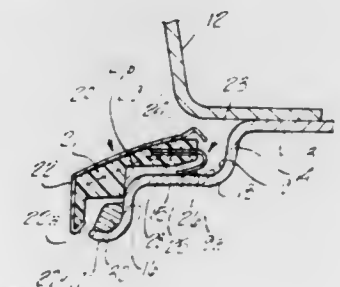
James Connell, Bloomfield Hill, Mich., assignor to J. Connell Associates, Bloomfield Hills, Mich.

Filed May 6, 1980, Ser. No. 147,421

Int. Cl.³ B60B 7/06

U.S. Cl. 301—37 P

9 Claims



1. A wheel trim adapted for attachment to an annular axial flange of a vehicle wheel having an annular safety hump and an annular channel in the radially opposite outer and inner surfaces respectively of the flange, said cover having a plurality of circumferentially spaced spring clips secured thereto, alternate clips comprising a first set thereof, each clip of said first set having retention means including a sharp barb and means for resiliently urging said barb into biting engagement with said flange to effect said attachment, the clips alternating with the

clips of said first set comprising a second set, and means to facilitate the attachment of said cover in coaxial alignment with said wheel comprising resilient locating means of each clip of the second set adapted to seat in said annular channel adjacent the latter's axially outer sidewall with radially outwardly directed spring force without biting into said channel when in said alignment and also to slide axially outwardly from said channel and along said flange without biting thereunto when said trim is forced from said wheel.

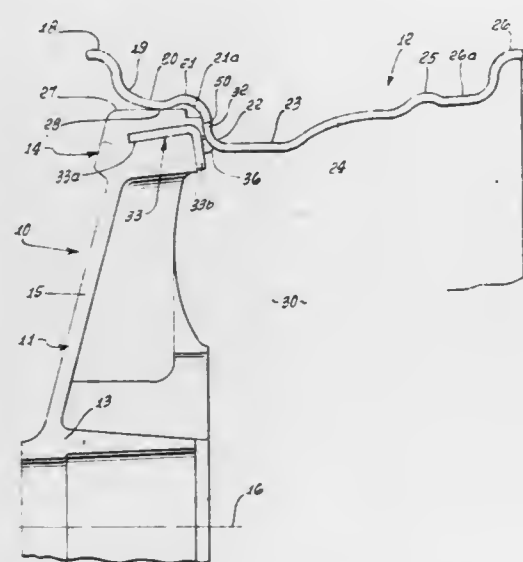
4,363,521

WHEEL DISC OFFSET ATTACHMENT TO WHEEL RIM
Joel C. Bonniwell, Hawthorne, and William A. Ocheltree, Van Nuys, both of Calif., assignors to Cragar Industries Inc., Compton, Calif.

Filed Aug. 7, 1980, Ser. No. 176,083
Int. Cl.³ B60B 23/00

U.S. Cl. 301—63 R

9 Claims



1. In combination with a metallic wheel rim adapted to mount a tire, the rim having an inboard hump, a well portion, an outboard hump, an outboard bead seat portion at the outboard side of the outboard hump, and an annular wall between said well portion and said outboard hump,

- (a) a wheel body having a radially thickened annular outer portion extending about an axis defined by the body,
- (b) said body outer portion having a first annularly extending surface which faces radially outwardly and locally interfits a radially innermost crest of said outboard hump and beadseat portion at the radially inner side thereof,
- (c) generally L-shaped insert means on said body outer portion and attached to said rim proximate said annular wall thereof and proximate a bend defined by the L-shape,
- (d) said body also having a second annularly extending surface which faces generally axially and locally interfits said rim annular wall, said second surface located proximate to and radially outwardly of the bend defined by said L-shaped insert, said thickened annular portion confined at the outboard hump side of said rim annular wall,
- (e) said insert means axially offset from said annular wall radially inwardly of said second annularly extending surface to provide a weld receiving gap.

4,363,522

SPINDLE FOR HEAVY DUTY TRUCK OR TRAILER AXLE

John Palovcik, Kenton, Ohio, assignor to Rockwell International Corporation, Pittsburgh, Pa.
Continuation of Ser. No. 62,712, Aug. 1, 1979, abandoned. This application Mar. 8, 1982, Ser. No. 355,956

Int. Cl.³ B60B 35/00

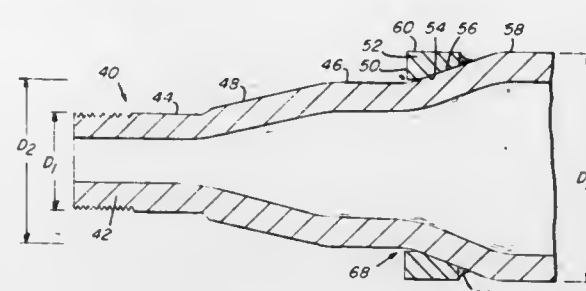
U.S. Cl. 301—131

7 Claims

1. An improved spindle for a heavy duty truck or trailer axle of the type which includes support for a wheel to be mounted

thereon at a pair of axially disposed, independently mounted inner and outer tapered-roller bearings for rotation about an axis of said spindle; said spindle being tubular and having a cylindrical end portion having a first diameter for receiving said outer tapered-roller bearing thereon, a cylindrical intermediate portion having a second diameter for receiving said inner tapered-roller bearing thereon, and a major portion having transverse dimensions larger than said second diameter; wherein the improvement comprises:

- a first transition portion between said intermediate portion and said major portion having an outer surface which is frusto-conical and free of any abrupt transition thereof which could produce a concentration of force stresses in said tubular spindle;



- a collar having a frusto-conical inner surface and being fixedly mounted on said first transition portion to locate a transverse surface thereon adjacent said intermediate portion which said transverse surface acts as a bearing stop for said inner tapered-roller bearing; and
- said collar being fixedly secured to said first transition portion at a region thereon which is axially remote from said intermediate portion to prevent said inner tapered-roller bearing from being capable of producing said concentration of force stresses in said tubular spindle at a location between said intermediate portion and said first transition portion.

4,363,523

ANTI-SKID CONTROLLER SYSTEM

Horoaki Mattori, and Iwao Tateishi, both of Yamatokoriyama, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Continuation of Ser. No. 482,998, Jun. 25, 1974, abandoned.

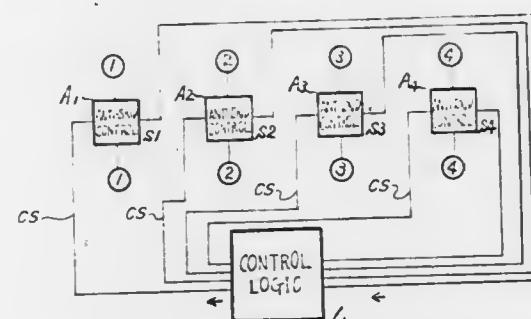
This application Apr. 3, 1978, Ser. No. 892,951

Claims priority, application Japan, Jun. 25, 1973, 48-71520

Int. Cl.³ B60T 8/00

U.S. Cl. 303—92

9 Claims



1. An anti-skid brake controller system useful for vehicles employing a plurality of anti-skid brake controllers, said system comprising: means for providing state signals representing normal and abnormal operating states of the individual anti-skid brake controllers;

- means for classifying the respective combinations of the normal and abnormal state signals into at least two groups, a first group defining dangerous braking conditions and a second group defining safe braking conditions;
- means for controlling the operational conditions of said anti-skid brake controllers in accordance with said classifi-

cation by said classifying means to preclude the occurrence of said dangerous braking conditions; wherein said safe braking conditions include combinations of abnormal state signals of respective various anti-skid controllers which, collectively with the then existing normal state signals of the respective remaining anti-skid controllers, do not constitute dangerous braking conditions in the anti-skid mode of said brake controller system.

4,363,524

BRAKING SYSTEM WITH ANTI-LOCK CIRCUIT
Pierre Grunberg, Paris, France, assignor to Valeo, Paris, France

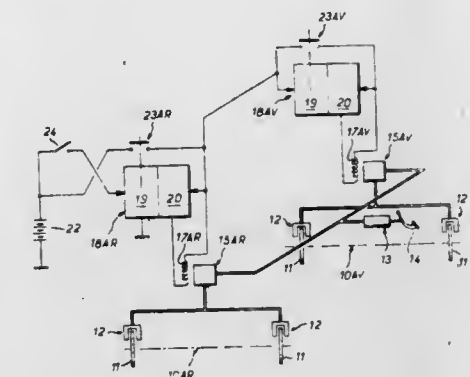
Filed Sep. 30, 1980, Ser. No. 192,379

Claims priority, application France, Oct. 2, 1979, 79 24463

Int. Cl.³ B60T 17/18

U.S. Cl. 303—92

1 Claim



1. A braking system for a motor vehicle having at least one front axle and at least one rear axle, said braking system comprising a front axle servo control valve and a rear axle servo control valve associated with at least one wheel of the respective axles, a front axle anti-locking circuit and a rear axle anti-locking circuit respectively connected to said front wheel servo control valve and to said rear wheel servo control-valve for actuating the same, each of said anti-locking circuits comprising monitoring means and control means, a safety switch operated by each of said anti-locking circuit monitoring means for controlling the power supply to the associated one of said control means, said safety switch for said front axle anti-locking circuit being remote from said power supply relative to said rear axle anti-locking circuit, whereby said safety switch for said rear axle anti-locking circuit may remain closed and said rear axle anti-locking circuit operative in case said safety switch for said front axle anti-locking circuit opens, but when said safety switch for said rear axle anti-locking circuit is open said front axle anti-locking circuit is rendered inoperative.

4,363,525

MAGNETICALLY SUSPENDED ROTATING BODIES
Pierre Poubeau, Yvelines, France, assignor to Societe Nationale Industrielle Aerospatiale, France

Continuation-in-part of Ser. No. 929,077, Jul. 28, 1978, abandoned. This application Jan. 28, 1981, Ser. No. 229,259

Claims priority, application France, Aug. 3, 1977, 77 23981

Int. Cl.³ F16C 39/06

U.S. Cl. 308—10

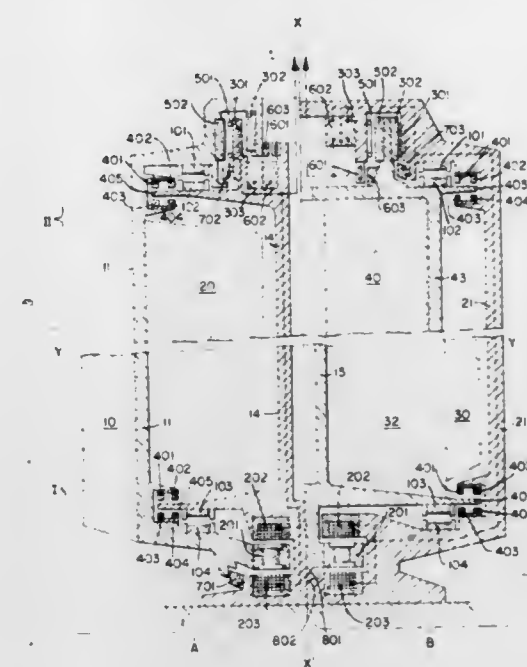
10 Claims

1. A magnetically suspended rotary body having momentum wheel configuration comprising

- a stator;
- a rotor having a rotation shaft mounted for support relative to said stator;
- emergency support systems located at the axial ends of said rotation shaft;
- a velocity sensor having a magnetic core and an adjacent winding for sensing the axial velocity of said rotor in relation to said stator, said core and said winding adjacently mounted with one of them mounted on said rotor and the other mounted on said stator;
- passive radial magnetic centering means formed by coaxial

magnet cores with alternating axial magnetic fields mounted on the axial ends of said rotor and coaxial magnetic cores rigidly connected to said stator adjacent said cores on said rotor;

an active axial magnetic centering means having a magnetic core mounted on said rotor disposed opposite a coil fast to said stator receiving correction signals from said axial velocity sensor, said last-mentioned magnetic core and coil positioned at an axial end of said rotor in the immedi-



4,363,526

LINEAR MOTION BALL BEARING UNIT

Hiroshi Teramachi, 2-34-8, Higashi-Tamagawa, Setagaya-ku, Tokyo, Japan (158)

Filed Jan. 26, 1981, Ser. No. 228,128

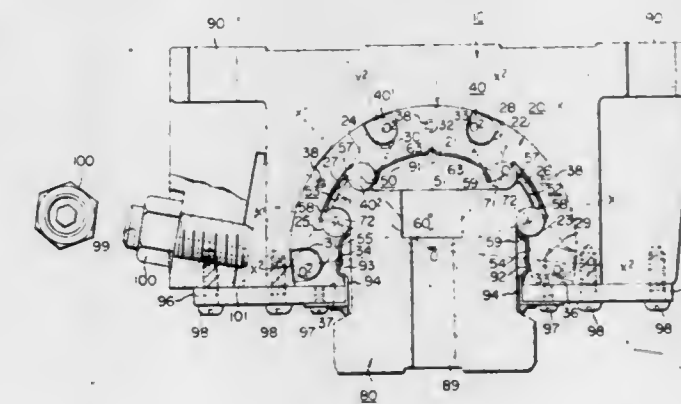
Claims priority, application Japan, Feb. 6, 1980, 55-012841[U]

The portion of the term of this patent subsequent to Jan. 5, 1999, has been disclaimed.

Int. Cl.³ F16C 29/06

U.S. Cl. 308—6 C

1 Claim



1. A linear motion ball bearing unit including a bearing assembly reciprocatingly movable along a track shaft through rolling ball bearings and having a casing, a cylindrical race

sleeve fitted in said casing, end lids and a retainer, characterized in that:

said casing being formed substantially in a rectangular shape and having a tunnel-like axial cavity open on the bottom side thereof;

said race sleeve having the outer periphery thereof formed in conformity with the inner periphery of said tunnel-like cavity of said casing and provided on the inner periphery thereof with U-shaped axial channels at symmetrical positions on opposite sides of and at an angle of about 60° with a vertical line through the longitudinal axis thereof, said U-shaped channels each having a pair of concave longitudinal load carrying ball raceways substantially of the same curvature as said ball bearings, and on the outer periphery thereof with U-shaped non-load carrying ball grooves of a depth slightly larger than the diameter of said ball, said sleeve further having on the inner periphery thereof a number of longitudinal grooves for location of said retainer;

said retainer having generally arcuate wall portions, longitudinal ribs in alignment with said locating grooves of said sleeve and trapezoidally folded side wall portions each with an arcuate top wall and a pair of slits formed in the opposing side walls in a width slightly smaller than the diameter of said balls, each slit having guide tongues integrally formed at the opposite ends thereof;

said end lids being fixedly attached to opposite end faces of said race sleeve and each being provided with a U-shaped turn groove continuously to a load carrying ball raceway and a non-load carrying ball groove of said sleeve;

the bearing assembly constituted by said sleeve and said retainer having the respective load-carrying and non-load carrying ball grooves filled with a plural number of ball bearings and mounted on said track shaft with longitudinal raceway grooves substantially of the same curvature as said ball bearings.

4,363,527

SPLIT RACE BEARING

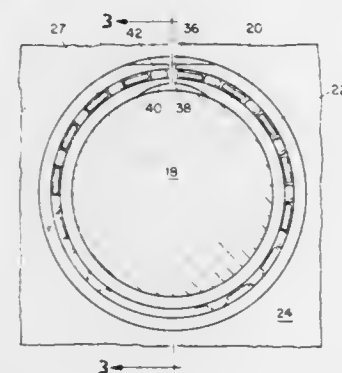
Howard Thrasher, 5430 Crebs, Tarzana, Calif. 91356

Filed Dec. 29, 1980, Ser. No. 220,863

Int. Cl.³ F16C 27/04

U.S. Cl. 308—184 R

11 Claims



5. In combination:

a ball bearing set having a split outer race with a segment removed therefrom to divide the circumference of said outer race to form a gap, an inner race, and a plurality of ball bearings positioned between said races to cross the gap produced by said removed segment;

the outer radius of said outer race being diminished across its full axial dimension in the region of said gap to form a first set of opposing cantilevered spring ends, whereby torque pulses, produced by said ball bearings as they cross said gap, are reduced.

4,363,528
SWITCHBOARD CUBICLE DOOR HINGE AND LATCH ARRANGEMENT

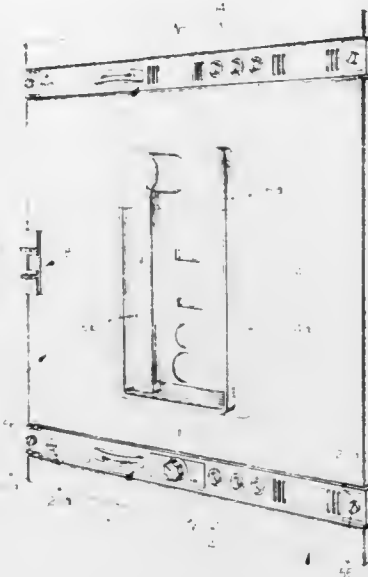
William F. Olashaw, Plainville; James H. Postlethwait, Weatogue, and Jeffrey L. Winterstein, Burlington, all of Conn., assignors to General Electric Company, New York, N.Y.

Filed Sep. 25, 1980, Ser. No. 191,057

Int. Cl.³ A47B 81/00; E05C 7/00; E05D 7/08

U.S. Cl. 312—292

9 Claims



1. In an electrical switchboard vertical section comprising a vertical array of cubicles accommodating electrical equipment; the arrangement including, in combination:

a plurality of doors, one for each cubicle;

upper and lower hinge pins assembled to each said door in vertical alignment adjacent corresponding upper and lower corners thereof;

upper and lower hinge blocks for each cubicle assembled to the switchboard in vertical alignment, each said hinge block including a pair of vertically aligned upwardly and downwardly opening sockets for accommodating said hinge pins, adjacent upper and lower hinge pins of each vertically adjacent pair of said doors being received in said downwardly opening and upwardly opening sockets, respectively, of one of said hinge blocks, whereby to mount said doors for swinging movement between open and closed positions;

a latch assembly mounted to each said door, each said assembly including a pair of vertically aligned upwardly and downwardly extending latch rods having terminations respectively projectable beyond upper and lower door edges, and a manual operator for selectively retracting said latch rod pair;

a plurality of latch blocks assembled to the switchboard in common vertical alignment and respective, individual alignment with each said hinge block, each said latch block including a pair of vertically aligned upwardly and downwardly opening notches, adjacent upwardly and downwardly extending latch rod terminations of each vertically adjacent pair of said doors being respectively, retractably received in said downwardly and upwardly opening notches of one of said blocks, whereby to releasably latch said doors in their closed positions; and partition members mounted by at least one horizontally aligned pair of said hinge and latch blocks to define an instrument compartment at a location intermediate vertically adjacent doors.

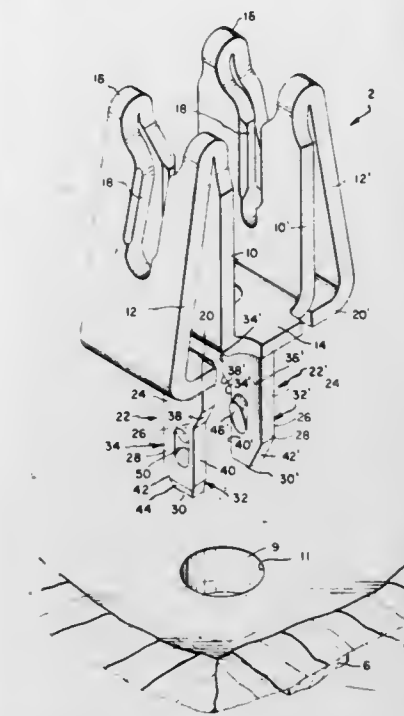
4,363,529
TERMINAL HAVING IMPROVED MOUNTING MEANS
Winfield W. Loose, Linglestown, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Jul. 25, 1980, Ser. No. 172,109

Int. Cl.³ H05K 1/00

U.S. Cl. 339—17 C

12 Claims



1. A stamped and formed sheet metal terminal device of the type intended for mounting in a circular hole in a panel-like member such as a circuit board, said device having improved mounting leg means intended for reception in said circuit board hole, said mounting leg means being characterized in that:

said mounting leg means comprises first and second side-by-side coextensive mounting legs extending from said terminal device and having free ends which are remote from said terminal device,

said legs having retaining portions which extend from said device partially along the lengths of said legs, said retaining portions having a width which is sufficient to establish an interference fit in the smallest circuit board hole for which said device is intended,

said legs having reduced width portions between said retaining portions and said free ends and extending to said free ends,

camming means on said reduced width portions, said camming means being cooperable with portions of said circuit board hole to cause movement of said legs away from each other during movement of said legs into said circuit board hole whereby,

said legs can be readily inserted into said circuit board hole by virtue of said reduced width portions, and during movement of said legs into said circuit board hole, said legs will be moved away from each other by said camming means and said retaining portions will establish an interference fit in said circuit board hole and retain said device on said circuit board.

4,363,530

SPACER ELEMENT FOR USE IN AN ELECTRICAL CONNECTOR APPARATUS

Laurentius M. Verhoeven, Zijtaart, Netherlands, assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 31, 1980, Ser. No. 221,885

Claims priority, application Netherlands, Jan. 22, 1980, 8000394

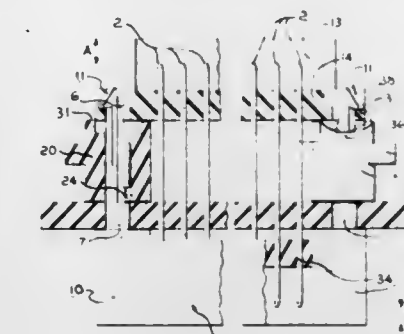
Int. Cl.³ H01R 9/09, 25/06

U.S. Cl. 339—17 C

3 Claims

1. In an electrical connector apparatus having first and second connectors, each containing multiple pin receiving channels, one connector on each side of and spaced apart from a

circuit board containing pin receiving channels, said connectors and circuit board all electrically connected by a multiplicity of connector pins passing through the pin receiving channels in the connectors and the circuit board, a pair of mounting pegs supporting said first and second connectors and extending through openings in said connectors and circuit board, the improvement comprising positioning a cylindrically shaped spacer element on each mounting peg between said circuit



board and the second connector which is movable with respect to said circuit board, said spacer element having two ends, one facing the second connector and the other facing the circuit board, the spacer having a helically extending edge over about half the circumference of the end facing the second connector, said edge cooperating with cam like projections on the second connector to provide movement between the second connector and said circuit board in response to rotation of said spacer element.

4,363,531

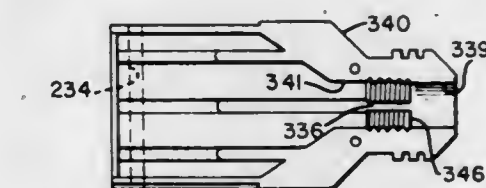
ELECTRICAL JACK AND PATCH CORD ASSEMBLIES
Jesse F. Lancaster, Great Falls, Va., assignor to Dynatech Laboratories, Incorporated, Alexandria, Va.

Division of Ser. No. 955,233, Oct. 27, 1978, Pat. No. 4,256,936, which is a continuation-in-part of Ser. No. 650,019, Jan. 18, 1976, Pat. No. 4,140,918, which is a continuation-in-part of Ser. No. 420,584, Nov. 30, 1973, abandoned. This application Dec. 5, 1980, Ser. No. 213,630

Int. Cl.³ H01R 13/58

U.S. Cl. 339—107

2 Claims



1. A patch cord comprising a plural-conductor cable and a plug, said cable having a plurality of conductors and a plastic deformable sheath circumferentially surrounding said conductors, said plug having (a) a hollow exterior insulating body and (b) a plurality of contact elements mounted in an interior space of said body and connected to the conductors of said cable, said body having a cable-receiving collar portion at one end thereof, said cable extending through said collar portion and into said interior space, said collar portion circumferentially surrounding said cable, and at least said collar portion being longitudinally divided into separately formed complementary shells, means for circumferentially drawing said shells together and for fixing said shells together at positions where said shells abut against each other along a plane containing the longitudinal axis of said collar portion, internal arcuately contoured formations formed on the inner peripheries of said shells, each of said formations partially circumferentially surrounding the cable sheath, and each of said formations having a serrated configuration in longitudinal cross section to form alternate crests and valleys, the crests in each of said formations having

a common diameter which is less than the outer diameter of said cable to grip said cable and to cause the sheath of said cable to deform into the valleys of said internal formations as said shells are circumferentially drawn together for anchoring said cable against forces tending to pull the cable out of said plug, said shells abutting against each other along regions lying beyond said internal formations upon being circumferentially drawn together, and a narrow inwardly opening longitudinal groove formation formed on the inner periphery of at least one said shells and interrupting the internal arcuately contoured formation on the inner periphery of said one of said shells, said groove formation lying between the extremities of the internal arcuately contoured formation on the inner periphery of said one of said shells, and said groove formation extending radially to a region lying radially outwardly of the valleys in the internal arcuately contoured formation in said one of said shells, the sheath of said cable being deformed into said groove formation as said shells are circumferentially drawn together to said positions to resist turning movement of the cable relative to said collar portion, said longitudinal groove formation being free of any protrusions capable of penetrating said sheath upon fixing said shells together.

4,363,532

AUTOMATIC SUBSTAGE ILLUMINATION FOR MICROSCOPES

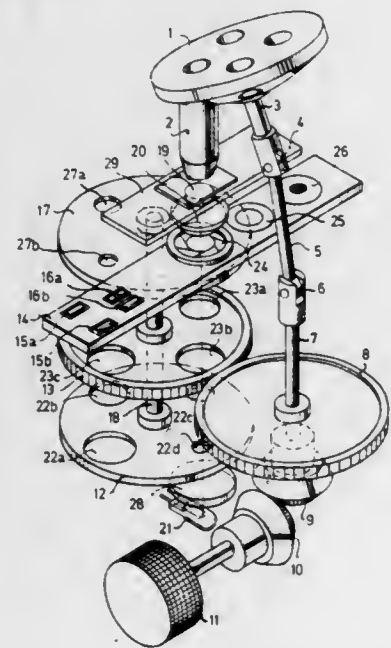
Klaus Weber, Königsbrunn, Fed. Rep. of Germany, assignor to Carl Zeiss-Stiftung, Oberkochen, Fed. Rep. of Germany
Filed Nov. 18, 1980, Ser. No. 208,042

Claims priority, application Fed. Rep. of Germany, Nov. 21, 1979, 2946927

Int. Cl.³ G02B 21/06

U.S. Cl. 350—523

9 Claims



1. An improved substage illumination system for microscopes of the type having a stationary condenser, a lens turret for changing objective lens, an aperture stop turret carrying aperture stops and a field stop turret carrying field stops arranged in the illumination ray path, said aperture and field stop turrets being coupled for motion with the lens turret by mechanical transmission means wherein the improvement comprises the aperture stop turret being disposed in the illumination path after the stop turret and disposed directly proximate to the rear focal plane of the condenser, and the aperture stop turret mounting an auxiliary lens for changing the focal length of the condenser in at least one position.

4,363,533

CONCENTRIC FIBER OPTICAL TRANSDUCER

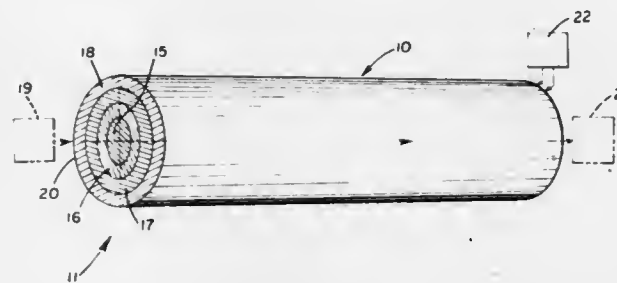
David W. Stowe, Buffalo Grove, Ill.; John D. Christian, deceased, late of Warrenville, Ill.; by Albert Christian, heir; by Martha R. Christian, heir, both of Indianapolis, Ind.; by Ann L. Ziegler, heir, Danville, Ind., and by David A. Christian, heir, Indianapolis, Ind., assignors to Gould Inc., Rolling Meadows, Ill.

Filed Dec. 26, 1979, Ser. No. 106,763

Int. Cl.³ G02B 5/172; G02F 1/00

U.S. Cl. 350—96.33

25 Claims



1. An optical transducer comprising:
an inner optical cylindrical fiber core;
an inner optical cladding concentrically disposed about said core formed of a material having a refractive index less than that of said inner core;
an outer optical core concentrically disposed about said inner cladding formed of a material having a refractive index greater than the refractive index of said inner cladding; and
an outer optical cladding concentrically disposed about said outer core formed of a material having a refractive index less than that of said outer core, the materials comprising at least one of said core and cladding elements being differently optically responsive to cause a variation in the difference between the refractive indices of said elements as a result of an acoustic vibratory force acting on said transducer, said refractive indices and the configuration of the concentric cores and claddings being preselected to define means for effecting transfer of energy from one core to the other through variations in the extension of the evanescent electric field of the light propagated in said inner core outwardly through said inner cladding into said outer core.

4,363,534

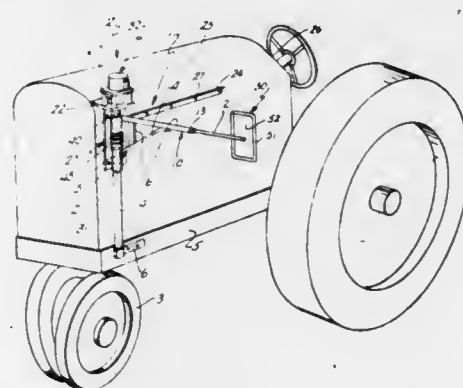
RETRACTABLE MIRROR AND LOCK THEREFOR

Stanley R. Covert, R.R. #3, 4508 Sayles Rd., Ionia, Mich. 48846
Continuation-in-part of Ser. No. 82,291, Oct. 5, 1979, Pat. No. 4,286,840. This application Mar. 9, 1981, Ser. No. 241,932

Int. Cl.³ B60R 1/06

U.S. Cl. 350—289

14 Claims



1. A retractable side view mirror for vehicles, comprising:
mirror means for reflecting an image therein;

an elongate arm having said mirror means mounted on one end thereof;

bracket means adapted for connection with said vehicle, and having the other end of said arm pivotally mounted therein for rotation along a substantially horizontal path; said arm having an extended position for rear view by a driver of the vehicle, and a retracted position for folding said arm and mirror inwardly toward the body of the vehicle;

means for selectively rotating said arm between said extended and retracted positions;

a pawl mounted on said bracket means, shaped for selective reception in a detent disposed in the other end of said arm, and including means for moving said pawl into said detent to positively lock said arm in at least one of said extended and retracted positions, and out of said detent to permit arm rotation therebetween; said pawl moving means comprising:

a motor mounted on said bracket means, and having an output shaft;

a cam connected with the output shaft of said motor and rotating therewith; said cam having a lobe positioned adjacent said pawl, whereby activation of said motor rotates said cam into engagement with said pawl, and automatically unlocks said arm by lifting said pawl out of said arm detent.

4,363,535

LIGHT VALVE DISK ASSEMBLY AND METHOD OF ASSEMBLING THE SAME

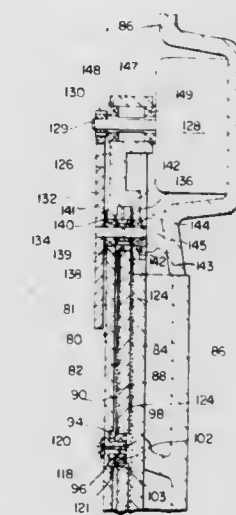
Howard E. Towlson, Baldwinsville, N.Y., assignor to General Electric Company, Portsmouth, Va.

Filed Nov. 26, 1980, Ser. No. 210,587

Int. Cl.³ G02F 1/29

U.S. Cl. 350—361

24 Claims



1. A light valve, comprising:
a rotatable disk having at least one writing surface with a layer of light modulating fluid coated on said writing surface, a portion of the disk being submerged in a sump containing light modulating fluid;

apparatus for hydrodynamically isolating the light modulating fluid on said writing surface from said sump fluid to prevent sump fluid from coating said writing surface, said apparatus comprising a cover plate assembly having a cover plate portion at least partially submerged in said sump and spaced in close proximity and parallel to said writing surface of said disk to define a predetermined volume of fluid adjacent said writing surface, and said apparatus further comprising fluid conveying means communicating with said volume and furnishing fresh filtered fluid thereto to prevent any of said sump fluid from entering said volume;

drive means for rotating said disk, said drive means being mounted on said cover plate assembly; and

bearing means for said disk, said bearing means being mounted on said cover plate assembly.

4,363,536

INSTRUMENT BASE FOR OPTICAL DEVICES

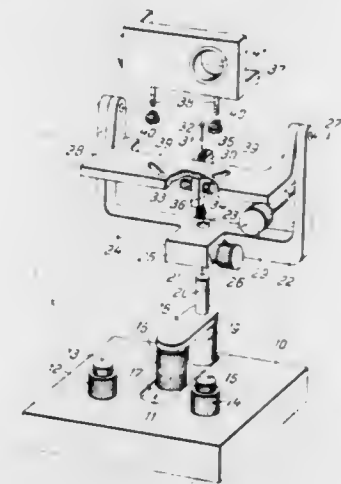
Andreas Thaer, Leigestern; Willi Hagner, Solms; Horst Frimmel, Hermannstein, and Horst Riegel, Wetzlar-Bueblingshausen, all of Fed. Rep. of Germany, assignors to Ernst Leitz Wetzlar GmbH, Wetzlar, Fed. Rep. of Germany
Filed Jul. 25, 1980, Ser. No. 172,229

Claims priority, application Fed. Rep. of Germany, Jul. 27, 1979, 7921541[U]

Int. Cl.³ A61B 3/00

U.S. Cl. 351—245

12 Claims



1. An adjustable instrument base suitable for holding optical instruments, comprising:

a base plate movable along first and second horizontal coordinate directions;

a housing member surrounding said base plate, said housing member being movable with respect to said base plate in said first coordinate direction;

first and second means mounted on said housing member for effecting displacement of said base plate in said first and second coordinate directions, respectively;

a generally U-shaped stirrup member mounted on said base plate for rotation;

a support plate mounted on said stirrup member for rotation about a horizontal axis;

a first instrument carrier displaceably mounted on said support plate; and

means mounted on said base plate for effecting vertical displacement of said first instrument carrier.

4,363,537

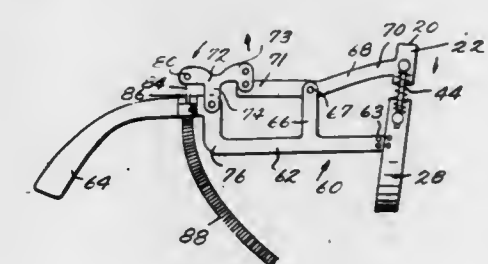
ADJUSTABLE SPECTACLES

Andrew F. Burton, 6727 - 16th St. NW., Washington, D.C. 20012
Filed May 21, 1979, Ser. No. 41,257

Int. Cl.³ G02C 7/06, 7/08, 1/08

U.S. Cl. 351—90

9 Claims



1. Adjustable spectacles having a bridge portion, supportable on the nose of the wearer, comprising: an upper frame

supporting a pair of bifocal lenses in horizontal alignment with the eyes of the wearer, each lens having an upper portion and a lower portion; a lower frame including said bridge portion, said bridge supporting said spectacles on the nose of the wearer; means for supporting said upper frame above said lower frame; means disposed at opposite ends of said lower frame for vertically moving said lenses in relation to said lower frame, said vertically moving means including means for sliding said bifocal lenses upward and downward between said two positions, said two positions including a downward position in which said upper portion is directly in front of the wearer's eyes and an upward position in which said lower portion is directly in front of the wearer's eyes, said sliding means including an identical pair of rack and pinion disposed at said frame opposite ends and further comprising a rod connecting each said pinion and a handle connected to both ends of said rod so that by turning either one of said handles, both ends of said upper frame will move upward or downward in unison; actuation means disposed at at least one end of said lower frame for actuating said moving means.

4,363,538

DEVICE FOR HOLDING A FILM ON A FOCAL PLANE
Masazi Yokota, and Shigenori Oosaka, both of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

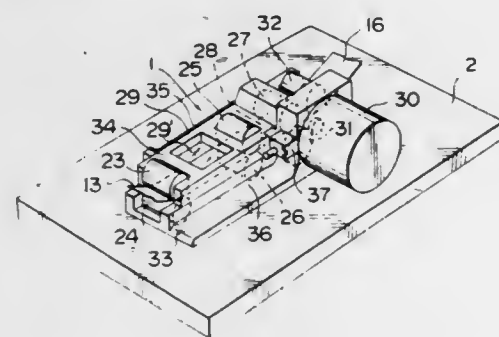
Filed Apr. 30, 1980, Ser. No. 145,241

Claims priority, application Japan, May 2, 1979, 54-54412

Int. Cl.³ G03B 21/14, 1/48

U.S. Cl. 353—95

8 Claims.



1. A device for holding a film on a focal plane of an optical system comprising a film support plate having a standard surface parallel to the focal plane, a cushion sheet provided on and covering substantially all the standard surface of the film support plate, an aperture provided in said support plate and said cushion sheet, said cushion sheet having a soft, elastic and drafty surface and suction holes open to the surface thereof, said surface of the cushion sheet forming the focal plane of the optical system, and a suction means for sucking air through said suction holes and thereby attracting the film onto the surface of the cushion sheet with a suction force large enough to hold the film flat on the surface of the cushion sheet and small enough to allow the film to be fed in slide contact with the surface of the cushion sheet while the suction force is maintained substantially unchanged.

4,363,539

PHOTOHEAD WITH FLASHING BEAM
Heinz J. Gerber, West Hartford, Conn., assignor to Gerber Scientific, Inc., South Windsor, Conn.

Filed Jul. 20, 1981, Ser. No. 284,780

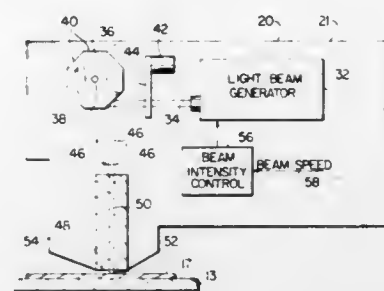
Int. Cl.³ G03B 41/00

U.S. Cl. 354—4

38 Claims

1. In a photoplotter having a means for supporting a sheet of photosensitive material, a photohead for directing a beam of light onto said photosensitive surface, and a means for moving said photosensitive surface and photohead relative to one another to expose lines on said photosensitive surface, a means

for producing a flashing output beam of light from said photohead, said flashing output beam producing means comprising: a light beam generator for producing a beam of light, means providing a light accepting window,



means for periodically sweeping said beam across said light accepting window, and means carried by said photohead for directing light which enters said light accepting window onto said photosensitive surface as said flashing output beam.

4,363,540

EXPOSURE INFORMATION STORAGE DEVICE FOR A PHOTOGRAPHIC CAMERA

Yoshiyuki Takishima, Yokohama; Yukio Mashimo, Tokyo; Masanori Uchidoi, Yokohama; Hiroshi Aizawa, Kawasaki, all of Japan; Bernhard H. Andresen; Robert C. Martin, both of Dallas, Tex., and Stephen C. Kwan, Plano, Tex., assignors to Canon Kabushiki Kaisha, Tokyo, Japan and Texas Instruments Incorporated, Dallas, Tex.

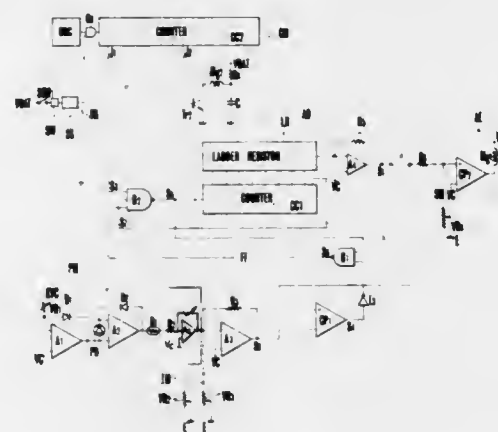
Filed Jan. 26, 1977, Ser. No. 762,514

Claims priority, application Japan, Jan. 30, 1976, 51-519074

Int. Cl.³ G03B 7/08

U.S. Cl. 354—23 D

8 Claims



1. An exposure information storage device for a camera capable of storing exposure information supplied thereto comprising:

- (a) an exposure information producing means for providing an analog value corresponding to a supplied exposure information;
- (b) an analog-to-digital converter means, said means including a pulse producing means for providing pulses having a predetermined period, a counter means for counting pulses from said pulse producing means, a digital-to-analog conversion means for converting the content of said counter means into an analog electrical value, a comparator means for comparing the analog value from the exposure information producing means with the analog electrical value from the digital-to-analog conversion means for producing a completion signal when both analog values assume a predetermined relation with each other, said analog-to-digital converter means being responsive to said completion signal so as to terminate the analog-to-digital conversion operation; and
- (c) a control circuit coupled to the analog-to-digital con-

verter means, said circuit for controlling the analog-to-digital converter means to avoid responding to the output of the comparator means during the change of the output of the digital-to-analog conversion means caused by the counting of pulses by said counter means.

4,363,541

PHOTOGRAPHING APPARATUS

Mamoru Aihara; Yutaka Takahashi; Yoshio Nakajima, all of Hachioji, and Tsuyoshi Matsuura, Ina, all of Japan, assignors to Olympus Optical Company Ltd., Tokyo, Japan

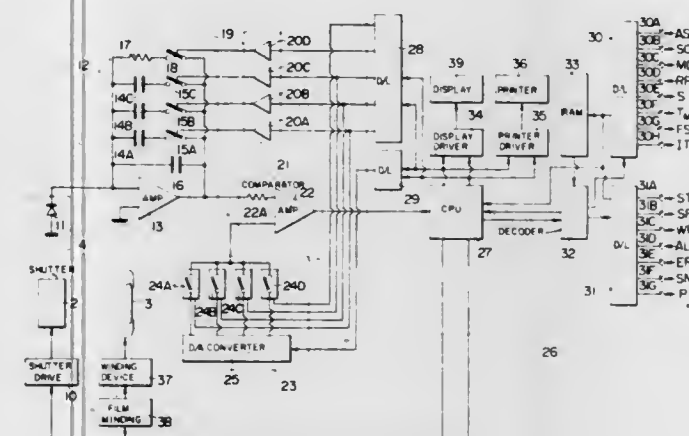
Filed Sep. 30, 1980, Ser. No. 192,254

Claims priority, application Japan, Oct. 5, 1979, 54/128007

Int. Cl.³ G03B 7/093

U.S. Cl. 354—23 D

20 Claims



1. A photographing apparatus comprising: a photoelectric conversion circuit including a photoelectric transducer element which continuously determines the brightness of an object being photographed for producing an output signal which corresponds to the brightness of the object; means for sequentially calculating an expected exposure period during the course of a photographing operation in response to said output signal from the photoelectric conversion circuit; means for determining an equivalent exposure period from the initiation of the photographing operation to the instant when the expected exposure period has been determined, means for subtracting said equivalent exposure period from said expected exposure period calculated by the calculating means to derive the remainder of the exposure period in a sequential manner; means for displaying said remainder of the exposure period during said photographing operation; and a shutter drive circuit for opening a shutter at the initiation of the photographing operation and for closing the shutter when the remainder of the exposure period is substantially zero.

4,363,542

CAMERA AND ELECTRONIC FLASH COMBINATION
Isao Kondo, and Yukio Nakajima, both of Hachioji, Japan, assignors to Olympus Optical Company Ltd., Tokyo, Japan

Filed Jun. 11, 1979, Ser. No. 47,317

Claims priority, application Japan, Jul. 4, 1978, 53/81141; Jul. 5, 1978, 53/82323

Int. Cl.³ G03B 7/081, 15/05

U.S. Cl. 354—31

17 Claims

1. A camera unit for use with an automatic electronic flash unit having a flashlight illumination control circuit, said camera unit comprising: another flashlight illumination control circuit, and switch

means connected to both said flashlight illumination control circuits for selecting which of said flashlight illumination



tion control circuits controls said flash unit, said flash unit not having such switch means.

4,363,543
CAMERA

Toyotaka Yamada, No. 352-19, Shimoda, Hino City, Tokyo, and Fujio Enomoto, No. 159-1, Nagafuso Cho, Hachioji City, Tokyo, both of Japan

Filed Jan. 31, 1979, Ser. No. 8,131

Claims priority, application Japan, Feb. 2, 1978, 53-10879; Feb. 6, 1979, 54-13620[U]

Int. Cl.³ G03B 7/08, 17/18

U.S. Cl. 354—58

5 Claims



1. An automatic exposure camera comprising: an ASA plate rotatably supported on a camera lens housing and provided with a series of through holes which successively vary an opening area; a control element for setting an iris or shutter coupled with said ASA plate to rotate with said ASA plate; an ASA ring mounted on said camera lens housing, rotatable over a predetermined range in accordance with an ASA sensitivity of a film; said ASA ring rotation and position being independent of the rotation and position of said ASA plate and independent of rotation and position of said control element for setting the iris or shutter; and a light receiving element fixed to said ASA ring and positioned behind said through holes and in registration to said through holes to vary the light reaching said light receiving element in relation to said position of said ASA ring.

4,363,544

REMOTE RELEASABLE CAMERA

Takayuki Nemoto, Tachikawa, and Hiroyuki Takimoto, Urawa, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

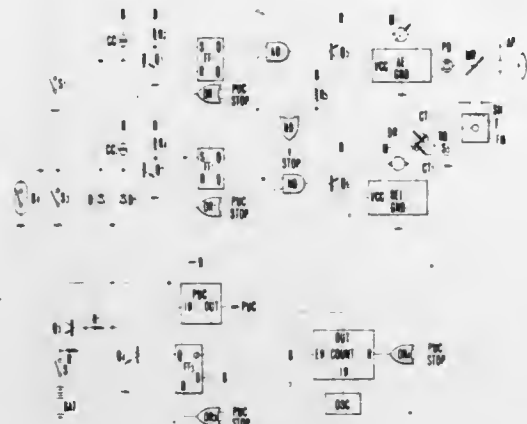
Filed Feb. 26, 1980, Ser. No. 124,752

Claims priority, application Japan, Feb. 28, 1979, 54-22905

Int. Cl.³ G03B 7/08, 9/64

U.S. Cl. 354—60 R

6 Claims



1. A locally or remotely operable exposure control camera comprising:

a release button depressable to a first and then to a second position;

an automatic exposure control circuit having a photoelectric element so as to automatically control the amount of exposure in accordance with the brightness of an object to be photographed;

a photographic mechanism, a motor for driving the photographic mechanism and a motor control circuit for controlling the motor for driving the photographic mechanism;

a first switch in the camera to be closed when the release button reaches its first position to operate the automatic exposure control circuit;

a second switch in the camera to be closed when the release button reaches its second position in order to actuate the motor control circuit;

contact means contactable to an independently operable third switch outside of the camera and connected in parallel only with the second switch for actuating the automatic exposure control circuit and the motor control circuit in response to operation of the third switch;

delay means arranged to be coupled to one of the first and third switches for providing a control signal for controlling the motor control circuit at a certain time after operation of any one of the first, second and third switches, said delay means being independent of closing of the second switch after the first switch is closed following depression of the release button; and

inhibiting means coupled between the second switch and the motor control circuit for inhibiting the motor control circuit to render the motor inoperative until the control signal is provided by the delay means even when the switch is closed.

4,363,545

PHOTOGRAPHIC PIPELINE INSPECTION APPARATUS INCLUDING AN OPTICAL PORT WIPER

Edward F. Schaefer, Tulsa, Okla.; Lawrence R. Lozynski, McHenry, and Donald E. Lorenzi, Des Plaines, both of Ill., assignors to Magnaflux Corporation, Chicago, Ill.

Filed Mar. 26, 1981, Ser. No. 247,766

Int. Cl.³ G03B 37/00; G01N 29/04

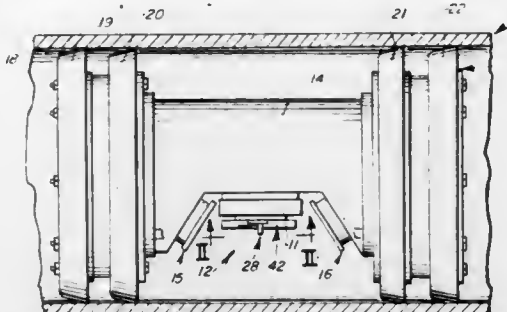
U.S. Cl. 354—63

11 Claims

1. For the inspection of a pipeline, a device arranged to be inserted into a pipe for longitudinal movement therein, said device comprising:

- (1) photographic camera means including
 - (a) means defining an image area,
 - (b) film storage and transport means arranged for feeding film through said image area, and
 - (c) optical means for projecting to said image area an image of a predetermined internal surface area of the pipe, said optical means including a surface exposed to the ambient environment of the inside of the pipe,

- (2) forward and rearward cup means on said device disposed forwardly and rearwardly of said camera means and arranged in general sealing arrangement with the pipe, and



- (3) clearing means for removing solid and liquid debris from said exposed surface of said optical means to facilitate obtaining a clear image of said predetermined internal surface area of the pipe, said clearing means comprising
 - (a) a wiper and
 - (b) an actuating means for moving the wiper across said exposed surface of said optical means, said actuating means including drive means arranged for transducing said longitudinal movement of said device within said pipe into oscillatory movement of said wiper across said exposed surface of said optical means.

4,363,546

APPARATUS FOR ESTABLISHING ROUTINE SHOT DISTANCE OF TAKING LENS IN CAMERAS

Fujio Enomoto, and Ichiro Morimoto, both of Hachioji, Japan, assignors to Olympus Optical Company Ltd., Tokyo, Japan

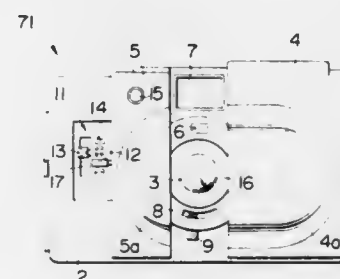
Filed Sep. 8, 1981, Ser. No. 300,178

Claims priority, application Japan, Nov. 7, 1980, 55-156564; Nov. 7, 1980, 55-156565

Int. Cl.³ G03B 3/02, 17/02

U.S. Cl. 354—195

8 Claims



1. An apparatus for establishing a routine shot distance of a taking lens for a camera, comprising:

a taking lens subject to a force-and-aft movement along an optical axis in response to a distance adjustment;

a lens protective cover movable between a first position in which it covers the taking lens and a second position in which it allows the taking lens to be exposed;

relay means for moving the taking lens to a position corresponding to a selected routine shot distance in response to the opening/closing movement of the protective cover; and

means within said relay means for changing the position of the taking lens which corresponds to the routine shot distance independently of the position of the movable lens protective cover.

4,363,547

APPARATUS FOR MOUNTING A FILM MAGAZINE INTO CAMERA

Akira Hashimoto, Hachioji, and Hitoshi Shirai, Sagami-hara, both of Japan, assignors to Olympus Optical Co., Ltd., Japan

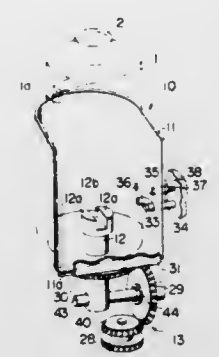
Filed Jul. 17, 1981, Ser. No. 284,461

Claims priority, application Japan, Aug. 1, 1980, 55-106505

Int. Cl.³ G03B 1/04, 1/12, 19/04

U.S. Cl. 354—212

27 Claims



1. Apparatus, comprising:

a camera body having a film chamber formed therein;

a magazine receiving casing for receiving a film magazine therein;

mounting means for tiltable mounting said casing in said film chamber so that it is movable between a first position wherein said casing is wholly located in said chamber and a second position wherein said casing extends at least partially outside of said camera body to permit insertion or removal of a film magazine; and

a drive shaft extending into said casing and adapted to engage a film shaft of a film magazine when a film magazine is located in said casing, said drive winding shaft tilting with said casing.

4,363,548

ARRANGEMENT FOR INTRODUCING BAND LIGHT-SENSITIVE MATERIAL INTO DEVELOPING DEVICE AND THE DEVELOPING DEVICE PROVIDED THEREWITH

Gerhard Oberhoffner, Horst Königer, and Alfons Kastl, all of Munich, Fed. Rep. of Germany, assignors to Agfa-Gevaert AG, Leverkusen, Fed. Rep. of Germany

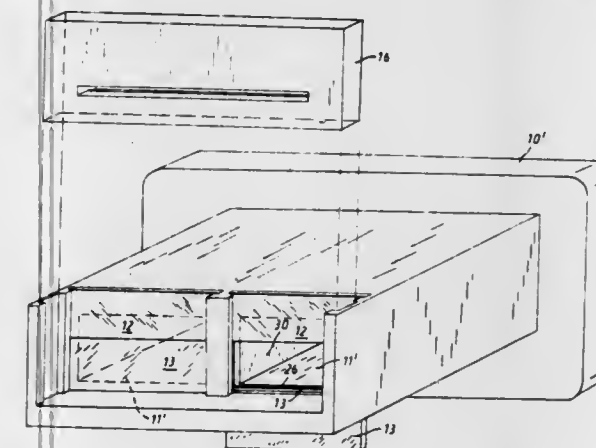
Filed Aug. 11, 1981, Ser. No. 291,931

Claims priority, application Fed. Rep. of Germany, Aug. 12, 1980, 3030428

Int. Cl.³ G03D 3/13

U.S. Cl. 354—298

14 Claims



1. An arrangement for introducing a band light-sensitive material in daylight from cassettes having a guide part into a treatment station of a developing device, comprising a receiving part arranged to be located on a developing device and to light-tightly receive a guide part of cassettes; means for subdi-

viding the interior of said receiving part and including at least one separating element insertable into the interior of said receiving part so as to form at least two compartments therein, whereby in the absence of said separating element a greater cassette can be inserted into the interior of said receiving part, whereas in the presence of said separating element two smaller cassettes can be inserted into the interior of said receiving part each in the respective one of said compartments thereof; and means for light-tightly closing the interior of the developing device from the interior of said receiving part and including a closing element provided in each of said compartments at its end adjacent to the developing device and opening in response to insertion of the guide part of a respective one of the cassettes into the interior of said receiving part.

4,363,549

ELECTROMECHANICALLY OPERATED FUSER ROLL CLOSURE

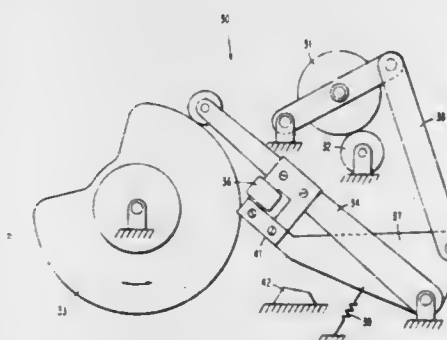
Leon C. Brown, Boulder, Colo.; Jesse L. Campbell, Tucson, Ariz.; Uscoe J. Fitts, Boulder, and Willard L. Gudgel, Longmont, both of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 30, 1980, Ser. No. 145,084

Int. Cl.³ G03G 15/20

U.S. Cl. 355—3 FU

3 Claims



1. A xerographic toner fixing apparatus comprising: substantially parallel first and second cylindrical fuser rollers;

biasing means for maintaining the peripheral surfaces of said fuser rollers in an open position;

a rotatable cam;

means for rotating said cam;

a linkage mechanism coupling said cam to at least one of said fuser rollers, said linkage mechanism including an electromechanically operated latch and

an electrical control means for selectively energizing said electromechanically operated latch;

said linkage mechanism further including means for shifting the peripheral surfaces of said fuser rollers between open and closed positions when said electromechanically operated latch is energized and for retaining said fuser rollers in an open position when said electromechanically operated latch is deenergized.

4,363,550

RECORDING SHEET SEPARATING DEVICE IN A TRANSFER-TYPE ELECTRONIC COPYING MACHINE

Kenshi Toshimitsu, Yokohama; Akihiro Kanazashi, Tokyo, and Mitsuaki Kohyama, Higashikurume, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Dec. 4, 1980, Ser. No. 213,076

Claims priority, application Japan, Dec. 6, 1979, 54-157449

Int. Cl.³ G03G 15/00

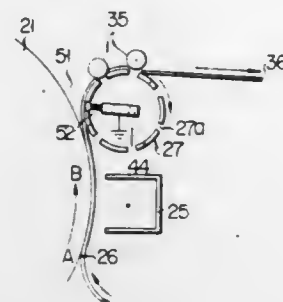
U.S. Cl. 355—3 TR

5 Claims

1. A separating device for use in a transfer-type copying machine for separating a recording sheet from a surface of a photosensitive member after a developed image on the surface

of the photosensitive member has been transferred to the recording sheet at an image transfer station, said separating device comprising:

- (a) separating means for separating the recording sheet bearing a toner image thereon from the surface of said photosensitive member;



- (b) guide means, facing said photosensitive member and having at least one opening, for supporting the separated recording sheet; and

- (c) de-electrifying means, separate from said guide means, for de-electrifying said recording sheet through said opening, said guide means maintaining constant the distance between said recording sheet and said de-electrifying means.

4,363,551

NEPHELOMETER HAVING MEANS SEMIAUTOMATICALLY CANCELING COMPONENTS FROM SCATTERING BY PARTICLES SMALLER OR LARGER THAN THOSE OF INTEREST

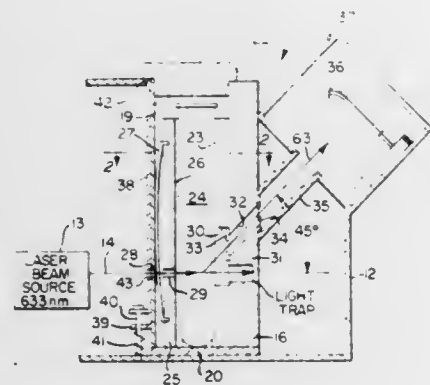
Eugene K. Achter, Gaithersburg; Jerome C. Kremen; Takoma Park; Rodolfo R. Rodriguez, Columbia, and Paolo Priarone, West Hyattsville, all of Md., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Division of Ser. No. 691,805, Jun. 1, 1976, Pat. No. 4,305,665, which is a continuation of Ser. No. 600,787, Jul. 1, 1975, abandoned, which is a continuation-in-part of Ser. No. 545,066, Jan. 29, 1975, abandoned. This application Aug. 8, 1980, Ser. No. 176,303

Int. Cl.³ G01N 21/00

U.S. Cl. 356—338

1 Claim



1. A nephelometer for assaying immunochemical complex of a sample and antigen mixture held in a conventional test tube having a right circular cylinder construction, comprising: means for holding the tube such that its central axis is substantially vertical; a laser light source for producing a beam of essentially monochromatic light, said beam being narrow with respect to the diameter of the tube holding the mixture, and said source being positioned to project the laser beam through the side wall of the tube such that it passes through liquid contained therein at or near the central axis of the tube, and such that the laser beam is at a substantial right angle to the central axis of the tube; light collecting means for receiving forward scattered light,

said light collecting means including a passageway and light shielding means around said passageway for shielding all but light from and about a path through the passageway and through the tube, said light shielding means comprising a pair of field stops with each of said field stops defining an opening directed to provide a scatter volume entirely within the test tube, said passageway and light shielding means being operative to substantially exclude scattered light at the tube side wall interface so as to collect the scattered light only substantially from the volume within the test tube, and said path intersecting the laser light beam at a point within the liquid in the tube and away from the tube walls and lying in a plane which is approximately coplanar with a plane containing the laser beam and the tube axis; said path intersecting the laser beam at an angle of approximately 30° with respect to the laser beam;

said holding means including a cover, and said nephelometer further including shutter means for blocking the laser beam and preventing the laser beam from reaching the tube when said cover is open, said shutter means being operable to automatically move said shutter means to a position blocking the laser beam from reaching the tube when said cover is opened; and means for sensing the light scattered along the path defined by said light collecting means and for providing an assay output based on the sensed light.

4,363,552

STATIC MIXER

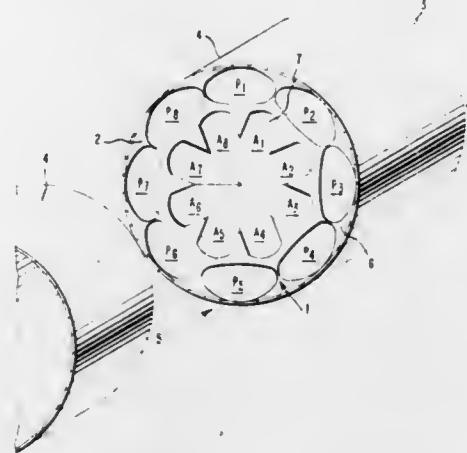
Robert J. Considine, Clinton, Iowa, assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 18, 1981, Ser. No. 243,645

Int. Cl.³ B01F 5/06

U.S. Cl. 366—340

4 Claims



1. An apparatus for mixing viscous materials in a transfer pipe comprising: a passageway with two open ends, an entrance end and an exit end, divided into at least two concentric portions, a peripheral concentric portion and an axial concentric portion; said peripheral concentric portion divided into at least two peripheral channels at the entrance of the passageway end and said axial concentric portion divided into at least two axial channels at the entrance end of the passageway; said channels extending from the entrance end to the exit end such that, at the exit end, the peripheral and axial channels are arranged alternately around the longitudinal axis of said passageway; whereby the alternating of peripheral and axial channels results in substantial cross-section homogeneity of the viscous material as it flows out of the exit end of the passageway.

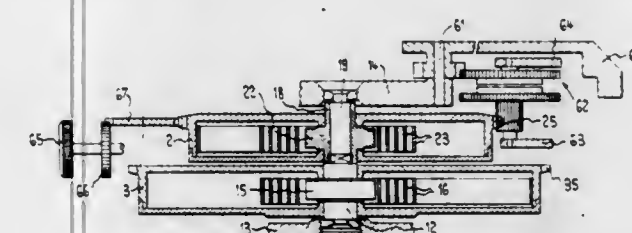
4,363,553

WATCH MECHANISM INCORPORATING TWO BARRELS

Michel Thomi, Saint-Imier, and Raymond Studer, La Chaux-de-Fonds, both of Switzerland, assignors to Compagnie des Montres Longines Franchillon S.A., Saint-Imier, Switzerland
Continuation of Ser. No. 963,107, Nov. 22, 1978, abandoned, which is a continuation of Ser. No. 878,590, Feb. 16, 1978, abandoned, which is a continuation of Ser. No. 606,937, Aug. 22, 1975, abandoned. This application Oct. 24, 1979, Ser. No. 88,064
Int. Cl.³ G04B 1/10

U.S. Cl. 368—140

22 Claims



1. A watch mechanism having a running time of less than 72 hours comprising a first and second driving barrel, a first and second spring respectively contained in said first and second driving barrel, said springs being connected in series, one of the ends of said first spring being positively connected to one of the ends of said second spring, the other end of one of the springs being secured to a toothed wheel which maintains, by means of a gear-train, the movement of a spring balance oscillator, the transmission ratio of the gear-train and the springs being chosen so that the angular velocity of the barrel containing the second spring is higher than 0.3 turns per hour.

4,363,554

SETTING MECHANISM FOR AN ANALOG DISPLAY WATCH

Jean-Claude Schaffner, Delemont, and Jacques Müller, Reconvilier, both of Switzerland, assignors to ETA S.A., Fabriques d'Ebauches, Switzerland

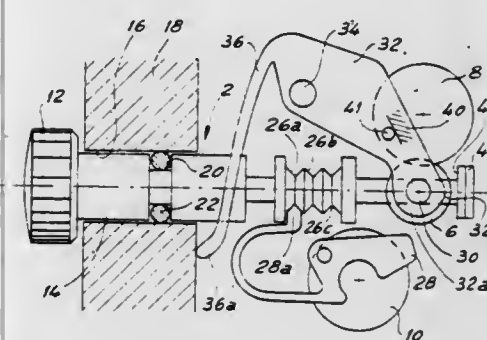
Filed Feb. 19, 1982, Ser. No. 350,138

Claims priority, application Switzerland, Feb. 26, 1981, 279/81

Int. Cl.³ G04B 27/02

U.S. Cl. 368—190

4 Claims



1. A setting mechanism for a watch comprising a support structure, first and second toothed wheels having axes of rotation which are parallel to each other; a stem which is movable axially in a direction perpendicular to the axes of said wheels, and rotatable about said direction; a pinion which is fixed with respect to said stem, said pinion being coaxial with said stem; means for holding said stem in any one of three axial positions; an intermediate gear which is mounted about a displaceable axis; and means for displacing said axis in response to the movement of said stem and maintaining said axis parallel to the axes of said wheels.

of said wheels, said intermediate gear being engaged with said first wheel and free with respect to said pinion when said stem is in the first position, said intermediate gear being engaged with said pinion and remaining engaged with said first wheel when said stem is in the second position, and said intermediate gear remaining engaged with said pinion and engaging with said second wheel when said stem is in the third position.

4,363,555

FLUID-TIGHT WATCH CASE WITH U-SHAPED BEZEL

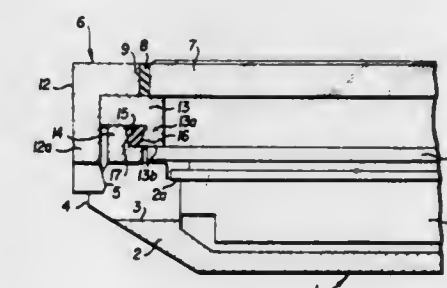
Hansjörg Finger, Lengnau, Switzerland, assignor to Firma H. Finger, Lengnau, Switzerland
Filed May 21, 1980, Ser. No. 151,826

Claims priority, application Switzerland, May 30, 1979, 5041/79

Int. Cl.³ G04B 37/00

U.S. Cl. 368—291

6 Claims



1. A fluid-tight watch, comprising: a case; a movement; a dial fixed to said movement, said movement and said dial being contained in said case; said case comprising: a back having a peripheral wall; an annular bezel of substantially U-shaped cross section having an inner arm, an outer arm and an annular groove bounded by said inner arm and said outer arm, said bezel being secured to said peripheral wall, said inner arm being disposed radially inwardly of said peripheral wall, said outer arm being partially spaced from said peripheral wall, said peripheral wall extending between said inner arm and said outer arm; said inner arm comprising holding means at the free end of said inner arm for keeping said movement and said dial in place; a glass supported by said bezel; and an annular gasket disposed at a level between the level of said dial and the level of said glass, said gasket being located within said groove and compressed between said peripheral wall and said inner arm.

4,363,556

CONTINUOUS STRIP COLD DETECTOR

Raymond E. Belliveau, West Caldwell, and Simon J. Larkin, West Milford, both of N.J., assignors to Walter Kidde & Co., Belleville, N.J.

Filed Jan. 14, 1980, Ser. No. 111,967

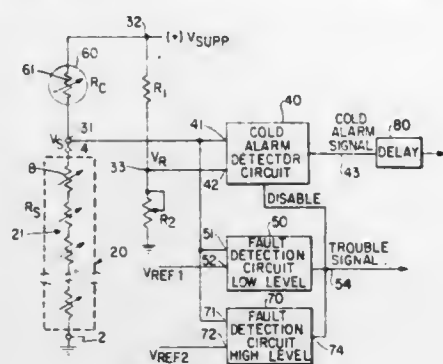
Int. Cl.³ G01K 7/10, 7/20

U.S. Cl. 374—183

9 Claims

1. A sensor for detecting cryogenic temperatures comprising a plurality of sensor sections electrically connected in series circuit relationship, each said section including: a first uninsulated electrically conductive wire; a second uninsulated electrically conductive wire; a plurality of thermistor beads electrically connected in parallel across said first and said second wires at substantially equal longitudinal intervals along said first and said second wires;

each said bead having a resistance which increases with decreases in the temperature of said bead and each said bead being formed of a mixture comprising: manganese dioxide in the amount of 60-75% by weight, copper oxide in the amount of 15-25% by weight,



a material selected from the group consisting of magnesium aluminum silicate, zircon and alumina in the amount of 5-20% by weight, and frit in the amount of 5-10% by weight.

4,363,557

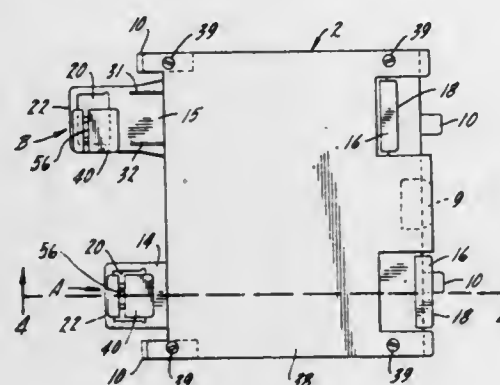
MARKING DEVICE FOR SHORTHAND MACHINE

Paul J. Fowler, Glenview, and Frank Chvojsek, Chicago, both of Ill., assignors to Stenograph Corporation, Skokie, Ill. Continuation of Ser. No. 148,461, May 9, 1980, abandoned, which is a continuation of Ser. No. 942,934, Sep. 18, 1978, abandoned. This application Apr. 27, 1981, Ser. No. 257,777

Int. Cl.³ B41J 3/26

U.S. Cl. 400-91

14 Claims



1. A marking device for a shorthand machine comprising:
 - (a) a housing, said housing having
 - (i) a substantially flat, rectangular base plate having a longitudinal channel extending the length of the base plate,
 - (ii) a substantially flat, rectangular top plate complementary to the base plate and secured to the base plate, and
 - (iii) means maintaining said top plate and said base plate in spaced-apart relationship;
 - (b) an elongate key having a forward and rearward end;
 - (c) means for mounting said key for substantially longitudinal movement within said channel between a retracted and an advanced position;
 - (d) biasing means continuously urging the key toward its retracted position;
 - (e) means for removably mounting said housing on the shorthand machine;
 - (f) a marking instrument mounted adjacent the forward end of the key for movement with the key between the retracted and advanced positions; and
 - (g) a finger-engagement means at the rearward end of said key to facilitate manual longitudinal movement of said key between the retracted and advanced positions.

4,363,558
SHORTHAND MACHINE HAVING ELECTRIC PLATEN ADVANCEMENT

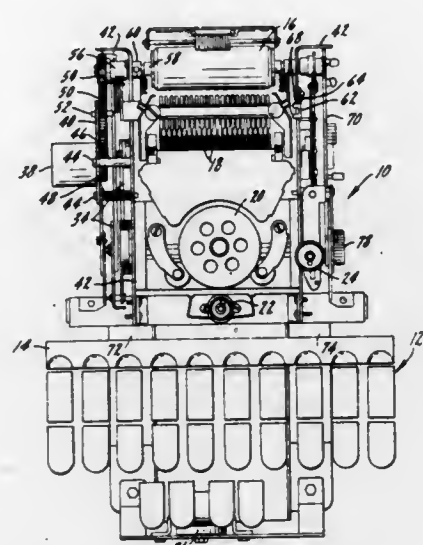
Richard A. Michals, Skokie; Frank H. Mozer, Hoffman Estates, and Ralph E. Zum Bahlen, Chicago, all of Ill., assignors to Stenograph Corporation, Skokie, Ill.

Filed Oct. 10, 1980, Ser. No. 195,923

Int. Cl.³ B41J 3/26

U.S. Cl. 400-94

19 Claims



1. A system for electrically advancing the platen of a shorthand machine of the type having a set of keys wherein numerals, words or parts of words are generated by a stroke which comprises depressing and releasing a key or combinations of the keys, the system comprising

- (a) an electric motor connected for driving the platen,
- (b) means to supply electrical power to said motor for a predetermined duration of time to activate said motor to advance the platen responsive to a stroke of said keys, and
- (c) means responsive to activation of said motor to apply means to brake said motor subsequent to said predetermined duration of time after completion of a stroke, thereby halting advancement of the platen.

4,363,559

PRINT WHEEL MOUNTING ASSEMBLY FOR SERIAL PRINTER

Takami Suzuki, Yokohama, and Takashi Hasegawa, Isehara, both of Japan, assignors to Ricoh Co., Ltd., Japan

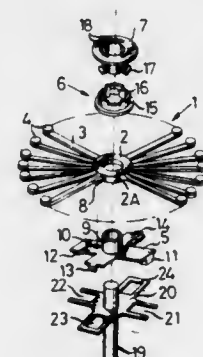
Continuation of Ser. No. 6,214, Jan. 24, 1979, abandoned. This application Nov. 26, 1980, Ser. No. 210,841

Claims priority, application Japan, Jan. 24, 1978, 53-5784

Int. Cl.³ B41J 1/24

U.S. Cl. 400-175

10 Claims



1. A print wheel mounting assembly for a serial printer comprising a rotary shaft and a print wheel to be mounted on the shaft, the print wheel including a central hub, a number of spokes extending radially outwardly from the hub, and at least one type element on each spoke, said assembly comprising:

torque transmitting means operatively interconnecting the rotary shaft and the print wheel for transmitting torque from the rotary shaft to the print wheel, said torque transmitting means comprising a receiving plate secured to the shaft, and a clamp disk attached to the print wheel operatively connected to said receiving plate, locating means for positioning the print wheel in a predetermined angular position on the rotary shaft, axial positioning means for controlling the axial position of the print wheel on the shaft, said locating means and said axial positioning means being arranged in both the clamp disk and the receiving plate, said print wheel including a setter member having a cylindrical portion fixedly connected in concentric relationship to the central hub, said cylindrical portion of said setter member having a plurality of circumferentially spaced setter projections extending axially relative to said hub, each of said setter projections having elongated setter grooves disposed inwardly thereof, and further comprising a knob movably mounted in said cylindrical portion of said setter member in axially slidable relationship with respect to the print wheel between two axially spaced positions, said knob including a plurality of circumferentially spaced setter locking arms extending axially thereof, each of said setter locking arms being slidably disposed in one of said setter grooves, and said knob being attached to the central hub of said print wheel to be concentric therewith for mounting the print wheel on the rotary shaft and for detaching the print wheel from the rotary shaft.

4,363,560

PROPEL-REPEL SOLID STICK DISPENSER

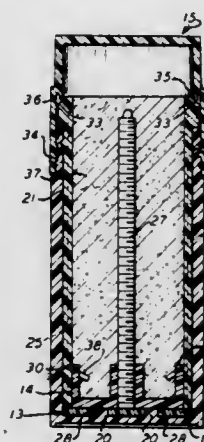
Charles J. Gentile, 8 Winding Way, North Caldwell, N.J. 07006

Filed Oct. 26, 1977, Ser. No. 835,906

Int. Cl.³ B67D 3/00

U.S. Cl. 401-68

10 Claims



1. A propel-repel solid-stick dispenser comprising:
 - (a) an external container open at one end and closed at the opposite end;
 - (b) a threaded transport shaft mounted in the container for rotation therewith;
 - (c) a cartridge mounted within the container, the cartridge being open at the end most proximal to the open end of the container and rotatable independently of the container and the shaft;
 - (d) a piston threadably mounted on the shaft, the piston being translationally moveable along the shaft in response to relative rotational movement between the piston and the shaft;
 - (e) means for rotating the piston in response to rotation of the cartridge;
 - (f) means for generating relative rotational movement between the container and the cartridge, whereby the open end of the cartridge extends beyond the open end of the container thereby providing said means for simultaneously generating relative rotational movement between the container and the cartridge and between the piston and the shaft;

- (g) closure means detachably engaged at the open end of the container;
- (h) a bearing surface at the top of the cartridge tapering inwardly toward the open end thereof, and
- (i) a continuous resiliently outwardly expandable rib in the closure means engagable with the bearing surface at the open end of the cartridge.

4,363,561

LOCKING DEVICE FOR PERCUSSION INSTRUMENTS' STAND

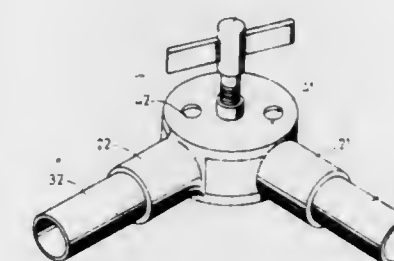
C. L. Hsieh, Taipei Hsien, Taiwan, assignor to Kung Hsue She Educational Supplies Co., Ltd., Taipei Hsien, Taiwan

Filed Mar. 20, 1981, Ser. No. 245,713

Int. Cl.³ F16C 11/00; F16D 1/12, 3/00

U.S. Cl. 403-92

2 Claims



1. A locking device applied to the pivot joint of the stands of percussion musical instruments, comprising:

- a fastening screw;
- a first joint portion forming the pivot joint including two opposing disc-like structures from which one arm forming one leg of the stand extends, one of which discs is centrally bored to allow said fastening screw to pass through;
- a second joint portion forming the pivot joint including a hollow annular structure, from which another arm forming another leg of the stand extends, and which can be fitted in between the two said disc-like structures;
- a resilient, expandable open ring nested in said annular structure with a narrow opening;
- a disc-like staple nested in said open ring, with two bores, one of which is centrally and axially located at the axis of said fastening screw, and the other of which extends axially to communicate with the axially located bore;
- a substantially tapering piece, which may either be formed as an integral tip of said fastening screw or as an independent element, and the size of which allows it to pass through said axially located bore of said disc-like staple;
- a pin slidably positioned in said radially extending bore, one end of which is tapering and inserted into the opening of said open ring;
- said disc-like staple being immovably secured to said first joint;
- all the aforementioned component parts being structured and disposed so that when said fastening screw is fastened, said tapering piece will be pushed axially and inwardly and in turn urge said pin to move axially and outwardly so that its tapering end can expand said open ring, and the expanded open ring in turn press against the inner wall of said annular structure to prevent the two arms from pivotal rotation about the joint.

4,363,562

BLOCKING-TYPE KEY

Richard E. Hora, Riverside, Calif., assignor to FMC Corporation, Chicago, Ill.

Filed Jul. 13, 1981, Ser. No. 282,556

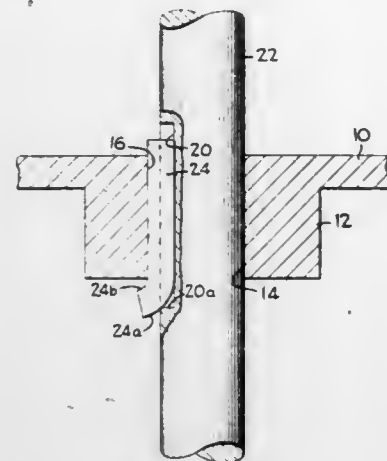
Int. Cl.³ F16B 3/00

U.S. Cl. 403-318

1 Claim

1. A rotational driving assembly, comprising a shaft of uniform diameter having a rotational axis substan-

tially vertical and having a first keyway therein of constant rectangular cross section,
a disc member including a hub at one end to be driven and having a second keyway therein with a constant cross section similar to said first keyway and being formed to receive said shaft with said keyways in facing relationship, a key having a substantially constant rectangular cross sec-



tion dimensioned to fit within both said first and second keyways when in said facing relationship,
an abutment wall at the lower end of said first keyway, and an outwardly curved length on said key at the lower end thereof for engagement with said abutment wall and an end of said disc member when disposed within said keyways, whereby said disc member is secured both rotationally and supported axially in place on said shaft.

4,363,563

SYSTEM FOR THE STORAGE OF PETROLEUM PRODUCTS AND OTHER FLUIDS IN A ROCK

Tore J. Hallenius, Sundsvall, and Karl I. Sagefors, Öregrund, both of Sweden, assignors to WP-System Aktiebolag, Sundsvall, Sweden

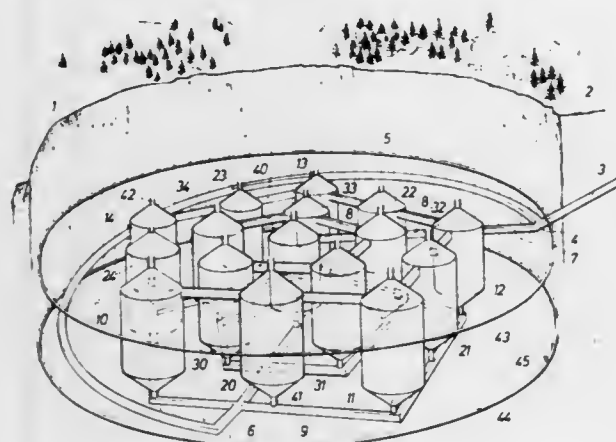
Filed Feb. 21, 1979, Ser. No. 13,423

Claims priority, application Sweden, Feb. 21, 1978, 7802027; Feb. 13, 1979, 7901278

Int. Cl.³ B65G 5/00

U.S. Cl. 405—55

11 Claims



1. A system for the underground storage of fluids in rock, said fluids having a specific gravity lower than water comprising a plurality of cavities excavated in the rock, each of said cavities being cylindrical with an axis and a diameter, each cavity forming a storage space, the walls of which are formed by the rock and directly absorb the pressure of the fluid stored in the cavity, the axes of all said cavities being vertical, the vertical height of each cavity being at least equal to its diameter, the distance from each cavity to each adjacent cavity being at least equal to said diameter, and said axes of said cavities as seen in a horizontal cross-section of the system forming a

two-dimensional pattern in the form of at least one regular polygon.

4,363,564

WATER POWER GENERATOR

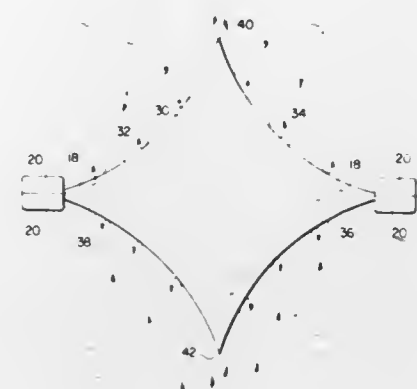
Peter M. Borgren, Duluth, Minn., assignor to Hydrodynamic Energy Systems Corporation, Superior, Wis.

Filed Sep. 9, 1980, Ser. No. 185,486

Int. Cl.³ E02B 9/08

U.S. Cl. 405—77

14 Claims



1. A water power generator for generating electrical energy from a moving body of water, comprising:

- (a) structural means interposed in the path of water flow, said structural means including a first side wall longitudinally curved from a diverting point at the outer end thereof to a gradually flattened curve at the inner end thereof where a vertical plane through the edges of said first side wall is generally more perpendicular to such flow path, with the curvature of said first side wall being continuous from said outer to said inner end thereof, said first side wall also being transversely curved from a generally planar surface at the outer end thereof to a curvature approaching circular at the inner end thereof, and a second side wall the outer end of which merges with the outer end of said first side wall to form an apex, with said second side wall being longitudinally and transversely curved similarly to said first side wall,
- (b) cowl means at the inner end of each of said first and second side walls, said cowl means being generally conical in shape, tapering from an enlarged end at the juncture thereof with said side wall to a relatively smaller, opposite end, and
- (c) turbine generator means at said opposite end of each of said cowl means,

whereby water is diverted by said first and second side walls at said apex, with said water increasing in velocity and thus force as it traverses the longitudinally and transversely curved side walls, with the velocity of the water being further increased during passage through said cowl means prior to reaching said turbine generator means.

4,363,565

TUNNELLING

Colin N. P. MacKenzie, 5 Saltash Close, Loudwater, Buckinghamshire, England

Filed Feb. 19, 1980, Ser. No. 122,788

Claims priority, application United Kingdom, Feb. 21, 1979, 7906046

Int. Cl.³ E21D 9/06, 11/05

U.S. Cl. 405—146

8 Claims

1. A method of constructing a lined tunnel wherein said tunnel is excavated using a tunnelling shield having a tail skin, and the lining is of the expanded type comprising a series of ring sections erected end to end behind the shield as the tunnel

is advanced, each new ring section being formed from a number of arcuate segments which are fitted together circumferentially in front of the previously erected sections and which are expanded radially to provide the new ring section with the required diameter, said method characterised by:

- (1) providing said tail skin of said tunnelling shield with a thin rear end portion of greater internal diameter than said tail skin proper; and
- (2) erecting each new ring section of said lining by a process comprising the steps of:
 - (a) assembling the segments of said new ring section to form said ring section in an unexpanded state within said tail skin of said tunnelling shield while said thin rear end portion of said tail skin overlaps the leading end of



the previously erected and fully expanded ring section of said lining;

- (b) providing a layer of resilient compressible material around said newly assembled ring section;
- (c) pushing said new ring section against said leading end face of said previously erected ring section;
- (d) partially expanding said new ring section whereby said layer of resilient compressible material is partially compressed against the inside of said tail skin;
- (e) advancing said tunnelling shield until said thin rear end portion of said tail skin overlaps the leading end of said new ring section; and,
- (f) further expanding said new ring section until said section reaches the fully expanded condition.

4,363,566

FLOW LINE BUNDLE AND METHOD OF TOWING SAME

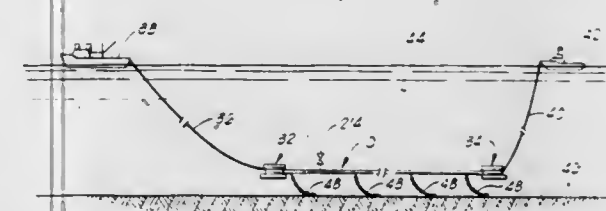
Arthur W. Morton, Houston, Tex., assignor to Conoco Inc., Ponca City, Okla.

Filed Jun. 14, 1979, Ser. No. 48,316

Int. Cl.³ F16L 1/04

U.S. Cl. 405—169

10 Claims



1. A method of laying a plurality of conduits for conducting fluids between first and second points within a body of water, said method comprising the steps of:

- placing said plurality of conduits within a protective tubular covering member to form a flow line bundle;
- sealing first and second ends of said flow line bundle to prevent water from entering said conduits and tubular covering, so that said bundle has a positive buoyancy when submerged in said body of water;
- connecting weight means to said bundle so that when said bundle is placed in said body of water said bundle has a neutral buoyancy at a position above a floor of said body of water with a portion of said weight means engaging said floor;
- pulling said bundle through said body of water to a position adjacent said two points;
- connecting ends of each of said conduits to first and second

fluid connectors at each of said first and second points respectively; and
flooding a space between said conduits and said tubular covering member with water.

4,363,567

MULTIPLE BORE MARINE RISER WITH FLEXIBLE REINFORCEMENT

Gerhardus C. Van der Graaf, The Hague, Netherlands, assignor to Shell Oil Company, Houston, Tex.

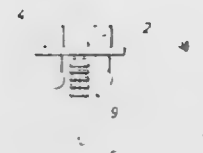
Filed Aug. 8, 1980, Ser. No. 176,606

Claims priority, application United Kingdom, Sep. 12, 1979, 7931625

Int. Cl.³ E21B 17/01

U.S. Cl. 405—195

9 Claims



1. A multiple bore marine riser including a plurality of parallel flowlines, an assembly of rods extending parallel to the assembly of flowlines over part of the length thereof, wherein cross-sectional diameters of the individual rods vary along the length of the rods, a plurality of rigid horizontal spacer plates arranged between the assemblies of flowlines and rods, said plates being arranged in vertically-spaced relationship to each other over a selected section of the length thereof, and coupling means operatively connecting the individual rods and flowlines to the plates allowing a pivotal movement of the flowlines and the rods with respect to the plates at the coupling means that is about an axis taken normal to the longitudinal axis of the flowlines and rods.

4,363,568

CONDUCTORS FOR A GUYED TOWER AND METHOD FOR INSTALLING SAME

Frank J. Schuh, Dallas, Tex., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Filed Oct. 14, 1980, Ser. No. 196,198

Int. Cl.³ E02B 7/02

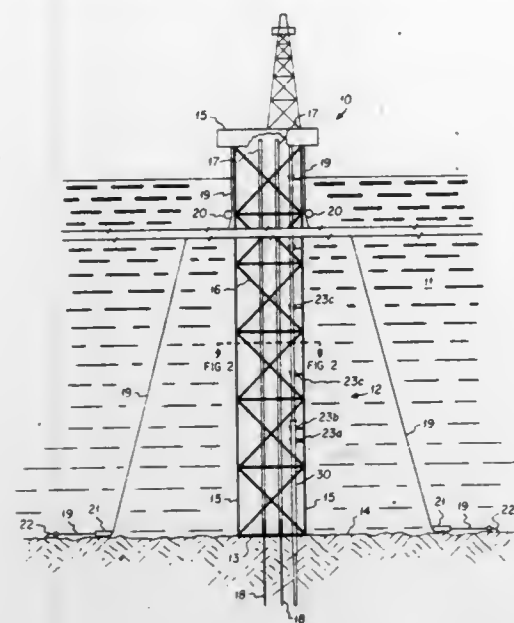
U.S. Cl. 405—227

8 Claims

1. A method of installing at least one conductor for conducting drilling and/or production operations from a guyed tower offshore structure of the type having a main truss of substantially uniform cross-section throughout its length which is normally maintained in a vertical position within a body of water by a plurality of guylines, each connected at one end to the upper end of said main truss at points spaced about the periphery thereof and anchored at the other end thereof to the marine bottom, said main truss having at least one set of vertical spaced and aligned conductor guides thereon, said method comprising:

- passing a conductor sleeve having a length less than the length of said main truss through at least the lowermost of said conductor guides and penetrating said conductor into the marine bottom on which said guyed tower offshore structure is positioned, said conductor sleeve, when in

position, extending from above said at least lowermost conductor guide to a depth in said marine bottom at least



equal to the depth of the center of rotation of said guyed tower.

4,363,569

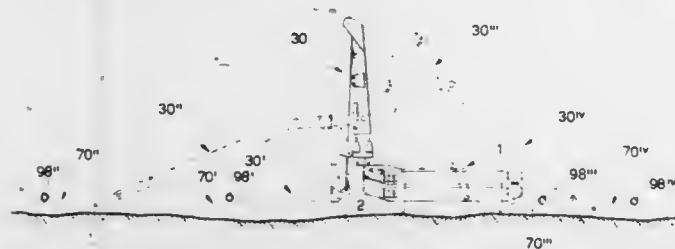
APPARATUS FOR SUPPORTING AND ERECTING SUPPORTING MEANS FOR SUPPORTING UNDERSEA PIPELINES AT ALL DEPTHS

Ambrogio Scodino, San Donato Milanese, and Fernando Po, Milan, both of Italy, assignors to Saipem S.p.A., Milan, Italy
Filed Apr. 17, 1980, Ser. No. 141,188

Claims priority, application Italy, Sep. 17, 1979, 25763 A/79
Int. Cl.³ F16L 1/04

U.S. Cl. 405—303

8 Claims



1. Improved recoverable apparatus for the erecting or forming of liquid cement receiving pipe support means for supporting an undersea pipeline up to a great depth comprising frame means including means for connecting same in a vertically suspended state from a vessel, liquid cement-containing container means mounted on said frame means, hydropneumatic cylinder means mounted on said frame means in operative relationship with said cement-containing container means for actuating discharging the liquid cement therefrom, means mounted on said frame means for actuating said hydropneumatic cylinder means, vertical articulated positioning arm means operatively connected at one end to said frame means, said arm means including three arm elements hingedly connected one after another to each other by horizontally disposed pin means for rotation relative to one another about their respective horizontally disposed pin means, connecting means positioned at the end of the outermost or third arm element for releasably engaging said pipe supporting means, means for actuating each of said arm elements for movement into a plurality of positions, and means operatively associated with said vertical articulated positioning arm means and said cement-containing container means for passage of liquid cement from the cement-containing container means to the pipe support means releasably connected to the outermost end of the vertical articulated positioning arm means.

4,363,570 UPPER END MOUNTING FOR DEEP WATER THERMAL CONDUIT

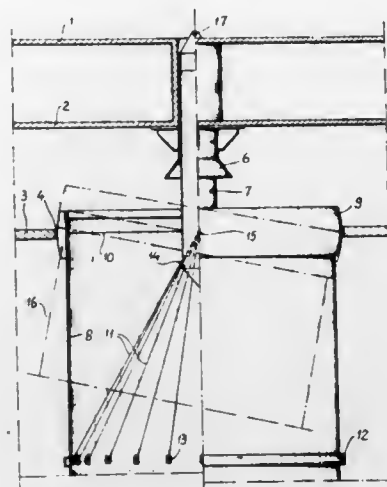
Barend J. G. van der Pot, Delft, Netherlands, assignor to Hollandse Beton Groep N.V., Rijswijk, Netherlands
Filed Oct. 3, 1980, Ser. No. 193,691

Claims priority, application Netherlands, Oct. 30, 1979, 7907951

Int. Cl.³ E02D 21/00; E02B 17/00

U.S. Cl. 405—303

4 Claims



1. A floating device provided with a downwardly running deep sea conduit disposed within a bottom opening at a lower side of said floating device, such as a cold water conduit supplying a floating power station in which the difference in temperature between warm surface water and cold deep sea water may be converted into electrical energy, characterized by: a central core (7) extending upwardly beyond a top of said conduit (8), said core fitting within a generally vertical sleeve (5) extending downwardly through the floating device, said conduit being coupled to said core by a plurality of horizontally disposed flexible centering cables (10) and by a plurality of obliquely oriented flexible weight supporting cables (11), said weight supporting cables running downwardly from said core to an annular portion (12) of said conduit at a lower level, extensions of said weight supporting cables intersecting a point (15) in the center of the core lying in a plane of the centering cables and in a plane of said bottom opening (4), and means (17) securing said core within said sleeve.

4,363,571 SYSTEM FOR FEEDING PULVERULENT MATERIAL INTO A PRESSURIZED AIR CONVEYOR PIPELINE

Carroll V. Jackson, Northbrook, and Blase C. Rau, Western Springs, both of Ill., assignors to United Conveyor Corporation, Deerfield, Ill.

Continuation of Ser. No. 137,482, Apr. 4, 1980, abandoned. This application Jun. 10, 1981, Ser. No. 272,762

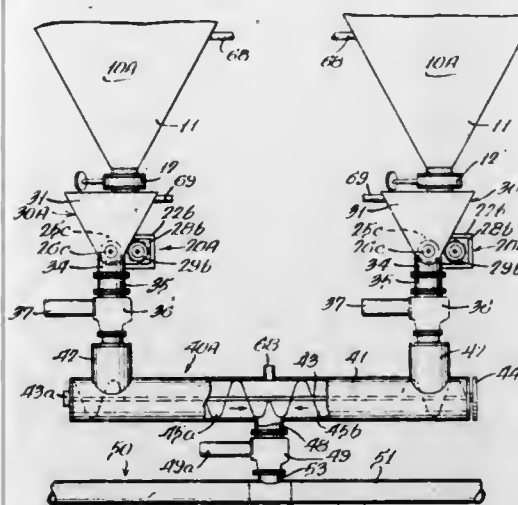
Int. Cl.³ B65G 53/48

U.S. Cl. 406—56

30 Claims

1. A system for moving pulverulent material from a receiving hopper into a pressurized air conveyor pipeline comprising, in combination: pressure mechanical conveyor means which has an effectively airtight, substantially horizontal casing, a material inlet pipe attached to the top of said casing and communicating with the interior thereof, a material outlet pipe attached to the bottom of the casing remote from said inlet, said outlet pipe communicating with the interior of the casing and with the air conveyor pipeline through the top thereof, and a mechanical conveyor in said casing to move material through said casing from said inlet pipe to said outlet pipe; transfer conveyor means operatively connected to the bottom of the receiving hopper and to the material inlet pipe

of the pressure mechanical conveyor casing, said transfer conveyor means including a material confining pipe and a mechanical conveyor in said pipe; primary valve means in said inlet pipe to control movement of material into the casing; secondary valve means in said outlet pipe to control movement of material from said casing into the air conveyor pipeline;



means for varying the air pressure in said casing between a lower pressure close to atmospheric and higher pipeline pressure; and control means for filling said casing at said lower pressure and emptying said casing at said higher pressure in a continuous cycle.

4,363,572

INJECTOR FOR A MATERIAL TRANSPORT SYSTEM

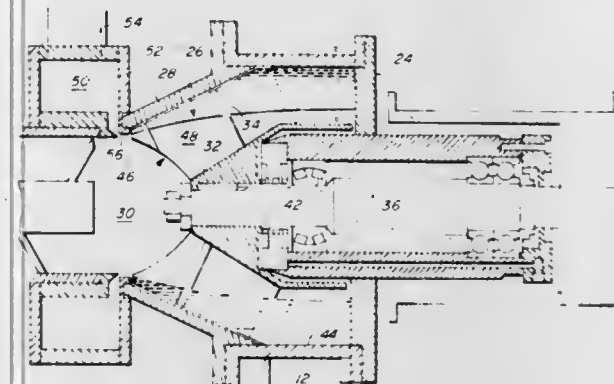
Andrew Harvey, Waltham, Mass., assignor to Foster-Miller Associates, Inc., Waltham, Mass.

Continuation of Ser. No. 46,258, Jun. 7, 1979, abandoned. This application Aug. 14, 1981, Ser. No. 292,808

Int. Cl.³ B65G 53/30, 53/48

U.S. Cl. 406—58

10 Claims



1. A material transport device comprising:

- a housing having a frusto-conical nose with an internal chamber, said housing including first and second inlet means and outlet means that communicate with said chamber, said nose tapering inwardly from said outlet means to said second inlet means, said first inlet means configured to direct a liquid external of said housing into said chamber, said second inlet means configured to receive the material to be transported, said material discharged through said outlet means; and
- rotor means having a conical shape mounted within said housing for rotation in said chamber at said nose, said rotor means including blade means configured to create a vortex having a central ventilated core from said liquid directed into said chamber through said first inlet means;
- said vortex transporting said material at said second inlet means to said outlet means, said material injected into said

vortex through said second inlet means, said vortex carrying said material from said second inlet means to said outlet means.

4,363,573

ARTICLE FEEDING APPARATUS

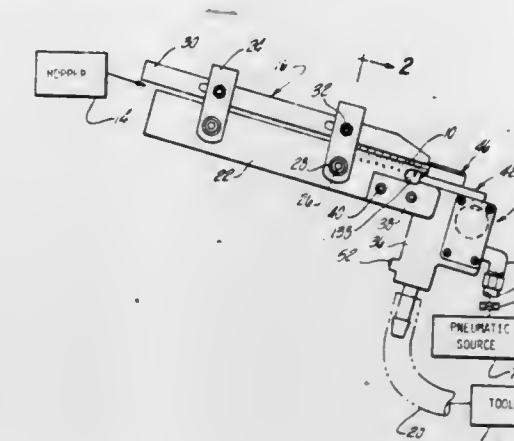
Gary D. Ginther, Grayling, and Murdo A. MacDonald, Bloomfield Hills, both of Mich., assignors to Clyde Corporation, Auburn Heights, Mich.

Filed Oct. 30, 1980, Ser. No. 202,426

Int. Cl.³ B65G 51/02

U.S. Cl. 406—76

14 Claims



1. An apparatus for transferring articles from a source of supply in which a succession of the articles are in side-by-side relation and feeding one article at a time generally longitudinally through a conduit, said apparatus comprising: a housing having a bore therethrough; a separate barrel received in said bore and removably carried by said housing; a pilot passageway extending generally longitudinally through said barrel; an inlet to said passageway through which an article may enter into said passageway with its axis oriented generally parallel to the longitudinal axis of said passageway, an outlet from said passageway longitudinally spaced from said inlet and constructed and arranged for communicating said passageway generally coaxially with the conduit; at least one discharge port in said barrel, communicating with said passageway, and constructed and arranged to discharge a stream of gas at super atmospheric pressure into said passageway and generally toward said outlet for propelling an article through the conduit when connected to said outlet; a metering arm removably carried by said housing, movable to first and second positions, and constructed and arranged to feed one article at a time from the source of supply through said inlet and into said passageway; and a fluid drive motor carried by said housing, operably connected with said metering arm, and constructed and arranged to move said metering arm from at least one to the other of said first and second positions of said metering arm.

4,363,574

METHOD OF EMPTYING A POWDER OR LIKE MATERIAL OUT OF A CONTAINER

Anders Bjurling, Skultuna, Sweden, assignor to Dynatrans AB, Frolunda, Sweden

PCT No. PCT/SE80/00064, § 371 Date Oct. 29, 1980, § 102(e) Date Oct. 29, 1980, PCT Pub. No. WO80/01904, PCT Pub. Date Sep. 18, 1980

PCT Filed Mar. 5, 1980, Ser. No. 201,398

Claims priority, application Sweden, Mar. 5, 1979, 7901936
Int. Cl.³ B65G 53/40

U.S. Cl. 406—114

2 Claims

1. The method of emptying a powder or like material out of a cylindrical, rotatable horizontally disposed container having a longitudinal axis by means of a substantially horizontally disposed carrier-air pipe with perforations along its length, comprising the steps of, locating said carrier-air pipe axially

along the upper free surface of the powder in said container, passing a stream of carrier-air through an air pipe with perforations along its length disposed parallel to the carrier-air pipe to entrain powder into the perforations of the carrier-air pipe and



convey the powder out of the container, and rotating the container about its axis to position the carrier-air pipe along said upper free surface to maintain the carrier-air pipe at said upper free surface.

4,363,575

LIQUID-SOLID CONTACTING APPARATUS

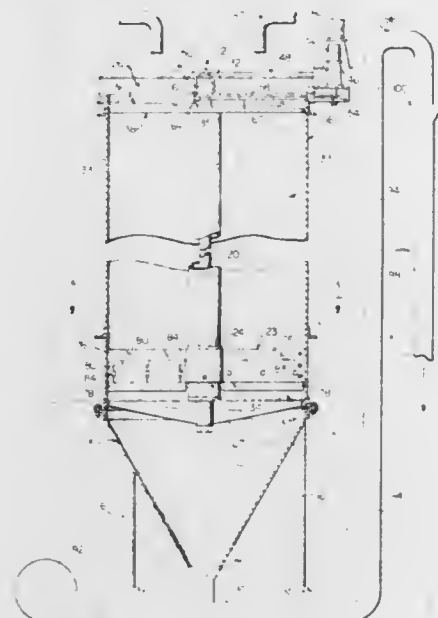
Lawrence W. Wisdom, Dallas, and Gordon R. Wilson, De Soto, both of Tex., assignors to Frito-Lay, Inc., Dallas, Tex.

Division of Ser. No. 972,404, Dec. 22, 1978. This application Dec. 2, 1980, Ser. No. 212,031

Int. Cl.³ B65G 53/30; B02B 1/04

U.S. Cl. 406—122

11 Claims



1. Apparatus suitable for providing movement of a bed of solid particles substantially uniformly therethrough in a downwardly direction in contact with liquid comprising:

- (a) a generally vertically-disposed vessel for containing a compact bed of solid particles for contact with liquid;
- (b) a rotatable, generally horizontally-disposed lower disc means extending substantially throughout the cross-sectional area of a lower portion of said bed for supporting said bed, said lower disc means having at least one opening for passage of solids therethrough from said bed;
- (c) means for rotating said lower disc means; and
- (d) means for discharging solid particles from the lower portion of said vessel while maintaining liquid in said vessel to a substantial height above said lower disc means, comprising an outlet opening in the lower portion of said vessel and below said lower disc means, flow means communicating with said outlet opening for passing liquid across said outlet opening to receive and carry solid particles away from said outlet opening, and means for substantially equalizing liquid pressure in said flow means with the liquid pressure in said outlet opening to maintain liquid

in said vessel during discharge of solid particles therefrom.

4,363,576

SLOTING CUTTER

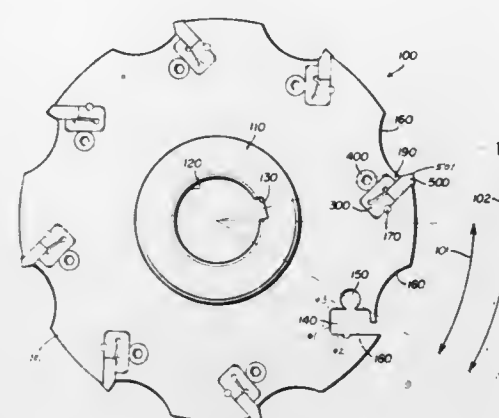
Raymond T. Zweekly, Royal Oak, Mich., assignor to The Valeron Corporation, Troy, Mich.

Continuation-in-part of Ser. No. 182,224, Aug. 28, 1980. This application Mar. 30, 1981, Ser. No. 249,025

Int. Cl.³ B26D 1/12

U.S. Cl. 407—50

16 Claims



1. A slotting cutter comprising:

a substantially disc shaped body having first and second lateral surfaces substantially parallel to the plane of rotation and substantially perpendicular to the axis of rotation of the body;

a plurality of pockets spaced about the periphery of the body and extending from one lateral surface to the other, each pocket adapted for receipt of a cutting insert and comprising a substantially rectangular cavity having parallel bottom and top surfaces and a rear surface, at least a portion of the bottom surface shaped for mating receipt of a bottom surface of the cutting insert;

insert retention means including a clamping portion moveable in the plane of body rotation by flexing into clamping engagement with the insert, each retention means further comprising a substantially planar member positioned in a corresponding pocket and having an insert positioning surface substantially perpendicular to the bottom pocket surface and abutting a rear surface of the insert, a bottom surface abutting a bottom pocket surface portion rearward of the insert, a rear surface abutting the rear pocket surface, a top surface abutting the top pocket surface, and a clamping surface engaging a top surface of the insert; and actuating means positioned for rotation within the plane of body rotation, operative in at least a first rotative position to urge the clamping portion into engagement with the insert.

4,363,577

APPARATUS FOR CONVERTING POWER CHAIN SAW INTO A BORING TOOL

Robert Hartman, Apt. 100, Steven Phillips, Monaca, Pa. 15061

Filed Dec. 29, 1980, Ser. No. 220,368

Int. Cl.³ B23B 43/00; B27G 17/00

U.S. Cl. 408—20

5 Claims

1. An apparatus for converting a power chain saw into a boring tool, said chain saw including a motor housing, a motor within said housing, a chain guide extending from said housing and a roller nose rotatably mounted in the free end of the chain guide, wherein said apparatus comprises: a sprocket housing; a shaft rotatably mounted in said sprocket housing with one end of said shaft extending beyond said sprocket housing; a sprocket fixedly mounted onto said shaft and within said housing; a boring tool securing means mounted onto said extending end of said shaft; bracket means extending from said sprocket

housing for securing said sprocket housing to the free end of said chain guide so that said shaft is parallel with the rotational axis of said roller nose and said sprocket shares a common



plane with said roller nose; and an endless chain in communication with said sprocket and said chain saw motor, traveling therebetween along said chain guide.

4,363,578

CUSHIONED LOW PROFILE TRAILER

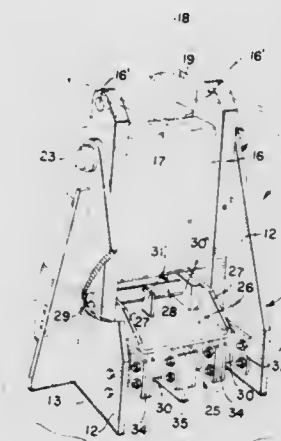
Harold Hesch, St. John, Ind.; Michael DiLuigi, Burnham, Ill., and Thomas Lindauer, Schererville, Ind., assignors to Pullman Incorporated, Chicago, Ill.

Filed Dec. 12, 1980, Ser. No. 215,970

Int. Cl.³ B62D 53/008

U.S. Cl. 410—56

10 Claims



1. In a trailer hitch comprising an upright pedestal, a platform for supporting said pedestal, a generally vertical fifth wheel support member, means pivotally supporting said generally vertical fifth wheel support member on said pedestal for swinging movement about a horizontal axis, said generally vertical fifth wheel support member including an upper portion disposed above said pivotal means and a lower portion disposed below said pivotal means, the improvement comprising a cushioning assembly including a generally horizontal plate, means pivotally connecting said plate to the lower portion of said support member, first vertical plate means connected to said horizontal plate and depending therefrom, second vertical plate means supported on said platform and projecting upwardly therefrom, and shock absorbing means interconnecting said first and second plate means.

4,363,579

DAMAGE PREVENTION VOID FILLER FOR SEPARATING LOADS DURING TRANSIT

Eugene A. Rogers, 302 Ivy La., Arlington Heights, Ill. 60004

Filed Feb. 25, 1980, Ser. No. 124,321

Int. Cl.³ B60P 7/14; B61D 45/00, 49/00

U.S. Cl. 410—154

7 Claims



1. A void filler type damage protection device for preventing damage to cargo during transit, the improvement comprising:

- a body;
- said body having score lines and adapted to be folded from a flat, rectangular shape into an accordion shape with sides adapted to extend vertically when the void filler is in position adjacent cargo;
- said body also having diagonal sections extending from the sides and terminating at an apex;
- said body having inwardly extending slots;
- cap sheet means;
- said cap sheet means having top flange means and a downwardly extending web;
- said top flange means comprising a first, shortened, layer extending from and connected to the web, and, formed to provide a resilient attachment member for connecting the cap sheet means with the body;
- said flange having at least a portion inserted into the associated slots of the body and forming a spring-type connection between the cap sheet means and body to securely join each together; and,
- said top flange means having means connecting said diagonal sections and sides to form rigidifying triangle means for strengthening the void filler to resist crushing and twisting.

4,363,580

SELF-RETAINING CLOSE TOLERANCE BUSHING

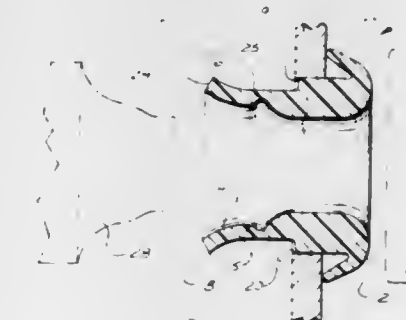
John H. Bell, Danville, Calif., assignor to The Boeing Company, Seattle, Wash.

Continuation-in-part of Ser. No. 166,597, Jul. 7, 1980, abandoned. This application Jul. 9, 1981, Ser. No. 281,778

Int. Cl.³ F16B 13/06

U.S. Cl. 411—15

8 Claims



1. In combination with a structural component having a bushing-receiving opening extending therethrough, a self-retaining molded bushing suitable for use in close tolerance installations wherein the tolerance to be maintained ranges from on the order of +0.002" to on the order of +0.005", said

bushing being mounted in said bushing-receiving opening extending through said structural component, said bushing being formed of thermoplastic material and having a circumferentially continuous tubular body portion with an outside diameter D_1 , an enlarged premolded first retaining head formed at one end of said body portion for coaction with one surface of said structural component in surrounding relation to said bushing-receiving opening therein, an annular groove formed internally of said tubular body portion and spaced axially from said premolded retaining head by a distance greater than the thickness of said structural component in which said bushing is mounted with said annular groove defining an annular weakened area in said tubular body portion, said tubular body portion having an axially extending area of reduced wall thickness outboard of said annular groove and at the end of said body portion remote from said premolded first enlarged retaining head, said end of said body portion remote from said premolded first enlarged retaining head having an outwardly flared extremity with an outside diameter D_2 where D_2 is greater than D_1 , and an external stepped annular shoulder formed on said tubular body portion, said shoulder extending axially from said premolded enlarged retaining head and having an axial length sufficient to provide a good close tolerance bearing surface having a tolerance in the range of $+0.002''$ to $+0.005''$ engagable with said structural component in which said bushing is mounted and having an outside diameter D_3 substantially equal to the diameter of said bushing-receiving opening where D_3 is at least equal to D_2 , said axially extending area of reduced wall thickness being expandable outwardly about said annular weakened area by force applied internally thereto until the expanded end of said tubular body portion flips over and backwardly upon said body portion by self-propelled elastic action to form a reversely folded second enlarged retaining head so that said bushing is securely fastened to said structural component with axial movement thereof within said bushing-receiving opening being precluded by coaction between said first and second enlarged retaining heads and the opposite surfaces of said structural component, while radial movement of said bushing within said bushing-receiving opening is precluded by a close tolerance fit with said stepped shoulder.

4,363,581

SHEET METAL THREADED ARTICLE

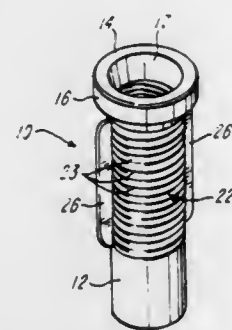
James F. Pease, 5805 Folkestone Dr., Dayton, Ohio 45459

Filed Aug. 28, 1980, Ser. No. 182,072

Int. Cl.³ F16B 37/12, 37/02

U.S. Cl. 411-82

11 Claims



1. A sheet metal threaded article comprising a drawn sheet metal hollow body having an elongated tubular portion projecting from an integrally connected base portion defining an opening, said tubular portion including an inwardly crimped tubular section having a corrugated wall configuration in axial cross-section and forming helical threads, said inwardly crimped tubular section including at least one axially extending folded sheet metal rib of double wall thickness, and said helical threads being adapted to receive a threaded member.

4,363,582
PROCESS FOR THE MANUFACTURE OF RINGS FOR LIDS FOR CANS

Siegfried Bloeck, Singen, Fed. Rep. of Germany, and Rudolf Lüthi, Niederwangen, Switzerland, assignors to Swiss Aluminium Ltd., Chippis, Switzerland

Division of Ser. No. 40,499, May 21, 1979, Pat. No. 4,253,584.

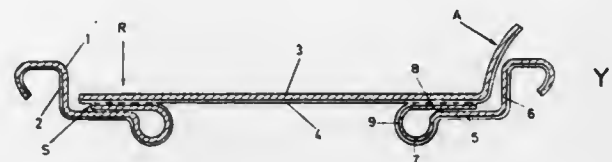
This application Nov. 6, 1980, Ser. No. 204,469

Claims priority, application Switzerland, Jun. 6, 1978, 6197/78

Int. Cl.³ B21D 51/00

U.S. Cl. 413-12

18 Claims



1. A process for forming rings for can lids comprising: providing a flat blank of metal plate having a first and a second surface; shaping said flat blank into a first rough shape wherein a substantially continuous depression is formed within the periphery of said blank; forming an opening within said blank within the area defined by said continuous depression so as to form an inner cut edge defining said opening; and bending said inner cut edge toward said periphery of said blank such that said inner cut edge lies substantially parallel and proximate to said continuous depression.

4,363,583

HAY BALE LOADER

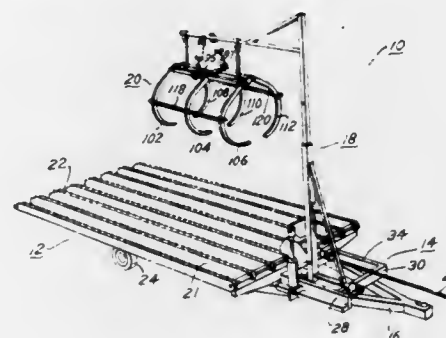
Jacob Bontrager, Highway 281 North, Jamestown, N. Dak. 58401

Filed Nov. 10, 1980, Ser. No. 205,669

Int. Cl.³ A01D 87/12

U.S. Cl. 414-24.5

8 Claims



1. A hay bale loader for use with bale hauling equipment having a rear unloading capability, comprising frame members forming a base for the loader, a boom extending upwardly from said base and having a lower and an upper section telescopically arranged relative to one another, a pivot means positioned longitudinally relative to the hauling equipment for said boom, an arm extending longitudinally outwardly from said boom over the bale hauling equipment and being fully supported by said boom, bale grasping means disposed on said arm and having laterally movable opposed members for grasping a hay bale, a power operated means for moving said upper boom section telescopically relative to said lower boom section, power operated means moving said opposed members toward and away from one another, power operated means for moving said boom on said pivot means to either side of said equipment for bringing said grasping means in proximity to the bale to be loaded, for raising the bale grasped by said grasping

means, and for moving the bale suspended from said grasping means to said bale hauling equipment.

4,363,584

PAPER SHEET ACCUMULATOR ASSEMBLY AND BANK NOTE DISPENSER PROVIDED THEREWITH

Eiichi Kokubo, Tokyo, Japan, assignor to Laurel Bank Machine Co., Ltd., Tokyo, Japan

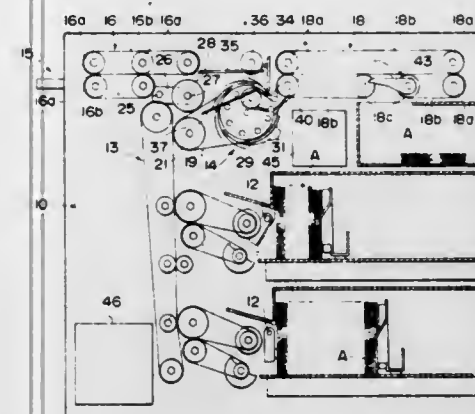
Filed Sep. 24, 1980, Ser. No. 190,265

Claims priority, application Japan, Sep. 25, 1979, 54-122910; Sep. 25, 1979, 54-122911

Int. Cl.³ B65H 29/40, 31/08, 31/30

U.S. Cl. 414-33

5 Claims



1. A bank note dispenser having first and second discharge ports provided at the opposed side walls of the frame of the dispenser, which comprises a plurality of bank note stackers each stocking a single kind of bank notes, suction means for sucking a selected kind of bank notes successively from a selected stacker selected from said plurality of bank note stackers, first conveyer means for receiving the bank notes from said suction means to convey the same, a bank note accumulator assembly for successively receiving the bank notes conveyed by said first conveyer means to underlay the same in good order at a collection station to form a bundle of bank notes, second conveyer means for conveying said bundle of bank notes from said collection station selectively along a passage directing to said first discharge port, and third conveyer means for conveying said bundle of bank notes from said collection station selectively along a passage directing to said second discharge port, said bank note accumulator assembly including a paddle wheel disposed downstream of said first conveyer means for delivering bank notes to the accumulator assembly and having a plurality of swirling paddles overlapping with each other, said paddle wheel being carried for rotating to receive bank notes underside of said paddles such that one bank note is inserted under each paddle, an abutting plate disposed adjacently to said paddle wheel for abutting against the leading ends of said bank notes inserted underside of said paddles, and a kick roller for pushing the bank notes and kicking the trailing ends of said bank notes upward to kick out them from the underside of the paddles.

4,363,585

BALE LEVEL CONTROL SYSTEM FOR MECHANICAL HOPPER FEEDER

Alex J. Keller, Clover, S.C.; Erichard A. Fechner, Gastonia, and Joseph R. Williams, Kings Mountain, both of N.C., assignors to Automatic Material Handling, Inc., Bessemer City, N.C.

Continuation-in-part of Ser. No. 78,698, Sep. 25, 1979, abandoned. This application Jan. 12, 1981, Ser. No. 224,217

Int. Cl.³ D01G 13/00; B66C 17/00

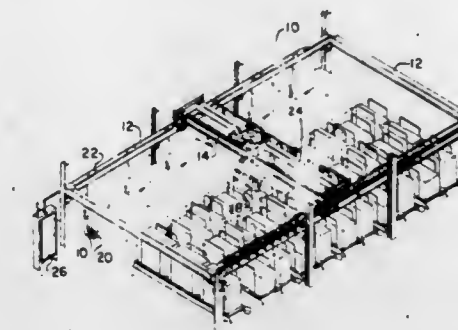
U.S. Cl. 414-273

20 Claims

1. In combination with apparatus for removing fiber portions from a selected plurality of bales of fiber disposed adjacent said apparatus, said apparatus including head means selectively movable from a first position spaced from a bale to a second position in contact with said bale for removing fiber therefrom,

and including primary control means for causing said head means to be transported to positions adjacent each of said selected plurality of bales in a predetermined sequence to remove fibers therefrom, the improvement comprising:

(a) means for generating a signal when said head means has traveled a predetermined distance in moving from said first position thereof to said second position thereof while removing fiber from any one of said selected plurality of bales; and



(b) secondary control means for receiving said generated signal and thereafter varying said predetermined sequence of fiber removal by preventing said head means from removing fibers from said one bale until another said signal is received from said signal generating means while said head means is removing fiber from at least one of the others of said selected plurality of bales.

4,363,586

BUNKER-DISCHARGE APPARATUS, ESPECIALLY FOR BULK MATERIAL

Hans Gessler, Aalen, and Gottfried Marienfeld, Aalen-Wasseralfingen, both of Fed. Rep. of Germany, assignors to Schwäbische Hüttenwerke Gesellschaft mit beschränkter Haftung, Aalen-Wasseralfingen, Fed. Rep. of Germany

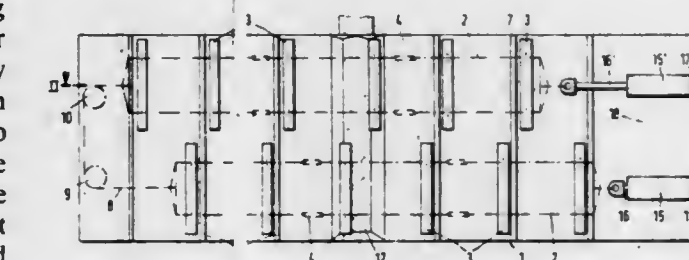
Filed Nov. 13, 1979, Ser. No. 93,820

Claims priority, application Fed. Rep. of Germany, Nov. 13, 1978, 2849141

Int. Cl.³ B65G 65/00

U.S. Cl. 414-311

14 Claims



1. A bunker-discharge apparatus, especially for bulk material which moves with difficulty, said apparatus comprising: a housing having a bottom;

at least one set of conveyor elements, for moving said bulk material, arranged at least in the vicinity of said bottom of said apparatus, each set of conveyor elements being adapted to be driven back and forth in the conveying direction and including side members interconnected by crossbars arranged transverse to the conveying direction, thus providing a ladder shape, said crossbars being generally wedge-shaped in cross section, having a perpendicular pusher surface on that side facing the conveying direction, and a flat-inclined wedge surface on that side facing counter to the conveying direction;

a discharge unit, arranged below the level of said at least one set of conveying elements, including a conveyor member and arranged at right angles to the conveying direction of said at least one set of conveying elements;

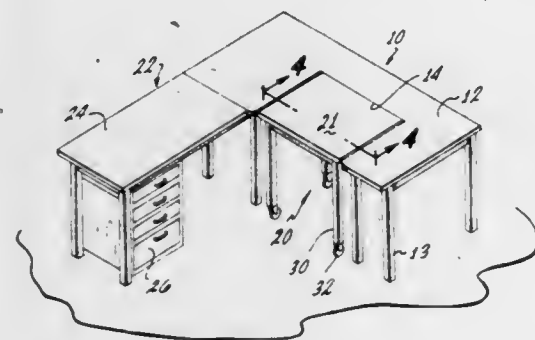
at least one pair of hydraulic cylinders respectively operatively connected to said housing and one end of said at least one set of conveying elements;
diverting rollers respectively operatively connected to said housing at the other end of said at least one set of conveying elements for at least indirectly guiding same; and
a timing member operatively connected to said hydraulic cylinders for providing a cycle of operation, said at least one set of conveying elements, said hydraulic cylinders, and said diverting rollers being operatively associated in such a way that at any given time at least one hydraulic cylinder is adapted to be fully engaged and at least another hydraulic cylinder is adapted to be partially engaged by said timing member, so that all push forces are convertible into pulling forces, and said at least one set of conveying elements, in operation, is continuously under adjustable pulling tension.

4,363,587

BENCH WITH SELF-LEVELING PRODUCTION CART
Jack Rooklyn, 4121 Vanowen Pl., Burbank, Calif. 91505
Continuation of Ser. No. 48,346, Jun. 14, 1979, abandoned. This application May 18, 1981, Ser. No. 264,084
Int. Cl.³ B65G 69/24

U.S. Cl. 414—401

13 Claims



1. As an article of manufacture, the combination of elements including a work bench and a self-levelling wheeled cart, the work bench having a configuration shaped to receive the wheeled cart in close juxtaposed position thereto, with the bench and the wheeled cart having flat working surfaces, the work bench and the wheeled cart having inter-engaging means whereby when the wheeled cart is brought into juxtaposed position to the work bench, the said working surfaces are brought to the same level and the wheeled cart is stabilized in its juxtaposed position, the inter-engaging means including guide means carried by the bench, roller means carried by one of the elements and the guide means being constructed to have limited vertical moveability relative to the work bench resulting from engagement with the wheeled cart, the cart having means to engage the said guide means whereby to impart lifting movement to the guide means and to the cart to bring it to the level of the work bench.

4,363,588

REFUSE HANDLING SYSTEM
Arwood D. Stickney, 225 S. Davis St., Missoula, Mont. 59801
Filed Jul. 11, 1980, Ser. No. 167,658
Int. Cl.³ B65F 3/00

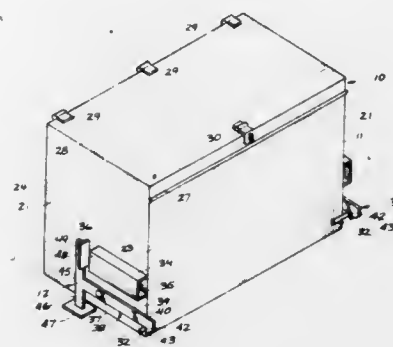
U.S. Cl. 414—408

8 Claims

7. A refuse container adapted to rest on a support surface for storage purposes and adapted to be elevated from the support surface for dumping purposes, said container comprising:
a pair of transversely spaced end walls fixed along lower edges to a bottom wall and presenting front and rear upright edges;
a rear wall fixed across the bottom wall and spanning the rear edges of said end walls;
a front wall spanning the front edges of said end walls and pivoted to them about a transverse hinge axis spaced

upwardly from said bottom wall, said front wall being movable between a closed position in engagement with the bottom wall and the front upright edges of the end walls, and an open position projecting outward from said edges;

a latch pin fixed to the movable front wall at one side of the container and at a location below said hinge axis;
rigid latch means mounted outward of the end wall at said one side of the container in a substantially horizontal position and having front and rear ends;
a pivot connection intermediate the front and rear ends of the latch means and defining a transverse latch axis;



the front end of said latch means presenting an open hook pivotal about said latch axis between a first position with the hook overlapping the latch pin when the front wall is in its closed position, and a second position with the hook clear of said location;

the rear end of said latch means having an upwardly protruding projection and a downwardly protruding projection including a bottom surface formed thereon for engagement with the support surface on which the container rests for storage purposes for maintaining the front end of the latch means in said first position until the container is elevated from the support surface.

4,363,589

VIBRATING BIN UNLOADER

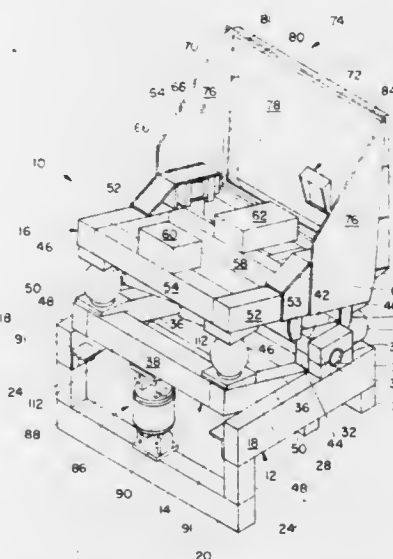
Boleslaw Rozwadowski, Tappan, N.Y., and Leonard E. Bucklew, Houston, Tex., assignors to General Foods Corporation, White Plains, N.Y.

Filed Aug. 4, 1980, Ser. No. 174,962

Int. Cl.³ B65B 21/02

U.S. Cl. 414—415

7 Claims



1. An arrangement facilitating the unloading of a product bin through tilting thereof and inducing vibrations in the bin while in a tilted position, comprising:

(a) a stationary base frame of essentially cuboidal dimensions;

(b) an intermediate frame pivotally journaled on opposed members of said base frame for tilting movement relative to said intermediate frame during unloading of product bin supported on the arrangement;
(c) means for tilting said intermediate frame relative to said base frame to assist in unloading a product bin supported by the arrangement;
(d) a vibratory frame on said intermediate frame, mounting means extending intermediate said vibratory and intermediate frames, said vibratory frame having its upper surface contoured to support a product bin placed thereon, said mounting means comprising hydraulic isolation means for isolating said intermediate frame from vibrations induced in a product bin supported on the vibratory frame; and
(e) means for inducing vibrations to said vibratory frame and the product bin thereon to assist in the unloading of said bin.

4,363,590

POWER OPERATED BOAT LOADING/UNLOADING MARINE TRAILER

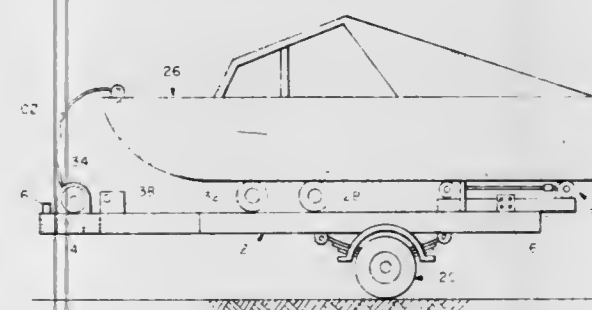
Barry T. Crate, 253 Queensway South, Keswick, Ontario, Canada (L4P 2B2)

Continuation-in-part of Ser. No. 78,776, Sep. 25, 1979, abandoned. This application Sep. 26, 1980, Ser. No. 190,997

Int. Cl.³ B60P 1/00

U.S. Cl. 414—518

13 Claims



1. A marine trailer, comprising a frame having a front end portion, an intermediate portion and a rear end portion, idler rollers carried by said frame on the intermediate portion thereof, powered roller means carried by the frame on the rear end portion thereof, means for driving said powered roller means to load a boat on the trailer, said powered roller means including two laterally spaced roller assemblies pivotally mounted on the frame, each of said roller assemblies including an elongated support having opposite ends, a pair of rollers rotatably mounted on the support adjacent each of said opposite ends, means pivotally mounting each of the supports on the frame intermediate said opposite ends, said driving means including a drive motor associated with each of said roller assemblies, gear means drivingly connecting each of the said drive motors to the pairs of rollers of each of the roller assemblies, a battery mounted on the frame, and power circuit means operatively connecting the battery to said drive motors for controlling energization thereof to load or unload the boat, said power circuit means including a hand held control unit.

4,363,591

TOWING ATTACHMENT FOR VEHICLES

Kenneth Mackall, Jr., 7438 Depot St., Rogers, Ohio 44455, and Richard Noling, 45635 Crestview Dr., New Waterford, Ohio 44445

Filed Dec. 22, 1980, Ser. No. 219,317

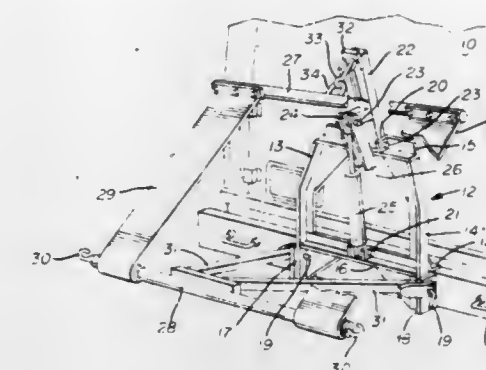
Int. Cl.³ B60P 3/12

U.S. Cl. 414—563

5 Claims

1. A vehicle towing and lifting attachment for use on trucks comprises a vehicle support frame having horizontally spaced vertically extending side members, upper and lower horizontally positioned frame members, a mounting member secured to said truck and means for detachably mounting said frame to said mounting member, a pivoted lifting arm extending from

said upper horizontally positioned frame member and means for moving and locking said lifting arm in a desired position, a pair of horizontally disposed spaced parallel bars, one of which



4,363,592

TOOL FOR REMOTELY INSTALLING EQUIPMENT THROUGH AN ACCESS OPENING

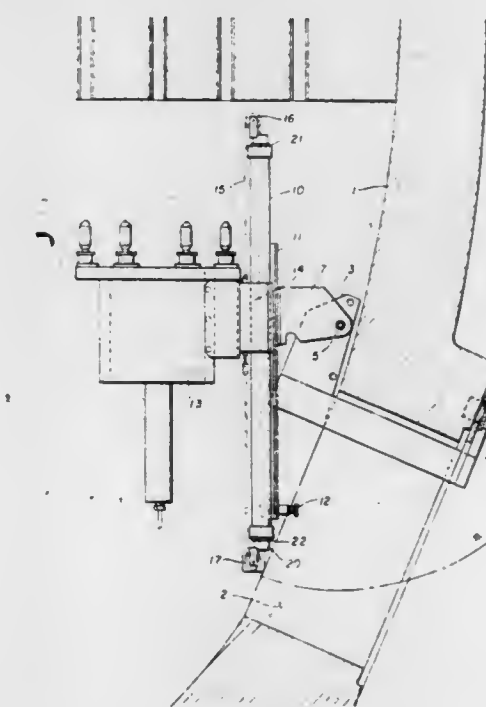
Joseph A. Tedder, East Hartford, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Jan. 19, 1981, Ser. No. 225,871

Int. Cl.³ B25J 3/00

U.S. Cl. 414—590

6 Claims



1. An apparatus with which to transport a unit from a first environment to a second environment, including, a vessel having a wall as a boundary between a hostile environment within the vessel and a benign environment outside the vessel, an access opening through the wall of the vessel, a support framework mounted on the wall from the benign environment outside the vessel and extendible through the access opening and into the vessel interior, a pivot structure mounted on that portion of the framework extended into the hostile environment within the vessel, a slider assembly supported at the pivot structure so that it may be pivoted from outside the vessel to within the vessel through the access opening, an elongated tubular structure mounted on the slider assembly in the arrangement which will permit the tubular structure to longitudinally shift relative to the slider assembly toward and away from the vessel interior,

a carriage structure mounted in sliding engagement with the tubular structure, means for shifting the carriage to the upper end of the tubular member, a unit mounted on the carriage as the tubular structure extends into the benign environment outside the vessel, and means for pivoting the slider assembly and tubular structure through the access opening and into the vessel interior and establish the tubular member in an upright position, whereby the unit is carried to a desired position within the vessel as the carriage is shifted to the upper end of the tubular member.

4,363,593

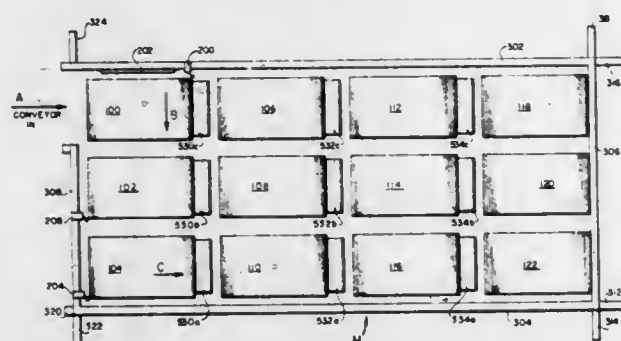
APPARATUS FOR POSITIONING BATTERIES AND HOISTING BATTERIES INTO A BATTERY FORMATION TUB

William J. Eberle, Reading, Pa., assignor to General Battery Corporation, Reading, Pa.

Filed Aug. 15, 1979, Ser. No. 66,798
Int. Cl.³ B66F 11/00

U.S. Cl. 414—592

14 Claims



1. An apparatus for creating and transferring a matrix arrangement of batteries, said apparatus comprising:

(a) matrix-forming means for receiving, locating and retaining a plurality of batteries therein, said matrix-forming means further comprising:

(i) a generally rectangular open bottom frame member having an entrance opening for receiving said batteries; (ii) a powered base roller means extending transversely between opposite sides of said frame member; and (iii) an independent shuttle means positioned adjacent to the battery entrance opening of said frame member, for moving an individual battery on said powered base roller means transversely between opposite sides of said frame member; and

(iv) pivotable spacing means positioned between each battery for separating each by a uniformly fixed distance from an adjacent battery in a row within said matrix;

(b) transfer means fittable within said matrix-forming means for fitting around and holding tightly at least two sides of said batteries in said matrix-forming means, said transfer means being adapted to be lifted, whereby lifting said transfer means lifts said batteries from said matrix-forming means in the matrix formation.

4,363,594

PIPE SECTION POSITIONING APPARATUS

André Morin, Clovis, Calif., assignor to Perini Corporation, Mendota, Calif.

Filed Jun. 24, 1980, Ser. No. 162,632
Int. Cl.³ B66F 11/00

U.S. Cl. 414—747

8 Claims

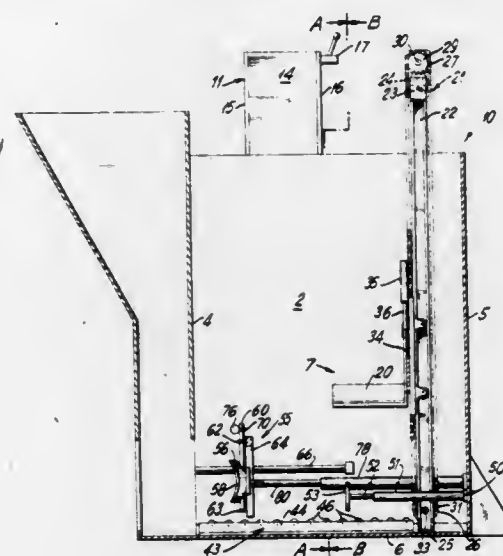
1. An apparatus for positioning pipe sections to be joined with a previously positioned pipe section, said apparatus comprising:

a body adapted to be positioned partially below ground level

and having opposed side walls, end walls and a bottom wall;

an elevator connected within said body, a pipe cradle moved by said elevator and adapted to removably hold a pipe section, pipe cradle control means which under operator determination controls the pipe cradle to hold and release a pipe section, elevator motor means to operate said elevator and thereby raise and lower said pipe cradle, and elevator control means which under operator determination controls said elevator motor means;

a horizontally aligned track within said body and partly positioned beneath said elevator to receive and support a pipe section deposited from said pipe cradle, ram means



within said body to move the pipe section along said track, ram motor means to operate said ram means, and ram control means which under operator determination controls said ram motor means;

a pipe clamp assembly within said body and positioned at least partially over said track to removably fasten on a pipe section, said pipe clamp assembly comprising clamp means to close and hold the pipe section and to open and release the pipe section, pipe clamp motor means to open and close said clamp means, pipe clamp control means which under operator determination controls the pipe clamp motor means, and pipe clamp assembly motion means which under operator control moves the pipe clamp assembly to position the clamped pipe section.

4,363,595

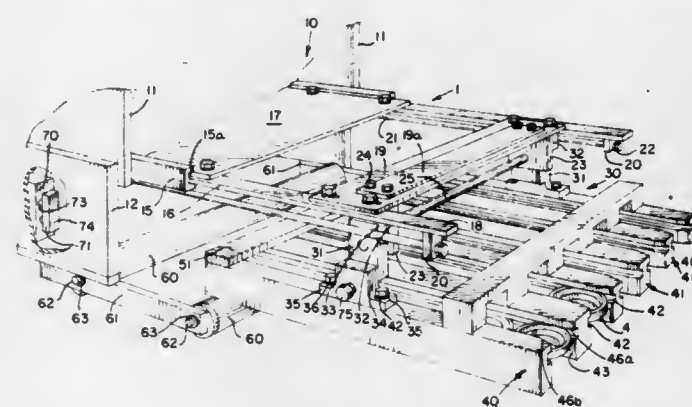
APPARATUS FOR UNLOADING MOLDED ARTICLES

Jerry D. Reichenbach, Carpentersville, and Keith W. Christiansen, Fox River Grove, both of Ill., assignors to Chicago Rawhide Manufacturing Company, Elgin, Ill.

Filed May 12, 1980, Ser. No. 148,916
Int. Cl.³ B29C 3/04

U.S. Cl. 414—749

7 Claims



1. An apparatus for unloading molded articles from a molding press, said molding apparatus comprising, in combination,

an unloading apparatus support plate adapted to be operatively positioned relative to a molding press so as to lie generally parallel to the plane of the plate on which the molded products in said press are positioned for unloading, a reciprocable unloader carrier unit mounted for sliding movement relative to said support plate along an axis parallel to the extent of said plate, an unloading assembly carried and positioned by said carrier unit, said unloading assembly comprising a multiple track unloader which includes a plurality of spaced apart unloader bars, each bar having a slot therein and disposed in facing relation to an associated slot in an adjacent bar, whereby associated pairs of slots comprise individual tracks for receiving said molded articles, means for extending and withdrawing said unloader carrier and said unloading assembly for collecting molded articles from said tracks, said apparatus further including means for pivotally mounting said multiple track unloader relative to said unloader received when said unloader lies in one plane and carrier for swinging movement, whereby said articles may be discharged when said unloader is pivoted so as to lie in another plane.

4,363,596

METHOD AND APPARATUS FOR SURGE DETECTION AND CONTROL IN CENTRIFUGAL GAS COMPRESSORS

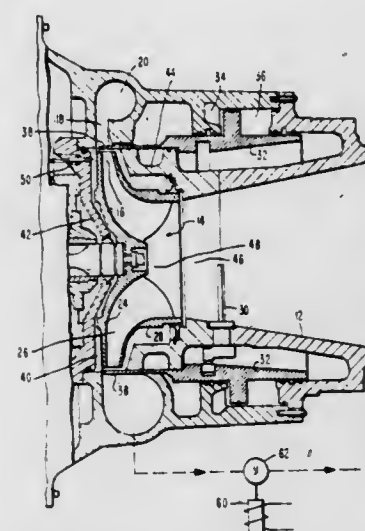
Thomas E. Watson, Staunton, and Paul R. Smallwood, Jr., Grottoes, both of Va., assignors to McQuay-Perfex, Inc., Minneapolis, Minn.

Division of Ser. No. 49,686, Jun. 18, 1979, Pat. No. 4,265,589.
This application May 19, 1980, Ser. No. 150,844

Int. Cl.³ F01D 2/12

U.S. Cl. 415—1

2 Claims



1. In a centrifugal gas compressor having an impeller with a back plate mounted in an impeller chamber having a back wall, the method of detecting a surge condition comprising sensing a temperature rise beyond a predetermined value in a space in the impeller chamber of the compressor, exterior of the flow path of gas through the impeller and at a location between the impeller back plate and the back wall of the impeller chamber.

4,363,597

METHOD FOR OPERATING PUMPS

Sachio Tsunoda, and Katsumori Shirasu, both of Yokohama, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Dec. 5, 1980, Ser. No. 213,231

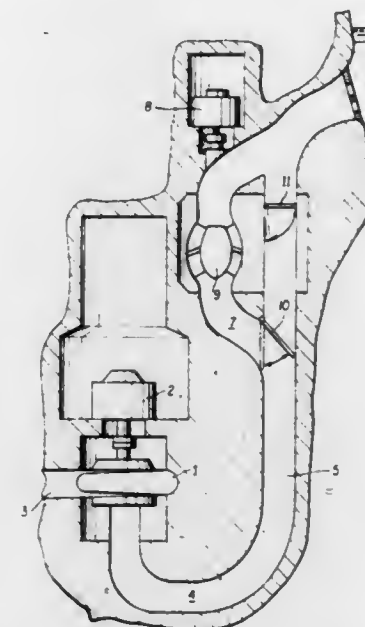
Claims priority, application Japan, Dec. 28, 1979, 54-173292
Int. Cl.³ F03B 3/10

U.S. Cl. 415—1

4 Claims

1. A method for operating pumps in a pumping-up power plant having a single speed reversible pump turbine and a booster pump, said booster pump being provided in a branch pipe which is in parallel with a portion of a draft tunnel between said pump turbine and a lower reservoir, comprising the steps of:

closing an inlet valve at the discharge side of said pump turbine;
closing said portion of said draft tunnel which runs parallel with said branch pipe;
opening said branch pipe;
starting said pump turbine in air as a pump;



starting exhaustion of the air remaining inside said pump turbine after the rotation speed thereof reaches a predetermined value;

starting said booster pump after starting said exhaustion; and opening said inlet valve at the discharge side of said pump turbine after the rotation speed of said booster pump reaches a predetermined value.

4,363,598

MULTISTAGE SIDE-CHANNEL COMPRESSOR

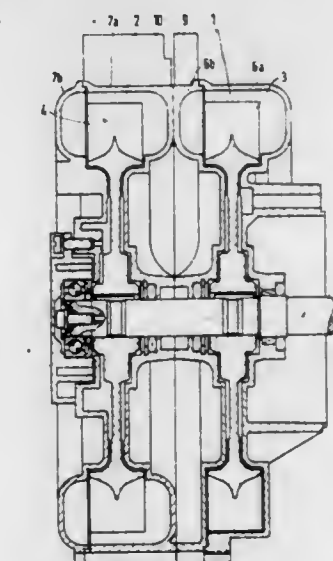
Siegfried Schönwald, Bad Neustadt, and Gert Hecht, Bremen, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany
Continuation of Ser. No. 896,232, Apr. 13, 1978, abandoned.

This application Jun. 9, 1980, Ser. No. 157,891
Claims priority, application Fed. Rep. of Germany, May 11, 1977, 7715000[U]

Int. Cl.³ F04D 5/00

U.S. Cl. 415—53 T

1 Claim



1. A multistage side channel compressor comprising: an input stage having an input and an output, and an output stage axially coupled to the input stage, the output stage having an input which is coupled to the output of input stage and an output, in which:

each stage comprises a first housing half and a second housing half, each housing half having a circumference, and the first housing half of the input stage and the second housing half of the output stage comprise a compact housing for a single stage compressor and are without cooling fins on their circumferences, and further comprising:

- a first plurality of radially outward extending cooling fins on the circumference of the second housing half of the input stage; and
- a second plurality of radially outward extending cooling fins on the circumference of the first housing half of the output stage.

4,363,599

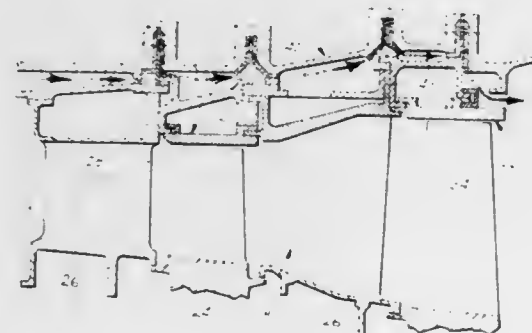
CLEARANCE CONTROL

Larry D. Cline, Fairfield; Ambrose A. Hauser, Wyoming; James E. Sidenstick, Cincinnati, and Mark S. Zlatich, West Chester, all of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Oct. 31, 1979, Ser. No. 89,790
Int. Cl.³ F01D 25/26

U.S. Cl. 415-136

9 Claims



1. An improved turbomachine having a compressor section and a turbine section with turbine parts rotating in close clearance relationship within a circumferential turbine shroud structure for operation over a range of temperatures and speeds, wherein the improvement comprises:

at least one pair of clearance control rings structurally integrated into a turbine case surrounding the turbine section, wherein said rings comprise radially extending structures that are provided with internal passages for directing a fluid through said pair of rings to control thermal growth thereof, said pair of rings being generally radially aligned with a turbine shroud, a first control ring of said pair being generally radially aligned with an upstream end of said turbine shroud with a second control ring of said pair being generally radially aligned with a downstream end of said turbine shroud; and

means for causing thermal growth of said turbine shroud to respond to thermal growth of said pair of control rings for the purpose of controlling clearance between said turbine shroud and said rotating turbine parts wherein said generally aligned pair of control rings causes said turbine shroud to expand and contract radially and remain parallel to a central axis of said turbomachine.

4,363,600

VARIABLE VANE MOUNTING

Glenn W. Thebert, Carmel, Ind., assignor to General Motors Corporation, Detroit, Mich.

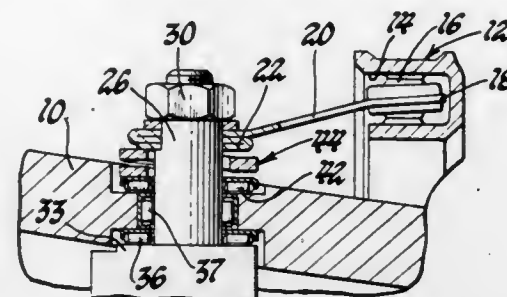
Filed Apr. 6, 1981, Ser. No. 251,070
Int. Cl.³ F01D 9/02

U.S. Cl. 415-156

4 Claims

1. In a turbomachine of the type having an outer casing and an adjustable stator vane assembly including a vane with a shaft portion rotatably supported on said outer casing, a bearing surface on said vane, a thrust bearing between said bearing surface and said outer casing for permitting rotation of said

vane while resisting thrust loading in the direction of said shaft portion induced by fluid flow through said turbomachine, said thrust loading being offset relative to said shaft portion and producing offset loading on said thrust bearing, and actuator arm means connected to said shaft portion outboard of said



outer casing for rotating said vane, the improvement comprising, spring means disposed outboard of said casing engageable on said shaft portion to effect application of spring force on said shaft portion in offset fashion thereby to develop on said shaft portion offset loading counter to said thrust force induced offset loading on said stator vane.

4,363,601

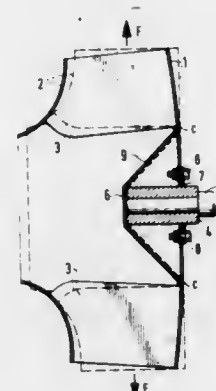
IMPELLER IN A CENTRIFUGAL BLOWER

Seppo J. Leskinen, Västerskog, Finland, assignor to OY Nokia AB, Helsinki, Finland

Filed Jan. 28, 1980, Ser. No. 115,622
Claims priority, application Finland, Jan. 19, 1979, 790284
Int. Cl.³ F04D 29/28

U.S. Cl. 416-188

12 Claims



1. A centrifugal-blower impeller assembly comprising:

- a front plate,
- a back plate spaced from said front plate,
- a plurality of blades extending between and attached to said front and back plates,
- a hub attached to said back plate, and
- means for prestressing said back plate in a direction generally opposite to the stresses produced by centrifugal force when said impeller assembly rotates, whereby said back plate is in an initially prestressed condition prior to impeller operation.

4,363,602

COMPOSITE AIR FOIL AND DISC ASSEMBLY

Jack R. Martin, Bedford, Mass., assignor to General Electric Company, Lynn, Mass.

Filed Feb. 27, 1980, Ser. No. 125,063
Int. Cl.³ F01D 5/34

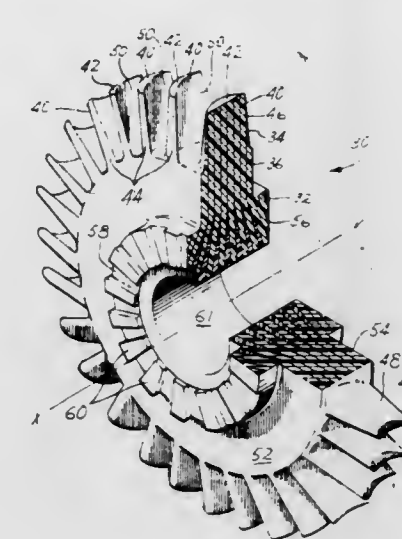
U.S. Cl. 416-230

6 Claims

1. For use in a turbomachine, an integral composite airfoil and disc assembly adapted for rotation about an axis said assembly including a radially outer airfoil portion having a plurality of generally radially and axially extending circumferen-

tially spaced-apart airfoils and a bore portion disposed radially inward of said airfoil portion, the invention comprising:

a first plurality of filamented plies comprising said airfoil portion and said bore portion, said plies including a plurality of first filaments comprising one of said airfoils and disposed generally parallel to a radial line emanating perpendicularly from said axis, said plies disposed axially adjacent each other in said airfoil portion, at least two adjacent plies playing in said bore portion axially away from each other providing in said bore portion an axial gap between said splayed apart adjacent plies:



a second plurality of filamented plies disposed in said gap, said second plurality of plies including a second filament oriented to extend generally in a direction circumferential about said axis, and wherein said axial gap between said adjacent plies increases in axial width in the radially inward direction and said second plurality of plies has axial cross-sectional width which increases in the radially inward direction; and

a matrix material interspersed between said first plurality of filament plies and said second filament.

4,363,603

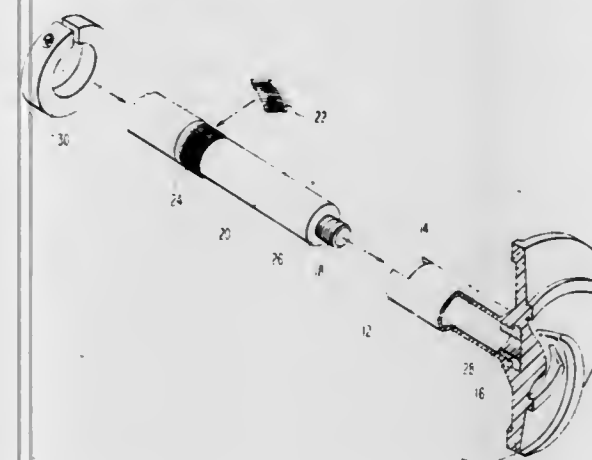
PUMP IMPELLER ASSEMBLY WITH ANTI-ROTATION DEVICE

Ray R. Petersen, Huntingdon Valley, Pa., assignor to Met-Pro Corporation, Harleysville, Pa.

Filed Apr. 14, 1980, Ser. No. 139,891
Int. Cl.³ F04D 29/04; F16D 1/08

U.S. Cl. 416-244 R

8 Claims



1. In a pump construction of the type in which a rotatable impeller means is threaded onto a driving shaft means, the improvement which comprises providing said impeller means with integral tubular means for mating with said driving shaft,

said tubular means having a portion of predetermined shape removed therefrom, providing said driving shaft with radially symmetric locking means and providing means interacting with said removed portion and said radially symmetric locking means whereby said impeller means is fixed with respect to said shaft, said means interacting with said portion comprising a portion of a cylinder of the same radius as said tubular portion of said impeller and having means on the internal surface thereof interacting with means on the surface of said driving shaft for locking said impeller means to said driving shaft means.

4,363,604

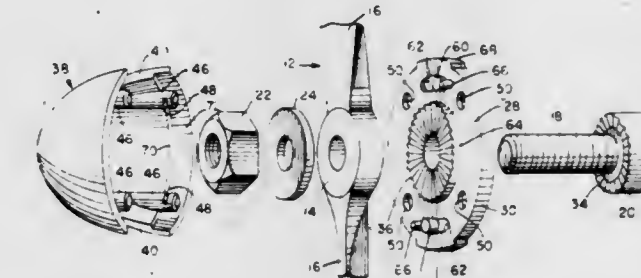
PROPELLER SPINNER FOR MODEL AIRPLANES OR THE LIKE

Dewey O. Broberg, Jr., Long Grove, Ill., assignor to Du-Bro Products, Wauconda, Ill.

Filed Jan. 8, 1981, Ser. No. 223,265
Int. Cl.³ B64C 11/14

U.S. Cl. 416-245 R

26 Claims



1. A spinner for use with a model airplane, or the like, which has a propeller on a propeller shaft, the propeller having propeller blades with shanks, and the propeller being disposed between a thrust plate fixed to the propeller shaft and retaining means such as a propeller nut threaded onto the propeller shaft, comprising:

a base plate having a passage for receiving the propeller shaft axially therethrough, said base plate being positionable between the thrust plate and the propeller and held in such assembly for conjoint rotation by said propeller nut; an air piercing nose cone located forwardly of the propeller and having a base portion engageable with said base plate, said nose cone having radial openings for receiving the shanks of the propeller blades;

locking means mounted on said base plate for movement relative thereto between a locking position and a release position; and

engaging means on said nose cone complementarily engageable by said locking means when in said locking position to hold the nose cone on said base plate for conjoint rotation therewith, said engaging means being disengaged by said locking means when in said release position to permit the nose cone to be readily removed for access to said retaining means.

4,363,605

APPARATUS FOR GENERATING AN ELECTRICAL SIGNAL WHICH IS PROPORTIONAL TO THE TENSION IN A BRIDLE

Manuel D. Mills, 2808 Delano, Midland, Tex. 79701

Filed Nov. 3, 1980, Ser. No. 203,529
Int. Cl.³ F04B 49/06

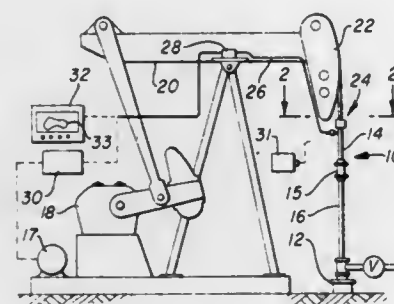
U.S. Cl. 417-44

8 Claims

5. In a pump jack unit having a bridle which reciprocates a rod string, a motor for said pump jack unit, circuit means including a switch means for controlling the flow of current to

the motor of the pump jack unit; the combination with said pump jack unit of an apparatus for generating an electrical signal which is proportional to the tension in the bridle which supports the string of sucker rods;

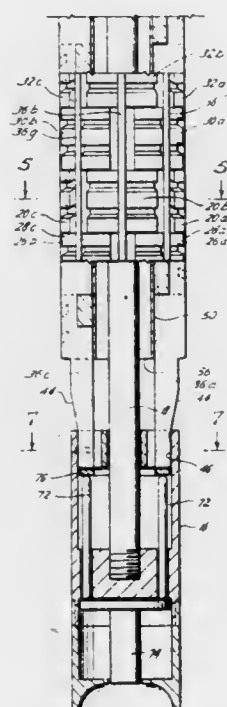
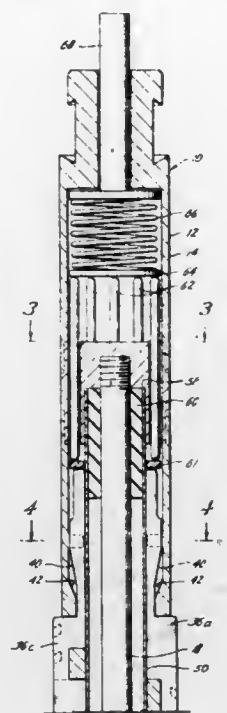
said apparatus comprising a frame, cable engaging means connecting said frame to one cable of the bridle; a load cell, means mounting said load cell to said frame; another cable engaging means connected between said load cell and another cable of the bridle such that the load cell is placed in compression when the rod string is placed in



tension; and, means by which said cable engaging means can be moved respective to one another to thereby resistingly move the bridle cables laterally respective to one another while increasing the compression placed on the load cell;

means responsive to said signal for actuating said switch means when said signal is of a predetermined configuration, so that said circuit means can be used to de-energize the motor of a pump jack unit whenever a pump-off condition is encountered.

means for expanding said segments when the body reaches the bottom of the well,



said segments include an inner arcuate surface and means sealing the inner arcuate surfaces of said segments, and said sealing means includes a tubular spring member.

4,363,606

FREE PISTON PUMP FOR PUMPING LIQUIDS FROM A WELL

Raymond L. Kilgore, P.O. Box 1715, Corpus Christi, Tex. 78403
Filed Jun. 30, 1980, Ser. No. 164,635

Int. Cl.³ F04B 47/12

U.S. Cl. 417-59

8 Claims

1. A free piston pump for pumping liquids from a conduit in a liquid-gas well comprising,

a body,
a plurality of vertically and horizontally spaced piston segments supported from the body and radially movable inwardly and outwardly, said vertically spaced piston segments being sealingly interengaged, said segments having an outer arcuate surface for sealing with the interior of a well conduit,

means for retracting said segments when the body reaches the top of the well,

4,363,607

RADIAL PISTON PUMP

Erich Eichele, Schwab Gmund, and Winfried de Maight, Murlangen, both of Fed. Rep. of Germany, assignors to Zahnradfabrik Friedrichshafen, AG, Friedrichshafen, Fed. Rep. of Germany

Filed Jan. 14, 1980, Ser. No. 111,916

Claims' priority, application Fed. Rep. of Germany, Jan. 13, 1979, 2901240

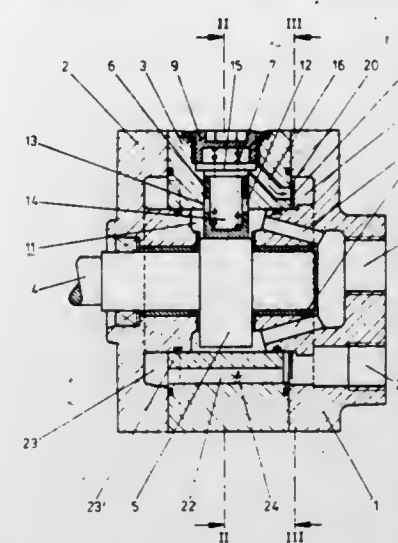
Int. Cl.³ F04B 1/18, 27/04

U.S. Cl. 417-273

2 Claims

1. In a radial piston pump construction having a housing (1-2-3) mounting a plurality of spring-loaded plungers (6) operated by an eccentric (5) to effect unidirectional flow of fluid from chambers (14) internally of the plungers to a surge chamber (18) connected to an outlet (21), the improvement residing in a second surge chamber (23) enclosed in the housing, and conduit means (22) interconnecting said surge chambers, said

conduit means comprising a plurality of connecting passages formed in said housing, said housing including a body (3) within which the plungers are mounted and a pair of end covers (1 and 2) secured to the body in a axially spaced relation



to each other, said first mentioned surge chamber (18) being formed by an annular cavity in one of the end covers (1), the second surge chamber (23) being formed by an annular cavity in the other of the end covers (2).

4,363,608

THRUST BEARING ARRANGEMENT

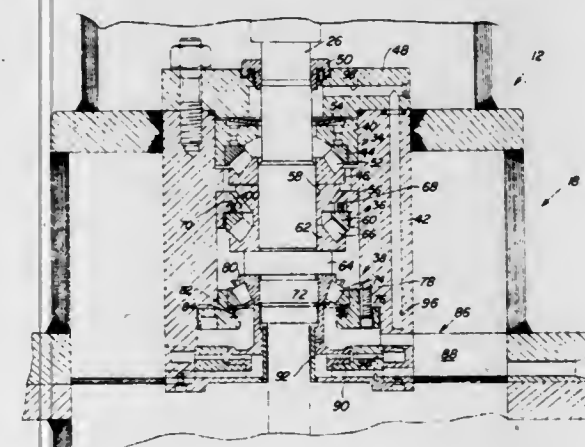
Jan A. Mulders, Etten-Leur, Netherlands, assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Apr. 20, 1981, Ser. No. 255,946

Int. Cl.³ F04B 21/00; F16C 19/30

U.S. Cl. 417-424

5 Claims



4. A vertical pump assembly comprising an impeller for pumping fluid from an intake to an outlet and a motor for driving said impeller, and a thrust bearing arrangement located between said impeller and said motor, said thrust bearing arrangement comprising

an upper, middle and lower bearing, each spaced from the others;

means to preload each of the middle and lower bearings to apply a first-value load thereto; and

means to preload the upper bearing to apply a second and higher value load thereto;

said bearing assembly being so constructed and arranged that said last-named means transmits its load to said lower bearing under no upwardly directed thrust load conditions such that said lower bearing shares the load of said upper bearing while said middle bearing continues to carry its preload, and said middle and upper bearings carry the load under the upwardly directed load conditions while at the maximum upwardly load conditions the lower bearing carries only its preload.

4,363,609

BLOOD PUMP SYSTEM

Louis C. Cosentino, Wayzata; Bill H. Niemi, Brooklyn Park; John P. Silbernagel, Spring Lake Park, and Jamshed R. Cooper, Golden Valley, all of Minn., assignors to Renal Systems, Inc., Minneapolis, Minn.

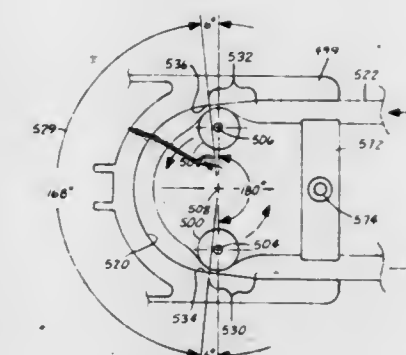
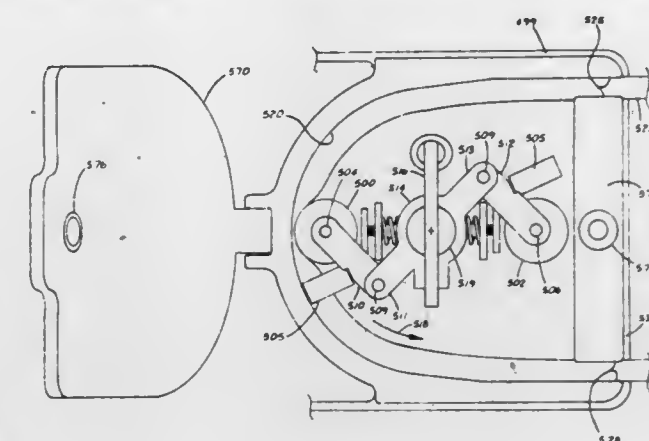
Division of Ser. No. 849,338, Nov. 7, 1977, Pat. No. 4,221,543.

This application Jan. 23, 1980, Ser. No. 114,717

Int. Cl.³ F04B 43/12

U.S. Cl. 417-477

6 Claims



1. In a pump comprising an arcuate bearing surface adapted to carry a flexible tube through which fluid may pass, a pair of 180° spaced-apart, pivotally-mounted rollers whose axes travel along a circular path concentric with said bearing surface whereby said rollers occlude the tube so as to pump the fluid therethrough, means for rotating said rollers around said circular path, and lead ramps extending from each end of said bearing surface, the improvement wherein:

said bearing surface defines an arc of approximately 168° and each of said lead ramps is substantially tangent to the end of the bearing surface from which said respective lead ramp extends so as to provide the optimal torque peak reduction for driving said pump, and the optimal graduated change in cross-section of the bore of the tube as each of said rollers approach and recede from the points of occlusion of the tube;

and further comprising means located radially with respect to the axis of rotation of said rotating means independently operable with respect to each of said rollers for independently and precisely varying the extent to which each of said rollers occludes the tube, including means for continuously adjusting the radial deflection of each roller as it occludes the tube so as to provide proper occlusion despite tube irregularities while allowing for varying the rate of change of radial force applied to each of said rollers, said means for varying the extent to which each of said rollers occludes the tube comprising two separate arms, each of said arms carrying one of said rollers, said continuously adjusting means comprising a separate thumb wheel threadedly connected to each of said arms, each of said thumb wheels having a neck portion, and compression spring and an elastic sleeve concentrically located around said neck portion, said spring being spaced from said

sleeve and said sleeve being located within said spring and supported by said neck portion.

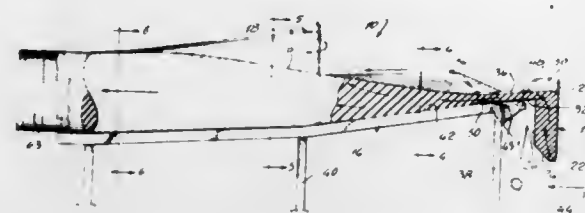
4,363,610

APPARATUS FOR CONTINUOUSLY MOLDING CYLINDRICAL BLOCKS OF FOAMED POLYMERIC MATERIAL

Bruce A. Murray, Dollard des Ormeaux; Peter H. Hasler, and Augustin Roth, both of St. Leonard, all of Canada, assignors to Miller Foam Enterprises, Inc., Montreal, Canada
Filed Jan. 26, 1981, Ser. No. 228,582
Int. Cl.³ B29D 27/04; B29C 1/04

U.S. Cl. 425—89

6 Claims



1. An apparatus for forming cylindrical foam polymeric blocks, comprising an upright prefoaming trough, a weir including a flange extending from an upper edge of the trough, means for feeding a first web in a flattened condition immediately below the flange in a flat plane for receiving freely expanding polymeric foam exuding from the trough over the weir, means for supporting the web below and downstream of the flange, means for first shaping the web to have a channel shape in a first stage, means for succeeding in shaping the web to have a U-shaped curvilinear cross-section in a second stage, means for feeding a pair of opposite wall forming webs merging with the first web, means for succeeding in shaping the first web in the merging pair of webs to have a circular cross-section in a third stage, and means for advancing the webs and the so-formed cylindrical polymeric foam block.

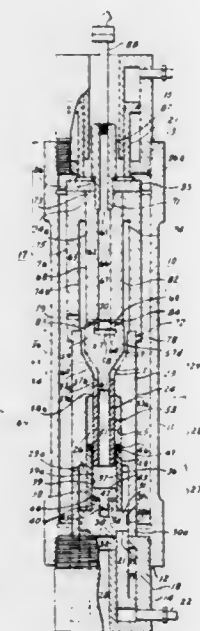
4,363,611

APPARATUS FOR HYDROSTATIC EXTRUSION OF THERMOPLASTIC POLYMERS

Alfred R. Austen, Center Valley, and Darral V. Humphries, Allentown, both of Pa., assignors to Bethlehem Steel Corporation, Bethlehem, Pa.
Division of Ser. No. 72,807, Sep. 5, 1979, Pat. No. 4,282,277, which is a continuation-in-part of Ser. No. 941,116, Sep. 8, 1978, abandoned. This application Oct. 30, 1980, Ser. No. 202,282
Int. Cl.³ B30B 11/30

U.S. Cl. 425—97

3 Claims



1. A hydrostatic extrusion press provided with means for

applying extrusion pressure to extrude a generally cylindrical semi-crystalline thermoplastic polymer preform having an outer surface and a bore surface whereby the preform is forced to pass in a solid state through an annular orifice defined by the surface of a die section in spaced relationship with the surface of a mandrel-head supported by a mandrel and means for rigidly aligning the press during extrusion, the press comprising:

- (a) an outer support means having two ends
- (b) a container means aligned within one end of the outer support means and including a shell having an outer surface and an inner surface and two end surfaces, a plug and piston assembly closing one end of the shell,
- (c) the die section being a continuous surface with respect to one end of the inner surface of the shell of the container means and including a converging first section, a first generally cylindrical land surface axially aligned with respect to the apparatus, a second generally cylindrical land surface larger in diameter than the first generally cylindrical land surface and parallel thereto and a diverging conical surface connecting the first and second generally cylindrical parallel land surfaces and forming an angle α of between 15° and 45° with the axis of the apparatus,
- (d) an extrudate receiving means aligned within the other end of the outer support means and including a shell having an outer surface and an inner surface and two end surfaces, a mandrel having two ends coaxially aligned within the outer shell and generally in spaced relationship to the inner surface thereof,
- (e) a generally conical mandrel-head supported on the other end of the mandrel and in spaced relation with the surfaces of the die section, having a recessed base surface, a generally cylindrical tapering upper portion which forms an angle β of between 20° and 50° with the axis of the apparatus and a generally cylindrical nose portion,
- (f) an annular orifice formed by surfaces of the mandrel-head and the die section comprised of:
 - (i) a generally converging conical entrance,
 - (ii) a generally cylindrical sealing zone,
 - (iii) a generally conically shaped expanding zone having a generally converging cross-sectional area and a diametrically diverging geometry,
 - (iv) a generally cylindrical sizing zone parallel to the sealing zone and having a smaller cross-sectional area and a median diameter which is at least 100 percent larger than the median diameter of the sealing zone, and
 - (v) transition zones of desired radii and smooth surfaces between any two of the zones whereby the billet is substantially simultaneously expanded circumferentially at least 100 percent and axially elongated at least 50 percent, and
- (g) sealing means formed by the surfaces of the mandrel-head in contact with the inner surface of the billet and the die surfaces in contact with the outer surface of the billet in the container assembly whereby leakage of fluid is prevented during loading and prior to extrusion and a film of the hydrostatic fluid is formed on the surfaces of the billet during extrusion
- (h) a first pressurizing means disposed adjacent ones of the two ends of the outer support means and contiguous with the plug and piston assembly and one end surface of the container assembly of (d) whereby pressure for extrusion is applied to the preform, and
- (i) a second pressurizing means disposed adjacent the opposite end of the outer support means and contiguous with one end of the extrudate receiving means and coaxing with the first pressurizing means to rigidly align the extrusion press.

4,363,612

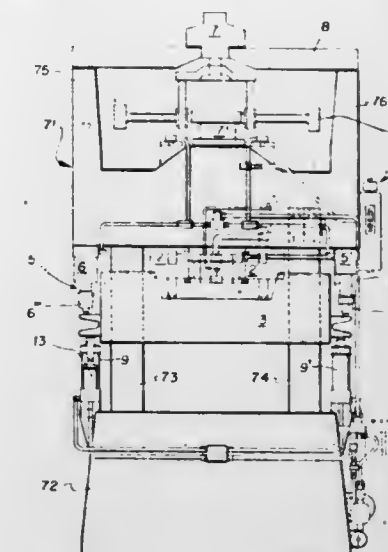
FLYWHEEL AND SCREW PRESS FOR PRODUCING CERAMIC ARTICLES

Ulrich Walchhutter, Rua Corrego Tiburcio No. 74, Sao Paulo, Brazil

Continuation-in-part of Ser. No. 25,085, Mar. 29, 1979, abandoned. This application Oct. 23, 1981, Ser. No. 314,508
Int. Cl.³ B29C 3/00

U.S. Cl. 425—167

4 Claims



1. A flywheel and screw press for producing ceramic articles comprising, in combination, a base having an upper surface; a fixed head; support means supporting said fixed head in fixed position upwardly spaced from said upper surface of said base; a movable beam located in the space between said upper surface and said fixed head and being guided on said support means for movement toward and away from said upper surface; mould means carried by said base and provided with cavities open upwardly for receiving a charge of ceramic powder material, punch means carried by said movable beam and designed to cooperate with said cavities for forming ceramic articles, a first pair of hydraulic piston means carried by said base and provided for imparting an upwardly directed thrust to said movable beam; a second pair of hydraulic piston means carried by said fixed head and provided for imparting a downwardly directed thrust to said movable beam, said first and second pair of hydraulic piston means cooperating for controlling the downward stroke of said movable beam for imparting to the powder in the cavities a soft pre-compression causing a first thickness reduction of the powder mass and an appreciable expulsion of the air enclosed; a third pair of hydraulic piston means carried by said fixed head and controlled for acting on the movable beam and performing the first compacting step after the soft pre-compression; a fourth pair of elastically compressible hydraulic piston means carried by said base and provided with adjustable rod ends and able to interfere with said movable beam when the latter is further lowered during said first compacting step for impressing to said movable beam an upwardly directed thrust helping the elastic return of the compacted powder mass to raise said movable beam immediately after said first compacting step, allowing the expulsion of the remaining air; a flywheel disposed above said fixed head, a screw threadedly engaged to said flywheel and carried by said fixed head; motor means provided for alternatively imparting to said flywheel and screw rotation in one and in the other direction for lowering and raising said flywheel and screw, and control means for controlling said motor means to operate said flywheel and screw in the lowering direction in due time for impacting said movable beam and performing a strong second and ultimate compacting step of the powder material immediately after the elastic return of the powder material; and hydraulic circuit means for timely controlling and energizing all the pairs of said hydraulic piston means, said hydraulic circuit means, interconnecting all the pairs of said hydraulic piston means.

4,363,613

APPARATUS FOR FORMING PROTUBERANCES ON A LINE

Larry W. Stelck, 116 Easy Street Ct., Edmond, Okla. 73034
Filed Jan. 9, 1981, Ser. No. 223,732

Int. Cl.³ B29D 31/00; B29C 25/00
U.S. Cl. 425—237

14 Claims



1. An apparatus for forming protuberances on a line, comprising: heating means for heating the line; and squeezing means for compressing portions of the heated line so that other portions of the line are forced outward of said compressed portions to form protuberances with respect thereto, said squeezing means including: first roller means including a first surface defining a first groove extending perimetricaly around said first roller means, said first surface having a plurality of cavities disposed therein; second roller means including a second surface defining a second groove extending perimetricaly around said second roller means, said second surface having a plurality of cavities disposed therein; and support means for retaining said first and second roller means in adjacent relation so that said first and second grooves are substantially aligned.

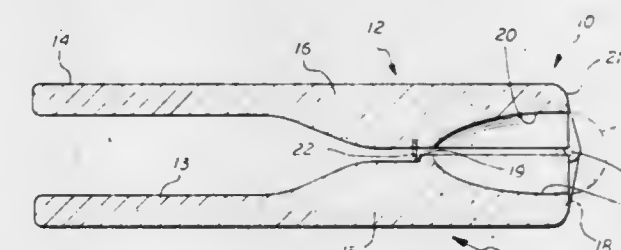
4,363,614

DUMPLING OR RAVIOLI PRESS

Jadczysz Zaremba, 2602 Haverhill, Houston, Tex. 77008
Filed May 18, 1981, Ser. No. 264,298

Int. Cl.³ B29C 1/00, 15/00, 17/10, 24/00
U.S. Cl. 425—298

8 Claims



1. A combined press and cutter for preparation of filled dough products of the dumpling or ravioli type, comprising a pair of forming and cutting members having hinges interconnecting the same at one end and having operating handles at the other end for opening and closing thereof, each of said members having a mold cavity cooperable with the cavity on the other member and defining a cavity for a filled dough product when closed, each of said cavities being open to the end of said members adjacent to said hinges and providing an opening from said dough product cavity when said members are closed, cooperable cutting means on each of said members at the periphery of each of said cavities, whereby a flat or rolled dough product can be placed across both of said cavities when said members are opened, and a filling placed thereon, and closing movement of said members brings the same together to force said dough and filling into said cavities, sealing the peripheral edge

thereof, and said cutting means being operable to cut the excess dough from the product, with said last named opening permitting expansion of said dough filled product to complete the forming thereof without bursting.

4,363,615
DRIVABLE ROLL OF CONTROLLABLE FLEXURE,
PARTICULARLY FOR MACHINES FOR THE
PRODUCTION AND PROCESSING OF WEBS OF PAPER
OR PLASTIC

Walter Bolender, Erkrath, Fed. Rep. of Germany, assignor to ER-WE-PA Maschinenfabrik u. Eisengiesserei GmbH, Erkrath, Fed. Rep. of Germany

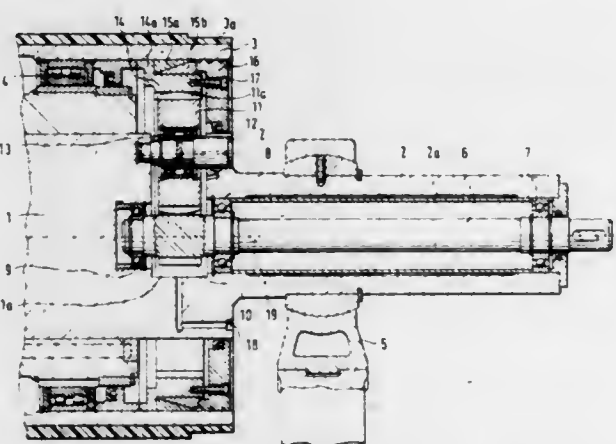
Filed Sep. 30, 1981, Ser. No. 307,253

Claims priority, application Fed. Rep. of Germany, Oct. 13, 1980, 3038587

Int. Cl.³ B30B 3/00

U.S. Cl. 425—363

4 Claims



1. In a drivable roll of controllable flexure, particularly for machines for the production and processing of webs of paper or plastic, which comprises a substantially cylindrical inner part which through journals is firmly supported on a bearing surface, and a tubular outer part which surrounds the inner part and is supported at both ends on the inner part for rotation about the cylinder axis, there being disposed on the inner part along a generatrix means for the generation of compulsive forces acting radially between the inner part and the outer part, a drive shaft which extends coaxially through one of the journals and in proximity to its outer end is supported on the journal being connected to a center gear which through a gear train mounted on the inner part drives an internal ring gear that is coaxial with the outer part and is in a driving relation therewith, the improvement wherein said drive shaft is supported at its inner end on said inner part and said center gear is integral with said drive shaft and said gear train comprises a single idler gear whose axis of rotation is parallel to the axis of said drive shaft, and whose teeth have a crest which arcuately slopes downwardly on either side in the direction of the axis of rotation, said internal ring gear being set into the outer part and secured through clamping means to the internal surface of said outer part.

4,363,616
MACHINE AND PART THEREFOR
David H. Thomas, Middlesbrough, England, assignor to Imperial Chemical Industries Limited, London, England
Filed Jun. 6, 1977, Ser. No. 803,781

Claims priority, application United Kingdom, Jun. 18, 1976, 25348/76; Nov. 29, 1976, 49621/76

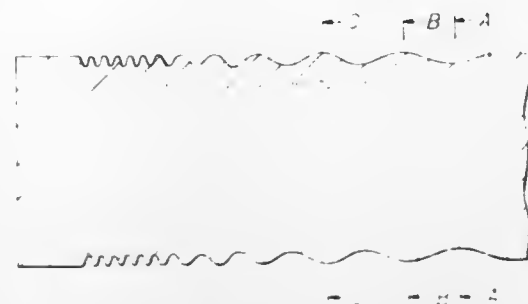
Int. Cl.³ B29D 7/14

U.S. Cl. 425—339

16 Claims

1. A sheet moulding machine comprising at least one roller and adjacent cooperating surface located so that sheet is able to be extruded between the roller and the surface, the surface of the roller being wave-shaped along at least part of its longitudinal

axis, the wave lengths decreasing progressively from the mid-point of the longitudinal axis at least part of the way



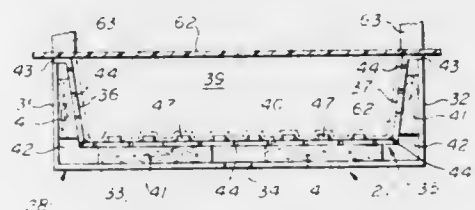
towards each end of the roller and the waves having substantially constant amplitude.

4,363,617
VACUUM MOLD FOR PLASTICS
Franklin D. Hirsekorn, 105 Rosamond, Houston, Tex. 77076
Filed Jul. 17, 1981, Ser. No. 284,352

Int. Cl.³ B29C 17/04

U.S. Cl. 425—388

13 Claims



1. A vacuum forming mold for forming sheet plastic into bed liners for the beds of pick-up trucks, comprising an open top rectangular box-shaped mold having a hollow wall construction with an outer supporting wall and an inner wall spaced therefrom with space therebetween adapted to be subjected to vacuum for vacuum forming sheet plastic, said inner mold wall having a bottom wall, side walls and end walls, said side walls having a side to side width to accommodate the standard width of the bed of a pick-up truck of United States or foreign manufacture, said mold having a length between the end wall thereof at least equal to the maximum length of the bed of a pick-up truck of United States or foreign manufacture, respectively, a plurality of removable mold parts adapted to be secured on said inner mold wall and having a size and shape corresponding to features of a selected make of pick-up truck, said inner mold wall having a plurality of small holes therein uniformly spaced on said bottom wall and spaced around the edges of said removable mold parts, whereby the application of a vacuum to the space between said outer and inner walls is effective to draw a sheet of heated plastic into intimate contact with said inner wall and the surface of said removable mold parts, and said outer wall having an opening for application of a vacuum thereto.

4,363,618
TRIANGULAR TRUSS SCREED HAVING AN END
MOUNTED GUIDE BRACKET FOR ENGAGING A
WALL-MOUNTED SUPPORT MEMBER

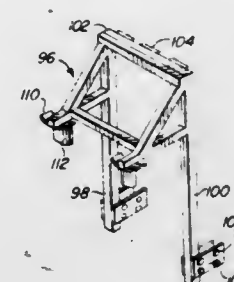
J. Dewayne Allen, Paragould, Ark., assignor to Allen Engineering Corporation, Paragould, Ark.

Division of Ser. No. 34,171, Apr. 26, 1979, Pat. No. 4,316,715. This application May 15, 1981, Ser. No. 264,053

Int. Cl.³ E01C 19/38

U.S. Cl. 425—458

8 Claims



6. A screed for leveling freshly poured concrete lying in an area between opposing side forms to produce a smooth, finished concrete surface, said screed comprising:
a. a triangular truss frame having first and second ends and a top support member forming the apex of said triangular truss;
b. front and rear screed blades coupled in a spaced apart relationship to the lower portion of the front and rear of said frame for leveling the upper surface of the concrete;
c. first and second vertically oriented end brackets coupled to the first and second ends of said frame and including front and rear vertically extending, spaced apart side members, said first and second end brackets including an upper section extending above said top support member and including a horizontal strut extending between said front and rear side members within the upper section of said bracket to maintain a predetermined horizontal spacing therebetween;
d. a detachable guide bracket coupled to said first end bracket for supporting and guiding one end of said screed along a horizontally oriented guide member coupled to the wall of a building at a selected vertical position well above the concrete surface, said guide bracket including:
i. a first vertically oriented side member including an upper section;
ii. a second vertically oriented side member spaced apart from said first side member by a distance equal to the spacing between the front and rear side members of said first end bracket and including an upper section;
iii. a spacing member coupled to the first and second vertically oriented side members within the upper section of said guide bracket for maintaining a predetermined horizontal spacing therebetween, said spacing member further including a lip extending under and around the horizontal strut of said first end bracket for locking together the horizontal strut of said guide bracket and the spacing member of said first end bracket;
iv. means for detachably coupling said first and second side members of said guide bracket to said front and rear side members of said first end bracket; and
v. guide means laterally extending from the upper sections of said first and second side members of said guide bracket for contacting said wall-mounted guide member to support the first end of said screed at a predetermined desired vertical position as said bracket is laterally translated along the length of said guide member, whereby the weight of the first end of said screed is transferred from said first end bracket through said guide bracket to said wall-mounted guide member to support the weight of the first end of said screed at a level above the top support member of said screed.

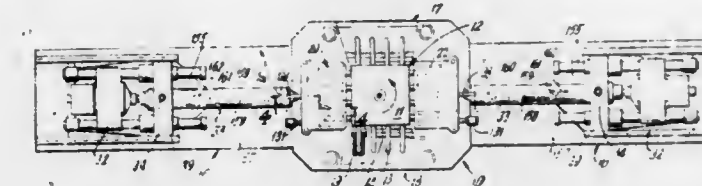
4,363,619
APPARATUS FOR MAKING WIDE MOUTH CONTAINER
John J. Farrell, Greenbrook, N.J., assignor to Farrell Patent Company, Middlesex, N.J.

Filed Jul. 28, 1980, Ser. No. 172,735

Int. Cl.³ B29C 17/07

U.S. Cl. 425—525

8 Claims



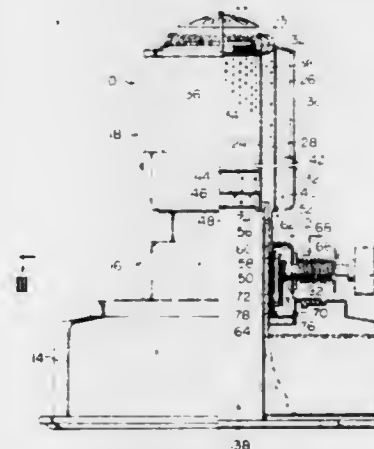
1. An apparatus for making a wide mouth container comprising means to injection mold a parison in a parison mold having a mouth portion and a body portion with said mouth portion having a greater diameter than said body portion, said parison mold comprising a movable mold means, a container mold, said parison mold comprising a cylindrical member and a core rod disposed in said parison mold so as to form a cavity therebetween in which the parison is molded, and means to move said parison mold comprising means to move said cylindrical member along said core rod so as to permit the parison to be formed against the walls of the container mold, said cylindrical member being formed with a flange, and a flange surrounding said core rod and being opposed to said cylindrical member flange so as to form a parison portion interconnecting the parison mouth portion and the parison body portion, and means to blow mold the parison to form the container and means to move said parison mold and said cylindrical member flange to permit the parison to be blow molded against the inside of the container mold and the cylindrical member flange, further comprising means operably associated with said cylindrical member flange to provide fluid pressure between the cylindrical member and the parison.

4,363,620
FIRE EXTINGUISHING DEVICE FOR OIL BURNER
Kazuharu Nakamura, Nagoya; Yutaka Nakanishi, Kounan, and Toshihiko Yamada, Toyoake, all of Japan, assignors to Toyotomi Kogyo Co., Ltd., Nagoya, Japan
Filed Dec. 1, 1980, Ser. No. 211,972

Int. Cl.³ F23H 5/00

U.S. Cl. 431—33

5 Claims



1. A fire extinguishing device for an oil burner comprising: a wick receiving chamber having a width larger than the thickness of a wick received therein; an air chamber disposed adjacent to said wick receiving chamber and having an opening communicated to said wick receiving chamber; and

a valve means provided at said air chamber, said valve means being actuated corresponding to the movement of said wick so as to allow said air chamber to be communicated therethrough to an ambient atmosphere when raising said wick and to allow said air chamber to be shut off from an ambient atmosphere when lowering said wick.

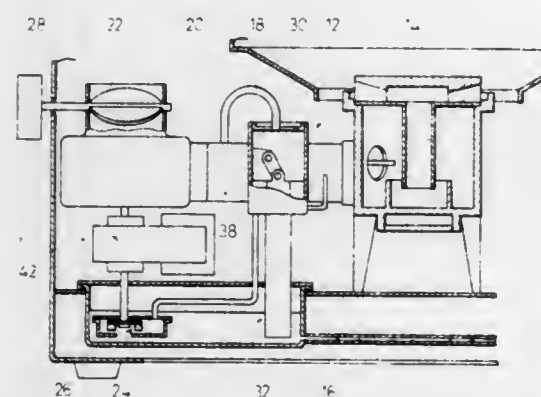
4,363,621

OIL BURNER OF TYPE OF PUMPING UP FUEL OIL
Kazuharu Nakamura, Motoki Matsumoto, and Akinobu Kondo, all of Nagoya, Japan, assignors to Toyotomi Kogyo Co., Ltd., Nagoya, Japan

Filed Jun. 11, 1980, Ser. No. 158,534
Int. Cl.³ F23K 5/00

U.S. Cl. 431-90

18 Claims



1. An oil burner of the type of pumping up a fuel oil comprising:

- a combustion means;
- an air supply means for supplying an air to said combustion means;
- a first oil level setting means of an airtight type for keeping the surface of a fuel oil introduced therein constant at a predetermined level, said first oil level setting means including a fuel oil reservoir connected through a fuel oil supply pipe to said combustion means and communicated at the upper space portion thereof through a ramification pipe to said air supply means so that the pressure of an air flowing through said air supply means may be applied onto the surface of a fuel oil in said reservoir;
- a second oil level setting means installed at a position below said first oil level setting means which keeps the surface of a fuel oil therein substantially constant at a predetermined level;
- a pumping-up means for drawing up a fuel oil supplied from said second oil level setting means to said first oil level setting means;
- said first oil level setting means further including an overflow pipe means connected to said reservoir which has an upper portion for overflowing an excess of fuel oil introduced in said reservoir positioned below the end of said fuel oil supply pipe extending into said combustion means and has a lower end immersed in a fuel oil to be pumped up to said first oil level setting means.

4,363,622

COMBUSTION FLASHBULB

Aloysius M. M. van Laarhoven, Tilburg, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 7, 1979, Ser. No. 46,538

Claims priority, application Netherlands, Jun. 20, 1978, 7806616

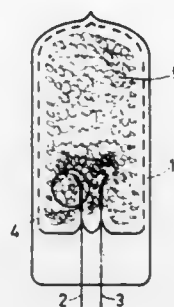
Int. Cl.³ F21K 5/02

U.S. Cl. 431-362

3 Claims

1. A combustion flashbulb having a sealed vacuum-tight light-pervious lamp envelope which is filled with an oxidizing gas and a mass of actinically-combustible metal strips, in which current conductors extend at a distance from each other from outside the envelope through the wall thereof into the lamp

envelope and are there each in contact with the mass of metal strips, said bulb having means to electrically ignite the bulb, characterized in that the current conductors inside the lamp envelope are coated at least locally with a dispersion of a metal



powder in a binder and that the igniting means of the bulb consist of the current conductors and a part of the mass of metal strips, which part is adhered to the current conductors by means of the dispersion of metal powder in a binder.

4,363,623

CASINGS FOR HEAT EXCHANGERS AND BURNER/RECUPERATOR ASSEMBLIES INCORPORATING SUCH CASINGS

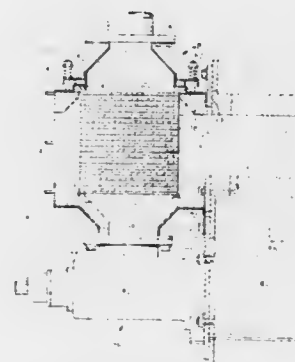
Heinz Brune, P. O. Box 3201, Station C, Hamilton, Ontario, Canada (L8H 7K6)

Division of Ser. No. 10,186, Feb. 7, 1979, Pat. No. 4,262,740.
This application Mar. 9, 1981, Ser. No. 241,892

Int. Cl.³ F24H 1/00; F23D 11/44

U.S. Cl. 432-219

2 Claims



1. A recuperative burner assembly for use with a heat exchanger core comprising a rectangular parallelepiped of ceramic material and having within itself separate first and second flow paths which are in heat exchange relation with one another and at right angles to one another, the assembly comprising:

- assembly mounting means for mounting the assembly to a furnace wall, the means having therein two spaced apertures for registry respectively with a burner tile delivering combusted gases to the furnace and a flue tile receiving hot flue gases from the furnace;
- enclosing means for the said core comprising a body of ceramic material having therein a parallelepiped shaped core space receiving the said core and mounting it therein, the ceramic body having a first inlet opening thereto and a first outlet opening therefrom for burner combustion air and having first passage means connecting said first inlet means, the said core space and the said first outlet means for the passage of the said combustion air;
- the said first inlet opening also constituting an opening through which the exchanger core is inserted into and removed from the core space;
- the ceramic body having a second inlet opening thereto and a second outlet opening therefrom for hot flue gas from the furnace and having second passage means connecting

the said second inlet, the said core space and the said second outlet for the passage of the said hot flue gas; the enclosing means also comprising a metal casing enclosing the ceramic body, connected directly to the said assembly mounting means to register with the flue tile aperture therein and having a removable cover providing the said first inlet;

the metal casing having at the said first outlet therefrom mounting means for a burner body and the assembly also comprising:

a fuel burner having its body connected directly to the said first outlet mounting means and to the said assembly mounting means, the burner inlet for combustion air being connected directly to the first outlet mounting means to receive heated combustion air therefrom and having its outlet for combusted fuel connected directly to the assembly mounting means in registry with the burner tile aperture to deliver the combusted gas thereto.

4,363,624

METHOD OF AFFIXING A DENTAL APPLIANCE

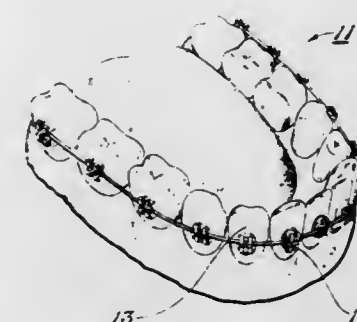
Reece W. Johnston, Fort Worth, Tex., assignor to Advance Dental Corporation, Fort Worth, Tex.

Continuation-in-part of Ser. No. 83,460, Oct. 10, 1979, abandoned, which is a continuation-in-part of Ser. No. 883,408, Mar. 6, 1978, Pat. No. 4,200,980. This application Oct. 9, 1980, Ser. No. 195,661

Int. Cl.³ A61C 7/00

U.S. Cl. 433-9

17 Claims



1. A method of affixing a dental appliance to at least one tooth, comprising the steps of:

- a. effecting on a predetermined etched and dried surface of the tooth to which a portion of a dental appliance is to be bonded a first layer of a substantially uniform admixture of two reactants of a three-reactant system consisting essentially of a bonding resin that is hydrolysis resistant, that is partially polymerized and that will polymerize further in the presence of a catalyst and an initiator to bond in the presence of acids and enzymes in the mouth and selected from the class consisting of epoxy resin, urethane resin, methacrylate resin, vinyl ester resin, and acrylate resin; a catalyst that will affect polymerization of said bonding resin and selected from the class consisting of benzoyl peroxide, and methyl ethyl ketone peroxide; and an initiator selected from the class consisting of N,N-dimethyl-para-toluidine, N,N-dimethyl aniline, and cobalt naphthenate; said two reactants including said bonding resin and either one said catalyst or initiator that will affect polymerization of said bonding resin;
- b. effecting on a cleaned and dried surface of at least a portion of a dental appliance that is to be bonded to said tooth, a proper viscosity second layer of a substantially uniform admixture of two reactants of said three-reactant system, said two reactants including said bonding resin and the other of said catalyst or initiator that will affect polymerization of said bonding resin;
- c. positioning said at least a portion of said dental appliance adjacent said surface of said tooth wherein said two layers containing said bonding resin, catalyst and initiator are brought together to obtain polymerization of said bonding resin and hence the necessary bonding of said at least a portion of the dental appliance to the surface of the tooth; said proper viscosity being obtained by a filler added to

said second layer to obtain the desired viscosity of said resin, to avoid creep and to obtain the desired wettability of said tooth to said three reactants.

4,363,625

DENTAL TECHNICIANS TOOL AND TOOL RETAINER

Mesrop der Avanesian, 838 Portola, Glendale, Calif. 91206

PCT No. PCT/US80/01153, § 371 Date Aug. 29, 1980, § 102(e)

Date Aug. 29, 1980, PCT Pub. No. WO82/00757, PCT Pub.

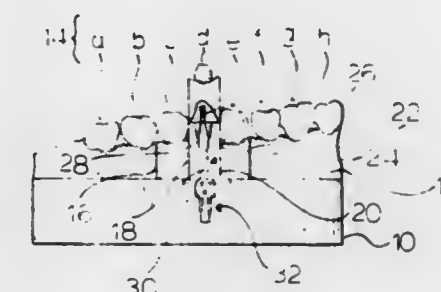
Date Mar. 18, 1982

PCT Filed Aug. 29, 1980, Ser. No. 261,125

Int. Cl.³ A61C 19/00

U.S. Cl. 433-74

24 Claims



1. Dental technician's tool adapted for the rapid and accurate positioning of a tooth model die repetitively on a model base support, comprising an axially elongated member having an upwardly extended head portion engageable with said tooth model die, a downwardly tapered bottom portion receivable in said base support, and a downwardly diminishing intermediate portion of cusped transverse cross-section arranged to engage said base support above the member bottom against cocking or rotation of said tooth die in mounted position on said model base support, but in repetitively vertically separable relation, said member head portion being generally cylindrical about the member axis and rising from a transverse shoulder formed on said member; said bottom portion being coaxial with said head portion and tapered at a first angle relative to the member axis; said intermediate portion being frusto-conically tapered downwardly from said transverse shoulder at a second larger angle relative to said member axis and vertically defines a plurality of circumferentially spaced surface rounded splines disposed at a third still larger angle relative to said member axis for spline differential taper regression vertically into said intermediate portion in inwardly tapered cusp-forming relation along the length of said intermediate portion.

4,363,626

DENTAL SYRINGE

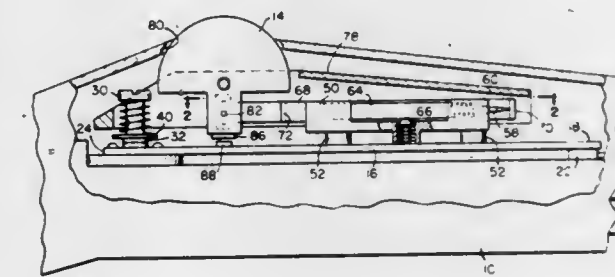
Manfred Schmidt; Gerd Hoyer; Hermann Leiberich, all of Karlsruhe, and Helmut Pietschmann, Karlsruhe, all of Fed. Rep. of Germany, assignors to Sybron Corporation, Rochester, N.Y.

Filed May 15, 1980, Ser. No. 149,950

Int. Cl.³ A61C 1/10

U.S. Cl. 433-85

7 Claims



1. A dental syringe including means for selecting and con-

trolling the flow of air, water and spray from the syringe comprising:

- (a) a hand held housing;
- (b) a support within said housing;
- (c) a movable operator carried by said support, said operator being selectively movable along a path of either side of a neutral position;
- (d) a control member journaled to said support, at least a portion of said control member extending through said housing for manipulation by a finger or thumb of the hand holding the syringe;
- (e) said operator having an elongated opening in one end extending generally normal to the path traveled by said operator;
- (f) an off center pin on said control member captured in said elongated opening so that movement of said control member through a limited arc length about said journal drives said pin and moves said operator to one side or another of a neutral position;
- (g) a pair of switches carried by said support and adapted for operative connection to air and water control valves located remote from the syringe, said switches being located on opposite sides of the neutral position of said operator so that movement of said operator in a selected direction from its neutral position will operate a selected one or another of said switches to permit the opening of a selected one of the remote air and water control valves;
- (h) means associated with said operator for generating an electrical signal which varies in proportion to the distance moved by said operator from its neutral position, said signal being utilized to determine the amount of the opening of the selected control valve; and
- (i) bias means urging said operator to its neutral position.

4,363,627

METHOD OF FABRICATING A DENTAL PROSTHESIS

Alfred S. Windeler, 2828 Tara Trail, Xenia, Ohio 45385

Filed Oct. 20, 1980, Ser. No. 198,480

Int. Cl.³ A61C 13/00, 5/10

U.S. Cl. 433—167

1 Claim



1. A method of fabricating a dental prosthesis, at least the major portion of which is a metallic element configured for wearing in contact with a finite area within the oral cavity of a patient, said method comprising the steps:

- (a) fabricating a rough cast prosthesis by the steps:
 - (a-1) pouring an upper and a lower dental cast in impressions taken in the oral cavity of a patient, one of said dental casts including the finite area in contact with which said prosthesis is to be worn;
 - (a-2) mounting said dental casts in a dental articulator and hand forming a wax pattern over the finite area on said dental cast to the desired configuration of said rough cast prosthesis;
 - (a-3) removing said wax pattern from said dental cast and investing said wax pattern in a pliable refractory material, and, after the refractory material has solidified, elevating the ambient temperature surrounding said refractory material to evaporate said wax pattern to leave a cavity mold in said refractory material;
 - (a-4) casting a rough prosthesis in said cavity mold by injecting a high temperature molten metal which is

allowed to solidify into said rough cast prosthesis which is then removed from said cavity mold;

- (b) forming an accurate metallic electrode by electroforming a metal into an impression taken in the oral cavity of said patient, said electrode to be configured to the finite area in the oral cavity of said patient in contact with which said prosthesis is to be worn; and,
- (c) in an electric discharge machine, mounting said rough cast prosthesis and said electrode in linear spaced alignment with said electrode in alignment with the corresponding finite area of said rough prosthesis, and finish machining said finite area of said rough prosthesis to the configuration of said electrode by electric discharge machining.

4,363,628

BANK TRAINING DEVICE

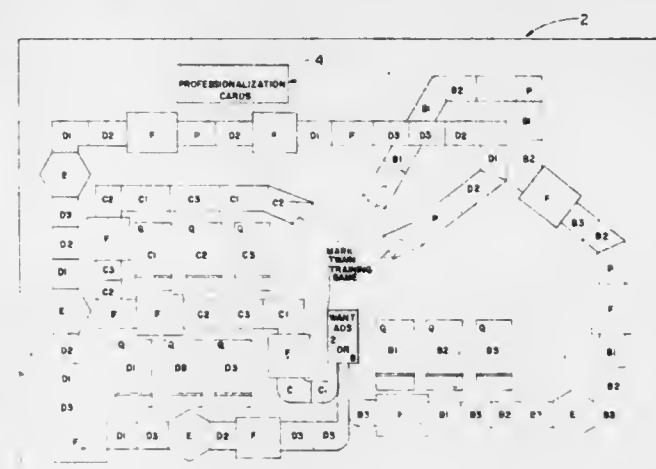
C. Virginia Kirkpatrick, and Grace E. Watson, both of St. Louis, Mo., assignors to Mark Twain Bancshares, St. Louis, Mo.

Filed Jun. 8, 1981, Ser. No. 271,796

Int. Cl.³ G09B 19/00; A63F 3/00

U.S. Cl. 434—107

10 Claims



1. A device for training bank employees comprising a board means which has marked spaces in the shape of at least two connected continuous circuits extending about the board, wherein certain of said spaces are designated to require a player to answer questions from specific question and answer cards which are grouped in different sets for association with each of the circuits; a chance means; and means for marking a player's position on said board.

4,363,629

HYDRAULIC SYSTEM FOR OUTBOARD MOTOR WITH SEQUENTIALLY OPERATING TILT AND TRIM MEANS

Charles B. Hall, Ingleside; Edward D. McBride, Waukegan, both of Ill., and Robert F. Young, Kenosha, Wis., assignors to Outboard Marine Corporation, Waukegan, Ill.

Filed Sep. 2, 1980, Ser. No. 183,209

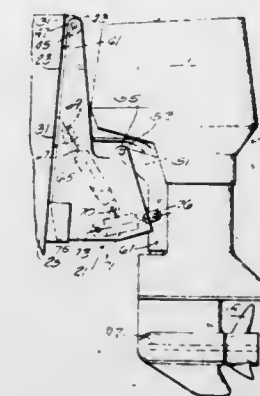
Int. Cl.³ B63H 5/12

U.S. Cl. 440—61

10 Claims

1. A marine propulsion device comprising transom bracket means adapted to be connected to a boat transom, a stern bracket, first pivot means connecting said stern bracket to said transom bracket means for pivotal movement of said stern bracket relative to said transom bracket means about a first pivot axis which is horizontal when said transom bracket means is boat mounted, a swivel bracket, second pivot means connecting said swivel bracket to said stern bracket below said first pivot means for pivotal movement of said swivel bracket with said stern bracket and relative to said stern bracket about a second pivot axis parallel to said first pivot axis, a propulsion unit operable to provide forward and reverse propulsion and including, at the lower end thereof, a rotatably mounted propeller, means pivotally connecting said propulsion unit to said swivel bracket for steering movement of said propulsion unit

relative to said swivel bracket about a generally vertical axis and for common pivotal movement with said swivel bracket in a vertical planes about said first and second horizontal axes, a trim cylinder-piston assembly pivotally connected to said stern bracket and to said swivel bracket, a tilt cylinder-piston assembly pivotally connected to said transom bracket means and to said stern bracket, a source of pressure fluid, and a fluid conduit system communicating between said source of pressure



fluid and each of said tilt cylinder-piston assembly and said trim cylinder-piston assembly and including means operable, during upward tilting and reverse propulsion of said propulsion unit, for causing initial full extension of said trim cylinder-piston assembly, followed by extension of said tilt cylinder-piston assembly and, during downward tilting and reverse propulsion of said propulsion unit, for causing initial full contraction of said tilt cylinder-piston assembly, followed by subsequent contraction of said trim cylinder-piston assembly.

4,363,630

SHIP'S HULL WITH A HELICAL CHANNEL AHEAD OF EACH PROPELLER AND METHOD OF ESTABLISHING THE SHAPE OF THE SAME

Giovanni B. T. Di Vigano, 30 Via Pusiano, Milano, Italy

Continuation-in-part of Ser. No. 671,747, Mar. 30, 1976,

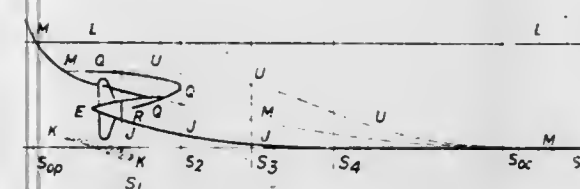
abandoned. This application Oct. 17, 1977, Ser. No. 842,925

Claims priority, application Fed. Rep. of Germany, Apr. 4, 1975, 2514784; Aug. 16, 1975, 2536425

Int. Cl.³ B63H 5/16

U.S. Cl. 440—69

49 Claims



1. A method of establishing the configuration of the underwater afterbody of the hull of a screw-propeller-driven ship provided with a helical channel for guiding the flow of water relative to the advancing hull towards a propeller when the ship is under way, comprising the performance of the basic steps of measuring the water flow relations at the propeller disc location of a model of a proposed hull, then modifying the model to optimize the shape of the underwater afterbody of the hull, and finally, after repetition of the measuring and modifying steps as found necessary or desirable, establishing a hull afterbody configuration with more favorable water flow relations at the propeller disc, in which method there is the improvement consisting in that:

the measurement of the flow relations at the location of the propeller disc of a model is a measurement of the tangential and axial velocity components (V_t, V_a) of water flow entering the propeller disc when no propeller is present at enough points around the propeller disc to establish a characteristic curve which gives the incident flow velocity vector (V_s) against a blade of a propeller of a selected

configuration at a selected operating speed of revolution at a radius (r_d) value typical for effective thrust development, expressed in coordinates of tangential and axial vector components (V_t, V_a), disregarding any radial components, for various values of the angular position of a propeller blade around the propeller axis;

there are established, for comparison with results of said flow relation measurement, the thrust values of the blade of a selected propeller for the full range of incident-flow vectors that are of interest;

the thrust value relations to incident-flow vectors are used to plot "isodyne" lines and said characteristic curve on the same vector field, to show incident flow of velocities at respective locations around the propeller disc in coordinates of tangential and axial flow velocity (V_t, V_a) and simultaneously to show the range of propeller blade thrust variation resulting from the same combinations of tangential and axial flow;

the step of modifying the tested model in respect of the position of the propeller disc and the location and shape of a helical channel and the cross-sectional taper of the stern portion of the hull on the thrust variation range of a propeller revolution is carried out by reference to the relation of corresponding modified characteristic curves to the propeller isodyne lines on a common vector field plot of tangential and axial flow velocity (V_t, V_a) and

the modifying of the model so as to reduce the thrust variation range of the propeller blade revolution is thereby carried out to an extent beyond which reduction would no longer be economically justified by the relation of construction complication to the degree of further reduction that is producible.

8. A hull for a ship having a pair of counter-rotating propellers on opposite sides of the lengthwise vertical median plane of the ship on the stern portion of the ship for driving the ship by rotation of the propellers, each on a propeller shaft, in the direction in which the propeller blades move downward when they are in the quadrant of their revolution directed towards said median plane, said hull including for each propeller shaft a shaft shroud body extending aft from a propeller shroud root bulging from the portion of the hull in which the hull cross-section below the waterline tapers towards the stern of the hull, and said hull being further provided with a pair of helical channels affecting the profiles of said shroud roots as well as of said hull portion and respectively leading to each propeller so as to lead water, during forward motion of the ship with a component of twist around the aft portion of the shaft shroud, to the path of the propeller blades, in the direction of twist that is contrary to the direction of revolution of the propeller, in which hull there is incorporated the improvement consisting in that:

the helical channel in each case terminates by merger into a clear annular space surrounding the propeller shaft shroud at a location where the channel profile (UQT) reaches substantial tangency to the aft end of an external hull skin surface (LQS) connecting the main portion of the hull to the propeller shaft shroud and the line (RQ) drawn to the place (Q) where said tangency is reached from the center of curvature (R) of the portion of the shaft shroud surface tangent to a vertical line on the opposite side of the shaft shroud, which line lies in an athwartship plane passing through said place of reaching tangency, runs, from above center of curvature, at an angle not more than 40° above the horizontal, nor more than 60° below the horizontal, the stern portion of the hull aft of the merger of said helical channels into said clear annular spaces is not supported by any keel, fin or deadwood structure extending to the neighborhood of the plane of the bottom of the hull; the most concavely bent portion of the profile of the helical channel is in each case near the point (P) of tangency thereto of a line drawn through the center of curvature of the profile, in the same athwartship vertical profile plane, of the part of the propeller shroud root tangent to a verti-

cal line, for all parts of the propeller shroud root having a profile passing through the vertical, and the curvature of said most concavely bent portion of said profile does not decrease lengthwise of the channel towards the stern over the entire length of the helical channel.

4,363,631

STRUCTURAL ARRANGEMENT FOR OXIDE CERAMIC SHAFTS

Gert Wloka, Ostfildern, Fed. Rep. of Germany, assignor to Feldmühle Aktiengesellschaft, Dusseldorf, Fed. Rep. of Germany

Filed Jun. 4, 1980, Ser. No. 156,330

Claims priority, application Fed. Rep. of Germany, Jun. 7, 1979, 2923075

Int. Cl.³ F16C 3/00

U.S. Cl. 464—181

4 Claims

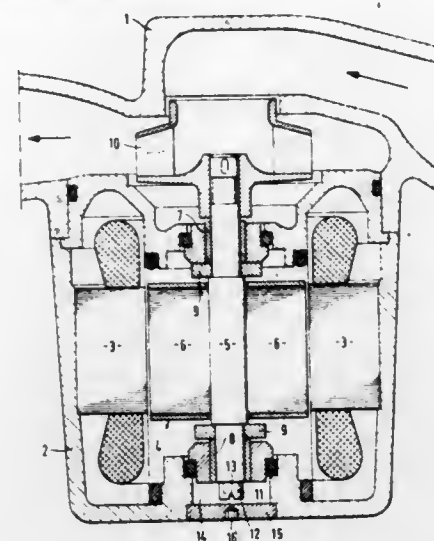
1. A shaft assembly for a glandless pump, particularly a circulating pump for heating installations, comprising:

a shaft consisting essentially of oxide ceramic material and having a pair of ends;

bearing means rotatively supporting said shaft intermediate said ends;

a projection provided on said oxide ceramic shaft at at least one of said ends outside of said bearing means;

a metal sleeve including a bottom part fixedly mounted on said projection of said shaft; and



engaging means on said bottom part of said sleeve for enabling said sleeve to be engaged to effect rotation of said shaft.

4,363,632

STABILIZED SOLUTION PRODUCING A ROMANOWSKY EFFECT

Elizabeth Custard, Mishawaka, Ind.; John C. Liao, Fort Worth, Tex., and John L. Ponzo, Mishawaka, Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Filed Dec. 28, 1981, Ser. No. 335,227

Int. Cl.³ C09B 00/00

U.S. Cl. 8—506

10 Claims

1. In combination with a blood staining solution consisting essentially of Azure B and Eosin Y in methanolic solution, the improvement which comprises the presence of diethylamine hydrochloride in such solution.

4,363,633

REFERENCE LIQUID

Torben F. Christiansen, Holte, Denmark, assignor to Radiometer A/S, Copenhagen, Denmark

Filed Jun. 24, 1980, Ser. No. 162,430

Claims priority, application Denmark, Jun. 28, 1979, 2747/79 Int. Cl.³ G01N 27/56; C09K 3/00; G01N 33/48, 27/46, 27/50

U.S. Cl. 436—19

5 Claims

1. A process for calibration or quality control of instruments adapted to determine ionized calcium and pH in physiological liquids and containing a calcium-sensitive electrode and a pH-electrode, comprising subjecting the calcium-sensitive electrode and the pH-electrode to calibration or quality control with a reference liquid which, at a particular temperature simulates the physiological liquid's calcium ion activity and which in addition contains a pH-buffer consisting of a nitrogen-containing organic sulphonic acid and the salt of this acid, the acid having a pK in the range of 6.6–7.6 at 37° C., the buffering capacity of the pH-buffer in the reference liquid being from about 0.04 to about 0.10, and the ionic strength of the reference liquid being 0.15–0.17.

4,363,634

GLASS SUPPORT COATED WITH SYNTHETIC POLYMER FOR BIOPROCESS

Roy F. Schall, Jr., Glendora, Calif., assignor to Akzona Incorporated, Asheville, N.C.

Filed Jul. 18, 1980, Ser. No. 170,216

Int. Cl.³ G01N 33/50, 33/54, 33/78, 33/58

U.S. Cl. 23—230 B

15 Claims

7. Bioprocess using a device containing at least one functional biomaterial, the improvement wherein the device comprises:

(a) transparent glass solid support means insoluble in a solvent selected from the group consisting of water and organic solutions which solid support means is coated with water-solvent-based synthetic polymeric film means; and

(b) one or more functional biomaterials adsorbed or covalently bonded to said polymeric films.

4,363,635

METHOD AND APPARATUS FOR MEASURING BREATH ALCOHOL

Donald G. Hutson, El Cerrito, Calif., assignor to Cal Detect, Inc., Richmond, Calif.

Filed Jan. 26, 1981, Ser. No. 228,119

Int. Cl.³ G01N 27/62, 1/22

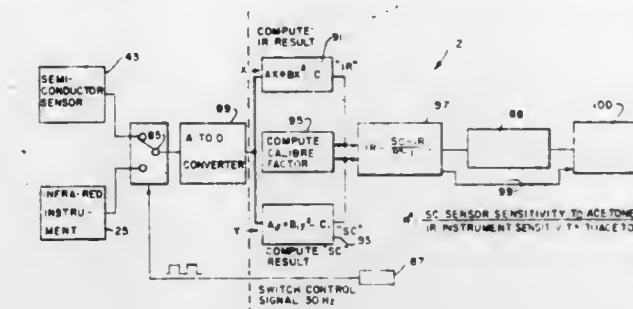
U.S. Cl. 436—132

10 Claims

1. A method of measuring the alcohol level of a breath sample containing alcohol and acetone, comprising calibrating an IR detector and an SC detector to establish their output responses to an alcohol standard; introducing to said IR detector a flowing stream of breath sample; measuring the output from said IR detector in response to its exposure to a portion of said breath sample; introducing to said SC detector a substantially static portion of said breath sample; measuring the output from said SC detector in response to its exposure to said por-

CHEMICAL

tion of said breath sample; comparing said outputs, subtracting from the output from the IR detector an amount that is a function of the difference between the output from the IR



detector and the output from the SC detector, and deriving an output signal from the said difference indicative of the amount of at least one of alcohol and acetone in said sample.

4,363,636

PROCESS TO INCREASE THE EFFECTIVENESS OF BAGASSE AS A SOURCE OF ENERGY

Pierre E. Bouvet, Kukuihaele, and Norland L. C. Suzor, Paauilo, both of Hi., assignors to Davies Hamakua Sugar Company, a division of Theo. H. Davies & Co., Ltd., Paauilo, Hi.

Filed Oct. 15, 1981, Ser. No. 311,642

Int. Cl.³ C10L 5/44, 5/08

U.S. Cl. 44—10 A

13 Claims

1. A process for increasing the effectiveness of bagasse as a source of energy in combination with a sugar mill operation in which bagasse from the mill is used as a boiler fuel for the sugar mill operation, comprising: subjecting a stream of wet bagasse from the mill to a primary drying operation in which said bagasse is contacted with a stream of flue gases from the boiler to reduce the moisture content of the bagasse to about 25–40%, size separating the resulting bagasse into a stream containing larger particle components of the bagasse and a secondary stream containing smaller particle components of the bagasse, subjecting said secondary stream of particles to a secondary drying operation in which said particles are contacted with a stream of flue gases from the boiler to reduce their moisture content to about 8 to 14% and densifying the resulting dried bagasse from the secondary drying operation into compacted shapes suitable for boiler firing.

12. A process for increasing the effectiveness of bagasse as a source of energy in combination with a sugar mill operation in which bagasse from the mill is used as a boiler fuel for the sugar mill operation, comprising: subjecting a stream of wet bagasse containing coarse and fine particles from the sugar mill to a drying operation in which said bagasse is contacted with a stream of hot flue gases from the boiler and drying said fine particles to a moisture content of about 8–14%, separating the dried fine particles from the coarse particles and densifying said fine particles at a moisture content of about 8–14% into compacted shapes for use as fuel.

13. Fuel pellets produced by the process of claim 12 comprising compressed bagasse particles, in the absence of added binding agent, said pellets being of approximately 1/4 to 1/2 inch in diameter and approximately 1.5 inches maximum length, said pellets having a bulk density of about 40 to 50 pounds per cubic foot with individual pellets having a specific density of about 80 to 90 pounds per cubic foot, and said pellets developing a B.t.u./lb. of about 7500 to 8000 B.t.u./lb. upon burning.

4,363,637

STABILIZED OIL SLURRIES OF CARBONACEOUS MATERIALS

Kathy A. Knitter, Morristown, and Jose L. Villa, Bridgewater, both of N.J., assignors to Diamond Shamrock Corporation, Dallas, Tex.

Filed Apr. 8, 1981, Ser. No. 252,023
Int. Cl.³ C10L 1/22

U.S. Cl. 44-51

10 Claims

1. An oil slurry of solid particulate carbonaceous material having a mixture of
 - (a) from about 99% to about 75% by weight of an alkoxylated quaternary salt of
 - (1) an alkoxylated primary aliphatic amine having from about 7 to about 29 carbon atoms and from about 2 to about 50 moles of an alkylene oxide having 2 to 3 carbon atoms per mole of amine, and
 - (2) a quaternizing agent, and
 - (b) from about 1% to about 25% by weight of a nitrogen base having from 0 to 9 carbon atoms,
 the mixture being present in an amount sufficient to stabilize the slurry at elevated temperatures.

4,363,638

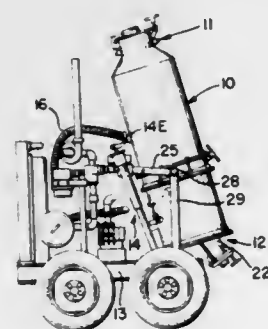
BIOMASS GAS PRODUCER

Eliseo O. Mariani, 3900 Mt. Vernon Ave., P.O. Box 5084, Alexandria, Va. 22305

Filed Apr. 22, 1981, Ser. No. 256,549
Int. Cl.³ C10J 3/44

U.S. Cl. 48-111

1 Claim



1. A biomass gas producer with tiltable gassifier comprising a gassifier for performing endothermic chemical reactions of solid material having combustible gas forming and liquifiable constituents having a top charging end, a mobile platform support means for said gassifier, pivotally mounted support means carried by said platform supporting said gassifier for rocking movement along its vertical axis for tilting said gassifier from a substantially vertical endothermic reaction mode to a low height inclined charging mode for introducing the material to be fired,
 - a tiltable arm connected to said support means and said mobile platform, drive means connected between said tiltable arm and said mobile platform support to incrementally tilt the gassifier about its vertical support axis between a firing position and a loading waste discharge position, and flexible hose means connected to said gassifier for directing the burnable gas produced by said gassifier to operate a gas fired prime mover.

4,363,639

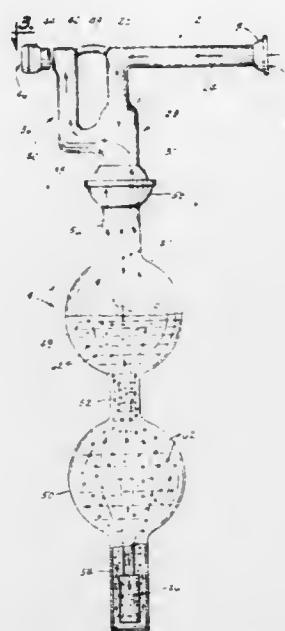
GAS TRAP FOR REMOVING ATMOSPHERIC POLLUTANTS AND METHOD OF OPERATION

Richard J. Gladon, Ames, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa

Filed Mar. 9, 1981, Ser. No. 242,055
Int. Cl.³ B01D 47/02; G01N 31/06

U.S. Cl. 55-95

7 Claims



1. A gas trap, comprising,
 - a vertically disposed hermetic enclosure having top and bottom portions with upper and lower chamber portions disposed therebetween, and a restricted diameter vertical passageway extending between and connected to said upper and lower chamber portions, said passageway having an effective flow path diameter substantially less than that of said upper and lower chamber portions, and wherein said enclosure is adapted to contain a reacting fluid for reacting with the pollutants in the gas to be tested,
 - a discharge outlet and an inlet opening in said enclosure adjacent the top of said enclosure, said discharge outlet and inlet opening both being open for continuous gas flow into said input opening, through said enclosure and out of said discharge outlet,
 - a noncapillary tube hermetically sealed to said inlet opening extending downwardly therefrom through and in spaced relation with said chamber portions and said vertical passageway and terminating adjacent the bottom of said lower chamber portion,
 - a fritted material encasing the bottom of said tube, and
 - a reacting liquid filling said enclosure to a point including at least the lower portion of said upper chamber,
 the space between said tube and said vertical passageway being less than the space between said tube and said lower chamber so that when gas is introduced into said tube and through said fritted material to enter said reacting fluid as gas bubbles, the upward movement of said gas bubbles will be prolonged by the restricted space between said passageway and said tube to provide a longer exposure time for said bubbles in said reacting fluid.
5. A method of removing pollutants from a continuous flow of gas comprising:
 - providing a hermetically restricted passageway with cross-sectional dimensions sufficiently small to prolong the free flow of gas bubbles rising in a liquid reactant and entering said passageway from a lower chamber of larger cross-sectional dimensions, but large enough to substantially prevent the creation of back pressure at the entrance to said passageway; said passageway being connected to a second, upper chamber of cross-sectional dimensions, substantially larger than said passageway, thereby forming a hermetic enclosure;

4,363,641

LIQUID DEGASSER WITH SELF-THROTTLING EXHAUST ORIFICE

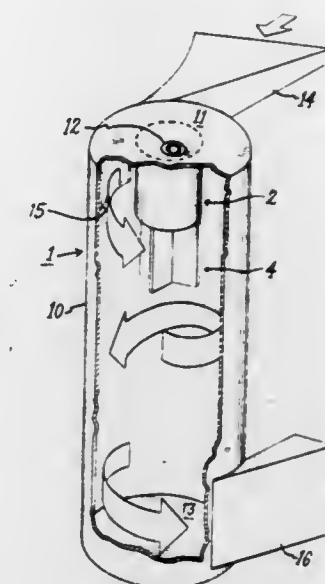
George A. Finn, III, Dalton, Mass., assignor to General Electric Company, Schenectady, N.Y.

Filed Jul. 2, 1981, Ser. No. 279,704
Int. Cl.³ B01D 19/00

U.S. Cl. 55-205

2 Claims

said lower chamber communicating with an inlet to said enclosure at a point below the entrance to said passageway and said upper chamber communicating with an outlet to said enclosure above said passageway, maintaining said inlet and outlet open for continuous gas flow into said inlet, through said enclosure and out of said outlet, filling said enclosure with a liquid reactant for reacting with said pollutants to a point including at least the lower portion of said upper chamber; and introducing said continuous flow of gas into said enclosure below said passageway whereby gas bubbles are formed in and rise through said reactant; whereby the upward movement of said gas bubbles is prolonged by the restricted passageway, thus providing a longer exposure time for said bubbles to said reacting fluid.



4,363,640

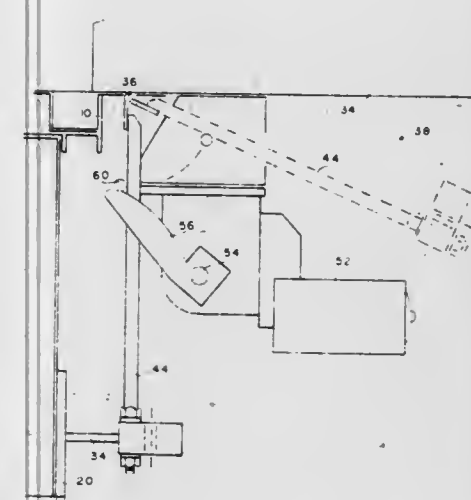
ELECTROSTATIC PRECIPITATOR IMPACTOR ASSEMBLY

Leo Avondoglio, 19 Riversedge, Ivoryton, Conn. 06442

Filed Sep. 23, 1981, Ser. No. 304,857
Int. Cl.³ B03C 3/76

U.S. Cl. 55-112

3 Claims



1. An electrostatic precipitator which comprises:
 - a collecting cell having at least some grounded electrodes, said cell including a frame carrying said electrodes;
 - a striker assembly to remove contamination from said collecting cell which includes an elongated first member having a major portion of the mass thereof disposed at a first axial extremity, and means for pivotally mounting said elongated first member at a second axial extremity, said means for pivotally mounting allowing motion of said first axial extremity of said elongated first member between first and second positions, said first position being at a higher elevation than said second position, said first axial extremity of said first elongated member being disposed in contacting relationship with said collecting cell in said second position and spaced apart from said collecting cell in said first position, cam means for urging said elongated first member into said first position, said cam means releasing said elongated first member for movement under the influence of gravity from said first position to said second position in at least one position of said cam means;
 said precipitator further includes an elongated second member having a major portion of the mass thereof disposed at a first axial extremity and means for pivotally mounting said elongated second member at a second axial extremity, said elongated first member and said elongated second member being fixed together in generally coplanar relationship and mounted for movement about a common axis; and said collecting cell includes a striker bar extending across said collecting cell.

4,363,642

CONTROL OF RANGE HOOD EMISSIONS

Lawrence E. Stahl, Rocky Mount, N.C., assignor to Hardee's Food Systems, Inc., Rocky Mount, N.C.

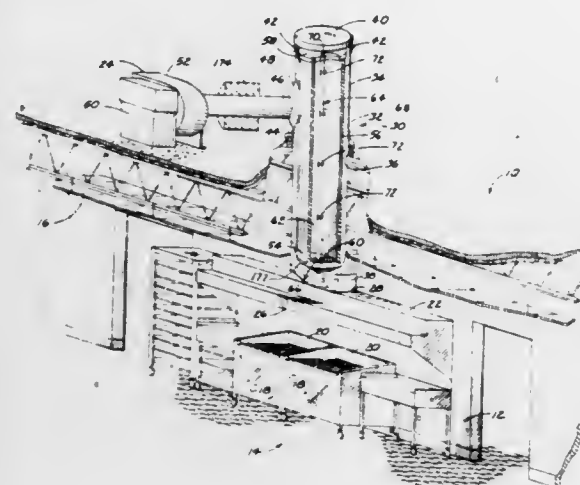
Filed Mar. 25, 1977, Ser. No. 781,418
Int. Cl.³ B01D 47/00

U.S. Cl. 55-233

18 Claims

1. Apparatus for control of range hood airborne emissions, comprising:
 - a mist eliminator fiber bed element;

a housing for said fiber bed element, having an inlet and an outlet;
 gasket means sealing between said fiber bed element and the housing intermediate the inlet and the outlet, so that all airborne emissions entering the housing, from the range hood, must pass through said fiber bed element in order to reach said outlet;
 an exhaust fan associated with said outlet;
 airborne emissions cooling spray means associated with said inlet, for substantially lowering the temperature of said emissions prior to their contact with said fiber bed element to reduce the tendency of constituents of said emissions to bake onto said fiber bed element, and to decrease the number of smallest size particles in the emissions by effecting combinations of said particles;



means for perfusing the fiber bed element, in situ, successively with a liquid cleaning solution for saponifying fats and breaking-up char, then a liquid rinse for flushing out the spent liquid cleaning solution and its burden of saponified fats and char debris;
 the perfusing means including control means arranged to operate said blower means automatically both while said perfusing means is perfusing the fiber bed element with said liquid cleaning solution and while said perfusing means is perfusing the fiber bed element with said liquid rinse; and
 drain means from the housing for draining spent liquid cleaning solution and liquid rinse therefrom.

4,363,643

SUPPORT MEANS FOR FILTER MATERIAL IN A NON-ELECTRIC AIR CLEANER

Clifford B. Elbrader, Boone, and Jimmy L. Milum, Harrison, both of Ark., assignors to Emerson Electric Co., St. Louis, Mo.

Filed Oct. 16, 1981, Ser. No. 312,152

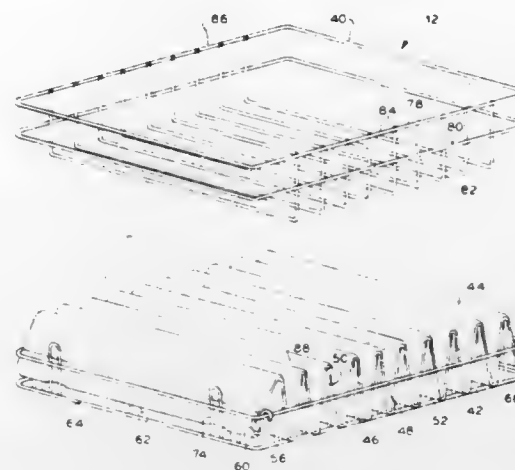
Int. Cl.³ B01D 46/52

U.S. Cl. 55—499

5 Claims

3. An air cleaner comprising:
 a support frame;
 a filter assembly insertable into said support frame, said filter assembly comprising filter material and a wire-form means having a lower and upper portion for supporting said filter material;
 said lower portion comprising means for attaching said filter material thereto, means for enabling the forming of said filter material into a plurality of pleats having tops and

bottoms and for defining said tops of said pleats, and means for engaging said upper portion;



said upper portion comprising means for defining said bottoms of said pleats when said upper portion is engaged with said lower portion.

4,363,644

FILTER FOR PURIFYING EXHAUST GAS

Susumu Sato, Okazaki; Yukihisa Takeuchi, Chita, and Masahiro Tomita, Anjo, all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan

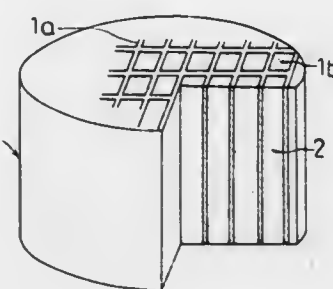
Filed Feb. 3, 1981, Ser. No. 231,118

Claims priority, application Japan, Feb. 4, 1980, 55-12881; Jun. 20, 1980, 55-84198; Jul. 15, 1980, 55-96583; Jul. 21, 1980, 55-99639

Int. Cl.³ B01D 39/20; C04B 21/06

U.S. Cl. 55—523

6 Claims



1. A filter for purifying exhaust gas of an internal combustion engine comprising:
 a rigid ceramic supporting member comprising at least one passage therethrough for flow of exhaust gas there-through; and
 porous ceramic filtering material filling said at least one passage and sintered to the walls thereof.

4,363,645

ANNULAR BUSHING FOR FORMING GLASS FIBERS

Arnold J. Eisenberg, Granville, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Continuation-in-part of Ser. No. 137,669, Apr. 4, 1980, abandoned. This application Jul. 30, 1981, Ser. No. 287,171

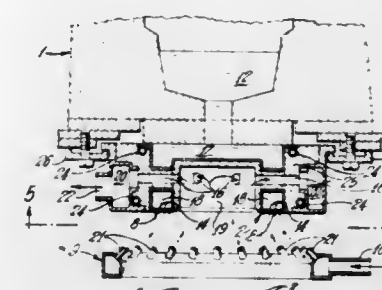
Int. Cl.³ C03B 37/025

U.S. Cl. 65—2

12 Claims

1. A glass fiber-forming bushing comprising an annular

orificed bushing plate, a center portion positioned within the annular plate and at least one port opening from said center



portion into a manifold and at least one port opening from said manifold.

4,363,646

METHOD AND APPARATUS FOR PRODUCING MICROFILAMENTS

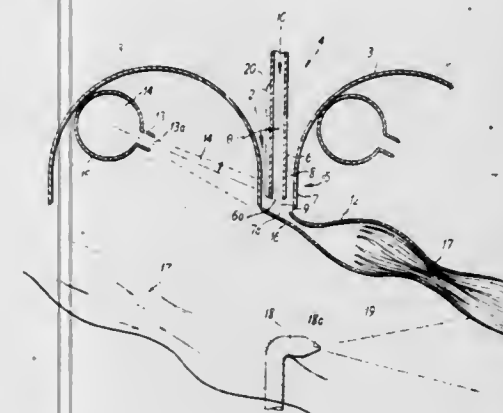
Leonard B. Torobin, c/o Materials Technology Corp., 2198 Princeton St., Sarasota, Fla. 33578

Continuation-in-part of Ser. No. 152,693, May 23, 1980, Pat. No. 4,303,431, which is a continuation of Ser. No. 59,297, Jul. 20, 1979, abandoned, which is a continuation-in-part of Ser. No. 937,123, Aug. 28, 1978, abandoned, which is a continuation-in-part of Ser. No. 944,643, Sep. 21, 1978, abandoned. This application Nov. 27, 1981, Ser. No. 325,594

Int. Cl.³ C03B 37/04

U.S. Cl. 65—5

18 Claims



1. A method for making microfilaments from an inorganic film forming material which comprises heating said material, forming a liquid film of said material across an orifice, applying a blowing gas at a positive pressure on the inner surface of the liquid film to blow the film and form an elongated hollow tube or cylinder, forming a thinned wall or weakened portion of the elongated hollow cylinder, subjecting the elongated hollow tube or cylinder during its formation to an external pulsating or fluctuating pressure field having periodic oscillations, said pulsating or fluctuating pressure field acting on said elongated hollow tube or cylinder to assist in its formation and to assist in the formation of a multiplicity of microfilaments and in detaching the microfilaments from said orifice.

4,363,647

METHOD OF MAKING FUSED SILICA-CONTAINING MATERIAL

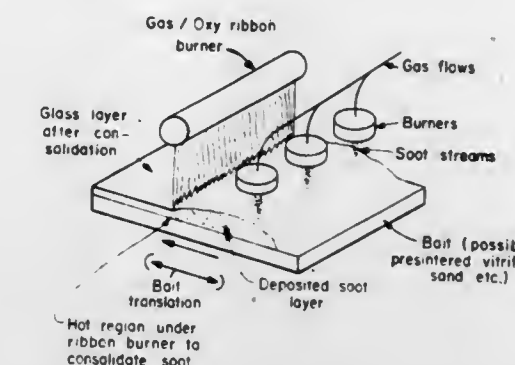
David L. Bachman, Lindley; William C. Lewis, Jr., Big Flats; Peter C. Schultz; and Francis W. Voorhees, both of Painted Post, all of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed May 14, 1981, Ser. No. 263,418

Int. Cl.³ C03B 19/06, 20/00

U.S. Cl. 65—18.2

10 Claims



1. A method for preparing a fused silica-containing glass article of very high optical quality and having a large cross section or diameter, which comprises the steps of:
 (a) depositing via flame hydrolysis/oxidation reaction a layer of fused silica-containing soot upon a supporting bait;
 (b) essentially immediately thereafter applying a source of heat concentrated uniformly across the breadth of the soot deposit, but focused only over a relatively small area thereof, to raise the temperature thereof sufficiently to uniformly consolidate said small area of soot deposited into an essentially non-porous glass; and then
 (c) cooling said glass to room temperature.

4,363,648

FLOATING VANES FOR FLAT PANEL DISPLAY SYSTEM

Roger A. Allaire, Big Flats, and Wendell S. Blanding, Painted Post, both of N.Y., assignors to Corning Glass Works, Corning, N.Y.

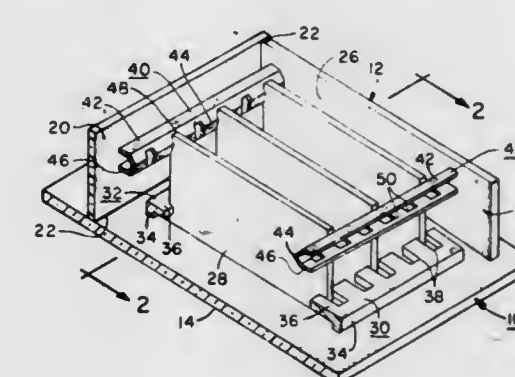
Division of Ser. No. 965,588, Dec. 1, 1978, Pat. No. 4,304,803.

This application May 7, 1981, Ser. No. 261,658

Int. Cl.³ C03B 23/20

U.S. Cl. 65—42

4 Claims



1. A method of making an evacuated flat panel display device comprising, forming a face plate and a base plate from sheet glass, securing a plurality of slotted opposed supports in fixed position relative to said face plate and said base plate, positioning a plurality of longitudinally extending supporting glass sheets in transversely spaced-apart relationship within the slotted supports secured relative to one of said plates, assembling glass side and end panels upon said one plate, positioning said other plate upon said side and end panels and receiving portions of said supporting sheets within the slotted supports

positioned on said other plate, sealing said panels and said plates together to form an enclosed housing while permitting limited movement of said support sheets within said housing, and evacuating the interior of said housing and simultaneously engaging said face and base plates with said support sheets such that said support sheets support said face and base plates against the forces generated by the exterior atmospheric pressure.

4,363,649 APPARATUS FOR INSPECTION OF GLASS CONTAINERS

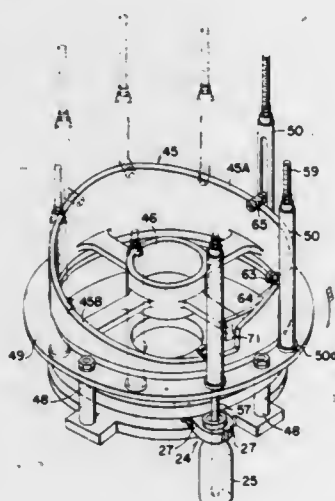
Yoshihiro Yamato; Kazuaki Ogawa, both of Yokohama; Hiromasa Satoh, Kawaguchi; Kiyoshi Chiku, and Hideo Okada, both of Yokohama, all of Japan, assignors to Toyo Garasu Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 13, 1981, Ser. No. 311,010

Int. Cl.³ C03B 35/04

U.S. Cl. 65—158

4 Claims



1. An apparatus for inspection of glass containers comprising:

- a horizontal circular table revolvably supported to revolve about a vertical axis;
- a guide ring disposed coaxially above and spaced apart from the circular table and joined integrally thereto to be revolvable unitarily therewith;
- driving means for driving the table;
- a rim-surface cam fixedly supported and comprising a vertical hollow cylinder disposed coaxially with the guide ring and having an upper rim surface forming an endless cam surface;
- a plurality of guide cylinders fixedly supported in upright state on the guide ring at equal spacing intervals therearound;
- an impact rod assembly having an impact rod and accommodated in a freely droppable manner within each guide cylinder;
- container grippers supported on the table at equal intervals therearound to revolve unitarily therewith and operating, as the table revolves, to successively grip respective glass containers to be inspected supplied in succession thereto from a production line, to carry the containers in a partially circular path as each container gripper holds upright its respective container in the drop path of a respective one of the impact rods, to release and reject the container if it fails to withstand impact by that impact rod, and to return the container, if thus withstands impact, to the production line;
- a sector adjustably supported on the inner side of the rim-surface cam to adjustably set the height of drop of the impact rod;
- first and second follower means rotatably supported on each impact rod assembly and adapted to travel respectively along the sector and the cam surface, the first follower means moving off a downstream end of the sector to

permit the impact rod assembly to drop thereby to cause the lower end of the impact rod to strike against the inner side of the bottom of the corresponding container with a preset impact energy; and

control means including a detection device for detecting any abnormal dropping motion of each impact rod due to breakage or dropping out of the bottom of a defective container, the control means thereupon causing the container gripper holding that container to release and reject the same.

4,363,650
FERTILIZER MATERIAL FROM APATITE
Fredrik P. Glasser, Bucksburn, Scotland, and Richard P. Guna-wardane, Kandy, Sri Lanka, assignors to National Research Development Corporation, London, England

PCT No. PCT/GB80/00139, § 371 Date Apr. 30, 1981, § 102(e) Date Apr. 30, 1981, PCT Pub. No. WO81/00711, PCT Pub. Date Mar. 19, 1981

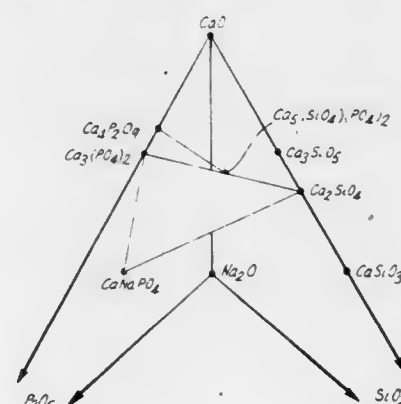
PCT Filed Sep. 8, 1980, Ser. No. 261,162

Claims priority, application United Kingdom, Sep. 7, 1979, 7931090

Int. Cl.³ C05B 13/00

U.S. Cl. 71—36

7 Claims



1. A method of making a fertilizer material from hard mineral apatite rich in chlorine and/or fluorine, by roasting apatite at from about 880° C. to about 900° C. as a final temperature with a carbonate and/or aluminosilicate of an alkali metal in an amount such that the molar ratio apatite (as P₂O₅):alkali metal is 1: at least 3 and in the presence of sufficient siliceous material to keep the free-lime content of the fertilizer material below 2 weight % and to inhibit formation of tetracalcium phosphate.

4,363,651
4H-3,1-BENZOXAZINE DERIVATIVES AND THEIR USE FOR CONTROLLING UNDESIRABLE PLANT GROWTH
Gerhard Hamprecht, Weinheim, and Bruno Wuerzer, Otterstadt, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Sep. 25, 1981, Ser. No. 305,860

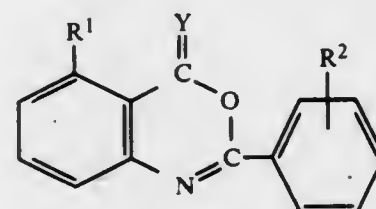
Claims priority, application Fed. Rep. of Germany, Oct. 8, 1980, 3037970

Int. Cl.³ C07D 265/22; A01N 43/86

U.S. Cl. 71—88

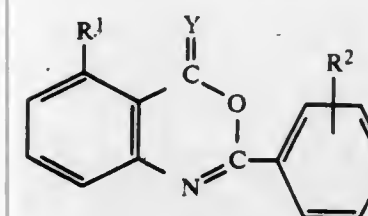
8 Claims

1. A 4H-3,1-benzoxazine derivative of the formula



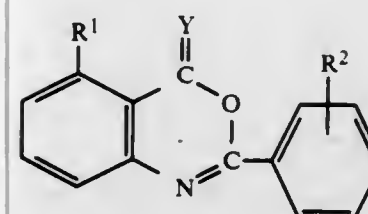
where Y is oxygen or sulfur, R¹ is halogen and R² is halogen in the m- or p-position.

5. A 4H-3,1-benzoxazine derivative of the formula



where Y is oxygen or sulfur, R¹ is methyl and R² is fluorine, trifluoromethyl, trifluoromethoxy or chlorodifluoromethoxy in the m-position.

6. A 4H-3,1-benzoxazine derivative of the formula



where Y is oxygen or sulfur, R¹ is nitro and R² is trifluoromethoxy or chlorodifluoromethoxy.

4,363,652
PROCESS FOR THE PRODUCTION OF HIGH PURITY IRON POWDER

Miro F. Kowbuz, Tucson, Ariz., assignor to UOP Inc., Des Plaines, Ill.

Filed Dec. 9, 1981, Ser. No. 329,354

Int. Cl.³ C22B 1/00, 5/00

U.S. Cl. 75—0.5 AA

10 Claims

1. In a process for the recovery of metallic iron from an iron-bearing source which comprises the steps of:

- (a) grinding said iron-bearing source;
- (b) leaching the ground iron-bearing source in a caustic leach solution at an elevated temperature and pressure;
- (c) separating the impurities from the caustic leach residue;
- (d) reducing the iron in said caustic residue by treatment with hydrogen at an elevated temperature and pressure;
- (e) recovering the resultant metallic iron, the improvement which comprises subjecting said ground iron-bearing source in the caustic leach solution to a sparge with an oxygen-containing gas at sparging conditions prior to said caustic leach of said ground iron-bearing source.

4,363,653
METHOD AND APPARATUS FOR MELTING SOLID PIECES OF METAL

Staffan Granström, Vasteras, Sweden, assignor to ASEA Aktiebolag, Vasteras, Sweden

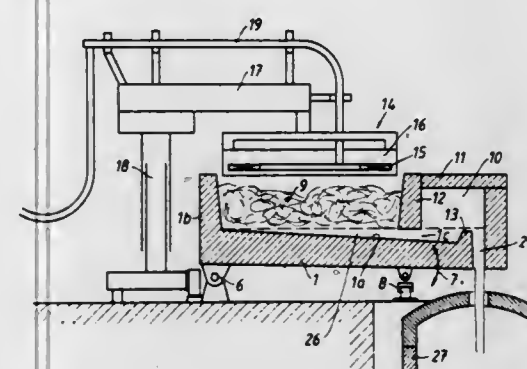
Filed Apr. 21, 1981, Ser. No. 256,138

Claims priority, application Sweden, Apr. 22, 1980, 8002993

Int. Cl.³ C21C 5/52

U.S. Cl. 75—10 R

12 Claims



1. A method for melting solid pieces of metal, comprising

charging said pieces in a basin having a refractory inside, and downwardly inductively heating the pieces in the basin by an electric AC induction heating means positioned above the basin and the pieces and so as to induce an AC current field in the pieces heating and progressively melting the pieces into a melt collecting in the basin's bottom.

4,363,654
PRODUCTION OF REDUCING GAS FOR FURNACE INJECTION

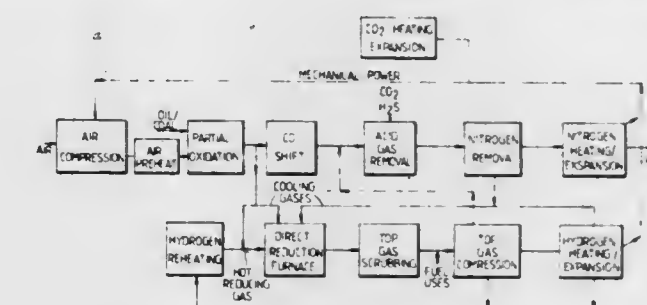
Geoffrey Frederick, 7 Knowsley Close, Pinkneys Green, Maidenhead, Berkshire, and Anthony Dwight, 19 Fernbrook Rd., Reading RG4 7HG, Berkshire, both of England

Filed Apr. 8, 1980, Ser. No. 138,624

Int. Cl.³ C21B 11/00

(1) U.S. Cl. 75—34

10 Claims



1. A process for producing a reducing gas for direct reduction furnaces and blast furnaces which comprises:

- (a) partially oxidizing a feedstock selected from the group consisting of oil, coal, and coke and combinations thereof, in the presence of air and steam at a pressure of 1 to 50 bar and at a temperature of 300° to 1000° C. to produce a raw gas stream containing hydrogen, nitrogen, carbon monoxide, and other gases;
- (b) passing the raw gas stream over a shift catalyst at a temperature of 200° to 500° C. whereby carbon monoxide is substantially eliminated from the gas stream;
- (c) passing the gas stream through an acid gas removal stage wherein carbon dioxide and hydrogen sulfide are substantially removed from the gas stream, whereby a gas stream consisting essentially of hydrogen and nitrogen is produced;
- (d) drying the gas stream if there is water present;
- (e) passing the gas stream to a cryogenic nitrogen/hydrogen separator wherein the gas stream is cooled to a low temperature and a hydrogen-rich stream is separated from a nitrogen-rich stream;
- (f) heating the hydrogen-rich gas stream; and
- (g) injecting the hydrogen-rich stream into the furnace.

4,363,655
METHOD FOR OPERATING BLAST FURNACE

Motohiko Iizuka; Genji Nakatani, both of Fukuyama, and Sumiyuki Kishimoto, Hiroshima, all of Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 11, 1980, Ser. No. 186,406

Claims priority, application Japan, Oct. 8, 1979, 54/129619

Int. Cl.³ C21B 5/06

U.S. Cl. 75—41

2 Claims

1. In a method for operating a blast furnace having a plurality of tuyeres around the periphery of the lower portion thereof and coupled to at least one hot stove for heating air to be blown into said blast furnace, which comprises:

- adding a blast furnace gas containing CO and H₂ to air to form a gas mixture; feeding said gas mixture into said hot stove to heat said gas mixture in said hot stove to thereby oxidize CO into CO₂ and H₂ into H₂O, to form a blast enriched with CO₂ and H₂O and further heated through said oxidation reaction; and blowing said blast through

said plurality of tuyeres into the lower portion of said blast furnace to bring said blast into contact with red-hot coke in the lower portion of the interior of said blast furnace to cause an endothermic reaction with said red-hot coke to thereby control the calorific value at the portion of the interior of said blast furnace around said tuyeres; the improvement comprising:
the amount of said blast obtained from said hot stove blown into said blast furnace being an amount substantially equal to that of a blast which would be blown into said blast furnace without addition of a blast furnace gas, thereby decreasing the pig iron production from said blast furnace as compared to the pig iron production which would have been obtained if a substantially equal amount of a blast without addition of a blast furnace gas had been used, without deteriorating the furnace conditions.

4,363,656

INJECTION OF HOT GASES INTO SHAFT FURNACE
Nikolas Ponghis, Neuville-en-Condroz, and Jean-Marie Masuy, Jemeppe sur Meuse, both of Belgium, assignors to Centre de Recherches Metallurgiques-Centrum Voor Research in de Metallurgie, Brussels and Societe Anonyme Cockerill, Seraing, both of, Belgium

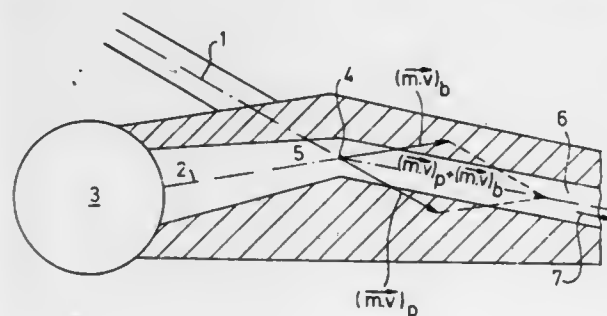
Filed Dec. 10, 1980, Ser. No. 215,076

Claims priority, application Luxembourg, Dec. 10, 1979, 81976

Int. Cl.³ F27B 1/16

U.S. Cl. 75—42

4 Claims



1. A method of injecting hot gases into a shaft furnace, comprising:

introducing a flow of gases to a tuyere from each of an inlet pipe and an outlet pipe emanating from a plasma oven, the longitudinal axis of the tuyere and the longitudinal axis of the inlet pipe forming a first angle, which first angle defines a first vector in combination with the mass flow and velocity of gas passing through the inlet pipe, the longitudinal axis of the tuyere and the longitudinal axis of the outlet pipe forming a second angle, which second angle defines a second vector in combination with the mass flow and velocity of gas passing through the outlet pipe, the resultant of the first vector and the second vector providing gas flow parallel to the longitudinal axis of the tuyere.

4,363,657

PROCESS FOR OBTAINING MANGANESE- AND SILICON-BASED ALLOYS BY SILICO-THERMAL MEANS IN A LADLE

Louis Boscaro, Aiguebelle; Michel Demange, Le Fayet; Jean-Philippe Bucher, Aiguebelle; Francis Dubrous, and Louis Septier, both of Le Fayet, all of France, assignors to Societe Francaise d'Electrometallurgie Sofrem, Paris, France

PCT No. PCT/FR80/00121, § 371 Date Mar. 6, 1981, § 102(e) Date Mar. 6, 1981, PCT-Pub. No. WO81/00262, PCT Pub. Date Feb. 5, 1981

PCT Filed Jul. 15, 1980, Ser. No. 253,521

Claims priority, application France, Jul. 17, 1979, 79 18985

Int. Cl.³ C22B 47/00; C22C 28/00

U.S. Cl. 75—80

16 Claims

1. A process for obtaining a manganese-based alloy by silico-

thermia in a ladle from a heated oxidized slag containing manganese oxide comprising:

- introducing the heated oxidized slag, containing from 10 to 40% manganese oxide with the manganese being present essentially in the divalent state, into the ladle;
- introducing a crushed solid silicon-based reducing alloy, containing more than 60% silicon, into the ladle;
- contacting the heated oxidized slag and the silicon-based reducing alloy with agitation to exothermically reduce the oxidized slag without the further application of heat from an external source;
- separating a slag which is substantially free of manganese from a metal having a manganese content of at least 60% and a silicon content within the range of 5 and 40% by decantation.

4,363,658

PROCESS FOR COMBINED PRODUCTION OF METAL ALLOYS AND ZIRCONIUM CORUNDUM

Boris A. Shushlebin, Sirenevy bulvar, 27, korpus 3, kv. 53; Nikolai A. Bogdanov, Dnepropetrovskaya ulitsa, 19, korpus 2, kv. 130, both of, Moscow; Viktor V. Tregubenko, ulitsa Zavodskaya, 6, kv. 2, Krasnogorsk Moskovskoi oblasti; Nikolai I. Subbotin, ulitsa Klubnaya, 9, kv. 3, and Mikhail V. Galkin, ulitsa Klubnaya, 4, kv. 1, both of Sysertsky raion, poselok Dvurechensk, all of U.S.S.R.

Continuation of Ser. No. 82,208, Oct. 5, 1979, abandoned. This application Feb. 9, 1981, Ser. No. 232,931

Int. Cl.³ C22B 34/00

U.S. Cl. 75—84

2 Claims

1. A process for combined production of a metal alloy containing zirconium, iron, silicon and aluminum and of zirconium corundum, comprising melting in a furnace a mixture of a zircon concentrate, an iron ore and aluminum taken in a ratio by weight of 51.69:9.9:16.5:19.8-34.8, respectively, at a temperature within the range of 1,950° to 2,000° C. to form a metal alloy consisting of Zr, Fe, Si and Al and a zirconium corundum, pouring the zirconium corundum from the furnace adding to the remaining alloy fluxes taken in an amount of 5 to 35 of the weight of the zircon concentrate and ferrosilicon taken in an amount of 3 to 102% by weight of silicon of the total weight of the zirconium concentrate and a substance selected from among ferrosilicomanganese, ferromanganese and metallic manganese taken in an amount of 3 to 26% by weight of manganese of the total weight of the zirconium concentrate, melting at a temperature of 1,950° to 2,000° C. to produce the metal alloy consisting of Zr, Fe, Si, Al and Mn and a waste slag substantially free of Zr and pouring the metal alloy and slag separately from the furnace.

4,363,659

NICKEL-BASE ALLOY RESISTANT TO WEAR
Anthony J. Hickl, Kokomo, Ind., assignor to Cabot Corporation, Kokomo, Ind.

Filed Jun. 4, 1979, Ser. No. 45,566

Int. Cl.³ C22C 30/00

U.S. Cl. 420—454

9 Claims

1. An alloy with an outstanding combination of engineering properties including impact strength, corrosion resistance, hot hardness, and abrasive and adhesive wear resistance consisting essentially of, in weight percent: chromium 24 to 32, molybdenum 4 to about 7, silicon 0.6 to 2.0, carbon 0.6 to 1.8, boron 0.2 to 1.0, tungsten up to one-half the molybdenum content, iron up to 5, manganese up to 1.0, copper up to 3.0, cobalt 0.35 to 5.0 and the balance nickel and incidental impurities.

4,363,660

IRON-BASE ALLOY HAVING HIGH RESISTANCE TO MOLTEN ZINC ATTACK

Saburo Wakita, Ohmiya, and Akihiko Sakonooka, Ageo, both of Japan, assignors to Mitsubishi Kinzoku Kabushiki Kaisha, Tokyo, Japan

PCT No. PCT/JP80/00060, § 371 Date Nov. 26, 1980, § 102(e) Date Nov. 26, 1980, PCT Pub. No. WO80/02161, PCT Pub. Date Oct. 16, 1980

PCT Filed Apr. 4, 1980, Ser. No. 217,015

Claims priority, application Japan, Apr. 4, 1979, 54-40616

Int. Cl.³ C22C 38/40

U.S. Cl. 75—128 B

4 Claims

1. An iron-base alloy having high erosion resistance to molten zinc attack which essentially consists of (by weight):
0.01 to 2% of carbon;
0.01 to 2% of silicon;
0.01 to 2% of manganese;
1.5 to 5.5% niobium and 0 to 3% tantalum, wherein the total of niobium and tantalum is 1.5 to 6%;
totally 5.5 to 10% of at least one element selected from the group consisting of molybdenum and tungsten, but molybdenum content is at least 5.5%;
10 to 30% of nickel;
10 to 30% of cobalt;
10 to 25% of chromium; and
a balance which is iron and inevitable impurities.

4,363,661

METHOD FOR INCREASING MECHANICAL PROPERTIES IN DUCTILE IRON BY ALLOY ADDITIONS

Bela V. Kovacs, Bloomfield Hill, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Apr. 8, 1981, Ser. No. 252,110

Int. Cl.³ C21C 7/02

U.S. Cl. 75—130 R

9 Claims

1. In a method of making an as-cast ductile iron casting, wherein a basic melt of carbon, silicon, manganese and iron is treated with a nodularizing agent and cooled to provide a microstructure consisting substantially of a pearlitic matrix containing cementite and graphite nodules surrounded by ferrite, the improvement comprising:

alloying said melt with the following combination of pearlitic stabilizers in percentage weight of the melt: (a) at least one of 0.02–0.06% Sb and 0.02–0.08% Sn, (b) 0.001–0.0015% Ce and 0.001–0.0015% La, and (c) 0.5–1.0% manganese.

4,363,662

ABRASION RESISTANT FERRO-BASED SINTERED ALLOY

Kentaro Takahashi, Omiya; Takeshi Hiraoka, Ageo, and Shigeru Urano, Omiya, all of Japan, assignors to Nippon Piston Ring Co., Ltd., Tokyo, Japan

Filed May 19, 1980, Ser. No. 151,079

Claims priority, application Japan, May 17, 1979, 54/59733

Int. Cl.³ B22F 3/00

U.S. Cl. 75—243

1 Claim

1. An abrasion resistant ferro-based sintered alloy comprising 1.1 to 1.6% by weight of carbon, 1.5 to 3.5% by weight of chromium, 1.6 to 2.9% by weight of molybdenum, 1.0 to 3.0% by weight of nickel, 3.0 to 5.0% by weight of cobalt, 0.5 to 1.5% by weight of tungsten, 1.8 to 18.0% by weight of copper and the balance iron wherein said alloy contains particles of specific alloy comprising C-Cr-W-Co and ferromolybdenum particles are uniformly dispersed in the base structure comprising a mixture of pearlite, bainite and martensite and wherein nickel and cobalt are distributed around the particles of specific alloy and of ferromolybdenum alloy.

4,363,663

ANTIMICROBIAL SOLUTION

Nicholas J. Hill, 83 Lowell St., Andover, Mass. 01810

Continuation-in-part of Ser. No. 50,459, Jun. 20, 1979, abandoned. This application Apr. 6, 1981, Ser. No. 251,104
Int. Cl.³ A01N 25/02; C08K 3/30, 3/32

U.S. Cl. 106—18.31

9 Claims

1. An antimicrobial solution comprising a microbiologically active organo-sulfonyl ethylene dissolved in an organo phosphorus compound selected from the group consisting of organo phosphites and organo phosphonates.

4,363,664

NOVEL COMPOSITIONS AND PROCESSES

John W. Delaney, Fort Mitchell, Ky., assignor to Sterling Drug Inc., New York, N.Y.

Filed Jan. 25, 1980, Ser. No. 115,543

Int. Cl.³ C09D 11/00

U.S. Cl. 106—21

44 Claims

1. A storage-stable concentrated free-flowing aqueous dispersion composition consisting essentially of by weight of the entire composition approximately 2.5 to approximately 50 percent of at least one colorless carbonless duplicating dyestuff precursor selected from the group consisting of phthalides, phenothiazines, fluorans, arylsulfonylmethanes, furopyridinones and furopyrazinones; approximately 0.1 to approximately 30 percent of at least one surface active agent selected from the group consisting of anionic surface active agents, nonionic surface active agents, cationic surface active agents and amphoteric surface active agents; and water; said composition optionally containing one or more of the following by weight of the entire composition: no more than 10 percent of a glycol selected from the group consisting of ethylene glycol, propylene glycol, diethylene glycol and ethylene glycol monoethyl ether; and no more than 3 percent of an alkaline substance selected from the group consisting of triethanolamine, sodium carbonate and potassium carbonate.

4,363,665

NOVEL SAND/SILICATE COMPOSITIONS FOR FOUNDRY MOLDS/CORES

Gerard Barrier, and Jean-Pierre Blanc, both of Antony, France, assignors to Rhone-Poulenc Industries, Paris, France

Filed Jul. 14, 1981, Ser. No. 283,137

Claims priority, application France, Jul. 18, 1980, 80 15875

Int. Cl.³ B28B 7/34

U.S. Cl. 106—38.3

15 Claims

1. In a moldable composition of matter comprising an intimate admixture of sand, an alkali metal silicate, a hardening agent and a demolding agent; the improvement which comprises a demolding agent including a mixture of a finely divided alkaline earth metal oxide or carbonate and from 1 to 99% by weight thereof of a hydrated alumina having an average grain size ranging from 0.2 to 5μ.

4,363,666

REINFORCED CEMENT SHEET PRODUCT CONTAINING FIBERS OTHER THAN ASBESTOS, CLAY AND THICKENER

Robert M. Johnson, and Elmer M. Melling, both of Kenmore, N.Y., assignors to National Gypsum Company, Dallas, Tex.

Filed Feb. 11, 1981, Ser. No. 233,687

Int. Cl.³ C04B 7/35

U.S. Cl. 106—90

28 Claims

1. A fiber-cement product comprising by weight Portland cement in an amount of between about 40% and 80%, fibers other than asbestos in an amount of between about 1% and 15%, a thickener, and clay in an amount of between about 2% and 15% to coact with said thickener in an aqueous slurry containing said Portland cement and fibers to provide a sufficiently high drainage time for proper formation of a mat on a

screen and a smaller solids loss than can be obtained by the use of said thickener by itself.

4,363,667

CEMENTITIOUS COMPOSITION AND CEMENT PRODUCED THEREFROM

James D. Birchall, Mouldsworth; Kevin Kendall, Runcorn, and Anthony J. Howard, Warrington, all of England, assignors to Imperial Chemical Industries Limited, London, England
Filed Mar. 31, 1981, Ser. No. 249,635

Claims priority, application United Kingdom, Apr. 11, 1980, 8012101

Int. Cl.³ C04B 7/35

U.S. Cl. 106—90

12 Claims

1. A cementitious composition comprising:
 - (a) at least one hydraulic cement,
 - (b) water in an amount of not more than 25% by weight of said hydraulic cement,
 - (c) at least one polymeric water-soluble or water-dispersible additive which is capable of aiding in the processing of the composition in an amount of 1 to 10% by weight of the hydraulic cement in the composition, and
 - (d) at least one particulate material insoluble in the composition and having an ultimate particle size of less than 0.1 micron, in an amount of 0.5 to 10% by weight of the hydraulic cement in the composition.

4,363,668

METHOD AND APPARATUS FOR BURNING RAW MATERIALS

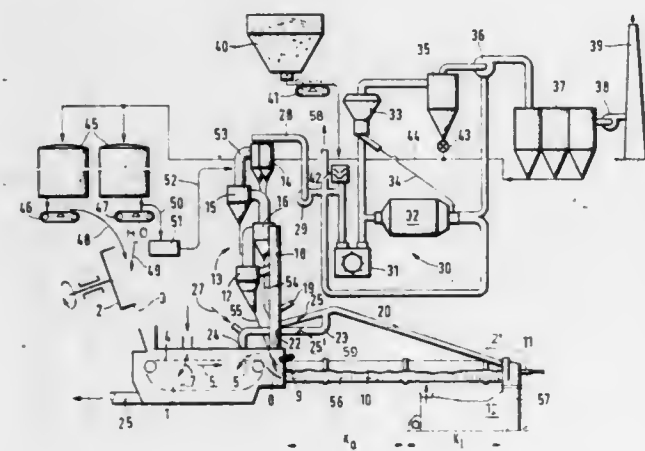
Horst Herchenbach, Troisdorf, Fed. Rep. of Germany, assignor to Klöckner-Humboldt-Deutz AG, Fed. Rep. of Germany
Filed Aug. 18, 1980, Ser. No. 179,161

Claims priority, application Fed. Rep. of Germany, Aug. 17, 1979, 2933289

Int. Cl.³ C04B 7/02; F27B 15/00, 7/02

U.S. Cl. 106—100

10 Claims



1. A method for burning raw materials in the production of clinker from cement raw materials which comprises:
 - drying and partially deacidifying cement raw materials in lumpy form to produce granules while transporting them in contact with hot gases,
 - passing another portion of said cement raw materials in the form of finely divided meal into a suspension type heat exchanger to heat the same,
 - deacidifying the resulting meal more completely in a calciner,
 - mixing the thus treated granules and deacidified meal, and
 - treating the resulting mixture in a thermal reactor to complete deacidification and the formation of clinker.

4,363,669

DISPERSIBLE XANTHAN GUM BLENDS

Ian W. Cottrell, Solana Beach; Paul A. Sandford, Del Mar, and John K. Baird, San Diego, all of Calif., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Dec. 5, 1979, Ser. No. 100,315

Int. Cl.³ C08L 5/00

U.S. Cl. 106—205

12 Claims

1. A dispersible, dry blend of glyoxal-treated xanthan gum and a non-dispersible plant gum selected from the group consisting of guar gum, tara gum, cold-water soluble tamarind gum, and cold-water soluble locust bean gum wherein the xanthan to plant gum weight:weight ratio ranges from about 50:50 to about 25:75.

4,363,670

CONTINUOUS PROCESS FOR INDUSTRIALLY PRODUCING MESOCARBON MICROBEADS

Kosaku Noguchi, Tokyo; Honami Tanaka, Izumi; Yukimasa Kumura, Izumi; Eiji Kitajima, Izumi; Noriyuki Tsuchiya, Izumi, and Tomonori Sunada, Ootsu, all of Japan, assignors to Koa Oil Company, Limited, Japan

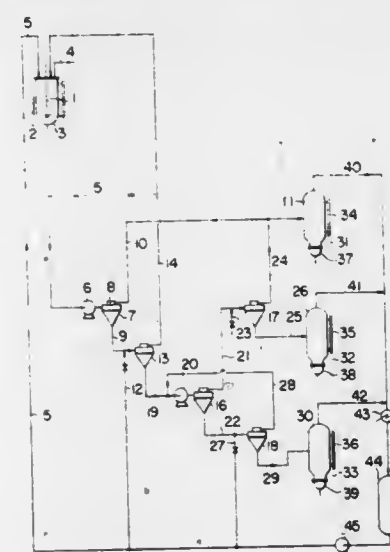
Filed Jan. 5, 1981, Ser. No. 222,901

Claims priority, application Japan, Jan. 4, 1980, 55-238

Int. Cl.³ C08L 95/00

U.S. Cl. 106—278

7 Claims



1. A process for continuously producing mesocarbon microbeads which comprises the steps of:
 - (a) mixing in a dissolving vessel (1) a starting-material pitch comprising a matrix pitch and mesophase microspheres obtained by heat processing a heavy oil and (2) a solvent in which the matrix pitch will dissolve but the mesophase microspheres will not dissolve thereby to obtain a liquid mixture comprising a solution of the matrix pitch dissolved in the solvent and dispersed mesophase microspheres;
 - (b) supplying the liquid mixture thus obtained in step (a) into at least two sequential stages of liquid cyclones
 - (i) the first of said two stages separating the mixture into a light liquid portion comprising principally the matrix, pitch and the solvent and a heavier liquid portion containing most of the mesophase microspheres, and
 - (ii) the second of said two stages separating said heavier liquid portion into a medium-weight liquid containing the matrix pitch and the solvent as well as a small portion of fine mesophase microspheres, and a heavy liquid containing the solvent as well as most of the mesophase microspheres;
 - (c) evaporating the solvent from the light liquid thus obtained in step (b) thereby to separate and collect the matrix pitch;
 - (d) recycling the medium-weight liquid thus obtained in step (b) to step (a) or step (b); and

- (e) removing the solvent from the heavy liquid thus obtained in step (b) thereby to obtain mesophase microspheres as mesocarbon microbeads.

4,363,671

APPARATUS FOR CHEMICAL CONVERSION OF MATERIALS

Barry A. Rugg, New York, and Robert Stanton, New Hyde Park, both of N.Y., assignors to New York University, New York, N.Y.

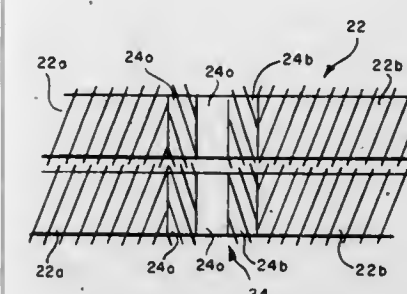
Division of Ser. No. 131,339, Mar. 18, 1980, Pat. No. 4,316,748.

This application May 18, 1981, Ser. No. 264,244

Int. Cl.³ B01J 3/04, 4/00

U.S. Cl. 127—1

8 Claims



1. In an apparatus for the dilute sulfuric acid hydrolysis of waste cellulose and being of the type comprising: extruding means including a housing having inlet ports receptive of cellulose to be converted, dilute sulfuric acid and steam or superheated water, an outlet port and a reaction zone therebetween; twin screws mounted in the housing for continuously conveying the cellulose through the reaction zone and to the outlet port; means defining supply sources of waste cellulose, dilute sulfuric acid and steam or superheated water, said supply means being connected to the respective inlet port; means for continuously feeding the cellulose to the waste cellulose inlet port; means for continuously injecting dilute sulfuric acid into the reaction zone; means for effecting an elevated temperature and pressure with the reaction zone during discharge comprising means for continuously injecting steam or superheated hot water at elevated pressure into the reaction zone and means for maintaining the elevated temperature and pressure including means forming a dynamic seal of the cellulose at the upstream end of the reaction zone and valve means downstream of the outlet port, the improvement wherein the means forming the dynamic seal comprises means forming a radially recessed and unthreaded discontinuity in the twin screws.

4,363,672

SEPARATION PROCESS USING CELLULOSE ACETATE BUTYRATE BOUND ZEOLITE ADSORBENTS

Santi Kulprathipanja, Hoffman Estates, Ill., assignor to UOP Inc., Des Plaines, Ill.

Division of Ser. No. 139,492, Apr. 11, 1980, Pat. No. 4,295,994, which is a continuation-in-part of Ser. No. 48,955, Jun. 15, 1979, Pat. No. 4,248,737. This application Apr. 9, 1981, Ser. No. 252,663

Int. Cl.³ C13D 3/14; B01J 20/18

U.S. Cl. 127—46.3

8 Claims

1. In a process for the separation of a component from a feed mixture comprising an aqueous solution of a mixture of components, by contacting said solution with an adsorbent comprising a crystalline aluminosilicate zeolite exhibiting an adsorptive selectivity towards said component, thereby selectively adsorbing said component from said mixture, separating the solution from contact with said adsorbent and thereafter recovering said adsorbed component by desorption thereof from said adsorbent, the silicon constituent of said adsorbent tending to dissolve in said solution resulting in the undesirable disintegration of said adsorbent, the improvement which comprises impregnation of said adsorbent, prior to said contacting with

said aqueous solution, with a water permeable binder material comprising cellulose acetate butyrate to substantially reduce the extent of dissolution of said silicon constituent and the extent of said disintegration of said adsorbent.

4,363,673

PROCESS FOR THE REMOVAL OF CARBON FROM SOLID SURFACES

William J. Settineri; Harold E. Klassen, both of Midland, and Milton C. Tolly, Hope, all of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed May 22, 1981, Ser. No. 266,557

Int. Cl.³ B08B 7/00

U.S. Cl. 134—2

10 Claims

1. A process for removing a carbon layer from a solid surface having such layer thereon which comprises contacting the surface with a gaseous fluid consisting essentially of sulfur trioxide and thereafter, rinsing the surface.

4,363,674

STOVE AND FIREPLACE CLEANING METHOD AND APPARATUS

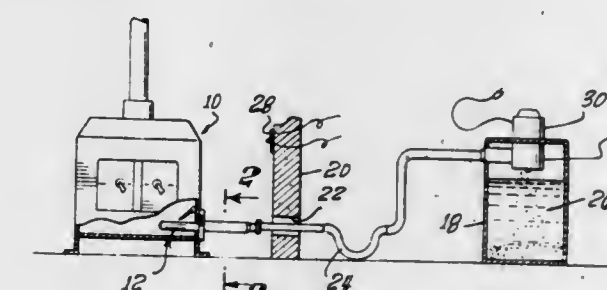
John T. Fullenwider, Rte. 3, 1211 Esther Wy., Minden, Nev. 89423

Filed Mar. 2, 1981, Ser. No. 239,505

Int. Cl.³ B08B 5/04

U.S. Cl. 134—21

2 Claims



1. The method of removing and treating material from a combustion chamber which comprises: (1) providing an opening through the wall of a combustion chamber suitable for receiving a vacuum pickup element; (2) providing a movable closure on the inside of the combustion chamber wall within said combustion chamber and over said opening; (3) removably mounting a vacuum pickup element receiving means onto the outside of said combustion chamber wall and in alignment with said opening; (4) providing a vacuum pickup element movably located within said vacuum pickup element receiving means; (5) inserting said vacuum pickup element into said combustion chamber through said opening and past said movable closure; (6) providing a material quench bath means; (7) providing a conduit means between said quench bath means and said vacuum pickup element; (8) drawing by vacuum means the material from said combustion chamber through said vacuum pickup element, through said conduit means and into said quench bath means; and (9) storing said quenched material in a storage means.

4,363,675

PROCESS FOR PRODUCING COMPOUND BASED SUPERCONDUCTOR WIRE

Kiyoshi Yoshizaki, Sagami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed May 18, 1981, Ser. No. 264,325

Claims priority, application Japan, May 19, 1980, 55-66166

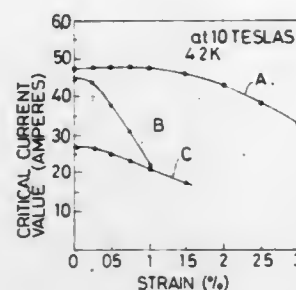
Int. Cl.³ H01L 39/24

U.S. Cl. 148—11.5 P

8 Claims

1. A process for producing a Nb₃Sn or V₃Ga compound-based superconductor wire comprising the steps of: forming a

composition by blending at least one metal powder selected from the group consisting of Nb-based and V-based particles at least a part of the surface of which is covered with at least one layer selected from the group consisting of Cu-Sn-based and Ga-based metal layers with at least one metal powder or alloy



powder selected from the group consisting of Cu-based, Sn-based, Ga-based, Cu-Sn-based and Cu-Ga-based; reducing the cross-sectional area of said composition; heat treating said composition; and drawing the heat-treated composition into a wire.

4,363,676

GRANULAR FLUX FOR PIPE WELDING

Dennis D. Crockett, and Robert J. Weaver, both of Mentor, Ohio, assignors to The Lincoln Electric Company, Cleveland, Ohio

Continuation-in-part of Ser. No. 202,291, Oct. 30, 1980, abandoned. This application Sep. 1, 1981, Ser. No. 297,262

Int. Cl.³ B23K 35/34

U.S. Cl. 148—24

2 Claims

1. An agglomerated flux composition suitable for use in arc welding when deposited as a layer in the form of granular free flowing particles consisting of the following ingredients in approximately the indicated weight percentages:

MgO	5-20
Mn ₂ O ₃	4-16
TiO ₂	0-8
Alloys	0-10
Fluorides	1-8
ZrSiO ₄	0-15
SiO ₂	0-15
Al ₂ O ₃	0-20
Al ₂ O ₃ :SiO ₂	20-70
Na ₂ O:SiO ₂	3-9

the improvements which comprise the Al₂O₃:SiO₂ being in the form of kyanite and the Na₂O:SiO₂ binding the other ingredients into agglomerated granular free flowing particles.

4,363,677

METHOD FOR TREATING AN ELECTROMAGNETIC STEEL SHEET AND AN ELECTROMAGNETIC STEEL SHEET HAVING MARKS OF LASER-BEAM IRRADIATION ON ITS SURFACE

Tadashi Ichiyama, Sagamiyama; Shigehiro Yamaguchi, Fujisawa; Tohru Iuchi, Kawasaki; Motoharu Nakamura, Himeji, and Yozo Suga, Kitakyushu, all of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Jan. 22, 1981, Ser. No. 227,379

Claims priority, application Japan, Jan. 25, 1980, 55-6998; Jan. 25, 1980, 55-7000; Jan. 25, 1980, 55-7475

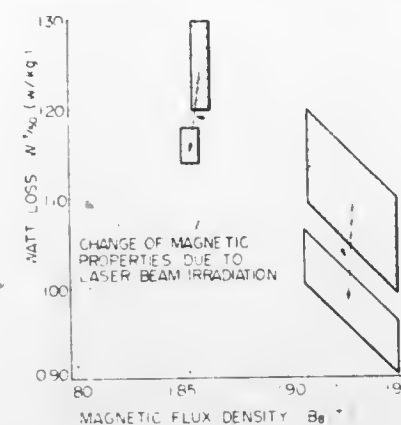
Int. Cl.³ H01F 1/04

U.S. Cl. 148—111

8 Claims

1. A method for treating an electromagnetic steel sheet to reduce its watt loss after completion of its final heat treatment, and comprising irradiating at least one surface of the finally heat-treated sheet with a laser beam having an energy density of from 0.01 to 1000 J/cm² so as to mark the sheet's surface and cause a substantial reduction in the sheet's watt loss, and there-

after a liquid insulating film-forming agent requiring treating at temperatures not higher than 600° C. is coated on the surface



and the coated sheet is treated at temperatures not higher than 600° C. so as to form an insulating film on the surface.

4,363,678

EXPLOSIVES HAVING POWDERED FERRITE MAGNET AS A TRACER DISPERSED THERE THROUGH AND A METHOD FOR PRODUCING THE SAME

Naozumi Nishimura, Sendai; Akira Matsunaga, Yokohama, and Yasuo Ishii, Yotsukaido, all of Japan, assignors to Tohoku Metal Industries, Tokyo, Japan

Filed Dec. 17, 1980, Ser. No. 217,231

Int. Cl.³ C06B 45/32

U.S. Cl. 149—6

14 Claims

1. In an explosive having a relatively small amount of powdered ferrite magnet dispersed therethrough, the improvement comprising each particle of said powdered ferrite magnet coated with a resin coating which is stable for the explosive materials on the entire outer surface of each particle.

4,363,679

USE OF ZINC PEROXIDE AS OXIDANT FOR EXPLOSIVES AND PYROTECHNICAL MIXTURES

Rainer Hagel, Lichtenfels, and Klaus Redecker, Nuremberg, both of Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany

Filed Dec. 17, 1980, Ser. No. 217,220

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1979, 2952069

Int. Cl.³ C06B 33/00

U.S. Cl. 149—37

15 Claims

1. A process for promoting the oxidation of an explosive-containing mixture or a pyrotechnical mixture which comprises utilizing zinc peroxide as the sole or predominant oxidant in said mixture.

4,363,680

PROCESS FOR CONTACTING A POWDER WITH A FIBROUS WEB

George S. Buck, Jr., and Roger V. Russell, both of Memphis, Tenn., assignors to Fiberlok Inc., Memphis, Tenn.

Continuation of Ser. No. 74,677, Sep. 12, 1979, abandoned. This application Sep. 30, 1980, Ser. No. 192,344

Int. Cl.³ B05D 1/12

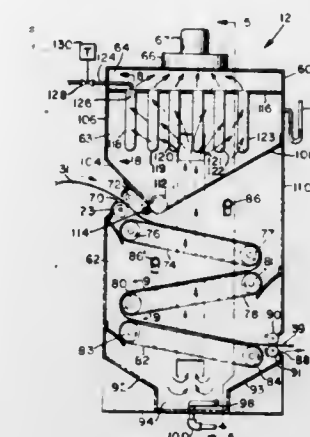
U.S. Cl. 156—62.6

16 Claims

1. A process for intimately contacting a moving fibrous web with a powder comprising the steps of:

I. passing a mixture of powder and air through the moving fibrous web;

II. reversing the direction of movement of the fibrous web; and then



III. passing a mixture of powder and air through the moving fibrous web in a direction opposite to that of Step I.

4,363,681

METHOD FOR MAKING PIPE INSULATOR

Robert O. Williams, 2264 Weber Rd., Gladwin, Mich. 48624

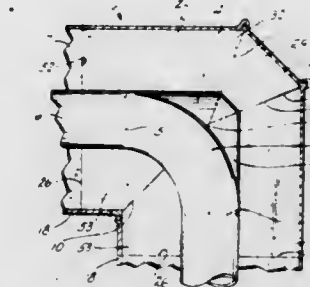
Division of Ser. No. 148,223, May 9, 1980, Pat. No. 4,327,778.

This application Oct. 23, 1981, Ser. No. 314,390

Int. Cl.³ B32B 31/18

U.S. Cl. 156—64

3 Claims



1. A method of fabricating insulators for pipe elbows, and the like, comprising:

providing semi-cylindrically shaped insulative material having a longitudinally oriented interior channel shaped to respectively receive therein pipe sections interconnected by an elbow;

cutting first and second lengths of said insulative material in accordance with the length of the elbow for assembly into a first split sleeve leg;

cutting third and fourth lengths of said insulative material in accordance with the length of the elbow, for assembly into a second split sleeve leg;

measuring the angle included between the pipe sections;

cutting a dihedral face in each split sleeve leg for orientation toward each other at a medial portion of said elbow, including forming inner and outer surfaces which intersect at the central axis of the associated leg, wherein each inner surface is inclined from a plane perpendicular with the central axis of the associated leg at an angle substantially equal to one-half (1/2) of the included angle, and each outer surface is inclined from the plane of the associated inner surface at an angle substantially equal to one-quarter (1/4) of the included angle;

cutting first and second wedge-shaped insulator gores from a fifth length of said material, wherein the converging sides of each gore are inclined toward each other at an angle substantially equal to one-half (1/2) of the included angle, and abuttingly mate with the outer leg surfaces to form a closed, insulative sleeve about the elbow.

4,363,682 PROCESS FOR THE SUPERFICIAL TREATMENT OF A FIBROUS FILTERING LAYER, WHICH IS NON-WOVEN AND HIGHLY AERATED, FORMING ELECTRET

Bernard Thiebault, Montmorency, France, assignor to Seplast, Gennevilliers, France

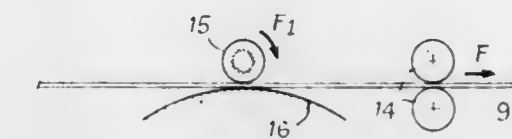
Filed Apr. 6, 1981, Ser. No. 251,077

Claims priority, application France, Apr. 18, 1980, 80 08810

Int. Cl.³ B29H 9/04; D04H 3/08

U.S. Cl. 156—181

6 Claims



1. A process for superficially treating a highly aerated, fluffy, fibrous electret, air filtering fabric layer having fibers projecting above a subjacent mass, which comprises smoothing at least one fluffy surface of the layer by exerting a light friction under low pressure to flatten the projected fibers on the subjacent fiber mass without substantial compression of said mass, and at a softening temperature to weld the superficial fibers together and to form a skin or pourous glaze which will be unclogged and by a surface effect adds to the filtering power of the electrostatic filtering layer without reducing the gaseous flow passing through the layer.

4,363,683

PROCESS FOR AFFIXING MARKER TO FABRIC

Nelson P. Diesel, 816 Dutch Mill, Ballwin, Mo. 63011

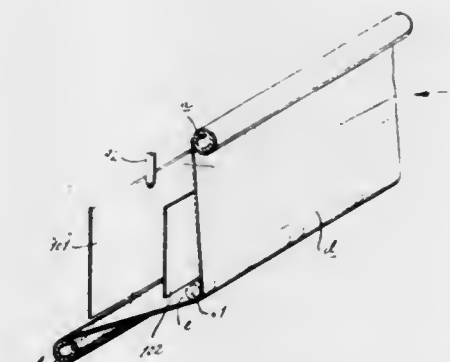
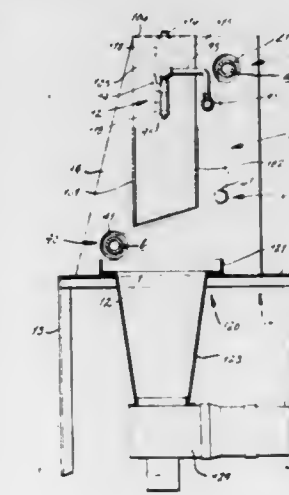
Continuation-in-part of Ser. No. 51,836, Jun. 6, 1979,

abandoned. This application Aug. 21, 1980, Ser. No. 180,113

Int. Cl.³ B65H 81/00; A41D 1/00; A23L 1/16; B05D 1/02

U.S. Cl. 156—184

2 Claims



1. A method of preparing a pre-printed, pre-rolled garment-making marker having a blank end for adherence to the upper

side of an elongated bundle of fabric preliminary to cutting, comprising the steps of
 mounting the pre-rolled marker for rotation on a feed axis, unrolling the marker from the feed axis and drawing it in a plane past transversely-aligned adhesive-spraying nozzles directed at the unprinted back upward facing side of the marker,
 spraying adhesive onto the back side of the marker as it is drawn past the nozzles, commencing partial drying of the sprayed adhesive then,
 re-rolling the marker adhesive side outward upon a take-up roll mounted for rotation on a take-up axis below the level of such plane as soon as the sprayed adhesive becomes sufficiently tacky that the sprayed back side will thereafter separate cleanly from the printed front side of the marker, discontinuing spraying the marker after adhesive has been applied to its back side along the entire printed pattern portion and only said blank end remains,
 continuing to draw the marker to and upon the take-up roll until the blank end of the marker overlays the outer layer of the sprayed portion of the back side of the marker, and removing the marker so re-rolled from said take-up axis.

4,363,684

METHOD FOR THE LAMINATION OF FOAM INCLUDING A REINFORCING SCRIM

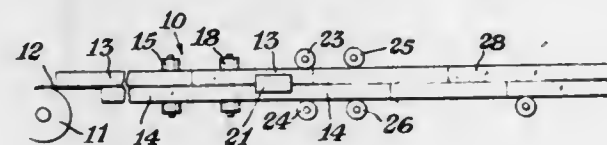
Robert A. Hay, II, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 137,665, Apr. 7, 1980, abandoned, which is a continuation-in-part of Ser. No. 41,355, May 22, 1979, abandoned, which is a continuation-in-part of Ser. No. 925,081, Jul. 17, 1978, abandoned. This application Jun. 9, 1981, Ser. No. 271,161

Int. Cl.³ B31F 1/00

U.S. Cl. 156—201

10 Claims



1. In a generally continuous method for the preparation of an elongate laminate of synthetic resinous thermoplastic foam body incorporating a reinforcing scrim therein wherein adjacent foam surfaces of adjacent foam bodies are heated by means of a generally planar heating element having first and second opposed heating surfaces to a temperature sufficient that on contact of the adjacent foam surfaces and cooling thereof, a rigid bond is achieved between the bodies, the improvement which comprises positioning the scrim relative to the major surfaces of the planar heating element during the heating of the adjacent foam surfaces to thereby obtain a laminate exhibiting a desired degree of curvature.

4,363,685

PACKAGE LABEL AND MANUFACTURE OF SAME

Rollin T. White, Westfield, N.J., assignor to NJM, Inc., Fairfield, N.J.

Division of Ser. No. 776,534, Mar. 11, 1977, Pat. No. 4,128,954. This application Nov. 3, 1978, Ser. No. 957,490

Int. Cl.³ B29C 17/04; B32B 31/04

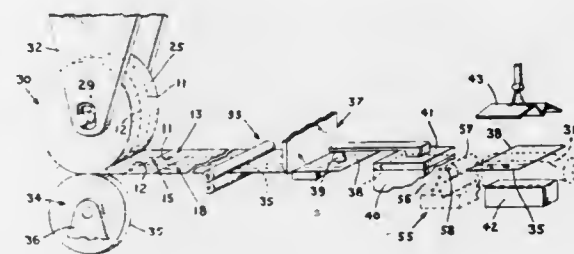
U.S. Cl. 156—212

4 Claims

1. The method of labeling containers for a given product which comprises feeding toward the place for application of the labels to such containers a succession of labels each having on its face side label indicia and having a reverse side adhesively inoperative throughout its entire area, each label being composed of two sections spaced by an intermediate section provided with pressure sensitive adhesive masked by release treated material to prevent adhesion thereof to an article, one of said two spaced sections being manually separable from said intermediate section without damage to either, during such

feeding operation substantially simultaneously rendering adherent with a single type of adhesive the reverse side of each of said two spaced sections, such rendering action rendering the reverse side of said one spaced section of such adhesiveness as to permanently secure said one spaced section to the product container to which the label has been applied and rendering the reverse side of the other of said two spaced sections sufficiently adhesive as to enable said other spaced section to be manually removed from the product container without disturbing said one spaced section, and at said place of application, substantially simultaneously adhesively affixing both of said adhesively rendered two spaced sections to outer surface portions of the product container to hold the label, as a whole, in a form conforming to the shape of the container surface area covered by the label, with the reverse side of said intermediate section in direct covering unattached engagement with the outer surface of the container.

3. In a label machine, a station at which labels are applied to products, means for feeding through the machine to said label applying station a succession of labels each having on its face side label indicia and having a reverse side adhesively inoperative throughout its entire area, each label being composed of two sections spaced by an intermediate section provided with pressure sensitive adhesive masked by release treated material to prevent adhesion thereof to an article, one of said two spaced sections being manually separable from said intermediate section without damage to either, means operable to substantially render adherent with a single type of adhesive the reverse side of each of said two spaced sections, said operable



means rendering the reverse side of said one spaced section sufficiently adhesive to permanently secure said one spaced section to a product to which the label has been applied, and rendering the other of said two spaced sections of such adhesiveness as to enable said other spaced section to be manually removed from the product without disturbing said one spaced section, and means for substantially simultaneously affixing both of said adhesively rendered two spaced sections to separate surface portions of a product to hold the label, as a whole, in a form conforming to the shape of the product surface area covered by the label, with the reverse side of said intermediate section in direct covering unattached engagement with the outer surface of the product, said labels being fed through the machine as a continuous length of label web, first means for supporting a roll of said label web on the machine, second means associated with said first roll supporting means for supporting a roll of a continuous length of narrow tape constituted of pressure sensitive adhesive provided on one side of a separable backing of release treated material, said first and second means coating to enable the pressure sensitive adhesive on said tape to progressively adhere to the reverse side of said label web as the web is fed from its roll, said second roll supporting means being so located relative to said first roll supporting means that the tape is adhered to the web intermediate and spaced from the longitudinal side edges of the web, and said feeding means engaging the composite web and tape to draw said label web and tape from the rolls thereof, and means for successively severing from the composite web and tape labels each constituted of a short section of said tape.

4,363,686

PROCESS FOR THE PRODUCTION OF IMITATION SUEDES BY THE REVERSAL PROCESS

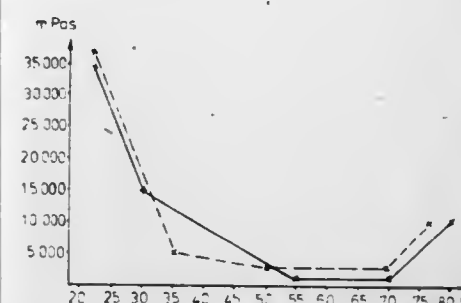
Ernst Komarek, Leverkusen, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
 Filed Jan. 30, 1981, Ser. No. 229,813

Claims priority, application Fed. Rep. of Germany, Feb. 6, 1980, 3004327

Int. Cl.³ B29C 13/00

U.S. Cl. 156—242

8 Claims



1. A process for the production of sheet products having a suede-like surface by applying a coating paste to a matrix whose surface has the form of a negative of suede or suede-like materials, solidifying the coating by heating, and removing the solidified coating from the matrix, comprising:

- applying a coating paste of a two-component system which may be hardened to a polyurethane urea only when heated and which is based on
 - a blocked isocyanate prepolymer and a polyamine or
 - an isocyanate prepolymer and a complex of an alkali metal halide and an aromatic polyamine and
 up to about 40% by weight of solvent so that the coating paste has a viscosity of at most about 100,000 mPa.s at room temperature;
- heating the coating to a temperature of from 30° to 80° C., the viscosity of the coating paste passing through a minimum which is at the most 30,000 mPa.s; and
- hardening the coating to the polyurethane by heating to a temperature above 90° C.

4,363,687

METHOD FOR MAKING LARGE FIBERGLASS STRUCTURES

Stephen W. Anderson, 1441 S. Monaco Street Pkwy., Denver, Colo. 80224

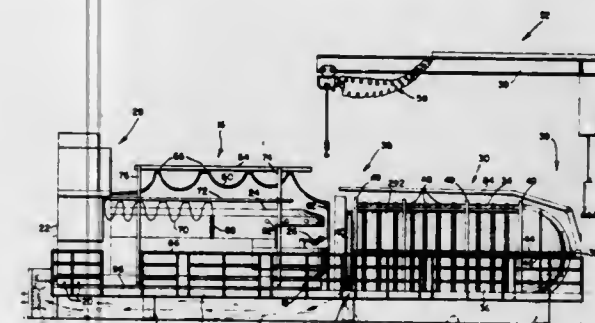
Division of Ser. No. 866,013, Dec. 30, 1977, Pat. No. 4,278,411.

This application Apr. 10, 1981, Ser. No. 252,996

Int. Cl.³ B29C 5/02, 5/04, 27/26; B29D 3/02

U.S. Cl. 156—245

14 Claims



1. In a method of making a large fiberglass structure, the steps comprising:

- passing an operator's carriage into and out of a mold having an open end and a closed end;
- applying raw materials comprising resin and glass fibers to the inside surface of said mold during certain of the passages of said carriage therethrough; and
- manually controlling certain operations of said carriage from inside said carriage.

4,363,688

PROCESS AND APPARATUS FOR PRODUCING FILLING MATERIAL

Kazo Yasue, Utsunomiya, Japan, assignor to Anmin Manufacturing Co., Ltd., Japan

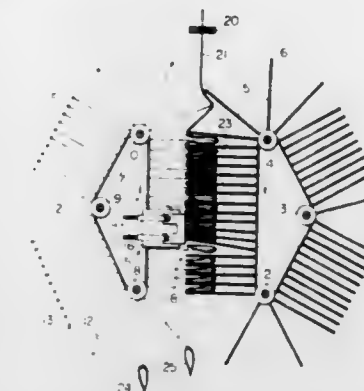
Filed May 22, 1981, Ser. No. 266,328

Claims priority, application Japan, May 26, 1980, 55-69848

Int. Cl.³ D02G 3/00

U.S. Cl. 156—251

5 Claims



1. A process for producing filling material, which comprises steps of inserting a filament bundle formed of a plurality of arranged filament among a plurality of filament bending members disposed contiguously to one another by filament inserting members in the state where the filament bundle is kept in contact with the end portions of the filament bending members, to bend the filament bundle zigzag, heating and melt-cutting the filament bundle at the parts kept in contact with the end portions of the filament bending members to form two fold filament bundles having a short fiber length and simultaneously fusion-bonding the end portions of the filament bundles near said melt-cut parts, whereby is obtained filling material comprising a plurality of filament having a short fiber length and being bent in the form of a loop, ends of said filaments converging to one point and the converging filaments being integrally fusion-bonded to one another at said convergent point.

2. An apparatus for producing filling material, which comprises two endless members supported by pulleys respectively, a plurality of filament bending members disposed contiguously to one another on the first endless member, a plurality of filament inserting members disposed contiguously to one another on the second endless member, said filament bending members and said filament inserting members being arranged so that they can be advanced between the point where the top ends of the filament bending members confront the top ends of the filament inserting members and the point where the top ends of the filament bending members alternate with the top ends of the filament inserting members, and a heater of a melt-cutting and fusion-bonding member which is disposed at the point where the top ends of the filament bending members alternate with the top ends of the filament inserting members, in the state where the heater is kept in contact with the top ends of the filament bending members, whereby the filament bundles are melt cut at the top of the filament bending members and said melt cut ends fuse to form loops.

4,363,689

ADHESIVE BONDING PROCESS

Richard R. Roesler, New Brighton, Minn., assignor to Henkel Corporation, Minneapolis, Minn.

Filed Dec. 20, 1978, Ser. No. 971,611

Int. Cl.³ C09J 5/02

U.S. Cl. 156—307.3

18 Claims

1. A process for bonding a film selected from the group consisting of nylon, polyester, polyvinyl chloride, polyethylene, and acrylonitrile-butadiene-styrene copolymers to a substrate comprising contacting the substrate with an liquid adhesive of the formula:

- (a) from about 40% to about 90% by weight of a saturated polyol; and,
 (b) from about 10% to about 60% by weight of a reactive material having a radiation sensitive pi bond and having a boiling point greater than that of benzene, and mixtures thereof; and,
 positioning the film and the substrate such that the adhesive is between the substrate and film and thereafter polymerizing the reactive material to effect bonding.

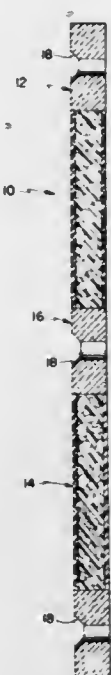
4,363,690

STRUCTURAL MATERIALS AND COMPONENTS

John Gagliani, and Raymond Lee, both of San Diego, Calif., assignors to International Harvester Company, Chicago, Ill. Division of Ser. No. 186,563, Sep. 12, 1980. This application Aug. 27, 1981, Ser. No. 296,833
 Int. Cl.³ C09J 5/02; B32B 5/18

U.S. Cl. 156—307.5

20 Claims



1. A process of making a structural component which includes the steps of assembling in a juxtaposed relationship a core material and a formulation that is convertible into a blocking material, said core material and said formulation each containing a polyimide precursor prepared by dissolving one or more primary diamines and 3,3',4,4'-benzophenonetetracarboxylic acid or an anhydride of that acid in essentially stoichiometric amounts in a lower alkyl alcohol, said formulation also including at least one filler, and the assembly being heated until said precursors are converted to polyimides and said blocking material is integrated with said core material.

4,363,691

HEAT-SINK IMAGING APPARATUS FOR LIVE SKIN TISSUE USING PULSED ENERGY SOURCE

Vincent D. Cannella, Detroit, and Mark H. McCormick-Goodhart, Grosse Pointe Woods, both of Mich., assignors to Energy Conversion Devices, Inc., Troy, Mich. Division of Ser. No. 11,155, Feb. 12, 1979, Pat. No. 4,251,564. This application Nov. 21, 1980, Ser. No. 208,885
 Int. Cl.³ B41K 1/00; B32B 31/00; G03C 5/16

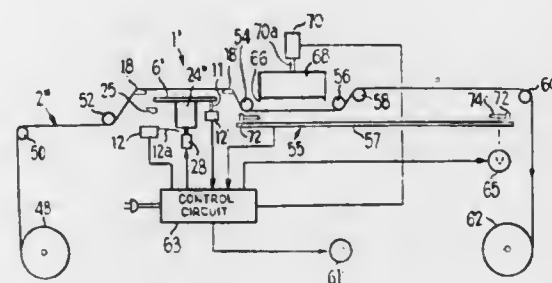
U.S. Cl. 156—350

22 Claims

11. Apparatus for recording the surface topology of live skin tissue, said apparatus comprising: a recording station and a recording strip-severing station; a strip of imageable recording material extending by said fingerprint recording and strip-severing stations, said strip of recording material having an imaging layer on one side thereof; said recording station including imaging means responsive to application of a given live skin tissue pressure to said strip of recording material by providing an image of the surface topology of the skin tissue applied thereto; means for automatically advancing the imaged portion

of said strip of recording material to said strip-severing station when pressure on said strip of recording material is relieved; said strip-severing station including strip-severing means mounted for movement between an inoperative position and an operative position where the imaged portion of said strip of material is severed from the rest of the same; and means for operating said strip-severing means.

13. Apparatus for recording the surface topology of live skin tissue, said apparatus comprising: a recording station and a recording strip-severing station; a strip of imageable recording material extending by said recording and strip-severing stations and between take-up and supply reels, said strip of recording material having an imaging layer covered by an optically transparent exposed release material which will not adhere to a pressure sensitive adhesive material, and a pressure sensitive adhesive on the opposite side thereof; said recording station including imaging means which, upon application of live skin tissue to said imaging layer of said strip of recording material, provides an image of the surface topology thereof; means for momentarily rotating said supply reel to advance the imaged portion of said strip of recording material to said strip-severing station after a live skin tissue image is formed; said recording strip-severing station including a strip-severing means mounted for movement between an inoperative position and an operative position where the imaged portion of said strip of imageable recording material is severed from the rest of the same, the strip of imageable recording material from which the imaged portion thereof has been severed maintaining its integrity to form a web of such material which is wound upon said take-up reel; and means for operating said strip-severing means.



17. Apparatus for recording a fingerprint and applying the same to a check or the like, said apparatus comprising: a fingerprint recording station and a check-receiving station; a strip of heat-imageable recording material initially wound on a supply reel and extending therefrom passed said fingerprint recording and check-receiving stations and then extending upon a take-up reel, said recording material having a substrate upon which is coated a heat-responsive imaging layer, an exposed layer of pressure sensitive adhesive material on said substrate, and an exposed optically transparent exposed release material on said imaging layer; said fingerprint recording station including imaging means responsive to the application of a given finger pressure to said heat-responsive imaging layer of said strip of heat imageable recording material for providing an image of the surface topology of the skin tissue applied thereto and for automatically advancing the imaged portion of said strip of heat imageable recording material to said check-receiving station when pressure on said strip of material is relieved; said check-receiving station including a strip-severing and recording material applying means mounted for movement between an inoperative position and an operative position where the fingerprint imaged portion of said strip of material is severed from the rest of the same and applied to a check at said check-receiving station, the strip of heat imageable recording material from which the fingerprint portion thereof has been severed maintaining its integrity to form a web of such material which is wound upon said take-up reel; and means for operating said strip-severing and recording material applying means.

18. The apparatus of claims 11, 13 or 17 wherein said imaging layer is made of a heat-imageable material which, upon

conduction of a given amount of heat energy to any given portion thereof, will be heated to a given imaging temperature in the absence of any substantial heat-sinking applied thereto; and said imaging means including: an energy transmitting and contact member confronting the inner side of said strip of recording material and spring mounted for a given predetermined inward movement when a given inward pressure is applied thereto, energy applying means for generating energy to be applied to said heat transmitting and contact member which energy is transmitted therefrom to said strip of recording material to provide said given amount of heat energy to each of the various portions of said layer of imaging material, to provide selective imaging of unheat-sinked or minimally heat-sinked portions of said layer of imaging material, and means responsive to a given movement of said energy transmitting and contact member for applying said energy to said member only for a predetermined period.

4,363,692

SHEET BINDING APPARATUS

Yoshiyuki Imamura, and Moriatsu Kawakami, both of Tokyo, Japan, assignors to Laurel Bank Machine Co., Ltd., Tokyo, Japan

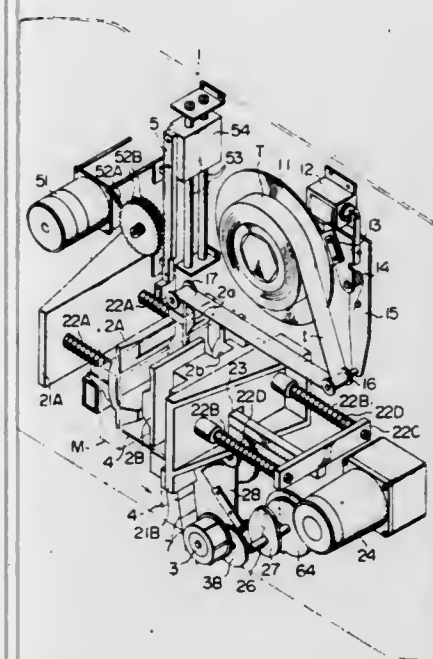
Filed Mar. 31, 1981, Ser. No. 249,720

Claims priority, application Japan, Apr. 30, 1980, 55-57575; Apr. 30, 1980, 55-57576

Int. Cl.³ B32B 31/20

U.S. Cl. 156—351

15 Claims



1. An apparatus for binding sheets by a tape which comprises:

- a supporting plate for supporting thereon sheets to be bound;
- a pair of confronting holding plates disposed above the supporting plate and horizontally movable between one position where the sheets are set between said holding plates and another position where the sheets are bound, each holding plate being formed on the inner surface thereof with a notch groove;
- means for supplying the tape to said holding plates;
- means for horizontally moving the holding plates to clamp the sheets therebetween while the tape is received in one notch groove of one holding plate between said one holding plate and the sheets to cover the sheets at top and bottom edges thereof with the tape;
- a tape push-down member disposed above the pair of holding plates and movable vertically to push the tape into the groove of the other holding plate between said other holding plate and the sheets whereby the sheets are wrapped with the tape, the tape push-down member being formed at its lower end with a forked portion in which a recess is formed;
- a heating member for bonding the ends of the wrapped tape

4,363,693

FULL-AUTO LABELING SYSTEM

Kunihiko Fujii, and Yoshihisa Nishiyama, both of Shizuoka, Japan, assignors to Tokyo Electric Company, Ltd., Tokyo, Japan

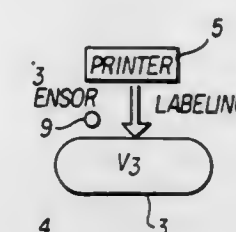
Filed Feb. 1, 1980, Ser. No. 117,614

Claims priority, application Japan, May 8, 1979, 54-56178; May 21, 1979, 54-62505

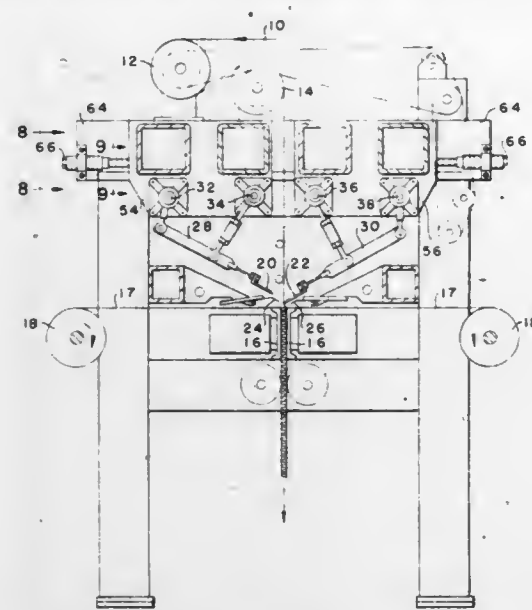
Int. Cl.³ G05G 15/00

U.S. Cl. 156—360

6 Claims



members and from the support member of the other of said folding blades, support means slidably supporting each of said support members to said frame, each side of said frame having a flange, said support means including a block member slidably supported on each of said flanges, and adjustment means sup-



ported in said frame and engaging said block members to cause said support members to be slid on said flanges through said block members to vary the position of said support members relative to said guide members to vary the position of said folding blades relative to one another.

4,363,695

AUTOMATIC REEL CHANGE SYSTEM

Josef Marass, Seehausen, Fed. Rep. of Germany, assignor to Georg Spiess GmbH, Gersthofen, Fed. Rep. of Germany
PCT No. PCT/DE80/00016, § 371 Date Oct. 21, 1980, § 102(e)
Date Sep. 25, 1980, PCT Pub. No. WO80/01794, PCT Pub. Date Sep. 4, 1980

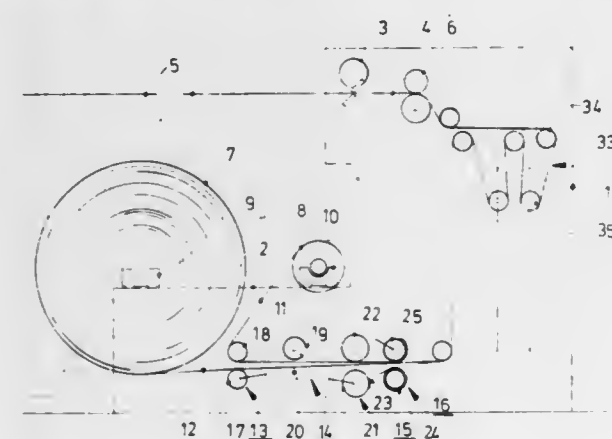
PCT Filed Feb. 20, 1980, Ser. No. 209,071

Claims priority, application Fed. Rep. of Germany, Feb. 21, 1979, 2906598

Int. Cl.³ B31F 5/06; B65H 19/18

U.S. Cl. 156—504*

8 Claims



1. In an automatic reel change system, for use on processing a paper web taken from a reel and feeding it to a transverse cutter, of the type having a reel support for at least two reels from which, on reel changing, a two-ply double web may be taken composed of a new web and an old web, a cutting station disposed adjacent to the path of the double web for performing a cutting operation on said double web, said cutting station having means for cutting said double web along a cut line, thereby cutting said old web so as to produce a waste run disposed rearwardly of the cut line, relative to the direction of web travel, and separated therefrom and disposed forwardly of said cut line, a new trailing end of said old web, and thereby cutting said new web so as to produce a waste run disposed

forwardly of the cut line, relative to the direction of web travel, and separated therefrom and disposed rearwardly of said cut line, a new leading end of the new web, a joining station disposed after said cutting station in the direction of the web travel for performing a joining operation which is timed for operation after said cutting operation, said joining station having means for joining said trailing end of the old web with said leading end of said new web by means of an adhesive strip overlapping and forming a joint between said new ends, and an advancing unit through which said double web runs which is disposed before said cutting station, relative to the direction of web travel, for performing an advancing operation on said double web, which is timed for operation at least between said cutting and joining operations, the improvement comprising:

two winding-up rolls, one for accommodating a plurality of turns of said waste run of said new web, and the other one for accommodating a plurality of turns of said waste run of said old web, said winding-up rolls being disposed after said joining station and being independently timed for operation, at least said winding-up roll for said waste run of said old web being a suction roll which is pivotably supported for movement between an inoperative and an operative position, in the latter of which it is positioned to wind up said waste run of said old web, and wherein said winding-up roll for winding up said waste run of said new web is a driven roll operable at a speed slightly greater than the normal web speed.

4,363,696

SHORT CIRCUIT PREVENTION IN THE MANUFACTURE OF SEMICONDUCTOR DEVICES

Yoshihide Nagakubo, Kawasaki, and Hisakazu Iizuka, Yokohama, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

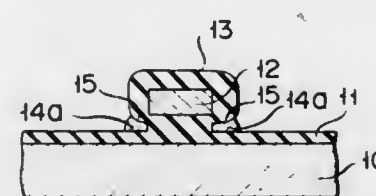
Filed Apr. 28, 1981, Ser. No. 258,415

Claims priority, application Japan, Jun. 25, 1980, 55/85068

Int. Cl.³ H01L 21/283, 21/308

U.S. Cl. 156—653

13 Claims



1. A manufacturing method of semiconductor devices including a step for forming at least one first interconnection layer with a given width on a first insulating layer and a step for forming at least two second interconnection layers which cross said first interconnection layer on a second insulating layer, said manufacturing method comprising:

a first step for forming an underlying interconnection layer including said first interconnection layer on said first insulating layer, said underlying interconnection layer having projected portions at both sides of said interconnection layer of said given width, at least a part of each projected portion being removed subsequently;
a second step for selectively etching said first insulating layer with said underlying interconnection layer as a mask;
a third step for forming said second insulating layer;
a fourth step for forming a conductive layer on the entire surface, including said underlying interconnection layer, for forming said second interconnection layers;
a fifth step for covering said second interconnection layers with a first etching resist layer;
a sixth step for removing said conductive layer covering said entire surface, except in that region corresponding to said second interconnection layers, by an anisotropic etching method with said first etching resist layer as a mask;
a seventh step for removing said second insulating layer with

said second interconnection layers as a mask, a part of said conductive layer remaining under the side edges of said projected portions, causing short-circuiting between said second interconnection layers through said conductive layer;

an eighth step for forming a second etching resist layer on said underlying interconnection layer, said second etching resist layer being provided between said second interconnection layers and at such a position as to cause said remaining conductive layer in said seventh step to be removed by an anisotropic etching method with said second etching resist layer as a mask, thereby preventing the short-circuiting between said second interconnection layers;

a ninth step for removing a part of said underlying interconnection layer by said anisotropic etching method with said etching resist layer as a mask, to finally form said first interconnection layer having substantially said given width; and

a tenth step for removing said second etching resist layer formed in said eighth step.

4,363,697

METHOD FOR MEDIUM CONSISTENCY OXYGEN DELIGNIFICATION OF PULP

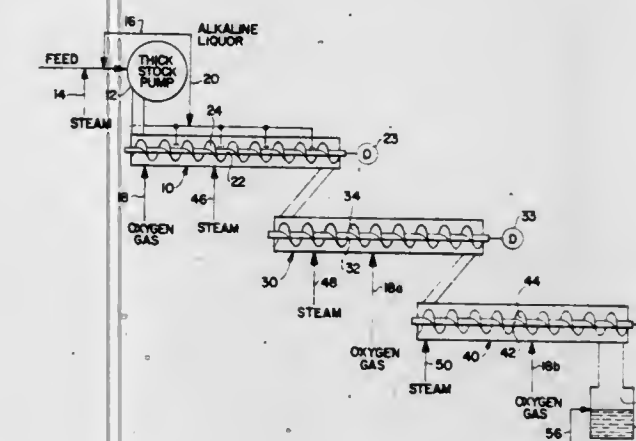
Larry D. Markham, Pierrefonds, Canada, and Henrik J. Ek-lund, Middletown, Ohio, assignors to The Black Clawson Company, Middletown, Ohio and Air Products and Chemicals, Inc., Allentown, Pa.

Filed Dec. 3, 1979, Ser. No. 99,684

Int. Cl.³ D21C 9/10

U.S. Cl. 162—19

13 Claims



1. A process for the continuous oxygen delignification of medium consistency pulp comprising the steps of:

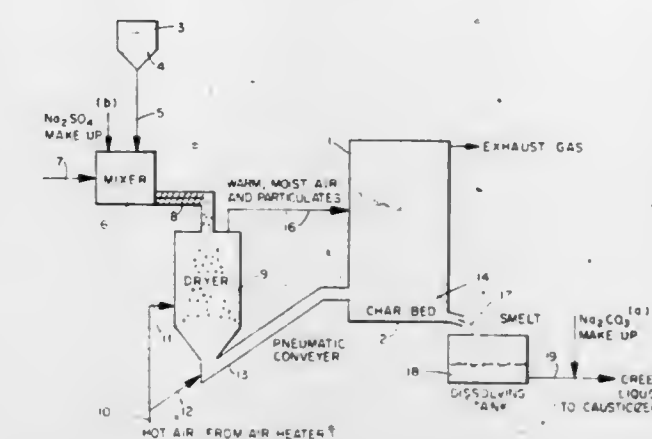
a. introducing pulp at a consistency of from 8 to 20% and alkaline materials into a first reaction zone and maintaining the consistency of the pulp at between 8% to 20% throughout the first and subsequent reaction zones,
b. introducing gaseous oxygen into said first reaction zone to delignify said pulp and maintaining the oxygen partial pressure in the first and subsequent reaction zones from about 30 to 200 psig,
c. agitating the mixture of the pulp-gaseous, oxygen, and alkaline materials with a screw conveyor extending along the length of said first zone operated at from 10 to 200 rpm, and
d. passing said mixture into one or more subsequent substantially horizontal reaction zones and retaining the pulp in said one or more zones for a time sufficient for further delignification to occur while agitating said pulp with a screw operating at from 0.5 to 5 rpm.

4,363,698
METHOD FOR DRYING AND BURNING VISCOUS AQUEOUS LIQUORS WHICH CONTAIN ORGANICS
Hugh W. Nelson, West Hartford; George J. Prohazka, Simsbury, both of Conn., and Keith W. Morris, Ashton, Canada, assignors to Combustion Engineering, Inc., Windsor, Conn.
Division of Ser. No. 163,836, Jun. 27, 1980. This application Oct. 30, 1981, Ser. No. 316,587

Int. Cl.³ D21C 11/12

U.S. Cl. 162—30.1

5 Claims



1. A method for recovering smelt from black liquor, including,

mixing hot heavy black liquor with material comprising sawdust or pith which is solid and porous and finely divided and combustible to coat the material with the solids of the liquor, then
passing heated air over the mixture to remove the water of the liquor, then
heating the material coated with the solids of the liquor in a boiler to pyrolyze and burn the organic portion of the solids and smelt the inorganic portion of the solids, heating water with the combustion to convert the water into clean steam,
and passing the molten smelt into water to form green liquor.

4,363,699

PROCESS FOR STABILIZING SOLUTIONS OF PEROXIDIC COMPOUNDS USED FOR BLEACHING

Jean DeCeuster, Vilvoorde; Paul Essemacker; Edmond Bouillet, both of Brussels; Alain Decamps, Rhode-Saint-Genese, and Pierre Ledoux, Brussels, all of Belgium, assignors to Solvay & Cie., Brussels, Belgium

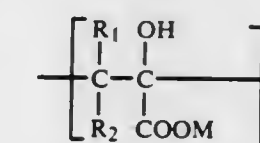
Continuation-in-part of Ser. No. 769,666, Feb. 17, 1977, abandoned. This application Sep. 4, 1980, Ser. No. 184,053
Claims priority, application Luxembourg, Feb. 25, 1976, 74434

Int. Cl.³ D21C 9/16

U.S. Cl. 162—71

12 Claims

1. Process for bleaching paper pulp or cellulosic fibers by contacting the paper pulp or cellulosic fibers with a stabilized solution containing water, a peroxidic compound used for bleaching and a stabilizer, which stabilizer is at least one polymer derived from an alpha-hydroxyacrylic acid, which polymer is a homopolymer and contains units of the formula:



where R₁ and R₂ represent hydrogen or an alkyl group comprising from 1 to 3 carbon atoms which can be substituted by a hydroxyl group or a halogen atom, R₁ and R₂ being identical or different, and where M represents a sodium or potassium atom or an ammonium group, said peroxide compound being

present in an amount between 0.01 and 30% by weight relative to the weight of solvent, said polymer having an average molecular weight of between 2,000 and 800,000 and being present in an amount between 0.01 and 30% by weight relative to the weight of water.

4,363,700

PROCESS FOR PULPING LIGNOCELLULOSIC MATERIAL WITH AN ALKALINE SULFIDE COOKING LIQUOR CONTAINING AN ACCELERATING ADDITIVE AND REDUCING ASSISTANT

Isao Wada; Jun-ichiro Kido, and Kazuo Koido, all of Tokyo, Japan, assignors to Oji Paper Co., Ltd., Tokyo, Japan
Continuation of Ser. No. 967,694, Dec. 8, 1978, abandoned. This application Mar. 13, 1980, Ser. No. 130,007

Claims priority, application Japan, Dec. 14, 1977, 52-149195; Feb. 10, 1978, 53-13566

Int. Cl.³ D21C 3/02, 3/20

U.S. Cl. 162-72

5 Claims

1. A process for pulping lignocellulosic material comprising delignifying, at a temperature of from 140° to 190° C., a lignocellulosic material with an alkaline sulfide cooking liquor containing:

- sodium sulfide;
- sodium hydroxide;
- a delignification-accelerating additive which consists of at least one cyclic organic compound selected from the group consisting of quinone compounds, hydroquinone compounds, 9,10-diketohydroanthracene compounds and 9,10-dihydroxyhydroanthracene compounds, and which is in an amount of from 0.01 to 5% based on the bone dry weight of said lignocellulosic material; and
- a reducing assistant which consists of at least one compound selected from the group consisting of sodium sulfite and potassium sulfite, and which is in an amount of from 0.49 to 5.0% in terms of Na₂O, based on the bone dry weight of said lignocellulosic material, and separating the resultant delignified material from the delignifying mixture;

the sodium sulfide and the sodium hydroxide being present in said alkaline sulfide cooking liquor in amounts to provide therein (i) an effective alkali content of from 8 to 40%; and (ii) a sulfidity of from 3 to 50%, both based on the bone dry weight of said lignocellulosic material.

4,363,701

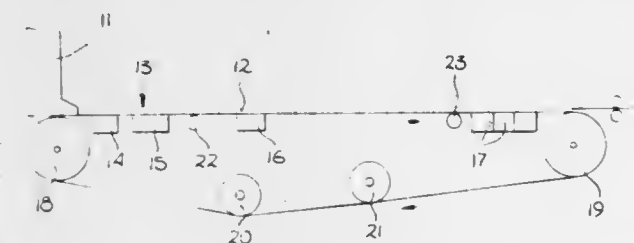
SUPPORTING MEMBER FOR PAPER-MAKING SCREEN IN PAPER MACHINES

Yasunobu Kawae, and Michio Kakimura, both of Kokubu, Japan, assignors to Kyoto Ceramic Kabushiki Kaisha, Japan
Continuation-in-part of Ser. No. 228,808, Jan. 28, 1981, abandoned, which is a continuation of Ser. No. 102,127, Dec. 10, 1979, abandoned. This application Apr. 16, 1981, Ser. No. 254,732

Int. Cl.³ D21F 1/00

U.S. Cl. 162-301

10 Claims



1. In a paper making machine having a continuous moving screen, the improvement comprising one or more supporting members for partially supporting said screen, each said supporting member comprising a sintered body consisting essen-

tially of silicon nitride having a porosity of approximately 0.8 percent or less.

5. A machine according to claim 1 wherein said paper making machine is a twin wire type and further wherein said supporting members are disposed alternatively on each side of a pair of parallel papermaking screens.

4,363,702

APPARATUS FOR RECEIVING INCANDESCENT COKE

Valery N. Kucher, ulitsa 9 Maya, 15 kv. 25; Georgy R. Reiman, ulitsa Syrovtsa, 2/28 kv. 79; Grigory D. Zhovtobryukh, Kom-somolsky prospekt 20, kv. 40, all of Dneprodzerzhinsk; Evgeny P. Likhogub, ulitsa Slinko, 2a, kv. 11; Gersh A. Dorfman, ulitsa 23 Avgusta, 31a, kv. 52, both of Kharkov; Mikhail I. Durachenko, ulitsa Lesopilnaya, 1/28, kv. 32, Dneprodzerzhinsk; Alexandr N. Minasov, ulitsa Ivanova, 12/16 kv. 59, Kharkov; Valentin B. Bocharov, ulitsa Boiko 41 kv. 72, and Alexandr Z. Popenko, ulitsa Prigorodnaya 68, both of Dneprodzerzhinsk, all of U.S.S.R.

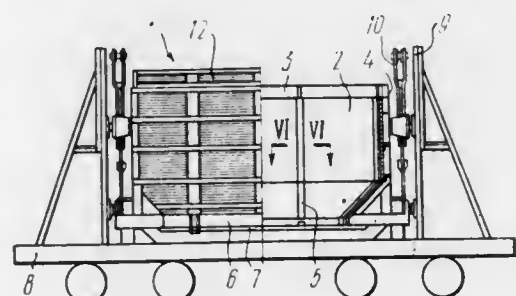
PCT No. PCT/SU79/00062, § 371 Date Mar. 31, 1981, § 102(e) Date Mar. 26, 1981, PCT Pub. No. WO81/00414, PCT Pub. Date Feb. 19, 1981

PCT Filed Jul. 31, 1979, Ser. No. 247,299

Int. Cl.³ B61D 7/12, 7/18, 7/22; C10B 39/14

U.S. Cl. 202-262

7 Claims



1. An apparatus for receiving incandescent coke and conveying the same from a coking chamber to a quenching site, comprising a wall structure which is lined with plates of a suitable material, installed so as to provide for a linear expansion thereof, and which defines at its bottom portion a hopper having a discharge hole, a girdle extending substantially circumferentially around the discharge hole, and bottom gates movable between an opened and closed position with respect to said discharge hole, characterized in that the wall structure and the lining plates are installed in a mutually spaced relationship to define a gap therebetween, the lining plates are joined with one another and with the wall structure by locking means and spacing members, the girdle being round in cross-section, and wherein the bottom gates are provided with sealing members which are fixed thereto for movement therewith, said sealing members having at least one sealing surface disposed so that, with the bottom gates in the closed position covering said discharge hole, said at least one sealing surface contacts said girdle extending tangentially with respect thereto.

4,363,703

THERMAL GRADIENT HUMIDIFICATION-DEHUMIDIFICATION DESALINATION SYSTEM

Ahmed A. ElDifrawi, Burr Ridge; Christopher F. Blazek, Palos Hills, and Bernard D. Yudow, Chicago, all of Ill., assignors to Institute of Gas Technology, Chicago, Ill.

Filed Nov. 6, 1980, Ser. No. 204,560

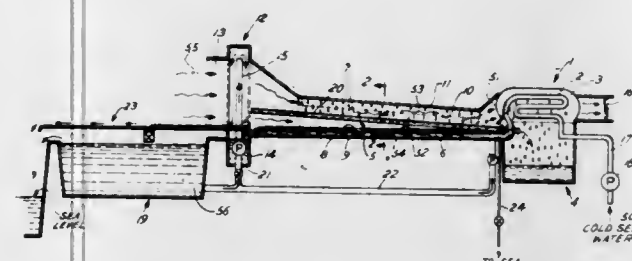
Int. Cl.³ C02F 1/14

U.S. Cl. 203-10

30 Claims

1. A process for the evaporative desalination of salt water to provide fresh water which process fully utilizes the latent heat of condensation to provide additional fresh water, comprising, during periods of isolation:

- passing comparatively cold salt water into indirect heat exchange contact with a flow of moisture laden comparatively warm air so that fresh water is condensed from the moisture laden comparatively warm air and the heat of condensation of that fresh water is transferred to the comparatively cold salt water, the temperature of which becomes comparatively warm;
- segregating at least parts of the flow of salt water of comparatively warm temperature into at least a first stream and a second stream;
- directly contacting only the first stream of the salt water of comparatively warm temperature with the flow of moist air which is subsequently passed into indirect heat exchange contact with the comparatively cold salt water, while simultaneously passing the first stream over a solar absorption surface, and segregating from the atmosphere and heating by solar means both this first stream of salt



- water of comparatively warm temperature and the flow of moist air to predominantly cause evaporation of water into the air so that the air becomes moisture laden;
- wetting an evaporative medium with at least a portion of the second stream of salt water of comparatively warm temperature;
- passing ambient air through the wetted evaporative medium so that the air absorbs moisture and becomes the flow of moist air which is directly contacted with the first stream of salt water while both are heated by solar means; and
- collecting at least the first stream of the salt water of comparatively warm temperature in a warm brine collection means;

and further comprising, during periods of reduced isolation: (g) utilizing the salt water of comparatively warm temperature collected in the warm brine collection means to produce additional fresh water by evaporative desalination.

4,363,704

SEPARATION OF TOLUENE FROM NON-AROMATIC HYDROCARBONS BY EXTRACTIVE DISTILLATION

Lloyd Berg, 1314 S. Third Ave., Bozeman, Mont. 59715

Filed Nov. 20, 1981, Ser. No. 323,544

Int. Cl.³ B01D 3/40

U.S. Cl. 203-58

3 Claims

1. A method for separating toluene from close boiling non-aromatic hydrocarbons which comprises distilling a mixture of toluene and close boiling non-aromatic hydrocarbons in a rectification column in the presence of an effective amount of an extractive agent sufficient to provide a relative volatility of 2.5 or greater comprising effective proportions of phthalic anhydride and/or maleic anhydride and a solvent from the group consisting of glycerol triacetate, dimethylformamide, ethyl acetoacetate, acetonyl acetone, acetophenone, 2,4-pentanedione, ethylene glycol phenyl ether, dichlorodiethyl ether, dimethylacetamide, benzophenone, ethylene glycol diacetate, furfural, nitrobenzene, 2-nitrotoluene, sulfolane, phenol, dimethylsulfoxide.

4,363,705

PASSIVATING AND SILVER REMOVAL METHOD

Csaba K. Hunyar, Glendale, and Gary A. Hand, Azusa, both of Calif., assignors to Capitol Records, Inc., Hollywood, Calif.

Filed Jul. 16, 1981, Ser. No. 284,052

Int. Cl.³ C25D 1/22

U.S. Cl. 204-5

11 Claims

1. In a method for producing a nickel image of a nickel plate comprising the step of plating the nickel plate with a nickel containing solution, the improvement comprising of step of applying to the surface of the nickel plate, before the step of plating, an aqueous solution containing a water soluble persulfate composition in an amount of at least 0.01 gram per liter of solution, the persulfate composition being selected from the group consisting of ammonium and alkali metal persulfates and combinations thereof.

4,363,706

ANODE

David E. Williams, Abingdon; Kamal K. Verma, Birmingham, and John M. Fisher, Tamworth, all of England, assignors to IMI Kynoch Limited, Birmingham, England

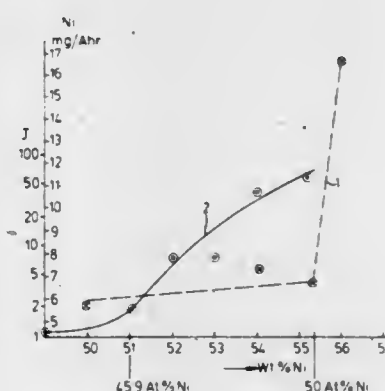
Filed Feb. 25, 1981, Ser. No. 238,023

Claims priority, application United Kingdom, Mar. 7, 1980, 8007789

Int. Cl.³ C25C 1/08; C25B 11/04

U.S. Cl. 204-105 R

14 Claims



1. An electrode for an electrowinning cell for electrolysis of an acid medium in which the anodically active material is formed of an alloy of titanium and nickel, the nickel content being in the region of 51 to 55 wt% of the sum of the titanium and nickel contents.

4,363,707

ACTIVATED NICKEL-CONTAINING ELECTRODE AND ITS USE PARTICULARLY FOR WATER ELECTROLYSIS

Michel Prigent, Rueil Malmaison, and Lucien Martin, Issy les Moulineaux, both of France, assignors to Institut Francais du Pétrole, Rueil-Malmaison, France

Filed Jun. 18, 1980, Ser. No. 160,785

Claims priority, application France, Jun. 18, 1979, 79 15750

Int. Cl.³ C25B 1/04, 11/06; B05D 1/00

U.S. Cl. 204-129

9 Claims

1. A safe, stable low polarization electrode, produced by the process comprising the steps of:

- sulfiding a layer of divided metallic nickel or nickel-containing metal alloy consisting essentially of nickel and 0-80% by weight of Fe, Co, Cr or Mn and/or 0-15% by weight of Mg, Al, Si, Ti, V, Cu, Zn, Zr, Nb, Mo, Sn, La, Ta, W, Pb or Bi, with respect to the nickel, said layer being previously deposited on an electrically conductive substrate, under conditions producing substantially only superficial sulfur deposition; and thereafter

(b) heating the resultant superficially sulfided electrode at 200°-600° C. in an inert gas atmosphere or in a vacuum.

9. In the electrolysis of water using at least one electrode, the

improvement comprising using as said electrode the electrode of claim 1.

4,363,708

PROCESS FOR EXPOSING SILICON CRYSTALS ON THE SURFACE OF A COMPONENT OF AN ALUMINUM ALLOY OF HIGH SILICON CONTENT

Wilfried R  chle, Ostfildern; Walter Preisendanz, Hardt, and Leonhard Scholtissek, Stuttgart, all of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed May 15, 1981, Ser. No. 263,909

Claims priority, application Fed. Rep. of Germany, May 24, 1980, 3020012

Int. Cl.³ C25F 3/04

U.S. Cl. 204—129.75

35 Claims

1. Process for exposing the silicon crystals on the surface of a component of an aluminum alloy containing 6-20% by weight of silicon and with undissolved silicon particles, by removing aluminum on the alloy surface with the use of electric current, characterized in that the surface is connected as the cathode and is subjected to an electrolysis with a minimum current density of 0.5 A/dm² in an electrolyte containing an aqueous alkali nitrate solution which is at least 0.01-molar with respect to the nitrate ions.

4,363,709

HIGH CURRENT DENSITY, ACID-FREE ELECTROLYTIC DESCALING PROCESS

Donald R. Zaremski, Cheswick, Pa., assignor to Allegheny Ludlum Steel Corporation, Pittsburgh, Pa.

Filed Feb. 27, 1981, Ser. No. 238,896

Int. Cl.³ C25F 1/06

U.S. Cl. 204—145 R

13 Claims

1. A process for removing an oxide scale from the surface of a metallic body comprising the steps of:

providing an electrolyte consisting of an aqueous solution containing about 15 to 25 percent, by weight, sodium sulfate, maintaining the electrolyte at a temperature of at least about 150° F.,

immersing the metallic body into the electrolyte such that the surface to be descaled is exposed to the electrolyte, subjecting the metallic body as the anode to the action of a direct electric current for a period of at least 10 seconds at a current density of at least 3 amperes per square inch until the metallic body is substantially descaled, and removing the metallic body from the electrolyte.

4,363,710

POLYADDUCTS OF AMMONIA AND EPOXIDE COMPOUNDS, PROCESSES FOR THEIR MODIFICATION, AND THEIR USE

Fritz E. Kempter, Mannheim; Eberhard Schupp, Schwetzingen; Hans-Uwe Schenck, Wachenheim, and Erich Gulbins, Heidelberg-Neuenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Division of Ser. No. 213,174, Dec. 4, 1980, Pat. No. 4,310,645, which is a division of Ser. No. 137,748, Apr. 7, 1980, Pat. No. 4,291,147. This application Oct. 30, 1981, Ser. No. 316,797

Claims priority, application Fed. Rep. of Germany, Apr. 9, 1979, 2914297

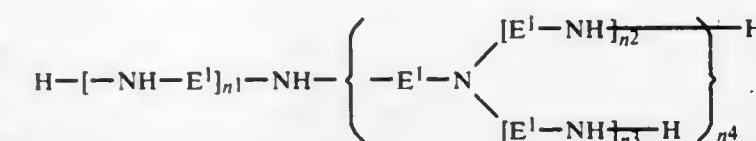
Int. Cl.³ C25D 13/06

U.S. Cl. 204—181 C

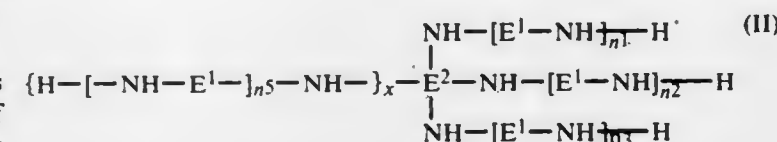
1 Claim

1. A process for forming a cathodic electrocoated finish on a metal surface which comprises: placing the metal object to be coated in a bath of an aqueous solution or dispersion of a polyadduct of ammonia and epoxide compounds, which consists of epoxide-free reaction products of ammonia and diepoxides, triepoxides and/or tetraepoxides, from 1.75 to 10 moles of ammonia having been employed per epoxide group and 1 mole of ammonia having been reacted with from 1.2 to 2.0 equivalents

of epoxide, so that if diepoxide compounds are used products of the formula (I)



are obtained, while if triepoxides and/or tetraepoxide compounds are used, by themselves, or together with diepoxide compounds, products of the formula II



are produced; in these formulae, the E¹'s are identical or different hydroxyl-containing divalent radicals and the E²'s are identical or different hydroxyl-containing trivalent or tetravalent radicals, resulting from the opening of the oxirane rings of epoxide compounds containing two, three or four epoxide groups in the molecule, n¹, n² and n³ are from 0 to 3, n² and n⁴ are from 1 to 3 and X is 0 or 1, and one or more of the divalent radicals E¹ in the formula (II) may or may not be replaced by polyvalent radicals E², said polyadduct being at least partially protonized with an acid; passing a current of electricity through the bath whereby a coating is formed on the cathodic surface of the metal object; rinsing the metal object to remove residual bath liquor; and thereafter heating the surface to harden the coating.

4,363,711

METHOD OF MAKING PHOTOCONDUCTIVE COATING

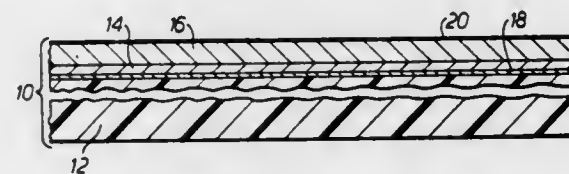
Manfred R. Kuehnle, Lexington, Mass., assignor to Coulter Systems Corporation, Bedford, Mass.

Division of Ser. No. 798,876, May 20, 1977, Pat. No. 4,269,919, which is a continuation-in-part of Ser. No. 704,780, Jul. 13, 1976, Pat. No. 4,025,339, and a continuation of Ser. No. 434,699, Jan. 18, 1974, abandoned, and a continuation-in-part of Ser. No. 378,180, Jul. 11, 1973, abandoned, and a continuation-in-part of Ser. No. 323,132, Jan. 12, 1973, abandoned, and a continuation-in-part of Ser. No. 260,848, Jun. 8, 1972, abandoned. This application Apr. 21, 1980, Ser. No. 142,145

Int. Cl.³ B23C 15/00

U.S. Cl. 204—192 P

15 Claims



1. In a method of depositing a wholly inorganic dielectric photoconductive coating onto a substrate in which there is a pressure vessel having therein target means comprising at least one target of the material to be deposited, a supply of substrate, an anode in the vessel, means for leading the substrate to pass over and in engagement with the anode during the sputtering process, an external source of radio frequency energy having electrical couplings to the anode, target means and shielding arranged in the vicinity of the anode and target means, a supply of background gas including an inert ionizable gas and a second gas having at least one constituent for preventing disassociation of the compound during sputtering, means for establishing and maintaining a stable condition of sputtering plasma in the vessel between the target means and the anode, the steps of:

A. permitting a minute quantity of oxygen to be present in

the vessel during the sputtering in an amount sufficient to form a barrier layer on the surface of the sputtered coating which includes oxygen in a combined form;

B. coupling the external radio frequency energy source to the target means and the shielding so as to establish a high negative potential at the target means and ground potential at the shielding;

C. coupling the anode with respect to the external radio frequency energy source and ground to provide a bias potential at the anode of about negative ten to negative 100 volts to produce a second dark space at the anode in addition to the usual first dark space at the cathode, the dark spaces being respectively on opposite sides of the sputtering plasma during sputtering;

D. leading the substrate over and in engagement with the anode and at a location relative to the second dark space so that the said second dark space is between the sputtering plasma and substrate; and

E. introducing the background gas during the sputtering and permit the minute quantities of oxygen in the vessel to react with the surface of the sputtered coating to form a barrier layer thereon including oxygen in a combined form having a thickness of the order of 50 to 75 Angstrom units.

4,363,712

DEVICE FOR GALVANIC PRECIPITATION OF ALUMINUM

Siegfried Birkle, Hoechststadt an der Aisch; Johann Gehring, Spardorf, and Klaus Stoeger, Nuremberg, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

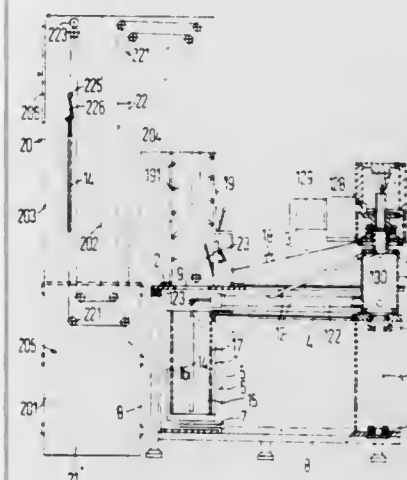
Filed Nov. 6, 1981, Ser. No. 318,812

Claims priority, application Fed. Rep. of Germany, Nov. 28, 1980, 3044975

Int. Cl.³ C25D 17/06

U.S. Cl. 204—199

7 Claims



1. An improved galvanizing device for the galvanic precipitation of aluminum from an anhydrous, aprotic, and oxygen-free aluminum-organic electrolyte of the type having an annularly shaped galvanizing trough, which is sealed from the atmosphere and chargeable with a protective gas, and a rotatable contacting and holding device, located at a vertical rotational axis of the trough, the device having a plurality of support arms radiating outwardly from the rotational axis, with goods carriers able to be selectively attached to the support arms for passage around and through the galvanizing trough, wherein the improvement comprises:

a charging lock; and
a discharging lock, both of said locks attached to the galvanizing trough and each comprising:
a preliminary chamber,
a main chamber,

a U-shaped fluid lock connecting said preliminary chamber to said main chamber, forming a gaseous seal, and an endless chain conveyor attached to and running continuously through the preliminary chamber, the main chamber, and the fluid lock, whereby the goods carriers may be conveyed through the chambers of the charging lock, into the galvanizing trough, and through the discharging lock, thereby maintaining the protective atmosphere of the galvanizing trough.

4,363,713

ELECTROLYTIC HALOGEN GENERATORS

Jeffery P. Bindon, Durban, South Africa, assignor to Roecar Holdings (Netherlands Antilles), Amsterdam, Netherlands

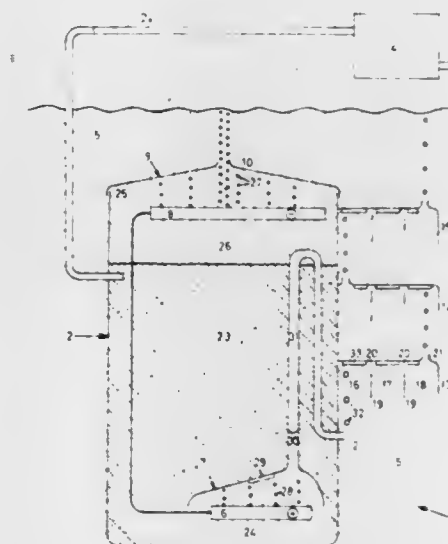
Filed Jan. 19, 1981, Ser. No. 226,512

Claims priority, application South Africa, Jan. 17, 1980, 80/0285

Int. Cl.³ C25B 9/00, 1/26

U.S. Cl. 204—278

5 Claims



1. Apparatus for the electrolytic generation of a halogen from a solid halide, comprising: an anode and a cathode in a single compartment which is adapted to accommodate the halide in a bed of a predetermined depth, the anode being located at the bottom of the halide bed and disturbance, in use, of the halide bed by the gaseous halogen formed on the anode surface being prevented by the provision, above the anode, of a collector for the halide and a conduit arranged to convey the collected halogen from the compartment, the formation, in use, of a stagnant layer of catholyte-rich liquid between the cathode and the halide bed being promoted by the location of the cathode a predetermined distance above the halide bed level, the distance being sufficient for the turbulence created by the gaseous product formed on the surface of the cathode to occur above the stagnant layer, a vent being provided above the cathode to exhaust the gaseous product, and the compartment being open to a source of fresh water above the halide bed level for the dissolution, into the fresh water of the catholyte.

4,363,714

O-ALKYLATED/O-ACYLATED COAL LIQUIDS

Ronald Liotta, Clark, and Martin L. Gorbaty, Westfield, both of N.J., assignors to Exxon Research and Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 69,066, Aug. 23, 1979, Pat. No. 4,259,173, which is a continuation-in-part of Ser. No. 969,361, Dec. 14, 1978, abandoned. This application Dec. 15, 1980, Ser. No. 216,627

Int. Cl.³ C10G 1/00; C10C 00/00; C10G 00/00, 1/06

U.S. Cl. 208—14

4 Claims

1. A coal liquid in which the hydrogen of substantially all of

the hydroxyl groups of the coal liquid have been replaced with C₁ to C₂₀ alkyl or acyl groups.

4,363,715

PRODUCTION OF CARBON ARTIFACT PRECURSORS
Ghazi Dickakian, Scotch Plains, N.J., assignor to Exxon Research and Engineering Co., Florham Park, N.J.

Filed Jan. 14, 1981, Ser. No. 225,060
Int. Cl.³ C10C 1/20, 1/18

U.S. Cl. 208—40

11 Claims

1. A process for preparing a pitch suitable for carbon artifact manufacture comprising:
providing a cat cracker bottom which boils in the range from about 200° C. to about 550° C.;
heating said cat cracker bottom to obtain a middle fractions distillate generally boiling in the range of from approximately 450° C. to 510° C.;
heat soaking said distillate at elevated temperatures to provide a pitch; and,
vacuum stripping said heat soaked distillate to remove at least a portion of the heat soaked distillate which boils below about 400° C., thereby obtaining a pitch suitable for carbon artifact manufacture.

4,363,716

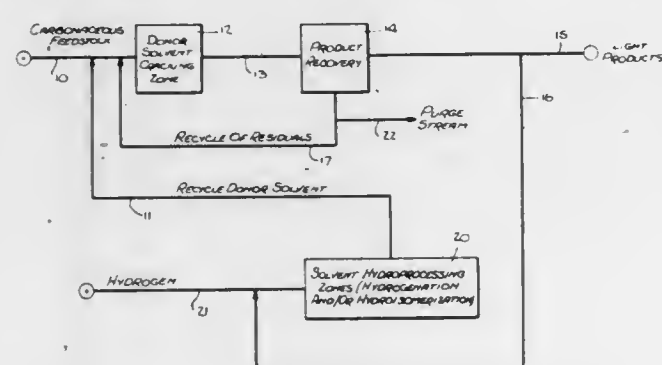
CRACKING OF HEAVY CARBONACEOUS LIQUID FEEDSTOCKS UTILIZING HYDROGEN DONOR SOLVENT

Marvin I. Greene, 201 Beechwood Rd., Oradell, N.J. 07649, and Abraham P. Gelbein, 45 Headley Rd., Morristown, N.J. 07960

Filed Feb. 26, 1981, Ser. No. 238,344
Int. Cl.³ C10G 49/20, 55/04

U.S. Cl. 208—80

7 Claims



1. A hydrogen donor solvent cracking process for upgrading heavy carbonaceous liquids having a melting point below 250° C. to lighter products comprising in serial combination the steps of:

- adding a stream of hydrogen-donating material, obtained as stated hereinafter, and heavy carbonaceous feedstock in weight ratio of at least 0.25 part of hydrogen-donating material per part of heavy carbonaceous feedstock, to a cracking reaction zone, free of externally-supplied catalyst;
- heating the reaction mixture resulting from step (a) in said cracking zone at a temperature of 250° C. to 800° C. for a total residence time at the specified temperature of from 15 seconds to 5 hours to produce hydrogen-enriched cracked products;
- removing the resulting products from the cracking reaction zone and recovering therefrom a middle distillate fraction boiling in the range of 175° C. to 300° C. atmospheric equivalent temperature;
- subjecting said middle distillate fraction to a selective hydrogenation step in the presence of a solid based metal catalyst thereby adding hydrogen to obtain a replenished hydrogen-donating material richer in hydrogen contain-

ing at least 30% by weight of 2-ring hydroaromatics having 10 to 20 carbon atoms per molecule;

- hydroisomerizing said replenished hydrogen-donating material in the presence of a solid acidic catalyst;
- recycling said hydrogen-donating material obtained in step (d) to the cracking zone specified in step (a); and
- recovering, from the products produced in said cracking zone, cracked light products boiling below 482° C.

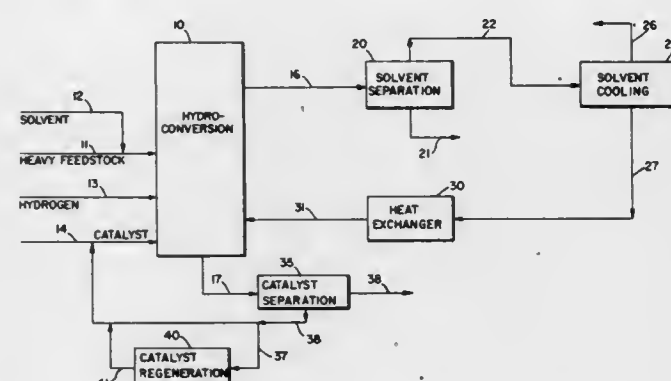
4,363,717

CONVERSION OF HEAVY HYDROCARBON OILS
Bruce P. Pelrine, Trenton; Nai Y. Chen, Titusville, both of N.J., and Tsoung Y. Yan, Philadelphia, Pa., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Jan. 15, 1981, Ser. No. 225,284
Int. Cl.³ C10G 11/08, 47/08, 47/32

U.S. Cl. 208—108

28 Claims



1. A process for conversion of a heavy hydrocarbon oil which comprises (1) contacting a heavy hydrocarbon oil with a metal halide catalyst in admixture with a solvent component under supercritical conditions to form a dense-gas solvent extract phase and a residual asphaltic phase; (2) separating the phases to provide a dense-gas solvent extract phase which is substantially free of metal halide catalyst content; and (3) fractionating the dense-gas solvent extract phase to remove the solvent and yield a refined hydrocarbon crackate fraction.

4,363,718

CRYSTALLINE CHROMOSILICATES AND PROCESS USES

Marvin R. Klotz, Batavia, Ill., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Division of Ser. No. 69,236, Aug. 23, 1979, Pat. No. 4,299,808, which is a continuation-in-part of Ser. No. 927,843, Jul. 25, 1978, abandoned, which is a continuation of Ser. No. 733,269, Oct. 18, 1976, abandoned. This application Feb. 26, 1981, Ser. No. 238,567

Int. Cl.³ C10G 47/04; C07C 5/22

U.S. Cl. 208—110

30 Claims

1. A process for the conversion of a hydrocarbon stream, which process comprises contacting said stream under suitable hydrocarbon conversion conditions with a catalyst comprising a crystalline chromosilicate, which chromosilicate comprises a molecular sieve material providing an X-ray diffraction pattern comprising the following X-ray diffraction lines and assigned strengths:

Interplanar Spacing d, Å	Assigned Strength
11.15 ± 0.2	W
9.96 ± 0.2	VS
5.99 ± 0.1	VW
5.71 ± 0.1	VW
4.97 ± 0.1	W
3.85 ± 0.07	M

-continued

Interplanar Spacing d, Å	Assigned Strength
3.82 ± 0.07	MS
3.75 ± 0.05	M
3.32 ± 0.05	VW
1.99 ± 0.02	W

level of contaminant metals at least about 1.0 ppm Nickel Equivalent; (b) a cracking catalyst; and (c) a zinc-containing treating agent present in an amount from about 3.0 to 15.0 weight percent, calculated as the metal and based on the total weight of the solid particles.

4,363,721

METHOD OF USING CATALYSTS FOR REFORMING OR ISOMERIZING HYDROCARBONS IN THE PRESENCE OF HYDROGEN

Philippe Engelhard, and Georges Szabo, both of Le Havre, France, assignors to Compagnie Francaise de Raffinage, Paris, France

Division of Ser. No. 152,126, May 21, 1980, Pat. No. 4,329,258.

This application Dec. 14, 1981, Ser. No. 330,102

Claims priority, application France, May 22, 1979, 79 13029
Int. Cl.³ C10G 35/085

U.S. Cl. 208—139

24 Claims

1. Method for the reforming of hydrocarbon fractions whose sulfur content is less than 10 ppm, and whose boiling temperature at atmospheric pressure ranges from 35° to 250° C., comprising the use of a catalyst, in the presence of hydrogen, wherein said catalyst comprises:

- a refractory oxide-mineral carrier;
- a halogen element present in combined form;
- in free or combined form from 0.02 to 2%, based on the total weight of catalyst, of at least one metal M1 from the platinum group;
- in free or combined form from 0.02 to 2%, based on the total weight of catalyst, of tin; and
- in combined form, at least one metal M2 selected from groups Ia and IIa of the periodic table of the elements in such an amount that the ratio M2/M1 of the number of atoms of the metal M2 to the number of atoms of the metal M1 is such that $0.2 \leq M2/M1 \leq 10$.

13. Method for the isomerization of hydrocarbons, comprising the use of a catalyst, in the presence of hydrogen, wherein said catalyst comprises:

- a refractory oxide-mineral carrier;
- a halogen element present in combined form;
- in free or combined form from 0.02 to 2%, based on the total weight of catalyst, of at least one metal M1 from the platinum group;
- in free or combined form from 0.02 to 2%, based on the total weight of catalyst, of tin; and
- in combined form, at least one metal M2 selected from groups Ia and IIa of the periodic table of the elements in such an amount that the ratio M2/M1 of the number of atoms of the metal M2 to the number of atoms of the metal M1 is such that $0.2 \leq M2/M1 \leq 10$.

4,363,722

PROCESS AND APPARATUS FOR TREATING TITANIUM MACHINING SCRAP

John E. Dresty, Jr., Glastonbury, and Eugene M. Klein, West Hartford, both of Conn., assignors to Suisman & Blumenthal, Incorporated, Hartford, Conn.

Filed Dec. 31, 1980, Ser. No. 221,563
Int. Cl.³ B07B 15/00

U.S. Cl. 209—3

14 Claims

1. In a process for treating titanium machining scrap to remove tungsten carbide bits and similar high density inclusions, the improvement comprising the performance at some point in the process of the steps of:

- screening the work material of said process to obtain a quantity of screened pieces substantially all of which screened pieces fall within a given size range,
- performing an air separation operation on said screened pieces to separate them into a "heavy" product and a "light" product, said air separation operation including the substeps of providing a stoner type air separator having an elongated air conducting deck which slopes in its

4,363,719
PROCESS FOR IMPROVING THE STABILITY OF CATALYSTS FOR THE CATALYTIC HYDROTREATMENT OF PETROLEUM CUTS

Jacques Bousquet, Irigny; Claude Gueguen, Septeme Pont L'Eveque, and Daniel Vautier, Serezin Du Rhone, all of France, assignors to Elf France, Paris, France

Filed Apr. 28, 1981, Ser. No. 258,321

Claims priority, application France, May 8, 1980, 80 10307
Int. Cl.³ C10G 47/02, 65/00

U.S. Cl. 208—111

6 Claims

1. In a method for the catalytic hydrotreatment of petroleum cuts containing heavy n-paraffins, the improvement comprising conducting said catalytic hydrotreatment reaction in the presence of a catalyst composition comprising:

- 5-90% of a catalyst containing a metal from each of Group VI and Group VIII of the Periodic Table on a non-acid or weak acid oxide support; and
- 95-10% of a catalyst containing a metal from each of Group VI and Group VIII of the Periodic Table on a silica-alumina support having a silica content greater than 5% by weight.

4,363,720

PASSIVATING METALS ON CRACKING CATALYSTS WITH ZINC

Eugene H. Hirschberg, Park Forest; Ralph J. Bertolacini, Naperville, and Frank S. Modica, Downers Grove, all of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

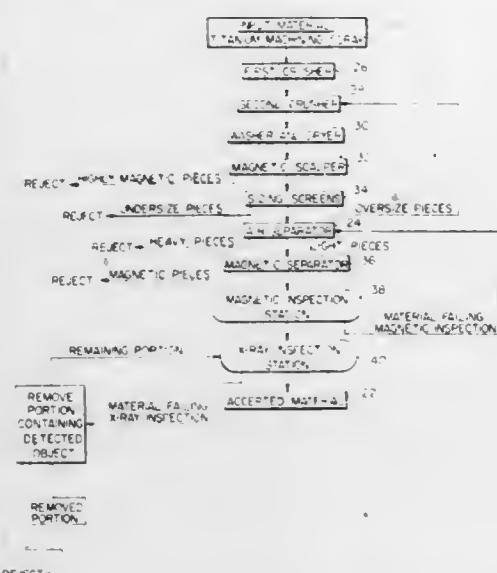
Filed May 13, 1981, Ser. No. 263,297
Int. Cl.³ C10G 11/02, 11/18

U.S. Cl. 208—120

9 Claims

1. A passivation process which comprises contacting, under cracking conditions: (a) a hydrocarbon feedstock containing a

longitudinal direction only, vibrating said deck generally in the direction of its incline, flowing air upwardly through said deck, and feeding said screened pieces onto the upper surface of said deck whereby said screened pieces fed to said deck are stratified into a lower stratum of "heavy" product particles which are conveyed by the vibratory motion of said deck upwardly longitudinally of said deck to the upper end of said deck and an upper

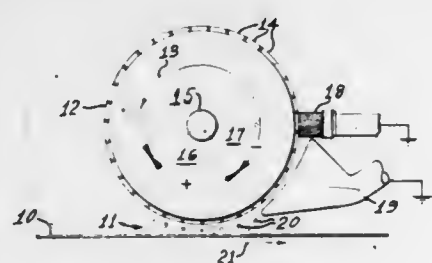


stratum of "light" product particles which flow downwardly longitudinally of said deck to the lower end of said deck, rejecting from the process the "heavy" product particles which pass over the upper end of said deck, and accepting for further treatment in the process the "light" product particles which pass from the lower end of said deck.

4,363,723
MULTIFIELD ELECTROSTATIC SEPARATOR
Frank S. Knoll, Jacksonville, Fla.; Joseph B. Taylor, Atlanta, Ga., and Peter J. Hoyles, Jacksonville, Fla., assignors to Carpco, Inc., Jacksonville, Fla.
Filed Apr. 27, 1981, Ser. No. 257,949
Int. Cl.³ B01D 35/00

U.S. Cl. 209—128

26 Claims



16. A method for separating or removing particles according to their polarizability comprising

- passing said particles to be separated or removed along a path in close proximity to and beneath a first smooth surface having conductive elements mounted thereon;
- moving said first surface successively through
 - a first zone where said surface receives a charge and induces a charge on said polarizable particles when in close proximity to said particles to be separated or removed to cause the more polarizable particles to be attracted by and to said first zone of said first surface, and then through
 - a second zone where said surface receives an opposite charge whereby said more polarizable particles on said first surface are repelled therefrom; and

(c) collecting said more polarizable particles from said second zone.

4,363,724
USE OF C₈₋₃₄ ALPHA OLEFIN SULFONATES TO IMPROVE AND ENHANCE THE FLOTATION AND COLLECTION PROCESS USED FOR BARITE
George W. Panzer, Timonium, and William Boyer, Baldwin, both of Md., assignors to Alcolac, Inc., Baltimore, Md.
Filed Aug. 26, 1980, Ser. No. 181,658
Int. Cl.³ B03D 1/02

U.S. Cl. 209—166

14 Claims

12. In a method for beneficiating ore containing barite by a froth flotation process to produce a froth concentrate of barite while leaving gangue minerals in a tailing, the improvement comprising the step of including an effective amount of at least one compound selected from the group consisting of a C₈₋₃₄ alpha olefin sulfonate and a salt of a C₈₋₃₄ alpha olefin sulfonate.

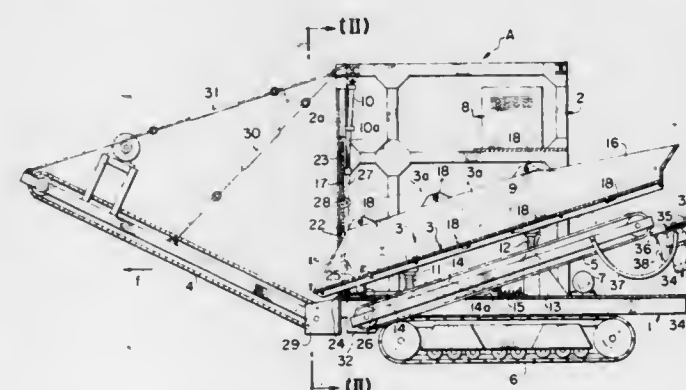
4,363,725
APPARATUS FOR REMOVING GRAVEL FROM EXCAVATED SOIL

Takeshi Morita, and Kiyoshi Morita, both of Furano, Japan, assignors to Kabushiki Kaisha Morita Kouken, Japan
Filed Aug. 14, 1981, Ser. No. 292,443
Claims priority, application Japan, Aug. 18, 1980, 55-113641; Feb. 25, 1981, 56-25542[U]

Int. Cl.³ B07B 1/28

U.S. Cl. 209—257

17 Claims



1. An apparatus for removing gravel from excavated soil comprising a chassis having endless tracks; a frame structure mounted upright on said chassis; a sieving means resiliently supported on the chassis at a predetermined inclination within said frame structure, a loading port at the upper part thereof, and vibration motors operatively secured thereto to vibrate the same; and two inclined conveyors arranged below the sieving means, one of said conveyors serving to convey stone and gravel in the forward direction and the other of said conveyors serving to convey soil in the rearward direction, the lower ends of said conveyors being located adjacent to one another.

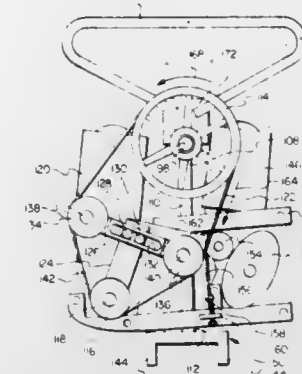
4,363,726
ORE CONCENTRATOR
George J. Birds, Jr., 39148 Canyon Dr., Lebec, Calif. 93243
Filed May 27, 1981, Ser. No. 267,635
Int. Cl.³ B03B 5/74

U.S. Cl. 209—436

5 Claims

1. In combination with an ore concentrator including a pan having an encompassing sidewall, a bottom wall and a central aperture in said bottom wall, means coupled to said pan for imparting rotation thereto and means upstanding from said

bottom wall for advancing concentrates from said sidewall to said central aperture during rotation of said pan, the improve-

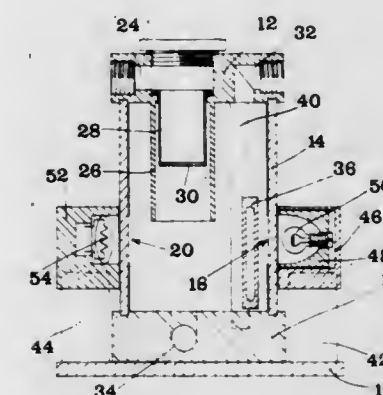


ment wherein said rotation imparting means includes means for oscillating said pan back-and-forth circumferentially.

4,363,727
FUEL PURIFIER
Filippo Bonifacio, Turin, Italy, assignor to Celeste Carrer, Turin, Italy
Filed Oct. 29, 1981, Ser. No. 316,498
Int. Cl.³ B01D 35/02, 17/02

U.S. Cl. 210—96.1

3 Claims



1. A device for separating liquids of different densities, particularly for purifying liquid hydrocarbon fuels from water, comprising a decantation vessel having an inlet opening and an outlet opening for the liquid to be purified, both normally open and arranged at an upper end of said decantation vessel, and a second outlet opening normally closed and arranged at a lower end of said decantation vessel; a source of light for casting a beam of light through a lower wall portion of said decantation vessel; a photocell arranged on a lower wall portion of said decantation vessel in a position opposite said source of light for receiving said beam of light; an opaque float of a weight heavier than the liquid to be purified, but lighter than water, said opaque float being movably mounted within said decantation vessel for movement between a lower position for intercepting said beam of light and an upper position for receiving said beam of light; said photocell being arranged to control closure of said first outlet opening and opening of said second outlet opening when said opaque float is in said upper position.

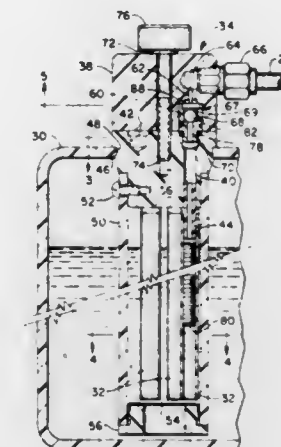
4,363,728
AUTOMATIC CHLORINATOR FOR SWIMMING POOLS
William P. Guglielmi, 66 Indian Trail, Vernon, Conn. 06066, and Richard E. Caserta, 95 N. Mountain Rd., Canton, Conn. 06019
Filed Apr. 27, 1981, Ser. No. 257,644
Int. Cl.³ C02B 3/06

U.S. Cl. 210—205

18 Claims

1. In a chlorinator for metering a chlorinating liquid to a swimming pool and having an outlet and a metering system for conducting chlorinating liquid at a metered rate to the outlet,

the improvement wherein the metering system comprises a bank of a plurality of independent metering tubes, each having an inlet end for receiving chlorinating liquid and an outlet end, said plurality of metering tubes having restricted liquid passageways of different resistance to liquid flow for metering

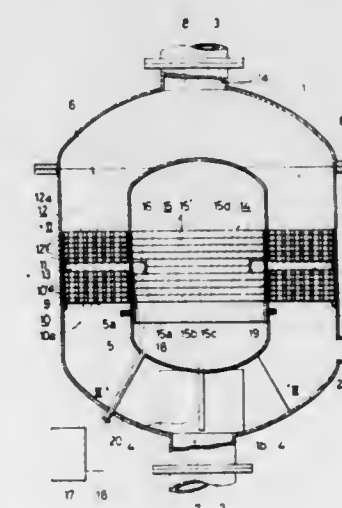


chlorinating liquid from their inlet to their outlet at differing rates, and selector valve means for selectively connecting the plurality of metering tubes for metering chlorinating liquid to the chlorinator outlet for selectively controlling the metered rate of chlorinating liquid to the swimming pool.

4,363,729
MAGNETIC FILTER
Junichi Yano, Oobu, Japan, assignor to Daidotokushuko Kabushiki Kaisha, Japan
Filed Jun. 18, 1981, Ser. No. 274,991
Claims priority, application Japan, Jun. 18, 1980, 55/82539
Int. Cl.³ B01D 35/06

U.S. Cl. 210—223

4 Claims



1. A magnetic filter comprising:
- a filter container having an inlet and an outlet,
 - a sealed hollow inner body disposed coaxially within said filter container and bounding therewith an annular passage communicating with said inlet and outlet,
 - an annular filter element of magnetizable material disposed coaxially in said container across said annular passage and having an upstream face and a downstream face,
 - a pair of annular perforated pole pieces disposed coaxially in said container and across said flow passage and abutting respectively said upstream face and said downstream face of said filter element, the perforations of said pole pieces providing a plurality of flow paths there-through, and
 - a magnetic field generating device disposed in said inner body and comprising an iron core, a coil wound round said core, and a DC power supply means including an

electric wire connected to said coil for energizing the same, said core and coil being disposed coaxially within said pole pieces for transmitting a magnetic field through said pole pieces to said filter element for magnetizing said filter element.

4,363,730

LAMELLAR SEPARATOR

Berth U. Gustafsson, Österskär, Sweden, assignor to Projectus Industriprodukter AB, Sweden
PCT No. PCT/SE80/00233, § 371 Date May 28, 1981, § 102(e)
Date May 28, 1981, PCT Pub. No. WO81/01108, PCT Pub. Date Apr. 30, 1981

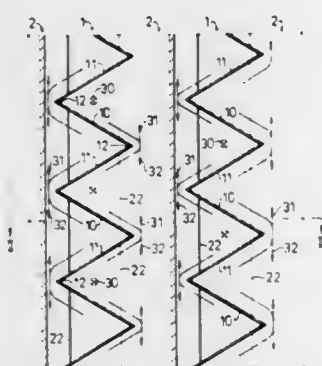
PCT Filed Oct. 1, 1980, Ser. No. 269,049

Claims priority, application Sweden, Oct. 18, 1979, 7908653;
Dec. 11, 1979, 7910208

Int. Cl.³ B01D 21/00

U.S. Cl. 210—521

10 Claims



1. A lamellar separator containing a lamellar pack comprising elongate, substantially planar lamellae extending substantially horizontally for vertically defining substantially horizontal flow passages or channels for a liquid which is to be purified, said flow passages in their transverse direction being inclined to the horizontal plane for gravitational removal from the lamellae of heavy and/or light pollutants separated from the liquid, said separator including an inlet, a liquid outlet and at least one outlet for separated material, said lamellar pack including vertically oriented first sheets or plates having a first corrugation in the vertical plane, portions of the first plates inclined to the vertical plane of said plates forming said flow passages, said lamellar pack further including vertically oriented second plates corrugated in the horizontal plane, said second plates being disposed on either side of each first plate and being in contact therewith whereby the liquid flow is subdivided into a plurality of partial flows each passing through the horizontal flow passages defined by peaks of the second plates and corrugation surfaces of the first plates.

4,363,731

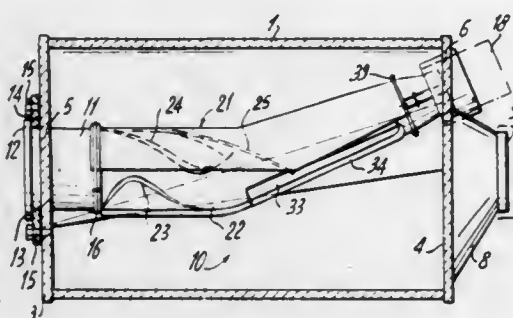
DEVICE FOR REGULATING THE FLOW OF WASTE WATERS

Rodolfo Filippi, Rives de la Morges 1, 1110 Morges, Switzerland
Filed Nov. 19, 1980, Ser. No. 208,275

Int. Cl.³ B01D 21/00

U.S. Cl. 210—532.1

15 Claims



1. A device for regulating the rate of flow of waste water

which has mixed with clear rainwater and which is to be transmitted to a purification station, comprising:

a collector chamber having a first orifice for receiving waste water and clear water, a second orifice for discharging water containing a higher concentration of waste matter, and a third orifice for discharging water containing a lower concentration of waste matter; and
an adjustable device housed in said collector chamber for causing a predetermined maximum quantity of water containing a higher concentration of waste matter to be discharged through said second orifice and for causing the remaining water admitted to said collector chamber via said first orifice to be discharged through said third orifice; said adjustable device comprising:

a first conical element having one end connected to said first orifice for receiving water admitted therethrough, and containing baffle means for reducing turbulence in the admitted water; said first conical element having an opening formed therein which permits outlet of water therethrough from said first conical element; and
a second conical element; said two conical elements being oriented with their wider bases toward each other and the conical elements being connected to each other end to end in such a manner that their axes form an obtuse angle in a generally horizontal plane; said second conical element having an end connected to said second orifice for discharging therethrough water having a higher concentration of waste matter; and said second conical element containing a slot the effective area of which is adjustable, for discharging the remaining water into said collector chamber for discharge via said third orifice.

4,363,732

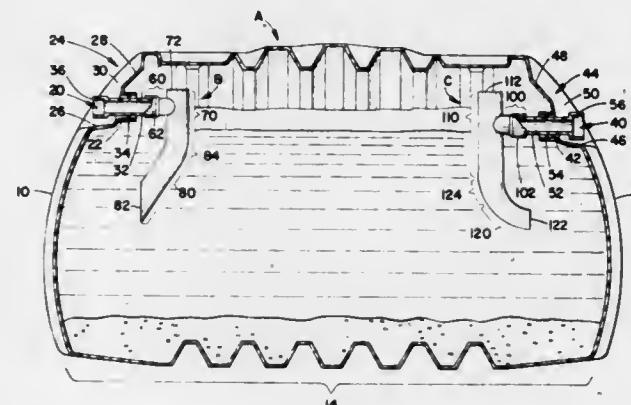
INLET AND OUTLET BAFFLE STRUCTURE FOR SEWAGE TREATMENT TANKS

Fred J. Crates; James L. Fouss, and John J. Parker, all of Findlay, Ohio, assignors to Hancor, Inc., Findlay, Ohio
Filed May 22, 1980, Ser. No. 152,186

Int. Cl.³ B01D 21/02

U.S. Cl. 210—532.2

8 Claims



1. A sewage treatment construction for minimizing fluid turbulence from the ingress of incoming sewage, the construction comprising:

- a tank for holding sewage for treatment, said tank including a first end wall which includes an inlet for receiving incoming sewage and a second end wall which includes an outlet for discharging treated fluids;
- an inlet baffle structure for introducing incoming sewage into the tank, said inlet baffle structure comprising:
 - a first generally tubular portion which is operatively connected at one end with said inlet;
 - a second generally tubular portion having a vent aperture adjacent one end, the second generally tubular portion being in fluid connection with the other end of said first generally tubular portion;
 - a third generally tubular portion defining a fluid introducing opening at one end through which incoming sewage is introduced into the tank, the third tubular

portion diverging toward the fluid introducing opening such that the flow rate of incoming sewage tends to be slowed as it approaches the fluid introducing opening, whereby turbulence in the tank is reduced; and

- a transition zone providing fluid connection between the other end of said second generally tubular portion and the other end of said third generally tubular portion;
- an outlet baffle structure for receiving treated fluid to be discharged from the tank through said outlet, said outlet baffle structure comprising a second generally tubular structure which is in fluid connection with said outlet and which defines a fluid receiving opening through which treated fluids are received for discharge from said tank.

4,363,733

PROCESS FOR WATER TREATMENT BY FLOCCULATION

Francois Meiller, Palaiseau, and Yannick Le Du, Maisons-Alfort, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Continuation of Ser. No. 108,056, Dec. 28, 1979, abandoned.

This application Sep. 17, 1980, Ser. No. 188,147

Claims priority, application France, Dec. 28, 1978, 78 36644;
European Pat. Off., Dec. 14, 1979, 79 401017,3

Int. Cl.³ C02F 1/54

U.S. Cl. 210—727

26 Claims

1. A process for the treatment of water comprising sequentially adding to water having a pH in the range of about 6 to about 9 first (i) an iron-containing or aluminum-containing flocculating agent, and then (ii) a flocculation additive comprising a heteropolysaccharide obtained by the fermentation of a carbohydrate via the action of bacteria of the genus Xanthomonas or Arthrobacter, or fungi of the genus Sclerotium.

4,363,734

1,3-DIHYDROXY ACETONE AS AN OXYGEN SCAVENGER FOR WATER

Manuel Slovinsky, Woodridge, Ill., assignor to Nalco Chemical Company, Oak Brook, Ill.

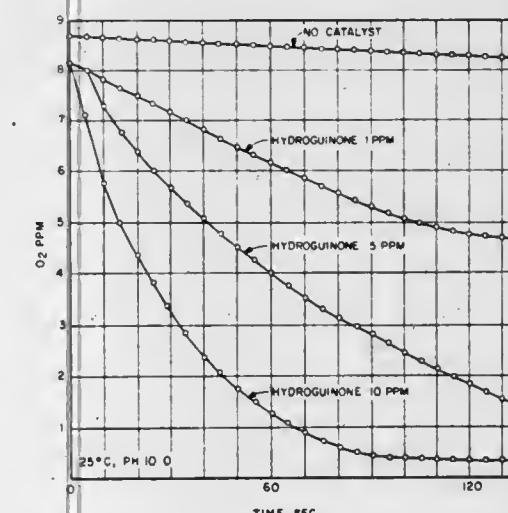
Continuation-in-part of Ser. No. 231,824, Feb. 5, 1981,

abandoned. This application Aug. 27, 1981, Ser. No. 296,925

Int. Cl.³ C02F 1/20, 1/70

U.S. Cl. 210—750

3 Claims



1. An improved method for scavenging dissolved oxygen from alkaline waters which comprises using dihydroxyacetone catalyzed with at least 1 percent, based on the weight of said dihydroxyacetone, of a catalyst from the group consisting of hydroquinone and a water-soluble compound of manganese.

4,363,735

REMOVAL OF FLY ASH FROM THE SURFACE OF LIQUIDS

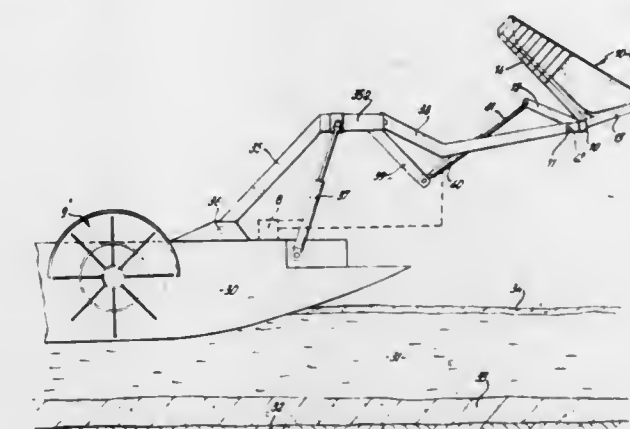
Derek L. Hook, 6 Maltmans Rd., Lymm, Cheshire, England
Filed Apr. 30, 1981, Ser. No. 258,997

Claims priority, application United Kingdom, Dec. 6, 1980,
8039204

Int. Cl.³ B01D 21/00

U.S. Cl. 210—776

7 Claims



1. A method of removing a part of a stratum of fly ash comprising particles of relatively fine mean dimensions from the surface of a liquid comprising:

- at least partly submerging a scoop having a plurality of laterally spaced elongate lifting elements below the stratum the spacing between the lifting elements being very much larger than the mean dimensions of the particles;
- lifting the elements through the stratum so that at least a part of the fly ash is raised above the stratum on the elements;
- allowing the raised ash to drain by liquid flow through the spaces between the elements; and
- tilting the elements to discharge the drained ash to a location away from the liquid.

4,363,736

FLUID LOSS CONTROL SYSTEM

Jacob Block, Rockville, Md., assignor to W. R. Grace & Co., New York, N.Y.

Continuation-in-part of Ser. No. 159,007, Jun. 13, 1980,
abandoned. This application Feb. 27, 1981, Ser. No. 239,073

Int. Cl.³ C09K 7/02

U.S. Cl. 252—8.5 A

10 Claims

1. A composition capable of imparting fluid loss control to aqueous systems, said composition comprising a mixture of:

- a solid, particulate material which is insoluble in the aqueous system and having a particle size wherein at least about 90% of said material is capable of passing through a No. 20 U.S. Standard Sieve; and
- a reaction product formed in an aqueous solution of a water soluble hydroxy C₁-C₃ alkyl cellulose between said hydroxyalkyl cellulose and from at least about 1 to 200 percent of stoichiometry based on the hydroxyl groups of the cellulose of an agent capable of cross-linking said cellulose selected from the group consisting of an epihalohydrin, a compound having at least one aldehyde group therein or a compound capable of generating an aldehyde group in situ;

component (a) and (b) being present in a ratio of at least 0.5:1 to 3:1; the reaction between said hydroxyalkyl cellulose and a compound having or capable of generating at least one aldehyde group therein is carried out in an aqueous acidic medium having a pH of 5.5 or less and the reaction between said hydroxyalkyl cellulose and an epihalohydrin is carried out in an aqueous basic medium having a pH of at least about 9.

4,363,737

LUBRICATION PASTES

Alvaro Rodriguez, Calle 126 A No. 36-A-36, Bogota, Colombia
 Filed Jun. 15, 1981, Ser. No. 273,656
 Int. Cl.³ C10M 5/02, 7/02

U.S. Cl. 252-26

14 Claims

1. A lubricant, comprising:
 between 35 and 95 parts by weight of nickel; and
 between 5 and 65 parts by weight of fluids selected from the group consisting of silicon oil, mineral oil, naphthenic oil, paraffinic oil, lithium soap, polyglycol, silicate esters, vegetable oil, and fluorides;
 whereby said lubricant is a paste.

4,363,738

PROCESS FOR MAKING A THERMAL INSULATING BODY

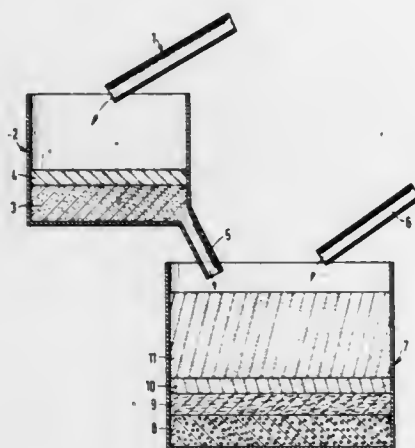
Hans Kummermehr, Ludwigshafen, Fed. Rep. of Germany,
 assignor to Grünzweig + Hartmann und Glasfaser AG, Ludwigshafen, Fed. Rep. of Germany
 Filed Oct. 7, 1980, Ser. No. 194,854

Claims priority, application Fed. Rep. of Germany, Oct. 18, 1979, 2942180

Int. Cl.³ C04B 43/02

U.S. Cl. 252-62

24 Claims



1. In a process for making a thermal insulating body by mixing together the ingredients of a highly insulating particulate material, an opacifier and reinforcing fibers, and then compacting the resulting mixture, and wherein the highly insulating material is the major ingredient, the improvement wherein the opacifier and/or the reinforcing fibers are first mixed with a dispersant for said opacifier or fibers to form a first-stage mix, and then mixing the said first-stage mix with the remainder of the said ingredients, prior to compacting.

4,363,739

ALUMINUM HYDROXIDE-BASED SPRAY-ON INSULATING MATERIAL FOR BUILDING AND METHOD FOR THE PREPARATION THEREOF

Tatsuro Okamura, 4-1, Kusae, Ube-shi, Yamaguchi-ken, Japan,
 and Hideki Irfune, Ube, Japan, assignors to Tatsuro Okamura and Yoshida Kogyo K.K., both of Japan
 Filed Aug. 3, 1981, Ser. No. 289,699

Int. Cl.³ C04B 43/12

U.S. Cl. 252-62

7 Claims

1. A spray-on insulating material for building which comprises an organic fibrous material, gel-like amorphous aluminum hydroxide sludge entrapping the fibrous material and powdery aluminum hydroxide which is a dried and pulverized material of a gel-like aluminum hydroxide sludge and uniformly blended with the organic fibrous material entrapped with the amorphous aluminum hydroxide.

4,363,740

PROCESS FOR MAKING CONTROLLED SUDSING DETERGENT POWDER

Michael Curtis, Irby, England; Peter R. Garrett, Pantymwyn,
 and John Mead, Ewloe, both of Wales, assignors to Lever Brothers Company, New York, N.Y.

Filed Jul. 21, 1981, Ser. No. 285,675

Claims priority, application United Kingdom, Jul. 29, 1980, 8024742

Int. Cl.³ C11D 17/00

U.S. Cl. 252-91

7 Claims

1. A process for the production of a controlled sudsing fabric washing powder having improved suds suppression effectiveness comprising the steps of:
 (a) heating a suds-suppressant/hydrophobic material combination to a temperature above its drop melting point;
 (b) combining the suds-suppressant/hydrophobic material combination heated to said temperature above its drop melting point with a spray-dried base powder maintained at a temperature below said drop melting point; and
 (c) cooling said suds-suppressant/hydrophobic material combination to a solid or gel.

4,363,741

AUTOMOTIVE COOLING SYSTEM CLEANER

Joseph C. Gould, Norwood, Pa., assignor to Borden, Inc., Columbus, Ohio

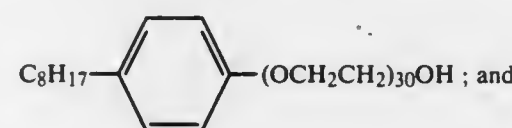
Continuation-in-part of Ser. No. 218,416, Dec. 19, 1980. This application Aug. 14, 1981, Ser. No. 293,011

Int. Cl.³ C11D 7/08, 7/14, 7/24; C23G 1/02

U.S. Cl. 252-142

4 Claims

1. An automotive cooling system cleaner consisting essentially of, by weight, from about:
 (a) 30.50-97.55% deionized water;
 (b) 1-30% citric acid;
 (c) 0.9-27% ammonium hydroxide;
 (d) 0.5-10% of an octylphenoxypolyethoxyethanol, non-ionic surfactant having the formula



- (e) 0.05-2.50% of a defoamer comprised of a blend of mineral oils and silica derivatives, having a specific gravity of 0.91-0.93 and a viscosity of 1,000-1,800 centipoise (measured at 25° C. using a #3 spindle at 20 rpm);
 the entire composition being adjusted to a pH approximately between 8.5 and 4.5.

4,363,742

METHOD AND APPARATUS FOR MAKING BATTERY PASTE

Milton Stone, Chicago, Ill., assignor to Pettibone Corporation, Chicago, Ill.

Filed Jun. 17, 1980, Ser. No. 160,221

Int. Cl.³ H01M 4/88; F16K 31/00

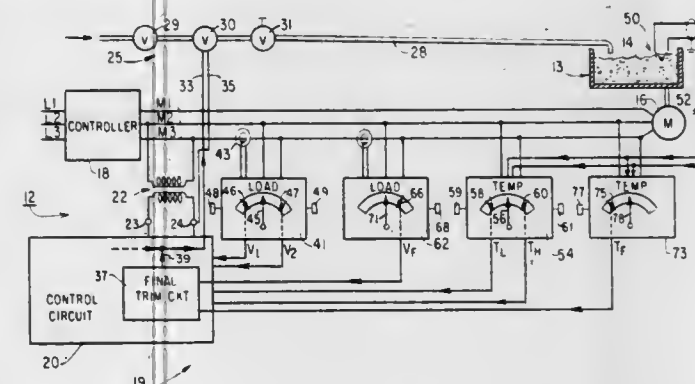
U.S. Cl. 252-182.1

15 Claims

1. In battery paste making equipment for mixing selected quantities of lead oxide, sulfuric acid and water to form a viscous mixture, control apparatus comprising:
 temperature sensing means for determining the temperature of the mixture;
 viscosity sensing means for determining the viscosity of the mixture;
 valve means for admitting water to the mixture;
 coincidence means responsive to said temperature sensing means determining the temperature of the mixture to be a minimum temperature or above and to said viscosity sensing means determining the viscosity of the mixture to be at

or above a maximum acceptable value of viscosity, for activating said valve means to admit water to the mixture until the viscosity thereof is reduced to a value below the maximum acceptable value, whereupon said viscosity sensing means disables said coincidence means, thereby de-activating said valve means.

13. In a method of making battery paste by mixing selected quantities of lead oxide and water to form a mixture the viscosity of which ascends on a time-viscosity curve, and then admixing a selected quantity of sulfuric acid to form a reaction mixture the viscosity of which initially descends on such curve, the curve then changing in slope to reach a point of minimum viscosity, the temperature of said reaction mixture forming a time-temperature curve having a temperature peak therein at a time subsequent to acid addition, the steps which comprise: sensing the temperature of said reaction mixture,



sensing the viscosity of said reaction mixture, and adding a quantity of water to the reaction mixture when the temperature thereof rises to a predetermined temperature or above and the viscosity thereof is at or above a predetermined value, until the viscosity is reduced to a value below the predetermined value,

said predetermined temperature corresponding approximately to at least one of (a) a temperature at which a predetermined time-viscosity curve reaches a point adjacent to said minimum viscosity; and (b) a temperature at a point on a predetermined time-temperature curve which corresponds to said predetermined time-viscosity curve, at a point adjacent to and below its peak, whereby the water content of the reaction mixture is adjusted so as to approximate the water content desired in the final product.

4,363,743

LIQUID CRYSTALS HAVING PLEOCHROIC DYES

Alexander Moeller, and Guenther Scherowsky, both of Berlin, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany
 Filed Feb. 4, 1981, Ser. No. 231,483

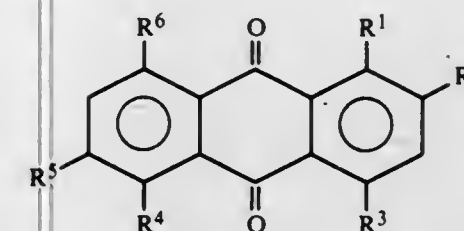
Claims priority, application Fed. Rep. of Germany, Feb. 26, 1980, 3007198

Int. Cl.³ C09K 3/34; G02F 1/13; C09B 1/02, 1/20, 1/50, 1/56, 1/32, 1/54, 43/22

U.S. Cl. 252-299.1

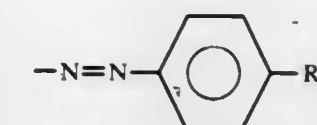
3 Claims

1. A liquid crystal composition containing a pleochroic dye wherein the pleochroic dye is an anthraquinone dye having the general formula:



wherein R¹, R³, R⁴ and R⁶ are selected from the group consist-

ing of H, OH, OCH₃, NO₂, NH₂ and NHCH₃; and R² and R⁵ are each



wherein R⁷ is selected from the group consisting of alkyl-, aryl-, amino-, alkylamino-, dialkylamino-, arylamino-, alkoxy-, and aryloxy radicals.

4,363,744

MIXTURES OF OPTICAL BRIGHTENERS AND THEIR USE FOR THE OPTICAL BRIGHTENING

Dieter Günther, Kelkheim; Rüdiger Erckel, Eppstein; Günter Rösch, Bad Soden am Taunus, and Heinz Probst, Sulzbach, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

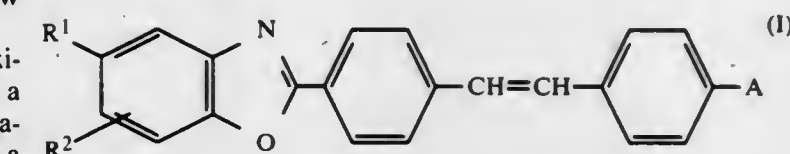
Continuation of Ser. No. 73,938, Sep. 10, 1979, abandoned. This application Mar. 2, 1981, Ser. No. 239,454

Int. Cl.³ C09K 11/06; D01P 1/38

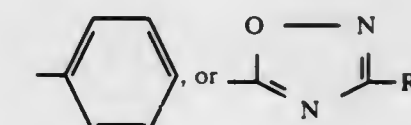
U.S. Cl. 252-301.22

4 Claims

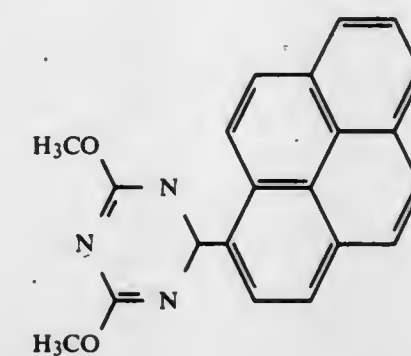
1. Mixtures of optical brighteners consisting essentially of from
 (a) 0.98 to 0.50 part by weight of a mixture consisting essentially of from 0.05 to 0.95 part by weight of a compound of the formula I



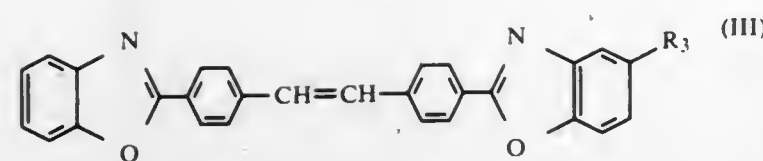
wherein R¹ is hydrogen or C₁-C₄ alkyl; R² is in the 6- or 7-position and is hydrogen or C₁-C₄ alkyl; and A is selected from the following formulas: -CN, -COOH, -COOCH₃,



R⁴ being C₁-C₄ alkyl or β-hydroxyethyl; and of from 0.95 to 0.05 part by weight of a compound of the formula II



and of from
 (b) 0.02 to 0.5 parts by weight of a compound of the formula III



wherein R₃ is hydrogen or C₁-C₄ alkyl.

4,363,745

ANTIOXIDANT COMPOSITIONS

Kenneth J. Hinze, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 141,853, Apr. 21, 1980, Pat. No. 4,265,783. This application Apr. 1, 1981, Ser. No. 249,780

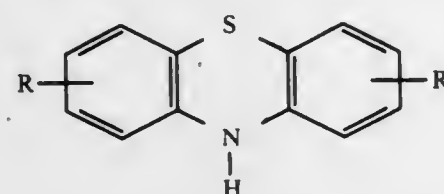
The portion of the term of this patent subsequent to May 5, 1998, has been disclaimed.

Int. Cl.³ C09K 15/28

U.S. Cl. 252-402

5 Claims

1. An antioxidant composition comprising
 - (A) from about 10 to about 85 percent by weight of a hindered phenolic antioxidant;
 - (B) from about 10 to about 85 percent by weight of 4,4'-bis-(α,α -dimethylbenzyl) diphenyl amine; and
 - (C) from about 1 to about 34 percent by weight of a phenothiazine compound represented by the formula



wherein each R is independently hydrogen or an alkyl group having from 1 to about 12 carbon atoms; and wherein the weight ratio of component (A) to component (B) is from about 0.17:1 to about 5.67:1.

4,363,746

COMPOSITION OF MATTER AND METHOD OF PREPARING SAME, CATALYST, METHOD OF PRODUCING THE CATALYST AND POLYMERIZATION PROCESS EMPLOYING THE CATALYST

Charles E. Capshaw, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

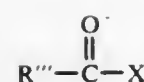
Continuation-in-part of Ser. No. 42,251, May 29, 1979, abandoned, which is a continuation-in-part of Ser. No. 927,079, Jul. 24, 1978, abandoned. This application Mar. 24, 1980, Ser. No. 132,731

Int. Cl.³ C08F 4/64

U.S. Cl. 252-429 B

31 Claims

1. A method of producing a catalyst comprising forming a first catalyst component by reacting
 - (A) a metal halide selected from the group consisting of metal dihalides and metal hydroxyhalide compounds of Group IIA and IIB, and
 - (B) a transition metal compound wherein the transition metal is tantalum and the transition metal is bonded to at least one radical selected from the group consisting of hydrocarbyl oxides, imides, amides, and mercaptides; and reacting a solution of said first catalyst component with a second catalyst component selected from the group consisting of (a) organometallic compounds of Groups I, II, and III selected from the group consisting of lithium alkyls, Grignard reagents, dialkyl magnesium compounds, dialkyl zinc compounds, and hydrocarbyl aluminum halides; (b) metal halides and oxyhalides of metals of Groups IIIA, IVA, IVB, and VB; (c) hydrogen halides; and (d) organic acid halides selected from the group consisting of compounds having the formula



wherein R''' is an alkyl, aryl, or cycloalkyl group or combination thereof and X is a halide; and then treating the solid product resulting from the combination of said first and second catalyst components with a titanium tetrahalide capable of enhancing the activity of said catalyst.

4,363,747

METALLOCARBORANE PRECURSOR AND CATALYST

M. Frederick Hawthorne, Encino, Calif., and Mark S. Delaney, Midland, Mich., assignors to The Regents of the University of California, Berkeley, Calif.

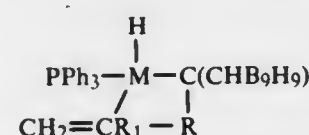
Filed Jun. 15, 1981, Ser. No. 273,731

Int. Cl.³ B01J 31/12; C07F 15/00

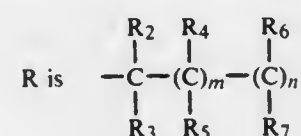
U.S. Cl. 252-431 P

8 Claims

1. A metallocarborane compound having the formula



where M is a metal selected from the group consisting of Rhodium, Iridium and Ruthenium and



where m is 0 or 1 and when m is 1 n is 0 or 1 and when m is 0 n is 0, and wherein each of R₁, R₂, R₃, R₄, R₅, R₆, and R₇ is hydrogen, lower alkyl or aryl.

4,363,748

CATALYST COMPOSITION FOR PRODUCING TERTIARY-BUTYLSTYRENE

Glen F. Crum, and Samuel J. Paton, both of Odessa, Tex., assignors to El Paso Products Company, Odessa, Tex.

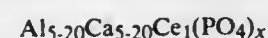
Filed Feb. 2, 1982, Ser. No. 345,157

Int. Cl.³ B01J 27/18

U.S. Cl. 252-437

3 Claims

1. A coprecipitated catalyst composition adapted for oxydehydrogenation reactions, which catalyst composition corresponds to the formula:



wherein x is a number sufficient to satisfy the valences of the metal elements in the catalyst.

4,363,749

WATER CLARIFICATION COAGULANT/ADSORBENT

Donald E. Weiss, Blackburn; Luis O. Kolarik, Forest Hill; Anthony J. Priestley, Elsternwick, and Nevil J. Anderson, Sandringham, all of Australia, assignors to Commonwealth Scientific & Industrial Research Organization, Campbell, Australia

Division of Ser. No. 944,125, Sep. 19, 1978, Pat. No. 4,279,756, which is a continuation-in-part of Ser. No. 792,767, Apr. 28, 1977, abandoned. This application Feb. 4, 1981, Ser. No. 231,388

Claims priority, application Australia, May 3, 1976, PC5798; Mar. 25, 1977, PC9576; Sep. 22, 1977, PD1779

Int. Cl.³ B01J 20/12, 20/04

U.S. Cl. 252-455 R

7 Claims

1. A particulate coagulant/adsorbent suitable for removing

suspended impurities and coloured substances from water by coagulation which comprises a finely divided particulate mineral or clay material, the individual particles of which have a particle size of 10 microns or less and have been treated to produce a thin hydroxylated surface layer derived from the substance of the particulate mineral or clay material and having a positive zeta potential at the adsorption pH (as hereinbefore defined).

2. A coagulant/adsorbent as claimed in claim 1, wherein the particulate mineral or clay material is an oxide or silicate.

5. A method for preparing the coagulant/adsorbent claimed in claim 1, which consists essentially of suspending the particulate mineral or clay material in an alkali solution for a period sufficient to form the hydroxylated layer.

4,363,750

CATALYST FOR DEHYDROGENATION OF OXYGEN CONTAINING DERIVATIVES OF THE CYCLOHEXANE SERIES INTO CORRESPONDING CYCLIC KETONES AND/OR PHENOLS

Alexandr Y. Rozovsky, Rublevskoe shosse, 97, korpus 3, kv. 25; Valentin D. Stytsenko, ulitsa Musy Dzhalilya, 34, korpus 2, kv. 18; Svetlana A. Nizova, ulitsa Volgina, 27, kv. 144; Petr S. Belov, ulitsa Vavilova, 52, korpus 3, kv. 163, and Alexandr J. Dyakonov, ulitsa Begovaya, 32, kv. 71, all of Moscow, U.S.S.R.

Filed Jan. 7, 1981, Ser. No. 223,073

Int. Cl.³ B01J 23/82, 23/78

U.S. Cl. 252-459

3 Claims

1. A catalyst comprising by weight:

nickel	15 to 55%
promotor selected from the group consisting of germanium, lead and mixtures thereof:	
inert carrier	0.2 to 8.0%
	84.8 to 37.0%

the atomic ratio of nickel to the promotor being from 15:1 to 410:1.

2. A catalyst according to claim 1 further comprising a salt of a metal selected from alkali metals and alkaline earth metals and a mineral acid in an amount of from 0.01 to 1.0% by weight.

3. A catalyst according to claim 2 wherein said alkaline earth metal salt is a calcium or barium salt.

4,363,751

CATALYST FOR THE PREPARATION OF 4-CYANTHIAZOLE AND PROCESS FOR PREPARING THE CATALYST

Stuart Bacher, Old Bridge; Carlos B. Rosas, Rahway, and John J. Sharkey, North Brunswick, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation-in-part of Ser. No. 174,956, Aug. 4, 1980, abandoned. This application May 20, 1981, Ser. No. 262,984

Int. Cl.³ B01J 23/14, 23/26, 23/28, 23/34

U.S. Cl. 252-469

17 Claims

1. An ammoxidation catalyst which consists of manganese, chromium and molybdenum oxides in the molecular ratios of: Mn_aCr_bMo_{1.00}O_x wherein a and b are from 0.02 to 15 provided the sum of a and b is not less than 0.8 and x is a number which satisfies the valences of the metallic elements.

4,363,752

CATALYST OF ACTIVATED COPPER-ZINC ALLOY AND ITS USE IN HYDRATING ACRYLONITRILE

Louis A. Goretta, Nappervills, and Frederick J. Sibert, Chicago, both of Ill., assignors to Nalco Chemical Company, Oak Brook, Ill.

Filed Jun. 8, 1981, Ser. No. 271,285

Int. Cl.³ B01J 23/06, 23/72; C07C 102/08

U.S. Cl. 252-475

37 Claims

1. A process for preparing a catalyst suitable for catalytically hydrolyzing acrylonitrile to acrylamide comprising contacting aqueous alkali metal hydroxide with an alloy comprised on a 100 weight percent total alloy weight basis of about 30 weight percent copper and about 70 weight percent zinc which is in the form of particles having a size ranging from about 0.0005 to 0.5 inches in average diameter for a time sufficient to remove from said alloy at least about 50 weight percent of the zinc initially present therein thereby to produce such catalyst.

4,363,753

MECHANICALLY STABLE SCREEN CLOTH CONSTRUCTION MADE OF METAL

Alfred Bozon, Erlensee; Edgar Koberstein, Alzenau; Hans-Dieter Pletka, Freigericht, and Herbert Voelker, Hanau, all of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Sep. 17, 1980, Ser. No. 187,871

Claims priority, application Fed. Rep. of Germany, Sep. 19, 1979, 2937757

Int. Cl.³ B01J 35/02

U.S. Cl. 252-477 R

11 Claims

1. A mechanically stable screen cloth construction made of metal comprising at least one layer of corrugated or folded screen cloth and at least one planar closed or perforated cover layer, and a U-shaped border element fitted to the profile edge of and positioned over said corrugated or folded layer on two of its opposite edges which edges are perpendicular in relation to the axis of corrugation or folding, said screen cloth layer and said cover layer being arranged in alternate layers.

4,363,754

4(5)-ACETYL-9,9-DIMETHYLTRICYCLO-[4,4,0,1^{8,10}]-UNDEC-1-ENE, ITS PREPARATION AND USE IN PERFUMERY COMPOSITIONS AND AS AN ODORANT

Jens Conrad, Hilden; Klaus Bruns, Krefeld-Traar, and Horst Upadek, Erkrath, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Dusseldorf-Holthausen, Fed. Rep. of Germany

Division of Ser. No. 178,083, Aug. 14, 1980, Pat. No. 4,322,559. This application Nov. 2, 1981, Ser. No. 317,017

Claims priority, application Fed. Rep. of Germany, Sep. 3, 1979, 2935547

Int. Cl.³ A61K 7/00

U.S. Cl. 252-522 R

3 Claims

1. A perfumery composition consisting essentially of from 1% to 50% by weight of the isomeric mixture 4(5)-acetyl-9,9-dimethyltricyclo-[4,4,0,1^{8,10}]-undec-1-ene and the remainder customary constituents of perfumery compositions.

4,363,755

LIQUID ALPHA-OLEFIN SULFONATE SHAMPOO COMPOSITION WITH INCREASED LOW TEMPERATURE STABILITY

Noriyuki Uchino, and Toru Ono, both of Tokyo, Japan, assignors to The Lion Corporation, Tokyo, Japan

Filed Apr. 6, 1981, Ser. No. 251,123

Claims priority, application Japan, Apr. 15, 1980, 55/49460

Int. Cl.³ C11D 1/84, 1/34

U.S. Cl. 252-545

7 Claims

1. A liquid shampoo composition comprising:

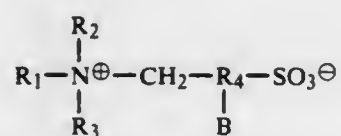
- (a) an anionic surface active agent (I) represented by the general formula:



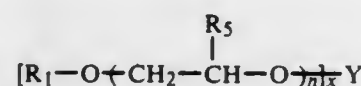
(wherein OS is an acid residue or a straight-chained olefin sulfonate having an average carbon number of 10 to 16, and M is an alkali- or alkaline earth metal) in an amount of 3 to 30% by weight of the composition weight; said anionic surface active agent comprising alkenyl sulfonate, hydroxyalkane sulfonate and alkenyl disulfonate, said hydroxyalkane sulfonate containing dihydroxyalkane sulfonate; (b) at least one member selected from the group consisting of an anionic surface active agent (II) represented by the general formula:



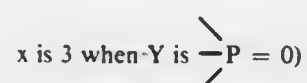
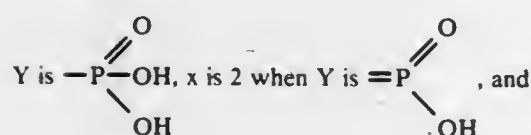
(wherein PS is an acid residue of a branched alkyl sulfonate having an average carbon number of 10 to 18, and M is an alkali- or alkaline earth metal) and an amphoteric surface active agent represented by the general formula:



(wherein R₁ is a straight-chained or branched alkyl radical having an average carbon number of 10 to 18, both R₂ and R₃ are independent alkyl radicals with a carbon number of 1 to 3, R₄ is an alkylene radical having a carbon number of 1 to 3, and B is H or OH radical) in an amount of 1 to 15% by weight of the composition weight; and (c) a phosphoric ester represented by the general formula:



(wherein R₁ is a straight-chained or branched alkyl radical having an average carbon number of 10 to 18; R₅ is H or an alkyl radical having a carbon number of 1 or 2; n is an integer of 5 to 15; and x is 1 when



in an amount of 0.3 to 7% by weight of the composition weight.

4,363,756

PRETREATMENT COMPOSITION FOR STAIN REMOVAL

Ralph R. Sepulveda, Suffern, N.Y., and Lynn H. Lander, Harrington Pk., N.J., assignors to Lever Brothers Company, New York, N.Y.

Continuation of Ser. No. 49,774, Jun. 18, 1979, abandoned. This application Oct. 20, 1980, Ser. No. 198,336
Int. Cl.³ C11D 1/14, 1/83, 3/43, 3/46

U.S. Cl. 252-550

1 Claim

1. An active composition for the pre-laundering treatment of stains on fabrics comprising isopropyl myristate present at a level of about 25%; a C₁₁-C₁₅ secondary alcohol with about 5

ethylene oxide units per molecule present at a level of about 25%; and a sodium C₁₀ linear alcohol sulfate present at a level of about 50%.

4,363,757

METHOD FOR NONCONTAMINATING SOLIDIFICATION FOR FINAL STORAGE OF AQUEOUS, RADIOACTIVE WASTE LIQUIDS

Rainer Köster, Karlsruhe; Günter Rudolph, Weingarten; Rainer Gebauer, Bellheim; Iris Boch, Bretten; Wilfried Schröter, Karlsruhe, and Jürgen Jakobs, Bruchsal, all of Fed. Rep. of Germany, assignors to Kernforschungszentrum Karlsruhe GmbH, Karlsruhe, Fed. Rep. of Germany

Filed Apr. 30, 1979, Ser. No. 34,690

Claims priority, application Fed. Rep. of Germany, Apr. 29, 1978, 2819086

Int. Cl.³ G21F 9/16

U.S. Cl. 252-628

9 Claims

1. Method for solidifying medium radioactivity aqueous waste liquids, low radioactivity aqueous waste liquids, and tritium containing aqueous waste liquids for final non-contaminating storage wherein the waste liquids are mixed with absorbing agents and/or with hardening agents and the radionuclides contained in the waste liquids are incorporated in a first solidifying matrix produced with the aid of these agents, and said first matrix is encased within at least one hardening matrix free of waste radionuclides without creating any interstices, comprising the steps of:

- granulating or pelletizing the aqueous, radioactive waste liquid solely by the single step of spraying said aqueous radioactive waste liquid onto a mixture of an absorbing, natural bentonite and a hydraulic binder, which mixture is being transported on a rotating pelletizing plate, so as to form said granules or pellets, the weight ratio of bentonite to hydraulic binder in the mixture being between 1:15 and 1:2;
- (1) embedding for final solidification said granules or pellets, wherein radionuclides from radioactive aqueous liquids are incorporated therein, in a binder which is initially present in a liquid state and later hardens, said binder being selected from the group consisting of polymerizable liquids which polymerize by condensation polymerization or addition polymerization and aqueous suspensions of hydraulic binders, or (2) cladding granules or pellets formed from radioactive aqueous waste liquids for final solidification with a first binder initially present in a liquid state and which later hardens, said first binder being selected from the group consisting of polymerizable liquids which polymerize by condensation polymerization, or addition polymerization and aqueous suspensions of hydraulic binders; and
- (c) embedding for final solidification said clad granules or clad pellets in a second binder initially present in a liquid state and which later hardens, said second binder being selected from the group consisting of polymerizable liquids which polymerize by condensation polymerization or addition polymerization and aqueous suspensions of hydraulic binders.

4,363,758

CYTOTOXIC PROTEIN HYBRID AND PROCESS FOR THE PREPARATION THEREOF

Yasuhiko Masuho; Kazuo Kishida, both of Hino, and Takeshi Hara, Hachioji, all of Japan, assignors to Teijin Limited, Osaka, Japan

Filed Dec. 16, 1981, Ser. No. 331,347

Claims priority, application Japan, Dec. 22, 1980, 55-180552
Int. Cl.³ A61K 39/44; C07G 7/00

U.S. Cl. 260-112 B

7 Claims

1. A cytotoxic protein hybrid prepared by covalently bonding an immunoglobulin, or its fragment, which is capable of bonding selectively to an antigen specific to a cell to be killed,

to a protein which is obtained from *Phytolacca americana* and capable of inhibiting protein synthesis.

4,363,759

CHEMILUMINESCENT-LABELED HAPTENS AND ANTIGENS

Robert C. Boguslaski; Robert J. Carrico, both of Elkhart, Ind., and James E. Christner, Birmingham, Ala., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Continuation-in-part of Ser. No. 894,836, Apr. 10, 1978, which is a continuation of Ser. No. 667,996, Mar. 18, 1976, abandoned, which is a continuation-in-part of Ser. No. 572,008, Apr. 28, 1975, abandoned. This application Jul. 24, 1978, Ser. No. 927,622

Int. Cl.³ C07C 103/52

U.S. Cl. 260-112.7

3 Claims

1. An insulin-chemiluminescent substance conjugate having luminescent activity measurable by photosensitive means.

4,363,760

PARTIALLY HYDROLYZED ELASTIN FROM LIMED HIDE TRIMMINGS

Gheorghe Cioca, Coatesville, Pa., assignor to Seton Company, Newark, N.J.

Filed Aug. 27, 1981, Ser. No. 296,985

Int. Cl.³ A23J 1/10; C07G 7/06; C08L 89/06, 89/04

U.S. Cl. 260-123.7

12 Claims

1. A method of preparing soluble partially hydrolyzed elastin comprising: treating insoluble elastin with ammonium persulfate; partially hydrolyzing the elastin; and recovering substantially pure soluble partially hydrolyzed elastin.

4,363,761

MONOAZO DYES CONTAINING AT LEAST ONE SULFO GROUP AND AT LEAST TWO BASIC OR CATIONIC GROUPS

Reinhard Pedrazzi, Allschwil, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

Division of Ser. No. 31,781, Apr. 20, 1979, Pat. No. 4,273,707. This application Dec. 4, 1980, Ser. No. 212,828

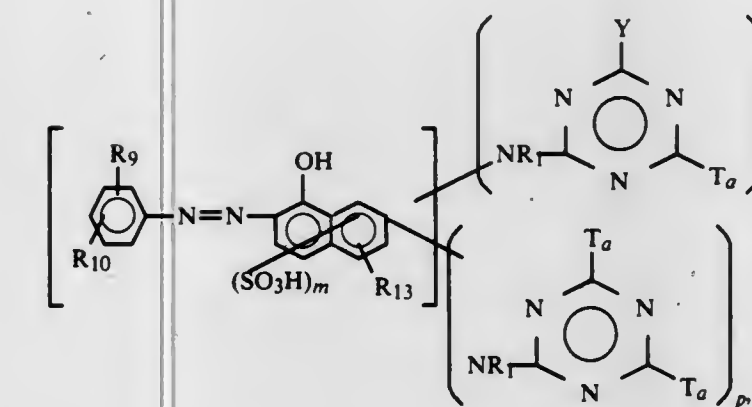
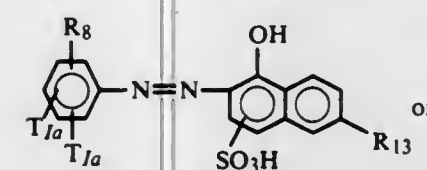
Claims priority, application Switzerland, Apr. 26, 1978, 4500/78; Apr. 26, 1978, 4501/78

Int. Cl.³ C09B 35/08, 35/22

U.S. Cl. 260-153

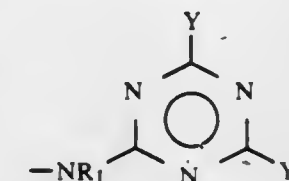
33 Claims

1. A compound of the formula



or an external salt thereof, wherein each R₁ is independently hydrogen or C₁₋₄alkyl,

R₈ is hydrogen, C₁₋₄alkyl, C₁₋₄alkoxy, halo, C₁₋₄alkylamino, di-(C₁₋₄alkyl)amino, —SO₂NR₁R₁ or —CONR₁R₁, wherein each R₁ is independently hydrogen or C₁₋₄alkyl, R₉ is hydrogen, halo, C₁₋₄alkyl, C₁₋₄alkoxy, phenoxy, —NH—COR₁₄, —SO₂R₁₄, —SO₂NR₁R₁ or —CONR₁R₁, wherein each R₁ is independently hydrogen or C₁₋₄alkyl, and R₁₄ is C₁₋₄alkyl or phenyl, R₁₀ is hydrogen, halo, C₁₋₄alkyl or C₁₋₄alkoxy, R₁₃ is hydrogen; amino; (C₁₋₄alkyl)carbonylamino; benzamido; substituted benzamido having, on the phenyl ring, 1 or 2 substituents selected from halo, nitro, amino, C₁₋₄alkyl and C₁₋₄alkoxy; or



wherein R₁ is hydrogen or C₁₋₄alkyl, Y is chloro, hydroxy, amino or an amino group having at least one aliphatic, cycloaliphatic or aromatic substituent, and Y' is hydroxy, amino or an amino group having at least one aliphatic, cycloaliphatic or aromatic substituent, each T_a is independently —NR₂'-Q-NR₃'R₄' or —NR₂'-Q-NR₃'R₆'R₇', wherein R₂' is hydrogen or methyl, each of R₃' and R₄' is independently hydrogen, C₁₋₆alkyl, n-C₂₋₃-hydroxyalkyl or benzyl, each of R₅' and R₆' is independently C₁₋₆alkyl, n-C₂₋₃-hydroxyalkyl or benzyl or R₃' and R₄' or R₅' and R₆' taken together and with the nitrogen atom to which they are joined form a pyrrolidine, piperidine or morpholine ring, R₇' is methyl, ethyl or benzyl, and Q is linear or branched C₂₋₆alkylene, each T_a is independently —CO—T_a or —SO₂—T_a, wherein T_a is as defined above, each Y is independently chloro, hydroxy, amino or an amino group having at least one aliphatic, cycloaliphatic or aromatic substituent, m is 1 or 2, n is 0, 1, 2, 3 or 4, and p is 0, 1, 2 or 3, with the proviso that n+2p≥m+1, with the provisos that (i) each basic group is independently in free base, internal salt or acid addition salt form, (ii) the positive charge of each cationic group is independently balanced by the negative charge of a —SO₃[−] group of the molecule or an external non-chromophoric anion, and (iii) the number of basic groups in internal salt form and cationic groups the positive charge of which is balanced by the negative charge of a —SO₃[−] group of the molecule does not exceed the number of sulfo groups present in the molecule.

4,363,762

PROCESS FOR PREPARING IMIDAZODIAZEPINES

Max Gerecke; Willy Haefely, both of Reinach; Walter Hunkeler, Magden; Emilio Kyburz, Reinach; Hanns Möhler, Inzlingen; Lorenzo Pieri, Riehen, and Petar Polc, Binningen, all of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 193,775, Oct. 3, 1980, Pat. No. 4,316,839. This application Nov. 16, 1981, Ser. No. 322,091

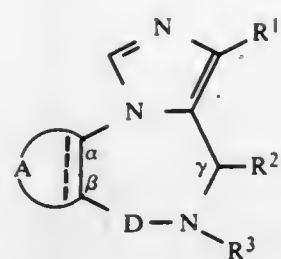
Claims priority, application Switzerland, Oct. 4, 1979, 8971/79; Oct. 4, 1979; 8972/79; Nov. 30, 1979, 10664/79; Nov. 30, 1979, 10665/79; Jul. 25, 1980, 5716/80

Int. Cl.³ C07D 487/04, 487/14, 513/14

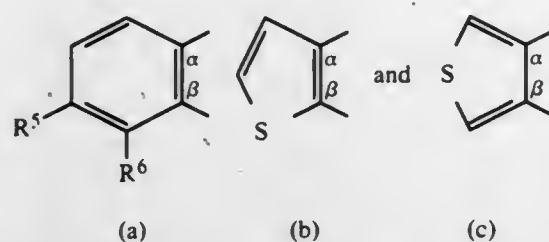
U.S. Cl. 260-239.3 T

1 Claim

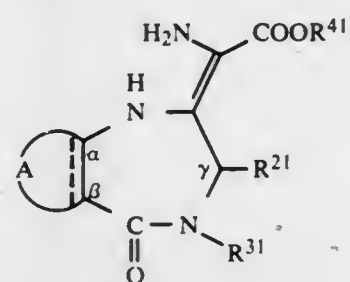
1. A process for the manufacture of compounds of the formula:



wherein A together with the two carbon atoms denoted as α and β is selected from the group consisting of:



the dotted line represents the double bond present in group (a) and (b), D is C=O or C=S, R^1 is selected from the group consisting of cyano, lower alkanoyl and a group of the formula $-\text{COOR}^4$, R^4 is selected from the group consisting of methyl, ethyl, isopropyl and 2-hydroxyethyl, R^5 is selected from the group consisting of hydrogen, trifluoromethyl and halogen and R^6 is selected from the group consisting of hydrogen, trifluoromethyl, halogen and lower alkyl or either R^2 is hydrogen and R^3 is hydrogen or lower alkyl or R^2 and R^3 together are trimethylene or propenylene and the carbon atom denoted as γ has the S- or R,S-configuration, which comprises treating a compound of the formula:



wherein A and the dotted line are as above, R^{21} is hydrogen, R^{31} is lower alkyl and R^{41} is methyl, ethyl or isopropyl with a formylating agent.

4,363,763

POLYOL ESTERS OF ALPHA-HYDROXY CARBOXYLIC ACIDS

Donald J. Peterson, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

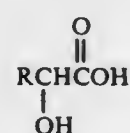
Continuation-in-part of Ser. No. 124,192, Feb. 25, 1980, abandoned. This application Dec. 24, 1980, Ser. No. 219,718

Int. Cl.³ C09F 5/08; C11C 3/02

U.S. Cl. 260—410.7

11 Claims

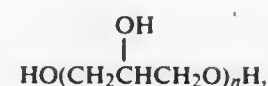
1. A polyol monoester of an alpha-hydroxy carboxylic acid of the formula



wherein R is a hydrocarbyl group containing from about 6 to about 20 carbon atoms and the polyol is selected from the group consisting of:

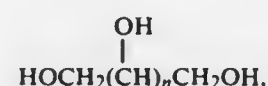
(a) glycols containing from 1 to about 20 C₂-C₃ alkylene oxide units and mixtures thereof;

(b) glycerols of the formula



wherein n is from 1 to 10, and isomers thereof, provided that R is an alkyl group containing about 10 carbon atoms when n is 1;

(c) polyols of the formula



wherein n is from 2 to 4;

(d) pentaerythritol and dipentaerythritol;

(e) inositol; and

(f) monosaccharides and disaccharides containing 5 or 6 carbon atoms per saccharide unit.

4,363,764

PREPARATION OF RHODIUM COMPLEX COMPOUNDS

Ernst Billig, Charleston; David R. Bryant, South Charleston, and Jackie D. Jamerson, Charleston, all of W. Va., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Dec. 30, 1980, Ser. No. 221,502

Int. Cl.³ C07F 15/00

U.S. Cl. 260—429 R

20 Claims

1. An organic one-phase process for preparing a halocarbonylbis(triorganophosphorus) rhodium compound which comprises reacting, at a temperature from about 20° C. to about 200° C., an essentially non-aqueous homogeneous organic reaction solution consisting essentially of (a) a rhodium complex concentrate, (b) a halide ion source, (c) carbon monoxide gas or a carbon monoxide source and (d) free triorganophosphorus ligand, for at least a sufficient period of time to form said halocarbonylbis(triorganophosphorus) rhodium compound; said rhodium complex concentrate consisting essentially of from about 0.1 to about 30 percent by weight of a spent hydroformylation reaction medium and having been produced by concentrating a spent hydroformylation reaction medium that contains a partially deactivated soluble rhodium complex hydroformylation catalyst, aldehyde products, higher boiling aldehyde condensation by-products, and free triorganophosphorus ligand, so as to remove from said medium, while retaining a major amount of the rhodium values of said catalyst present in said medium, at least essentially all of said aldehyde products, at least 50 percent by weight of said higher boiling aldehyde condensation by-products that have a boiling point below that of said free triorganophosphorus ligand present in said medium and at least 50 percent by weight of said free triorganophosphorus ligand present in said medium.

4,363,765

RHODIUM RECOVERY PROCESS

Rocco A. Fiato, and Jose' L. Vidal, both of Charleston, W. Va., assignors to Union Carbide Corporation, Danbury, Conn.

Continuation of Ser. No. 70,003, Aug. 27, 1979, abandoned. This application Apr. 3, 1981, Ser. No. 250,614

Int. Cl.³ C07F 15/00

U.S. Cl. 260—429 R

21 Claims

1. The process for the recovery of rhodium values which comprises contacting a rhodium complex with a crown ether, an alkaline cesium salt and water in a liquid phase such that a rhodium-containing solid is formed.

4,363,766

PROCESS FOR THE PREPARATION OF SULFUR-CONTAINING N-BENZYL-AMINO ACIDS AND ESTERS

Bernard Bellegarde, Gradignan, France, assignor to Boehringer Ingelheim GmbH, Ingelheim, Fed. Rep. of Germany

Filed Apr. 17, 1979, Ser. No. 30,851

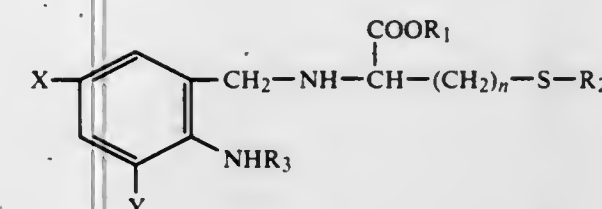
Claims priority, application France, Apr. 20, 1978, 78 11735

Int. Cl.³ C07C 149/43, 153/09

U.S. Cl. 260—455 R

9 Claims

1. A process for the preparation of a compound of the formula



wherein

X and Y, which may be identical to or different from each other, are each hydrogen or halogen;

R_1 is hydrogen or alkyl of 1 to 4 carbon atoms;

R_2 is hydrogen, alkyl of 1 to 3 carbon atoms, carboxy-lower alkyl or lower aliphatic acyl;

R_3 is hydrogen or lower aliphatic acyl; and

n is 1 or 2;

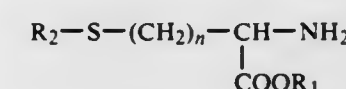
which comprises the steps of

(A) converting anthranilic acid or a halogenated anthranilic acid into the corresponding aldehyde by

(a) reacting the optionally halogenated anthranilic acid with thionyl chloride to form the corresponding anthranilic acid chloride, reacting the acid chloride with a secondary amine to form the corresponding tertiary amide, and reducing the tertiary amide; or

(b) reducing the optionally halogenated anthranilic acid to form the corresponding alcohol, and oxidizing the said alcohol with a metal oxide;

(B) reacting the aldehyde with a racemic or optically active compound of the formula



wherein R_1 , R_2 and n have the meanings previously defined, to form the corresponding Schiff's base;

(C) reducing the said Schiff's base; and

(D) recovering the reaction product.

4,363,767

ESTERS OF 4-[2,2-DICYANO-ETHENYL]-PHENOLS

Dietrich Demus, Halle; Wolfgang Weissflog, Halle-Neustadt; Horst Zschke, Halle; Rudolf Wolff, Halle, and Horst Kresse, Halle, all of German Democratic Rep., assignors to VEB Werk für Fernsehelektronik Berlin im VEB Kombinat Mikroelektronik, Berlin, German Democratic Rep.

Filed Oct. 3, 1980, Ser. No. 202,958

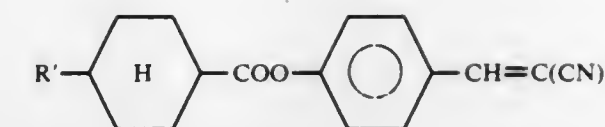
Claims priority, application German Democratic Rep., Jan. 11, 1980, 218410; Jan. 11, 1980, 218411

Int. Cl.³ C07C 121/70; C09K 3/34

U.S. Cl. 260—463

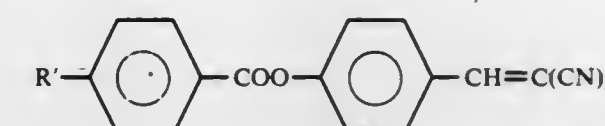
12 Claims

1. An ester of a 4-(2,2-dicyano-ethenyl)phenol of the formula



wherein $R^1 = \text{C}_2\text{H}_5$ or C_6H_{13} .

2. An ester of a 4-(2,2-dicyano-ethenyl)phenol of the formula



wherein $R^1 = \text{C}_6\text{H}_{13}$, $\text{C}_4\text{H}_9\text{O}$, $\text{C}_5\text{H}_{11}\text{O}$, $\text{C}_6\text{H}_{13}\text{O}$, $\text{C}_9\text{H}_{19}\text{O}$, $\text{C}_4\text{H}_9\text{COO}$, $\text{C}_6\text{H}_{13}\text{COO}$, or $\text{C}_6\text{H}_{13}\text{OCOO}$.

4,363,768

METHOD OF INJECTION MOLDING EMPLOYING MULTICHANNEL WAVE SCREW

George A. Kruder, Marion, Ohio, assignor to HPM Corporation, Mount Gilead, Ohio

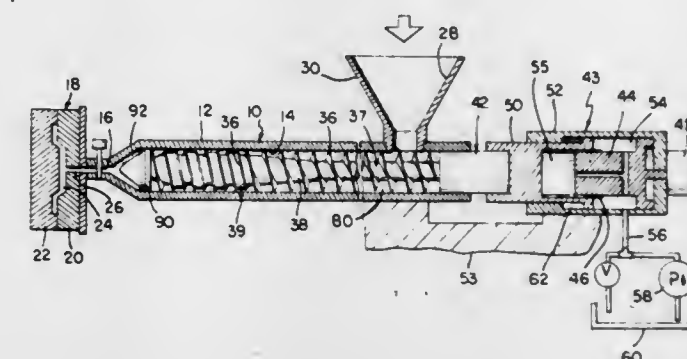
Division of Ser. No. 25,884, Apr. 2, 1979, Pat. No. 4,285,600, which is a continuation-in-part of Ser. No. 917,204, Jun. 20, 1978, Pat. No. 4,173,417, which is a continuation-in-part of Ser. No. 788,028, Apr. 15, 1977, abandoned. This application Feb. 13, 1981, Ser. No. 234,397

The portion of the term of this patent subsequent to Nov. 6, 1996, has been disclaimed.

Int. Cl.³ B29F 1/02

U.S. Cl. 264—68

3 Claims



1. A method of injection molding wherein a quantity of synthetic resinous material is prepared for injection into a mold without overheating and with good melt quality, comprising processing resinous material in a feed and transition zone to melt a substantial portion of the material and advance it to a second zone, dividing the flow through said second zone into two parallel channels each of which has restricted cross-sectional areas at a plurality of locations along its length with the restricted areas in one channel being longitudinally offset from the restricted areas in the other channel and with the cross-sectional area of each channel varying cyclically over a plurality of substantially identical cycles, forcing most of the incompletely melted resinous material in each of said channels to pass through said restricted areas in that channel to receive extra energy input for melting the same thoroughly, and filtering a portion of the completely molten resinous material from one channel to the other with minimum energy input just in advance of each of said restricted areas to avoid the extra energy input associated with passage through said restricted areas and thereby to avoid overheating of the melted material, said cycles reinforcing one another and collectively providing a steady material flow rate and pressure at an output end of said second zone, and injecting a charge of the completely molten resinous material at the discharge end of said second zone into a mold cavity.

4,363,769

METHOD FOR MANUFACTURING THIN AND FLEXIBLE RIBBON WAFER OF SEMICONDUCTOR MATERIAL AND RIBBON WAFER

Noboru Tsuya, 1-38, Kashiwagi 2-Chome, Sendai City, Japan, and Kenichi Arai, Sendai, Japan, assignors to Noboru Tsuya, Sendai, Japan

Continuation of Ser. No. 961,047, Nov. 15, 1978, abandoned.

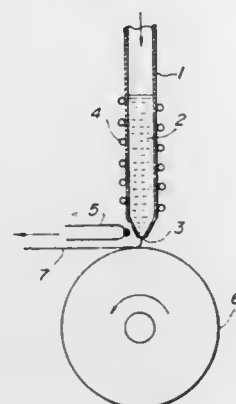
This application Jan. 15, 1981, Ser. No. 225,242

Claims priority, application Japan, Nov. 23, 1977, 52-140103

Int. Cl.³ B29D 7/02

U.S. Cl. 264—85

25 Claims



1. A method for manufacturing a thin and flexible ribbon wafer of semiconductor material comprising:

heating a raw semiconductor material consisting essentially of a material selected from the group consisting of Ge, Si, Se, Te, InSb, ZnTe, PbSe, InAs, InP, GaSb, PbTe, ZnS, Bi₂Te₃ at a temperature within the range from a melting point of the raw semiconductor material to 300° C. above the melting point to form a uniform melt having a suitable wettability and viscosity;

ejecting a jet flow of the melt through a nozzle under a predetermined pressure within the range from 0.01 to 1.5 atm.; and

substantially instantaneously cooling the ejected jet flow of the melt by moving a cooling surface of a moving cooling substrate past the nozzle so that the melt contacts the cooling surface and is cooled at a cooling rate of 1,000° C. to 1,000,000° C./sec., the linear velocity of the surface of the cooling substrate being more than 5 m/sec., to thereby form a thin and flexible ribbon wafer having a fine and compact grain structure with more than 50% of the grains having diameter within the range from 1 to 100 μm without existing ordered lattice, said ribbon wafer having a thickness of from 5 to 200 μm.

4,363,770

MOLDED SHELLS FOR LUGGAGE AND THE LIKE

Gary Phillips, Youngstown, Ohio, assignor to Airway Industries, Inc., Ellwood City, Pa.

Division of Ser. No. 196,021, Oct. 10, 1980. This application

Apr. 9, 1981, Ser. No. 252,320

Int. Cl.³ B28B 1/26

U.S. Cl. 264—87

3 Claims

1. The method of manufacturing a shell for luggage and the like comprising blending glass beads and resin with fibrous wood products and water to form a slurry, vacuum forming the slurry to the configuration of a shell and then molding the same by application of heat and pressure.

4,363,771

PROCESS FOR PREPARING NON-ORIENTED POLYOLEFIN FILM

James G. Murray, East Brunswick, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 108,924, Dec. 31, 1979,

abandoned. This application Jun. 24, 1981, Ser. No. 276,779

Int. Cl.³ D04N 1/54

U.S. Cl. 264—119

2 Claims

1. A method for producing a non-oriented film that comprises depositing high molecular weight polyolefin powder on a smooth non-adherent substrate, sintering said deposited powder at a sintering temperature just below the melting temperature of the polyolefin, rolling in a longitudinal direction the sintered powder held at the sintering temperature with at least one unheated roller at a pressure sufficient to effect densification of the polyolefin normal to its surface but insufficient to effect significant longitudinal flow of the polyolefin to form a non-oriented void free film, and quenching and stripping said film from said substrate.

4,363,772

METHOD AND APPARATUS FOR INJECTION MOLDING UTILIZING EXPANDABLE CAVITY

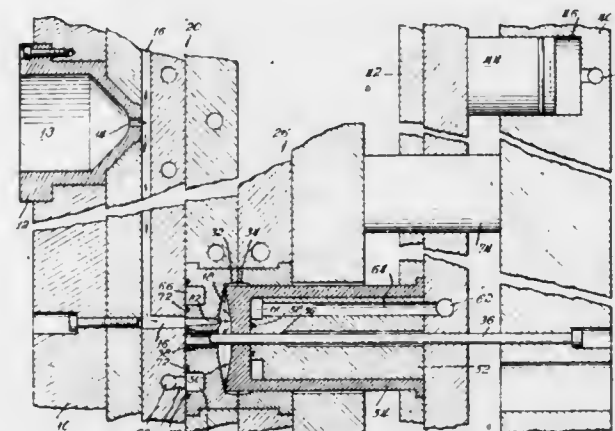
Daniel P. Hidding, Rte. 2, Ridgely, Ill., Barrington, Ill. 60010

Filed Jul. 16, 1979, Ser. No. 57,808

Int. Cl.³ B29F 1/00

U.S. Cl. 264—328.7

1 Claim



1. In the method of injection molding a non-foaming thermoplastic resin into a finished item, which includes the steps of joining at least two cavity-defining parts of a mold together to form a mold cavity having a single opening through which molten thermoplastic material may flow, injecting resin into the cavity through said opening, and thereafter separating the two parts of the mold and removing the finished item therefrom, the improvement which comprises the steps of:

- providing a movable wall for at least one of the parts of the mold to permit decreasing the size of the cavity and to permit positioning of the wall portion for impingement thereagainst of resin as it is injected into the cavity;
- constantly urging the movable wall portion in a direction to decrease the size of the cavity to smaller than that of the finished item with a force less than the force of injection molding the resin within the cavity, and
- injecting resin into the cavity under molding pressure in a direction transverse to said wall portion to cause initial impingement against the movable wall portion, whereby as the cavity fills with resin the injection molding force of the resin will cause the movable wall to move in a direction opposite to the urging force and the cavity will be increased to the full size of the item being molded.

4,363,773

SUPERCONDUCTIVE ELECTROMAGNET APPARATUS

Susumu Mine, Zushi, Japan, assignor to Tokyo Shibaura Denki

Kabushiki Kaisha, Kawasaki, Japan

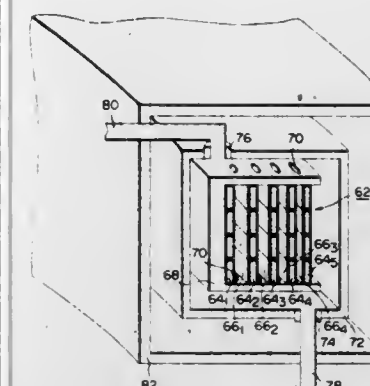
Filed Nov. 7, 1979, Ser. No. 92,033

Claims priority, application Japan, Nov. 13, 1978, 53-138860

Int. Cl.³ G21B 1/00; H01F 7/06

U.S. Cl. 376—142

10 Claims



1. A superconductive electromagnet apparatus comprising: a coil made of a conductor which is coiled around an axis to define a spiral channel having a width which is progressively narrower from an inner portion of said coil to an outer portion of said coil farther away from said axis than said inner coil portion and which has substantially the same cross section over the entire length; and frame means for supporting said coil and having a plurality of holes communicating with said channel for allowing air bubbles to escape.

4,363,774

PRODUCTION AND UTILIZATION OF ION CLUSTER ACCELERATION

Willard H. Bennett, P.O. Box 5342, Raleigh, N.C. 27607

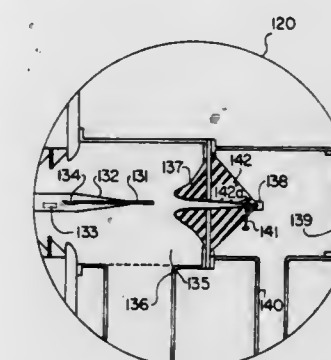
Continuation-in-part of Ser. No. 871,868, Jan. 24, 1978. This

application May 14, 1980, Ser. No. 149,613

Int. Cl.³ G21B 1/00; H01J 29/46

U.S. Cl. 376—105

26 Claims



1. The method of concentrating a beam on a target comprising:

- directing a high-energy pulsed beam comprising bursts of electrons, in a first direction, toward the target, pinching said beam for a first portion of its length which portion is spaced from the target, said beam having a self-magnetic field, said pinching being effected by the self-magnetic field around the beam, the improvement comprising: further pinching the beam, over a second portion of its length which second portion extends from the first portion to the target, by limiting the size of the self-magnetic field around the beam to a smaller cross-section than the cross-section of the first-named field while increasing the atomic ion concentration in the beam so that the small-size cross-section of the self-magnetic field plus the increased ion concentration will cause the beam to be pinched to a

smaller cross-section than resulted from the first pinching step, forming clusters of ions in the beam, the concentration of ions in such clusters being increased during said further pinching step, and impacting a target with said clusters of ions to produce a shower of particles.

4,363,775

CONTROLLED NUCLEAR FUSION APPARATUS

Robert W. Bussard, Arlington, Va., and Bruno Coppi, Winchester, Mass., assignors to International Nuclear Energy Systems Co., La Jolla, Calif.

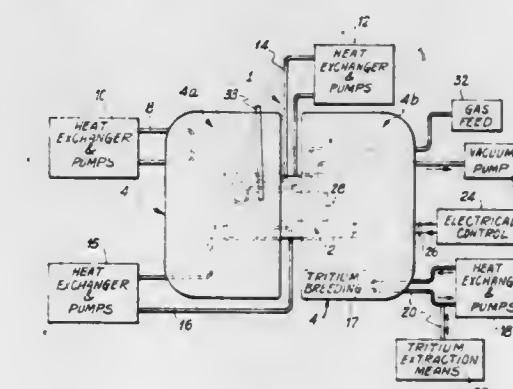
Continuation of Ser. No. 5,104, Jan. 22, 1979, abandoned, which is a continuation of Ser. No. 755,794, Dec. 30, 1976, abandoned.

This application Jun. 10, 1980, Ser. No. 158,228

Int. Cl.³ G21B 1/00

U.S. Cl. 376—133

28 Claims



1. A toroidal reactor for generating thermal energy from fusion reactions in an ionized plasma of fusible fuel comprising:

- a fusion core unit comprising a plasma containment means having a major radius on the order of 50 cm for containing said fusible fuel, said plasma containment means forming a plasma containment region,
- said plasma containment means including a plurality of toroidal field coils adjacent to and surrounding said plasma containment region for generating a toroidal magnetic field,
- means for transporting a cooling fluid to said toroidal field coils,
- said toroidal field coils having fluid conducting portions for transporting said cooling fluid within regions of said toroidal field coils,
- power supply means connected to said toroidal field coils for generating a high toroidal magnetic field within the ionized plasma within said plasma containment region, said toroidal magnetic field being on the order of greater than 100 KG,
- said plurality of toroidal field coils comprising high-strength, non-superconducting conductors for sustaining said high field and thermal energies,
- ohmic heating means for inducing an ohmic heating plasma current in said plasma fuel within said plasma containment means, said ohmic heating current raising the temperature of said plasma, said ohmic heating means including transformer means and said ohmic heating current generating a poloidal magnetic field within said plasma,
- blanket means positioned completely outside of and substantially surrounding said toroidal field coils,
- means extending into said plasma containment means for delivering said fusible fuel therein,
- said fusion core unit being readily separable from said blanket means for permitting facile access to said fusion core unit to allow for replacement of said fusion core unit as required,
- blanket cooling fluid transport means connected to said

blanket means for transporting a cooling fluid to said blanket means,

- (l) means connected to at least one of said blanket cooling fluid transport means and said toroidal field cooling transport means for extracting thermal energy therefrom,
- (m) means for controlling the density of said plasma within said confinement means by adjusting the amount of fuel delivered into said confinement means,
- (n) said ohmic heating means operable to induce said ohmic heating current to heat said plasma to a temperature of about 4 KeV while said means for controlling the density of said plasma is operable for increasing the density of said plasma for operating said reactor below a first fusion reaction rate and in which charged particle heating from said fusion reaction substantially equals bremsstrahlung losses,
- (o) said density controlling means and said ohmic heating means operable for increasing the plasma density further while further heating said plasma to maintain the temperature of said plasma above the range of approximately 4 KeV, said plasma being heated by both said ohmic heating current and said charged particle heating,
- (p) said density controlling means operable for increasing the plasma density above said first fusion reaction rate, wherein said charged particle heating increases with increasing density for raising the temperature of said plasma above the temperature at which charged particle heating from said fusion reaction substantially equals bremsstrahlung losses, whereby said reactor generates thermal energy above plasma energy losses comprising bremsstrahlung losses, cyclotron radiation losses and particle conductivity losses.

4,363,776

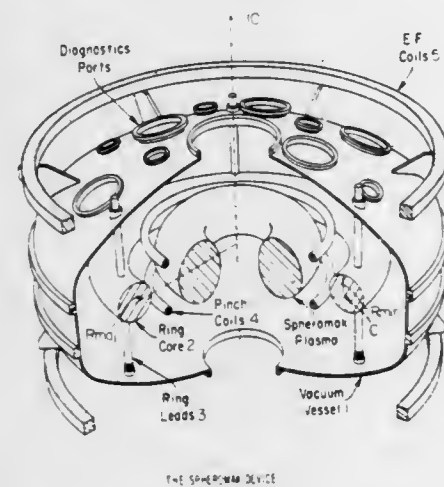
METHOD AND APPARATUS FOR THE FORMATION OF A SPHEROMAK PLASMA

Masaaki Yamada, Lawrenceville; Harold P. Furth; Thomas H. Stix, both of Princeton, and Alan M. M. Todd, Princeton Junction, all of N.J., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jul. 30, 1980, Ser. No. 173,555
Int. Cl.³ G21B 1/00

U.S. Cl. 376—137

32 Claims



1. An apparatus for producing and confining a spheromak plasma, comprising:
 - a generally spheroidal vacuum vessel having a major axis and an equatorial midplane;
 - equilibrium field coil means for producing an equilibrium magnetic field directed primarily along the major axis;
 - a ring core disposed within said vacuum vessel symmetrically with respect to said major axis and said equatorial midplane, and having a minor axis in said equatorial plane surrounding said major axis, a major radius and a minor radius, said ring core including a toroidal flux coil wound

about said minor axis and a separate poloidal flux coil and being supported within said vacuum vessel by a plurality of ring supports, said ring supports housing conductors for supplying current to said poloidal and toroidal flux coils;

means for energizing said equilibrium field coils at a time t_1 to create a first poloidal magnetic field within said vacuum vessel;

means for energizing said poloidal flux coil at a time $t_2 > t_1$ to create a second poloidal magnetic field within said vacuum vessel, said first and second poloidal fields being superposed to form a composite poloidal field whose strength is greater on a radially exterior major radius side of said ring core, than on a radially interior major radius side of said ring core;

means for energizing said toroidal flux coil at a time $t_3 > t_1$ for initiating a plasma discharge within said vacuum vessel outside said toroidal flux coil, said ring core and said equilibrium field coils being operable to cause said plasma to become expanded and distended toward said major axis; and

means for pinching off a portion of said distended plasma, whereby a detached spheromak plasma concentric with, and having a major radius less than the major radius of, said ring core is produced.

4,363,777

CLOSURE ELEMENT FOR LIMITING THE CONVECTION CURRENTS IN AN ANNULAR SPACE ABOUT A NUCLEAR REACTOR COMPONENT

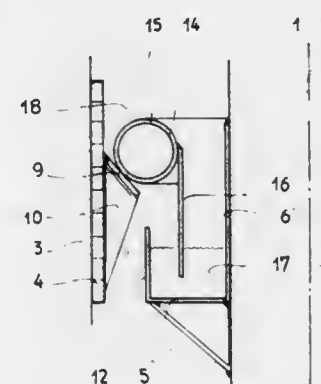
Bernard Cornu, Les Clayes-sous-Bois, and Jean-Louis Pierrey, Bourg la Reine, both of France, assignors to Novatome, Le Plessis Robinson, France

Filed Nov. 3, 1980, Ser. No. 203,764

Claims priority, application France, Nov. 23, 1979, 79 28879
Int. Cl.³ G21C 13/00

U.S. Cl. 376—203

2 Claims



1. Closure apparatus to limit convection currents in an annular space (18) about a component (1) of a nuclear reactor cooled by a liquid metal, having a vessel closed by a very thick horizontal plate in which vertical cylindrical passages are provided for the passage of removable components disposed vertically in the reactor and resting on the plate, each of the components having between its outer surface and the inner surface of the passage an annular space (18) of a certain width in which is positioned the closure apparatus of the type having an annular cup (5) solid with the component (1) and surrounding its outer wall and containing a liquid into which a sleeve (16) dips so as to ensure closure of the annular space (18) about the component (1) characterised by the fact that it also has:
 - a frusto-conical support surface (9) having as axis the vertical axis common to the component and the passage fixed at the perimeter of its large base at the passage and having its small base disposed at a lower level than the level of the large base, of a diameter greater than the external diameter of the cup (5),
 - and a closure element (14) with rotational symmetry, not connected to the cup (5) and the support surface (9),

having an upper part (15) intended to come to rest on the support surface (9) so as to totally close the annular space (18) at the top when the component is put in position in the reactor, the cup (5) being then below the support surface (9) and a part directed downwards constituted by the sleeve (16) resting in the cup (5) when the component (1) is handled and ensuring closure of the annular space (18) at the bottom, when the reactor is in service, the cup (5) then filling up with liquid metal.

4,363,778

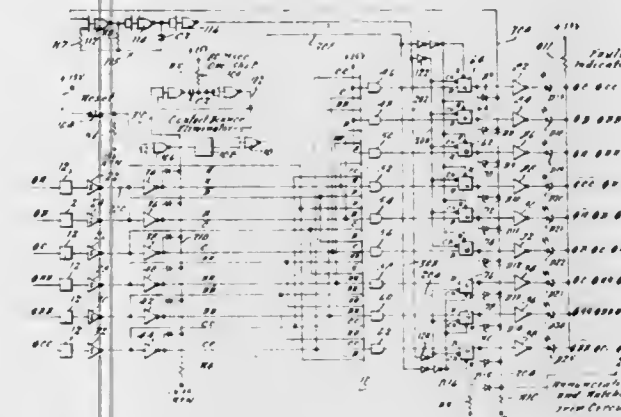
MONITOR CIRCUIT FOR A CONTROL ROD DRIVE MECHANISM

Robert L. Abbott, Richland, Wash., assignor to The Babcock & Wilcox Company, New Orleans, La.

Filed May 15, 1980, Ser. No. 149,966
Int. Cl.³ G21C 17/00, 7/08

U.S. Cl. 376—228

6 Claims



1. In a nuclear reactor having a plurality of control rods distributed within the reactor core and a corresponding plurality of control rod drive mechanisms (CRDMs) for controlling the positioning of the control rods including six phase stepper motors having six symmetrically arranged stator phase windings and a polyphase power supply for sequentially energizing appropriate combinations of said stator phase windings to cause said motors to revolve in discrete radial increments; a monitor circuit for monitoring the phase sequencing of said power supply including:

digital circuit means responsive to the energization of the phase lines connected to said stator phase windings for detecting nine erroneous phase combinations indicative of a fault condition including the energization of any stator phase and its opposite stator phase and the energization of any stator phase and neither of its two adjacent stator phases, and trip circuit means responsive to said digital circuit means for producing a trip signal that is effective to de-energize said CRDMs only if said CRDMs are running when a fault condition is detected.

4,363,779

PRESSURIZED WATER REACTOR

Maurice Fajeau, Pertuis, France, assignor to Commissariat a l'Energie Atomique, France

Filed Sep. 15, 1980, Ser. No. 186,900

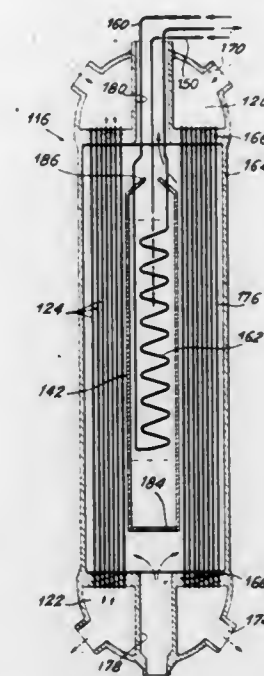
Claims priority, application France, Sep. 28, 1979, 79 24221
Int. Cl.³ G21C 9/00

U.S. Cl. 376—282

9 Claims

1. A nuclear reactor comprising a pressure enclosure, a reactor core contained in said enclosure, at least one primary circuit in which a primary fluid circulates, a secondary circuit in which a secondary fluid circulates, a steam generator through which said primary fluid transfers heat given off in said reactor core to said secondary fluid, said steam generator having a vertically axed cylindrical envelope and a group of tubes in which the primary fluid circulates, said envelope having a lower intake for entry of the secondary fluid in a liquid state and an upper outlet whereby said secondary fluid leaves the envelope in a gaseous state, a reserve tank positioned

in said secondary circuit parallel and at the same time level as the steam generator, said reserve tank being permanently connected with the steam generator and containing a volume of said secondary fluid in the liquid state surmounted by a volume of said secondary fluid in the gaseous state, and a cooling



circuit incorporating a heat exchanger located within the reserve tank and below a minimum level of said secondary fluid in the liquid state, said cooling circuit being adapted for removing heat transmitted to the secondary fluid contained in the reserve tank via the steam generator in case of failure of the secondary circuit.

4,363,780

BOILING REACTOR

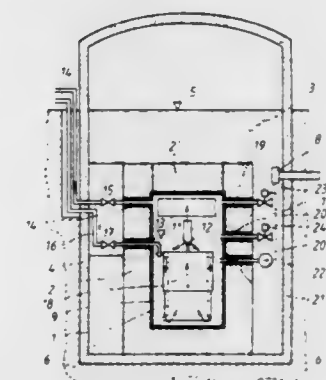
Kare Hannerz, Västerås, Sweden, assignor to AB Asea-Atom, Västerås, Sweden

Filed Dec. 15, 1980, Ser. No. 216,713

Claims priority, application Sweden, Dec. 17, 1979, 7910355
Int. Cl.³ G21C 15/18

U.S. Cl. 376—282

7 Claims



1. Boiling water reactor comprising a reactor core (1) and a pressure vessel (2) surrounding said core and being provided with at least one conduit (14) for discharged steam and at least one conduit (16) for feed water and which, during normal operation, is filled with water up to a certain normal level (11), the steam pressure in the pressure vessel having a substantially constant value of at least 5 MPa, said pressure vessel being disposed with respect to a water reservoir (3) in such a way that a portion of the water-filled space of the reservoir positioned above the reactor core has a volume which is at least as large as the water volume present in the pressure vessel, characterised in that said pressure vessel is constructed as a substantially hollow-cylindrical body with a vertical axis and has an internal heat-insulating layer (9) and a metallic lining (10),

arranged radially inside said layer (9), that at least one upper emergency cooling pipe (19), which in said pressure vessel (2) opens out above said normal level (11) is passed through said lining, said layer and through the wall of the pressure vessel, and arranged to open out into said reservoir via a corresponding, normally closed, first emergency cooling valve (19'), whereas at least one lower emergency cooling pipe (20), opening out into the pressure vessel, is arranged to open out into said reservoir via a corresponding, normally closed, second emergency cooling valve (20'), said lower emergency cooling pipe (20) penetrating said lining below the zone where said lining is penetrated by said upper emergency cooling pipe (19), said first (19') and second (20') emergency cooling valves being each individually controllable by first (23) and second (24) control means, respectively, which are both responsive to the output signal of a level transducer (22), said level transducer being arranged to give a signal for opening of said first and said second emergency cooling valves when, in said pressure vessel (2), the water depth is at least 10% smaller than the water depth at said normal level (11), but sufficient for keeping said reactor core under water.

4,363,781

DISCRETE TYPE AUTOMATED CHEMICAL ANALYTIC APPARATUS

Akihiro Akamatsu; Masaki Takeuchi, and Kiyoshi Yamashita, all of Otawara, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

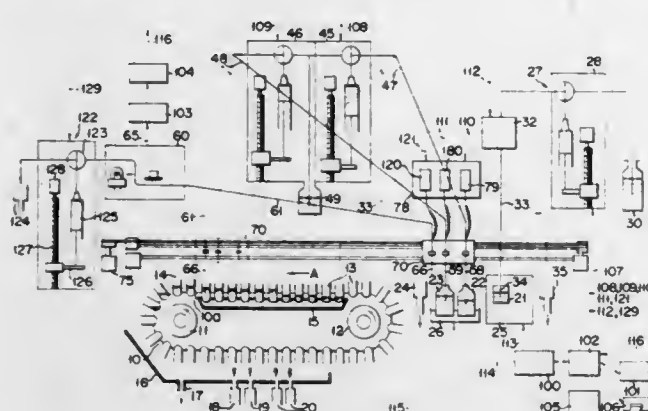
Filed Mar. 24, 1981, Ser. No. 246,936

Claims priority, application Japan, Mar. 31, 1980, 55/41881; Apr. 15, 1980, 55/49866

Int. Cl.³ G01N 35/04, 35/06, 33/48

U.S. Cl. 422—65

6 Claims



1. A discrete type automated chemical analytic apparatus for continuously analyzing a large number of specimens with respect to a plurality of items of examination in a single reaction channel comprising:

- endless conveyor means having a top run;
- drive means for moving the conveyor means;
- a plurality of reaction tubes spatially mounted on the conveyor means in a direction in which said conveyor means is driven, those of said reaction tubes which are set on the top run of the conveyor means jointly defining a reaction line, the direction in which the reaction line travels being a time axis direction;
- specimen-holding means;
- reagent-holding means;
- specimen discharge means for pipetting the specimen into a selected reaction tube on the reaction line from the specimen-holding means, said specimen discharge means including conduit means;
- specimen conduit-positioning means for selectively moving the specimen discharge conduit means between a point facing the specimen-holding means at which the specimen is to be sucked and a fixed pipetting point at which the sucked specimen is to be dripped into the selected reaction tube on the reaction line;
- reagent discharge means for pipetting a reagent into the selected reaction tube on the reaction line from the reagent-holding means, said reagent discharge means including conduit means;
- measuring means providing at the terminal end of the reaction line for the analysis of said reacted specimen, said measuring means including intake conduit means adapted to remove said reacted specimen from said reaction tubes;
- means for washing and drying the reaction tubes after removal of said specimen in order to render them ready for a subsequent application;
- carrier means for supporting and moving the conduit means of the reagent discharge means from a point facing the reagent holding means to a point facing the selected reaction tube on the reaction line in the time axis direction;
- carrier-driving means for reciprocating the carrier means along a path extending substantially in parallel with the reaction line; and
- a driving mechanism for selectively moving the reagent-holding means crosswise of the reaction line, whereby the reaction time can be adjusted freely and properly in accordance with the kind of specimen and the items of examination.

gent-holding means, said reagent discharge means including conduit means;

4,363,782

DISCRETE TYPE AUTOMATED CHEMICAL ANALYTIC APPARATUS

Kiyoshi Yamashita, Otawara, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

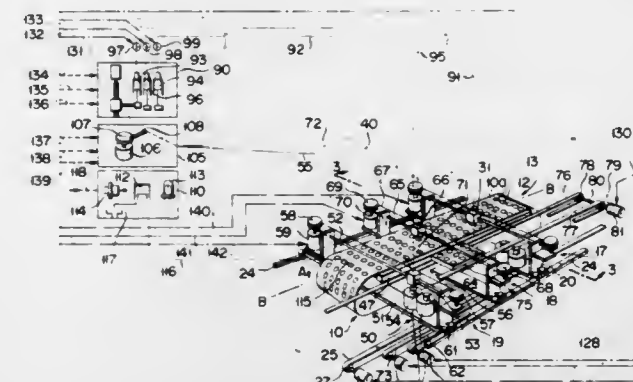
Filed Apr. 2, 1981, Ser. No. 250,211

Claims priority, application Japan, Apr. 8, 1980, 55-46353

Int. Cl.³ G01N 35/04, 35/06, 33/48

U.S. Cl. 422—65

8 Claims



1. A discrete type automated chemical analytic apparatus for continuously analyzing a large number of specimens with respect to a plurality of items of examination comprising:

- conveyor means;
- drive means for moving the conveyor mean in a longitudinal direction;
- at least one row of a plurality of reaction tubes mounted on the conveyor means in its direction of movement and defining a reaction line, the direction in which the reaction line travels being a time axis direction;
- specimen-holding means;
- reaction-holding means;
- specimen discharge means for pipetting a specimen from the specimen-holding means into a selected one of the reaction tubes arranged on the reaction line, said specimen discharge means including specimen nozzle means;
- reagent-discharge means for pipetting a reagent from the reagent-holding means into the selected one of the reaction tubes arranged on the reaction line, said reaction discharge means including reagent nozzle means;
- specimen nozzle-driving means for moving the specimen nozzle means from a point at which the specimen nozzle means faces the specimen-holding means to a point facing the selected one of a reaction tubes on the reaction line;
- reagent nozzle-driving means for moving the reagent nozzle means from a point at which the reagent nozzle means

faces the reagent-holding means to a point facing the selected one of the reaction tubes on the reaction line; measuring means provided at the terminal end of the reaction line for the analysis of said reacted specimen; means for washing and drying the reaction tubes in order to render them ready for a subsequent application; specimen nozzle carrier means for supporting the specimen nozzle means for vertical movement; said specimen nozzle driving means including first means for moving the specimen nozzle means to a selected point lengthwise of the reaction line in the time axis direction and second means supported by the first means to move the specimen nozzle means to a selected point crosswise of the reaction line whereby to position said specimen nozzle means at a point facing the selected reaction tube; reagent nozzle carrier means for supporting the reagent nozzle means for vertical movement; said reagent nozzle-driving means including first means for moving the reagent nozzle means to a selected point lengthwise of the reaction line in the time axis direction, and second means supported by the first means to move the reagent nozzle means to a selected point crosswise of the reaction line whereby to position said reagent nozzle means at a point facing the selected reaction tube; said reagent-holding means and said specimen-holding means being supported by the first means of the reagent nozzle-driving means and the specimen nozzle-driving means, respectively, to be moved lengthwise of the reaction line in the time axis direction.

4,363,783

APPARATUS FOR SPECIMEN TREATMENT

Hellmuth Sitte, Seefeld, Austria, assignor to C. Reichert Optische Werke, AG, Vienna, Austria

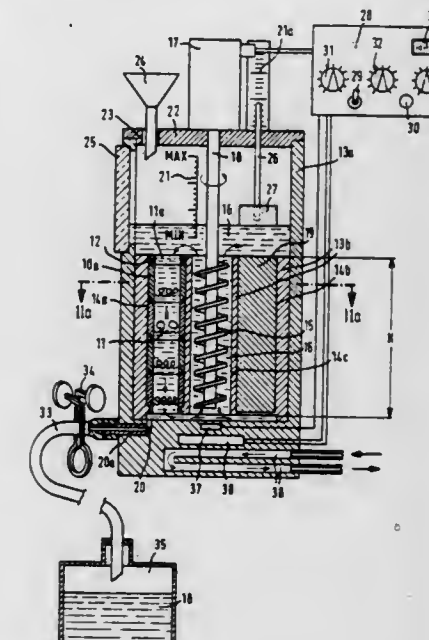
Filed Oct. 30, 1981, Ser. No. 316,604

Claims priority, application Fed. Rep. of Germany, Nov. 12, 1980, 3042578

Int. Cl.³ F04C 2/00

U.S. Cl. 422—68

10 Claims



1. In apparatus for fixation, dessication, and embedding of biologic specimens for microscopic, especially electron microscopic studies, having a compartment for treating specimens held in liquid permeable specimen holders, a supply of treatment liquid, means connecting the supply to said compartment, and means to introduce liquid from the supply, and remove liquid from the compartment, the improvement comprising a chamber (14c) in said compartment for holding a quantity of fluid, a passage connected to said chamber, pump means (15) located in said chamber for moving fluid through said passage, at least one tubular cell (14a) for supporting a plurality of specimen holders (10, 10a) in an end to end relationship, one end of said cell being connected to said passage, the other end

of each of said chamber and said cell being connected to a common portion of said tank to permit liquid to be circulated by said pump means.

4,363,784

APPARATUS FOR CONTINUOUSLY PRODUCING WATER-SOLUBLE HYDROXYALKYL CELLULOSE AND RELATED ETHERS

Josef Hilbig, Taunusstein; Arno Holst, Wiesbaden; Hans Künler, Wiesbaden; Klaus Stölting, Wiesbaden, and Wolfgang Schminke, Wiesbaden, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Wiesbaden-Biebrich, Fed. Rep. of Germany

Division of Ser. No. 156,404, Jun. 4, 1980, Pat. No. 4,310,663.

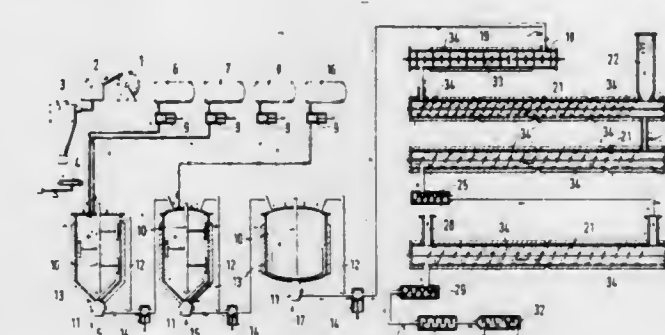
This application Apr. 27, 1981, Ser. No. 257,552

Claims priority, application Fed. Rep. of Germany, Jun. 15, 1979, 2924330

Int. Cl.³ B01J 19/18, 19/20; C08G 59/68; C08B 11/08

U.S. Cl. 422—134

5 Claims



1. Apparatus for continuous production of hydroxyalkyl cellulose and mixed ethers thereof, said apparatus comprising in combination:

- (a) means comprising a stirred kettle for alkalinizing cellulose under atmospheric pressure;
- (b) means for partially etherifying a slurry of alkalinized cellulose, said partial etherifying means comprising at least one stirred autoclave, the first said autoclave being connected to the outlet of said alkalinizing means such that alkalinized cellulose may flow continuously from said alkalinizing means into said first autoclave;
- (c) means for homogenizing a slurry in said stirred kettle and in each said stirred autoclave, said homogenizing means comprising a homogenizing pump at the outlet of said stirred kettle and a homogenizing pump at the outlet of each said stirred autoclave;
- (d) means for circulating slurry from said kettle in a loop and for circulating slurry from each of said autoclaves in a loop, said circulating means comprising a bypass leading from the bottom of said kettle to the upper end thereof and a bypass leading from the bottom of each said autoclave to the upper end of the same autoclave;
- (e) a tubular reactor for completing the etherification of partially etherified slurry from the last said autoclave, said tubular reactor comprising a plurality of serially-connected, horizontal tubes, the first said tube being connected to the outlet of the last said autoclave such that partially etherified cellulose may flow continuously from said last autoclave into said first tube, the first tube of said tubular reactor being provided with a non-conveying homogenizing agitator, and each remaining tube being provided with a conveying agitator;
- (f) means associated with said tubular reactor for adjusting the temperature of a slurry in said tubular reactor; and
- (g) means for cooling a slurry withdrawn from said tubular reactor, said cooling means being connected to the outlet of the last tube of said tubular reactor such that etherified slurry from said tubular reactor may flow continuously from said tubular reactor to said cooling means.

4,363,785

WOOD STOVE HAVING CATALYTIC CONVERTER

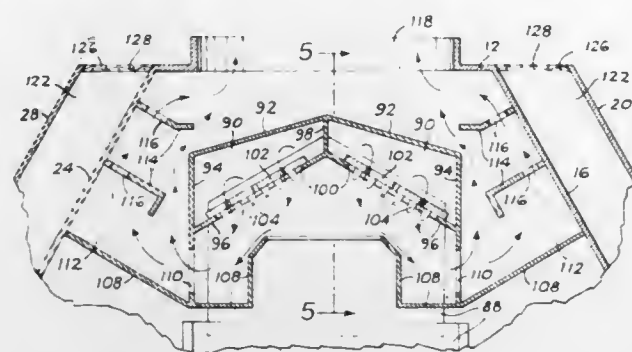
Allan C. Willson, 1355 Suntime Ct., Salem, Oreg. 97302

Filed Jun. 25, 1981, Ser. No. 277,120

Int. Cl.³ B01D 53/36; B01J 15/00; F24C 1/14, 14/00

U.S. Cl. 422-173

11 Claims



1. A stove for burning solid fuel, comprising:
 - (a) top, bottom, front, rear and side walls,
 - (b) a fuel-supporting floor above the bottom wall,
 - (c) means for providing primary combustion air into the interior of the stove adjacent the fuel-supporting floor,
 - (d) catalytic converter means supported a spaced distance above the fuel-supporting floor, the converter means having a catalyst coated surface arranged to intercept incomplete combustion products from a fire on the fuel-supporting floor,
 - (e) means for introducing secondary combustion air to said catalyst coated surface for mixing with said combustion products, comprising an enclosed air chamber supported a spaced distance above the fuel-supporting floor, said catalyst coated surface forming at least a portion of an outside wall of said air chamber,
 - (f) a heat extraction chamber including the side and top walls of the stove arranged to receive the hot combustion gases passing from the catalytic converter and to transfer the heat from said gases to the side and top walls of the stove, and
 - (g) a combustion gas exhaust passageway means for communicating the heat extraction chamber with the atmosphere.

4,363,786

APPARATUS FOR REACTING A PARTICULATE SOLID AND A LIQUID

Allen S. Adams, Jasper, and Michael B. Caesar, Lake City, both of Fla., assignors to Occidental Chemical Corp., White Springs, Fla.

Continuation of Ser. No. 909,896, May 26, 1978, abandoned.

This application Sep. 22, 1980, Ser. No. 189,426

Int. Cl.³ B01F 3/12; B01J 8/10, 19/18, 19/26

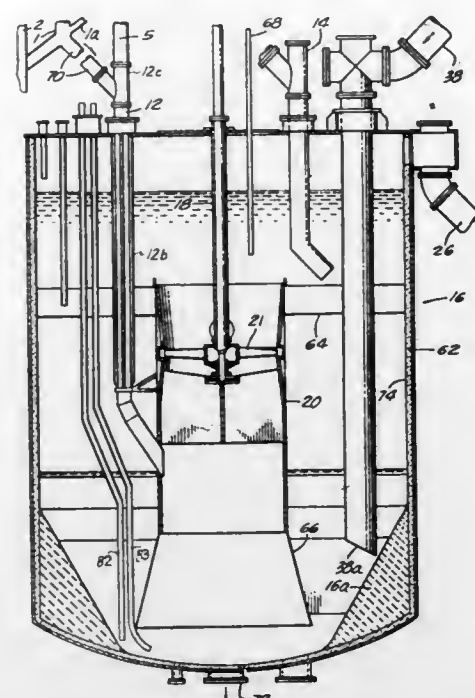
U.S. Cl. 422-189

18 Claims

1. Apparatus for reacting a particulate solid and a liquid, said apparatus comprising:

- (a) vessel means for containing the particulate solid and the liquid;
- (b) mixing means for circulating the particulate solid and the liquid within said vessel means, said mixing means including a draft tube disposed in a vertical position within said vessel means, and an agitator positioned within said draft tube, said draft tube having an outwardly flared lower skirt portion terminating in the bottom portion of said vessel means and said agitator including a propeller and a drive shaft connected therewith, said drive shaft being coaxially mounted within said vessel means and extending into said draft tube;
- (c) inlet means for introducing the particulate solid and the liquid into said vessel means draft tube having an outwardly flared lower skirt portion terminating in the bottom portion of said vessel means; and,
- (d) a source of gas and at least one gas injection means

connected thereto for preventing appreciable settling of solids within the vessel means, said gas injection means



extending into said outwardly flared lower skirt portion of said draft tube.

4,363,787

MONOLITH HEAT EXCHANGE REACTOR

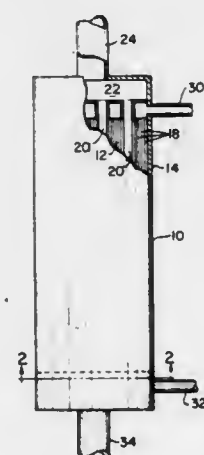
Heeyoung Yoon, McMurray, Pa., assignor to Conoco Inc., Stamford, Conn.

Filed Dec. 18, 1979, Ser. No. 104,987

Int. Cl.³ F28D 7/00

U.S. Cl. 422-201

2 Claims



1. A reactor comprising:
 - a monolithic substrate and fluid distribution means, said monolithic substrate containing a plurality of substantially parallel channels completely through said monolithic substrate, said channels having catalytic surfaces, and a plurality of passageways completely through said monolithic substrate generally parallel to said channels, said passageways being adapted to pass a heat exchange fluid through said monolithic substrate, said passageways being larger in cross-section and fewer in number than said channels,
 - said distribution means comprising a plurality of passageway extensions parallel to said passageways and each said extension extending coaxially from a passageway and opening into a header chamber having a header chamber outlet, said header chamber outlet being in fluid flow communication with each of said passageways, said channels opening into a product chamber, said product chamber having a product outlet in fluid flow communication

with each said channel, said channels having channel walls and said passageways having passageway walls, said channel walls being integral with said passageway walls, each said passageway extension being connected to one of said passageways, each said passageway wall being mutually supporting with at least one said channel wall, and each said channel wall being mutually supporting with at least one other channel wall.

4,363,788

SEPARATION OF URANIUM AND MOLYBDENUM USING A SOLVENT

Antoine Floreancig, St. Genis Laval, and Jean-Pierre Cuet, Francheville, both of France, assignors to Uranium Pechiney Ugine Kuhlmann, Paris, France

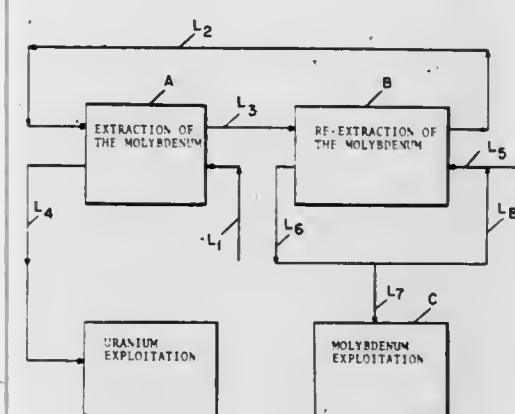
Filed Mar. 13, 1980, Ser. No. 130,127

Claims priority, application France, Mar. 19, 1979, 79 07467

Int. Cl.³ B01D 11/02; C01G 39/00, 43/00, 56/00

U.S. Cl. 423-9

17 Claims



1. A process for separating uranium and molybdenum contained in an aqueous liquor originating from the sulphuric acid treatment of uranomolybdeniferous ore characterizing contacting said aqueous liquor with at least one amine which is insoluble in an aqueous medium, selected from the group consisting of the tertiary and secondary amines dissolved in an aliphatic or aromatic hydrocarbon or a chlorinated hydrocarbon diluent, to obtain an organic phase and a aqueous phase separating the molybdenum-charged organic phase from the aqueous phase which is impoverished in molybdenum and rich in uranium, contacting the molybdenum-charged organic phase with an aqueous solution containing at least one mineral agent selected from the group consisting of alkaline and ammonium hydroxides, carbonates and mixtures thereof to form an aqueous solution which is rich in molybdate from the regenerated organic amino solution wherein the amine/Mo molar ratio is in the range from about 0.1 to about 0.8.

4,363,789

ALUMINA PRODUCTION VIA ALUMINUM CHLORIDE OXIDATION

Wendell E. Dunn, Jr., Spearfish, S. Dak., assignor to Reynolds Metals Company, Richmond, Va.

Filed Apr. 20, 1981, Ser. No. 255,639

Int. Cl.³ C01G 35/00, 33/08; C01F 7/56; C01G 49/10

U.S. Cl. 423-79

1 Claim

1. A method for producing alumina from a material containing alumina, titania, silica and iron values via a chlorination step which process comprises the steps of:

- (A) dehydrating the material at a temperature of between about 500° and 1300° K.;
- (B) chlorinating the product of step (A) in the presence of chlorine and carbon at a temperature below about 1200° K. and under conditions which provide chlorination of a majority of the iron present in the material without substantial chlorination of titania values present therein with concomitant formation of an iron chloride cloud above the surface of the chlorination reaction mixture;

- (C) introducing oxygen into the iron chloride cloud under conditions to cause oxidation of a majority of the iron chloride contained in the cloud;
- (D) chlorinating the non-gaseous product of step (B) in the presence of chlorine and carbon at a temperature above about 1300° K. but below the fusion temperature of silica containing components and under conditions sufficient to chlorinate substantially entirely the alumina, titania and silica values contained therein;
- (E) reducing and condensing any iron chloride contained with the aluminum chloride in one or more partial iron chloride condensation stages;
- (F) absorbing the aluminum chloride under high temperature conditions with an alkali chloride or mixture of alkali chlorides to form an ionic alkali metal aluminum chloride complex;
- (G) selectively condensing any impurity chlorides contained in the product of step (F) to produce a purified aluminum chloride-alkali chloride complex;
- (H) oxidizing the alkali metal/aluminum chloride complex with oxygen at a temperature above about 500° C. in a fluidized bed pebble reactor; and
- (I) separating the solid alumina product.

4,363,790

DESULFURIZATION OF H₂S CONTAINING GAS STREAMS WITH PRODUCTION OF ELEMENTAL SULFUR

Gerald L. Anderson, Romeoville; Harley A. Borders, Berwyn, and F. Otis Berry, Bellwood, all of Ill., assignors to Institute of Gas Technology, Chicago, Ill.

Filed Aug. 14, 1981, Ser. No. 292,422

Int. Cl.³ B01D 53/04

U.S. Cl. 423-230

20 Claims

1. A process for desulfurization of gas streams comprising reduced sulfur compound with production of elemental sulfur comprising:

- passing said gas stream in contact with solid sulfur removal metal oxide compound selected from the group consisting of chromia, zinc chromite, zinc aluminate, and mixtures thereof at temperatures about 400° to about 1600° F. for reaction of said reduced sulfur compound with said solid metal oxide producing sulfided sulfur removal compound; and
- regenerating said sulfided compound by contacting said sulfided compound with oxygen containing gas at temperatures about 1600° to about 2400° F. to produce said sulfur removal metal oxide compound and at least 10 weight percent of the sulfur removed being in the form of elemental sulfur.

4,363,791

ALKANOLAMINIUM CARBOXYLATE SOLVENTS FOR SELECTIVE SO₂ ABSORPTION

H. Lee Trentham, Galveston; John H. Crow, Houston, both of Tex., and Farwell C. Boston, Shreveport, La., assignors to Trentham Corporation, Houston, Tex.

Filed May 4, 1981, Ser. No. 260,308

Int. Cl.³ C01B 17/00

U.S. Cl. 423-243

8 Claims

1. A method for preferentially absorbing sulfur dioxide from a gaseous mixture which comprises contacting said gaseous mixture with an aqueous solution containing from about 3% to about 85% by weight of an alkanolaminium carboxylate.

4,363,800

BIOLOGICALLY ACTIVE AMIDES

Samuel Wilkinson, Beckenham, England, assignor to Burroughs Wellcome Co., Research Triangle Park, N.C.
Division of Ser. No. 927,271, Jul. 24, 1978, Pat. No. 4,244,944.
This application Sep. 30, 1980, Ser. No. 192,292
Claims priority, application United Kingdom, Nov. 24, 1977, 48980/77

Int. Cl.³ A61K 37/00

U.S. Cl. 424—177

4 Claims

1. The method for the treatment of a mammal suffering from pain which comprises administering to the mammal an effective non-toxic pain treatment amount of the compound Tyr.D-Met.Gly.Phe(4NO₂).Pro.NH₂ or a pharmaceutically acceptable acid addition thereof.

4,363,801

METHOD FOR TREATING HYPERBILIRUBINEMIA

Joseph J. Nagyvary, Bryan, Tex., assignor to The Texas A&M University System, College Station, Tex.

Filed Feb. 9, 1981, Ser. No. 232,640

Int. Cl.³ A61K 31/725, 31/73; C08B 37/08

U.S. Cl. 424—180

7 Claims

1. A method of treating hyperbilirubinemia which comprises orally administering to the affected patient an amount of soluble chitosan effective to substantially reduce the amount of bilirubin in the blood.

2. The method of claim 1 in which said chitosan is administered as a water soluble salt in a solution of water with flavor additives.

6. The method as set forth in claim 2 in which said chitosan salt is formed by: dissolving chitosan in a weak acidic solution; agitating said solution; lyophilizing said solution; and pulverizing the chitosan salts from said lyophilizing into a finely ground powder for mixing in said solution of water.

4,363,802

MORANOLINE DERIVATIVES

Shingo Matsumura, deceased, late of Kyoto, Japan (by Rumiko Matsumura, legal representative); Hiroshi Enomoto, Nagaokakyo, Japan; Yoshiaki Aoyagi; Yoji Ezure, both of Otsu, Japan; Yoshiaki Yoshikuni, Uji, Japan; Shigeaki Maruo; Nobutoshi Ojima, both of Kyoto, Japan, and Kiyotaka Konno, Kyoto, Japan, assignors to Nippon Shinyaku Co. Ltd., Japan

Filed Nov. 30, 1981, Ser. No. 325,832

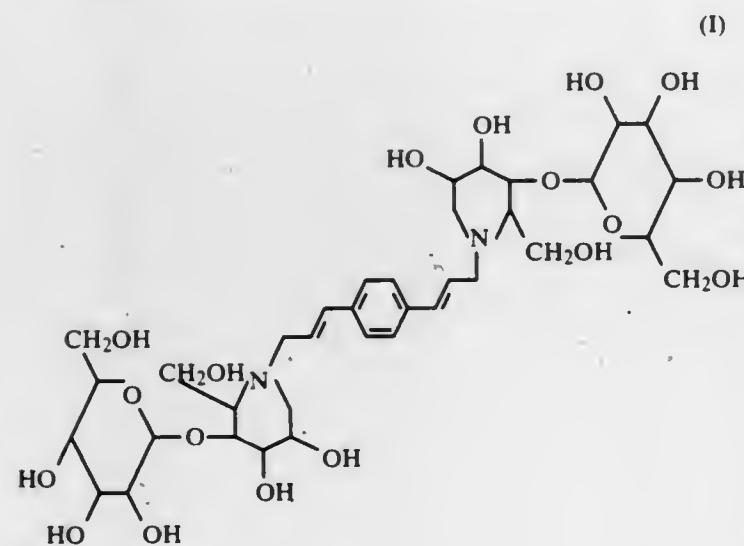
Claims priority, application Japan, Dec. 1, 1980, 55-170009

Int. Cl.³ A61K 31/70; C08B 37/00

U.S. Cl. 424—180

4 Claims

1. Bisglucosyl moranoline of the formula (I)



and the pharmaceutically acceptable acid addition salts, wherein R is selected from the group consisting of hydrogen and alkanoyl having two to three carbon atoms; R₁ and R₂ when taken separately are each hydrogen and R₁ and R₂ when taken together are (CH₃)₂C.

17. A pharmaceutical composition suitable for oral administration comprising a pharmaceutically acceptable carrier and a therapeutically-effective amount of an antibacterial agent wherein said agent is a compound as claimed in claim 1.

4,363,803

3',4'-OXYALLYLENE ERYTHROMYCIN AND OLEANDOMYCIN, COMPOSITION AND METHOD OF USE

James R. Hauske, East Lyme, Conn., assignor to Pfizer Inc.

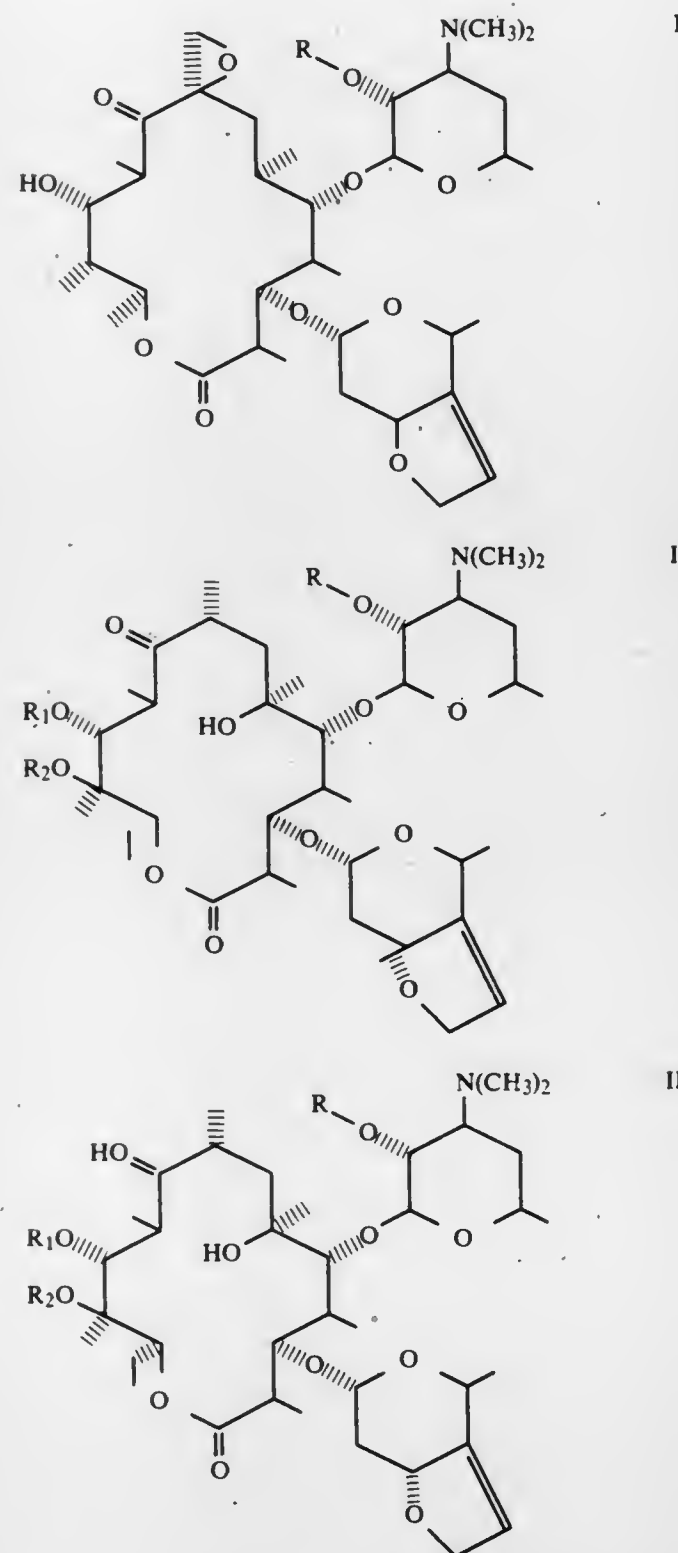
Filed Mar. 1, 1982, Ser. No. 354,124

Int. Cl.³ A61K 31/71; C07H 17/08

U.S. Cl. 424—180

17 Claims

1. A compound selected from the group consisting of those of the formulae:



4,363,804

PHOSPHONODITHIOYLACETYLAMINO PHENYL PYRAZOLES

Llewellyn W. Fancher, New Castle, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

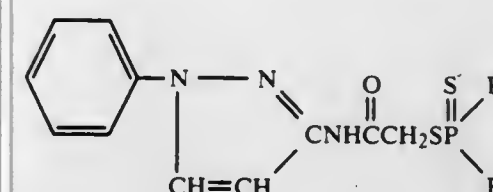
Filed Dec. 21, 1981, Ser. No. 333,201

Int. Cl.³ A01N 57/24, 57/08; C07F 9/65

U.S. Cl. 424—200

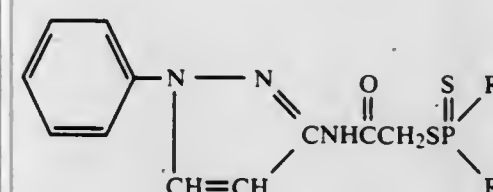
18 Claims

1. A compound having the structural formula



wherein R is lower alkoxy or alkyl having from 1 to 6 carbon atoms and R₁ is lower alkoxy having from 1 to 6 carbon atoms.

13. A method for controlling insects or mites comprising applying to the insects, the habitat thereof, or a locus where protection is desired, an insecticidally or miticidally effective amount of a compound having the formula



wherein R is lower alkoxy or alkyl having from 1 to 6 carbon atoms, and R₁ is lower alkoxy having from 1 to 6 carbon atoms.

4,363,805

AMINODESOXY-1,4;3,6-DIANHYDROHEXITOL NITRATES AND PHARMACEUTICAL COMPOSITION

Klaus Klessing, Ettlingen; Shyam S. Chatterjee, and Bernard L. Gabard, both of Karlsruhe, all of Fed. Rep. of Germany, assignors to Firma Willmar Schwabe, Karlsruhe, Fed. Rep. of Germany

Filed Jul. 20, 1981, Ser. No. 285,036

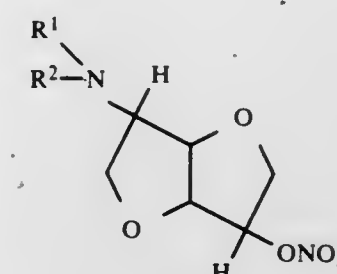
Claims priority, application Fed. Rep. of Germany, Jul. 25, 1980, 3028340

Int. Cl.³ A61K 31/34, 31/455; C07D 493/04

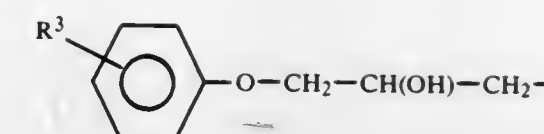
U.S. Cl. 424—230

85 Claims

1. Aminodesoxy-1,4;3,6-dianhydrohexitol nitrates of the general formula I,



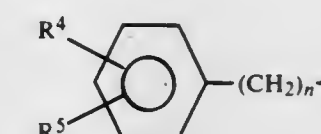
wherein R¹ and R², independently of one another, signify a hydrogen atom or a lower alkyl group with 1 to 4 C-atoms or wherein R¹ signifies a hydrogen atom or a lower alkyl group with 1 to 4 C-atoms and R² an acyl residue of an aliphatic or singly unsaturated, possibly methyl-substituted monocarboxylic acid with 2 to 8 C-atoms, a nicotinoyl, 2-O-acetylsalicyl radical or a 1-adamantyl radical; or wherein R¹ signifies a hydrogen atom and R² a 2-hydroxy-3-(subst.)-phenoxyprop-1-yl radical of the general formula Ia



(Ia)

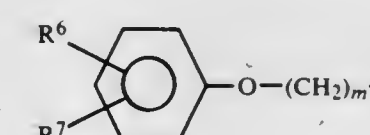
wherein R³ signifies a hydrogen atom, a lower alkyl or lower alkenyl group with 1 to 4 C-atoms, the trifluoromethyl radical, a hydroxyl group, a lower alkoxy or lower alkenyloxy group with 1 to 4 C-atoms, a cyano group or a carbamoylmethyl radical; or wherein R¹

signifies a hydrogen atom and R² a 2-hydroxy-3-(α-naphthoxy)-prop-1-yl radical, whereby the ring of the naphthalene skeleton which is not etherified with the hydroxypropyl group can be completely or partly hydrogenated or substituted by an oxo group; or wherein R¹ signifies a hydrogen atom or a lower alkyl group with 1 to 4 C-atoms and R² an ω-(subst.)-phenylalkyl group of the general formula Ib



(Ib)

wherein n can be = a whole number from 1 to 6 and R⁴ and R⁵, in each case independently of one another, signify a hydrogen atom, a lower alkyl or alkenyl group with 1 to 4 C-atoms, the trifluoromethyl radical, a hydroxyl group, a lower alkoxy or lower alkenyloxy group with 1 to 4 C-atoms or a fluorine or chlorine atom; or wherein R¹ signifies a hydrogen atom or a lower alkyl group with 1 to 4 C-atoms and R² the diphenylmethyl radical or cinnamyl radical; or wherein R¹ signifies a hydrogen atom or a lower alkyl group with 1 to 4 C-atoms and R² an ω-(subst.)-phenoxyalkyl group of the general formula Ic



(Ic)

wherein m can be = a whole number from 2-8 and R⁶ and R⁷, independently of one another, signify a hydrogen atom, a lower alkyl or lower alkenyl group while 1 to 4 C-atoms, the trifluoromethyl radical, a hydroxyl group, a lower alkoxy or lower alkenyloxy group with 1 to 4 C-atoms, a fluorine or chlorine atom, the amino or acetyl amino group, a mono- or di-lower alkylamino group with 1 to 4 C-atoms or R⁶ and R⁷, together with the phenyl radical, form the α-naphthyl radical; or wherein R¹ and R², together with the nitrogen atom to which they are attached, represent the residue of a cyclic, non-aromatic secondary amine with 5 to 7 ring atoms which possibly contains a further hetero atom; or wherein R¹ and R² together signify a pyridoxylidene radical; as well as their pharmacologically acceptable acid-addition salts.

84. A pharmaceutical composition comprising a pharmaceutically effective amount of the aminodesoxy-1,4;3,6-dianhydrohexitol nitrate of claim 1 and conventional carriers and additions therefore.

4,363,806

PHARMACEUTICAL COMPOSITION

Karl O. Bergström; Jan Ulmius, both of Lund, and Bo L. T. Wenngren, Malmö, all of Sweden, assignors to Aktiebolaget Draco, Lund, Sweden

Filed Jun. 12, 1981, Ser. No. 272,881

Claims priority, application Sweden, Jun. 19, 1980, 8004580

Int. Cl.³ A61K 31/58

U.S. Cl. 424—241

8 Claims

1. A pharmaceutical composition for atopic application

comprising a topically active anti-inflammatory corticosteroid in a multiple emulsion in which the continuous phase is aqueous and the primary disperse phase is an oil phase in which a hydrophilic phase containing the steroid in saturated solution is dispersed.

2. A composition according to claim 1 wherein the corticosteroid is 16 α ,17 α -(2'-hydrogen-2'-n-propyl)methylenedioxy-pregna-1,4-diene-11,21-diol-3,20-dione.

4,363,807

CEPHAM COMPOUNDS

Takao Takaya, Kawanishi; Takashi Masugi, Toyonaka, and Toshiyuki Chiba, Osaka, all of Japan, assignors to Fujisawa Pharmaceutical Company, Limited, Osaka, Japan

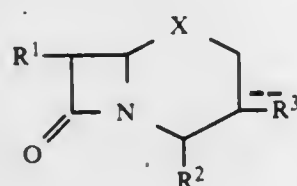
Filed Oct. 17, 1979, Ser. No. 103,821

Claims priority, application Japan, Oct. 17, 1978, 53-40789

Int. Cl.³ C07D 501/20; A61K 31/545

U.S. Cl. 424-246

1. A compound of the formula:



wherein R¹ is phenyl (lower) alkanoylamino, phenoxy (lower) alkanoylamino or aminothiazolyl (lower) alkanoylamino substituted with a lower alkoxyimino group,

R² is carboxy or a protected carboxy group,

R³ is formyl, hydroxymethyl or acyloxymethylene, and

X is —S— or —SO—, and its salt.

4,363,808

N-(3-PHENOXY-2-HYDROXYPROPYL)BENZIMIDAZOLE-1-ALKANAMINES

Julius Diamond, Mountain Lakes, and Ronald A. Wohl, Morris Plains, both of N.J., assignors to Berlex Laboratories, Inc., Cedar Knolls, N.J.

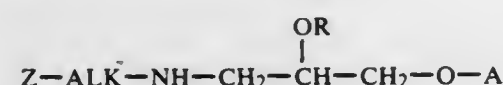
Continuation-in-part of Ser. No. 120,416, Feb. 11, 1980, abandoned. This application May 7, 1981, Ser. No. 261,331 Claims priority, application European Pat. Off., Feb. 10, 1981, 81730014.8; Ireland, Feb. 10, 1981, 250/81; Japan, Feb. 12, 1981, 56-1955

Int. Cl.³ A61K 31/535; C07D 473/00, 471/04

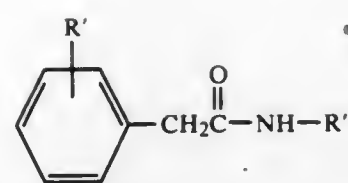
U.S. Cl. 424-248.51

7 Claims

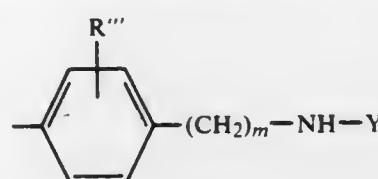
1. A compound of the formula:



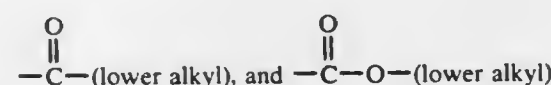
wherein Z is selected from the group consisting of 4,5,6,7-tetrahydro-1-benzimidazolyl, 1H-imidazo[4,5-b]pyridin-1-yl, 1H-imidazo[4,5-c]pyridin-1-yl and (9H)-9-purinyl; ALK is alkylene containing 2 to 6 carbon atoms; R is selected from the group consisting of hydrogen, lower alkanoyl containing up to 6 carbon atoms, carboxy (lower alkanoyl) containing up to 4 carbon atoms, carboxyacryloyl, benzoyl, toluoyl and phenyl (lower alkanoyl) wherein the lower alkanoyl portion contains up to 4 carbon atoms; and A is selected from the group consisting of phenyl, tolyl, hydroxyphenyl, halophenyl, nitrophenyl, trifluoromethylphenyl, cyanophenyl, cyclopentylphenyl, allylphenyl, allyloxyphenyl, dimethoxyphenyl, carbamoylmethylphenyl of the formula



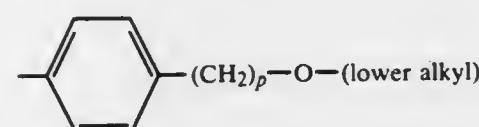
wherein R' is hydrogen, methyl or halogen and R'' is hydrogen, lower alkyl containing up to 4 carbon atoms, (acid amido)-phenyl and (acid amido alkyl)phenyl of the formula



wherein m is 0-2, R''' is hydrogen, methyl, acetyl or halogen and Y is



in which lower alkyl contains up to 4 carbon atoms, (lower alkyl)oxyalkylphenyl of the formula



wherein p is 2 or 3 and lower alkyl contains up to 4 carbon atoms; naphthyl, indenyl, tetrahydronaphthyl, 1-oxo-1,2,3,4-tetrahydro-5-naphthyl, 2,3-dihydroxy-1,2,3,4-tetrahydro-5-naphthyl, indolyl, 2-methylindolyl, 3,4-dihydro-2(1H)-quinolin-5-yl, 5-methylcoumarin-8-yl, cyanopyridyl, carboxypyridyl, carbamoylpyridyl, alkoxy-carbonylpyridyl, thiazolyl and 4-morpholino-1,2,5-thiadiazol-3-yl; or a pharmaceutically acceptable acid addition salt thereof.

7. The method of effecting β -adrenergic activity in a mammalian host having a condition in which therapeutic benefit is derived from inhibition of the β -adrenergic receptors which comprises administering to said host a non-toxic effective adrenergic β -receptor inhibiting dose of a compound as claimed in claim 1.

4,363,809

ORGANIC COMPOUNDS

Magda Marko, Binningen, Switzerland, and Hendricus B. A. Welle, Maarssen, Netherlands, assignors to Sandoz Ltd., Basel, Switzerland

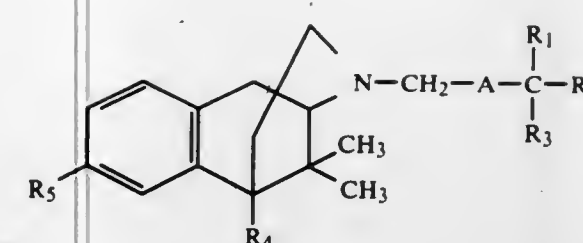
Continuation-in-part of Ser. No. 173,306, Jul. 29, 1980, abandoned. This application Jul. 13, 1981, Ser. No. 282,813 Claims priority, application United Kingdom, Aug. 3, 1979, 7927061

Int. Cl.³ A61K 31/485

U.S. Cl. 424-260

10 Claims

1. A method of inhibiting luteinizing hormone secretion in a subject in need of such treatment, which method comprises administering to said subject a luteinizing hormone inhibiting effective amount of a compound of formula I,



wherein

A is a direct bond or —CH₂—,

R₁ is hydrogen, C₁-alkyl, C₂-alkenyl, C₂-alkynyl, C₁-alkoxy, C₁-alkyl or C₃-cycloalkyl,

R₂ is hydrogen or C₁-alkyl, or

R₁ and R₂, together with the carbon atom to which they are attached, form a C₃-cycloalkyl group or a 4 to 6-membered heterocycloalkyl group containing one oxygen atom as the sole hetero atom,

R₃ is hydroxy, C₁-alkoxy, C₂-alkenyl, or R₆COO— in which R₆ is hydrogen, C₁-alkyl, phenyl or benzyl,

R₄ is hydrogen, C₁-alkyl or phenyl, and

R₅ is hydrogen, hydroxy, C₁-alkoxy or R₇COO— where R₇ is hydrogen, C₁-alkyl, phenyl, benzyl, phenethyl or 3-pyridyl.

4,363,810

FLAVOR STABILIZED BEET COMPOSITION

Joseph D. Albaum, Pleasantville, N.Y.; Ronald W. Ponzone, Nutley, N.J., and Eric C. Johnson, Pleasantville, N.Y., assignors to General Foods Corporation, White Plains, N.Y.

Filed Sep. 29, 1980, Ser. No. 191,570

Int. Cl.³ A23L 1/272

U.S. Cl. 426-262

14 Claims

1. A co-dried food color composition comprising;

(a) beet extract; and

(b) a flavor-stabilizing amount of from 40-80%, by weight, of a food-acceptable alkali metal salt.

4,363,811

ANTI-HYPERTENSIVE CHROMANOL DERIVATIVES

John M. Evans, Roydon; Graham A. Showell, and Charles S. Fake, both of Harlow, all of England, assignors to Beecham Group Limited, England

Filed Sep. 12, 1980, Ser. No. 186,708

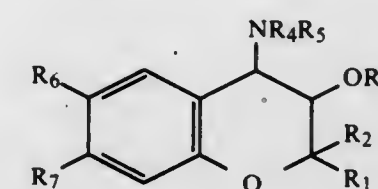
Claims priority, application United Kingdom, Sep. 28, 1979, 7933683; May 3, 1980, 8014933

Int. Cl.³ A61K 31/445; C07D 405/04

U.S. Cl. 424-267

9 Claims

1. A compound of the formula:



or a pharmaceutically acceptable salt or ester thereof, wherein

R₁ is hydrogen or lower alkyl;

R₂ is hydrogen or lower alkyl;

R₃ is hydrogen or lower alkyl;

R₄ is hydrogen or lower alkyl;

R₅ is lower alkyl or alkyl of 3 to 5 carbon atoms terminally substituted by chlorine;

or R₄ and R₅ are joined so that together with the nitrogen atom to which they are attached they form a 6- or 7-membered saturated heterocyclic ring containing said nitrogen atom as the sole hetero atom or a 5-membered saturated heterocyclic ring optionally containing an oxygen or sulphur atom as an additional hetero atom;

R₆ is amino, carboxylic acylamino of up to 3 carbon atoms,

alkylamino of up to 3 carbon atoms, or dialkylamino of up to 3 carbon atoms in each alkyl moiety;

R₇ is nitro or cyano; and

the NR₄R₅ and OR₃ groups are trans.

9. A method of effecting an anti-hypertensive response in a human or other animal which comprises administering thereto an effective amount of a compound according to claim 1.

4,363,812

3-(TETRAZOL-5-YL), 4-METHYL-8-ALKOXY COUMARINS AND ANTI-ALLERGIC COMPOSITIONS THEREOF

Kiyoshi Kuriyama, Takatsuki; Jun Nakano, Moriyama; Kiyonosin Itikawa, Otsu; Kiyoshi Ito, Otsu; Yuji Suzuki, Otsu, and Katsuro Ishizuki, Otsu, all of Japan, assignors to Kakenyaku Kako Co., Ltd., Tokyo, Japan

Filed Nov. 15, 1979, Ser. No. 94,502

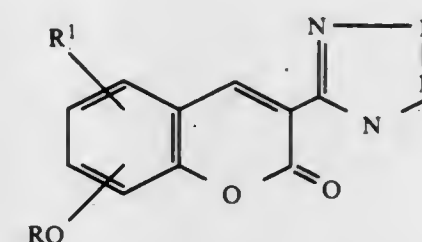
Claims priority, application Japan, Nov. 30, 1978, 53/149382

Int. Cl.³ A61K 31/41; C07D 257/06

U.S. Cl. 424-269

6 Claims

1. A coumarin derivative of the formula:



wherein R is a normal pentyl group, a normal hexyl group, and a normal heptyl group, the OR group being positioned on the 8 position of the coumarin ring, and wherein R¹ is hydrogen or methyl, said R¹ being positioned on the 6 position of the coumarin ring.

6. A pharmaceutical composition having an anti-allergic activity which comprises, as the essential active ingredient, an effective amount of a coumarin derivative selected from the group consisting of 8-n-pentyloxy-3-(1H-tetrazol-5-yl)-coumarin, 8-n-hexyloxy-3-(1H-tetrazol-5-yl)-coumarin, and 8-n-heptyloxy-3-(1H-tetrazol-5-yl)-coumarin or a pharmaceutically acceptable salt of said coumarin derivative and a pharmaceutically acceptable carrier.

4,363,813

2-(3,4,5-TRIMETHOXYPHENYL)-4,5-DISUBSTITUTED THIAZOLES

Takao Kawasaki, Sayama; Yoshiaki Osaka, Nagareyama, and Tadashi Tsuchiya, Matsudo, all of Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Nihonbashi, Japan

Filed Jun. 27, 1980, Ser. No. 163,507

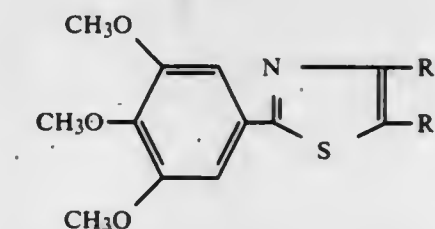
Claims priority, application Japan, Jul. 9, 1979, 54-87055; May 23, 1980, 55-68507

Int. Cl.³ C07D 233/54; A61K 31/425

U.S. Cl. 424-270

4 Claims

1. 2-(3,4,5-trimethoxyphenyl)-4,5-disubstituted thiazole represented by the formula:



wherein R¹ represents an alkyl group of C₁ to C₃ and R² represents a hydrogen atom, an alkyl group of C₁ to C₃, an acetyl group, a carboxyl group of ester group thereof with an alcohol of C₁ to C₃, a carbamoyl group or a hydrazinocarbonyl group,

and wherein the carbonyl group of said acetyl group may also be converted to oxime, oxime-acetate, semicarbazide or guanylhydrazone.

4,363,814

AMINOALKYL-SUBSTITUTED HETEROCYCLES

Anton Mentrup, Mainz-Kastel; Kurt Schromm; Ernst-Otto Renth, both of Ingelheim; Richard Reichl, Ingelheim, and Werner Traunecker, Münster-Sarmsheim, all of Fed. Rep. of Germany, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhein, Fed. Rep. of Germany
Division of Ser. No. 102,904, Dec. 13, 1979, Pat. No. 4,271,158, which is a division of Ser. No. 26,608, Apr. 3, 1979, Pat. No. 4,215,119, which is a continuation-in-part of Ser. No. 773,394, Mar. 2, 1977, Pat. No. 4,154,829. This application Dec. 22, 1980, Ser. No. 218,786

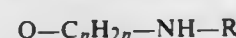
Claims priority, application Fed. Rep. of Germany, Mar. 9, 1976, 2609645

Int. Cl.³ C07D 263/54; A61K 31/42

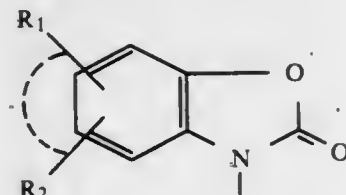
U.S. Cl. 424—272

13 Claims

1. A racemic or optically active compound of the formula

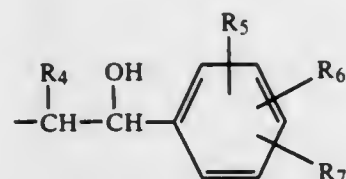


wherein Q is



where

R₁ is hydrogen, halogen, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, trifluoromethyl or amino,
R₂ is hydrogen, halogen, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms or trifluoromethyl, or
R₁ and R₂, together with each other, are methylenedioxy or ethylenedioxy;
n is an integer from 2 to 6, inclusive; and
R is hydrogen, benzyl or



where

R₄ is hydrogen, methyl or ethyl,
R₅, R₆ and R₇, which may be identical to or different from each other, are each hydrogen, halogen, hydroxymethyl, trifluoromethyl, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, cyano, —CONHR₃, —CONHOH, —COOR₃, R₈O—, methylsulfonylmethyl or, when one or two of R₅ through R₇ are other than halogen or trifluoromethyl, also —NR₃R₉,

where

R₃ is hydrogen or alkyl of 1 to 4 carbon atoms,
R₈ is hydrogen, alkanoyl of 1 to 20 carbon atoms, alkyl of 1 to 4 carbon atoms or phenyl(C₁₋₄)alkyl and
R₉ is hydrogen, lower alkanoyl, methanesulfonyl, carbamoyl, dimethylsulfonyl, or alkoxycarbonyl of 2 to 5 carbon atoms,
with the proviso that R₅, R₆, and R₇ cannot all be tert.butyl, or
R₅ and R₆, together with each other are —O—CH₂—O—, —O—CH₂CH₂—O—, —CH=CH—CH=CH—, —O—CH₂—CONH—, or —O—CO—NH,

4,363,815

ALPHA HYDROXYACIDS, ALPHA KETOACIDS AND THEIR USE IN TREATING SKIN CONDITIONS

Ruey J. Yu, 4 Lindenwold Ave., Ambler, Pa. 19002, and Eugene J. Van Scott, 1138 Sewell La., Rydal, Pa. 19046

Continuation-in-part of Ser. No. 60,460, Jul. 25, 1979, abandoned, which is a continuation-in-part of Ser. No. 870,114, Jan. 17, 1978, Pat. No. 4,197,316, which is a division of Ser. No. 720,835, Sep. 7, 1976, Pat. No. 4,105,783, which is a continuation-in-part of Ser. No. 598,224, Jul. 23, 1975, Pat. No. 4,021,572. This application Apr. 30, 1980, Ser. No. 145,240. The portion of the term of this patent subsequent to Apr. 22, 1992, has been disclaimed.

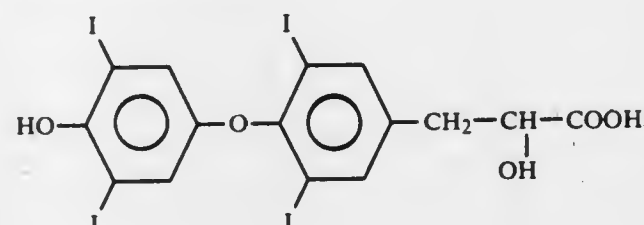
Int. Cl.³ A61K 31/19, 31/40

U.S. Cl. 424—274

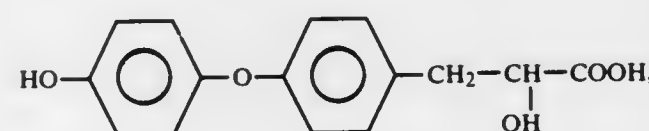
12 Claims

1. A therapeutic composition effective against skin disease conditions characterized by inflammation or disturbed keratinization comprising: at least one compound selected from the group consisting of:

2-hydroxy-3-methylpentanoic acid, 2,3-dihydroxybutanoic acid, 2-hydroxy-3-mercaptopropanoic acid, 3,3-dithiobis(2-hydroxypropanoic acid), 2-hydroxy-4-(methylthio)butanoic acid, 2-hydroxy-4-(methylsulfoxide)butanoic acid, 2-hydroxy-4-(methylsulfonyl)butanoic acid, 2-hydroxy-5-guanidopentanoic acid, 2,6-dihydroxyhexanoic acid, 2-hydroxy-6-aminohexanoic acid, 2,5,6-trihydroxyhexanoic acid, 2,5-dihydroxy-6-aminohexanoic acid, 2-hydroxy-3-(4-imidazolyl)propanoic acid, 2-hydroxy-3-(4-hydroxyphenyl)propanoic acid, 2-hydroxy-3-(3'-indolyl)propanoic acid, 2-hydroxy-4-mercaptopentanoic acid, 4,4'-dithiobis(2-hydroxybutanoic acid), 2,4-dihydroxybutanoic acid, 2-hydroxy-3-sulfonopropanoic acid, 3-aminolactic acid, 2,4-dihydroxybutanoic acid, 2-hydroxy-2-methyl-butanoic acid, 2,5-dihydroxypentanoic acid, 2-hydroxy-5-ureidopentanoic acid, 2-hydroxy-6-ureidohexanoic acid, 2-hydroxy-3-(5'-hydroxyindolyl)propanoic acid, 3-(3',4'-dihydroxyphenyl)lactic acid, 3-(3'-iodo-4'-hydroxyphenyl) lactic acid, 3-(3',5'-diiodo-4'-hydroxyphenyl) lactic acid, hydroxy analogue of thyroxine having the formula:



hydroxy analogue of thyroxine having the formula:



quinic acid, 3-hydroxypropanoic acid, glyceric acid, threonic acid, erythreonic acid, xyluric acid, lyxuric acid, arabinuric acid, riburic acid, iduric acid, guluric acid, mannuric acid, altruric acid, alluric acid, taluric acid, 2-hydroxy-3-sulfonopropanoic acid, 2-hydroxy-3-thio-s-(3'-hydroxy-1',1'-dimethylpropyl) propanoic acid, P-hydroxyphenylglycolic acid, O-acetylmandelic acid, trihydroxy butanoic acid, tetrahydroxy pentanoic acid, pentahydroxyhexanoic acid and hexahydroxyheptanoic acid, or a salt thereof present in an effective amount in a pharmaceutically or cosmetically acceptable lotion, gel, shampoo, spray, stick, powder, cream or ointment.

4,363,816

TRICYCLIC PYRROLES, THEIR COMPOSITIONS AND THEIR USE

Jörg Senn-Bilfinger, Constance, Fed. Rep. of Germany, assignor to BYK Gulden Lomborg Chemische Fabrik Gesellschaft mit beschränkter Haftung, Constance, Fed. Rep. of Germany

Filed Jan. 29, 1982, Ser. No. 344,172

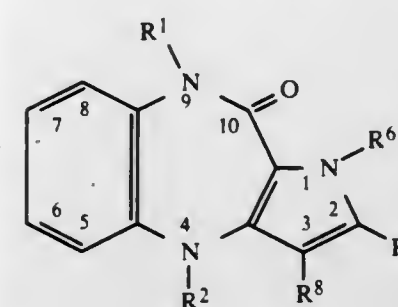
Claims priority, application Switzerland, Feb. 2, 1981, 651/81; Aug. 26, 1981, 5488/81

Int. Cl.³ A61K 31/55; C07D 487/04

U.S. Cl. 424—274

17 Claims

1. A tricyclic pyrrole of the formula



wherein

R¹ is —H or lower alkyl;
R² is —H or —CO—C_nH_{2n}—R³;
R³ is halo or —N(R⁴)R⁵;
R⁴ is —H, lower alkyl, alkenyl with from 3 to 5 carbon atoms or, together with R⁵ and the nitrogen atom to which both are bonded, pyrrolidino, piperidino, morpholino, perhydroazepino, 1-piperazinyl, 4-methyl-1-piperazinyl, 4-ethyl-1-piperazinyl, 4-benzyl-1-piperazinyl, 1-homopiperazinyl or 4-methyl-1-homopiperazinyl;
R⁵ is alkenyl with from 3 to 5 carbon atoms, lower alkyl, di(lower)alkylamino(lower)alkyl or, together with R⁴ and the nitrogen atom to which both are bonded, pyrrolidino, piperidino, morpholino, perhydroazepino, 1-piperazinyl, 4-methyl-1-piperazinyl, 4-ethyl-1-piperazinyl, 4-benzyl-1-piperazinyl, 1-homopiperazinyl or 4-methyl-1-homopiperazinyl;
each of R⁶, R⁷ and R⁸ is, independently, —H or lower alkyl; and
n is a positive whole number of at most 2;
or an acid-addition salt thereof.

15. A medicament composition comprising excipient or carrier and from 0.5 to 95 percent by weight of a pharmacologically-active and physiologically-acceptable compound according to claim 1 in free-base or acid-addition-salt form.

4,363,817

ENOL ACYLATE ANALOGS OF E₁ AND E₂ PROTAGLANDINS

William G. Biddlecom, Elkhart, Ind., assignor to Miles Laboratories, Inc., Elkhart, Ind.

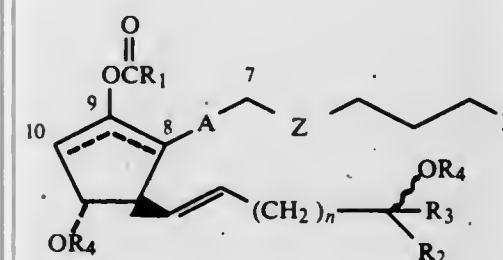
Filed Aug. 27, 1981, Ser. No. 296,857

Int. Cl.³ C07C 177/00; A61K 31/557

U.S. Cl. 424—311

38 Claims

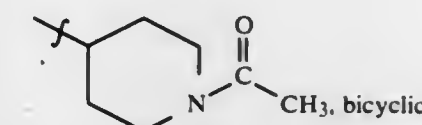
1. Prostaglandin C-9 enol acylate analogs characterized by the formula:



wherein: the dashed line in the cyclopentyl ring represents the presence of a double carbon-carbon bond at either C₈—C₉ or C₉—C₁₀; Z is cis vinylene or ethylene; n is 0 or 1; A represents

the presence of a single carbon-carbon bond between C₇ and C₈ which is in the α configuration when there is a double carbon-carbon bond between C₉ and C₁₀ and is in the plane of the 5 membered ring when there is a double carbon-carbon bond between C₈ and C₉; X is CH₂OH, CH₂OCOCH₃, CONHR₄, CO₂M where M is H⁺, K⁺, ½ Ca⁺⁺, NH₃⁺C (C₂H₅OH)₃ or another pharmacologically acceptable salt cation, CH₃ or C₂H₅; R₁ is n-alkyl of 1 to 20 carbon atoms which is optionally replaced with oxa groups, cyclic alkyl or 3 to 12 carbon atoms optionally replaced with nitrogen to form an imido group of the formula

(I)



bicyclic alkyl of 7 to 12 carbon atoms, aryl of 6 to 12 carbon atoms optionally substituted with an n-alkyl group of 1 to 10 carbon atoms or one or more halogen atoms, alkenyl (Z and/or E) of 2 to 12 carbon atoms, alkenyl-alkyl of 3 to 12 carbon atoms or O-n-alkyl of 1 to 20 carbon atoms wherein all of the above are optionally substituted with CO₂M, CONHR₄ or acetate; R₂ is H, n-alkyl of 1 to 10 carbon atoms, branched alkyl of 3 to 10 carbon atoms, cyclic alkyl of 3 to 10 carbon atoms optionally substituted with n-alkyl of 1 to 10 carbon atoms, bicyclic alkyl of 7 to 12 carbon atoms, aryl of 6 to 12 carbon atoms optionally substituted with n-alkyl of 1 to 10 carbon atoms or halogen, R₃ is a moiety coming within the definition of R₂ except that R₃ is not H; and R₄ is H or a moiety coming within the definition of COR₁.

4,363,818

METHOD FOR RELIEF OF BURNING, ITCHING, AND PAIN OF CUTANEOUS AND MUCOSAL SURFACES

Sheldon K. Gottlieb, 8708 Wandering Trail Dr., Potomac, Md. 20854

Continuation-in-part of Ser. No. 126,997, Mar. 3, 1980, abandoned, which is a continuation-in-part of Ser. No. 857,526, Dec. 5, 1977, Pat. No. 4,167,945, which is a continuation-in-part of Ser. No. 764,229, Jan. 31, 1977, Pat. No. 4,061,731, which is a continuation-in-part of Ser. No. 576,858, Jun. 4, 1975, Pat. No. 4,006,220. This application Nov. 17, 1980, Ser. No. 207,738

Int. Cl.³ A61K 31/195

3 Claims

1. Method for the relief of any one or more sensations of burning, pain and itching of the cutaneous or mucosal surface of animals and humans that is free of lesions comprising the step of topically applying to the situs of said condition a composition consisting essentially of (A) a compound selected from the group consisting of: (1) aminocaproic acid, (2) a compound of the formula 4NH₂CH₂(CH₂)₄COOH.CaX₂ wherein X is chloride or bromide, or (3) mixtures thereof, and (B) an inert pharmaceutically acceptable carrier, wherein said compound is present in an amount effective to diminish the sensations of burning, pain and itching.

4,363,819

SAUSAGE-CASING LOADING METHOD AND CASING/SLEEVE COMBINATION THEREFOR

Remy A. E. Steffen, Aspres sur Buech, Hautes-Alpes, France
Filed Aug. 6, 1980, Ser. No. 175,920

Claims priority, application France, Aug. 8, 1979, 79 20735

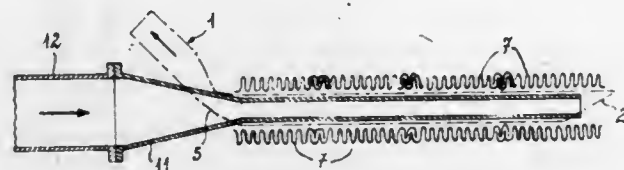
Int. Cl.³ A22C 13/00

U.S. Cl. 426—132

14 Claims

1. A method of loading sausage-casing sections onto the nozzle of a sausage-stuffing machine, said casing sections being carried on a flexible synthetic-resin sleeve having a laterally open aperture, a pair of longitudinal ends, and a tear line extending longitudinally from said aperture to one of said ends,

said sections having overlapping ends and being longitudinally compressed accordion-fashion on said sleeve between said aperture and said one end;
said method comprising the steps of:
fitting the sleeve carrying the succession of overlapped casing sections backwardly over said nozzle by inserting



said nozzle into said sleeve through said aperture toward said one end; and
thereafter stripping said sleeve from between said nozzle and said sections to split said sleeve along said tear line and leave said succession of overlapped casing sections on said nozzle.

4,363,820

PROCESS FOR PREPARING CANNED TUNA FISH
John H. Ernster, 5658 Ravenspur, Rancho Palos Verdes, Calif. 90274

Continuation-in-part of Ser. No. 179,771, Aug. 20, 1980, abandoned. This application Feb. 19, 1982, Ser. No. 350,319
Int. Cl.³ A23B 4/14

U.S. Cl. 426—257

11 Claims

1. A process for preparing and storing tuna fish flesh for consumption which comprises:
treating casein with a compound, selected from the group consisting of sodium hydroxide and potassium hydroxide, in the presence of water;
adding a quantity of the treated casein and a quantity of tuna fish flesh to a sealable container;
sealing said container;
heat treating said sealed container at a temperature sufficient to prevent spoilage of said flesh; and then cooling said container.

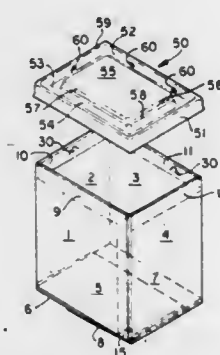
4,363,821

METHOD OF PACKAGING ICE CREAM IN A CLOSABLE CONTAINER

Thomas VanderLugt, Jr., Kalamazoo, Mich., assignor to James River Corporation of Virginia, Richmond, Va.
Division of Ser. No. 71,242, Aug. 30, 1979. This application Sep. 12, 1980, Ser. No. 186,616
Int. Cl.³ B65B 7/28; A23L 3/36

U.S. Cl. 426—393

7 Claims



1. A method of packaging ice cream product comprising the steps of

filling semi-solid ice cream product into a tubular container formed from an integral blank which is cut and scored to provide a tubular container comprising substantially rectangular rear, side, and front wall members, a glue flap articulated along a score to one of said container wall members and adhered to an adjacent container wall mem-

ber, bottom-forming flaps articulated to each of said wall members along scores at one end of said blank, and edge-reinforcing flaps articulated to each of said container rear, side, and front wall members at the other end of said blank having areas of low resistance defined therein and being folded over and adhered to said adjacent wall members to which said flaps are articulated, thereby to form a folded-over, reinforced portion of double thickness at that end of the tubular container erected from said blank, with said areas of low resistance being present in the inner exposed surface of folded-over edge-reinforced portions of the walls of said container, having its wall members connected by means of said glue flap, having its bottom-forming flaps outwardly extending in an unfolded and non-secured position, and having its reinforced end closed by a closure member comprising:

an upstanding tubular inner wall conforming to the inner surfaces of the walls of the container, and
a downstanding tubular outer wall connected thereto by a bight and conforming to the outer surfaces of the walls of the container,

said inner and outer walls and said bight forming a tubular channel in which said upstanding walls of said tubular container are seated in frictional engagement,

a centrally-located upwardly-elevated dome portion, defined by an upstanding dome-forming wall which is inwardly spaced from the said upstanding tubular inner wall of said closure member,

the said two upstanding walls of said closure member defining a tubular valley therebetween,

and lugs formed in said upstanding tubular inner wall, said lugs complementarily extending into said areas of low resistance in the inner exposed surface of the walls of said container at the end thereof closed by the closure member, for releasably securing said container closure member to said tubular container walls,

closing the bottom-forming flaps on the open end of said container and adhering them to each other, and
subjecting the package to hardening at a temperature below about zero degrees centigrade to solidify the semi-solid ice cream product.

4,363,822

METHOD FOR PRODUCING A RESTRUCTURED MEAT PRODUCT

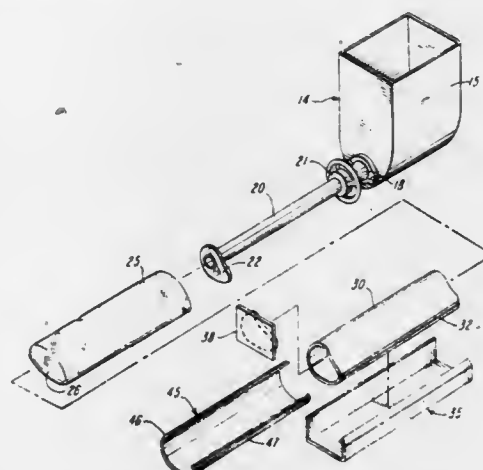
Charles F. Kleptz, 11700 Haber Rd., Union, Ohio 45322

Filed Jan. 28, 1981, Ser. No. 229,198

Int. Cl.³ A23B 4/06; A22C 7/00

U.S. Cl. 426—513

5 Claims



1. A method of producing a frozen restructured meat product adapted to have a predetermined non-cylindrical shape, comprising the steps of mixing pieces of meat within a mixer having a screw extruder extending adjacent an outlet, attaching an elongated discharge tube to the outlet, surrounding the discharge tube with a flexible bag, surrounding the bag and the

discharged tube with a tubular mold having an inner non-cylindrical surface corresponding to the predetermined shape, mounting on the outer end portion of the discharge tube a retaining member conforming substantially to the inner non-cylindrical surface of the tubular mold, closing the outer end of the tubular mold with an end closure member, extruding the mixed meat product through the discharge tube and into the bag and mold while moving the bag and mold longitudinally relative to the discharged tube, filling the bag while confining the mixed meat product within the mold between the retaining member and the end closure member to produce a predetermined pressure within the product, sliding the bag and formed meat product from the mold, and freezing the formed meat product within the bag while maintaining the shape of the product.

4,363,823

METHOD OF FRYING FOODS IN THE PRESENCE OF A SPICE ANTIOXIDANT

Yukichi Kimura, Narashino, and Takeshi Kanamori, Chiba, both of Japan, assignors to Lion Corporation, Tokyo, Japan
Filed Nov. 18, 1980, Ser. No. 207,932

Claims priority, application Japan, Nov. 24, 1979, 54-152240
Int. Cl.³ C11B 5/00

U.S. Cl. 426—542

2 Claims

1. A method for producing fried foods, comprising the steps of:

adding an antioxidant to a frying oil;
adding an additive to said frying oil and/or to a foodstuff, said additive being present in an amount of 1-100 parts by weight per 1-10 parts by weight of said antioxidant in the frying oil, said additive being selected from the group consisting of a mixture of dihydroxyacetone and amino acid, quercetin, miso peptide, casein peptide, and phytic acid; and
frying the foodstuff in said frying oil at 100°-250° C.;

said antioxidant being added to said frying oil in an amount of 0.001-0.2% by weight and being obtained by (a) subjecting a starting material, selected from the group consisting of a herb family spice selected from sage and rosemary, residue obtained after the recovery of essential oils from said herb family spice, oleoresins obtained from the extraction of said herb family spice with a polar solvent, and oleoresins and extracted residues obtained from the extraction of said herb family spice with a non-polar solvent, to an extraction treatment with a polar solvent to obtain an extractive, (b) decoloring the extractive with an adsorbent, (c) concentrating the extractive after separation of said adsorbent, (d) pouring the concentrate into ten times by weight or more of water to obtain an aqueous dispersion, (e) steam distilling the aqueous dispersion to produce a steam distilled residue, and then (f) recovering an insoluble part from the steam distilled residue.

4,363,824

PROCESS FOR THE PRODUCTION OF A FOOD BASE INSTANTANEOUSLY DISPERSIBLE IN WATER

Albert Willi, Wallisellen; Willy Maute, and Oswaldo Mooser, both of Effretikon, all of Sweden, assignors to Societe D'Assistance Technique pour Produits Nestle S.A., Lausanne, Switzerland

Filed Nov. 12, 1980, Ser. No. 206,149

Claims priority, application Switzerland, Nov. 15, 1979, 10196/79

Int. Cl.³ A23L 1/195

U.S. Cl. 426—589

13 Claims

1. A process for the production of a food base instantaneously dispersible in water which comprises:

(a) mixing a flour material and a hot molten fat in a ratio of from 55:45 to 80:20 by weight;
(b) subjecting the mixture to controlled cooling in order to obtain crystal modification in the fat so that the liquid fat

content in the fat at approximately 25° to 35° C. is less than 50%; whereby the food based obtained, after dispersion in water has a lump count of less than 2% by weight based on the total weight of the food base and a viscosity in the range of from 20 mPa to 35 mPa, based on 12 grams of the food base dispersed in 150 ml of water.

4,363,825

PROCESS FOR MAKING A COCONUT PRODUCT
Guy C. Coker, Dover, Del., assignor to General Foods Corporation, White Plains, N.Y.

Filed Dec. 30, 1981, Ser. No. 335,496

Int. Cl.³ A23L 1/36

U.S. Cl. 426—617

5 Claims

1. A process of producing a sweetened coconut product comprising the steps of:

a. finely milling coconut flakes to produce a creamed coconut;
b. combining 4 to 23 parts by weight of creamed coconut, from 5 to 6 parts by weight of glycerol monostearate, and from 19 to 52 parts by weight of polyhydric alcohols, with from 80 to 110 parts by weight of water;
c. loosening compacted shredded coconut flakes;
d. spraying the creamed coconut solution onto said shredded coconut flakes; and
e. coating the liquid-coated shredded coconut with a high surface-area sugar.

4,363,826

EMULSIFIER COMPOSITION AND QUALITY IMPROVEMENT METHOD FOR STARCH CONTAINING FOODS

Tetsuro Fukuda, Hirakata; Hideo Matsuura, Toyonaka; Yoshito Koizumi, Makado, and Takeshi Yamaguchi, Chiba, all of Japan, assignors to Riken Vitamine Oil Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 107,914, Dec. 28, 1979, abandoned. This application Aug. 13, 1981, Ser. No. 292,416
Claims priority, application Japan, Apr. 16, 1979, 54-46193; Nov. 19, 1979, 54-149770; Dec. 7, 1979, 54-159615; Dec. 17, 1979, 54-163882

Int. Cl.³ A23L 1/00

U.S. Cl. 426—653

4 Claims

1. A powdered emulsifier composition which is prepared by powdering a monoglyceride composition consisting essentially of 65-85% of a saturated fatty acid monoglyceride and 35 to 15% of a cis-type unsaturated fatty acid monoglyceride, said composition having an iodine value of 10 to 40 tempering the powdered monoglyceride composition for more than 30 minutes at a temperature not below 45° C. to a temperature which does not melt the saturated fatty acid monoglyceride; and cooling.

4,363,827

MANUFACTURE OF CONCENTRIC COATINGS FOR FIBER WAVEGUIDES

Bernard R. Eichenbaum, Lilburn, Ga., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Feb. 23, 1981, Ser. No. 237,537

Int. Cl.³ C02B 5/14; B05D 5/06, 1/18

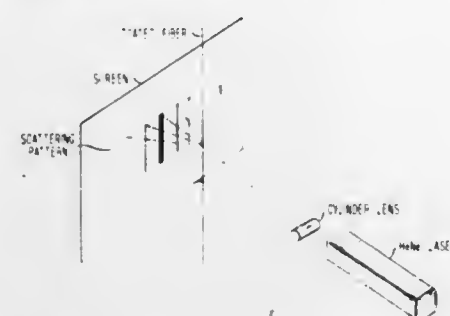
U.S. Cl. 427—8

5 Claims

1. Method for the manufacture of coated fiber waveguides comprising the steps of:

producing a pristine glass fiber,
passing the fiber through a container of coating material and through an exit die in the container,
aligning the fiber within the exit die by respective movement between the fiber and the container,
directing a light beam on the fiber after it exits the exit die, the direction of the light beam at the point of incidence on the fiber being at least approximately transverse to the fiber axis,

detecting the brightness and/or position of at least one caustic surface produced from the portion of the beam that traverses the region of the interface between the fiber and the coating material and exits the fiber from a point more



than 90 degrees removed from the point of incidence of the beam, and continuously aligning the fiber, with respect to the exit die, in accordance with the brightness and/or position of the caustic surface detected.

4,363,828

METHOD FOR DEPOSITING SILICON FILMS AND RELATED MATERIALS BY A GLOW DISCHARGE IN A DISILAND OR HIGHER ORDER SILANE GAS

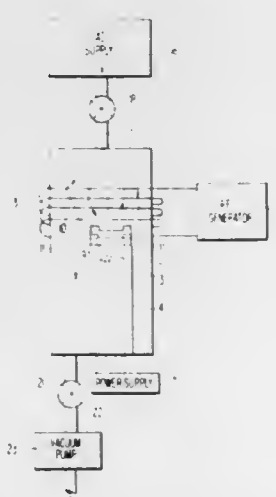
Marc H. Brodsky, Mt. Kisco, and Bruce A. Scott, Pleasantville, both of N.Y., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Dec. 12, 1979, Ser. No. 102,814

Int. Cl.³ C23C 11/00

U.S. Cl. 427—39

9 Claims



1. A method of chemical vapor deposition wherein a silicon semiconducting film is uniformly deposited on a substrate at a high speed, resulting in a deposited film having a smooth surface and having a minimal strain at the film-substrate interface, comprising the steps of:

- supplying a silane deposition gas including a silane gas of a higher order than monosilane to a region adjacent a deposition surface of said substrate;
- applying an excitation energy to said deposition gas for depositing a layer containing silicon on said deposition surface; and
- maintaining said deposition gas at a pressure of less than 0.1 torr during the deposition process.

4,363,829

PROCESS FOR FORMING AN ELECTRICALLY CONDUCTIVE FILM

Osamu Seshimoto; Hirotugu Nomaguchi; Seiji Horie; Hideo Sato; Masaaki Takimoto, and Kikuo Kubotera, all of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Aug. 27, 1980, Ser. No. 181,556

Claims priority, application Japan, Aug. 27, 1979, 54-109446

Int. Cl.³ B05D 3/06

U.S. Cl. 427—53.1

12 Claims

1. A process for forming an electrically conductive film by exposing to actinic radiation a coating that contains a nonionic electron donating compound and a halogen-substituted polymer having film-forming properties on a substrate, thereby forming a charge transfer complex in said halogen-substituted polymer in said coating.

4,363,830

METHOD OF FORMING TAPERED CONTACT HOLES FOR INTEGRATED CIRCUIT DEVICES

Sheng T. Hsu, Lawrenceville, N.J., and George L. Schnable, Lansdale, Pa., assignors to RCA Corporation, New York, N.Y.

Filed Jun. 22, 1981, Ser. No. 276,012

Int. Cl.³ H01L 21/283, 21/316

U.S. Cl. 427—88

4 Claims

1. In a process for manufacturing an MOS device having a first layer of insulating material formed on the entire surface of a semiconductor body of a given conductivity type, a pair of active regions of opposite conductivity type and a channel region therebetween embedded in the body of semiconductor material at the surface thereof, a conductive gate line disposed of the first layer of insulating material and aligned with the channel region, the improved process for forming a contact hole to an active region and to the gate line comprising the steps of:

- depositing a second layer of insulating material over the exposed surfaces of the device;
- depositing a layer of low temperature flowable passivating glass over the second layer of insulating material;
- forming a patterned layer of masking material over the layer of passivating glass to approximately define contact areas over portions of the active regions and over portions of the gate line;
- etching those portions of the layer of passivating glass exposed by the patterned masking layer at least through the layer of passivating glass and at most only partially through the second layer of insulating material;
- removing the layer of masking material;
- heating the structure to the flow temperature of the passivating glass layer for a period of time sufficient to round any sharp edges formed during the etching thereof;
- forming a second patterned layer of masking material over the layer of passivating glass to accurately define contact openings within the previously etched areas over portions of the active regions and over portions of the gate line;
- etching those exposed portions of the layer of passivating glass exposed by the second patterned masking layer at least through both the layer of passivating glass and the second layer of insulating material and at most only partially through the first layer of insulating material;
- removing the second patterned layer of masking material;
- etching the structure for a period of time sufficient to remove any remaining portions of the first layer of insulating material exposed in the contact hole and to round any sharp edges formed in the passivating layer and in the second layer of insulating material; and
- forming contact lines to the contact openings, in ohmic contact with respective active regions and with the gate line.

4,363,831

PROCESS FOR PRODUCING MAGNETIC POWDER HAVING HIGH COERCIVE FORCE

Shinji Umeki, and Kazuo Takada, both of Tokyo, Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

Filed Sep. 26, 1980, Ser. No. 190,958

Claims priority, application Japan, Oct. 15, 1979, 54-131839

Int. Cl.³ B05D 5/12

U.S. Cl. 427—127

1 Claim

1. A process for producing a magnetic iron oxide powder with at least two surface layers, each layer comprising a cobalt compound, which comprises forming on γ -Fe₂O₃ powder a first surface layer by treating said γ -Fe₂O₃ powder with an aqueous solution of cobalt sulfate, subjecting the resultant single-layered product to an extended heating period in boiling aqueous alkali solution, forming on said single-layered product a second surface layer by treating said single-layered product with an aqueous solution of cobalt sulfate, subjecting the resultant twice-layered product to an extended heating period in boiling aqueous alkali solution, and recovering the at least twice-layered product.

4,363,832

METHOD FOR PROVIDING CERAMIC LINING TO A HOLLOW BODY BY THERMIT REACTION

Osamu Odawara, Sendai, Japan, assignor to Director-General of the Agency of Industrial Science & Technology, Tokyo, Japan

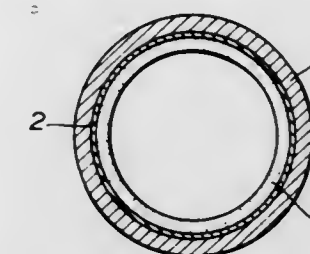
Filed Nov. 6, 1980, Ser. No. 204,583

Claims priority, application Japan, Jan. 16, 1980, 55-3414

Int. Cl.³ B05D 7/22

U.S. Cl. 427—183

10 Claims



1. A method for providing a ceramic lining of layer on the inner surface of a hollow metal body which comprises the steps of

- (a) placing a powdery thermit mixture comprising a strongly reductive element and a reducible metal oxide in the hollow space of the hollow body;
- (b) rotating the hollow body around an axis so that the powdery thermit mixture is pressed against the inner surface of the hollow body by centrifugal force to form a layer;
- (c) igniting the thermit mixture at least at one point of the layer thereof formed on the inner surface of the hollow body while still under the centrifugal force so that the thermit reaction of the thermit mixture takes place and the reducible metal oxide is reduced to a molten metal and the strongly reductive element is oxidized to an oxide which forms an innermost layer of ceramic material with the molten metal forming an intermediate layer between the inner surface of the hollow body and the innermost layer;
- (d) degassing the space within the hollow body by means of a vacuum to remove thermit reaction gasses and to remove gasses from the layers; and
- (e) then cooling the hollow body to solidify said intermediate and innermost layers and provide on the inner surface of the hollow body, stratified layers of the metal and the ceramic material.

4,363,833

METHOD AND APPARATUS FOR COATING A POROUS SUBSTRATUM

Cornelis Blaak, Boxmeer, Netherlands, assignor to Stork Brabant B.V., Netherlands

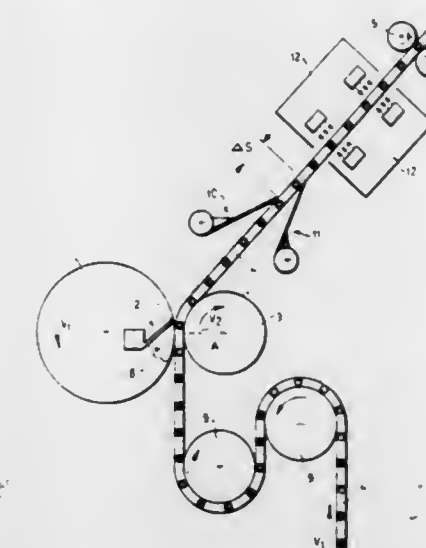
Filed Mar. 24, 1981, Ser. No. 247,140

Claims priority, application Netherlands, Mar. 27, 1980, 8001814

Int. Cl.³ B05D 3/12; B41L 13/00; B05C 11/02

U.S. Cl. 427—211

29 Claims



1. A method of coating a permeable substratum with a viscous substance comprising: moving the substratum at a given speed; applying the substance to the moving substrate at an application location;

supporting the substrate against the means applying the substance with support means having a surface which contacts the substratum; moving the support means so that the surface thereof which contacts the substratum moves at a speed which differs from the given speed of the substratum.

5. The method of claim 1 in which the substratum is moved between the means which applies the substance and the support surface.

8. The method of either of claims 1 or 5, in which the substratum is moved such that a first surface of the substratum contacts the means which applies the substance, and a second surface of the substratum contacts the support means.

9. The method of claim 8, further comprising, after the applying of the substance to the substratum, applying a doctor to the first surface of the substratum and applying a doctor to the second surface of the substratum.

4,363,834

PROCESS FOR PREPARING WETTABLE COMPOSITES FROM INERT ORGANIC POLYMER FIBERS WITH INORGANIC PARTICLES

Scott A. Verzwylt, Newbury Park, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Division of Ser. No. 128,747, Mar. 10, 1980, Pat. No. 4,277,547.

This application Jul. 6, 1981, Ser. No. 280,415

Int. Cl.³ B05D 3/00, 3/02

U.S. Cl. 427—296

3 Claims

1. A method of permanently providing a granular coating of inert inorganic particles onto the surface of chemically inert fibers which form a gas permeable felt whereby said felt will be wettable in aqueous solutions comprising the steps of:

- (a) first providing a porous organic felt containing fibers whose surfaces are free of contamination;
- (b) applying a uniform coating of inert inorganic particles to the surface of said felt and throughout the interstices of said fibers by vacuum back-filling said felt with a suspension of porous inorganic particles in a carrier fluid; and

(c) heating said particle-coated felt to a temperature slightly less than the melting point of said fibers whereby said fibers will soften and absorb said particles to the said surface thereby providing a permanently attached granular inorganic particle-coated fibrous felt.

3. A process in accordance with claim 1 wherein said fibers are polypropylene.

4,363,835

SPRAY BUFF REACTANT AND APPLICATION THEREOF

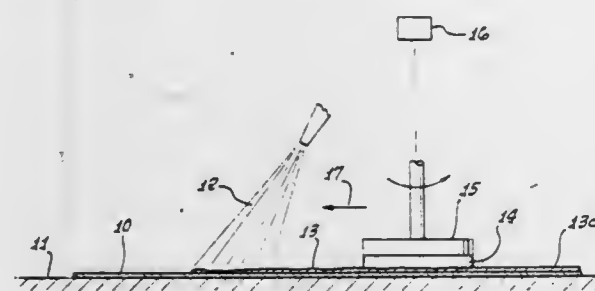
Walter J. Hackett, Westminster, and Peter E. Galena, Huntington Beach, both of Calif., assignors to Purex Corporation, Lakewood, Calif.

Filed Apr. 13, 1981, Ser. No. 253,300

Int. Cl.³ B05D 3/02, 3/12

U.S. Cl. 427—355

18 Claims



1. In the method of producing a toughened, mar-resistant floor film, the steps that include

- (a) applying to an already formed floor surface film a liquid solution containing a polymerized film forming agent and a cross-linking ingredient,
- (b) and buffing said floor surface film with said solution thereon in moist condition to heat the solution and surface film and produce cross-linking of said agent with the floor surface film to harden said film,
- (c) said cross linking ingredient selected from the group that consists essentially of methylated melamine and sodium benzoate.

4,363,836

PRIMING COMPOSITIONS FOR A BASE OF CEMENT MORTAR OR CONCRETE

Naoyuki Sakato, Urawa, and Norio Nakamura, Omiya, both of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Feb. 13, 1981, Ser. No. 234,555

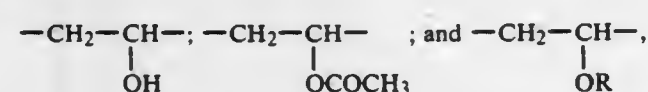
Claims priority, application Japan, Feb. 23, 1980, 55-22076; Feb. 29, 1980, 55-24744

Int. Cl.³ B05D 3/02

U.S. Cl. 427—393.6

3 Claims

1. A method for priming the surface of a base of cement, mortar or concrete which comprises coating the surface with an aqueous priming composition containing, as dissolved in an aqueous medium, a modified polyvinyl alcohol containing, in the molecular chain thereof, monomer units expressed by the formulas



in mole fractions x, y and z, respectively, in which R is an alkyl group having at least 6 carbon atoms, x is a positive number not smaller than 0.60, y is a positive number not exceeding 0.40 and z is a number in the range from 0.0001 to 0.02 inclusive with the proviso that x + y + z is substantially equal to 1, followed by drying.

4,363,837

ARTIFICIAL FLOWER

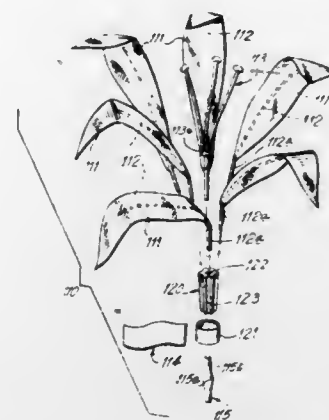
Henry Weitz, Prosperity House, 11th Floor, 8A-10 Granville Rd., Kowloon, Hong Kong

Filed Oct. 23, 1981, Ser. No. 314,234

Int. Cl.³ A41G 1/00

U.S. Cl. 428—26

9 Claims



1. An artificial flower comprising a plurality of individual petal-like members of fabric each including a medial stiffening wire secured thereto for simulating a vein and having an end portion projecting from the respective petal-like member, an assembling element having a peripheral surface with substantially parallel grooves extending therealong and opening axially at least at one end and also radially outward for receiving the projecting end portions of the stiffening wires of said petal-like members, and means extending about said assembling element for securing said projecting end portions of the stiffening wires in the respective grooves.

4,363,838

PROTECTIVE EDGE MOLDING FOR VEHICLE PARTS

Adolf Schmidt, Sindelfingen; Arno Jambor, Vaihingen, and Guntram Huber, Aidlingen-Dachtel, all of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

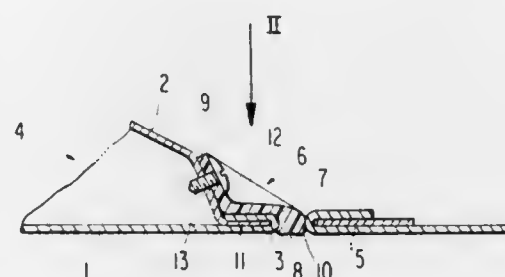
Filed Jul. 7, 1980, Ser. No. 166,406

Claims priority, application Fed. Rep. of Germany, Jun. 7, 1979, 2927272

Int. Cl.³ B32B 7/02

U.S. Cl. 428—31

11 Claims



1. A protective molding for an edge of a hinged motor vehicle part, characterized in that the molding has a substantially V-shape cross sectional configuration and includes a guide leg terminating along one longitudinal side in an end portion, and a mounting leg for mounting the molding on the vehicle part, the mounting leg being provided along the other longitudinal side of the guide leg, the guide leg defining a contact area adopted to contact an inner surface of the vehicle part adjacent said edge, and in that the end portion of the guide leg curves outwardly with respect to said V-shape configuration of the molding in a hook-shaped adapted to surround the edge of the vehicle part for protecting said edge, and wherein

a portion of the outwardly curved, hook-shaped end portion of the guide leg adapted to surround said edge is tapered.

4,363,839

TRIM STRIP FOR VEHICLES

Yutaka Watanabe, Toyooka, and Hirochika Nishio, Nagoya, both of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Japan

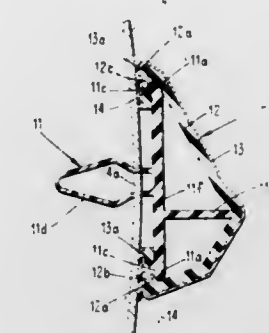
Filed Mar. 10, 1981, Ser. No. 242,392

Claims priority, application Japan, Mar. 10, 1980, 55-30742[U]

Int. Cl.³ B32B 15/08; B60R 13/02

U.S. Cl. 428—31

8 Claims



1. A trim strip for attachment to the exterior surface of a vehicle, said trim strip comprising:

- (a) an elongated plastic base body having an exterior surface, the lateral cross-sectional shape of the base body defining an interior channel, and opposed base edges defining an opening to said channel and for being disposed proximate said vehicle;
- (b) an elongated, flexible, soft plastic element integrally secured to said base body at each of said base edges between said base body and said vehicle surface;
- (c) a stainless steel foil bonded to the exterior surface of said base body, said foil having opposed foil edges secured to said respective edges of said base body;
- (d) engaging means for securing said base body to said vehicle surface, said engaging means being disposed in said channel and having opposed edges adjacent the interior surface of respective base edges; and
- (e) complementary interlocking means on adjacent surfaces of respective base and engaging means edges for securing said engaging means and said base body together and for restricting thermal expansion in a lateral direction of said base body to prevent enlargement of said opening and loosening of said engaging means in said channel.

4,363,840

PACKAGING FILMS, SHEETS AND BLOWN OR MOLDED HOLLOW BODIES

Gilbert Roullet, Tremblay les Gonesse, and Pierre Legrand, Antony, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Division of Ser. No. 10,217, Feb. 8, 1979, abandoned. This application Mar. 3, 1980, Ser. No. 126,649

Claims priority, application France, Feb. 13, 1978, 78 03940

Int. Cl.³ B65D 35/08; B29C 17/07; B32B 27/08

U.S. Cl. 428—35

8 Claims

1. Packaging films, sheets, blown or-molded hollow bodies consisting essentially of a substrate of thermoplastic material and a water insoluble coating on the substrate consisting essentially of a dispersed phase of polyvinyl alcohol dispersed in a continuous phase of a water insensitive polymer that is incompatible with the polyvinyl alcohol, in which the coating is derived from the coating of the substrate with a composition formed of an aqueous solution of a polyvinyl alcohol containing at least 90% vinyl alcohol moieties and a latex of a water insensitive polymer that is incompatible with the polyvinyl alcohol, in the ratio expressed by weight of dry solids of be-

tween 0.4-3 parts by weight polyvinyl alcohol to 1 part by weight latex polymer, in which, until the final stages of drying the coating composition on the substrate, the polymer latex constitutes the dispersed phase in the continuous phase of aqueous solution of polyvinyl alcohol, while inversion takes place during the final stages of drying whereby the polyvinyl alcohol becomes the dispersed phase in the continuous phase of the polymer to provide a polyphase coating.

4,363,841

LAMINATED PACKAGING MATERIAL

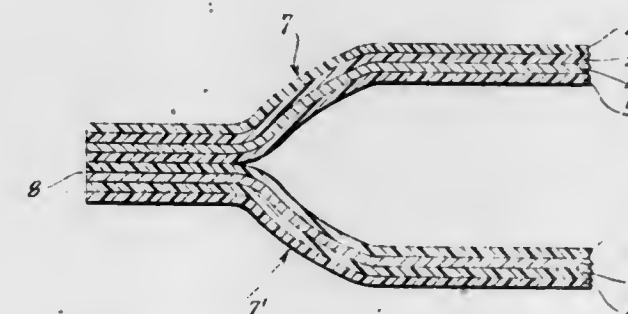
John E. Snow, Minneapolis, Minn., assignor to Champion International Corporation, Stamford, Conn.

Filed Dec. 28, 1981, Ser. No. 334,581

Int. Cl.³ B65D 85/70; B32B 1/02, 1/04

U.S. Cl. 428—35

16 Claims



1. A laminated packaging material comprising

- (a) a transparent film of nylon, polyester, cellophane or polypropylene as an outer surface;
- (b) a coextruded laminate of pigmented polyethylene and an ethylene acrylic acid copolymer, said coextruded laminate affixed to said transparent film with the pigmented polyethylene adjacent the transparent film;
- (c) a metallic foil affixed to the ethylene acrylic acid copolymer of said coextruded laminate; and
- (d) a heat-sealable inner polyolefin containing layer affixed to said metallic foil.

16. A flexible pouch formed by heat sealing two parallel panels of the laminated packaging material of claim 1 along the edges of their respective inner heat-sealable surfaces forming a space therebetween.

4,363,842

ELASTOMERIC PRE-STRETCHED TUBES FOR PROVIDING ELECTRICAL STRESS CONTROL

Paul N. Nelson, Stillwater, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed Mar. 2, 1981, Ser. No. 239,538

Int. Cl.³ B32B 1/08; H02G 15/08

U.S. Cl. 428—36

10 Claims

1. An article for use in the splicing and termination of electric power cables comprising an elastomeric tubular member supported in a stretched condition on an easily removable core, said tubular member comprising from about 2.5 to about 25 volume percent carbon black, from about 0.8 to about 3.0 volume percent of platelet-shaped conductive particles, up to about 8.0 volume percent of high permittivity inorganic fillers, up to about 12.0 volume percent of platelet-shaped inorganic dielectric fillers, the balance of said member comprising a compounded non-polar elastomer selected from the group consisting of EPDM and EPM.

4,363,843 SEALS

David Crofts, Cirencester, England, assignor to Raychem Limited, London, England

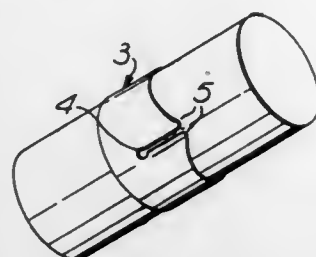
Filed Mar. 11, 1980, Ser. No. 129,198

Claims priority, application United Kingdom, Mar. 20, 1979, 7909832

Int. Cl.³ B32B 3/02, 33/00

U.S. Cl. 428—43

10 Claims



1. A removable seal for a metallic substrate which comprises a heat-shrinkable continuous annular band having a tearable region therein and a uniform coat of heat-activatable adhesive on the inwardly facing surface thereof, which adhesive has a mean thickness in the range of from 0.01 to 1.0 mm, and differs in thickness from the mean thickness over the surface by not more than 25% of the mean thickness, and will adhere to a metallic substrate in preference to the band so that, after the band has been recovered onto a metallic substrate, the band can be peeled away from the substrate and a layer of adhesive will remain on the substrate.

4,363,844

METALLIZED INFORMATION CARRYING DISCS

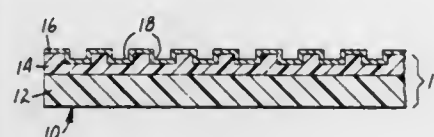
Terry W. Lewis, Roger J. Anderson, and Donald J. Kerfeld, all of P.O. Box 33427, Saint Paul, Minn. 55133

Filed Sep. 22, 1980, Ser. No. 189,000

Int. Cl.³ B32B 3/02; G11B 7/24

U.S. Cl. 428—65

37 Claims



1. A coded information carrying structure capable of being electronically decoded comprising

- (1) a base,
- (2) a first layer of an electrically conductive or electromagnetic radiation reflective layer adhered to at least one surface of said base, said layer having coded information in the form of depressions in said layer having been vertically displaced a distance of from 0.03 to 10.0 micrometers, with said first layer having ruptures or necking on the sides of the depressions, and
- (3) an insulating or transparent protective layer over said first layer.

4,363,845

SPUN NON-WOVEN FABRICS WITH HIGH DIMENSIONAL STABILITY, AND PROCESSES FOR THEIR PRODUCTION

Ludwig Hartmann, Kaiserlautern, Fed. Rep. of Germany, assignor to Carl Freudenberg, Fed. Rep. of Germany

Continuation of Ser. No. 69,921, Aug. 27, 1979, abandoned. This application Apr. 8, 1981, Ser. No. 252,024

Claims priority, application Fed. Rep. of Germany, Jun. 1, 1979, 2922427

Int. Cl.³ D04H 1/58

U.S. Cl. 428—198

19 Claims

1. A non-woven fabric comprising a plurality of superim-

posed layers of essentially endless uncrimped filaments in an interconnected, tangled relationship, deposited laminarily without the formation of arcs, said layers of filaments comprising both single filaments and filament groups; wherein said filament groups are multifilament strands comprising individual filaments which are disposed, at least at certain seg-

ments thereof, parallel to one another, and which individual filaments of said groups have been drawn and cured to a non-tacky state to prevent autogenous bonding; and wherein the parallel filament within the filament groups and the single filaments are bonded together using binders comprising dispersions or powders of polymers or copolymers.

4,363,846

PHOTOMASK AND PHOTOMASK BLANK

Satoru Kaneki, Sayama, Japan, assignor to Dai Nippon Insatsu Kabushiki Kaisha, Tokyo, Japan

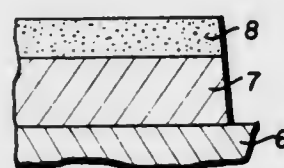
Filed Nov. 2, 1981, Ser. No. 317,343

Claims priority, application Japan, Dec. 22, 1980, 55/180409

Int. Cl.³ B32B 3/00, 7/00; G03F 7/00

U.S. Cl. 428—203

10 Claims



7. A photomask comprising a transparent substrate and a patternized multi-layer masking film provided on the substrate, said multi-layer masking film comprising a layer of chromium and a composite layer of chromium oxide and chromium nitride laminated on said chromium layer.

4,363,847

FLEXIBLE SHEET MATERIAL

Brian Hargreaves, Manchester, and Alan K. Cousens, Cambridge, both of England, assignors to AMFU Limited, Manchester, England

Filed Jul. 1, 1981, Ser. No. 279,611

Claims priority, application United Kingdom, Jul. 4, 1980, 8021923

Int. Cl.³ B32B 5/16; D04D 1/08

U.S. Cl. 428—283

7 Claims

1. Non-asbestos flexible sheet material having a basis of a major portion of fine particles of a chlorite as a non-fibrous charged-layer-silicate mineral and including a minor proportion of organic web-forming fibers, said fine particles and said organic web-forming fibers being bound together with a syn-

thetic rubber; said flexible sheet material being made by a process in which an aqueous slurry of the aforesaid ingredients is progressively dewatered as a layer on a water-permeable conveyor and the dewatered layer is subsequently compressed and dried, said flexible sheet material having said ingredients in the following proportions by dry weight:

silicate mineral	85-95%
organic web-forming fibers	2-15%
synthetic rubber	1-10%

4,363,848

THREE LAYERED FOAM-CONTAINING LAMINATE SUITABLE FOR USE AS AN AUTOMOBILE HEADLINER

Edward C. Le Duc, and John C. Schubert, both of Chippewa Falls, Wis., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Jun. 1, 1981, Ser. No. 269,518

Int. Cl.³ B29D 27/04; B32B 5/18; B60J 9/00

U.S. Cl. 428—286

6 Claims

1. A decorative laminate comprising the following layers in order: (1) polypropylene fabric, (2) a solid layer comprising a physical mixture of a copolymer of styrene and maleic anhydride and polypropylene, and (3) a foam of a copolymer of styrene and maleic anhydride.

4,363,849

FOAMED THERMOPLASTIC RESIN CORK HAVING A NATURAL CORK-LIKE APPEARANCE AND A METHOD OF INJECTION MOLDING THE CORK

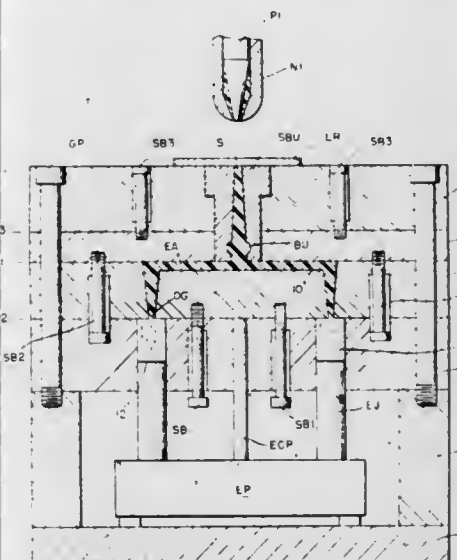
Gary V. Paisley, Atlanta, Ga.; J. George Altschuler, Montreal, Canada, and Josef Rommler, Ulm, Fed. Rep. of Germany, assignors to The Coca-Cola Company, Atlanta, Ga.

Filed Oct. 30, 1980, Ser. No. 202,156

Int. Cl.³ B29D 27/00; B29F 1/04

U.S. Cl. 428—318.8

24 Claims



1. A method for making a closure made of a thermoplastic resinous material and having a natural cork-like appearance which comprises,

providing a mold cavity with an entrance orifice, said mold cavity having the shape of said closure with predetermined internal dimensions, the wall of said mold cavity opposite the entrance orifice being sufficiently spaced from said entrance orifice to permit the formation of a strand of thermoplastic resinous material therein, rapidly injection, at high pressure an expandable thermoplastic resinous material in an amount less than that required to fill the mold cavity and in the form of a strand, into said mold cavity, said strand collecting in said cavity as randomly-oriented coils, the pressure produced in said mold cavity by said injection temporarily pressurizing

said cavity, thereby retarding the expansion of the thermoplastic resinous material sufficiently to allow completion of the injection of said thermoplastic resinous material, while maintaining the integrity of the strand configuration,

simultaneously with said temporary pressurization, gradually removing a portion of the air displaced by said injected thermoplastic resinous material through controlled minimum venting of said mold cavity, thereby expanding the coiled resinous material in a controlled manner through a continuation of said minimum venting to fill said mold cavity, the walls of said mold cavity being maintained at a temperature sufficiently cool to cause the resinous material to solidify into a rigid, outer skin when it contacts said walls, whereby the coalescence of said coils during expansion creates randomly-oriented grain lines in the surface of said closure which resembles the appearance of natural cork.

24. The product formed by the process of claims 1, 2 or 21.

4,363,850

MAGNETIC RECORDING MEDIUM

Masaaki Yasui, Takeshi Matsuura, both of Kyoto, and Seiji Watatani, Osaka, all of Japan, assignors to Hitachi Maxell, Ltd., Osaka, Japan

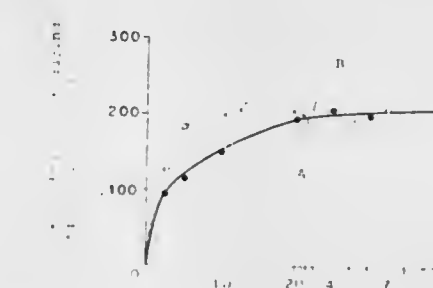
Filed Oct. 24, 1980, Ser. No. 200,133

Claims priority, application Japan, Oct. 24, 1979, 54/137352

Int. Cl.³ G11B 5/70

U.S. Cl. 428—329

2 Claims



1. A magnetic recording medium comprising a base material and a magnetic layer provided on the surface of said base material, said magnetic layer consisting essentially of magnetic particles and α -Fe₂O₃ granular particles dispersed in a binder consisting essentially of a cellulose resin and a polyurethane resin, said α -Fe₂O₃ particles being present in an amount of 0.5 to 10 percent by weight based on the weight of the magnetic particles, and having an average particle size of 0.5 to 2.0 μ .

4,363,851

METAL-DEPOSITED PAPER AND METHOD FOR PRODUCTION THEREOF

Noritoshi Mishina, Sowa; Yutaka Hirota, Mitaka, and Satoshi Nakamura, Ohmiya, all of Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Filed Dec. 18, 1980, Ser. No. 217,583

Claims priority, application Japan, Mar. 31, 1980, 55-42526

Int. Cl.³ B05D 1/36, 7/24; B32B 15/08, 27/10

U.S. Cl. 428—333

29 Claims

1. A metal-deposited paper comprising

- (i) a paper substrate;
- (ii) a thin continuous resin coating (a) of a film-forming resin having good adhesion to a metal on one surface of the paper substrate, the coating (a) having been formed by coating an aqueous dispersion of the film-forming resin on the one surface of the paper substrate;
- (iii) a metal film vacuum-deposited on the resin coating (a); and
- (iv) a thin continuous coating (b) of polyvinyl alcohol on the other surface of the paper substrate, the coating (b) having

been formed by coating an aqueous solution of the polyvinyl alcohol on the other surface of the paper substrate.

4,363,852

COATED PHOSPHATE GLASS

Yuji Nakajima, Tokyo, and Tetsuro Izumitani, Hino, both of Japan, assignors to Hoya Corporation, Tokyo, Japan
Filed Nov. 19, 1979, Ser. No. 95,286

Claims priority, application Japan, Nov. 20, 1978, 53-143163
Int. Cl.³ B32B 17/06

U.S. Cl. 428-432

6 Claims

1. A water-soluble phosphate glass having coated directly on the surface thereof a layer of a fluoride selected from the group consisting of ThF_4 or CeF_3 .

6. A laser glass comprising a water-soluble phosphate glass having coated directly on the surface thereof a layer of MgF_2 and wherein said MgF_2 layer is coated with a layer of one or more members selected from the group consisting of SiO_2 , ZrO_2 and TiO_2 .

4,363,853

HOT-MELT POLYESTER

Kazuyoshi Imamura, Norio Akimoto, and Shozo Awaya, all of Nobeoka, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

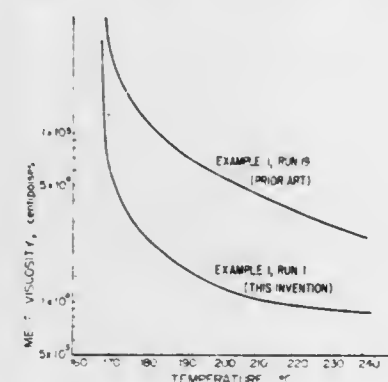
Continuation of Ser. No. 74,479, Sep. 11, 1979, abandoned. This application Mar. 10, 1981, Ser. No. 242,226

Claims priority, application Japan, Sep. 20, 1978, 53-115391

Int. Cl.³ B32B 27/36; C08G 63/16

U.S. Cl. 428-480

14 Claims



1. A hot-melt polyester having: (a) acid components consisting essentially of: (I) terephthalic acid monomer units, (II) succinic acid monomer units, (III) glutaric acid monomer units and (IV) a member selected from the group consisting of isophthalic acid monomer units, monomer units of an unsubstituted straight chain aliphatic dicarboxylic acid having 6 to 20 carbon atoms and a combination thereof, the proportions of the components (I), (II), (III) and (IV) satisfying the relationships as represented by the following formulae:

the component (I)=40 to 80 mole % based on the total amount of the components (I), (II), (III) and (IV); the components (II)+(III)=2 to 50 mole % based on the total amounts of the components (I), (II), (III) and (IV); the components (IV)=5 to 50 mole % based on the total amount of the components (I), (II), (III) and (IV); and the molar ratio of the component (II) to the component (III)=1/9 to 9/1,

and (b)

a glycol component comprising monomer units of at least one straight chain or branched alkylene glycol having 2 to 10 carbon atoms.

6. An article comprising two adherends bound together with the hot-melt polyester of any one of claims 1, 2 or 3.

4,363,854

METHOD FOR MANUFACTURING WORKPIECES HAVING ADAPTATION FACES CAPABLE OF WITHSTANDING EXTREMELY HIGH SURFACE PRESSURES AND TEMPERATURES, AND PRODUCT PRODUCED THEREBY

Erich Hodes, Rosbach; Michael Steeg, Mainz, and Peter Lippok, Wiesbaden-Biebrich, all of Fed. Rep. of Germany, assignors to Glyco-Metall-Werke Daelen & Loos GmbH, Wiesbaden, Fed. Rep. of Germany

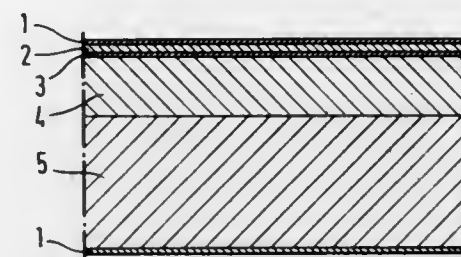
Filed Jun. 16, 1980, Ser. No. 160,069

Claims priority, application Fed. Rep. of Germany, Jul. 3, 1979, 2926708

Int. Cl.³ B32B 3/00

U.S. Cl. 428-632

6 Claims



1. As a finished article of manufacture, a slide bearing comprising a laminate having a base member on the working surface of which there is a slide layer of a friction alloy and, electroplated on the working surface of said slide layer, an electro-deposited adaptation layer which is capable of withstanding extremely high surface pressures and high temperatures and which is capable of preventing dry friction and abrasion between metal surfaces, said adaptation layer comprising an oxide of the metal molybdenum and said adaptation layer having discontinuous surface areas which form a uniformly micro-fissured mosaic-like pattern, said adaptation layer produced according to the following listed electrolytic data, under the stated conditions:

$(\text{NH}_4)_6\text{Mo}_7\text{O}_{24} \cdot 4\text{H}_2\text{O}$	= 10 to 20 g/l
NH_4NO_3	= 15 to 30 g/l
i	= 1.5 to 2.0 A/dm ²
T	= 35 to 40° C.
t	= 1.5 to 2.0 min
pH	= 5 to 6
Reaction	= cathodic.

4,363,855

GALVANIC PRIMARY ELEMENT

Aügit Winsel, Kelkheim, Fed. Rep. of Germany, assignor to Varta Batterie Aktiengesellschaft, Hanover, Fed. Rep. of Germany

Filed Jul. 18, 1980, Ser. No. 169,960

Claims priority, application Fed. Rep. of Germany, Jul. 25, 1979, 2930099

Int. Cl.³ H01M 12/02

U.S. Cl. 429-101

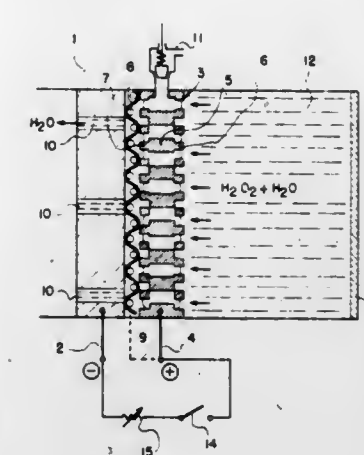
14 Claims

1. A galvanic primary element having a negative light metal electrode and having hydrogen peroxide as the cathode depolarizer, comprising:

a gas diffusion electrode positioned in front of the light metal electrode,
said gas diffusion electrode having a catalytically active working layer and having inactive cover layers positioned on both sides of the working layer,

the cover layers having a smaller pore diameter than the working layer, and

intersecting grid wires defining a plurality of openings therebetween; and



the hydrogen peroxide being present in aqueous solution of about 3 to 15 percent fixated in a polyurethane gel.

4,363,856

BATTERY SEPARATOR MATERIAL

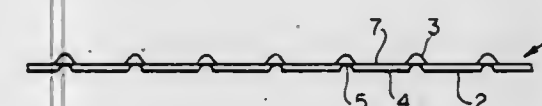
John F. Waterhouse, Northampton, Mass., assignor to Texon Inc., South Hadley, Mass.

Division of Ser. No. 164,588, Jun. 30, 1980, abandoned. This application Mar. 13, 1981, Ser. No. 243,616

Int. Cl.³ H01M 2/16

U.S. Cl. 429-143

1 Claim



1. A roll of battery separator material having one side thereof embossed to form a plurality of longitudinally extending indentations parallel and laterally spaced across the width of said material and on the opposing side thereof having a plurality of ribs of polyolefin material extruded thereon, each of said ribs having a substantially triangular cross section and positioned in alignment with an indentation and having an apex in mating engagement therewith to prevent lateral slipping of laps of the roll and provide alignment for feeding off the roll.

4,363,857

LAMINATED METAL-PLASTIC BATTERY GRID

Renard E. Mix, Yorktown, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 16, 1981, Ser. No. 311,921

Int. Cl.³ H01M 4/73

U.S. Cl. 429-234

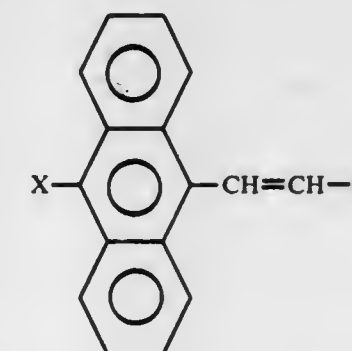
7 Claims

1. A laminated support for the active material of an electric storage battery plate comprising:

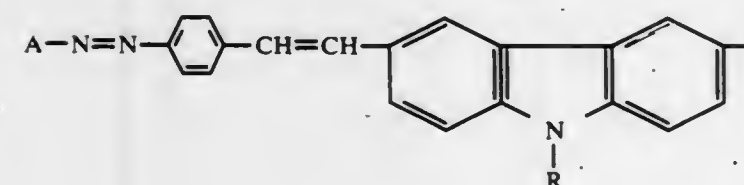
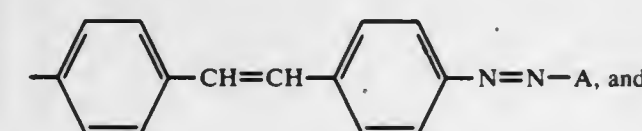
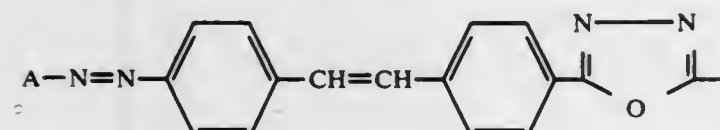
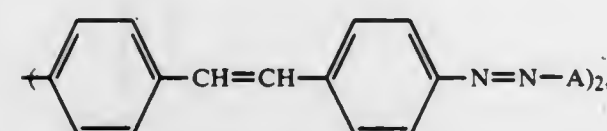
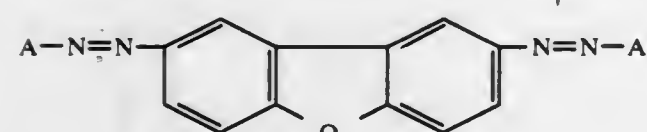
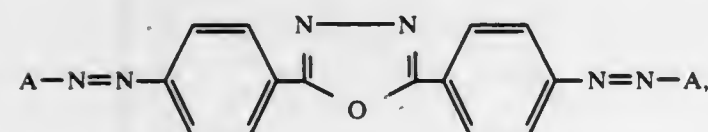
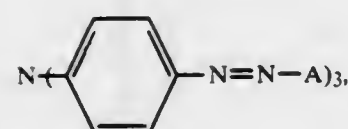
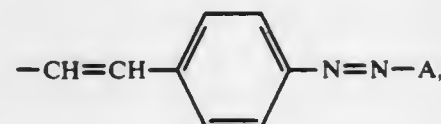
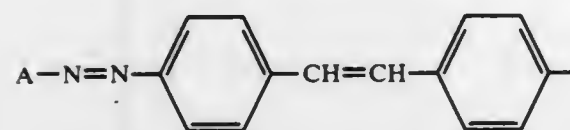
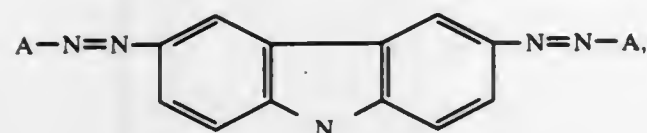
a perforate metal sheet having a plurality of integral, protuberant, anchoring tabs projecting outwardly from a face of said sheet, and a plurality of perforations from whence said tabs were formed;

at least one polymeric grid contiguously overlying a major portion of said face, said grid comprising a network of

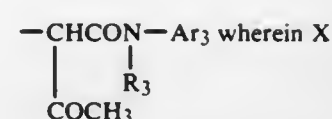
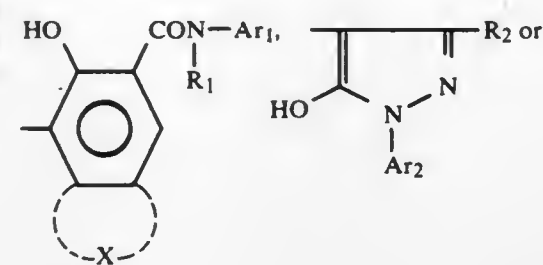
wherein X represents hydrogen or a halogen atom and R represents an unsubstituted phenyl radical, a substituted phenyl



radical having a halogen substituent, a cyano substituent, a lower dialkyl amino substituent with one to four carbon atoms, a lower alkoxy substituent with one to five carbon atoms, and a nitro substituent, a naphthyl radical, an anthryl radical, and a carbazoyl radical, and said charge carrier producing pigment being an azo pigment selected from the group consisting of



wherein substituent A of the formulas is



is selected from the group consisting of a hydrocarbon aromatic ring, a heterocyclic ring, substituted hydrocarbon aromatic rings and substituted heterocyclic rings; Ar_1 is selected from the group consisting of a hydrocarbon aromatic ring, a heterocyclic ring, substituted hydrocarbon aromatic and substituted heterocyclic rings; Ar_2 and Ar_3 are each selected from the group consisting of a hydrocarbon aromatic ring and substituted hydrocarbon aromatic rings; R_1 and R_3 are selected from the group consisting of hydrogen, lower alkyl, phenyl, substituted lower alkyl and substituted phenyl and R_2 is selected from the group consisting of lower alkyl, carboxyl and ester derivatives of said carboxyl group, the weight ratio of said charge transporting material in said layer ranging from 10 to 60% and the weight ratio of said charge carrier producing pigment in said layer ranging from 50% to 1%.

4,363,860

PHOTOCONDUCTIVE POLYIMIDE COATING UPON A SUBSTRATE

Jan van Turnhout, Pynacker, Netherlands, and Ramesh C. Ahuja, Göttingen, Fed. Rep. of Germany, assignors to Nederlandsche Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek Ten Behoeve van Nyserheid, Handel en Verkeer, The Hague, Netherlands

Continuation of Ser. No. 129,169, Mar. 7, 1980, abandoned, which is a division of Ser. No. 931,919, Aug. 8, 1978. This application Jun. 8, 1981, Ser. No. 271,223

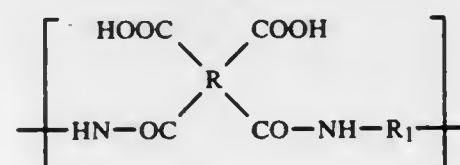
Claims priority, application Netherlands, Aug. 9, 1977, 7708786

Int. Cl.³ G03G 5/07

U.S. Cl. 430—83

1 Claim

1. A conductive substrate coated with a photo-conductive polyimide coating containing as a photosensitizer a member selected from the group consisting of 2,4,7-trinitro-9-fluorenone (TNF) and 2,4,5,7-tetranitro-9-fluorenone said coating produced by a process comprising the steps of:



wherein:

R is a tetravalent organic radical containing at least two carbon atoms, no more than two carbonyl groups being bonded to any one carbon atom of R,

R_1 represents a divalent organic radical having at least two carbon atoms, which is bonded to two nitrogen atoms, the said nitrogen atoms being attached to different carbon atoms of said divalent radical, and R, R_1 or both contain at least one aromatic ring of six carbon atoms, as well as a member of the group consisting of 2,4,7-trinitro-9-fluorenone (TNF) and 2,4,5,7-tetranitro-9-fluorenone, wherein about one molecule of TNF or the corresponding tetra-

tro compound is present per one monomeric unit of the polyamic acid, and
(2) heating the coated substrate at a temperature not exceeding 150° C. to form on said substrate a polyimide coating containing said photosensitizer.

4,363,861

TONER TRANSFER DEVELOPMENT USING ALTERNATING ELECTRIC FIELD

Shunji Nakamura, Kawasaki; Junichiro Kanbe, Tokyo; Tsutomu Toyono, Tokyo; Tohru Takahashi, Tokyo, and Yasuyuki Tamura, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 26, 1980, Ser. No. 124,913

Claims priority, application Japan, Mar. 6, 1979, 54-25922; Mar. 6, 1979, 54-25923

Int. Cl.³ G03G 13/08

U.S. Cl. 430—97

14 Claims

1. A developing method using developer transition from a developer supporting member spaced from a latent image bearing member, comprising the steps of supplying a developer formed in substantially spherical particles to the surface of a developer supporting member, maintaining the developer supporting member in an opposed relationship to the latent image bearing member to provide a clearance between said developer on said developer supporting member and the surface of said latent image bearing member, and applying an alternating electric field to said developer supporting member to cause reciprocating motion of the spherical developer particles between said latent image bearing member and said developer supporting member thereby effecting the image development.

4,363,862

PRESSURE-FIXING APPARATUS AND METHOD

Norman L. Giorgini, West St. Paul, Minn., assignor to Minnesota Mining & Manufacturing Co., St. Paul, Minn.

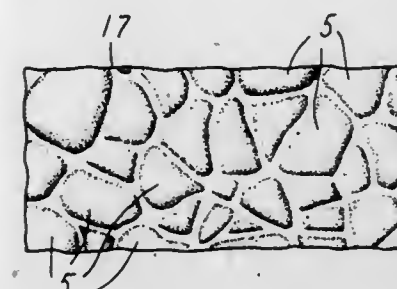
Continuation of Ser. No. 144,700, Apr. 28, 1980, abandoned.

This application Dec. 14, 1981, Ser. No. 330,786

Int. Cl.³ G03G 13/20, 15/20

U.S. Cl. 430—98

8 Claims



1. A method of fixing pressure-fixable imaging powder to the surface of a receptor comprising the steps of:

(a) forming areas of unfixed pressure-fixable imaging powder on one surface of a receptor; and

(b) passing said receptor between first and second pressure members to fix said areas of unfixed pressure-fixable imaging powder to said first surface of said receptor, said pressure members being rotated so that said receptor is transported therethrough; wherein said pressure members have longitudinal axes, and wherein said pressure members are disposed to contact each other along a narrow nip, and wherein said first pressure member has an irregular, non-compliant surface comprising a plurality of randomly sized domed projections that contact said areas of unfixed pressure-fixable imaging powder on said first surface of said receptor, and wherein said second pressure member has a compliant surface that contacts the second, unimaged surface of said receptor.

4,363,863

LIQUID NEGATIVE DEVELOPER COMPOSITIONS FOR ELECTROSTATIC COPYING CONTAINING POLYMERIC CHARGE CONTROL AGENT

Norman T. Veillette, Nashua, N.H., and Charles H. C. Pian, Lexington, Mass., assignors to Nashua Corporation, Nashua, N.H.

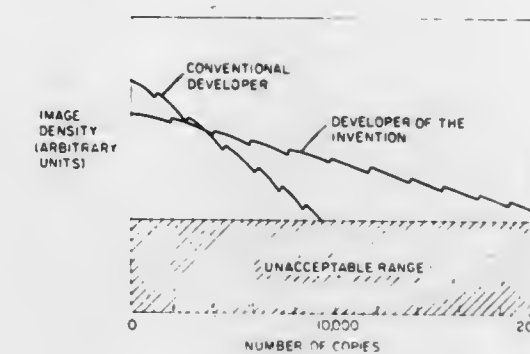
Continuation of Ser. No. 103,544, Dec. 13, 1979, abandoned.

This application Mar. 30, 1981, Ser. No. 249,159

Int. Cl.³ G03G 9/12

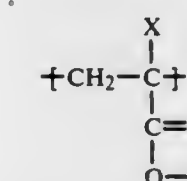
U.S. Cl. 430—115

27 Claims



1. A non-amphoteric liquid negative developer composition of improved depletion properties for developing an electrostatic latent image on the surface of an image bearing member, said composition comprising:

a organic liquid carrier having a resistivity greater than 10⁹ ohm-cm and a dielectric constant less than 3;
thermoplastic resin particles dispersed within said carrier, said particles comprising an intimate mixture of:
a vinyl polymeric latex, insoluble in said carrier, and including a major amount of monomer units selected from the group consisting of:



where X is H or CH₃ and Y is C_nH_{2n+1}, where 1 ≤ n ≤ 6;

a pigment; and

a charge control agent, substantially insoluble in the carrier, which imparts a negative charge to the composition and is present in association with the vinyl polymeric latex, said charge control agent consisting essentially of a copolymer of 10–50 parts of a lower alkyl (C₂–C₆) vinyl ether and 50–90 parts of a vinyl chloride, the amount of said copolymer included in said composition being substantially less than the amount of said latex.

4,363,864

COLLOID RELIEF IMAGES BY OXIDIZED DEVELOPER TRANSFER

Robert L. Rutledge, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed May 10, 1978, Ser. No. 904,546

Int. Cl.³ G03C 5/54, 1/48

U.S. Cl. 430—202

7 Claims

1. An article comprising a substrate having coated on one surface thereof a first layer comprising a colloidal material capable of being tanned when contacted with oxidized silver halide developers, and overlying said first layer a second layer comprising a photographic silver halide emulsion, said emulsion containing substituted gelatin therein, said substituted

gelatin being substantially resistant to tanning when contacted by said oxidized silver halide developers.

4,363,865

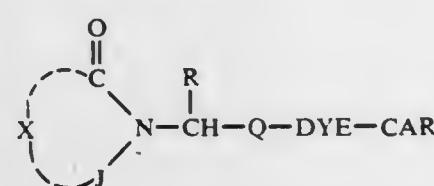
IMIDO METHYL BLOCKED PHOTOGRAPHIC DYES AND DYE RELEASING COMPOUNDS

James A. Reczek, and Thomas R. Welter, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Mar. 4, 1981, Ser. No. 240,348
Int. Cl.³ G03C 7/00, 5/54

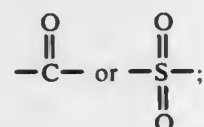
U.S. Cl. 430—223

36 Claims

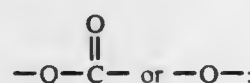
1. In a photographic image transfer film unit comprising:
(a) a photosensitive element comprising a support bearing a layer of a silver halide emulsion having associated therewith a nondiffusible dye-image-providing material, and
(b) a dye-image-receiving layer, the improvement wherein the dye-image-providing material is an imidomethyl blocked dye-releasing compound having the structure:



wherein:
J represents



X represents the atoms to complete a heterocyclic nucleus containing at least one 5- or 6-membered ring;
R represents hydrogen, alkyl of 1 to 4 carbon atoms or aryl of 6 to 12 carbon atoms;
Q represents



—Q—DYE represents the residue of a diffusible photographic dye; and
CAR is a ballasted carrier moiety from which the dye moiety is released as a function of silver halide development.

4,363,866

RECORDING MATERIALS

Stuart C. Rennison, Hadleigh, and Ronald J. Stacey, Colchester, both of England, assignors to Bedford Limited, London, England

Continuation-in-part of Ser. No. 99,748, Dec. 3, 1979, abandoned, which is a continuation-in-part of Ser. No. 87,567, Oct. 23, 1979, abandoned. This application Apr. 14, 1981, Ser. No. 254,083

Claims priority, application United Kingdom, Dec. 11, 1978, 47955/78; Aug. 6, 1979, 7927349

Int. Cl.³ G03C 5/18, 5/00

U.S. Cl. 430—290

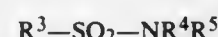
11 Claims

1. A process for forming an image in a vesicular imaging material, wherein the vesicular imaging material comprises a plastics vehicle applied to a carrier sheet or film, said plastics vehicle comprising a thermoplastics component and dispersed uniformly therein a sensitising agent which is non-reactive with said thermoplastics component and releases a vesicle-forming gas by decomposition upon exposure to light, said sensitising agent present in an amount of at least 5% by weight based upon the weight of said thermoplastics component, said thermoplastics component being softenable upon heating to

permit the gas released by the sensitising agent in the light-struck areas to form light-scattering or reflecting vesicles therein, said plastics vehicle also containing at least one sulphone or sulphonamide the sulphonamide having a maximum molecular weight of 253 wherein the sulphone has the general formula



in which R¹ and R² are selected from aromatic radicals and the sulphonamide has the general formula:



in which R³ is a hydrocarbon radical and R⁴ and R⁵ are each either hydrogen atoms or hydrocarbon radicals, the sulphone or sulphonamide being present in an amount in the range of 1 to 100% by weight based upon the weight of the thermoplastics component,

said image being formed in the plastics vehicle by exposing the vesicular imaging material to a light image thereby causing the sensitising agent to release gas in the light-struck areas and heating the vesicular imaging material to soften the thermoplastics component whereby a recorded image is formed therein by the expansion into imaging vesicles of gas released by the sensitising agent, said sulphone or sulphonamide being present in the plastics vehicle in an effective amount whereby the recorded image has a density ratio of 106:94 exceeding 0.80.

4,363,867

PROCESS OF IMAGING USING AN INDANONE CONTAINING MATERIAL

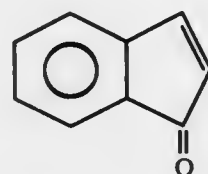
Edwin A. Chandross, Berkeley Heights, and Ray L. Hartless, Lopatcong Township, Warren County, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 1, 1981, Ser. No. 259,534
Int. Cl.³ G03C 1/68

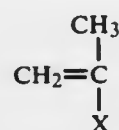
U.S. Cl. 430—302

8 Claims

1. A process for producing an image in a photosensitive body comprising the step of causing actinic radiation to be incident on a photosensitive region of said photosensitive body and maintaining said incident exposures for a time sufficient to cause a chemical change essentially through the thickness of said photosensitive region characterized in that said photosensitive body comprises a photosensitive material contacting a substrate, and said photosensitive material is formed from the monomers comprising (1) an indenone based compound represented by the formula



and (2) a methacrylate compound represented by the formula



where X is chosen from the group consisting of nitrile, alkyl ester, and carboxylic acid functional groups.

4,363,868

PROCESS OF PRODUCING SEMICONDUCTOR DEVICES BY FORMING A SILICON OXYNITRIDE LAYER BY A PLASMA CVD TECHNIQUE WHICH IS EMPLOYED IN A SELECTIVE OXIDATION PROCESS

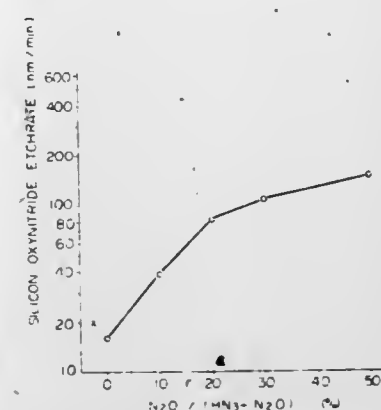
Kanetake Takasaki, Tokyo, and Mamoru Maeda, Tama, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Dec. 23, 1980, Ser. No. 219,494

Claims priority, application Japan, Dec. 26, 1979, 54-170030
Int. Cl.³ H01L 21/318

U.S. Cl. 430—314

4 Claims



1. A process for producing a semiconductor device comprising the steps of:
forming a silicon oxynitride layer on a semiconductor substrate by a plasma chemical vapor deposition method;
selectively etching said silicon oxynitride layer to expose a portion of said semiconductor substrate;
oxidizing said portion of said semiconductor substrate to form an oxide layer, and
removing the remaining silicon oxynitride layer by an etchant comprising a solution of hydrofluoric acid.

4,363,869

PHOTOGRAPHIC DEVELOPING PROCESS

Robert E. Hutchinson, Jr., 6714 Hanover Ave., Richmond, Va. 23226

Continuation of Ser. No. 179,910, Aug. 19, 1980, abandoned.

This application Oct. 19, 1981, Ser. No. 312,616

Int. Cl.³ G03C 5/30

U.S. Cl. 430—427

1 Claim

1. A process for the development of photographic material initially containing silver halide to produce a silver image, said photographic material having been imagewise exposed to radiation, said process comprising:

- (a) uniformly treating said photographic material with a first aqueous solution having a pH between 7.5 and 12 and comprising

Component	Weight Ratio
N-methyl-p-aminophenol sulfate	1.9-2.1
sodium sulfite	46-54
hydroquinone	4-8

said first solution containing between about 56 and 60 grams of said components per quart,

- (b) separating said photographic material from said first solution,

- (c) treating said photographic material uniformly with a second aqueous solution having a pH between 7.5 and 12 and comprising

Component	Weight Ratio
borax	40-60

-continued

Component	Weight Ratio
sodium sulfite	90-110

- said second solution containing between about 130 and 170 grams of said components per quart,
(d) separating said photographic material from said second solution,
(e) fixing,
(f) washing, and
(g) drying said photographic material.

4,363,870

METHOD FOR MAKING A REFLECTIVE LASER RECORDING AND DATA STORAGE MEDIUM WITH A DARK UNDERLAYER

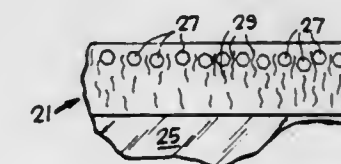
Eric W. Bouldin, Atherton, Calif., assignor to Drexler Technology Corporation, Mountain View, Calif.

Filed Sep. 11, 1981, Ser. No. 301,203

Int. Cl.³ G03C 1/02, 5/54, 5/26

U.S. Cl. 430—510

4 Claims



STRONG CHEMICAL DEVELOPER FOR ESTABLISHING FILAMENTARY SILVER

1. A method of making a reflective laser recording and optical data storage medium comprising,
forming a layer of silver precipitating nuclei from a portion of the silver halide within a fine-grained, photosensitive silver-halide emulsion layer of uniform thickness, disposed on a substrate, the nuclei layer having a major surface distal to the substrate with a depthwise nuclei gradient with greatest nuclei density distal to the substrate,
contacting said nucleated emulsion layer with a monobath solution comprising a silver-halide solvent and a low-activity silver-reducing agent of sufficient concentration to cause another portion of silver halide to form soluble silver ion complexes and be transported by diffusion transfer to said precipitating nuclei, where said silver ion complexes are reduced to non-filamentary silver particles to form a reflective surface layer in said emulsion layer without causing reduction of silver ions in the solution,
contacting said nucleated and monobath-treated emulsion layer with a strong chemical developer whereby remaining silver halide is converted into black filamentary silver particles to form a light absorptive underlayer in said emulsion layer.

4,363,871

LIGHT-SENSITIVE PHOTOGRAPHIC MATERIAL

Toshiaki Shibue, Koichi Nagayasu, Tohru Kobayashi, and Kouji Tokitou, all of Hino, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

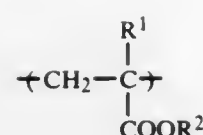
Filed Apr. 27, 1981, Ser. No. 257,994

Claims priority, application Japan, May 13, 1980, 55-62317
Int. Cl.³ G03C 1/78

U.S. Cl. 430—523

16 Claims

1. A multi-layer light-sensitive silver halide photographic material comprising a support and a light-sensitive silver halide emulsion layer, said support having a front side and a back side, which further comprises, in at least one of the front and back sides thereof, at least one light-insensitive layer containing a high polymer having at least 20% by weight of a repeating unit represented by the formula (I):



wherein R^1 represents a hydrogen atom or a methyl group, and R^2 represents a straight chain alkyl group having 12 to 24 carbon atoms.

4,363,872

COATED FILM BASES, PHOTOGRAPHIC FILMS DERIVED FROM THE BASES AND PROCESSES FOR THEIR PRODUCTION

Cyril J. Ealding, Chester, England, assignor to Imperial Chemical Industries Limited, London, England
PCT No. PCT/GB80/00043, § 371 Date Feb. 24, 1981, § 102(e)
Date Feb. 24, 1981, PCT Pub. No. WO81/02640, PCT Pub.
Date Sep. 17, 1981

PCT Filed Mar. 12, 1980, Ser. No. 243,939
Int. Cl.³ G03C 1/78

U.S. Cl. 430—532

8 Claims

1. A coated film base suitable for coating with a light-sensitive photographic emulsion layer which comprises a self-supporting film of a synthetic linear polyester and a continuous subbing layer applied to at least one surface of said self-supporting film

wherein the subbing layer consists essentially of:

- (1) a water-insoluble copolymer of:
 - (a) 50 to 90 mole % of comonomer selected from the alkyl esters of acrylic and methacrylic acids wherein the alkyl group contains up to ten carbon atoms;
 - (b) 9 to 20 mole % of comonomer selected from vinyl sulphonic, allyl sulphonic, methallyl sulphonic and p-styrene sulphonic acids and the salts thereof;
 - (c) 0 to 20 mole % of comonomer selected from itaconic acid, itaconic anhydride and half esters of itaconic acid;
 - (d) 0 to 25 mole % of glycidyl acrylate or glycidyl methacrylate; and
- (2) 0 to 25% by weight, based on the weight of the copolymer, of a cross-linking agent which comprises a condensation product of an amine with formaldehyde.

4,363,873

PHOTOGRAPHIC CONTRAST ENHANCERS

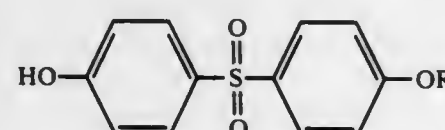
John R. Boon, Woodbury, and Gregory J. Wagner, St. Paul, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Sep. 14, 1981, Ser. No. 301,980
Int. Cl.³ G03C 1/40

U.S. Cl. 430—546

5 Claims

1. A color photographic silver halide emulsion in a layer comprising a hydrophilic colloid, silver halide, and an oil droplet dispersion of an anilino-5-pyrazolone color photographic coupler, wherein said layer also contains an effective amount of a contrast enhancer of the formula:



wherein R is an alkyl group of 4 to 20 carbon atoms.

MULTILAYER ANALYTICAL ELEMENT HAVING AN IMPERMEABLE RADIATION NONDIFFUSING REFLECTING LAYER

Alfred C. Greenquist, Elkhart, Ind., assignor to Miles Laboratories, Inc., Elkhart, Ind.

Filed Aug. 7, 1981, Ser. No. 290,938
Int. Cl.³ G01N 33/52, 33/54

U.S. Cl. 435—7

29 Claims



1. In a multilayer analytical element for detecting a ligand in or the ligand binding capacity of a liquid sample of the type having at least one reagent layer incorporating reagents which are responsive to the ligand in or the ligand binding capacity of the sample to give a detectable response, a radiation reflecting layer, and a support layer, the improvement wherein at least one reagent layer is a radiation diffusing layer and the radiation reflecting layer is a radiation nondiffusing reflecting layer which is (a) interposed between the at least one reagent layer and the support layer; (b) impermeable to the ligand, reagents of the at least one reagent layer, and products of their interreaction; and (c) inert to the ligand, reagents of the at least one reagent layer, and products of their interreaction.

4,363,875

PROCESS FOR PRODUCING L-TRYPTOPHAN, AND A PURE CULTURE OF A MICROORGANISM STRAIN USED IN SAID PROCESS

Takeo Akashiba, Musashino; Akira Nakayama, Kawasaki, and Atsuhiko Murata, Tokyo, all of Japan, assignors to Showa Denko K.K., Tokyo, Japan

Filed Jun. 9, 1981, Ser. No. 271,925

Claims priority, application Japan, Jun. 10, 1980, 55/77130
Int. Cl.³ C12P 13/22; C12N 1/20; C12R 1/125

U.S. Cl. 435—108

6 Claims

1. In a process for producing L-tryptophan which comprises cultivating an L-tryptophan-producing mutant of *Bacillus subtilis* under aerobic conditions in a nutrient culture medium containing anthranilic acid, a carbon source, a nitrogen source and a mineral source, and recovering the resultant L-tryptophan from the culture broth, the improvement wherein the mutant is a strain resistant to 5-fluorotryptophan and 8-azaguanine.

4,363,876

MICROMONOSPORA CULTURE

Istvan Gado; Antonia Jekkel nee Bokany; Gyuml/o/ rgy Szvoboda; Miklos Jarai; Sandor Piukovich, all of Budapest, and Sandor Istvan, Szentendre, all of Hungary, assignors to Chinoin Gyogyszer es Vegyeszeti Termek Gyara R.T., Budapest, Hungary

Filed Jan. 30, 1980, Ser. No. 116,915

Claims priority, application Hungary, Feb. 6, 1979, CI 1911
Int. Cl.³ C12N 1/20; C12R 1/29

U.S. Cl. 435—253

2 Claims

1. A substantially biologically pure culture of the *Micromonospora rosea* species having the capability of producing sisomicin upon cultivation in an aqueous nutrient medium.

4,363,877

RECOMBINANT DNA TRANSFER VECTORS

Howard M. Goodman; John Shine, and Peter H. Seeburg, all of San Francisco, Calif., assignors to The Regents of the University of California, Berkeley, Calif.

Continuation-in-part of Ser. No. 836,218, Sep. 23, 1977, abandoned. This application Apr. 19, 1978, Ser. No. 897,710
Int. Cl.³ C12N 1/00

U.S. Cl. 435—317

8 Claims

1. A recombinant DNA transfer vector comprising codons for human chorionic somatomammotropin comprising the nucleotide sequence:

5'-G GCL₂₄ATM₂₅GAK₂₆ACL₂₇TAK₂₈CAJ₂₉GAJ₃₀TTK₃₁GAJ₃₂GAJ₃₃ACL₃₄TAK₃₅ATM₃₆CCL₃₇A-AJ₃₈GAK₃₉CAJ₄₀AAJ₄₁TAK₄₂QR₄₃S₄₄TTK₄₅TY₄₆5CAK₄₆GAK₄₇QR₄₈S₄₈CAJ₄₉ACL₅₀QR₅₁S₅₁TTK₅₂T-GK₅₃TTK₅₄QR₅₅S₅₅GAK₅₆QR₅₇S₅₇ATM₅₈CCL₅₉A-CL₆₀CCL₆₁QR₆₂S₆₂AAK₆₃ATGGAJ₆₅GAJ₆₆ACL₆₇C-AJ₆₈CAJ₆₉AAJ₇₀QR₇₁S₇₁AAK₇₂X₇₃TY₇₃GAJ₇₄X₇₅T-Y₇₅X₇₆TY₇₆W₇₇GZ₇₇ATM₇₈QR₇₉S₇₉X₈₀TY₈₀X₈₁T-Y₈₁X₈₂TY₈₂ATM₈₃GAJ₈₄QR₈₅S₈₅TGGX₈₇TY₈₇GAJ₈₈CCL₈₉GTL₉₀W₉₁GZ₉₁TTK₉₂X₉₃TY₉₃W₉₄GZ₉₄QR₉₅S-95ATGTTK₉₇GCL₉₈AAK₉₉AAK₁₀₀X₁₀₁TY₁₀₁G-TL₁₀₂TAK₁₀₃GAK₁₀₄ACL₁₀₅QR₁₀₆S₁₀₆GAK₁₀₇QR₁₀₈S₁₀₈GAK₁₀₉GAK₁₁₀TAK₁₁₁CAK₁₁₂X₁₁₃TY₁₁₃X₁₁₄TY₁₁₄AAJ₁₁₅GAK₁₁₆X₁₁₇TY₁₁₇GAJ₁₁₈GAJ₁₁₉GGL₁₂₀ATM₁₂₁CAJ₁₂₂ACL₁₂₃X₁₂₄TY₁₂₄ATGGGL₁₂₆W₁₂₇GZ₁₂₇X₁₂₈TY₁₂₈GAJ₁₂₉GAK₁₃₀GGL₁₃₃1QR₁₃₂S₁₃₂W₁₃₃GZ₁₃₃W₁₃₄GZ₁₃₄ACL₁₃₅GGL₁₃₆CAJ₁₃₇ATM₁₃₈X₁₃₉TY₁₃₉AAJ₁₄₀CAJ₁₄₁41ACL₁₄₂TAK₁₄₃QR₁₄₄S₁₄₄AAJ₁₄₅TTK₁₄₆GAK₁₄₇AC-L₁₄₈AAK₁₄₉QR₁₅₀S₁₅₀CAK₁₅₁AAK₁₅₂CAK₁₅₃GAK₁₅₄GCL₁₅₅X₁₅₆TY₁₅₆X₁₅₇TY₁₅₇AAJ₁₅₈AAK₁₅₉TAK₁₆₀GGL₁₆₁X₁₆₂TY₁₆₂X₁₆₃TY₁₆₃TAK₁₆₄TGK₁₆₅TTK₁₆₆W₁₆₇GZ₁₆₇AAJ₁₆₈GAK₁₆₉ATGGAK₁₇₁AAJ₁₇₂GTL₁₇₃GAJ₁₇₄ACL₁₇₅TTK₁₇₆X₁₇₇TY₁₇₇W₁₇₈GZ₁₇₈ATGGT-L₁₈₀CAJ₁₈₁TGK₁₈₂W₁₈₃GZ₁₈₃QR₁₈₄S₁₈₄GTL₁₈₈5GAJ₁₈₆GGL₁₈₇QR₁₈₈S₁₈₈TGK₁₈₉GGL₁₉₀TTK₁₉₁1TAGGTGCCCGAGTAGCATCCTGT-GACCCCTCCCCAGTGCCTCTCCTGGCC-3' wherein

A is deoxyadenyl,

G is deoxyguany,

C is deoxycytosyl,

T is thymidyl,

J is A or G;

K is T or C;

L is A, T, C or G;

M is A, C or T;

X is T or C, if the succeeding Y is A or G, and C if the succeeding Y is C or T;

Y is A, G, C or T, if the preceding X is C, and A or G if the preceding X is T;

W is C or A, if the succeeding Z is G or A, and C if the succeeding Z is C or T;

Z is A, G, C or T, if the preceding W is C, and A or G if the preceding W is A;

QR is TC, if the succeeding S is A, G, C or T, and AG if the succeeding S is T or C;

S is A, G, C or T, if the preceding QR is TC, and T or C if the preceding QR is AG and subscript numerals refer to the amino acid position in human growth hormone, for which the nucleotide sequence corresponds, according to the genetic code, the amino acid positions being numbered from the amino end.

4,363,878

ALKALI- AND HEAT-RESISTANT INORGANIC FIBER

Osamu Yamamoto; Keishin Takehara, and Yutaka Yasiro, all of Chiba, Japan, assignors to Nitto Boseki Co., Ltd., Fukushima, Japan

Filed Mar. 9, 1981, Ser. No. 241,692
Claims priority, application Japan, Mar. 17, 1980, 55-33840
Int. Cl.³ C03C 13/00

U.S. Cl. 501—36

2 Claims

1. An alkali- and heat-resistant inorganic fiber consisting essentially of

	% by weight
SiO ₂	40-50
CaO	0-10
MgO	15-25
Fe ₂ O ₃ + FeO	0-10
Al ₂ O ₃	5-15
MnO	2-15

provided that the total amount of CaO, Fe₂O₃, FeO and MnO is about 20% by weight and having an optional fiber-forming temperature of about 1410°-1460° C.

4,363,879

ALKALINE FLUOROBORATE IN FLUOROPHOSPHATE GLASS FREE OF BERYLLIUM

Heinz Broemer, Hermannstein, and Norbert Meinert, Solms-Albshause, both of Fed. Rep. of Germany, assignors to Ernst Leitz Wetzlar GmbH, Wetzlar, Fed. Rep. of Germany
PCT No. PCT/DE79/00149, § 371 Date Aug. 20, 1980, § 102(e)
Date Aug. 18, 1980, PCT Pub. No. WO80/01274, PCT Pub.
Date Jun. 26, 1980

PCT Filed Dec. 19, 1979, Ser. No. 204,369
Claims priority, application Fed. Rep. of Germany, Dec. 20, 1978, 2854936

Int. Cl.³ C03C 3/16, 3/18

U.S. Cl. 501—44

5 Claims

1. A fluorophosphate glass free of beryllium and having a refractive index n_d between 1.40 and 1.46, an Abbe value v_d between 85 and 94 and a high positive anomalous partial dispersion $+ \Delta v_d$ between 19 and 28 produced by a process comprising melting a mixture consisting essentially of the following components:

- (a) metaphosphate(s):
 - about 7 to 15% by weight $\text{Al}(\text{PO}_3)_3$ alone, or
 - about 0 to 15% by weight $\text{Al}(\text{PO}_3)_3$ and 0 to 11% by weight of an alkali metaphosphate, or
 - about 0 to 15% by weight $\text{Al}(\text{PO}_3)_3$ and about 0 to 5% by weight of at least one alkaline earth metaphosphate, wherein the sum of all metaphosphates is between about 7 and 15% by weight;
- (b) fluorides:
 - about 0 to 6% by weight LiF
 - about 0 to 12% by weight KHF_2
 - about 3 to 12% by weight MgF_2
 - about 9 to 28% by weight CaF_2
 - about 6 to 16% by weight SrF_2
 - about 4 to 13% by weight BaF_2
 - about 22 to 31% by weight AlF_3

wherein the proportion of the alkaline earth fluoride amounts to between about 23 and 52% by weight; and

- (c) alkaline fluoborate:
 - about 5 to 29% by weight NaBF_4 , wherein boron ions are introduced by means of the complex fluoborate to prevent formation of B_2O_3 .

4. A fluorophosphate glass as defined in claim 1, wherein the glass is produced by the process steps comprising:

- (a) heating the intermixed mixture to a temperature between 700° and 800° C.;

- (b) refining the melt at a temperature between 900° and 1000° C. for a period of time between 8 and 25 minutes;
- (c) homogenizing the melt at a temperature between 900° and 1000° C. within a period of time between 5 and 15 minutes;
- (d) reducing the temperature to a pouring temperature between 575° and 650° C.; and
- (e) pouring into a casting mold preheated to approximately 320° C.

4,363,880

METHOD OF SELECTIVELY REMOVING ADSORBED CALCIUM AND MAGNESIUM FROM CATION EXCHANGE RESINS

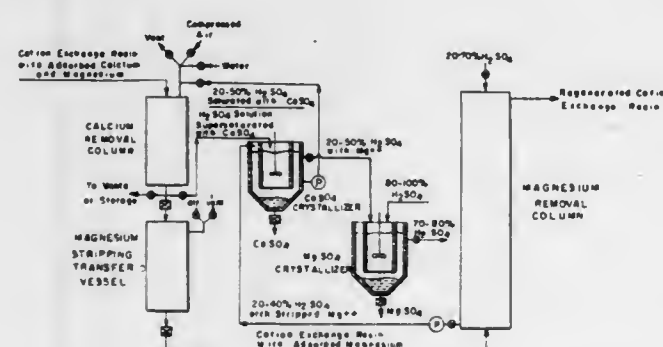
Solon G. Whitney, Bartow, and William R. Erickson, Lakeland, both of Fla., assignors to American Petro Mart, Inc., Bartow, Fla.

Filed Jun. 22, 1981, Ser. No. 275,648

Int. Cl.³ B01J 49/00

U.S. Cl. 521-26

8 Claims



8. The method of selectively removing calcium from cation exchange resin beads containing adsorbed calcium and magnesium ions, comprising the steps of:

- passing an aqueous sulfuric acid (H_2SO_4) solution through a bed of said resin beads, said solution having an H_2SO_4 concentration of from 20 to 50% by weight, being saturated with calcium sulfate ($CaSO_4$), and containing magnesium sulfate ($MgSO_4$) at a concentration substantially below saturation;
- continuing to pass said solution through said resin bed until the adsorbed magnesium is in ion exchange equilibrium with the magnesium in solution while simultaneously exchanging the hydrogen ions in solution for the adsorbed calcium ions, said solution becoming supersaturated with calcium sulfate;
- passing the said supersaturated solution to a crystallizer and precipitating $CaSO_4$ therein;
- recycling the H_2SO_4 solution in said crystallizer after said precipitation of $CaSO_4$ therefrom through said resin bed for further removal of adsorbed calcium, said recycling being continued until at least 75% of the adsorbed calcium has been removed while leaving the adsorbed magnesium in said beads;
- next eluting the magnesium from said resin beads from which the calcium has been removed by passing an aqueous sulfuric acid solution therethrough having an H_2SO_4 concentration of from 20 to 70% by weight to obtain an eluate containing $MgSO_4$ at below saturation; and
- thereafter precipitating the magnesium from said eluate by increasing the H_2SO_4 concentration thereof to a concentration above the saturation solubility of the $MgSO_4$.

4,363,881

METHOD OF MAKING UNIFORMLY-SIZED EXPANDABLE POLYMERIC PARTICLES

Stuart B. Smith, Conyers, Ga., assignor to Cellofoam A.G., Lucerne, Switzerland

Continuation-in-part of Ser. No. 210,566, Nov. 26, 1980, abandoned. This application Aug. 3, 1981, Ser. No. 289,306

Int. Cl.³ C08J 9/18, 9/20

U.S. Cl. 521-56

15 Claims

- In a method of making expandable polymeric particles by way of suspension polymerization, the improvement of achieving expandable polymeric particles falling within a desired size range comprising the steps of:
 - interrupting said suspension polymerization at the completion of a first stage at which time the polymerization of the polymerizable material is not more than 80% complete yet forms particles having sufficient physical integrity to withstand size classification;
 - classifying said particles by size to yield partially polymerized particles falling within a desired size range;
 - completing the polymerization of said desirably-sized partially polymerized particles during a second stage suspension polymerization; and
 - impregnating the desirably-sized particles with blowing agent.

4,363,882

METHOD FOR PRODUCING FLAME RETARDANT FLEXIBLE POLYURETHANE FOAMS WITH BLENDS OF DIBROMONEOPENTYL GLYCOL AND FLAME RETARDANT PLASTICIZER

Gunter H. Wegner, Charlotte, N.C., assignor to Reeves Brothers, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 29,340, Apr. 12, 1979, Pat. No. 4,275,171. This application Jun. 19, 1981, Ser. No. 275,584

The portion of the term of this patent subsequent to Jun. 23, 1998, has been disclaimed.

Int. Cl.³ C08G 18/14

U.S. Cl. 521-107

17 Claims

- In a process for producing flexible polyether or polyester polyurethane foams having a porosity in the range from about 0.5 to about 10 cubic feet per minute, in which a polyfunctional isocyanate is reacted with a polyol in the presence of a small amount of a blowing agent and a catalytic amount of a polymerization catalyst, the improvement which comprises: incorporating as a separate reactant into the reaction mixture prior to polymerization in excess of about 20 to about 60 percent by weight of a mixture of dibromoneopentyl glycol or its esters and flame retardant plasticizer, based on the weight of polyol used in the polymerization reaction, which manner of incorporating said mixture results in substantially more flame retardant foams without adversely affecting the physical characteristics of said foams.

4,363,883

STRUCTURAL MATERIALS AND COMPONENTS

John Gagliani, and Raymond Lee, both of San Diego, Calif., assignors to International Harvester Company, Chicago, Ill.

Filed Sep. 12, 1980, Ser. No. 186,563

Int. Cl.³ C08J 9/32

U.S. Cl. 521-222

10 Claims

- A blocking material or the like which comprises a polyimide foam having uniformly distributed therethrough glass microballoons of a size and in an amount which is effective to increase the screw withdrawal effectiveness of the polyimide, said polyimide being a copolyimide containing two primary

diamines, one of said diamines being heterocyclic and having nitrogen in the ring and the other of said diamines being a para-



or meta-substituted aromatic diamine which is free of aliphatic moieties.

4,363,884

FRICITION MATERIAL

Osao Ogiwara, Hanyu, Japan, assignor to Akebono Brake Industry Company, Ltd., Tokyo, Japan

Filed Mar. 17, 1981, Ser. No. 244,788

Claims priority, application Japan, Mar. 17, 1980, 55-33581; Mar. 17, 1981, 55-33582

Int. Cl.³ C08L 63/00

U.S. Cl. 523-156

2 Claims

- In a non-asbestos friction material comprising 5-60 wt.% of ferrous metal particle and/or ferrous metal fiber, 0.5-15 wt.% of organic dust selected from the group consisting of cashew dust and rubber dust, 2-20 wt.% of inorganic substance powder selected from the group consisting of barium sulfate, calcium sulfate, calcium silicate and calcium carbonate, 5-25 wt.% of lubricant selected from the group consisting of graphite and molybdenum disulfide, 0-20 wt.% of metal powder selected from the group consisting of copper, brass and aluminum, 0-20 wt.% of fibrous reinforcement material comprising at least one material selected from the group consisting of organic and inorganic fibers other than ferrous metal fibers, and 3-15 wt.% of thermosetting resin binder selected from the group consisting of phenol, melamine and epoxide, the friction material is characterized in containing at least 0.01 wt.% of at least one material selected from the group consisting of boric acid, borate, phosphoric acid and phosphate as an anticorrosive component.

4,363,885

PROPYLENE POLYMER COMPOSITION USEFUL FOR BUMPERS

Osamu Fukui, Toyonaka; Yoshiro Umemoto, Nagoya; Tsugumi Sanmiya, Toyota; Yutaka Sano, Kishiwada, and Kazuyoshi Tanaka, Sakai, all of Japan, assignors to UBE Industries, Ltd., Yamaguchi and Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, both of Japan

Filed Jun. 24, 1981, Ser. No. 276,972

Claims priority, application Japan, Sep. 22, 1980, 55/130748

Int. Cl.³ C08K 3/34; C08L 53/00

U.S. Cl. 523-212

11 Claims

- A propylene polymer composition useful for bumpers, comprising
 - 55 to 65% by weight of at least one crystalline ethylene-propylene block copolymer in which the content of the polymerized ethylene is in the range of from 5 to 10% by

weight, in which the polypropylene component has a fraction thereof insoluble in boiling n-heptane, in an amount of 97% or more based on the weight of said polypropylene component, in which a fraction thereof soluble in p-xylene at room temperature, has an intrinsic viscosity of from 3 to 4 determined in decahydronaphthalene at a temperature of 135° C. and which has a melt flow index of from 2 to 10;

(B) 30 to 35% by weight of at least one amorphous ethylene-propylene copolymer having an intrinsic viscosity of from 2.0 to 3.5 determined in decahydronaphthalene at a temperature of 135° C., and a Mooney viscosity ML_{1+4} of from 40 to 100 determined at a temperature of 100° C., and;

(C) 5 to 15% by weight of talc in the form of fine particles having an average size of from 0.5 to 5 microns.

4,363,886

PREPARATION OF AMPHOTERIC WATER-IN-OIL SELF-INVERTING POLYMER EMULSION

Stanley A. Lipowski, Livingston, and John J. Miskel, Jr., Mendham, both of N.J., assignors to Diamond Shamrock Corporation, Dallas, Tex.

Division of Ser. No. 84,986, Oct. 15, 1979, Pat. No. 4,330,450.

This application Sep. 4, 1981, Ser. No. 299,619

Int. Cl.³ C08L 27/06, 29/02, 31/02, 39/08

U.S. Cl. 523-336

9 Claims

- A method of preparing an amphoteric water-in-oil self-inverting polymer emulsion comprising

- forming a water-in-oil emulsion of
 - from about 10 to about 50 parts by weight of a monomer mixture selected from the group consisting of
 - from about 30 to about 99 parts by weight of a water soluble nonionic vinyl monomer and from about 1 to about 70 parts by weight of a water soluble amphoteric vinyl monomer to form an amphoteric copolymer, and
 - from about 30 to 98 parts by weight of a water soluble nonionic vinyl monomer, from about 1 to about 35 parts by weight of a water soluble anionic vinyl monomer and from about 1 to about 35 parts by weight of a water soluble cationic vinyl monomer to form an amphoteric terpolymer,
 - from about 10 to about 50 parts by weight of water,
 - from about 5 to about 50 parts by weight of a hydrophobic liquid,
 - from about 2 to about 25 parts by weight of a water-in-oil emulsifying agent, and
 - an effective amount of a free radical yielding initiator to polymerize the monomer mixture,
- polymerizing the monomer mixture under free radical polymerizing conditions to form a water-in-oil emulsion which contains finely dispersed particles of the amphoteric polymer, and
- adding to the water in oil emulsion from about 1 to about 15 parts by weight of an inverting surfactant.

4,363,887

SOLVENT RESIN EMULSION ENAMEL COMPOSITION

Gus W. Leep, Elgin, Ill., assignor to Seymour of Sycamore, Inc., Sycamore, Ill.

Filed Jun. 11, 1981, Ser. No. 272,509

Int. Cl.³ C08L 23/00, 63/00, 67/02, 75/06

U.S. Cl. 523-402

9 Claims

- A water-in-oil emulsion enamel composition for a substrate to which the composition is applied comprising: a continuous oil phase including an organic solvent soluble resin capable of forming a coating on the substrate and an evaporable solvent for said resin; water dispersed in said oil phase; an effective amount of an emulsifier system having a hydrophile-lipophile balance of from two to six; a polar pigment dispersed in said composition; and an effective amount of a titanium

derived coupling agent as a pigment dispersant, said pigment dispersant being included within said emulsifier system whereby substantially no loss of gloss of said enamel composition is experienced after said enamel composition has dried and cured to form said coating on said substrate.

4,363,888

BEAD POLYMERIZATION PROCESS

Geoffrey Willison, Cleveland, and John C. W. Hodge, Northlerton, both of England, assignors to Tioxide Group Limited, Cleveland, England

Filed Apr. 24, 1981, Ser. No. 257,130

Claims priority, application United Kingdom, May 9, 1980, 8015374

Int. Cl.³ C08J 3/26

U.S. Cl. 523—502 10 Claims

1. A process for the preparation of rigid beads formed from cross-linked polyester resin comprising forming an oil-in-water or a water-in-oil-in-water emulsion in which the oil phase contains an unsaturated polyester resin and an unsaturated organic monomer to provide said cross-linking; heating the emulsion to a temperature of at least 45° C. and thereafter introducing into the heated emulsion a polymerisation initiator, and promoter system if not already present, thereby initiating cross-linking of the resin to form an aqueous suspension of rigid beads of cross-linked polyester resin.

4,363,889

ANTI-CORROSIVE COATING COMPOSITION AND PROCESS FOR FORMATION OF ANTI-CORROSIVE COATINGS

Minoru Hoshino, Yokohama; Tosio Shinohara, Fujisawa; Hiroyuki Tanabe, Yokohama; Tooru Taki, Yamato, and Shunsuke Nakayama, Yokohama, all of Japan, assignors to Dai Nippon Toryo Co., Ltd., Osaka, Japan

Filed Oct. 28, 1980, Ser. No. 201,606

Claims priority, application Japan, Dec. 19, 1979, 54-165087; Dec. 20, 1979, 54-166205

Int. Cl.³ C08K 3/40; C08L 67/00

U.S. Cl. 523—513 7 Claims

1. An anti-corrosive coating composition comprising 100 parts by weight of an unsaturated polyester resin, 10 to 70 parts by weight of glass flake having an average particle size of 100 to 400 microns and an average thickness of 0.5 to 5 microns, 10 to 150 parts by weight of at least one scaly anti-corrosive metal pigment selected from the group consisting of lead pigment and zinc pigment, a member selected from the group consisting of a mixture of 0.1–1.0 parts by weight of a ketone peroxide and 0.5–2.0 parts by weight of a hydroperoxide, a mixture of 0.1–1.0 parts by weight of a ketone peroxide and 0.5–2.0 parts by weight of a peroxyester and a mixture of 0.1–1.0 parts by weight of said ketone peroxide, 0.5–2.0 parts by weight of said hydroperoxide and 0.5–2.0 parts by weight of said peroxyester.

4,363,890

PROCESS FOR PRODUCING FLAME RETARDANT POLYAMIDE MOLDING RESIN CONTAINING MELAMINE CYANURATE

Hiroshi Ohshita, and Tadao Tsutsumi, both of Nagoya, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Division of Ser. No. 138,690, Apr. 9, 1980. This application Mar. 9, 1981, Ser. No. 240,576

Claims priority, application Japan, Apr. 12, 1979, 54-44616; Apr. 12, 1979, 54-44617; Apr. 12, 1979, 54-44618; Apr. 12, 1979, 54-170338

Int. Cl.³ C08K 5/04, 5/34; C08L 77/00

U.S. Cl. 524—101 4 Claims

1. A method for preparing a flame retardant polyamide molding resin, containing melamine cyanurate as a flame retardant agent, which comprises separately melt-blending melamine and cyanuric acid with the polyamide, melt-blending both polyamide blends with each other in such an amount that the amounts of melamine and cyanuric acid are equimolar in

the ultimate blend of the polyamide molding resin, and thereby converting melamine and cyanuric acid to melamine cyanurate at a conversion of substantially 100%.

4,363,891

GLYCERYL MONOSTEARATE PLASTIC LUBRICANTS

Marvin Rosen, Williamsport, and Larry K. Hall, Cogan Station, both of Pa., assignors to Glyco Inc., Williamsport, Pa.

Filed May 14, 1981, Ser. No. 263,733

Int. Cl.³ C08K 5/10

U.S. Cl. 524—317 10 Claims

1. A method for improving early color and long-term heat stability under dynamic processing conditions of a rigid plastic material selected from the group consisting of polyvinylchloride, acrylonitrile-butadiene-styrene copolymer and polypropylene which comprises adding to said material a glyceryl monostearate lubricant containing less than 4% glycerine.

4,363,892

THERMOPLASTIC COPOLYESTER ELASTOMERS MODIFIED WITH SALTS OF PHENOLIC COMPOUNDS

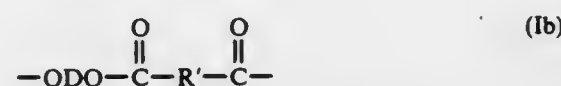
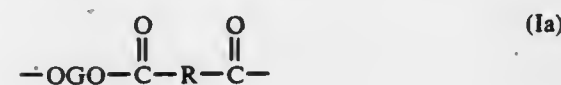
Albert L. Shain, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 5, 1982; Ser. No. 355,169

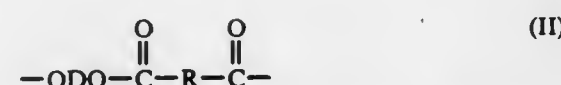
Int. Cl.³ C08K 5/05, 5/13

U.S. Cl. 524—327 9 Claims

1. A thermoplastic copolyester elastomer composition comprising (A) a copolyester consisting essentially of a multiplicity of long-chain ester units and short-chain ester units joined through ester linkages, said long-chain ester units selected from the group consisting of units represented by the formula (Ia), formula (Ib) and combinations thereof



and said short-chain ester units being represented by formula (II)



where G is a divalent radical remaining after the removal of hydroxyl groups from at least one long-chain glycol having a melting point of less than about 55° C. and a number average molecular weight of about 400–4000, R is a divalent radical remaining after the removal of carboxyl groups from at least one dicarboxylic acid having a molecular weight less than about 300, R' is a divalent radical remaining after the removal of carboxyl groups from dimer acid, D is a divalent radical remaining after the removal of hydroxyl groups from at least one aliphatic diol having a molecular weight less than about 250, with the proviso that at least about 70 mole percent of the D radicals are either ethylene radicals or 1,4-butylene radicals and at least about 70 mole percent of the R radicals are 1,4-phenylene radicals, said short-chain ester units being present in an amount of about 15–95 percent by weight of said copolyester; and (B) about 0.1–10 percent by weight, based on the weight of the total composition, of at least one alkali metal salt of a phenolic compound having a pK_{a25} greater than 5 and an equivalent weight of less than about 300 per phenolic hydroxyl group.

4,363,893

SHOE POLISH

David Hersh, 8599 Venice Blvd., Los Angeles, Calif. 90034

Filed Jul. 27, 1981, Ser. No. 287,528

Int. Cl.³ C08K 5/05

U.S. Cl. 524—376

9 Claims

1. A composition comprising: about 15% to about 25% by weight acrylic resin dispersion; about 6% to about 10% butyl cellosolve; and the balance deionized water.

4,363,894

GLASS REINFORCED POLYAMIDE COMPOSITIONS HAVING IMPROVED IMPACT STRENGTHS

Jean-Louis Locatelli, Vienne, France, assignor to Rhone-Poulenc Industries, Paris, France

Filed Dec. 5, 1980, Ser. No. 213,471

Claims priority, application France, Dec. 10, 1979, 79 30651

Int. Cl.³ C08K 3/40

U.S. Cl. 524—494 15 Claims

1. A composition of matter, comprising (i) a polyamide resin, (ii) a reinforcing amount of glass fibers therefor, and (iii) an impact strength increasing amount of a (meth)acrylic compound having the structural formula:



wherein R is hydrogen or methyl, n is an integer equal to 2, 3 or 4, A is the linkage —O— or —NH— and X is an organic radical of valency n selected from the group consisting of linear or branched chain alkylene radical having from 1 to 20 carbon atoms, such alkylene radical comprising one or more chain-interrupting oxygen bridges, one or more hydroxyl groups or one or more of both said oxygen bridges and hydroxyl groups, an aralkylene radical wherein the aryl moiety contains from 6 to 10 carbon atoms and the alkylene moiety is as defined above, such aralkylene radical comprising one or more alkylene chain-interrupting oxygen bridges, and a triazino heterocycle.

4,363,895

SOLUTIONS, WHICH CAN BE SHAPED, FROM MIXTURES OF CELLULOSE AND POLYAMIDE-IMIDE, AND SHAPED ARTICLES OBTAINED

Pierre Chion, Bron; Jacques Menault, Charbonnières-les-Bains, and Henry Rodier, Sainte-Foy-les-Lyon, all of France, assignors to Rhone-Poulenc-Textile, Paris, France

Filed Mar. 16, 1981, Ser. No. 244,135

Claims priority, application France, Mar. 14, 1980, 80 06069

Int. Cl.³ C08L 79/08; C08G 73/14; C08L 1/02; D01F 8/02

U.S. Cl. 525—54.21 20 Claims

1. Shapable polymer solution comprising (A) cellulose having a degree of polymerization of at least 200 (B) polyamide-imide (C) dimethyl sulphoxide, and (D) formaldehyde,

the weight ratio of cellulose/polyamide-imide being between about 0.05 and about 1, the weight ratio of formaldehyde/cellulose being between about 0.2 and about 2 and the total polymer concentration being between about 6 and about 25% by weight.

13. Fibers, filaments and yarns based on cellulose and polyamide-imide, wherein the weight ratio of cellulose/polyamide-imide is between 0.05 and 1, and each polymer is in the form of fibrils whose axis is substantially oriented along the axis of the fiber, the fibrils being intermingled, and wherein at least part of the cellulose macromolecules are involved in a 3-dimensional crystal lattice characteristic of cellulose II.

4,363,896

COMPOSITION WITH LATENT REACTIVE CATALYST-#4

Mohinder S. Chattha, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Continuation of Ser. No. 109,448, Jan. 4, 1980, abandoned. This application Jul. 28, 1981, Ser. No. 286,394

Int. Cl.³ C08L 63/00, 37/00, 61/78

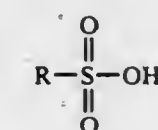
U.S. Cl. 525—110 18 Claims

1. A liquid thermosetting high solids coating composition which (i) cures, at least in part, by reaction between an amine-aldehyde compound and hydroxyl functionality on a film-forming component, which hydroxyl functionality is generated in situ during cure of said composition, (ii) is adapted for low temperature bake applications, (iii) contains greater than about 55% by weight of nonvolatile solids, and (iv) exclusive of pigments, solvents and other nonreactive components, consists essentially of:

(A) a film-forming copolymer bearing pendent epoxy functionality, having a number average molecular weight (\bar{M}_n) of between about 1,500 and about 10,000 and a glass transition temperature (T_g) of between about —25° C. and about 70° C., said copolymer consisting of between about 10 and about 30 weight percent of monoethylenically unsaturated monomers bearing glycidyl functionality and between about 90 and about 70 weight percent of other monoethylenically unsaturated monomers;

(B) a latent reactive catalyst comprising the reaction product of (i) a bifunctional copolymer bearing hydroxyl functionality and pendant epoxy functionality, having a number average molecular weight (\bar{M}_n) of between about 1,500 and about 10,000 and a glass transition temperature (T_g) of between about —25° C. and about 70° C., said copolymer being prepared from (a) between about 1 and about 25 weight percent of monoethylenically unsaturated monomers bearing glycidyl functionality, (b) between about 10 and about 29 weight percent of monoethylenically unsaturated monomers bearing hydroxyl functionality, and

(c) between about 65 and about 89 weight percent of other monoethylenically unsaturated monomers; and (ii) a sulfonic acid having the formula



wherein R is selected from linear or branched alkyl groups and aryl groups, said bifunctional copolymer bearing pendant epoxy functionality and said sulfonic acid being reacted in such amounts that there are between about 0.3 and about 1 acid groups per epoxy in the reaction mixture;

(C) an amine-aldehyde crosslinking agent; and (D) up to 45 weight percent of hydroxy functional additive having a number average molecular weight (\bar{M}_n) of between 150 and about 6,000,

said latent reactive catalyst being included in said composition in an amount ranging from between about 1 and about 5 weight percent, and said amine-aldehyde crosslinking agent being included in said composition in an amount ranging from about 15 to about 45 weight percent, said weight percent being based on the total weight of (A), (B), (C) and (D).

4,363,897

THERMALLY REVERSIBLE COPOLYMERS AND
PROCESS FOR THE PREPARATION THEREOF

Binnur Günesin, Uniontown; Gary R. Hamed, Akron; Jung W. Kang, Clinton, and Donald N. Schulz, Hartville, all of Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio

Division of Ser. No. 132,737, Mar. 24, 1980, Pat. No. 4,307,210.
This application Sep. 18, 1981, Ser. No. 303,213

Int. Cl.³ C08F 222/38

U.S. Cl. 525—195

3 Claims

1. A process for improving the green strength of styrene-butadiene rubber comprising the step of:
compounding with said styrene-butadiene rubber a thermally reversible copolymer comprising:
from about 0.5 to about 11 percent by weight of an N-(alkoxymethyl)acrylamide;
from about 10 to about 90 percent by weight of a diene compound;
from about 0 to about 90 percent by weight of a monomer containing a vinyl group; and
at least one equivalent mole of a metal ion to two equivalent moles of said N-(alkoxymethyl)acrylamide.

4,363,898

PERFLUORODIGLYCIDYL ETHERS

Carl G. Krespan, and Thomas R. Darling, both of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

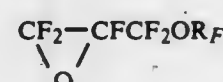
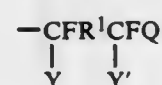
Filed Apr. 3, 1981, Ser. No. 250,907

Int. Cl.³ C08G 65/22

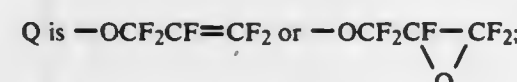
U.S. Cl. 525—404

9 Claims

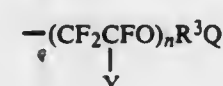
1. A homopolymer of a perfluoroglycidylether of the formula

wherein R_F is:

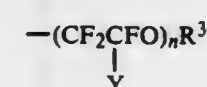
wherein R^1 is a carbon-carbon bond or a linear or branched perfluoroalkylene group of 1 to 12 carbon atoms;



Y and Y' are —F or —CF₃, provided that only one of Y and Y' can be —CF₃; or



wherein R^3 is a linear or branched perfluoroalkylene group of carbon content such that the moiety



does not exceed 15 carbon atoms; Y, independently, is —F or —CF₃; n is 1 to 4; and Q is as defined above.

4,363,899

PROCESS FOR CROSS-LINKING POLYESTER SERIES
RESIN

Isao Shirahata, Chigasaki; Nobu Kitamura, Hiratsuka; Nobuyuki Nakamura, Fujisawa, and Hisako Hori, Tokyo, all of Japan, assignors to The Furukawa Electric Co., Ltd., Tokyo, Japan

Filed May 5, 1981, Ser. No. 260,690

Claims priority, application Japan, Dec. 18, 1980, 55-179527

Int. Cl.³ C08G 63/76; C08F 283/00

U.S. Cl. 525—437

19 Claims

1. A process for cross-linking a polyester series resin characterized by forming into a predetermined shape a resin composition comprising a substantially linear polyester series resin and a copper source material selected from the group consisting of copper powder and copper compounds and heating said composition to a temperature above the melting point of said resin in an oxygen-containing atmosphere to cross-link said polyester resin.

4,363,900

PROCESS FOR PREPARING

POLYTETRAFLUOROETHYLENE FINE POWDER

Tetsuo Shimizu, Osaka, and Shun Koizumi, Kawanishi, both of Japan, assignors to Daikin Kogyo Co., Ltd., Osaka, Japan

Filed Jun. 1, 1981, Ser. No. 268,835

Claims priority, application Japan, May 31, 1980, 55-72930

Int. Cl.³ C08F 114/18

U.S. Cl. 526—83

6 Claims

1. A process for preparing polytetrafluoroethylene fine powder by polymerization of tetrafluoroethylene in an aqueous medium comprising a water-soluble polymerization initiator and a non-telogenic surfactant capable of keeping colloidal polytetrafluoroethylene particles at a sufficiently stable state, the process comprising effecting the polymerization at a temperature of 55° to 120° C., and incorporating into the aqueous medium a polymerization retarder selected from the group consisting of aromatic compounds having at least one substituent group selected from the group consisting of hydroxy and amino, and quinone compounds, said retarder having a water-solubility of not less than 2.5×10^{-6} mol/liter at 25° C., a boiling point of from 94° to 241° C. and not having any reinitiation ability after its addition or chain transfer to a free radical in the polymerization system, said retarder being incorporated into the aqueous medium in an amount of 0.7 to 20 ppm at the stage after the initiation of the polymerization and after the consumption of at least 10% by weight of tetrafluoroethylene to be polymerized but before the consumption of 85% by weight of tetrafluoroethylene to be polymerized so that the polymerization time is extended at least 130% in comparison with that of the case wherein the polymerization is effected under the same conditions as above except not using the polymerization retarder, whereby colloidal polytetrafluoroethylene particles, of which the core portions occupying 50% by weight of the total weight of the finally produced particles have a specific gravity of not more than 2.210, of which the specific gravity of the finally produced particles is not more than that of the core portions and of which the average particle size is 0.1 to 0.5 μm , are obtained.

4,363,901

PROCESS FOR PRODUCING α -OLEFIN POLYMERS
Kazutsune Kikuta; Masami Tachibana, both of Ichiharashi, and Akihiro Sato, Chibaken, all of Japan, assignors to Chisso Corporation, Tokyo, Japan

Filed Feb. 12, 1981, Ser. No. 233,778

Claims priority, application Japan, Feb. 15, 1980, 55/17249

The portion of the term of this patent subsequent to Sep. 1, 1998, has been disclaimed.

Int. Cl.³ C08F 4/02, 10/00

U.S. Cl. 526—97

10 Claims

1. A process for producing α -olefin polymers which comprises:

milling (A) a trivalent metal halide selected from the group consisting of aluminum trichloride (anhydrous), ferric chloride (anhydrous) and aluminum tribromide (anhydrous), together with

(B) a divalent metal compound selected from the group consisting of

$\text{Mg}(\text{OH})_2$, $\text{Ca}(\text{OH})_2$, $\text{Zn}(\text{OH})_2$, $\text{Mn}(\text{OH})_2$, MgO , CaO , ZnO , MnO , MgAl_2O_4 , Mg_2SiO_4 , Mg_6MnO_8 , MgCO_3 , MnCO_3 , $\text{MgCO}_3 \cdot \text{CaCO}_3$, $\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$, $\text{MgCl}_2 \cdot n\text{H}_2\text{O}$ ($n=1 \sim 6$), $\text{NiCl}_2 \cdot 6\text{H}_2\text{O}$, $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$, $\text{KMgCl}_3 \cdot 6\text{H}_2\text{O}$, $\text{MgCl}_2 \cdot n\text{Mg}(\text{OH})_2 \cdot m\text{H}_2\text{O}$ ($n=1 \sim 3$, $m=1 \sim 6$), $3\text{MgO} \cdot 2\text{SiO}_2 \cdot 2\text{H}_2\text{O}$, $3\text{MgCO}_3 \cdot \text{Mg}(\text{OH})_2 \cdot 3\text{H}_2\text{O}$ and $\text{Mg}_6\text{Al}_2(\text{OH})_{14}\text{CO}_3 \cdot 4\text{H}_2\text{O}$,

in a proportion of 0.1 to 20 mols of (B) to one mol of (A), and reacting the resulting mixture of (A) with (B) at a temperature of room temperature (20° C.) to 500° C.,

to obtain a solid product (I);

reacting with this solid product (I),

(ED) an electron donor selected from the group consisting of alcohols, ethers, esters, aldehydes, fatty acids, ketones, nitriles, amines, amides, urea, thiourea, isocyanates, azo compounds, phosphines, phosphites, phosphinites, thioethers, thioalcohols and polysiloxanes, and

(EA) an electron acceptor selected from the group consisting of (EA₁) aluminum chloride compounds expressed by the formula $\text{R}_n\text{AlCl}_{3-n}$ (wherein $0 \leq n < 3$ and R is a hydrocarbon radical of 1 to 20 carbon atoms), and (EA₂) inorganic chlorides consisting of the group of SiCl_4 , SnCl_4 , SnCl_4 , TiCl_4 , ZrCl_4 , PbCl_4 , VCl_4 , SbCl_5 , SbCl_5 , SbCl_5 , MnCl_2 , FeCl_2 and NiCl_2 ,

at a reaction temperature of 0° to 500° C.,

(ED) and (EA) being respectively reacted one to 10 times, TiCl_4 being employed as said electron acceptor at least once, and

(ED) and (EA) being respectively employed in an amount of 5 to 50 parts by weight each time, based on 100 parts by weight of said solid product (I),

to obtain a solid product (II);
combining with one part by weight of this solid product (II), 0.1 to 500 parts by weight of (OAl) an organoaluminum compound, and

0.05 to 20 parts by weight of (ED) an electron donor, and at the time of this combination, reacting 0.05 to 300 parts by weight based on one part by weight of said solid product (II), of (α -O) an α -olefin, with a combination of said solid product (II) and said (OAl) or a combination of said solid product (II), said (OAl) and said (ED), at a temperature of 0° to 100° C. for a period of one minute to 20 hours, to obtain a preactivated catalyst; and

polymerizing an α -olefin or α -olefins in the presence of this catalyst.

1025 O.G.—26

4,363,902

PROCESS AND HEAVY METAL CATALYST FOR THE
POLYMERIZATION OF α -OLEFINS, PARTICULARLY
POLYETHYLENE

Dieter Kurz, Burghausen, Fed. Rep. of Germany, assignor to Wacker-Chemie GmbH, Munich, Fed. Rep. of Germany

Filed Dec. 10, 1980, Ser. No. 214,704

Claims priority, application Fed. Rep. of Germany, Mar. 17, 1980, 3010202; Jul. 8, 1980, 3025759

Int. Cl.³ C08F 4/02, 10/00

U.S. Cl. 526—114

16 Claims

1. An improvement in the process for the polymerization of an at least one α -olefin comprising reacting said α -olefin under elevated temperatures and pressures in the presence of a solid polymerization catalyst consisting essentially of a solid compound containing (1) element(s) of the IV and/or V subgroup(s) of the Mendeleev Periodic Table, (2) magnesium, (3) halogen, (4) oxygen, and possibly (5) element(s) of the II and/or III main group(s) of the Mendeleev Periodic Table, which solid compound is activated with at least one organometallic compound where said metal is from the II and/or III main group(s) of the Mendeleev Periodic Table, and recovering a polymerize, the improvement consisting of preparing said solid compound prior to activation, by reacting a primary solid containing magnesium and halogen prepared from at least one hydrocarbon-soluble magnesium compound and at least one halogen compound selected from the group consisting of a chlorohydrocarbon having from 1 to 6 carbon atoms of which at least one carbon atom has at least two directly bonded chlorine atoms, a carbon chloride compound having from 1 to 6 carbon atoms, and mixtures thereof, in two successive and separate reacting stages A and B, in either order, where a solid based on magnesium compound(s) is reacted in reaction stage A in suspension in at least one liquid hydrocarbon with

(i) at least one alkoxy compound of a metal selected from the group consisting of potassium, sodium, magnesium, calcium, zinc, boron, aluminum, silicon, tin, titanium, zirconium, phosphorus, vanadium and sulfur, said compound containing at least one alkoxy group having from 3 to 18 carbon atoms selected from the group consisting of secondary alkoxy and tertiary alkoxy, and

(ii) at least one halogen-containing titanium compound of the formula



wherein X represents halogen, R^4 is a substituent selected from the group consisting of alkyl having 1 to 8 carbon atoms and hydrocarbon aryl having from 6 to 8 carbon atoms, and a is 2, 3 or 4,

and, in reaction stage B, a solid based on magnesium compound(s) in suspension in at least one liquid hydrocarbon is reacted with

(i) at least one halogen-containing titanium compound of the formula



wherein X' represents halogen, R^3 represents a substituent selected from the group consisting of alkyl having from 1 to 8 carbon atoms and hydrocarbon aryl having from 6 to 8 carbon atoms, and b is 2, 3 or 4, and

(ii) at least one organoaluminum compound, whereby a polymerize is recovered having a broad molecular-weight distribution.

4,363,903

VINYL CHLORIDE COPOLYMER AND COMPOSITION CONTAINING THE SAME

Kazumasa Yamane, Kobe; Masahiro Kobayashi, Amagasaki, and Masahiko Takada, Akashi, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan
Filed Nov. 26, 1980, Ser. No. 210,858

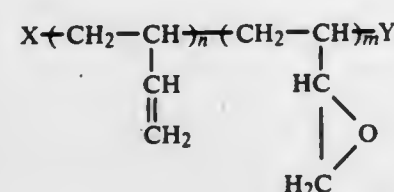
Claims priority, application Japan, Nov. 30, 1979, 54-155874; Dec. 4, 1979, 54-157296

Int. Cl.³ C08F 24/00, 236/00

U.S. Cl. 526—273

1 Claim

1. A copolymer prepared by polymerizing a reaction system comprising a mixture of monomeric components (a) vinyl chloride or a mixture of at least 50% by weight vinyl chloride and a monomer copolymerizable therewith and (b) 0.001 to 10 parts by weight per 100 parts by weight of the monomeric component (a) of a compound having the following general formula:



wherein X and Y are independently hydrogen, hydroxyl or carboxyl, n is an integer of 2 to 100 and m is 0 or an integer of 1 to 80, the polymerization being carried out employing a free-radical polymerization initiator.

4,363,904

HIGH TEAR STRENGTH POLYMERS

William A. Fraser, Princeton; Norma J. Maraschin, Somerset; Frederick J. Karol, Belle Mead, all of N.J., and Alexander J. Makai, Charleston, W. Va., assignors to Union Carbide Corporation, Danbury, Conn.

Division of Ser. No. 49,555, Jun. 18, 1979, abandoned. This application Mar. 23, 1981, Ser. No. 246,913

Int. Cl.³ C08F 210/16

U.S. Cl. 526—348.2

7 Claims

1. An ethylene based hydrocarbon polymer comprising ethylene, C_a monomer and C_b monomer, wherein the C_a monomer is selected from propylene, butene-1 and mixtures thereof, and the C_b monomer is selected from one or more C₅ to C₈ alpha monoolefins which contain no branching closer than the fourth carbon atom the molar ratio in the polymer of (C_a/C₂) is about 0.006 to 0.09 and the molar ratio of (C_b/C₂) is about 0.003 to 0.07, and the Branch Chain Factor is about 0.2 to 0.8, and said polymer being heterogeneous and having a density of about 0.91 to 0.94, n-hexane extractables content at 50° C. of less than about 5.5 weight percent, melt index of about 0.5 to 5.0, M_w/M_n of about 2.7 to 4.3, and melt flow ratio of about 22 to 36.

4,363,905

POLYCARBONATE TRANSESTERIFICATION FROM BIS(ORTHO-NITROARYL)CARBONATE

Daniel J. Brunelle, Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Apr. 23, 1980, Ser. No. 143,805

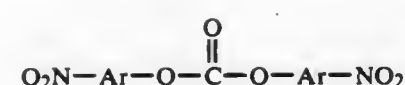
The portion of the term of this patent subsequent to Feb. 23, 1999, has been disclaimed.

Int. Cl.³ C08G 63/62

U.S. Cl. 528—196

12 Claims

1. A thermoplastic polycarbonate transesterification process comprising reacting (A) a bis(ortho-nitroaryl)carbonate of the formula,



wherein Ar is an aromatic ring; with (B) a dihydric phenol under basic reaction conditions including a phase transfer catalyst.

4,363,906

CONDENSATION PRODUCT PREPARED FROM N,N'-ETHYLENE-UREA AND FORMALDEHYDE

Oswaldo Cicchetti; Spartaco Fontani; Gianluigi Landoni, all of Milan; Renato Locatelli, Ferrara; Guido Bertelli, Ferrara, and Pierpaolo Roma, Ferrara, all of Italy, assignors to Montedison S.p.A., Milan, Italy

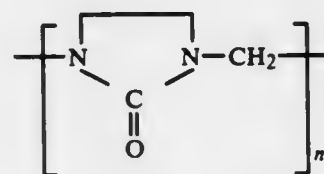
Filed Apr. 2, 1981, Ser. No. 250,102

Claims priority, application Italy, Apr. 3, 1980, 21165 A/80
Int. Cl.³ C08G 2/00, 12/34

U.S. Cl. 528—248

4 Claims

1. A solid and water-insoluble condensation product of N,N'-ethyleneurea and formaldehyde, characterized by the structure



wherein n is an integer from 20 to 60 having a mean value of 41, and by an average number molecular weight M_n ranging from 2,000 to 6,000.

3. The process for producing the condensation product of claim 1, which comprises reacting in an aqueous medium, equimolecular amounts of N,N'-ethyleneurea and formaldehyde, at a pH of about 2 and at a temperature of from 0° C. to 40° C., the formaldehyde being added at any time provided the temperature is maintained constant.

4,363,907

COHALOGENATION PROCESS FOR POLYESTERS

Robert E. Hefner, Jr.; Hans R. Friedli, and Mark J. Hazelrigg, Jr., all of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Jul. 14, 1981, Ser. No. 283,315

Int. Cl.³ C08G 63/02, 63/68, 63/76, 79/02

U.S. Cl. 528—287

17 Claims

1. A process for preparing halogenated compositions of (1) and α,β-unsaturated polyester containing pendant unsaturated groups, (2) a dicyclopentadienyl ester of an α,β-unsaturated carboxylic acid and (3) a reactive diluent, said process comprising the reaction of (a) a blend of (1) and (2) in proportions that the total unsaturation of pendant and dicyclopentadienyl unsaturation equals, when halogenated, the amount of halogen desired in said halogenated composition, with (b) about a stoichiometric amount, based on said total non α,β-unsaturation, of halogen, said reaction conducted at a temperature of less than about 25° C. until halogenation is substantially complete, after which a polymerization inhibitor-stabilizer is added, any solvent removed, followed by the addition of said reactive diluent.

4,363,908

POLYESTER MODIFIED WITH ALKYL- OR ALKENYLSUCCINIC ANHYDRIDES

Frederick B. Joyner; Jimmy R. Trotter, and Richard L. McConnell, all of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

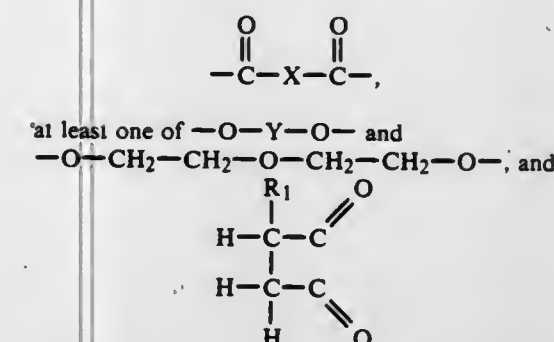
Filed Aug. 31, 1981, Ser. No. 297,816

Int. Cl.³ C08G 63/16

U.S. Cl. 528—302

5 Claims

1. A composition comprising a copolyester having a melting point of about 90° C. to about 200° C. and an inherent viscosity of about 0.4 to about 1.2, said copolyester containing the following divalent radicals:



wherein X is comprised of at least 65 mole % of the divalent 1,4-cyclohexylene radical with at least 85 mole % thereof giving the trans configuration and 0 and 35 mole % of at least one divalent radical selected from other divalent cycloaliphatic radicals or from divalent aromatic radicals containing 6 to 12 carbon atoms, and from primary aliphatic hydrocarbon radicals containing 2 to 34 carbon atoms, Y is a divalent aliphatic or cycloaliphatic radical containing 2 to 8 carbon atoms, R₁ is a radical containing at least 3 carbon atoms, and wherein said copolyester is further characterized in that radical (A) is present in the amount of about 98 to about 65 mole percent and radical (C) is present in the amount of about 2 to about 35 mole percent.

4,363,909

THIAZOLO[3,4-b]ISOQUINOLINES

Daniel Farge, Thiais; Alain Jossin, St-Cloud; Gerard Ponsinet, Sucy-en Brie, and Daniel Reisdorf, Thiais, all of France, assignors to Rhone Poulenc Industries, France

Filed Dec. 2, 1980, Ser. No. 212,253

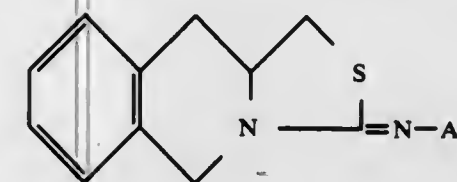
Claims priority, application France, Dec. 4, 1979, 79 29751; Oct. 17, 1980, 80 22260

Int. Cl.³ C07D 513/04

U.S. Cl. 544—238

10 Claims

1. An isoquinoline derivative of the formula:



wherein the symbol A₁ represents an isoquinol-8-yl, 3-methylisoquinol-8-yl, 3-hydroxymethylisoquinol-5-yl, 3-carboxymethylisoquinol-5-yl, quinol-5-yl, thienopyrid-3-yl, benzimidazol-5(or -6)-yl, thien-2-yl or thiazol-2-yl radical, a 4-(or 5-) carboxyalkylthiazol-2-yl radical in which the alkyl moiety is linear or branched and contains 1 to 4 carbon atoms, or a 1,3,4-thiadiazol-2-yl, pyrazol-3-yl, imidazolyl, pyrimidin-2-yl, pyridazin-3-yl or pyrazin-2-yl radical, it being understood that a monocyclic heterocyclic ring within the definition of A₁ may be substituted by a linear or branched alkyl radical containing 1 to 4 carbon atoms, in the (S) or (R,S) form or a mixture thereof, or when A₁ is other than thien-2-yl, a non-toxic pharmaceutically acceptable acid addition salt thereof, or, when A₁ represents a 3-carboxymethylisoquinol-5-yl or 4-(or 5)-car-

boxyalkylthiazol-2-yl radical, optionally substituted by an alkyl radical as hereinbefore defined, a non-toxic pharmaceutically acceptable metal salt thereof or a non-toxic pharmaceutically acceptable addition salt thereof with a nitrogen-containing base.

4,363,910

2,2-DIMETHYL-1,2-DIHYDROQUINOLINE DERIVATIVES USEFUL AS ANTIOXIDANTS

Dezső Ambrus; Tamas Szabolczi; Istvan Hutás, all of Budapest, Hungary assignors to Chinolin Gyogyszer es Vegyszeti Termekek Gyara R.T., Budapest, Hungary

Filed Feb. 15, 1980, Ser. No. 121,810

Claims priority, application Hungary, Feb. 21, 1979, CI 1916
Int. Cl.³ C07D 215/36

U.S. Cl. 546—172

3 Claims

1. (2,2-Dimethyl-1,2-dihydroquinoline-4-yl)-methylsulfonic acid or a salt thereof.

4,363,911

1,2-DIHYDRO-6-[2-(DIMETHYLAMINO)ETHENYL]-2-OXO-5-(PYRIDINYL) NICOTINONITRILES

George Y. Lesh, Schodack, and Ruth P. Brundage, East Greenbush, both of N.Y., assignors to Sterling Drug Inc., New York, N.Y.

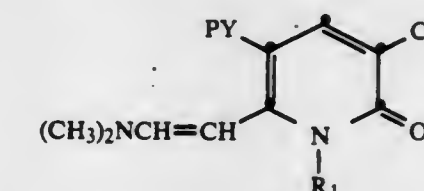
Filed Sep. 3, 1981, Ser. No. 298,935

Int. Cl.³ C07D 401/04

U.S. Cl. 546—257

4 Claims

1. A compound having the formula



or acid-addition salt thereof, where R₁ is hydrogen or methyl, and PY is 4-pyridinyl or 3-pyridinyl, or 4-pyridinyl or 3-pyridinyl having one or two lower-alkyl substituents.

4,363,912

INDOLE THROMBOXANE SYNTHETASE INHIBITORS

Peter E. Cross, Canterbury, and Roger P. Dickinson, Dover, both of England, assignors to Pfizer Inc., New York, N.Y.

Filed Dec. 3, 1981, Ser. No. 326,800

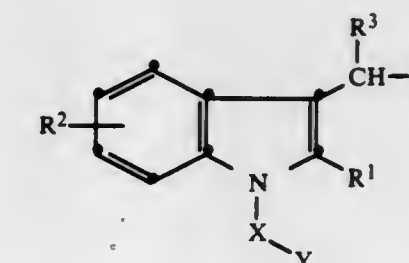
Claims priority, application United Kingdom, Dec. 15, 1980, 8040081

Int. Cl.³ C07D 401/06

U.S. Cl. 546—273

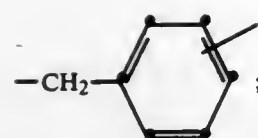
7 Claims

1. Compounds of the formula:



where

R¹ is hydrogen, C₁-C₄ alkyl, C₃-C₇ cycloalkyl or phenyl;
R² is hydrogen, C₁-C₄ alkyl, C₁-C₄ alkoxy, or halo;
R³ is hydrogen or C₁-C₄ alkyl;
X is —(CH₂)_n— where n is 1, 2 or 3, —CH₂CH(CH₃)— or



Y is $-\text{COOH}$, $-\text{COO}$ (C_1 - C_4 alkyl), $-\text{CONH}_2$, $-\text{CN}$ or 5-tetrazolyl; and Z is 3- or 4-pyridyl; and the pharmaceutically acceptable salts thereof.

4,363,913

PREPARATION OF 2-AMINO BENZOTHAZOLES

R. Donald Clark, and Herman S. Pridgen, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 23, 1981, Ser. No. 246,496
Int. Cl.³ C07D 277/82

U.S. Cl. 548-164

5 Claims

1. In a process for the preparation of 2-aminobenzothiazoles by the oxidative ring closure of an arylthiourea, the improvement comprising the step of contacting the arylthiourea dissolved in sulfuric acid with a catalytic amount of bromine, hydrogen bromide, sodium bromide, potassium bromide or ammonium bromide.

4,363,914

PREPARATION OF BENZOTRIAZOLES

John W. Long, Cincinnati, and Lubomir Vacek, Toledo, both of Ohio, assignors to The Sherwin-Williams Company, Cleveland, Ohio

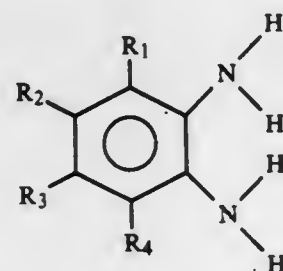
Filed Jan. 5, 1981, Ser. No. 222,445
Int. Cl.³ C07D 249/18, 249/20

U.S. Cl. 548-257

18 Claims

1. A process for producing aqueous metal salts of benzotriazoles consisting essentially of mixing in the presence of water reactive amounts of:

(a) at least one aromatic orthodiamine having the structure:



wherein R_1 , R_2 , R_3 and R_4 are the same or different and selected from the group consisting of hydrogen, alkyl, alkoxy, aryl, aroxy, aralkyl, aralkoxy, alkoxy, and halogen wherein aryl and "ar-" is defined as phenyl and wherein alkyl or "alk-" is defined as having 1-50 carbons;

and

(b) at least one alkali metal nitrite; and heating the aqueous mixture at temperatures ranging from about 100°C . up to about 350°C . and at pressures sufficient to maintain liquid water in the reaction.

4,363,915
BENZYL SULFONYL DIETHYL CARBAMYL TRIAZOLE
AND USE AS A SELECTIVE HERBICIDE

Natu R. Patel, Overland Park, Kans., assignor to Gulf Oil Corporation, Pittsburgh, Pa.

Division of Ser. No. 174,975, Aug. 4, 1980, Pat. No. 4,280,831.
This application Mar. 19, 1981, Ser. No. 245,310

Int. Cl.³ A01N 47/38; C07D 249/12

U.S. Cl. 548-265

1 Claim

1. 3-Benzylsulfonyl-1-diethylcarbamoyl-1,2,4-triazole.

4,363,916

HYDANTOIN DERIVATIVES

Kiyoshi Fukui; Noboru Kakeya; Hiroshi Jibiki, and Junichiro Kita, all of Ichihara, Japan, assignors to Ube Industries, Ltd., Ube, Japan

Filed Sep. 30, 1981, Ser. No. 306,964

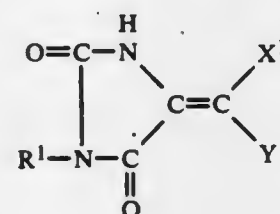
Claims priority, application Japan, Oct. 9, 1980, 55/140406

Int. Cl.³ C07D 233/78

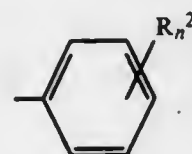
U.S. Cl. 548-313

4 Claims

1. A hydantoin derivative represented by the formula



where, R^1 represents a hydrogen atom, an alkyl group of from 1 to 4 carbon atoms, an allyl group, a cyclohexyl group, a benzyl group or a group



(where R^2 represents an alkyl group of from 1 to 4 carbon atoms, an alkoxy group of from 1 to 4 carbon atoms, a halogen atom or a nitro group, and n is 0, 1, 2 or 3), X^1 represents an alkoxycarbonyl group of from 2 to 5 carbon atoms, a benzoyl group, an aliphatic acyl group of from 2 to 5 carbon atoms or a cyano group, and Y represents an alkoxycarbonyl group of from 2 to 5 carbon atoms or an aliphatic acyl group of from 2 to 5 carbon atoms.

4,363,917

3,5-DISUBSTITUTED PHTHALIC ACID IMIDES,
PHTHALIC ACIDS AND PHTHALIC ACID
ANHYDRIDES

Walter Fischer; Vratislav Kvita, both of Reinach, and Hans Zweifel, Basel, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Apr. 28, 1981, Ser. No. 258,268

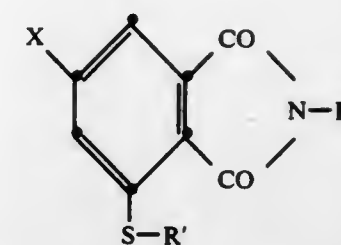
Claims priority, application Switzerland, May 6, 1980, 3518/80

Int. Cl.³ C07D 209/48

U.S. Cl. 548-480

9 Claims

1. A compound of the formula I



in which R is hydrogen, C_{1-20} -alkyl, C_{2-5} -alkenyl, C_{3-5} -alkynyl, C_{5-12} -cycloalkyl, benzyl, phenyl or toluyl, X is $-\text{NO}_2$, $-\text{OR}'$, $-\text{SR}'$ or $-\text{SO}_2\text{R}'$ and the (R)'s independently of one another are C_{1-20} -alkyl, C_{3-5} -alkenyl, C_{3-5} -alkynyl, C_{2-4} -monohydroxyalkyl, C_{1-12} -halogenoalkyl, benzyl, C_{5-12} -cycloalkyl, phenyl, carboxyphenyl, halogenophenyl, nitrophenyl, alkyl- or alkoxy-phenyl each having 1-4 C atoms in the alkyl or alkoxy moieties, or acetaminophenyl.

4,363,918

METHOD OF PREPARING 1-ALKYL-3-CARBOXY-1H
PYRROLE-2-ACETIC ACIDS

Rudolf Albert, Mechelen; Albert Willemsens, Beerse, and Guido van der Veken, Turnhout, all of Belgium, assignors to Janssen Pharmaceutica N.V., Beerse, Belgium

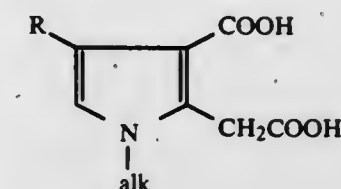
Continuation of Ser. No. 74,447, Sep. 11, 1979, abandoned, which is a continuation of Ser. No. 918,855, Jun. 23, 1978, abandoned. This application Feb. 2, 1981, Ser. No. 230,784

Int. Cl.³ C07D 207/34

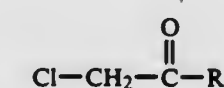
U.S. Cl. 548-531

8 Claims

1. A process of preparing 1-alkyl-3-carboxy-1H-pyrrole-2-acetic acids having the formula



wherein R is a member selected from the group consisting of hydrogen and lower alkyl and alk represents a lower alkyl radical, which process comprises a condensation reaction of 3-oxo-pentanedioic acid with a 1-chloro-2-alkanone of the formula



and a lower alkanamine.

4,363,919

HETEROFULVALENE GEMINAL DITHIOLATE
COMPOUNDS AND THEIR SELENIUM AND
TELLURIUM ANALOGS AND A METHOD OF
FABRICATING THE SAME

Edward M. Engler, Wappingers Falls; Vishnubhai V. Patel, Yorktown Heights, both of N.Y., and Robert R. Schumaker, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 38,050, May 10, 1979, Pat. No. 4,312,991.
This application Aug. 17, 1981, Ser. No. 293,568

Int. Cl.³ C07D 409/04

U.S. Cl. 549-32

3 Claims

1. A new composition of matter 2,3-dicyano-6,7-dihydrotetrafulvalene.

2. A new composition of matter 2,3-dicyano-6-ethoxy-6,7-dihydrotetrafulvalene.

3. A new composition of matter 2,3-dicyano-6,7-trimethylenetetrafulvalene.

4,363,920

PROCESS FOR THE PREPARATION OF
N-[2-(2-THENOYL)THIOPROPIONYL]-GLYCINE

Renzo Viscardi, Tribiano, Italy, assignor to B.T.B. Industria Chimica S.p.A., Tribiano, Italy

Filed May 26, 1981, Ser. No. 266,965

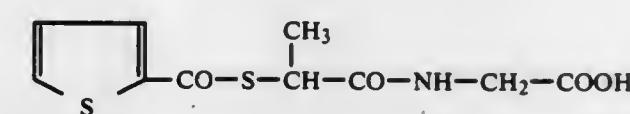
Claims priority, application Italy, Jun. 3, 1980, 22516 A/80

Int. Cl.³ C07D 333/24

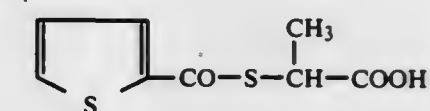
U.S. Cl. 549-72

4 Claims

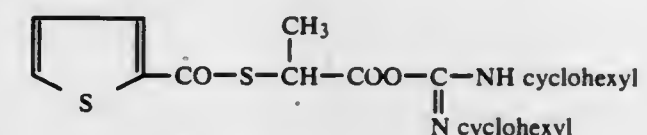
1. Process for the preparation of N-glycine (I) of formula:



which consists of reacting glycine (III) with 2-(2-thenoyl)thiopropionic acid (II) of formula



in the presence of N,N'-dicyclohexyl-carbodiimide at a temperature of 15° - 20°C . in an aprotic solvent whereby said compound of formula (II) is converted in situ into the compound of formula (VI)



and the compound of formula (VI) reacts with glycine, then removing the solvent, adding water, making the reaction mixture basic, removing dicyclohexyl urea by filtration and isolating said product of formula (I) by acidification.

4,363,921

CYANO GUANIDINE DERIVATIVES

Satoru Tanaka, Higashi-Kurume; Katsutoshi Shimada, Tokyo; Kazunori Hashimoto, Matsudo; Kiichi Ema, and Koichiro Ueda, both of Tokyo, all of Japan, assignors to Eisai Co., Ltd., Tokyo, Japan

Division of Ser. No. 120,876, Feb. 12, 1980, Pat. No. 4,287,346.
This application Apr. 13, 1981, Ser. No. 253,276

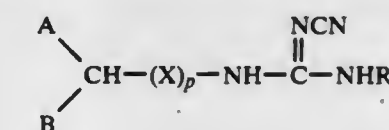
Claims priority, application Japan, Feb. 16, 1979, 54/15990;
Feb. 16, 1979, 54/15990

Int. Cl.³ C07C 33/10; C07D 307/52, 333/10

U.S. Cl. 549-74

1 Claim

1. Cyanoguanidine compound of the formula:



wherein

A represents (1) phenyl, (2) phenyl substituted by lower alkyl, lower alkenyl, halogen, lower alkoxy, lower alkylthio, lower alkylsulfonyl or halo lower alkyl, (3) furyl, (4) thienyl or (5) cycloalkyl of 5 to 6 carbon atoms;

B represents phenyl;

R represents lower alkyl or lower alkenyl;

X represents lower alkylene or lower alkylene containing a divalent sulfur atom, and

p is 0 or 1, with the proviso that when A is unsubstituted phenyl and B is phenyl, p is 0, or a pharmaceutically acceptable acid addition salt thereof.

4,363,922

ESTERS OF ANTIBIOTIC NODUSMICIN

Barney J. Magerlein, and Howard A. Whaley, both of Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

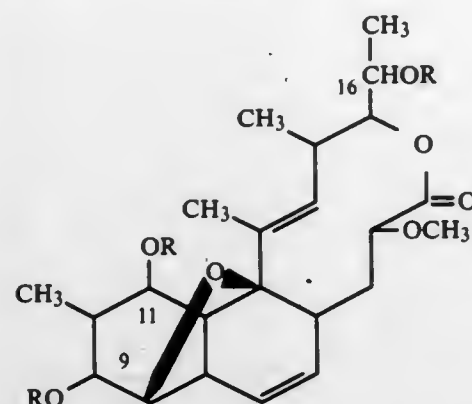
Division of Ser. No. 175,409, Aug. 6, 1980. This application Jun.

15, 1981, Ser. No. 273,605

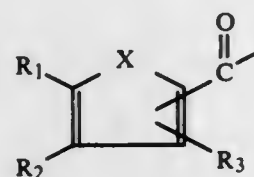
Int. Cl.³ C07D 313/00

U.S. Cl. 549—266

1. A compound of the formula



wherein R is H in no more than two positions at the same time, a blocking group in at least one position, said blocking group selected from the group consisting of trisubstituted silyl ethers, substituted and unsubstituted tetrahydropyranyl ethers, β,β,β -trichloroethyl ether, and carbonate esters, or a radical of the formula



in no more than two positions at the same time, wherein X is selected from the group consisting of NH, S and O; R_1 , R_2 and R_3 are the same or different and are selected from the group consisting of H, OH, halogen, NO_2 , alkyl of 1 to 8 carbons, inclusive, NH_2 , NR_4R_5 , wherein R_4 and R_5 can be selected from the group consisting of H, OH, and alkyl and substituted alkyl, wherein the alkyl is from 1 to 8 carbon atoms, inclusive, and the substituent on substituted alkyl can be OH, halogen, and SH; O- and S-alkyl, wherein alkyl is from 1 to 8 carbon atoms, inclusive; O acyl, and N acyl, wherein the acyl radical is a hydrocarbon carboxylic acid acyl of from 2 to 18 carbon atoms, inclusive; or a halo-, nitro-, hydroxy-, amino-, cyano-, thiocyno-, or loweralkoxy-substituted hydrocarbon acyl radical of from 2 to 18 carbon atoms, inclusive, excluding wherein X is N, $R_1=R_2=R_3$ and H, and



is on the 2 position of the molecule.

4,363,923

4-HALGENO-OXETAN-2-ONES AND PROCESS FOR THEIR PRODUCTION

John G. Dingwall, Sale, and Brian Tuck, Stockport, both of England, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Mar. 27, 1981, Ser. No. 248,373

Claims priority, application United Kingdom, Mar. 27, 1980, 8010384

Int. Cl.³ C07D 305/12; B01J 19/12

U.S. Cl. 549—329

1. A compound having the formula I

34 Claims

wherein X is a chlorine, bromine or iodine atom and Y is a residue having the formula $\text{R}^1\text{R}^2\text{R}^3\text{C}-$, wherein R^1 and R^2 are the same or different and each is a fluorine, chlorine or bromine atom and R^3 is a hydrogen, fluorine, chlorine or bromine atom, a group $-\text{CR}^4\text{R}^5\text{R}^6$, a cyano group, a group $-\text{COR}^7$ or $-\text{PO}(\text{R}^8)_2$ wherein R^4 , R^5 , R^6 , independently, are F, Cl or Br, R^7 and R^8 are the same or different and each is a chlorine atom or a group $-\text{OR}^9$ wherein R^9 is a C_1 - C_4 straight chain or branched alkyl group with the proviso that when X is a chlorine atom, none of R^1 , R^2 , R^3 , R^4 , R^5 and R^6 can be a bromine atom.

5. A process of producing a compound of formula I as claimed in claim 1, comprising reacting diketene with a compound XY wherein X and Y are as defined in claim 1, in the presence of an agent capable of forming free radicals.

4,363,924

DEPOLYMERIZATION OF POLYTETRAMETHYLENE GLYCOL ETHERS

Herbert Mueller, Frankenthal, and Otto H. Huchler, Limburgerhof, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Oct. 22, 1981, Ser. No. 313,657

Claims priority, application Fed. Rep. of Germany, Nov. 14, 1980, 3042960

Int. Cl.³ C07D 307/08

U.S. Cl. 549—509

6 Claims

1. A process for depolymerizing polytetramethylene glycol ethers which comprises heating a polytetramethylene glycol ether in the presence of a bleaching earth at from 90° to 180° C.

4,363,925

PREPARATION OF AROMATIC SILANES

Rolf-Dieter Acker, Leimen; Gerhard Hamprecht, Weinheim, and Franz-Josef Mueller, Wachenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

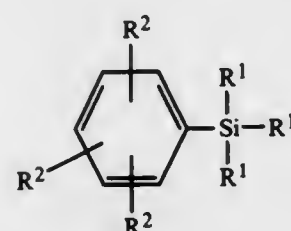
Filed Jan. 15, 1982, Ser. No. 339,503

Int. Cl.³ C07F 7/08, 7/10, 7/18

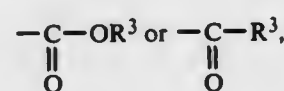
U.S. Cl. 556—415

9 Claims

1. A process for the preparation of aromatic silanes of the formula:



where the individual radicals R^1 and R^2 can be identical or different and each is an aliphatic, cycloaliphatic, araliphatic or aromatic radical, and each radical R^3 can also be hydrogen, halogen, nitro, cyano, $-\text{O}-\text{R}^3$,



where R^3 is an aliphatic, cycloaliphatic, araliphatic or aromatic radical, wherein an aromatic halogen compound of the formula:

4,363,926

PREPARATION OF NOVEL 1-HYDROXYCYCLOPROPANECARBOXYLIC ACID INTERMEDIATES

II Hans-Georg Heine, Krefeld; Hans-Joachim Knops, Wuppertal, and Uwe Priesnitz, Solingen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Sep. 18, 1981, Ser. No. 303,668

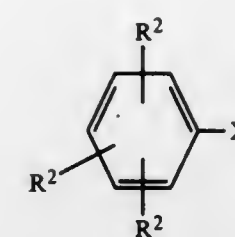
Claims priority, application Fed. Rep. of Germany, Oct. 2, 1980, 3037302

Int. Cl.³ C07F 7/18

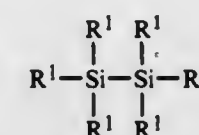
U.S. Cl. 556—442

9 Claims

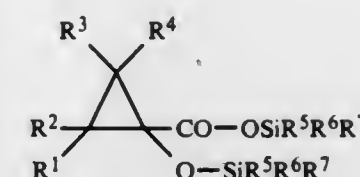
1. A bisilylated 1-hydroxycyclopropanecarboxylic acid of the formula



where R^2 has the above meaning and X is halogen, is reacted with a disilane of the formula:



III



in which

R^1 , R^2 , R^3 and R^4 each independently is a hydrogen atom or an alkyl radical, and additionally R^2 and R^3 can together form a 3- to 5-membered carbon bridge, and R^5 , R^6 and R^7 each independently is an alkyl radical.

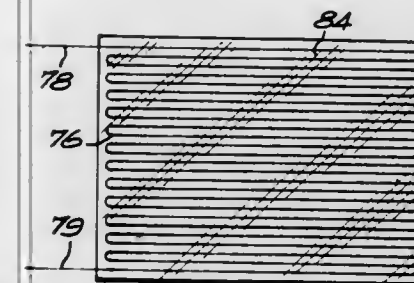
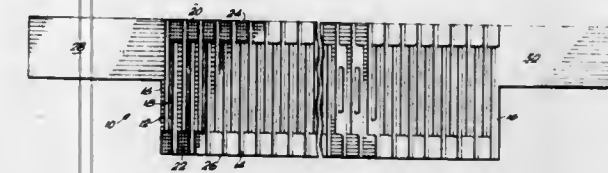
ELECTRICAL

4,363,927

THERMOELECTRIC GENERATOR PANEL AND HEATER DEVICE THEREFOR

Kenneth T. Wilson, P.O. Box 267, Ocala, Fla. 32670
Continuation-in-part of Ser. No. 117,342, Feb. 15, 1980, Pat. No. 4,276,441. This application Jun. 22, 1981, Ser. No. 275,753
Int. Cl.³ H01L 35/00, 35/28
U.S. Cl. 136—206

6 Claims



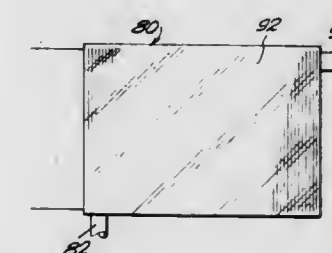
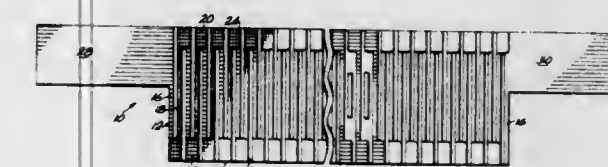
1. A thermoelectric generator device comprising a panel composed of first and second pluralities of thermocouples, defined in respective series on alternating pluralities of substrate strips, said strips being disposed in a face-to-back relationship and including a parallel electrical connection means between said first and second pluralities; said panel including a first relatively hot side and a second relatively cool side as defined by the normal function of said thermocouples, and electric heater means fixed relative to said cool side with control means connected between said electrical connection and heater means to maintain a substantially constant voltage output, 12 volts for example, from said panel.

4,363,928

THERMOELECTRIC GENERATOR PANEL AND COOLING DEVICE THEREFOR

Kenneth T. Wilson, P.O. Box 267, Ocala, Fla. 32670
Continuation-in-part of Ser. No. 117,342, Feb. 15, 1980, Pat. No. 4,276,441. This application Jun. 22, 1981, Ser. No. 275,754
Int. Cl.³ H01L 35/00, 35/28
U.S. Cl. 136—206

8 Claims



1. A thermoelectric generator device comprising a panel composed of first and second pluralities of thermocouples,

defined in respective series on face sides of alternating pluralities of substrate strips, said strips being disposed in a face-to-back relationship and including a parallel electrical connection means between said first and second pluralities; said panel including a first, hot side, and a second, cool side, as defined by the normal function of said thermocouples, and a heat exchanger means, fixed in a generally covering relation to said cool side.

4,363,929

PAPER THERMOCOUPLE BODY

Theo P. C. Bollen, Genk, Belgium, assignor to Electro-Nite Co., Philadelphia, Pa.

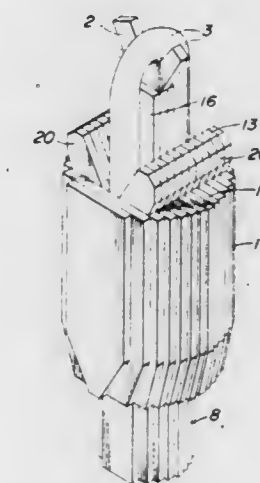
Filed Dec. 23, 1980, Ser. No. 219,471

Claims priority, application Fed. Rep. of Germany, Jan. 4, 1980, 3000174

Int. Cl.³ G01K 1/12, 7/00

U.S. Cl. 136—234

11 Claims



1. A disposable measuring head for sensing the temperature of a molten metal bath comprising a U-shaped thermocouple shield, a thermocouple supported within said shield, an insulating body supporting said shield, the body being characterized by a plurality of discrete flat plates having major faces laminated together, a plurality of the centrally disposed plates being longer than other plates, at least one of the centrally disposed plates having means supporting said shield at one end of the body an electrical contact means partially exposed on at least two of said plates, said contact means being electrically coupled to said thermocouple.

4,363,930

CIRCUIT PATH CONDUCTORS IN PLURAL PLANES

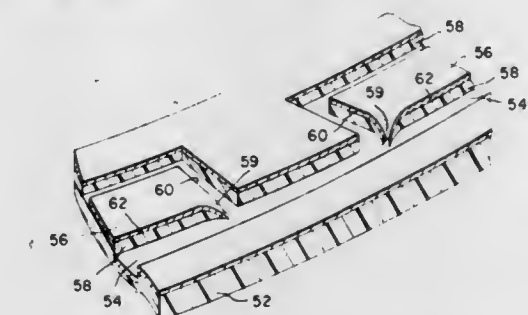
Norman E. Hoffman, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Feb. 4, 1980, Ser. No. 118,129

Int. Cl.³ H05K 3/04

U.S. Cl. 174—68.5

3 Claims



1. A circuit board made by the process of laminating a layer of metal against a dielectric substrate, selected from a material which has an elongation in tensile to yield characteristic which prevents crack propagation in response to indentation, and

dividing said layer of metal into formerly contiguous, recessed and nonrecessed conductor path portions, with each said recessed path portion being recessed into a stable, indented portion of said substrate and having its periphery separated and electrically isolated from the periphery of an adjacent nonrecessed path portion along shear lines extending into the thickness of said substrate, each indented portion having a periphery indented by yield elongation coinciding with said lines of shear, and a transition metal portion connected between and contiguous with at least one said metal recessed portion and at least one said metal unrecessed portion, said transition metal portion is defined between two converging but unjoined peripheral edges of said at least one said metal unrecessed portion and slopes toward said at least one said metal recessed portion.

4,363,931

SPICE STABILIZER

Bill R. Simons, Pittsburg, Kans., assignor to Max K. Evans, Garland, Tex.

Filed Mar. 2, 1981, Ser. No. 239,192

Int. Cl.³ H02G 9/00; F16L 3/00

U.S. Cl. 174—135

16 Claims



1. A device for stabilizing, with reference to the surrounding terrain, a cable splice enclosure having a cable splice therein, comprising:

- a stabilizer rail adaptable to be positionable in a supporting position adjacent a splice enclosure,
- a spacer base member slidably positionable longitudinally on the stabilizer rail and adaptable to support a cable component of a cable splice enclosure, and
- strap means adaptable to hold a cable splice enclosure in position against the stabilizer rail.

4,363,932

ELECTROSTATIC PRECIPITATOR INSULATOR CONSTRUCTION

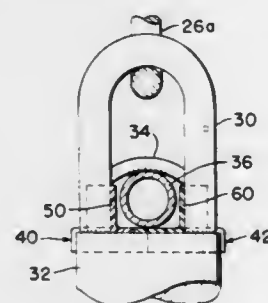
Edward R. Peace, 1052 Galatea, Azusa, Calif. 91702

Filed Jun. 22, 1981, Ser. No. 275,936

Int. Cl.³ H01B 17/00

U.S. Cl. 174—138 R

7 Claims



1. An insulating structure for cooperation with an associated electrostatic precipitator having an inverted generally U-shaped member having first and second elongated leg portions

which support a depending weight, said insulating structure comprising:

- a first member which includes a section of a generally planar, generally circular first body having a depending peripherally disposed flange extending about at least a part thereof;
- a slot defined in said first member in said section of a generally planar, generally circular first body, said slot being dimensioned and configured for engaging the first elongated leg portion;
- a cylindrical section generally aligned with the periphery of said slot in said first member, said cylindrical section having the inner surface thereof dimensioned and configured for engaging the first elongated leg portion and a second member which includes a section of a generally planar, generally circular second body having a depending peripherally disposed flange extending about at least a part thereof, said second member having a slot dimensioned and configured for engaging the second elongated leg portion.

4,363,933

AUTOMATIC NAVIGATION STATION IDENTIFIER AND MONITOR

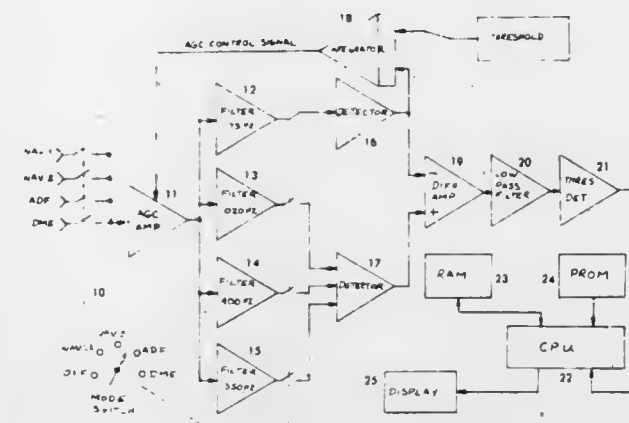
John E. Mercer, 23401 94th Ave. S., Kent, Wash. 98031

Filed Nov. 10, 1980, Ser. No. 206,059

Int. Cl.³ H04N 5/44; H04B 1/00, 17/00

U.S. Cl. 178—118

16 Claims



11. Apparatus for electronically detecting a Morse code signal which is transmitted by a radio station, comprising:
- a first bandpass filter which corresponds to the tone frequency of the Morse code signal;
 - a second bandpass filter which has a center frequency which is different from the tone frequency of the Morse code signal;
 - means for receiving, from a selected radio station, a Morse code signal;
 - means for delivering the Morse code identifying signal to both the first and second bandpass filters;
 - means for subtracting the output of the first bandpass filter from the output of the second bandpass filter to produce an identifier signal; and
 - station identifying means operable in response to an identifier signal to identify the station transmitting the Morse code signal.

4,363,934

VOLUME CONTROL DEVICE

Donald T. Scholz, 13 Rich Valley Rd., Wayland, Mass. 01778

Filed Jun. 2, 1980, Ser. No. 155,517

Int. Cl.³ H03G 9/00

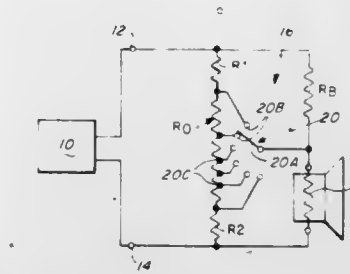
U.S. Cl. 179—1 VL

15 Claims

1. A volume control device for an amplifier and speaker system adapted for controlling the volume output level from the speaker while maintaining the input impedance of the device, with the speaker coupled therewith, within a constant

impedance range near the actual speaker impedance or a predetermined impedance, said device comprising:

- input terminal means for receiving an output signal from the amplifier;
- first impedance means,
- means coupling the first impedance means in series with the speaker impedance across the input terminal means,
- second impedance including variable impedance means



adapted to be manually settable to control volume output level from the speaker and having a variable impedance means output node,

means coupling the second impedance means in parallel with the series connection of the first impedance means and the speaker impedance,

and means coupling the variable impedance output node to a junction point between the series connection of the first impedance means and the speaker impedance.

4,363,935

MOBILE RADIO TELEPHONE SYSTEM

Mitsuo Toya, Fujisawa, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

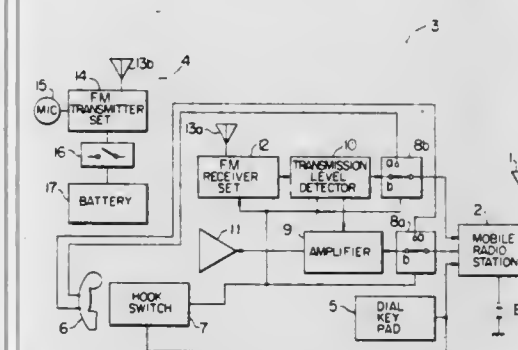
Filed Jun. 4, 1980, Ser. No. 156,369

Claims priority, application Japan, Jun. 8, 1979, 54-71137

Int. Cl.³ H04M 11/00

U.S. Cl. 179—2 EA

5 Claims



1. A mobile radio telephone system including a telephone set which is capable of communicating with an external telephone subscriber through a mobile radio station, said telephone set comprising:

- a wireless telephone transmitter energized and enabled to transmit a signal when said wireless telephone transmitter is detached from said telephone set;
- a transmitter/receiver circuit for receiving a transmitted signal from said wireless telephone transmitter, transmitting the received signal to said external telephone subscriber through a switch and said mobile radio station and receiving a transmitted signal through said mobile radio station and said switch from said external telephone subscriber;
- a speaker coupled to said transmitter/receiver circuit for reproducing said signal received from said external telephone subscriber into sound;
- a handset for transmitting a signal to said external telephone subscriber through said switch and said mobile radio station and receiving a transmitted signal through said mobile radio station and said switch from said external

telephone subscriber thereby reproducing the received signal into sound; and

said switch being controlled by a hook switch of said telephone set in response to said handset being on or off-hook for connecting said mobile radio station to said handset when said handset is off-hook and to said transmitter/receiver circuit when said handset is on-hook, whereby a driver of a vehicle can communicate with said external telephone subscriber while driving the vehicle either with said handset being on or off-hook.

4,363,936

TELEPHONE NETWORK INCLUDING COMMON EQUIPMENT WITH MESSAGE INFORMATION AND CONTROL INFORMATION CIRCUITS FOR CONNECTING TO STATIONS HAVING MULTIFUNCTION TELEPHONES

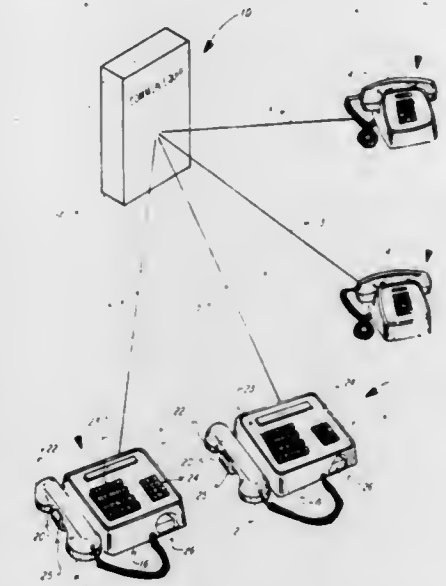
Ronald W. Christain; Uwe A. Pommerening; Stanley L. Russell, all of Longwood; Barry Slingsby, Altomonte Springs, and Julian W. West, Longwood, all of Fla., assignors to Stromberg-Carlson Corporation, Orlando, Fla.

Filed Feb. 11, 1980, Ser. No. 120,786

Int. Cl.³ H04Q 5/18

U.S. Cl. 179—18 E

13 Claims



7. Common equipment for use in a telephone network that includes at least one multifunction telephone means and telephone transmission means for independently connecting telephones including a telephone transmission means that connects to the multifunction telephone means and that includes a first signal path for conveying signals corresponding to acoustic information to and from said multifunction telephone means and a second signal path for conveying signals in a frequency modulated form representing control data to and from said multifunction telephone means, said common equipment comprising:

- A. switching means connected to the first signal path for selectively interconnecting the first signal path with others of the telephone transmission means thereby to transfer acoustic information between telephones, and
- B. control means connected to said switching means and to the second signal paths including means for transmitting and receiving frequency modulated signals representing control data to and from each of the second signal paths.

4,363,937

SOUND INLET FOR MICROPHONES

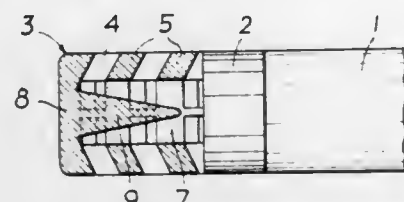
Bernhard Bruna, Vienna, Austria, assignor to AKG Akustische u.Kino-Geräte Gesellschaft m.b.H., Austria

Filed Nov. 19, 1980, Ser. No. 208,317

Claims priority, application Austria, Nov. 29, 1979, 7574/79

Int. Cl.³ H04R 1/08

U.S. Cl. 179—121 R



1. An improved sound inlet for a microphone having an elongated housing with a central longitudinal axis extending therethrough, and an electroacoustic transducer mounted within the housing with a diaphragm disposed perpendicular to the longitudinal axis of the housing, the improved sound inlet comprising a longitudinally extending wall portion attached to the housing to define and surround a cavity in front of the diaphragm, said wall portion having a plurality of channels extending at an oblique angle relative to the longitudinal axis through the wall portion from its outer side to its inner side adjacent the cavity, each of said channels having a first end opening on the inner side and a second end opening on the outer side, the second end opening being disposed closer to the diaphragm than the first end opening, and said wall portion including means for closing that end of the longitudinally extending wall portion remote from the housing.

4,363,938

METHOD OF AND APPARATUS FOR ECHO DETECTION IN VOICE CHANNEL SIGNALS

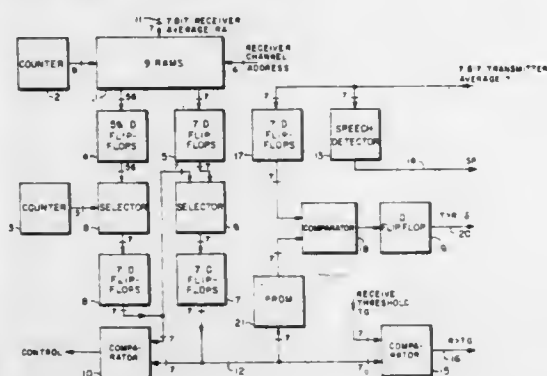
Fouad Daaboul, Verdun; Tiu Le Van, Touraine, and Kit-Chung Fung, Ottawa, all of Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed Sep. 16, 1980, Ser. No. 187,785

Int. Cl.³ H04B 3/20

U.S. Cl. 179—170.2

7 Claims



1. An echo detector for detecting the presence on a first path of echoes of a sampled voice channel signal on a second path, comprising:

- means responsive to speech signals for producing a first signal when speech signals are present on the first path;
- means responsive to speech signals for producing a second signal when speech signals are present on the second path;
- means for storing the n most recent signals which have occurred on the second path, where n is a plural integer equal to the number of signals which occur on the second path during a first predetermined period;
- means for determining the greatest magnitude of the stored signals;
- means for producing a third signal in dependence upon the magnitude of the signal on the first path relative to the determined greatest magnitude; and

means responsive to the first, second, and third signals for producing an echo decision for the signal on the first path.

4,363,939

ELECTRICAL SUPPLY LINE FOR THE SUPPLY OR CURRENT TO RAILWAY VEHICLES

Rene Oger, Ville d'Avray, France, assignor to C. Delachaux, Gennevilliers, France

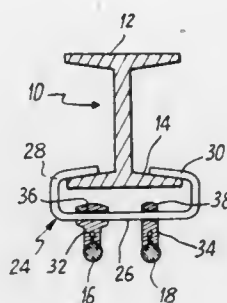
Filed Nov. 10, 1980, Ser. No. 205,662

Claims priority, application France, Nov. 23, 1979, 79 28957

Int. Cl.³ B60M 1/24

U.S. Cl. 191—43

3 Claims



1. An electricity supply line for the supply of current to railway vehicles comprising two parallel wire connectors forming a current supply line for a current pick-up device, a rigid body supporting the wires, which body is provided with an electrically insulating covering and constituted by rails disposed end to end, and attachment members, freely mounted on the rails and able to move vertically and slide longitudinally along the wires length, by which the wire conductors are supported alternatively such that any one attachment member supports only one of the wire conductors, each attachment member comprising a strap, a portion of said strap located transversely and beneath the rail, and a clip mounted on said portion of the strap for free sliding therealong.

4,363,940

ELECTRICALLY DRIVEN RAIL OR TRACK BOUND VEHICLE

Helmü Bertelsbeck, Stuttgart, Fed. Rep. of Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

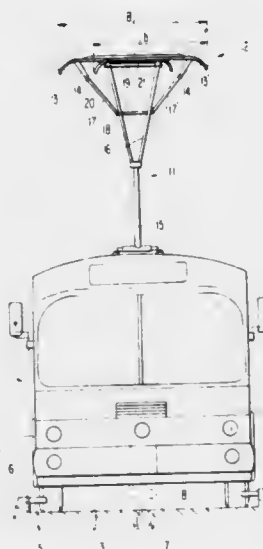
Filed Mar. 13, 1981, Ser. No. 243,619

Claims priority, application Fed. Rep. of Germany, Mar. 13, 1980, 3009653

Int. Cl.³ B60L 5/06

U.S. Cl. 191—59.1

5 Claims



1. An electrically driven track bound vehicle comprising at

least one bow trolley means cooperable with an overhead wire for supplying electrical energy to the vehicle, and height adjustable current collector means for carrying the at least one bow trolley means, characterized in that means are provided on the bow trolley means for automatically varying a width of the bow trolley means in response to a height adjustment of the current collector means in such a manner that the bow trolley means has a narrow width with the current collector means in a low position and a wide width with the current collector means at a high position.

4,363,941

PATCH MODULE

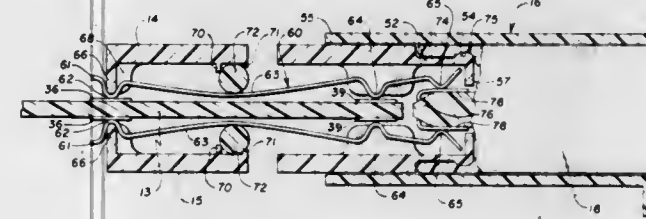
Calvin G. Nelson, Brooklyn Park, Minn., assignor to Magnetic Controls Company, Minneapolis, Minn.

Filed Jun. 26, 1981, Ser. No. 277,677

Int. Cl.³ H01H 9/00

U.S. Cl. 200—1 R

16 Claims



1. A patch module usable with an insertable patch plug having at least one electrical contact element, said patch module comprising:

- a circuit board;
- a first electrical circuit electrically connected with a first point on said circuit board;
- a second electrical circuit electrically connected with a second point on said circuit board, said first and second points being electrically insulated from each other; and
- switch-contact means for selectively making electrical connection between said first point and said second point and for making electrical connection between said first point and the electrical contact element of said patch plug upon insertion of said patch plug into said patch module, said switch-contact means having a first portion electrically engaged with said first point, a second portion adapted for selective electrical engagement with said second point and a third portion adapted for limited movement relative to said circuit board for electrical engagement with the electrical contact element of said patch plug as a result of insertion of said patch plug into said patch module, said first, second and third portions of said switch-contact means being electrically connected with each other.

4,363,942

ASSEMBLY FOR THE KEYBOARDS OF ELECTRIC TYPEWRITERS OR SIMILAR MACHINES

Reinhard Deeg, Keltern, and Oswald Hack, Pforzheim, both of Fed. Rep. of Germany, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Feb. 9, 1981, Ser. No. 232,315

Claims priority, application Fed. Rep. of Germany, Feb. 27, 1980, 3007239

Int. Cl.³ H01H 3/12

U.S. Cl. 200—5 A

8 Claims

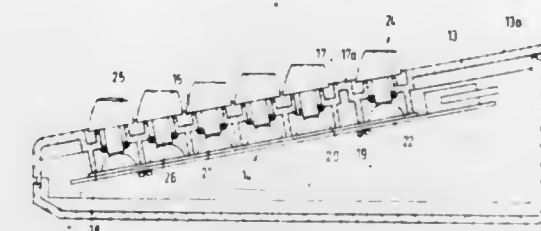
1. A key assembly in a keyboard for electric typewriters or similar machines comprising a plurality of vertically guided keyboard elements each consisting of a key head and a key plunger, when actuated each keyboard element acting via its plunger upon a contact arranged between the plunger and a printed circuit board wherein the improvement comprises:

- a baseplate;
- said keyboard elements being inserted and removably mounted in said baseplate from above;

detent means releasably retaining said keyboard elements in said baseplate;

said baseplate having formed on its bottom side with a plurality of elongated supports;

said printed circuit board being firmly connected to the bottoms of said supports; and



spring means arranged between said key head and said printed circuit board to bias said key head away from said baseplate and wherein the force of said spring means is less than the retaining force of said detent means.

4,363,943

INTERVAL TIMER

Egon Sorensen, Cheyenne, Wyo., assignor to AMF Incorporated, White Plains, N.Y.

Continuation of Ser. No. 127,694, Mar. 6, 1980, abandoned. This application Oct. 23, 1981, Ser. No. 314,272

Int. Cl.³ H01H 43/10

U.S. Cl. 200—38 R

3 Claims



1. A momentary interval timer comprising

a base plate;

drive means mounted on one side of the said plate and having a rotatable shaft extending therefrom through said plate;

a device to be momentarily operated being mounted on said plate on the side opposite from said drive means;

a disc disposed on the side of said plate opposite from said drive means and connected to said shaft for rotation of said disc by said drive means;

said disc having a plurality of holes therethrough disposed in an equally spaced series adjacent the outer periphery of said disc;

cam means rotatably mounted between said disc and said device on the side of said plate opposite from said drive means;

said cam means having a hub adjacent the periphery on said disc and an equally spaced series of opposed elongated arms radiating from said hub;

said arms moving between said disc and said plate as said cam means is rotated and the free ends of said arms momentarily actuating said device as they rapidly pass thereby; and

a plurality of pins selectively positioned in said holes and extending through said disc toward said plate;

said pins being moved relatively slowly along a circular path by said rotating disc each engaging adjacent said hub the arm of said cam extending between said disc and said plate thereby rotating said cam and causing the tip of said arm

opposite from said engaged arm to move relatively rapidly by and momentarily actuate said device.

4,363,944

METHOD OF PREVENTING UNINTENTIONAL ACTUATION OF A LIGHT SWITCH

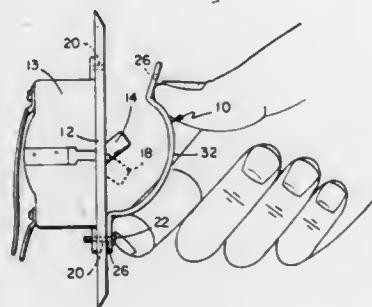
Earl J. Poirier, 149 W. Broadway, Monticello, Minn. 55362
Continuation of Ser. No. 180,670, Aug. 25, 1980, abandoned.

This application Oct. 5, 1981, Ser. No. 308,831

Int. Cl.³ H01N 27/00

U.S. Cl. 200—42 R

4 Claims



1. A method of preventing unintentional actuation of a wall switch of the type having an actuating lever protruding through an aperture in a switch plate, said switch plate being attached to the wall switch on opposite sides of the actuating lever by a pair of screws spaced apart a predetermined distance, the method comprising:

providing a thin flexible body member having a flat configuration throughout its length and a pair of spaced apart apertures for receiving said screws, said spaced apart apertures being spaced apart a distance substantially greater than the predetermined distance between the screws of the wall switch such that when the threaded fasteners are received by the spaced apart apertures attaching the body member to the switch plate, the body member flexes from said flat configuration into an arcuate configuration covering the actuating lever sufficiently to prevent accidental actuation of the lever but to allow intentional actuation of the lever, and

removing said screws from the wall switch, placing said flat body portion over the switch plate with one of the apertures through the body member aligned with one of the screws through the wall plate, inserting one of the screws through the aligned opening in the body member and the wall plate and tightening said screw,

flexing the central portion of the body member outwardly from said flat configuration into such an arcuate configuration and positioning said body member such that the other aperture of the body member is aligned with the other screw opening through the wall plate, and inserting the other screw through the other aligned opening and tightening said other screw to maintain the body member and the switch plate in position.

4,363,945

CABLE DERAILMENT RESPONSIVE APPARATUS

Jan K. Kunczynski, 2400 Arrowhead Dr., Carson City, Nev. 89701

Filed Nov. 17, 1980, Ser. No. 207,259

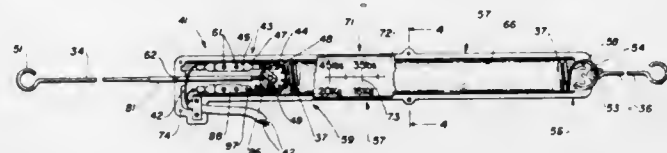
Int. Cl.³ H01H 35/00

U.S. Cl. 200—61.18

10 Claims

1. A cable derailment responsive apparatus for use in terminating the operation of cable drive means for a moving cable supported upon a pulley assembly upon derailment of the cable from the pulley assembly, said pulley assembly including mounting means movably mounted to support means and carrying pulley means thereon; and said derailment responsive apparatus including spring biasing means coupled to said mounting means to bias said mounting means to a moved

position upon derailment of said cable from said pulley assembly, and deactivation means connected to said mounting means and formed to terminate operation of said cable drive means upon movement of said mounting means to said moved position, said deactivation means including an electrical circuit having a circuit interrupting portion, and connector means coupled to said circuit interrupting portion and connected to transmit motion from said mounting means to said circuit



interrupting portion, wherein the improvement in said cable derailment responsive apparatus is comprised of:

said circuit interrupting portion being provided by a pair of mechanically separable electrical couplers, and said connector means being connected to one of said couplers to transmit motion thereto in a direction causing separation of said couplers to mechanically open said electrical circuit upon movement of said mounting means to said moved position.

4,363,946

INDUCTOR FOR INDUCTIVELY HEATING RACEWAYS OF ANTI-FRICTION BEARING RINGS

Eduard Busemann, Lippstadt, Fed. Rep. of Germany, assignor to Hoesch Werke Aktiengesellschaft, Dortmund, Fed. Rep. of Germany

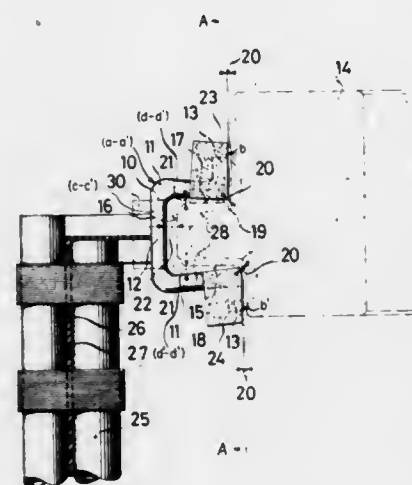
Continuation of Ser. No. 928,561, Jul. 27, 1978, abandoned. This application May 29, 1980, Ser. No. 154,277

Claims priority, application Fed. Rep. of Germany, Aug. 3, 1977, 2734916

Int. Cl.³ H05B 6/14, 6/40

U.S. Cl. 219—10.59

2 Claims



1. Inductive heating apparatus in combination with a bearing ring, the inductive apparatus being specifically for heating inductively low friction planar bearing surfaces and transition areas adjacent to the bearing surfaces on the bearing ring in order to harden the bearing surfaces without distortion, wherein the bearing surfaces are on a substantially rectangular projection on the inner surface of the bearing ring and include an axial bearing surface and parallel radial bearing surfaces, the transitional areas being areas on the inner surface of the bearing ring adjacent to the projection, the combination comprising:

a toroidal inductor formed of two opposed and parallel U-shaped sections joined by U-shaped bights wherein each U-shaped section includes a straight bight and a pair of legs depending therefrom which legs converge toward

one another before termination in the U-shaped bights which join the legs of the U-shaped sections, and localized flux concentrators mounted on the U-shaped bights to increase the intensity of the field adjacent to the bights;

wherein, the straight bights are juxtaposed with the axial bearing surface of the projection, the legs are juxtaposed with the parallel radial bearing surfaces of the projection and the U-shaped bights extend adjacent to the transitional areas on the inner surface of the ring, whereby hardening due to induction heating occurs simultaneously to all bearing surfaces and to the transitional area thus avoiding stress distortion between the projection and transitional area due to localized heating thereof.

4,363,947

ELECTRICAL HEATING ELEMENT

Hans A. Bergersen, Oslo, Norway, assignor to International Standard Electric Corporation, New York, N.Y.

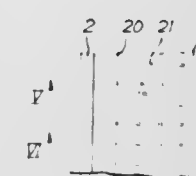
Filed May 20, 1981, Ser. No. 265,294

Claims priority, application Norway, Jul. 3, 1980, 802003

Int. Cl.³ H05B 3/34

U.S. Cl. 219—528

2 Claims



1. Electrical resistance strip heating element comprising an electrical resistance strip, two insulation sheets between which the electrical strip is laminated, the insulation sheets having an outer periphery extending beyond the strip, and reinforcing material laminated between the insulation sheets at the outer periphery for mounting the heating element, the reinforcing material being of a slightly stretchable, open mask material through which the insulation sheets come into contact, the reinforcing material having a thickness greater than the electrical resistance strip.

4,363,948

METHOD OF ELECTRICALLY CUTTING MATERIALS WITH A WIRE-SHAPED ELECTRODE AND APPARATUS FOR PRACTICING THE SAME

Teturoh Itoh, Aichi, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 17, 1979, Ser. No. 85,828

Claims priority, application Japan, Mar. 13, 1979, 54-29168

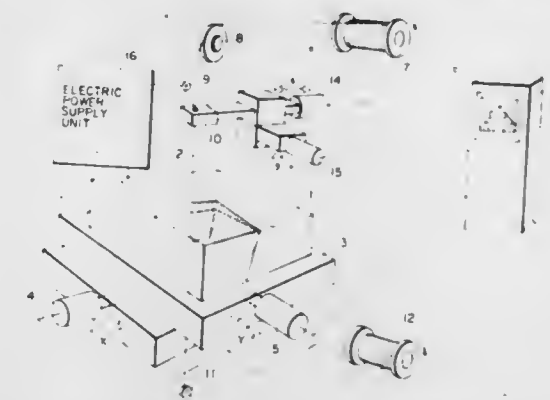
Int. Cl.³ B23P 1/02

U.S. Cl. 219—69 W

3 Claims

1. An apparatus for electrically cutting a work piece with a wire-shaped electrode in which electric current is applied to said wire-shaped electrode and said work piece through a working liquid applied to the working gap formed between said wire-shaped electrode and said work piece to electrically cut said work piece, and in correspondence to said cutting operation, said wire-shaped electrode and said work piece are relatively moved in a predetermined manner to cut said work piece into a desired configuration, in which the improvement comprises a power supply unit for applying said electric current to said wire-shaped electrode and said work piece, said power supply unit comprising: digital setting means for setting digital values corresponding to a pulse width, pulse interval and peak current, respectively, of said electric current applied to said wire-shaped electrode and said work piece; a first pre-

settable counter receiving on preset inputs thereof said digital value representing said pulse width; a second presettable counter receiving on preset inputs thereof said digital value representing said pulse interval; a toggle-type flip-flop; an oscillator for producing clock pulses; a first AND gate having a first input coupled to receive said clock pulses, a second input coupled to a Q output of said flip-flop and an output coupled to a clock input of said first presettable counter; a second AND gate having a first input coupled to receive said clock pulses, a second input coupled to a Q output of said flip-flop, and an output coupled to a clock input of said second presettable counter; an OR gate having a first input coupled to a predetermined count output of said first presettable counter, a second input coupled to a predetermined count output of said second presettable counter, and an output coupled to reset inputs of said first and second presettable counters and a clock input of



said flip-flop; a plurality of third AND gates, each of said third AND gates having a first input coupled to said Q output of said flip-flop and said third AND gates having second inputs coupled to receive said value representing said peak current; a plurality of current limiting resistors, one of said current limiting resistors being provided for each of said third AND gates; a plurality of switching means, one of said switching means being provided for each of said third AND gates, each of said switching means having a control input coupled to an output of a corresponding one of said third AND gates and a first current-carrying terminal coupled through a corresponding one of said current limiting resistors to a first of said wire-shaped electrode and said work piece; and a DC power source having a first terminal coupled to a second of said wire-shaped electrode and said work piece and a second terminal coupled to a second current-carrying terminal of each of said switching means.

4,363,949

TRAVELLING WIRE EDM APPARATUS

Jean Pfau, Collonge-Bellerive, and Benno I. Bonga, Crans, both of Switzerland, assignors to Ateliers des Charmilles S.A., Geneva, Switzerland

Filed Nov. 21, 1980, Ser. No. 208,934

Claims priority, application Switzerland, Dec. 21, 1979, 11390/79

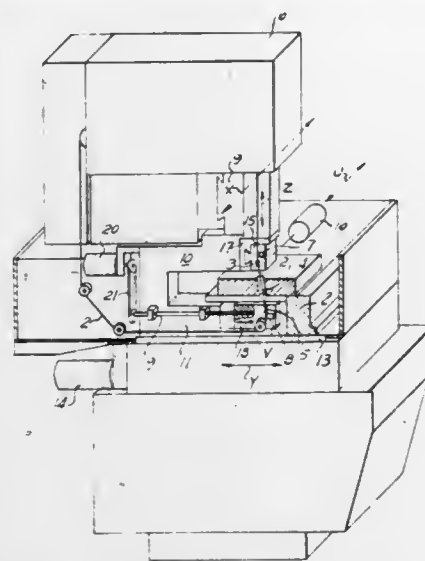
Int. Cl.³ B23P 1/08

U.S. Cl. 219—69 W

3 Claims

1. In an apparatus for cutting by electrical discharges an electrode workpiece by means of a travelling electrode wire, said electrical discharges occurring in a machining zone between said electrode wire and said workpiece, said apparatus comprising a pair of electrode wire guide members mounted one on the end of a support arm and the other on the end of another support arm, said support arms being disposed parallel to each other on each side of the machining zone in the workpiece, and a pair of servo motors for displacing both said support arms in unison and said workpiece relative to each other along respective X- and Y-axes according to a predetermined path program, the improvement comprising a second pair of servo motors arranged one to displace one of said guide

members in a first direction along the axis of its corresponding support arm and the other along a second direction perpendicular to the axis of its corresponding support arm such as to guide said wire with a predetermined inclination relative to said workpiece in the course of a cutting pass according to inclination information included in said path program, means for obtaining a pair of control signals from said program incli-



nation information, means for controlling said one of said second pair of servo motors for displacing said one of said guide members relative to its corresponding support arm in said first direction as a function of one of said signals, and means for controlling the other of said second pair of servo motors for displacing the other of said guide members relative to its support arm in said second direction as a function of the other of said signals.

4,363,950

ARRANGEMENT FOR ELECTROSPARK WORKING OF INTERNAL CONICAL SURFACES OF METAL PARTS
Ludvik Mateja, and Josef Prasek, both of Velke Mezirici, Czechoslovakia, assignors to Motor Jihlava narodni podnik, Jihlava, Czechoslovakia

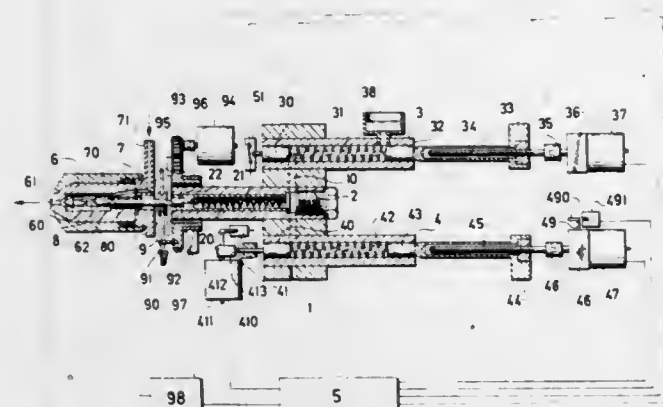
Filed Dec. 4, 1980, Ser. No. 213,169

Claims priority, application Czechoslovakia, Dec. 5, 1979, 8427-79

Int. Cl.³ B23P 1/12

U.S. Cl. 219—69 R

4 Claims



1. In an arrangement for the electrospark erosive working of internal conical surfaces of metal workpieces having a hollow space with a high slenderness ratio, the hollow space being bounded by a cylindrical surface terminating in a conical surface coaxial therewith, the arrangement having an electrode for performing the working, a source of burning electrical impulses, means connecting said electrode to a first pole of such electrical source, the electrode terminating in a conical burning part and being provided with the shaft insulated from the workpiece, guiding means for the shaft of the electrode

provided in the hollow cylindrical surface bounding the hollow space of the workpiece, means connecting the workpiece to the second pole of the source of burning electrical impulses, means for rotating the electrode, and means providing for a quick and a microadvance of the electrode relative to the workpiece, the improvement which comprises a holder, a first, hydraulic working cylinder, a second, hydraulic cylinder for a quick advance, and a third, hydraulic cylinder for the microadvance of the electrode, said second and third hydraulic cylinders being supported by the holder, conduit means interconnecting all of said hydraulic cylinders, a supporting piston slidably arranged in the first, hydraulic working cylinder, the electrode resting against this supporting piston, a second piston slidably arranged in the second hydraulic cylinder, a first drive for the quick advance, a third piston slidably arranged in the third hydraulic cylinder, a second drive for the microadvance, compression springs provided in both cylinders for quick and microadvance, and a tension spring provided in the first, hydraulic working cylinder.

4,363,951

BOTH-SIDE SINGLE LAYER, HIGH SPEED SUBMERGED ARC WELDING PROCESS

Atsushi Shiga, Chiba, Japan, assignor to Kawasaki Steel Corporation, Kobe, Japan

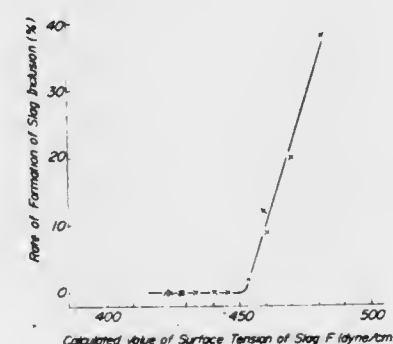
Filed Mar. 4, 1981, Ser. No. 240,507

Claims priority, application Japan, Feb. 17, 1981, 56-20831

Int. Cl.³ B23K 9/18

U.S. Cl. 219—73

3 Claims



1. In a process for both-side single layer, high speed submerged arc welding of steel plate for use in low-temperature applications such as steel pipes or other steel structures and containing up to 0.1 wt% of carbon, up to 0.35 wt% of silicon, 0.5 to 2.0 wt% of manganese, 0.01 to 0.1 wt% of aluminum and not more than 0.010 wt% of nitrogen with a welding flux and a welding wire, the improvement in which said welding flux comprises 20 to 30 wt% of SiO₂, less than 25 wt% of at least one of TiO₂ and ZrO₂, 10 to 20 wt% of CaO, less than 10 wt% of at least one of MnO and MgO, not more than 10 wt% of Al₂O₃ and 20 to 40 wt% in total of CaF₂ and BaO each being not more than 20 wt%, wherein a total amount of acidic components (SiO₂% + TiO₂% + ZrO₂%) is 30 to 45 wt%, a total amount of basic components (CaO% + MgO% + MnO%) is 20 to 30 wt% and a weight ratio of the total amount of basic components to the total amount of acidic components is within a range of 0.5 to 0.8; said these components being compounded so that a surface tension F of slag is not more than 450 dyne/cm as calculated from the following equation (1):

$$F = 285 \times [\text{SiO}_2] + 380 \times [\text{TiO}_2] + 470 \times [\text{ZrO}_2] + 640 \times [\text{Al}_2\text{O}_3] + 653 \times [\text{MnO}] + 512 \times [\text{MgO}] + 602 \times [\text{CaO}] + 400 \times [\text{CaF}_2] + 366 \times [\text{BaO}] \quad (1)$$

wherein a parenthesis represents a mol fraction of each component; said welding wire is composed of a steel wire containing up to 0.10 wt% of carbon, up to 0.4 wt% of silicon, 1.0 to 2.5 wt% of manganese, 0.015 to 0.05 wt% of aluminum, not more than 0.008 wt% of nitrogen, 0.10 to 0.18 wt% of titanium and 0.01 to 0.02 wt% of boron; said welding flux and welding wire

are used in combination with each other so that a carbon equivalent C_E of the resulting weld metal is 0.35 to 0.43% as calculated from the following equation (2):

$$C_E(\%) = C(\%) + 1/24\text{Si}(\%) + 1/6\text{Mn}(\%) + 1/4\text{Mo}(\%) + 1/5\text{Cr}(\%) + 1/40\text{Ni}(\%) + 1/14\text{V}(\%) \quad (2)$$

to thereby obtain a weld metal containing not more than 0.008 wt% of nitrogen, 0.025 to 0.035 wt% of oxygen, 0.0015 to 0.0030 wt% of boron, 0.015 to 0.030 wt% of titanium and 0.010 to 0.030 wt% of aluminum and having a high low-temperature toughness without weld defects.

4,363,952

WELDING METHOD FOR STAINLESS STEEL WELD OVERLAY

Keizo Onishi; Takao Adachi; Akiyoshi Fuji; Ryuichi Chiba, all of Muroran; Katsuyuki Naitoh, Yokohama, and Hachiro Okada, Tokyo, all of Japan, assignors to Japan Steel Works, Ltd. and Chiyoda Chem. Engineering & Construction Co., both of Kanagawa, Japan

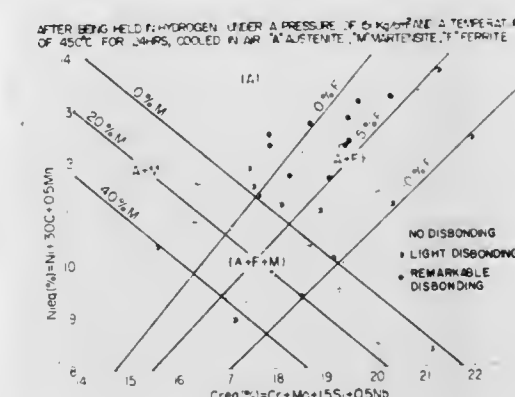
Filed Feb. 8, 1980, Ser. No. 119,772

Claims priority, application Japan, Feb. 9, 1979, 54-13286

Int. Cl.³ B23K 9/04, 35/34

U.S. Cl. 219—76.12

4 Claims



1. In a method for the overlay welding of at least one weld layer onto the inner surfaces of pressure vessels made of carbon and low alloy steels as a base metal and used in processes in which hydrogen is contained within the vessels at elevated temperatures and under high pressure, the improvement which comprises welding a first layer weld overlay onto the inner surface of a pressure vessel, consisting essentially of up to 0.1 wt% C, up to 1.0 wt% Si, up to 2.0 wt% Mn, 7 to 12 wt% Ni, 12 to 17 wt% Cr, up to 1.0 wt% Mo, up to 0.1 wt% Al, the balance being Fe, said first layer weld overlay being welded at a welding current within the range of 1000-2800 amperes and at a welding speed varying between 5 to 50 cm/min. so as to produce a weld structure selected from (1) a martensite structure in an amount of 4% to 40% by area in an austenite matrix or (2) a martensite structure in an amount of 4% to 40% by area and a ferrite structure in an amount below 8% by area both within an austenite matrix.

4,363,953

ELECTRON BEAM SCRIBING METHOD

Teiji Katsuta; Koji Nishiwaki, and Shinjiro Katagiri, all of Ibaraki, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 1, 1980, Ser. No. 145,742

Claims priority, application Japan, May 4, 1979, 54-54192

Int. Cl.³ B23K 15/00

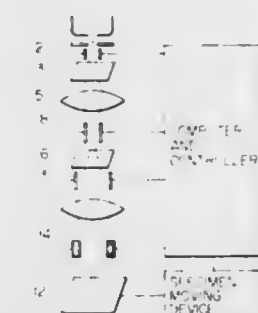
U.S. Cl. 219—121 EK

2 Claims

1. A method of scribing a predetermined pattern on the surface of a specimen with an electron beam of a rectangular cross-section having a long side and a short side, the surface of the specimen being divided into matrix imaginary regions, each of said matrix imaginary regions being composed of band-shaped imaginary regions each of which has a long side and a short side, and each of the band-shaped imaginary regions

being composed of a plurality of fine imaginary regions, comprising the steps of:

- (1) scanning each of predetermined ones of the band-shaped imaginary regions in each of predetermined ones of the matrix imaginary regions with the electron beam to electromagnetically deflect the same from one to another of predetermined ones of the fine imaginary regions in each of the predetermined band-shaped imaginary regions in a stepped manner in the direction of the long side of the rectangular cross-section of the electron beam and to electrostatically deflect the electron beam in each of the predetermined fine imaginary regions in the direction of the short side of the rectangular cross-section of the elec-



tron beam during periods between stepped deflections of the electron beam in the direction of the long side of the rectangular cross-section thereof, with the direction of the long side of the rectangular cross-section of the electron beam coinciding substantially with the direction of the long side of the band-shaped imaginary regions;

- (2) electromagnetically deflecting the electron beam to expose each of the predetermined band-shaped imaginary regions in each of the predetermined matrix imaginary regions to said electron beam in a stepped manner; and
- (3) two-dimensionally shifting the specimen to expose each of the predetermined matrix imaginary regions to the electron beam in a stepped manner.

4,363,954

DEVICE FOR THE BACK SUPPORT OF THE FIRST RUN WELD POOL IN THE AUTOMATIC BUTT-WELDING OF PIPES

Fernando Rinaldi, Guardamiglio, Italy, assignor to Saipem, S.p.A., Milan, Italy

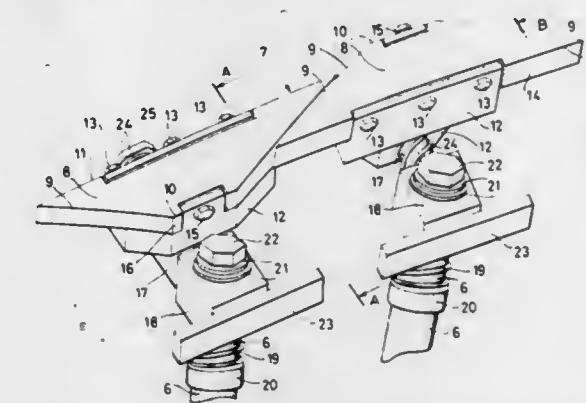
Filed Dec. 5, 1980, Ser. No. 213,659

Claims priority, application Italy, Jan. 24, 1980, 19413 A/80

Int. Cl.³ B23K 9/32

U.S. Cl. 219—160

3 Claims



1. A device for the back support of the first run weld pool in the automatic butt-welding of two pipes held together by the action of two facing circumferential sets of radial pistons of an internal connector, comprising:

a set of independent copper pads disposed in the form of a ring, wherein said pads are of trapezoidal shape arranged with their bases alternately inverted,

a set of support elements underlying and corresponding to said pads and onto which said pads are mounted, support blocks resiliently supported by the set of radial pistons of said internal connector by radial thrust springs, horizontal pins fixed to said support blocks which also idly support said elements and pads and thereby interconnect said pads and elements to said pistons and radial thrust springs, and horizontal thrust springs supported by said horizontal pins which alternately act on opposing faces of said support elements to resiliently and constantly press said pads against each other along their inclined surfaces, to thereby provide a back support without gaps or spaces.

4,363,955

POST-BAKING OR HEATING TUNNEL-TYPE OVEN, IN PARTICULAR FOR FOOD PRODUCTS

Robert H. Gauthier, and Raymonde J. B. Frechou épouse Gauthier, both of 32, Ave. du General Michel Bizot, 75012 Paris, France

PCT No. PCT/FR80/00063, § 371 Date Dec. 20, 1980, § 102(e) Date Dec. 19, 1980, PCT Pub. No. WO80/02224, PCT Pub. Date Oct. 30, 1980

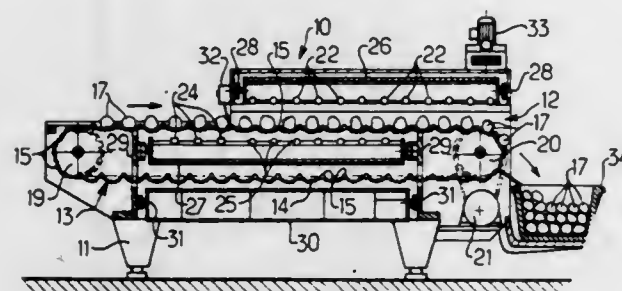
PCT Filed Apr. 18, 1980, Ser. No. 227,077

Claims priority, application France, Apr. 20, 1979, 79 10071

Int. Cl.³ F27B 9/06

U.S. Cl. 219—388

8 Claims



1. An oven for post-baking or heating various product in particular, for browning bakery bread, comprising a chamber open at both its ends and traversed by a conveyor carrying the products, a loading zone situated at one of said chamber ends, and infrared heating means provided in the said chamber, the conveyor being of the type allowing the passage of radiations, and said infrared heating means comprising a first series of infrared radiation emitting tubes arranged above the conveyor and a second series of infrared radiation emitting tubes situated under the conveyor portion on which the products are carried, and wherein said first and second series of radiation emitting tubes are longitudinally shifted with respect to each other such that said second series of radiation emitting tubes comprises a set of radiation emitting tubes located upstream of the chamber in the direction in which the products are conveyed through the chamber and outside thereof in the zone of loading the products on the conveyor, and wherein the other ones of said radiation emitting tubes which are located inside said chamber being adapted to emit short-wave infrared radiation, whereas said set of radiation emitting tubes located upstream and outside of said chamber are adapted to emit longer wave infrared radiation, such as medium-wave infrared radiation, which is less dazzling to persons loading the product on said conveyor in said loading zone than short-wave infrared radiation.

4,363,956 COOKING PANEL UNIT FOR INSTALLATION IN WORK SURFACE

Herwig Scheidler, Mainz-Finthen, Fed. Rep. of Germany, and Günther Keller, Völs, Austria, assignors to JENAer Glaswerk Schott & Gen., Fed. Rep. of Germany

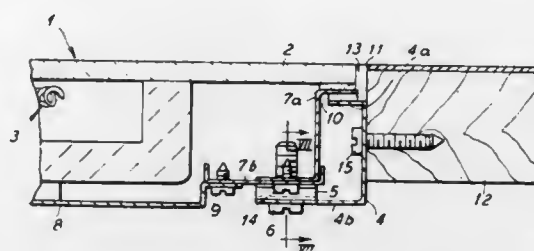
Filed Mar. 16, 1981, Ser. No. 244,055

Claims priority, application Fed. Rep. of Germany, Mar. 14, 1980, 3009961

Int. Cl.³ H05B 3/68

U.S. Cl. 219—464

16 Claims



1. In an improved glass-ceramic cooking panel unit having a glass-ceramic cooking plate overlying the remainder of the cooking unit containing the heating element assemblies, wiring, and temperature regulators, and which are surrounded by a side or trough frame and a bottom plate, the cooking panel unit is of the type to be received by a peripheral mounting frame which is attached to both the cooking panel unit and to a surrounding counter or work surface, the improvement which comprises:

biasing means disposed between a cooking panel unit and a mounting frame comprising:
a plurality of spring elements location between said cooking panel unit and said mounting frame, and
a plurality of adjustable connecting means attached the panel unit to the mounting frame,
whereby the cooking panel unit and the mounting frame are placed in a continuously height-adjustable, biased relationship.

4,363,957

HEATING APPARATUS WITH CHAR DETECTING AND HEATING CONTROLLER

Hajime Tachikawa; Mitsuru Watanabe, both of Yokohama, and Kenjiro Yokoyama, Yokosuka, all of Japan, assignors to Hitachi Heating Appliances Co., Ltd., Chiba, Japan

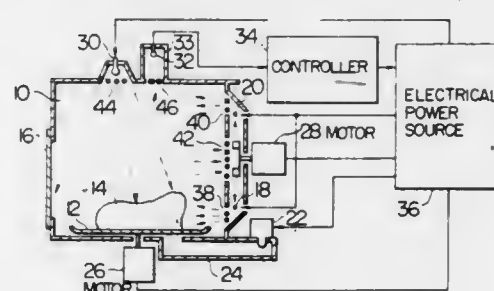
Filed Dec. 3, 1979, Ser. No. 99,929

Claims priority, application Japan, Jan. 9, 1979, 54/1713; Jan. 9, 1979, 54/1714; Jan. 9, 1979, 54/1588[U]; Jan. 9, 1979, 54/1589[U]

Int. Cl.³ H05B 1/02

U.S. Cl. 219—497

30 Claims



1. In a heating apparatus provided with a heating chamber and heating means capable of heating an article accommodated within said heating chamber to such a degree as to produce charring, the improvement comprising:

light source means for illuminating a surface of said article accommodated within said heating chamber with visible light rays;

optical sensor means for sensing the illumination intensity reflected from the surface of said article;
means for actuating said heating means and said light source means to initiate a heating cycle;
means for detecting the output of said optical sensor means at an initial heating phase in every heating cycle subsequent to operation of said actuating means and for generating a reference value which is proportional thereto;
memory means for storing said reference value;
comparing means for comparing the content of said memory means with the output of said optical sensor means which varies with time as the heating proceeds; and
control means for controlling the heating operation of said heating means in response to an output signal from said comparing means.

4,363,958

PREHEATING APPARATUS FOR DIESEL ENGINES

Akihiro Kobayashi, Aichi; Masashi Kida, and Yoji Kato, both of Okazaki, all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan

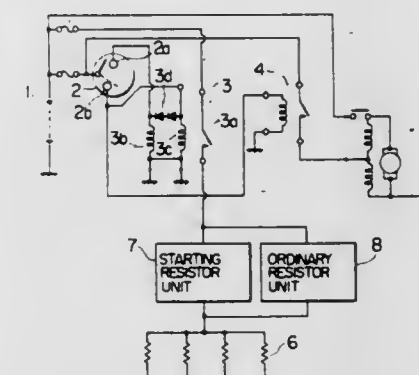
Filed Jan. 26, 1981, Ser. No. 228,552

Claims priority, application Japan, Jan. 29, 1980, 55-9556

Int. Cl.³ H05B 1/02

U.S. Cl. 219—505

9 Claims



1. A preheating apparatus for Diesel engines, comprising:
a glow plug disposed in a cylinder-head of an engine;
starting resistor means connected between a voltage source and said glow plug, said starting resistor means including a resistance body principally composed of barium titanate for exhibiting a resistance characteristic of a positive resistance temperature coefficient and for abruptly increasing its resistance value at a predetermined temperature;
ordinary resistor means connected in parallel with said starting resistor means, and disposed in an intake air passage of said engine for heating the intake air flowing there-through;
said starting resistor means exhibiting a resistance value smaller than that of said ordinary resistor means when a temperature of said glow plug is relatively low, and said starting resistor means exhibiting a resistance value larger than that of said ordinary resistor means when the temperature of said glow plug is relatively high; and
a cylindrical cover made of a material having good heat insulating properties, said cylindrical cover being disposed in said intake air passage and surrounding said ordinary resistor means for preventing the transmission of the heat from said ordinary resistor means to a wall of said intake air passage.

4,363,959

STAND-OFF FOR RESISTANCE WIRES

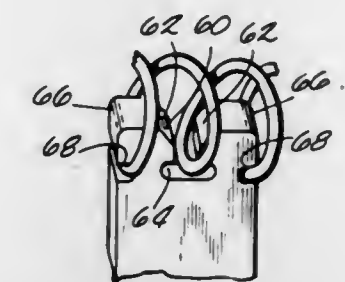
Merlyn F. Cottrell; Harold Tegelman, Jr.; Ronald E. Holmes, all of Winneconne, and John R. Hofferber, Weyauwega, all of Wis., assignors to E. R. Wagner Manufacturing Company, Milwaukee, Wis.

Filed Aug. 31, 1981, Ser. No. 297,726

Int. Cl.³ H05B 3/06

U.S. Cl. 219—532

4 Claims



1. A heater assembly comprising,
a frame,
an electrically insulating support mounted on the frame with an end spaced from the frame,
an electric resistance heating coil mounted on the end of the support, the loops of the coil being axially spaced by a predetermined distance when the coil is unstressed, said support end having a central inverted T-shaped opening forming retention surfaces located at the ends of the cross bar of the T,
said support retention surfaces being engaged by loops of the coil and spaced so the coil loops must be deflected to be mounted on or disengaged from the retention surfaces, said retention surfaces being operative to restrain the coil against axial movement and movement away from the support,
said support end including cam surface means leading into the T-shaped opening and operative as the coil is moved toward the retention surfaces to deflect the coil loops from their unstressed spacing,
the axis of the coil being transverse the retention surfaces during and after mounting the coil on the support,
the support end including a stop surface engaged by a coil loop during assembly to limit movement of the coil onto the support while positioning coil loops to engage the retention surfaces.

4,363,960

PHOTOELECTRIC WRITE-ONLY SEQUENCE CONTROLLER

Yoshikazu Kuze, 31-3, Higashi Magome 1-chome, Ohta-ku, Tokyo, 143, Japan

PCT No. PCT/JP80/00031, § 371 Date Oct. 28, 1980, § 102(e) Date Oct. 28, 1980, PCT Pub. No. WO80/01854, PCT Pub. Date Sep. 4, 1980

PCT Filed Feb. 27, 1980, Ser. No. 201,392

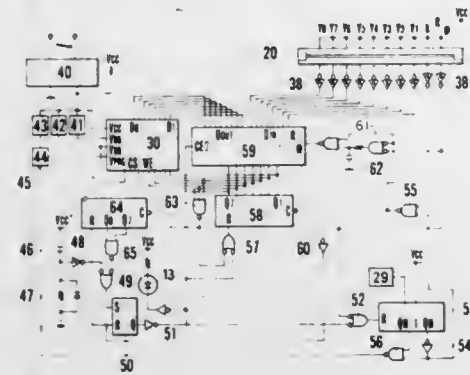
Int. Cl.³ G06K 19/06, 7/14; G11C 7/00

U.S. Cl. 235—454

8 Claims

1. A photo-electric write-only sequence controller whereby a transparent program sheet bearing information is inserted into, passed through and extracted from said controller, which comprises:
a sheet reading device defining a path along which said program sheet passes which includes a plurality of light-emitting elements disposed in the lateral direction at the entrance of said path and a plurality of light-receiving elements, each of which is corresponding to each of said light-emitting elements and arranged to generate write clock pulses data output and R/W signals when light from the corresponding light-emitting elements is interrupted by information on said program sheet;

a RAM for memorizing said data in synchronism with said write clock pulses;
 an EPROM detachably connected with terminals for said RAM;
 means for generating read clock pulses;
 a first binary counter for counting said write clock pulses and for addressing said RAM and EPROM;
 a second binary counter for counting said read clock pulses and for generating program pulses for writing data in said EPROM;
 a first gate means responsive to a first mode of said R/W signal to render said RAM in the write-in state and responsive to the second mode of said R/W signal to change said RAM to a read-out state;



a second gate means responsive to a first mode of said R/W signal effective to set said first binary counter and to reset said second binary counter and to render said RAM in an enable state;
 a third gate means for generating a signal for stopping the reading operation when the count of said binary counter reaches a predetermined number;
 whereby data in said program sheet is written in said RAM as said program sheet is passed through said sheet-reading device and data stored in said RAM is automatically written in said EPROM after the program sheet has been passed through and extracted from said sheet-reading device.

4,363,961

AUTOMATIC FOCUSING APPARATUS

Kazuo Okada, and Mitsushige Kondo, both of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

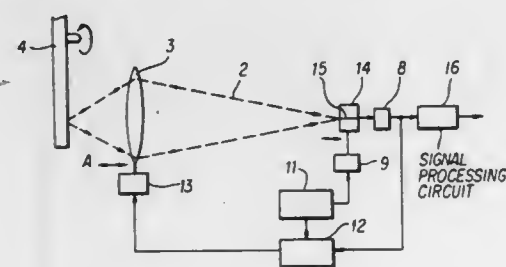
PCT No. PCT/JP78/00052, § 371 Date Aug. 16, 1979, § 102(e) Date Jun. 20, 1979, PCT Pub. No. WO79/00400, PCT Pub. Date Jul. 12, 1979

PCT Filed Dec. 13, 1978, Ser. No. 154,399

Claims priority, application Japan, Dec. 16, 1977, 52-152086 Int. Cl.³ G01J 1/20

U.S. Cl. 250—201

5 Claims



1. An automatic focusing apparatus which comprises a semiconductor ray source; focusing means for focusing a ray of said semiconductor ray source on an object substrate and focusing the reflective ray to an emitting part of said semiconductor ray source; driving means for vibrating, at a predetermined frequency, a position of a ray spot formed by focusing by said focusing means in optical axial direction; an oscillator for

exciting said driving means at a predetermined frequency; a phase detector which detects a variation of output characteristics of said semiconductor ray source induced by the reflective ray reflected by said object substrate to carry out phase detection under using the output of said oscillator as the reference signal; and an actuator which controls said focusing means depending upon the output of said phase detector to coincide the focal point of said ray spot with the surface of said object substrate.

4,363,962

FOCUSING APPARATUS WITH PLURAL EMITTER-DETECTOR PAIRS

Takao Shida, Yokohama, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

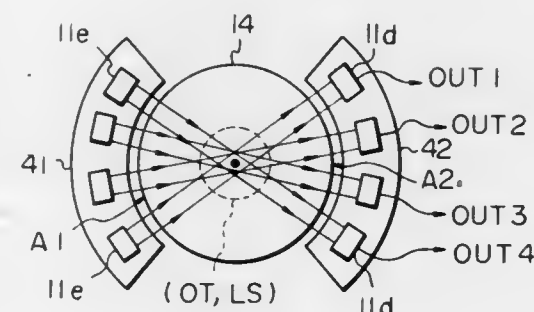
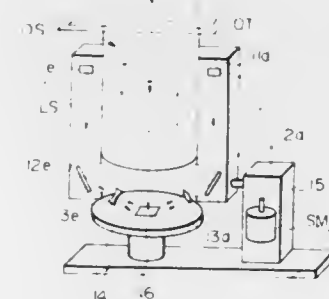
Filed Dec. 23, 1980, Ser. No. 219,495

Claims priority, application Japan, Dec. 27, 1979, 54-169182

Int. Cl.³ G01B 11/06

U.S. Cl. 250—201

4 Claims



1. In a focussing apparatus comprising a photo emitter for projecting a light beam onto an object to be focussed on; a photo detector for receiving the light beam reflected from the object; an optical system having a lens for focussing a pattern on the object; and a means for correctly positioning the focal point of the lens on the object by adjusting the relative distance between the object and the focal point in response to the intensity level of the reflected light beam detected by the photo detector, the improvement which comprises a plurality of optical sets distributed around the object, each of which sets is comprised of a photo emitter and a corresponding oppositely disposed photo detector, both located symmetrically with respect to the object, and are distributed around the object.

4,363,963

SOLID STATE PHOTO-ELECTRIC CONVERTING DEVICE AND SOLID STATE IMAGING APPARATUS EMPLOYING IT

Fumihiko Ando, Yokohama, Japan, assignor to Nippon Hoso Kyokai, Tokyo, Japan

Filed Feb. 26, 1980, Ser. No. 124,697

Claims priority, application Japan, Mar. 8, 1979, 54-27151

Int. Cl.³ H01J 40/14

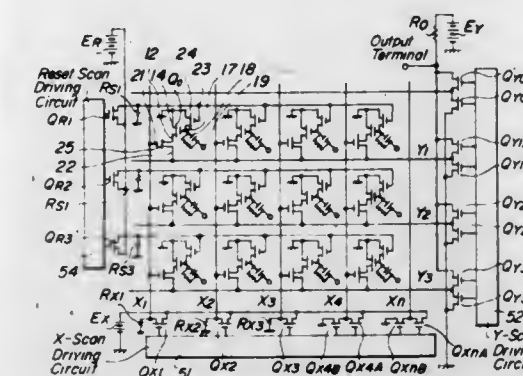
U.S. Cl. 250—211 J

20 Claims

1. A photo-electric converting device, wherein an amount of

an incoming light is converted into an electric signal, comprising

a solid state photo-electric converting means consisting of at least
 a photo-transparent electrode layer,
 at least one photo-electric converting layer and
 a conductive electrode layer covering substantially the same area as said photo-electric converting layer for collecting signal charges converted from the incoming light in said at least one photo-electric converting layer, and



a solid state amplifier means consisting of at least
 a control electrode layer being in conjunction with said conductive electrode layer for controlling said solid state amplifier means with response to said signal charges collected on said conductive electrode layer, and
 a plurality of semi-conductor layers including at least one sectional semi-conductor layer, conjugated with each other for amplifying a variation of an amount of said signal charges collected on said conductive electrode layer under the control of said control electrode layer.

4,363,964

INCREMENTAL MEASURING SYSTEM WITH SELECTIVELY DESIGNATED REFERENCE MARKS

Walter Schmitt, Traunreut, Fed. Rep. of Germany, assignor to Dr. Johannes Heidenhain GmbH, Traunreut, Fed. Rep. of Germany

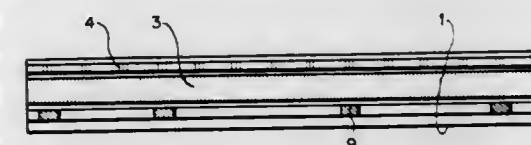
Filed Nov. 21, 1980, Ser. No. 209,152

Claims priority, application Fed. Rep. of Germany, Dec. 5, 1979, 2948854

Int. Cl.³ H01J 3/14

U.S. Cl. 250—237 G

10 Claims



1. In an incremental measuring system including a grid scale; an electronic counter; a plurality of fixed reference marks along the grid scale; a movable scanning unit; sensor means, included in the scanning unit, for generating an electrical impulse in conjunction with the reference marks for control of the electronic counter; at least one switching member mounted adjacent the scale for selectively designating a subset of the fixed reference marks needed for control purposes; and means, responsive to the at least one switching member, for selectively enabling the sensor means only for the designated subset of the reference marks, the improvement comprising:

an impulse generating circuit, connected to the sensor means for generating the electrical impulse, said impulse generating circuit having two input terminals;
 a first photosensitive element included in the sensor means and connected across the two input terminals of the im-

pulse generating circuit, said first photosensitive element positioned to scan the plurality of fixed reference marks;
 a second photosensitive element, included in the enabling means and connected in parallel with the first photosensitive element; and
 means for illuminating the second photosensitive element; said switching member operating selectively to alter illumination of the second photosensitive element by the illuminating means in order selectively to enable the sensor means only for the designated subset of the reference marks.

4,363,965

DETECTION AND IDENTIFICATION METHOD EMPLOYING MOSSBAUER ISOTOPES

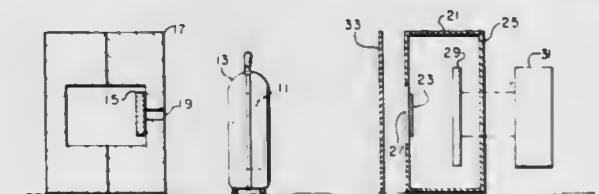
Robert K. Soberman; Kenneth Krevitz, and Louis L. Pytlewski, all of Philadelphia, Pa., assignors to The Franklin Institute, Philadelphia, Pa.

Filed Oct. 3, 1980, Ser. No. 193,723

Int. Cl.³ G09K 3/00

U.S. Cl. 250—302

17 Claims



1. A method for indicating the presence of a non-radioactive, inert tagging substance in a carrier material, said tagging substance comprising a Mossbauer isotope, the method comprising the steps of:

(a) providing nuclear detector means including a Mossbauer isotope-containing detecting substance, which is identical to the tagging substance, and sensing means responsive to the presence of said tagging substance in said carrier material, provided that the Mossbauer isotope of said tagging substance is in a state of resonance excitation and causes excitation of the Mossbauer isotope of said detecting substance, said sensing means being operatively associated with indicator means for indicating whether or not said sensing means has sensed radiation emitted from the excited Mossbauer isotope of said detecting substance;
 (b) exposing said carrier material to said detector in position to activate said sensing means; and
 (c) irradiating said carrier material with radiation causing resonance excitation of the Mossbauer isotope of said tagging substance, if present in said carrier material, to thereby indicate the presence or absence of said tagging substance in said carrier material.

4,363,966

DETECTION SYSTEM FOR DISTINGUISHING BETWEEN VOIDS AND FOREIGN PARTICLES IN MATERIALS AND METHOD

Peter K. Cheo, West Hartford, Conn., assignor to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Sep. 22, 1980, Ser. No. 189,025

Int. Cl.³ G01J 1/00

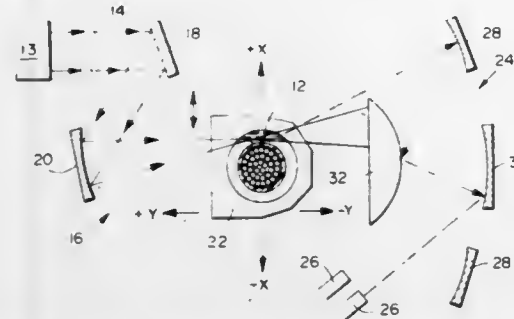
U.S. Cl. 250—339

12 Claims

1. A system for detecting the presence of particles or voids in a materials of a specific type capable of passing a particular beam of radiation therethrough, said system comprising:

(a) means for producing said beam of radiation;
 (b) means for directing said beam into said material along a predetermined path incident to said material such that
 (i) any portion of said beam which passes through said material unobstructed by voids or foreign particles within said material does so along predictable non-impinging paths, and

- (ii) any portion of said beam which impinges one of said voids or foreign particles as it passes through said material is scattered thereby along scattering paths which define an overall scattering pattern distinctly characteristic of whether the impinged void or foreign particle is generally spherical or non-spherical in shape; and



- (c) means for detecting said scattered radiation, if any, and distinguishing between whether the impinged upon void or foreign particle is generally spherical or non-spherical in shape.

4,363,967

METHOD AND APPARATUS FOR FAR INFRARED DETECTION

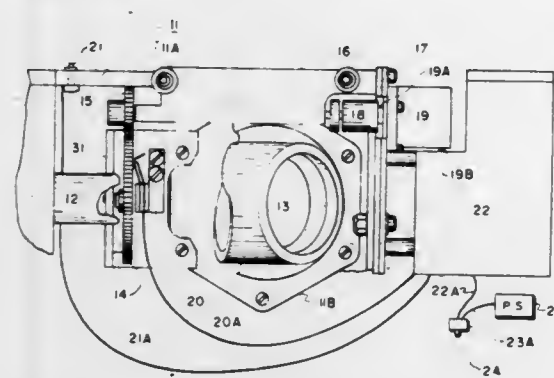
Edward J. Efke, Woodbridge; Elliott Lloyd, Lorton; Howard K. Dickson, and James R. Adamson, Jr., both of Alexandria, all of Va., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 7, 1980, Ser. No. 194,656

Int. Cl.³ G01J 1/00

U.S. Cl. 250—339

10 Claims



1. In combination with a thermal viewer with an objective lens and a far infrared detector sensitive to a broad band of infrared frequencies, a subsystem for distinguishing one cloud of a first gaseous compound from an alternative cloud formed from a second gaseous compound when backlit by a substantially uniform spectral distribution of light in the far infrared, comprising:

- a filter wheel mounted in said viewer between said objective lens and said detector having at least three apertures therein;
- one of said apertures being arranged to pass all far infrared frequencies in said broad band;
- each remaining aperture containing a filter which transmits only one of a group of different narrow bands of frequencies; and
- a stepping motor means mounted on said viewer to move said filter wheel so that said apertures are sequentially centered on the optical axis of said lens, the stepping period of said motor means being less than one tenth of a second.

4,363,968

METHOD AND APPARATUS FOR DETERMINING THE BINDER CONTENT IN A FIBROUS MAT

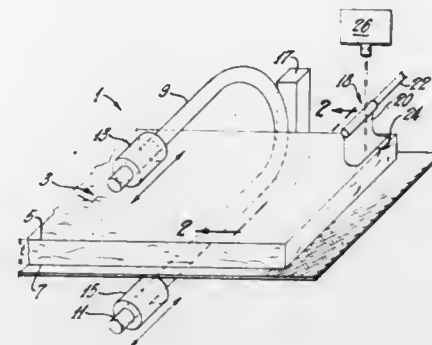
Paul T. McGowan, Granville, and Raymond E. Wright, Newark, both of Ohio, assignors to Owens-Corning Fiberglass Corporation, Toledo, Ohio

Continuation of Ser. No. 58,636, Jul. 19, 1979, abandoned. This application Aug. 7, 1981, Ser. No. 290,650

Int. Cl.³ G01J 1/00

U.S. Cl. 250—339

7 Claims



1. A method for measuring binder characteristics in a mat of binder-coated glass fibers, said binder having a cure indicator constituent, the amount of which changes as said binder is cured, comprising radiating said mat and said binder with first, second and third energies,

said first energy having a wavelength which is absorbed by said binder, but is substantially not absorbed by said cure indicator constituent,

said second energy having a wavelength which is absorbed by said binder including said cure indicator constituent, and

said third energy having a wavelength which is substantially not absorbed by either said binder or said cure indicator constituent;

sensing the amount of said first, second and third energies transmitted through said mat; and,

determining the amount of binder contained in said mat from the sensed energies.

4,363,969

LIGHT SWITCHED SEGMENTED TOMOGRAPHY DETECTOR

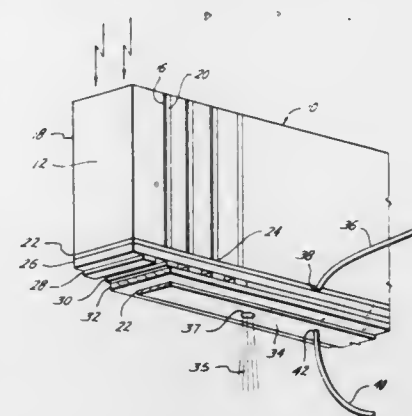
Poen S. Ong, 9 Stonegate, Houston, Tex. 77024

Filed Jul. 16, 1980, Ser. No. 169,297

Int. Cl.³ G01T 1/20, 1/22

U.S. Cl. 250—367

10 Claims



1. A detector comprising: scintillator means for converting X-ray photons received at each of a plurality of different areas of the surface of said detector to a proportionate number of light photons; duo-photoconductive means composed of an amorphous material for converting said light photons to a proportion-

- ate amount of electric charge and for storing said electric charge; and random access switching means for selectively connecting said stored electric charge arising from X-ray photons received at any one of said different areas of the surface of said detector to a single amplifier.

4,363,970

SELF-POWERED NEUTRON FLUX DETECTOR ASSEMBLY

Colin J. Allan, and Ian L. McIntyre, both of Ontario, Canada, assignors to Atomic Energy of Canada Limited, Ottawa, Canada

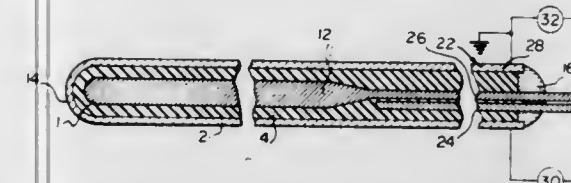
Filed May 19, 1980, Ser. No. 150,809

Claims priority, application Canada, Aug. 13, 1979, 334534

Int. Cl.³ G01T 3/00

U.S. Cl. 250—390

8 Claims



1. A self-powered neutron flux detector assembly which provides a measure of the average neutron flux along the length of the detector comprising:

(a) an emitter electrode of substantially circular cross section, at least of the order of 0.9 mm in diameter,

(b) a tubular collector electrode enclosing and coaxial with the emitter electrode, and

(c) dielectric material between the said electrodes, and wherein the improvement comprises,

(d) the emitter electrode is of metal selected from the group consisting of iron, nickel, titanium, chromium and alloys based on at least one of these elements, except for impurities, so that at least of the order of 90% of the total electrical current that will be induced in the detector is prompt and is derived from (n,γ,e) interactions in said metal, and

(e) the collector electrode is of metal selected from the group consisting of iron, nickel, titanium, chromium, zirconium and alloys based on at least one of these materials, except for impurities.

4,363,971

METHOD OF AND APPARATUS FOR CONTROLLING THE ELECTRIC POWER APPLIED TO A ROTARY-ANODE X-RAY TUBE

Rudolf Ochmann, Hamburg, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

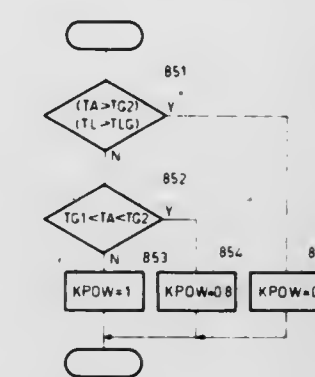
Filed Jul. 14, 1980, Ser. No. 167,908

Claims priority, application Fed. Rep. of Germany, Jul. 5, 1979, 2927207

Int. Cl.³ H05G 1/26

U.S. Cl. 378—110

16 Claims



1. A method of controlling the electric power applied to a rotary anode X-ray tube in an X-ray generator in dependency

4,363,972

WIDE RANGE NOBLE GAS RADIATION MONITOR

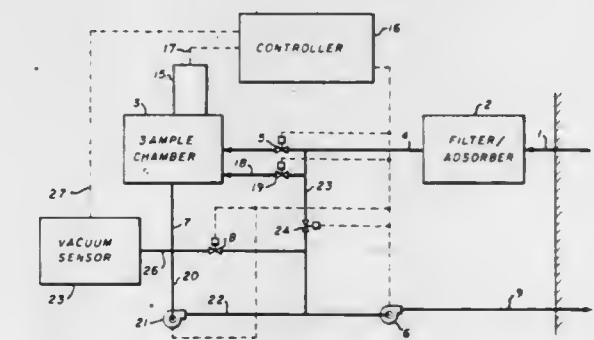
Harry S. Kuhlman, Vernon, and Jeffrey R. Wyvill, III, South Windsor, both of Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed Apr. 10, 1980, Ser. No. 139,034

Int. Cl.³ G01N 21/01

U.S. Cl. 250—430

7 Claims



1. A sample and detection system for noble gas emission of a nuclear process, including, a sample chamber adapted to receive effluent containing a quantity of noble gases to be detected and manifested, a first conduit circuit including the sample chamber flowing the effluent containing a quantity of noble gases to be detected and manifested, a first pump connected to the first conduit circuit energized to draw the effluent sample through the chamber, a second conduit circuit including the sample chamber flowing the effluent containing the noble gases to be detected and manifested, a second pump connected to the second conduit circuit energized to draw the effluent sample through the chamber, a detector of noble gases connected to the chamber and establishing an output signal in accordance with the count rate of the detector, a first valve in the first conduit circuit upstream of the chamber, a second valve in the second conduit circuit upstream of the chamber, and a controller connected to receive the output signal of the detector and the first and second valves and the second pump to close the first valve and open the second valve a predetermined degree and actuate the second pump, whereby the controller opens the first valve during the time the detector responds to a first range of noble gases in the effluent passed through the chamber and closes the first valve and opens the second valve and energizes the second pump when the detector responds to a second range

of noble gas quantities in the effluent greater than the first range.

4,363,973

SAFETY CIRCUIT OF AUTOMATIC TRANSMISSION CONTROL SYSTEM

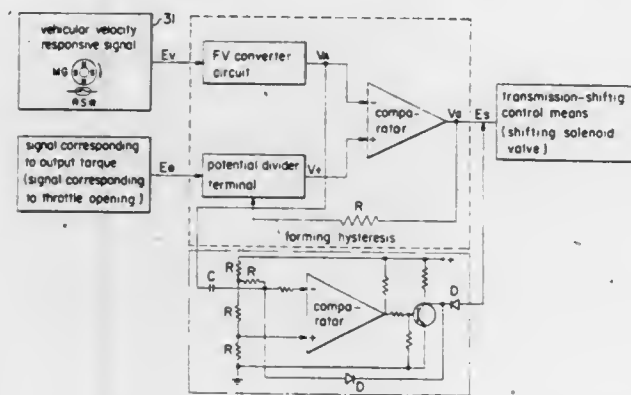
Shoji Kawata, Okazaki; Tomoaki Nishimura, Toyota; Naoji Sakakibara, Chiryu; Nobuyuki Imai, Aichi; Hiroyuki Amano, Chiryu, and Shigemitsu Hamajima, Obu, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Sep. 22, 1981, Ser. No. 304,626

Claims priority, application Japan, Sep. 24, 1980, 55-132640
Int. Cl.³ H02G 3/00

U.S. Cl. 307-10 R

6 Claims



1. A safety circuit for use in an automatic transmission control system having a control circuit for receiving a first input signal which is responsive to the velocity of a vehicle and a second input signal which corresponds to the output torque of the vehicle engine or to the throttle opening of the vehicle engine, and for producing a transmission shifting control signal upon comparing the first and second input signals, said safety circuit comprising:

comparator means having a first input which is connected to said first input signal and which is connected to a first constant voltage, and a second input which is connected to a second constant voltage which is lower than said first constant voltage, said comparator detecting the difference between the two input voltages applied thereto and producing an output in response to an abrupt loss of said first input signal;

switch means responsive to the output of said comparator for controlling the transmission shifting control signal such that the vehicle transmission is shifted to a high speed gear ratio.

4,363,974

METHOD AND APPARATUS FOR PROVIDING SIGNALS FROM LTC TRANSFORMER TO ELECTRICAL DEVICES

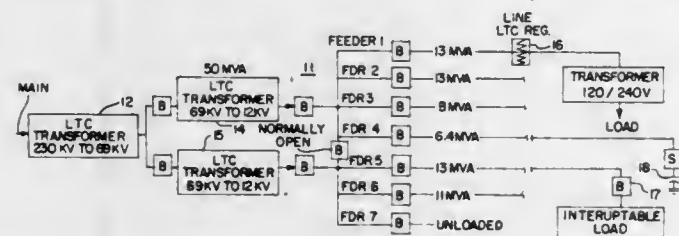
Robert W. Beckwith, 5728 Oakhurst Dr., Seminole, Fla. 33542

Filed Apr. 6, 1981, Ser. No. 251,377

Int. Cl.³ G05B 13/02, 11/32

U.S. Cl. 307-40

12 Claims



6. A load tap changing transformer system for use with a power distribution system having a plurality of electrical devices connected thereto, wherein the transformer has a plurality of electrical taps for providing output power at voltages dependent on the variable tap position setting of said trans-

former comprising, in combination, means for enabling said transformer to provide a coded output comprising time-dependent voltage levels, means for providing a signal to cause said transformer to provide said coded output, signal-receiving and decoding means associated with said devices for enabling said devices to be selectively activated in response to a selected code, whereby the power status of selected ones of said devices may be controlled.

4,363,975

DIRECT CURRENT POWER SUPPLY

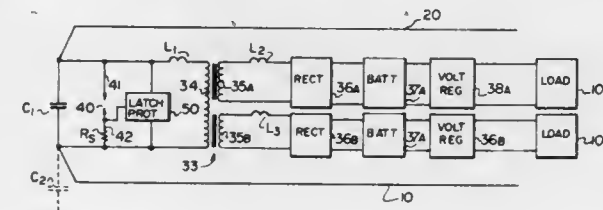
Jay E. Beattie, Indian Head, Canada, assignor to Saskatchewan Power Corporation, Regina, Canada

Filed May 18, 1981, Ser. No. 264,068

Claims priority, application Canada, May 30, 1980, 353231
Int. Cl.³ H02J 3/00

U.S. Cl. 307-150

17 Claims



1. A power supply for receiving power input from a high voltage transmission line and providing a direct current power output to an electrical load operated at or near the potential of said transmission line remote from electrical ground, said power supply comprising:

(a) a metallic structure supported in proximity to said transmission line remote from electrical ground;

(b) capacitor means electrically connected between said transmission line and said metallic structure for providing in response to the presence of high voltage on said transmission line an alternating current voltage, the magnitude of which alternating current voltage is dependent upon the capacitance of said capacitor means and upon stray capacitance between said metallic structure and electrical ground; and,

(c) power conditioning means electrically connected to said capacitor means for receiving said alternating current voltage and converting such voltage into a direct current voltage for the supply of direct current power to said electrical load.

4,363,976

SUBINTERVAL SAMPLER

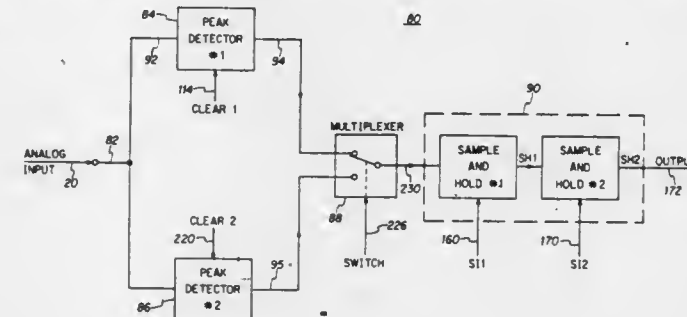
Timothy R. Minor, Plano, Tex., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Jan. 19, 1981, Ser. No. 226,321

Int. Cl.³ G11C 27/02

U.S. Cl. 307-353

27 Claims



1. A subinterval sampler for sampling short duration pulses with slower speed processing hardware than would otherwise be required, comprising:

a pair of pulse detectors connected in parallel from an input, each detector having an active interval for pulse detection and an inactive interval for clearing said detector, the active intervals having an overlap period and the inactive intervals being nonconcurrent;

switch means alternately outputting one and then the other of said detectors; and

sample and hold means receiving the output of said switch means.

4,363,977

DEVICE FOR DISCRIMINATING BETWEEN TWO VALUES OF A SIGNAL WITH DC OFFSET COMPENSATION

Toshitaka Tsuda, Kawasaki; Kazuo Murano, Tokyo; Kazuo Yamaguchi, Hiratsuka; Takafumi Chujo; Norio Murakami, both of Yokohama, and Motohide Takahashi, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

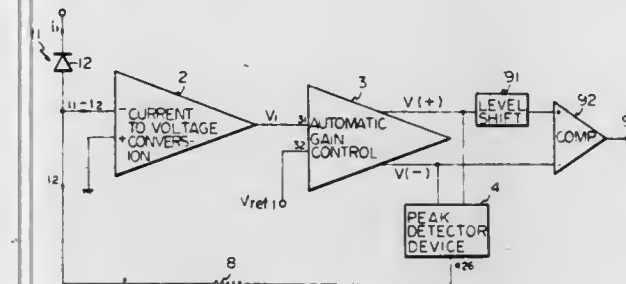
Filed Feb. 20, 1981, Ser. No. 236,609

Claims priority, application Japan, Feb. 20, 1980, 55/19992;
Jun. 26, 1980, 55/87060

Int. Cl.³ H03K 5/153, 5/01

U.S. Cl. 307-358

5 Claims



1. A device for discriminating between two values of a signal using DC offset compensation, comprising:

an automatic gain control circuit, having an input, for receiving an incoming signal and for generating both a same polarity signal having the same polarity as said incoming signal and an opposite polarity signal having opposite polarity to that of said incoming signal;

a peak detector device, operatively connected to said automatic gain control circuit, for receiving said same polarity signal and said opposite polarity signal and for generating and controlling the value of a feedback current;

a feedback path for connecting the output of said peak detector device with the input of said automatic gain control circuit;

a level shift circuit, operatively connected to said automatic gain control circuit, for generating a shifted same polarity signal by shifting the level of said same polarity signal; and

a comparator, operatively connected to said level shift circuit and said automatic gain control circuit, for receiving said shifted same polarity signal and said opposite polarity signal through said level shift circuit and for generating a two value discriminated output signal in dependence upon said shifted same polarity signal and said opposite polarity signal, wherein the value of said feedback current is regulated so that the maximum value of one of said same polarity signal and said opposite polarity signal coincides with the minimum value of the other of said two polarity signals.

4,363,978

REDUCED POWER TRISTATE DRIVER CIRCUIT

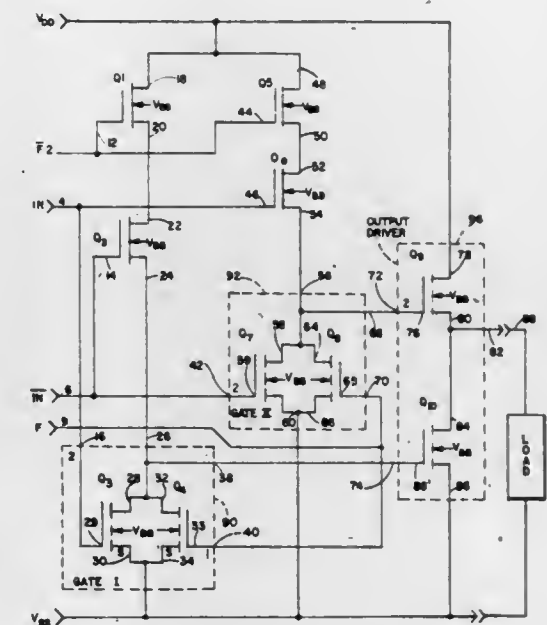
Gary L. Heimbigner, Anaheim, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Jul. 31, 1980, Ser. No. 174,089

Int. Cl.³ H03K 19/092, 3/26

U.S. Cl. 307-451

17 Claims



1. A tristate driver circuit adapted to operate between a power source and a reference potential comprising:

a signal source means having

means providing an input signal,

means providing a complement input signal,

means providing a float input signal,

means providing a complement float input signal;

a first gate; a second gate, each said first and second gate having:

a power gate input terminal adapted to be coupled to said power source,

a first signal gate input terminal,

a second signal gate input terminal, and

a gate output terminal;

a first buffer switch, a second buffer switch, each said first and second buffer switches having:

a control electrode and a conduction path connected between said power source and said first and second gate power input terminals respectively;

an output driver having:

a first signal driver input terminal connected to said first gate output terminal,

a second signal driver input terminal connected to said second gate output terminal,

a driver output terminal;

said first gate first signal gate input terminal being connected to said means providing a float input signal and to said second gate first signal gate input terminal,

said first gate second signal gate input terminal being connected to said means providing an input signal and to said second gate second signal gate input terminal,

said second gate second signal gate input terminal being connected to said means providing a complement input signal and to said first gate second signal gate input terminal;

means for interrupting power to said first and second conduction paths of said first and second buffer switches responsive to a signal from said complement float input signal means.

4,363,979

EVALUATION CIRCUIT FOR ELECTRICAL SIGNALS
Gunter Hönig, Ditzingen; Joachim Braunger, Remseck; Imanuel Krauter, Erbstetten, and Rainer Bone, Vaihingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

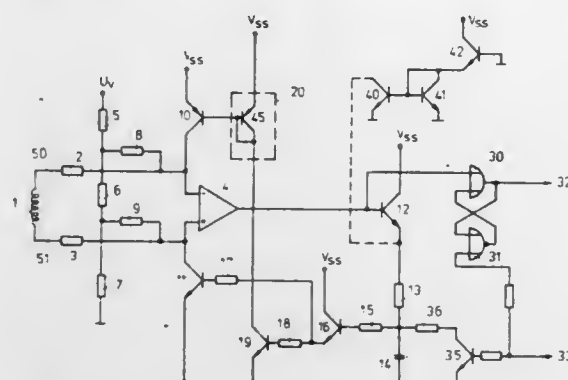
Filed Nov. 24, 1980, Ser. No. 209,505

Claims priority, application Fed. Rep. of Germany, Nov. 30, 1979, 2948198

Int. Cl.³ H03L 5/00; H03K 13/02, 9/06

U.S. Cl. 307—519

8 Claims



1. An evaluation circuit for providing processible binary signals from electric signals supplied by an inductive transducer in a manner dependent on the speed of a rotating shaft and having an amplitude increasing with the speed of rotation of said shaft, said circuit comprising:

means for coupling a pair of terminals of said transducer supplying the output signal thereof in phase opposition respectively to the inverting and non-inverting inputs of a comparator (4), said coupling means including series resistances (2,3) each connected between one of said terminals and one of said comparator inputs;

a pair of electrically controllable resistances controllable in the magnitude of their respective resistance, values connected between respective comparator inputs and different constant potentials;

capacitor means (14) connected at the comparator output for charging thereof in a manner dependent upon the output signal of said comparator, and

means connected between said capacitor means and said resistances (10,11) for reducing said resistance values thereof as the charge voltage of said capacitor increases, whereby said controllable resistances and said series resistances are caused to cooperate to reduce the effective voltage at said inputs of said comparator by voltage division with increasing speed of said shaft.

4,363,980

LINEAR MOTOR

Christian C. Petersen, Westwood, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Continuation of Ser. No. 45,822, Jun. 5, 1979, abandoned. This application Aug. 24, 1981, Ser. No. 295,536

Int. Cl.³ H02K 33/00

U.S. Cl. 310—15

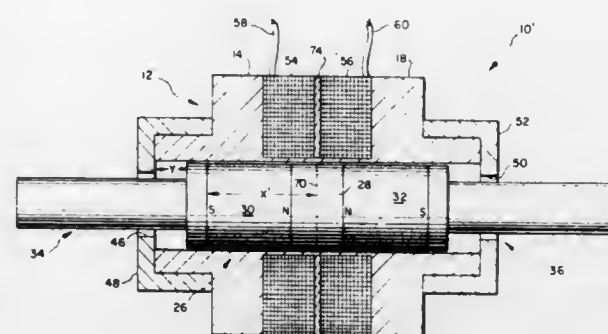
16 Claims

1. A linear motor comprising:

means formed from a non-magnetic material for supporting electrically conductive means, said supporting means including means defining a passageway extending axially of said supporting means;

an armature mounted within said passageway for axial movement relative to said supporting means between first and second positions, said armature including a pair of permanent magnets and a core, said core being located between said first and second permanent magnets with common poles of said magnets in engagement with opposite axial end faces of said core thereby forming an armature having effective common poles at the axial ends of said armature and an effective pole of opposite polarity

located at a point substantially one-half the distance between the ends of said core; electrically conductive means wound upon said supporting means for moving said armature from said first position to said second position upon being electrically energized; output means mounted on one end of said armature for transmitting the movement of said armature to an apparatus to be driven thereby;



means for limiting the movement of said armature along said passageway upon energization of said electrically conductive means; and

means formed from a ferrous material mounted on said supporting means substantially in alignment with one of the effective poles of said armature when said armature is in said first position for automatically returning said armature to said first position upon deenergization of said electrically conductive means.

4,363,981

MEANS TO REDUCE FRICTIONAL HEATING OF A SUPERCONDUCTING WINDING AT AN INTERFACE WITH ITS SUPPORT STRUCTURE

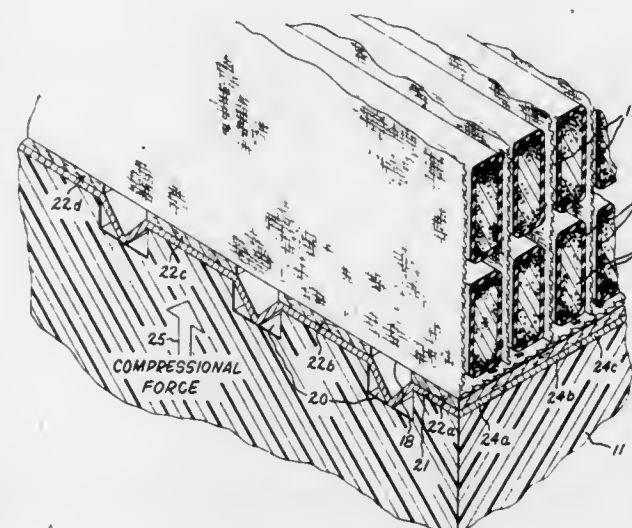
Evangelos T. Laskaris, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed May 1, 1981, Ser. No. 259,388

Int. Cl.³ H02K 9/00

U.S. Cl. 310—52

17 Claims



1. Improved means to reduce heating of a monolithic superconducting winding due to friction generated at an interface between said superconducting winding and a support structure for said winding, said support structure comprising a material having a high electrical resistivity whereby eddy current heating therein is limited to a tolerable level, said support structure having a first surface held under a compressional force against said superconducting winding and having a plurality of spaced apart helium cooling channels in the first surface thereof, said improved means comprising:

(a) compliant sheet material having a low shear modulus and having first and second sides, said first side being bonded

to an external surface of said superconducting winding; and

(b) high thermal conductivity sheet metal having first and second sides with said first side disposed in contact with said second side of said low shear modulus sheet material and said second side thereof disposed in contact with said first surface of said support structure, and having portions thereof respectively disposed within said plurality of said helium cooling channels.

4,363,982

DUAL CURVED INLET GAP PICKUP WEDGE

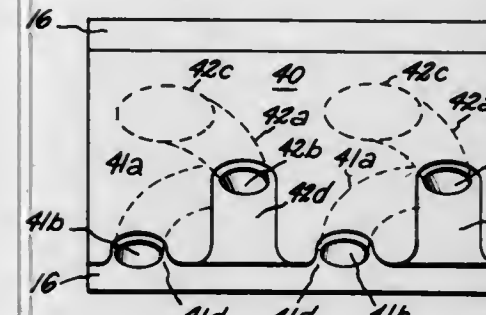
Christopher A. Kaminski, Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Jan. 26, 1981, Ser. No. 228,471

Int. Cl.³ H02K 1/32

U.S. Cl. 310—61

5 Claims



1. A wedge for use in the rotor slots of dynamoelectric machines in conjunction with conductor bars within said slots especially such machines employing a gap pickup system for circulating cooling fluid through the rotor, said wedge comprising:

an elongate body having ridge portions extending longitudinally outward along the sides thereof for insertion and retention of the wedge in slots in the rotor;

said wedge having a plurality of pairs of bidirectionally curved passages therein, to direct cooling fluid to respective cooling passages in said conductor bars and impart to said fluid flow directions having both a radially inward component and a longitudinal component, said passages each having an entrance along an upper portion of said wedge, said entrances having scoop-shaped port holes for directing a cooling fluid into said passages upon rotor turning;

said passages terminating in exit openings on the bottom side of said wedge, a first of said passages of each of said pairs being curved to direct the flow of cooling fluid in a first exit direction wherein the longitudinal component thereof is in a first direction and the second of said passages being curved to direct flow of cooling fluid in a second exit direction, wherein the longitudinal component thereof is opposite in direction to the longitudinal component of said first fluid flow.

4,363,983

AUTOMOTIVE-TYPE VOLTAGE REGULATOR AND SUPPORT ASSEMBLY STRUCTURE

Manfred Frister, Schwieberdingen; Stefan Renner, Leonberg-Silber; Friedhelm Meyer, Illingen, and Klaus H. Christ, Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Sep. 9, 1980, Ser. No. 185,413

Claims priority, application Fed. Rep. of Germany, Sep. 21, 1979, 2938275

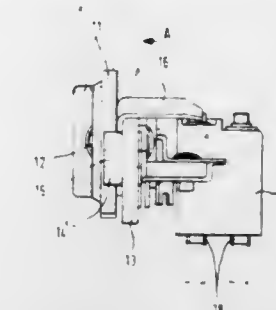
Int. Cl.³ H02K 11/00

U.S. Cl. 310—68 R

8 Claims

1. Voltage regulator and support assembly comprising a regulator structure (11) having an essentially cylindrical housing defining a flat end surface; a carrier plate (13) having a plan outline in one direction

which is larger than the surface of the regulator structure and narrower than the diameter of the cylindrical housing, the regulator structure being secured to said plate with the flat end surface positioned parallel thereto; raised attachment bosses (14) formed on the carrier plate



laterally of the surface of the regulator structure, and through-bores (15) extending through said bosses, whereby the bosses will form reinforced attachment eyes for the carrier plate and the voltage regulator structure secured thereto, while leaving part of said surface exposed to cooling air.

4,363,984

DIGITALLY CONTROLLED BRUSHLESS MOTOR

Michihiro Torii, Hamamatsu; Masanao Okuda, Kosai, and Yuzuru Suzuki, Shizuoka, all of Japan, assignors to Fuji Electrochemical Co., Ltd., Tokyo, Japan

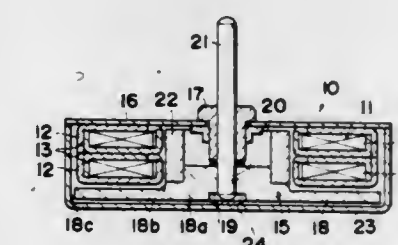
Filed Oct. 17, 1980, Ser. No. 198,235

Claims priority, application Japan, Oct. 18, 1979, 54-134637

Int. Cl.³ H02K 21/12

U.S. Cl. 310—156

8 Claims



1. A pulse-controlled brushless motor of constant speed, comprising:

a rotor rigidly mounted on a rotary shaft, said rotor having an integral inertia ring,

a stator having driving windings and inner and outer yokes; said yokes each having a plurality of polar teeth projecting inwardly at a constant interval, said windings being mounted within said inner and outer yokes,

first means for rotatably supporting at least one of said rotor and said stator, said first means having a casing and a bearing at the center of said casing, to thereby rotatably support an end of said rotary shaft,

second means for rotatably supporting the other one of said rotor and said stator, said second means having a bearing for rotatably securing said shaft, and a cover member fixed to said bearing of the second means, said cover member and said casing shielding a magnetic flux of said yokes, and

an annular magnet concentric with said rotary shaft and fixed to said rotor, said magnet being permanently magnetized in a multi-pole fashion to have a plurality of north and south poles alternately arranged along its circumference,

whereby said rotor is rotated smoothly and constantly when electric pulses of a predetermined frequency are supplied to said driving windings.

4,363,985

POLE CHANGE DYNAMO-ELECTRIC MACHINES
Satoshi Matsuda, and Etsuo Kiyohara, both of Mie, Japan,
assignors to Tokyo Shibaura Denki Kabushiki Kaisha,
Kanagawa, Japan

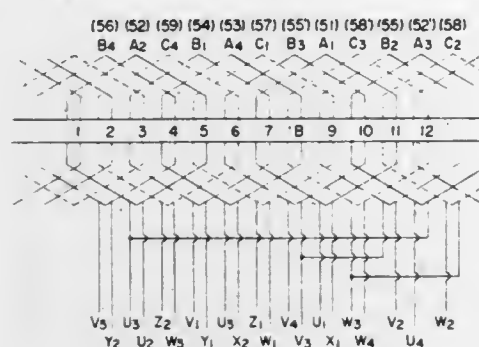
Filed Feb. 11, 1981, Ser. No. 233,315

Claims priority, application Japan, Feb. 20, 1980, 55-19215

Int. Cl.³ H02K 3/00

U.S. Cl. 310-184

4 Claims



1. In a pole change dynamo-electric machine having a stator core provided with slots receiving coils of three-phase distributed winding adapted for reconnection to form either one of two pole numbers having a ratio of 1:2 and for reconnection for operation on either one of two voltages having a ratio of about 1:2, the improvement wherein said coils of said winding are divided into coil groups of a number equal to three times the greater one of said pole numbers, each of said coil groups consisting of a coil or coils arranged in adjacent positions and having a beginning terminal and an end terminal, every twelve adjacent coil groups forming a set of coil groups, and the coil groups of each set being consecutively numbered in the order of their positions, and the beginning terminal of the second coil group and the end terminal of the eleventh coil group are connected together, the end terminal of the seventh coil group and the beginning terminal of the tenth coil group are connected together, and the beginning terminal of the ninth coil group and the end terminal of the twelfth coil group are connected together.

4,363,986

ROTOR OF AN ELECTRICAL MACHINE
Reinhard Joho, Zürich, and Herbert Pohl, Hausen, both of Switzerland, assignors to BBC Brown, Boveri & Company, Limited, Baden, Switzerland

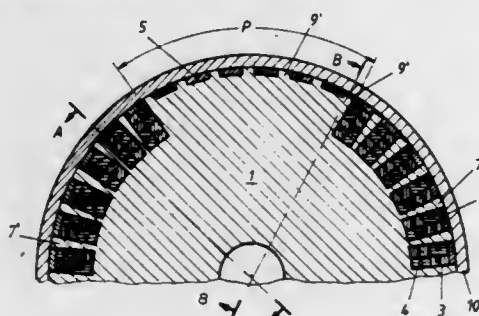
Filed Jul. 24, 1980, Ser. No. 171,809

Claims priority, application Switzerland, Jul. 26, 1979, 6906/79

Int. Cl.³ H02K 3/48

U.S. Cl. 310-214

12 Claims



1. A rotor of an electrical machine, especially a turbine generator, wherein at least one rotor winding is placed into grooves formed in a rotor body and secured against forces developing during operation by means of rings of nonmagnetic material, said rotor having pole zones, comprising:
said rings being secured without overlapping and at a distance from each other on the rotor body with said rings axially and tangentially secured in the pole zones;
said rings having nose-like diametrically opposite projec-

tions provided on an inner surface thereof in the pole zone area in at least one ring end zone; and
said rotor having corresponding recesses open at least towards one groove in the pole zones whereby one or multi-part breach components slide into at least one of the grooves adjacent to the recesses.

4,363,987

DIRECT CURRENT MACHINE STATOR

Ljudmila A. Vorotyntseva, ulitsa Njutona, 141, kv. 30; Eduard A. Florinsky, ulitsa 12 Aprelya, 6, kv. 13; Leonid I. Semenov, ulitsa Geroev Truda, 54, kv. 16, and Valentin S. Sysoev, ulitsa Geroev Truda, 37, kv. 60, all of Kharkov, U.S.S.R.

PCT No. PCT/SU80100099, § 371 Date Feb. 4, 1981, § 102(e)

Date Feb. 3, 1981, PCT Pub. No. WO80/02777, PCT Pub.

Date Dec. 11, 1980

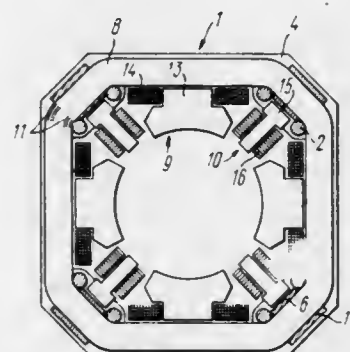
PCT Filed Jun. 4, 1980, Ser. No. 233,600

Claims priority, application U.S.S.R., Jun. 4, 1979, 2774554

Int. Cl.³ H02K 1/00

U.S. Cl. 310-216

2 Claims



1. A direct current electrical machine stator comprising a support structure having beams disposed around the longitudinal center line of the stator, a magnetic circuit incorporating a yoke adapted to cooperate with support beams, and pole pieces affixed to the yoke, characterized in that the yoke (8) is in the form of a continuous band coiled into a cylindrical spiral with each turn of the spiral embracing by a wider side thereof all the support beams (2) of the support structure (1), the support structure (1) further comprising a pair of frame members (4) positioned at the bases of the cylindrical spiral and having ends of the support beams (2) of the support structure (1) secured thereto.

4,363,988

INDUCTION DISK MOTOR WITH METAL TAPE COMPONENTS

Gerald B. Kliman, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

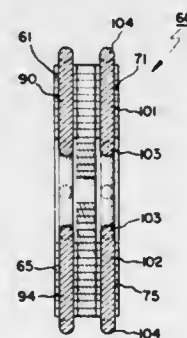
Continuation-in-part of Ser. No. 914,443, Jun. 12, 1978,

abandoned. This application Oct. 14, 1980, Ser. No. 196,456

Int. Cl.³ H02K 1/22

U.S. Cl. 310-268

6 Claims



1. An electrical machine comprising, in combination: a first

ferromagnetic stator body; a ferromagnetic rotor body disposed adjacent said stator body and being rotatable with respect thereto, said rotor body and stator body being separated from one another by an air gap and being magnetically coupled to one another through said air gap;

said stator body comprising a coil of concentric turns of a thin elongated metal tape wound in the form of an annulus with a central opening;

said stator body annulus having first and second end surfaces, and a plurality of symmetrically distributed slots extending axially across at least a portion of the radial thickness of said first end surface and in a direction perpendicular to the layers of said tape and extending into said annulus for a predetermined depth;

first stator winding means wound in said slots;

said rotor body comprising a second coil of concentric layers of metal tape wound in the form of a second annulus, and a second plurality of symmetrically distributed slots, coordinated in number with the number of slots in said stator body, extending across at least a portion of the radial thickness of one end of said second annulus in a direction perpendicular to the layers of said second coil of tape and extending into said second annulus for a predetermined depth, said second coil of tape including a third plurality of slots disposed symmetrically with said second plurality of slots and extending into the opposite end of said rotor annulus, said second and third plurality of slots defining a thin, readily-saturable bridge between each opposed pair of slots thereof; and

squirrel cage type winding means including radial winding sections disposed in said slots of said rotor body.

4,363,989

PSEUDO ELECTRODE ASSEMBLY

Lester Johnson, 150-30 71st Ave., Flushing, N.Y. 11367

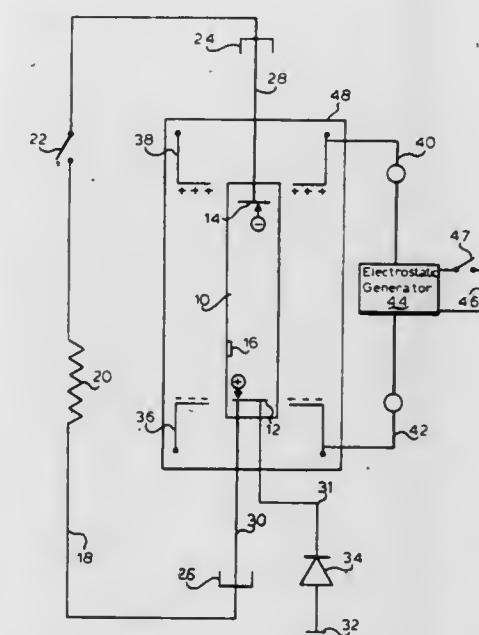
Continuation-in-part of Ser. No. 873,278, Feb. 17, 1978,

abandoned. This application May 5, 1980, Ser. No. 146,673

Int. Cl.³ H02N 3/00

U.S. Cl. 310-306

11 Claims



second piezoelectric means coupled to said drive signal and being energized thereby and becoming flexed to cause said boundary surface to move in a predetermined direction relative to said fluid and thereby modify the drag exerted thereby.

4,363,992

RESONATOR EXHIBITING UNIFORM MOTIONAL OUTPUT

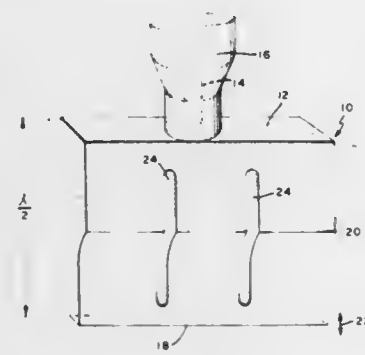
Ernest P. Holze, Jr., Brewster, N.Y., assignor to Branson Ultrasonics Corporation, Newtown, Conn.

Filed Jan. 26, 1981, Ser. No. 228,578

Int. Cl.³ H01L 41/08

U.S. Cl. 310—323

6 Claims



1. An ultrasonic resonator of generally rectangular cross-section dimensioned to operate as a half wavelength resonator at a predetermined frequency of sound travelling longitudinally therethrough from an input surface to an oppositely disposed output surface and through a medially disposed nodal region and including a pair of laterally spaced longitudinal slots disposed in said resonator and extending generally from a region near said input surface to a region near said output surface and passing through said nodal region for interrupting Poisson couplings, and including means for applying vibrations of predetermined frequency at a central portion of said input surface, the improvement comprising:

a respective pad disposed at the lateral portions of said input surface for increasing the mass of said resonator at said lateral portions with respect to the central portion of said resonator for achieving substantially uniform motional amplitude along the output surface of the resonator.

4,363,993

PIEZOELECTRIC ELECTRO-MECHANICAL BIMORPH TRANSDUCER

Susumu Nishigaki; Kanji Murano, and Yoshihisa Watanabe, all of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

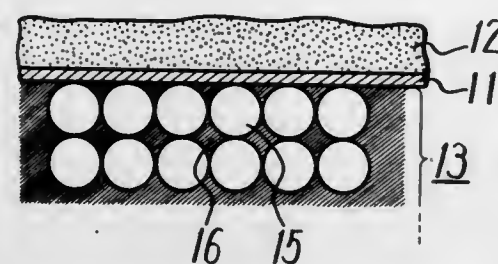
Filed Dec. 8, 1980, Ser. No. 213,875

Claims priority, application Japan, Dec. 12, 1979, 54/161198; Jan. 10, 1980, 55/1620

Int. Cl.³ H01L 41/08

U.S. Cl. 310—332

6 Claims



1. An electro-mechanical transducer comprising:
(a) a first layer made of piezoelectric material having oppositely major surfaces;

(b) a pair of electrodes formed on said major surfaces, respectively; and
(c) a second layer comprising a plurality of fibers whose surface is clamped to one of said surfaces of said first layer; said first layer having a Young's modulus of E, said second layer having a Young's modulus E_x in one direction x, and a Young's modulus E_y in a direction y perpendicular to said one direction in said major surface, said Young's moduli E, E_x , E_y satisfying the relation $E > E_y$, $E_x > E_y$, and one end of said layers being clamped along one edge so that its opposite edge is free to move and said x and y directions lying in the plane of said second layer and each of said pair of electrodes having thicknesses in the range of 0.1 μm to 3 μm .

4,363,994

HALOGEN LAMP WITH STRAP-TYPE BULB SUPPORT MECHANISM

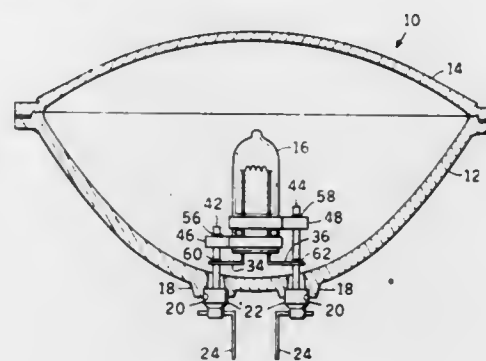
Salvatore F. Cortorillo, Parsippany, N.J. Nickolas P. Demas, Cranford, N.J. and Russell C. Schwickert, Lake Hiawatha, N.J., assignors to Edison International, Inc., Rolling Meadows, Ill.

Filed Jul. 7, 1980, Ser. No. 166,165

Int. Cl.³ H01J 5/16; H01K 1/18

U.S. Cl. 313—113

8 Claims



1. An electric lamp comprising:

- (a) a reflector;
- (b) a bulb having a base at one end thereof;
- (c) first and second support wires connected to said reflector;
- (d) first and second straps extending around and engaging said bulb base at locations spaced apart longitudinally of said bulb; and
- (e) said first and second straps being connected to said first and second support wires, respectively, said bulb including a filament and first and second lead wires connected thereto and said first and second lead wires being connected electrically to said first and second support wires.

4,363,995

ELECTRON GUN

Tadahiro Takigawa, Inagi; Isao Sasaki, Sodegaura, and Kazuo Tsuji, Numazu, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki and Toshiba Machine Company Limited, Tokyo, both of Japan

Filed Sep. 23, 1980, Ser. No. 189,908

Claims priority, application Japan, Sep. 26, 1979, 54-123686

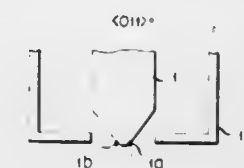
Int. Cl.³ H01J 1/14

U.S. Cl. 313—346 R

6 Claims

1. An electron gun having a cathode of a lanthanum hexa-

boride (LaB_6) single crystal, in which the axis of the cathode is set to such a crystal orientation that the electron beam has two



20 ~ 200

intensive emission regions which are asymmetrical with each other in intensity.

4,363,996

VIDICON TYPE CAMERA TUBE

Masashi Mizushima, Shizuoka; Masanori Maruyama, Kokubunji; Shigeru Ehata, Mobarra, and Masakazu Fukushima, Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

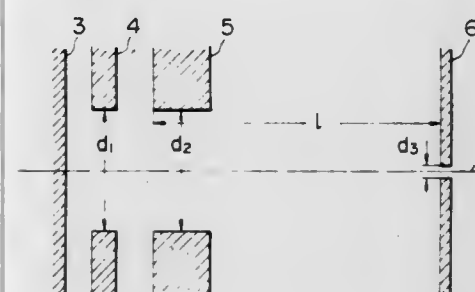
Filed Dec. 11, 1980, Ser. No. 215,335

Claims priority, application Japan, Dec. 19, 1979, 54-164058

Int. Cl.³ H01J 29/46, 29/56, 31/38

U.S. Cl. 313—449

1 Claim



1. A vidicon type camera tube comprising a beam current control section including a thermionic cathode, a first grid having an aperture of diameter d_1 , a second grid having an aperture of diameter d_2 and a beam disc having a diaphragm of diameter d_3 disposed at a distance of l along the tube axis from said second grid, and further comprising a main lens section, wherein said diameters d_1 , d_2 and d_3 and said distance l are selected to satisfy the relation of $2.48 \times 10^{-3} < (d_2/l)(d_3/d_1) < 5.48 \times 10^{-3}$.

4,363,997

FLUORESCENT LAMP HAVING REFLECTIVE LAYER
Churyo Kodama, Ohme, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

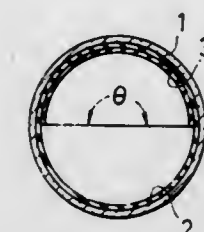
Filed Sep. 8, 1980, Ser. No. 185,163

Claims priority, application Japan, Sep. 21, 1979, 54/120640

Int. Cl.³ H01J 61/44, 61/48

U.S. Cl. 313—487

10 Claims



1. A fluorescent lamp of the reflective layer type comprising

a glass tube, a first phosphor layer formed on the entire face of the inner wall of said glass tube and a second phosphor layer formed on said first phosphor layer at a certain reflection angle along the axial direction of said glass tube, wherein the average particle size of a phosphor constituting said first phosphor layer is at least 3 μm , the average particle size of a phosphor constituting said second phosphor layer is at least 6 μm and the average particle size of the phosphor constituting said first phosphor layer is smaller than the average particle size of the phosphor constituting said second phosphor layer.

4,363,998

FLUORESCENT LAMP PROCESSING WHICH IMPROVES PERFORMANCE OF ZINC SILICATE PHOSPHOR USED THEREIN

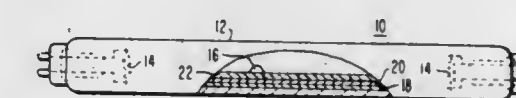
Eugene A. Graff, Cedar Grove, and Larry P. Rusch, East Brunswick, both of N.J., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed May 19, 1981, Ser. No. 265,018

Int. Cl.³ H01J 61/48; B05D 7/22

U.S. Cl. 313—487

10 Claims



1. A fluorescent lamp comprising a sealed elongated light-transmitting envelope having electrodes operatively positioned therein proximate the ends thereof and enclosing a discharge-sustaining filling comprising mercury and a small charge of inert ionizable starting gas, a transparent electrically conducting coating substantially comprising tin oxide carried on the interior surface of said envelope, a thin substantially transparent coating principally comprising sub-micron-size aluminum oxide particles carried on said tin oxide coating, and finely divided phosphor means coated over said aluminum oxide, said phosphor means comprising manganese-activated zinc silicate phosphor, said lamp having been fabricated with the improved processing step which comprises:

said aluminum oxide prior to application onto said tin-oxide-coated envelope interior surface is suspended in a liquid vehicle and a predetermined amount of finely divided antimony oxide is included in mixed suspension therewith, said vehicle-suspended oxides are applied over said tin oxide coating and the liquid vehicle then volatilized to leave a residual film of said mixed oxides, said phosphor means are then coated over said film of mixed oxides together with organic binder which must thereafter be burned out by lehring, and during the lehring processing of said coated phosphor means, substantially all of said residual antimony oxide is volatilized to contact said manganese-activated zinc silicate phosphor.

4,363,999

ELECTRIC PROPULSION AND BRAKING SYSTEM FOR AUTOMOTIVE VEHICLES

Fritz K. Preikschat, 16020 Lake Hills Blvd., Bellevue, Wash. 98008

Filed Jul. 14, 1980, Ser. No. 168,172

Int. Cl.³ H02P 1/54

U.S. Cl. 318—53

35 Claims

1. An electric propulsion and braking system for an automotive vehicle having a plurality of wheels, said system comprising:

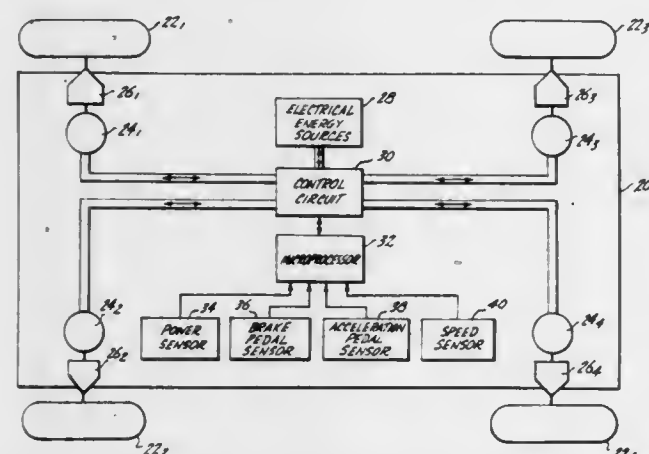
a plurality of main electrical energy sources, each said main electrical energy source being adapted to provide a first dc voltage of a predetermined magnitude across a pair of terminals thereof;

an auxiliary electrical energy source which is adapted to

provide a second dc voltage of a predetermined magnitude across a pair of terminals thereof;

a plurality of high-speed, dc electrical motors, each said motor being associated with one of the plurality of wheels of the vehicle and including: a rotor; a field winding supported on said rotor, said field winding having a pair of terminals; a stator; a multiphase armature winding supported on said stator, said armature winding having a plurality of terminals; and, a commutation circuit connected to said plurality of terminals of said armature winding, said commutation circuit having a pair of terminals and being operative, when enabled, to commutate a third dc voltage applied to said pair of terminals thereof so as to result in the application of potentials to said plurality of terminals of said armature winding which produce a magnetic field that rotates in substantial synchronism with a magnetic field produced by field current in said field winding, and being operative, when disabled, to couple one of said plurality of terminals of said armature winding to one of said pair of terminals of said commutation circuit whenever the potential on said one of said plurality of terminals of said armature winding that results from a voltage induced in said armature winding by the magnetic field of said field winding exceeds the potential on said one of said pair of terminals of said commutation circuit resulting from the third dc voltage applied to said pair of terminals of said commutation circuit;

a plurality of transmission means, each said transmission



means being adapted to mechanically couple one of said rotors to its associated wheel and having a fixed transmission ratio;

first means for varying the third dc voltage applied across the pair of terminals of each said commutation circuit, said first means including: a positive main bus; a negative main bus; means coupled to said pair of terminals of each of said plurality of main electrical energy sources for selectively connecting said main electrical energy sources all in series, all in parallel, or in series/parallel with said positive and negative main busses; means coupled to said pair of terminals of each of said commutation circuits and responsive to a second control signal for selectively connecting said commutation circuits all in series, all in parallel, or in series/parallel with said positive and negative main busses;

second means for varying the field current in each said field winding, said second means including: a positive auxiliary bus coupled to one of said pair of terminals of said auxiliary electrical energy source; a negative auxiliary bus coupled to the other of said pair of terminals of said auxiliary electrical energy source; and, means coupled to said pair of terminals of each of said field windings and responsive to a third control signal for selectively connecting said field windings all in series, all in parallel, or in series/parallel with said positive and negative auxiliary busses; and,

third means for enabling propulsion of the vehicle by enabling each said commutation circuit, for enabling braking of the vehicle by disabling each said commutation circuit,

and for varying the amount of propulsion and braking by providing said first and second control signals to said first means and said third control signal to said second means.

4,364,000 LIMITED ROTATION DEVICE HAVING TWO DEGREES OF FREEDOM

Edward F. Burke, Jr., Reading, Mass., assignor to MFE Corporation, Salem, N.H.

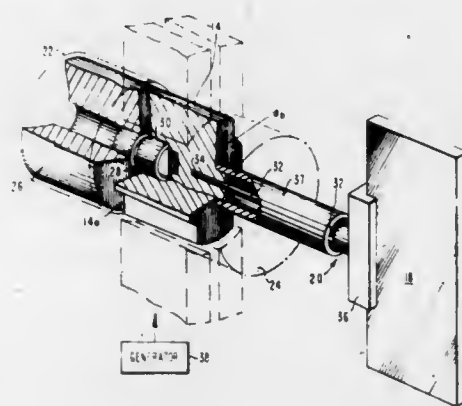
Continuation of Ser. No. 608,829, Aug. 29, 1975, abandoned.

This application Apr. 6, 1977, Ser. No. 785,019

Int. Cl.³ H02K 33/00

U.S. Cl. 318—128

9 Claims



1. A two degree of freedom, limited rotation system for reciprocally rotating an output element, said system comprising, in addition to said output element,

A. a driven element,

B. a first torsional support for said driven element,

C. a second torsional support independent of said first support for supporting said output element from said driven element,

D. said system having two system resonant frequencies, said output element and said second support having an individual resonant frequency f_0 that is unequal to either of said two system resonant frequencies, said driven element and said first support having an individual resonant frequency f_1 that is unequal to either of said two system resonant frequencies, and

E. means for driving said driven element at a driving frequency that is substantially equal to the individual resonant frequency f_0 of said output element and said second support, whereby said driven element has an essentially zero amplitude of motion while said output element may have a substantial amplitude of motion.

4,364,001 CIRCUIT ARRANGEMENT FOR ENERGY ECONOMY

Alfred Heidt, Schwetzingen; Erich Link, Brühl, and Wolfgang Ortlieb, Leinfelden-Echterdingen, all of Fed. Rep. of Germany, assignors to Frankl & Kirchner GmbH & Co. KG Fabrik für Elektromotoren u. elektrische Apparate, Schwetzingen, Fed. Rep. of Germany

Filed Sep. 16, 1980, Ser. No. 187,548

Claims priority, application Fed. Rep. of Germany, Sep. 25, 1979, 2938625

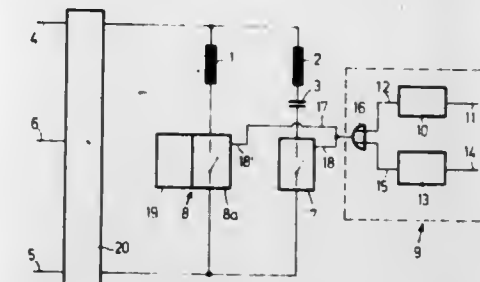
Int. Cl.³ H02P 5/40

U.S. Cl. 318—371

3 Claims

1. In a circuit arrangement for economizing the use of electrical energy in a drive which includes an induction motor and a clutch-brake unit particularly for sewing machines, in which the windings of the induction motor are such that the motor speed remains virtually constant in a stable speed range under normal service conditions, and in which the clutch-brake unit serves to control the drive output speed so that the motor operates in an alternation of load phases and no-load phases, the improvement wherein switches (7, 8) are included in the current paths of said windings (1, 2) to reduce the current

flow through said windings (1, 2) by a predetermined amount, and wherein the arrangement includes modulation circuit means (9) operatively cooperable with said switches (7, 8), said modulation circuit means (9) containing a delay element (10) which is triggered when the mains voltage is applied, and an impulse prolongation element (13) which receives a switching



signal when said clutch is engaged, wherein at least one of said switches (7 or 8) comprises a Triac (41) or thyristor (43), and wherein a phase shifter circuit (19) cooperates with at least one of said switches (7 or 8), whereby at least one of said switches (7 or 8) is controlled so as to minimize the current loss in the circuit arrangement via said at least one switch (7 or 8).

4,364,002 CONTROL OF OPERATION OF LOOM

Hajime Suzuki, Anjo, and Akio Arakawa, Kariya, both of Japan, assignors to Kabushiki Kaisha Toyota Jidoshokki Seisakusho, Aichi, Japan

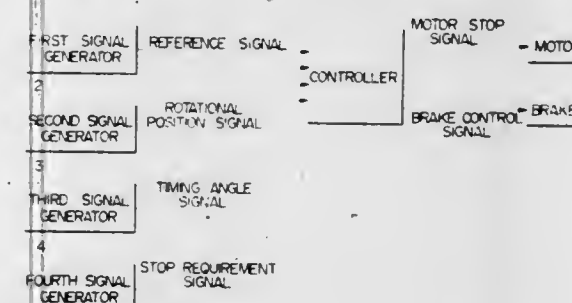
Filed Dec. 27, 1979, Ser. No. 107,621

Claims priority, application Japan, Dec. 30, 1978, 53-163447

Int. Cl.³ D03D 51/44; G05B 19/26

U.S. Cl. 318—467

18 Claims



1. A method for controlling operation of at least one operating element of a loom on the basis of a reference signal, characterized in that the reference signal is compared with rotational position signal developed during each weaving cycle of the loom to issue a rotational angle signal indicating an angle through which the loom has been rotated with respect to a reference angular position, and that the timing of the operation of the operating element is determined by utilizing the rotational angle signal.

4,364,003 ELECTRONIC GATE CONTROL

Gregory F. Phipps, Santa Cruz, Calif., assignor to Mary A. Baldwin, Mesa, Ariz.; Bernard J. Favaro, Vallejo, Calif. and Sandra Roberts, Glendale, Ariz.

Filed Sep. 16, 1980, Ser. No. 187,710

Int. Cl.³ G05B 5/00

U.S. Cl. 318—467

14 Claims

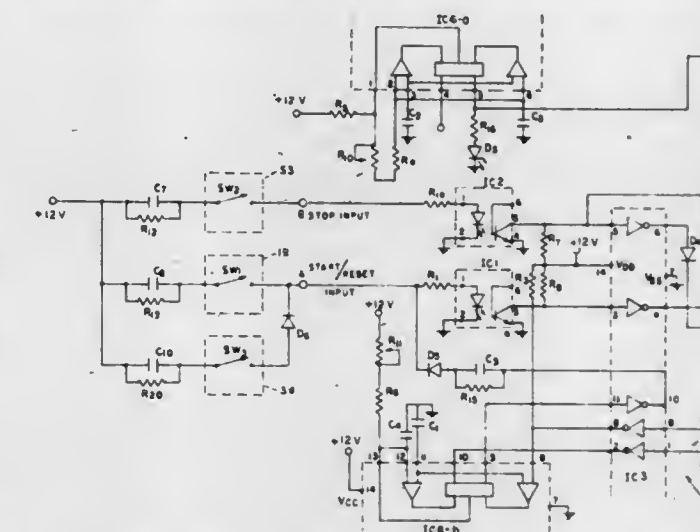
1. A control device for use with a gate having an opening and closing system which includes a reversible electric drive motor, comprising:

- a detector means for providing a first start pulse, initiating the gate opening cycle;
- oscillator means for producing repetitive control pulses;
- control counter means interconnected to said oscillator means for sequential distribution of a predetermined series of opening control pulses in response to said first start

pulse, and for sequential distribution of a predetermined series of closing control pulses in response to a second start pulse, for controlling the opening cycle and the closing cycle, respectively;

d. motor direction control means, responsive to a first opening control pulse for interconnecting the motor field in a forward drive mode, and responsive to a first closing control pulse for interconnecting the motor field in a reverse drive mode;

e. reverse control timer means, activated by a second opening control pulse for producing said second start pulse to



initiate, following said opening cycle and a pause cycle, said predetermined series of closing control pulses;

f. motor actuation means responsive both to a third opening control pulse and to a third closing control pulse, for activating the motor during said opening and closing cycles, respectively; and,

g. limit stop means for sensing a fully open position of the gate and deactivating said motor actuation means for terminating said opening cycle, and for sensing a fully closed position of the gate and deactivating said motor activation means for terminating said closing cycle.

4,364,004 SELF-CONTROLLED POLYPHASE SYNCHRONOUS MOTOR DRIVE SYSTEM

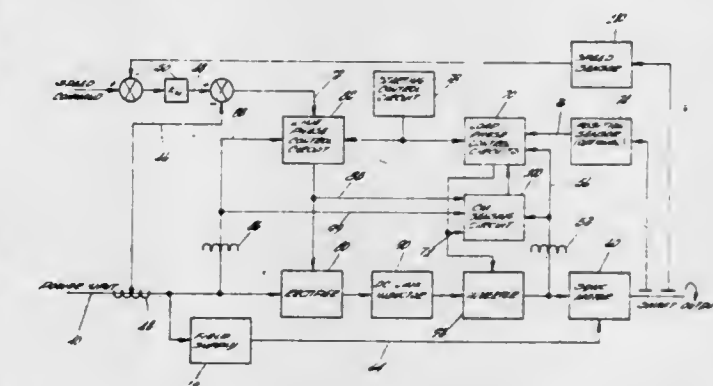
Frank J. Bourbeau, 5411 Toltec Dr., Santa Barbara, Calif. 93111

Filed Jan. 29, 1980, Ser. No. 116,578

Int. Cl.³ H02P 1/46, 5/36, 7/58

U.S. Cl. 318—721

15 Claims



1. A self-controlled polyphase synchronous motor drive system for a synchronous motor having a rotor and a polyphase stator, said stator being adapted to have a polyphase voltage applied thereto, said motor drive system comprising means for producing rotor digital timing signals which are equal in number to two times the number of phases of the polyphase stator and representative of the position of the rotor relative to the stator;

means for producing pulse width modulation control signals wherein the pulse width thereof is responsive to a motor power factor command signal;

a plurality of phase control means equal in number to the number of phases of the polyphase stator and responsive to the pulse width modulation control signals, each of said phase control means having a selected two of the stator voltages applied as an input thereto and including means for producing a modulated analog reference signal from one of the two selected stator voltages and means for summing the amplitude modulated analog reference signal with an unmodulated analog reference signal produced from the other of the two selected stator voltages and for comparing the sum thereof with a threshold voltage signal to produce as an output therefrom two digital gating timing signals for each phase of the polyphase stator, each of said phase control means being responsive to the speed of a said synchronous motor such that an absence of digital gating timing signals occurs at zero motor speed and digital timing signals having distortion induced therein by changes of current acting on the inductance of the synchronous motor is produced at low motor speeds, said distortion being large compared to the stator voltage at low motor speeds and as the speed of the synchronous motor increases, the stator voltage increases in magnitude such that said distortion becomes smaller in magnitude relative to that of the stator voltage until the stator voltage level reaches a magnitude wherein the sum of the amplitude modulated analog reference signal and unmodulated analog reference signal exceeds the threshold level to produce digital timing signals substantially free of distortion;

a digital gating command signal generating means responsive to the digital gating timing signals from each of the phase control means and to the rotor digital timing signals for producing digital gating command signals wherein at zero motor speed and low motor speeds said digital gating command signal generating means is responsive to said rotor digital timing signals to have the leading edge of the digital gating command signals established by the leading edge of a selected one of the rotor digital timing signals until the motor speed reaches a speed wherein digital gating timing signals substantially free of distortion are produced by the phase control means whereupon the leading edge of the digital gating command signals is determined by one of the leading edges of one of the digital gating timing signals from the phase control means and the leading edge of a selected one of the rotor digital timing signals, whichever occurs first in time, and the width of the digital gating command signals is determined by the phase displacement of successive phases which is equal to 360 degrees divided by the number of phases of the polyphase stator, said digital gating command signals being applied to solid state controlled devices to control the current applied to the stator of the controlled synchronous motor.

4,364,005

BRUSHLESS TACHOMETER GENERATOR

Yoshinori Kohzai, Hino; Yoichi Amemiya, Hachioji; Yoshiki Fujioka, and Noboru Iwamatsu, both of Hino, all of Japan, assignors to Fujitsu Fanuc Limited, Tokyo, Japan

Filed Jul. 16, 1980, Ser. No. 169,428

Claims priority, application Japan, Jul. 19, 1979, 54/99613

Int. Cl.³ H02P 9/00; H02K 21/12

U.S. Cl. 322—31

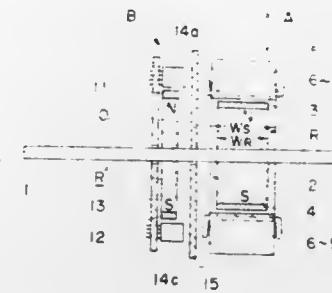
7 Claims

1. A tachometer generator comprising:
 - a generator section comprising:
 - a stator pole and yoke member having at least three coils fixed thereon;
 - a rotary shaft; and
 - a rotor mounted on the rotary shaft, said rotor comprising a permanent magnet, the axially extending width of said

rotor being less than the axially extending width of said stator pole and yoke member; and

a commutator section comprising:

- at least three sensors for detecting the rotational position of the rotary shaft and for emitting first, second and third control signals;
- at least three change-over switches operatively connected to said at least three coils, said at least three change-over switches all being connected at an output terminal



for successively transferring, to the output terminal, alternating output voltages supplied by said at least three coils, said at least three change-over switches being controlled by said first, second and third control signals;

a magnetic shield plate interposed between said generator section and said commutator section, whereby an output voltage, which is proportional to the speed of the rotor, is provided at the output terminal.

4,364,006

REFERENCE VOLTAGE GENERATOR FOR USE IN AN A/D OR D/A CONVERTER

Takayoshi Makabe, and Yoshiaki Kuraishi, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

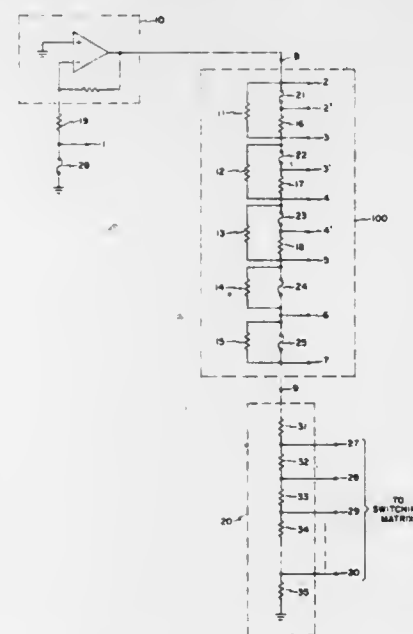
Filed Mar. 9, 1981, Ser. No. 241,503

Claims priority, application Japan, Mar. 21, 1980, 55-36474

Int. Cl.³ G05F 3/08

U.S. Cl. 323—353

2 Claims



1. A reference voltage generator for use in an analog-to-digital or a digital-to-analog converter, said generator comprising:
 - a power source means for generating a voltage;
 - a voltage adjusting circuit means connected to the power source means, said voltage adjusting circuit means being composed of N (N being a plural number) polysilicon resistors connected serially and N polysilicon fuses connected in parallel to both ends of each of the N resistors to adjust the output voltage of the power source; and
 - a resistor network connected to the voltage adjusting circuit and composed of M (M being a plural number) polysilicon

resistors for providing (M-1) reference voltages based on the output voltage of the adjusting circuit, the values of said N resistors of the voltage adjusting circuit being such that the total resistance value of the adjusting circuit becomes $R_0 + 2^{i-1} \Delta R$ with the i-th (i being equal to or smaller than N) polysilicon fuse of the adjusting circuit cut off, whereby the total resistance value of the adjusting circuit is R_0 with all the polysilicon fuses connected, and the resistance change of the adjusting circuit is ΔR with the first fuse cut off.

4,364,007

UNINTENTIONAL IMPEDANCE DETECTION SYSTEM

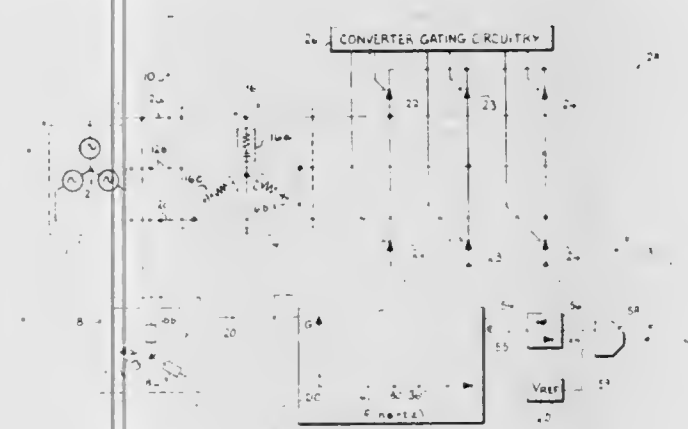
John H. Cutler; Willard B. Jarvinen, both of Roanoke, and Loren H. Walker, Salem, all of Va., assignors to General Electric Company, Salem, Va.

Filed Apr. 22, 1980, Ser. No. 142,782

Int. Cl.³ G01R 31/02

U.S. Cl. 324—51

20 Claims



1. A system for detecting unintentional impedances between the power conductors and a first node in a network including a power conversion circuit, a plurality of power level lines for connecting said power conversion circuit to an alternating current power source, a static power converter included in said power conversion circuit, and a load supplied by said power conversion circuit, comprising:
 - (a) a first plurality of impedances equal in number to said power level lines, each being substantially equal in value and having first and second terminals, all of said first terminals being connected to said first node, and each of said second terminals being connected to a respective different one of said power level lines;
 - (b) a second plurality of impedances, distinct from said first plurality, equal in number to said power level lines, each being substantially equal in value and having first and second terminals, said first terminals being interconnected and defining a second node, and each of said second terminals being connected to a respective different point within said network having a potential which is representative of the potential on a respective different one of said power lines; and
 - (c) sensing means, responsive to frequencies including that of the source and lower order harmonics thereof, for monitoring the potential difference between said first and second nodes, and effective for providing a system output signal in reaction to said unintentional impedance when said potential difference exceeds a preselected value.

4,364,008

FOCUSING PROBE FOR MOISTURE MEASUREMENT DEVICE

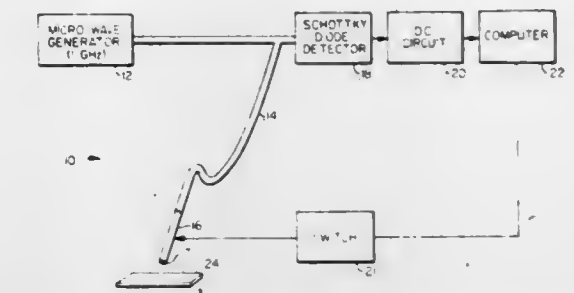
Steven L. Jacques, 1918 Woolsey St., Berkeley, Calif. 94704

Filed Oct. 2, 1980, Ser. No. 193,329

Int. Cl.³ G01R 27/04

U.S. Cl. 324—58.5 R

15 Claims



1. An apparatus for measuring the moisture content of a target, at a particular depth in said target, wherein said apparatus comprises:
 - means for generating an electromagnetic wave of a micro-wave frequency;
 - means for guiding said wave;
 - means for detecting said wave; and
 - means for focusing said wave onto said depth in said target.

4,364,009

CLUTCH MECHANISM FOR TIME OF DAY WATTHOUR METER REGISTERS

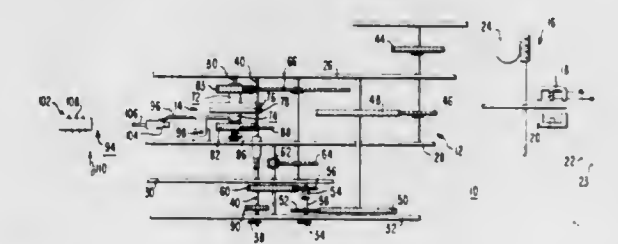
Kenneth G. Halstead, Raleigh, and Eugene C. Benbow; Wake, both of N.C., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jul. 14, 1980, Ser. No. 167,952

Int. Cl.³ G01R 15/08, 19/16

U.S. Cl. 324—116

6 Claims



1. A meter dial register for indicating both continuous and periodic accumulated values of a measured quantity, said meter dial register comprising:
 - a rotatable measuring element for rotating at a rate corresponding to the consumption of the measured quantity;
 - first and second gear trains both continuously coupled to the rotations of said measuring element;
 - a first dial pointer coupled in continuously driven relationship with said first gear train for indicating the continuous accumulated values of the measured quantity;
 - a friction clutch driving part being coupled in continuously driven relationship with said second gear train and being freely rotatable at a restrained axial position about a predetermined axis of rotation;
 - a friction clutch driven and brake part being rotatable about said predetermined axis of rotation and further being axially shiftable between an open position spaced from said friction clutch driving part and a closed position engaging said friction clutch driving part for effecting common rotation therewith;
 - clutch operating means for shifting said friction clutch driven and brake part between said open and said closed positions and further for arresting said friction clutch driven and brake part when shifted by said operating means to said open position;

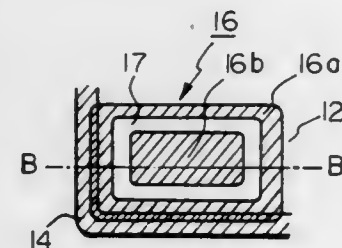
a third gear train continuously coupled in driven relationship with said friction clutch driven and brake part; and a second dial pointer coupled in continuously driven relationship with said third gear train for indicating the periodically accumulated values of the measured quantity.

4,364,010

SEMICONDUCTOR DEVICE WITH MONITOR PATTERN, AND A METHOD OF MONITORING DEVICE PARAMETERS

Kiyoto Watari, Kawasaki, and Takeshi Fukuda, Tokyo, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan
Filed Mar. 10, 1980, Ser. No. 128,881

Claims priority, application France, Mar. 12, 1979, 54-28558
Int. Cl.³ G01R 31/26; B01J 17/00; H01L 29/72
U.S. Cl. 324-158 T 18 Claims



1. A semiconductor device comprising a chip having at least one semiconductor circuit element formed thereon in a first area of the chip and a monitor pattern formed simultaneously with said circuit element in a predetermined, second area of the chip, said semiconductor device comprising:

- a substrate and a semiconductor layer of a first conductivity type formed on said substrate; and
- said monitor pattern comprising:
- a first region of a second conductivity type formed in said semiconductor layer;
- a second region of the first conductivity type formed in said first region in such position that the surface of said first region is divided into two portions by said second region; and
- a third region of the second conductivity type formed in said semiconductor layer and electrically connected to said substrate and to one of said two portions of said first region, at least a part of the surface of the other of said first region being exposed to enable electrical contact thereto.

4,364,011

MECHANICAL ASSEMBLIES EMPLOYING SENSING MEANS FOR SENSING MOTION OR POSITION

Edward J. Bloomfield, South Woodchester, and Brian Snelgrove, Brockworth, both of England, assignors to Ransome Hoffmann Pollard Ltd., Chelmsford, England

Filed May 16, 1980, Ser. No. 150,446
Claims priority, application United Kingdom, May 16, 1979, 7916950

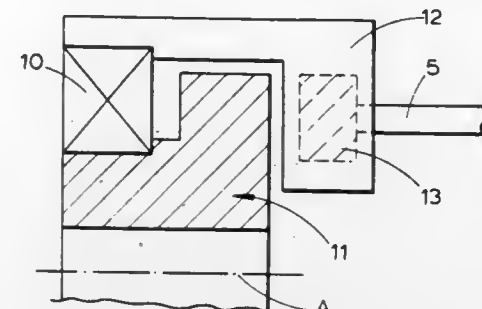
Int. Cl.³ G01P 3/48

U.S. Cl. 324-174

15 Claims

1. A compact bearing assembly, comprising:
- an inner bearing race;
 - an outer bearing race;
 - one of said inner and outer bearing races being rotatable about an axis while the other one of said inner and outer bearing races is stationary;
 - means incorporated within said one of said inner and outer bearing races, as an integral part thereof, for producing a signal means; and
 - means incorporated within said other one of said inner and

outer bearing races, as an integral part thereof, for sensing said signal means, and therefore the movement of, said one



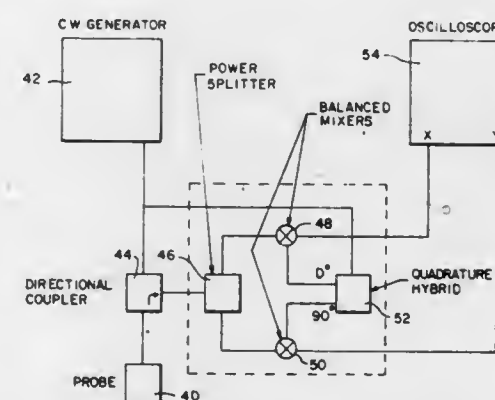
of said inner and outer bearing races relative to said other one of said inner and outer bearing races.

4,364,012

FMR PROBE METHOD UTILIZING MAIN AND SPURIOUS RESONANCE MODES FOR DETECTING SURFACE FLAWS

Bertram A. Auld, Menlo Park, Calif., assignor to The Board of Trustees of the Leland Stanford Junior University, Palo Alto, Calif.

Filed Mar. 3, 1980, Ser. No. 126,196
Int. Cl.³ G01R 33/12; G01N 27/82, 22/02
U.S. Cl. 324-237 3 Claims



1. The method of detecting and distinguishing flaws in a metal surface detected by means of a ferromagnetic resonance probe from signals generated due to probe lift-off from the metal surface comprising the steps of:

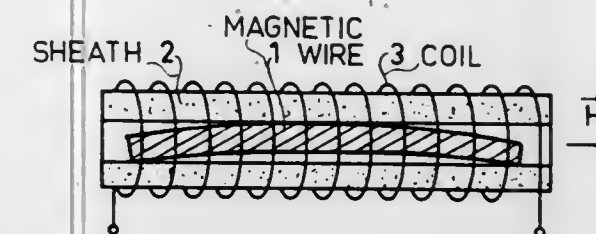
- placing a ferromagnetic resonator adjacent to the surface, said resonator having a plurality of resonance modes,
- applying a dc magnetic field to said resonator,
- applying an rf magnetic field to said resonator,
- field coupling said probe and said surface with a main resonance mode and simultaneously at least one spurious mode of resonance,
- scanning said probe across said surface during said field coupling, and
- detecting during said scanning real and imaginary changes in impedance of said probe at a fixed frequency whereby probe impedance variation due to a flaw is generally orthogonal to probe impedance variation due to probe lift-off from said surface.

4,364,013

MAGNETIC TRANSDUCER COMPRISING A STRAINED MAGNETIC WIRE IN A RIGID SHEATH OF NON-MAGNETIC MATERIAL

Jean P. Castera, and Jean M. Dupont, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed May 13, 1980, Ser. No. 149,317
Claims priority, application France, May 16, 1979, 79 12459
Int. Cl.³ G01R 33/00; G01N 27/72; G01B 7/14
U.S. Cl. 324-260 7 Claims



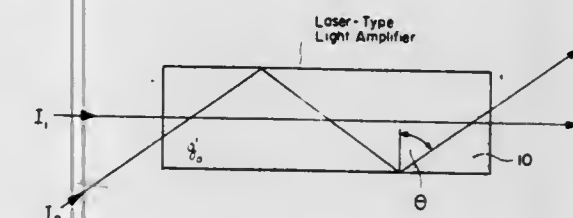
1. A magnetic transducer using a strained magnetic material responsive to a magnetic field parallel to the longitudinal axis of said transducer, said transducer comprising a magnetic wire introduced into a rigid sheath of nonmagnetic material, the respective shapes of the wire and sheath being such that wire in its sheath is kept bent, thus creating longitudinal strains so as to produce in one area of the wire an easy direction of magnetization in accordance with the longitudinal axis of the wire, the magnetic wire-sheath assembly being positioned in a detection coil along the longitudinal axis thereof, which is to supply pulses during the momentary application of said magnetic field to the transducer, when said field induces a change to the magnetization in the magnetic wire from one direction to the other in accordance with the easy direction of magnetization.

4,364,014

OPTICAL MODULATOR

Richard W. Gray, Box 5210, Santa Monica, Calif. 90405

Filed Mar. 30, 1978, Ser. No. 891,542
Int. Cl.³ H01S 3/10 8 Claims



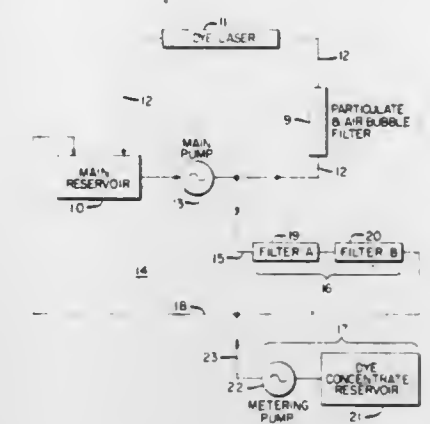
1. An optical modulator comprising: a member including an optical gain-saturable medium capable of amplifying optical signals; means introducing a first optical signal into the member for passage through the medium and to be amplified by the medium; and means introducing a second optical signal into the member for passage through the medium to be amplified by the medium with a gain greater than the gain of said first signal, the first and second signals being intercoupled by cross-saturation of the medium such that variations in the intensity of the first optical signal changes the gain in the medium by cross-saturation and thereby produces greater variations in the intensity of the second signal as the first signal passes through the medium.

4,364,015

COMPACT RESERVOIR SYSTEM FOR DYE LASERS

J. Michael Drake, Richland, Wash., and Horace W. Furumoto, Wellesley, Mass., assignors to Jersey Nuclear-Avco Isotopes, Inc., Bellevue, Wash.

Filed Mar. 12, 1981, Ser. No. 243,200
Int. Cl.³ H01S 3/05 13 Claims



1. In a reservoir system for liquid dye lasers of the type comprising a dye solution reservoir and main fluid circuit means for circulating dye solution between the reservoir and a dye laser, the improvement comprising:

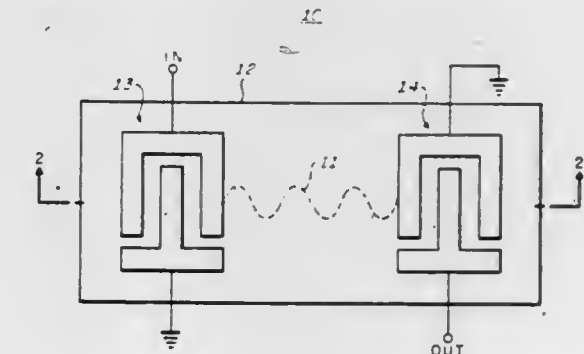
- a by-pass loop circuit coupled to said main fluid circuit means for diverting therefrom a portion of said solution, said by-pass circuit including filtering means for filtering substantially all solute and particles from said portion of the solution, means for replenishing dye to said portion of the solution, and means for returning said replenished dye solution to said main circuit.

4,364,016

METHOD FOR POST FABRICATION FREQUENCY TRIMMING OF SURFACE ACOUSTIC WAVE DEVICES

William J. Tanski, Maynard, Mass., assignor to Sperry Corporation, New York, N.Y.

Filed Nov. 3, 1980, Ser. No. 202,951
Int. Cl.³ H03H 3/08, 9/25, 9/42, 9/64
U.S. Cl. 333-193 2 Claims



1. A method for increasing the resonant frequency of surface acoustic wave devices of the type having a substrate fabricated from a first material about which structures fabricated from a second material are disposed, said method comprising heating said SAW device at a temperature in excess of 250° C. for a predetermined period of time.

4,364,017

ELASTIC SURFACE WAVE DEVICE

Shizuo Tokunaga; Takushi Yamada, both of Hyogo; Kazuhisa Yabukawa, Himeji; Shigeyuki Kita, Hyogo, and Tomoyoshi Yase, Tatsuno, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

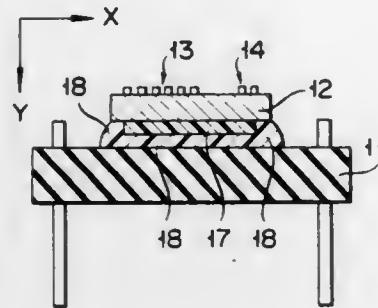
Filed Dec. 16, 1980, Ser. No. 217,147

Claims priority, application Japan, Dec. 20, 1979, 54-164752

Int. Cl.³ H03H 9/64, 9/68, 9/09, 9/25

U.S. Cl. 333—194

9 Claims



1. An elastic surface wave device comprising: a piezoelectric substrate having first and second surfaces; an input electrode and an output electrode on the first surface; the input and output electrodes being in comb shape and opposing each other; a sound absorbing resin layer formed on at least part of the second surface of said piezoelectric substrate; and an adhesive resin layer in contact with said sound absorbing resin layer and said piezoelectric substrate for adhering said piezoelectric substrate to a stem; the sound absorbing resin layer and the adhesive resin layer being shaped and positioned so as to form at least three layers and two layer interfaces in a direction of propagation of a surface wave of said piezoelectric substrate and at least two layers and one layer interface in a direction from the first surface to the second surface of said piezoelectric substrate.

4,364,018

COMPACT MINIRELAY

Wolfgang Dammert, Ludwigstrasse 32, D-8672 Selb, and Horst Enge, Hauptstrasse 18, D-8671 Schonwald, both of Fed. Rep. of Germany

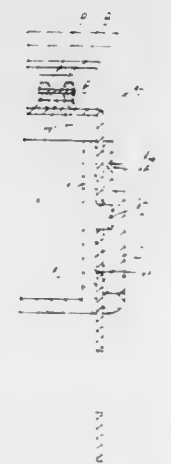
Filed Jul. 9, 1979, Ser. No. 55,767

Claims priority, application Fed. Rep. of Germany, Jul. 8, 1978, 2830074; Jul. 18, 1978, 2831432; Jul. 18, 1978, 2831438; Jul. 21, 1978, 2840998

Int. Cl.³ H01H 9/02

U.S. Cl. 335—202

6 Claims



1. In a compact minirelay having a box-shaped housing having side walls having upper edges bounding an open top and end walls within which are located an exciter coil, a yoke,

an armature, a switch and contact springs, and a hooded lid closing the open top of said housing, the improvement comprising:

lead conductors extending from said switch contact springs and exciter coil therefrom along the outside of said side walls and plate-like parts overlying and immobilizing said lead conductors against said side walls.

4,364,019

MULTIPART ACTUATING MECHANISM

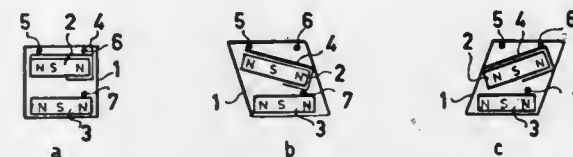
Hans-Georg Hütter, Beckgasse 46, A 1130 Vienna, Austria

Filed Jan. 21, 1980, Ser. No. 113,447

Int. Cl.³ H01H 36/00, 19/20

U.S. Cl. 335—207

11 Claims



1. An electrical switch comprising a deformable housing; and in said housing a plurality of electrically conductive contacts adapted for insertion in an electrical circuit; enclosing a first and a second actuating elements which are movable relative to each other for connecting and disconnecting said contacts to close or break said circuit; each of said actuating element comprising permanent magnetic poles, at least one of the poles of said first element being movable from a position wherein it is attracted by at least one of the poles of said second element to a position where it is repelled by at least one of the poles of said second element, and wherein said actuating elements being movable from one of said positions to the other position by changing the shape of said housing.

4,364,020

AMORPHOUS METAL CORE LAMINATIONS

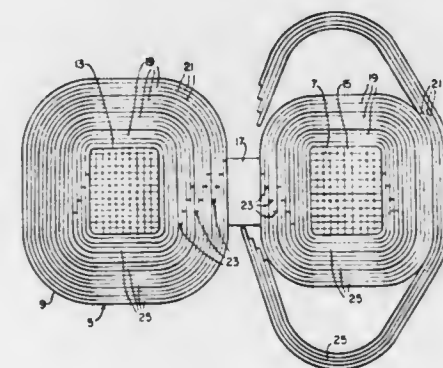
Kou C. Lin, Hermitage, and Belvin B. Ellis, Sharon, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Feb. 6, 1981, Ser. No. 232,274

Int. Cl.³ H01F 27/24

U.S. Cl. 336—212

3 Claims



1. A magnetic core for use with electrical coils comprising: a plurality of groups of butt-jointed laminations of an amorphous alloy having high permeability and brittleness as annealed, each group of laminations comprising an external layer of protective material having a melting point above the temperature range of from about 340° C. to about 420° C. and having high permeability in the direction of grain orientation, whereby each lamination group is protected from damage during handling, and the assembly of the laminations of amorphous metal an external layer being in surface-to-surface contact and devoid of interlaminar compounds.

4,364,021

LOW VOLTAGE VARISTOR CONFIGURATION

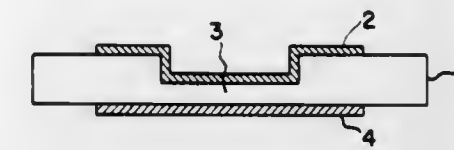
Lionel M. Levinson, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Oct. 7, 1977, Ser. No. 840,262

Int. Cl.³ H03K 17/30

U.S. Cl. 338—20

6 Claims



1. A polycrystalline metal oxide varistor comprising a sintered wafer, said wafer having two major opposing faces, with at least one recess in at least one of said major faces, each said recess having a substantially uniform depth, said recessed wafer having a single conductive coating of electrode material on each major face thereof, said coating electrically connecting the bottoms of each recess present on its corresponding face, whereby the breakdown voltage is lowered but mechanical strength remains substantially unaltered.

4,364,022

MAGNETIC CONTROL PEDAL APPARATUS

Grant C. Melocik, Chardon, and Wayne T. Wiblin, Saybrook, both of Ohio, assignors to Towmotor Corporation, Mentor, Ohio

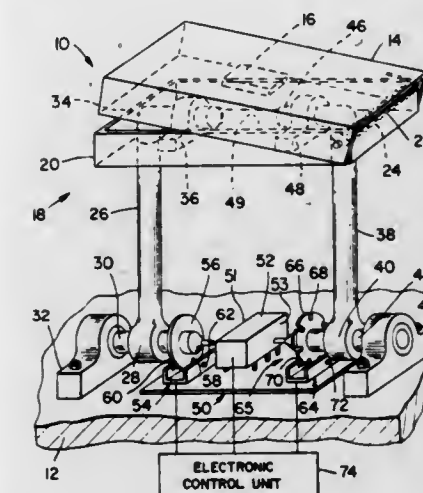
PCT No. PCT/US81/01233, § 371 Date Sep. 11, 1981, § 102(e) Date Sep. 11, 1981

PCT Filed Sep. 11, 1981, Ser. No. 309,342

Int. Cl.³ H01L 43/04

U.S. Cl. 338—32 H

9 Claims



1. In a control pedal apparatus (10) having a frame member (12), magnetic means (52) for generating a control signal in response to an applied magnetic field and being connected to said frame member (12), and a pedal (14) having a magnet (16) and being movable between a first position at which a magnetic pathway is opened and a second position at which said magnetic pathway is closed, the improvement comprising:

a movable pedal support (18) of magnetically permeable material mounted to said frame member (12) and movable between a plurality of positions, said movable pedal support being constructed to conduct the magnetic field between said magnet (16) and said magnetic means (52) in response to said pedal (14) being at said second position; and

means (64) for generating data corresponding to said plurality of positions of said movable pedal support (18).

4,364,023

OPTICAL CHARACTER READING SYSTEM

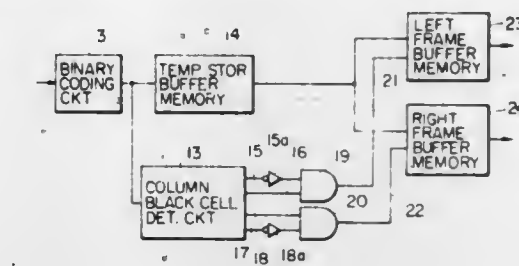
Isao Isshiki; Koji Sato; Katsuyoshi Sunago; Akihiro Ohoka, and Masayuki Akatsuka, all of Osaka, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Jun. 5, 1980, Ser. No. 156,517

Int. Cl.³ G06K 9/00

U.S. Cl. 340—146.3 H

8 Claims



1. An optical character reading system for reading characters having a character width in a scanning direction, said system comprising:

a sensor comprising a two-dimensional array of photoelectric conversion elements covering an area having a scanning width in said scanning direction, said sensor generating output signals;

a left frame detecting circuit comprising a left frame buffer memory for detecting and storing a left two-dimensional pattern of said output signals which occurs when the left side of a character is at the left end of the area covered by said sensor;

a right frame detecting circuit comprising a right frame buffer memory for detecting and storing a right two-dimensional pattern of said output signals which occurs when the right side of said character is at the right end of said area covered by said sensor; and

means for combining said left and right two-dimensional patterns to recognize said character.

4,364,024

SIGNATURE PRESENTATION METHOD AND APPARATUS

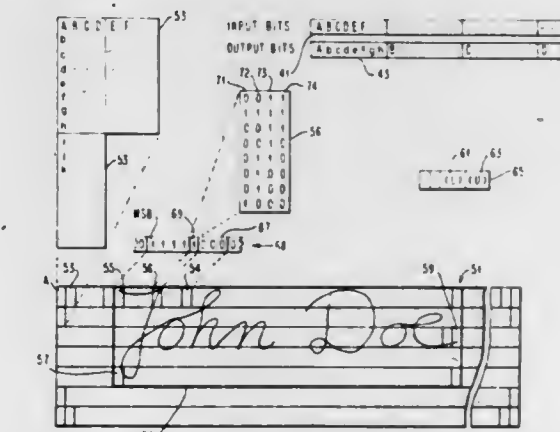
Karl Paetsch, Roesrath, Fed. Rep. of Germany, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 7, 1979, Ser. No. 101,291

Int. Cl.³ B41J 3/00; H04N 1/00

U.S. Cl. 340—146.3 SY

3 Claims



1. A matrix printer for presenting an image of a signature, the improvement comprising:

means for receiving and storing a count indicative of the number of lines of character spaces having a portion of said image and a count of the number of character spaces in said lines;

means for contiguously receiving and storing a plurality of blank space indicator bits including a binary bit for each

character space of a line of character spaces having a portion of said image;
 logic means responsive to said stored counts for examining each blank space indicator bit in sequence;
 stepping means controlled by said logic means to cause the print head of said printer to skip each character space position having a logical zero corresponding blank space indicator bit;
 data gates controlled by said logic means for gating slice data bytes to said print head at each character space having a logical one corresponding blank space indicator bit, said stepping means stepping said print head between each of said slice data bytes.

4,364,025

FORMAT SWITCH

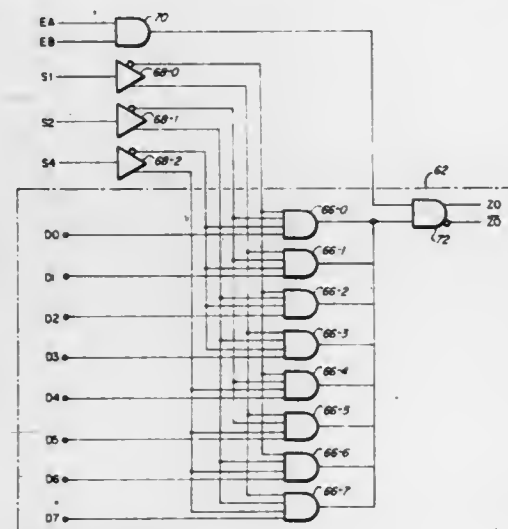
Christopher J. Dalton, Phoenix, Ariz., assignor to Honeywell Information Systems Inc., Phoenix, Ariz.

Filed Jan. 2, 1979, Ser. No. 329

Int. Cl.³ H03K 13/24

U.S. Cl. 340—347 DD

15 Claims



1. In combination:

an A input operand bus adapted to carry binary signals of an A operand of n bits, where n is an integer other than zero;
 a B input operand bus adapted to carry the binary signals of a B operand of n bits;
 an output operand bus adapted to carry binary signals on an output operand of n bits, said A, B and output operands each having a format;
 circuit means having p conditions, where p is an integer other than zero, said circuit means connected to the input operand buses and the output operand bus, said circuit means applying to the output operand bus an output operand, the format of which has a predetermined relationship to the format of the input operands as a function of the condition of the circuit means at any given time; and
 control means for applying control signals to the circuit means to determine the condition of the circuit means at any given time.

4,364,026

DIGITAL-TO-ANALOG CONVERTER USEFUL IN A TELEVISION RECEIVER

Steven A. Steckler, Clark, and Alvin R. Balaban, Lebanon, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Nov. 30, 1979, Ser. No. 98,925

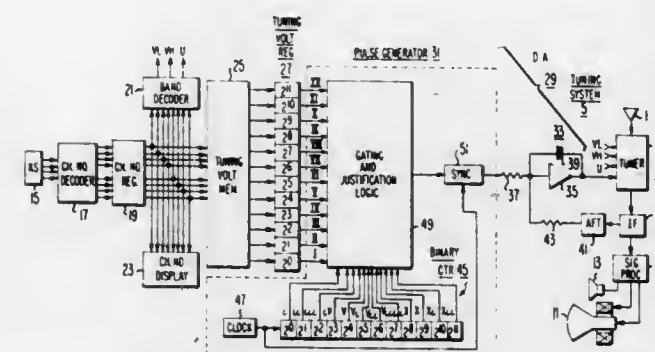
Int. Cl.³ H03K 13/02

U.S. Cl. 340—347 DA

6 Claims

1. In a system including register means for storing a plurality of N bits representing in combination the magnitude of an analog signal, each of said bits having a respective identifying number n between N and 1 and representing a respective power of 2 equal to 2^{n-1} , each of said bits having either a first or a second level indicating the presence or absence, respec-

tively, of said bit in the combination representing said magnitude, apparatus for converting the contents of said register means to a pulse signal having, in general, G pulses representing the magnitude of said analog signal, comprising:
 clock means for generating clock pulses;
 counter means for generating a plurality of binary pulse signals in response to said clock pulses, each of said binary pulse signals having pulses with durations proportional to a respective power of 2;
 a plurality of N selection AND gate means each having an identifying number n between N and 1, each of said selec-



tion means being responsive to a respectively numbered bit and a respective predetermined one of said binary pulse signals for selecting pulses from the respective predetermined binary pulse signal to derive a respectively numbered output pulse signal when said respectively numbered bit has said first level;

each of said selection AND gate means which has an identifying number n between N and $M+1$, where M is a positive integer greater than zero and 2^M is equal to G , being responsive to the one of said binary pulse signals having pulses with durations corresponding to

$$\frac{2^{n-1}}{G}$$

each of said selection AND gate means which has an identifying number n equal to or less than M being responsive to the one of said binary pulse signals having pulses with durations corresponding to 2^{N-n} ;

said selection AND gate means which has the identifying number N selecting all of the pulses of the respective predetermined binary pulse signal having G pulses when the respectively numbered bit has the first level;

a plurality of position determining means each having an identifying number between $N-1$ and 1, each of said position determining means generating a respectively numbered position determining pulse signal having pulses which occur substantially in coincidence with the time intervals not occupied by pulses of all the preceding higher numbered output pulse signals;

each of said selection AND gate means which has an identifying number between $N-1$ and 1 also being responsive to the respectively numbered position determining pulse signal for selecting those of the pulses of the respective predetermined binary pulse signal which are substantially coincident with the pulses of the respectively numbered position determining pulse signal to derive the respectively numbered output pulse signal when the respectively numbered bit has the first level so that each of said output pulse signals which has an identifying number between $N-1$ and $M+1$ having G pulses which are contiguous but not coincident with the respective G pulses of all the preceding higher numbered output pulse signals and each of said output pulse signals which has an identifying number equal to or less than M having less than G pulses which are distributed among and contiguous with differ-

ent ones of the G pulses of the output pulse signals which have identifying numbers between N and $M+1$; and
 OR gate means for additively combining the pulses of said output pulse signals to generate said pulse signal representing the magnitude of the analog signal.

4,364,027

CALIBRATION APPARATUS FOR ANALOG-TO-DIGITAL CONVERTER

Rikichi Murooka, Chiba, Japan, assignor to Sony/Tektronix, Tokyo, Japan

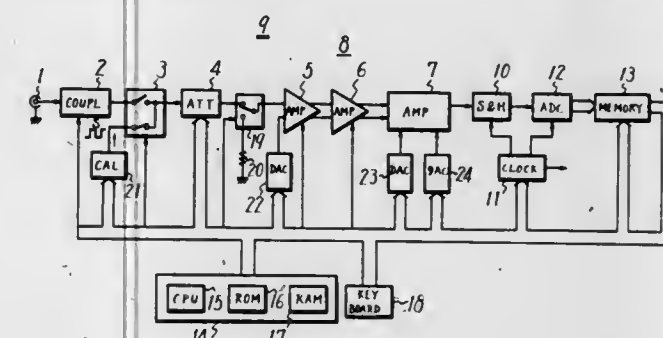
Filed Feb. 9, 1981, Ser. No. 232,481

Claims priority, application Japan, Sep. 16, 1980, 55-128181

Int. Cl.³ H03K 13/02

U.S. Cl. 340—347 CC

14 Claims



1. A calibration apparatus for an analog-to-digital converter, comprising:

circuit means for controlling the DC level and the amplitude of an input signal applied thereto, the output signal from said circuit means being applied to said analog-to-digital converter;

reference signal generator means for generating first, second and third reference levels to be applied to said circuit means, said first reference level being intermediate said second and third reference levels; and

control means for controlling said circuit means in such a manner that the DC level of the output signal thereof is responsive to a digitized output from said analog-to-digital converter when the first reference level is applied to said circuit means, and that the amplitude of the output signal thereof is responsive to the difference between digitized outputs from said analog-to-digital converter when the second and third reference levels are applied to said circuit means.

4,364,028

INTEGRATING ANALOG TO DIGITAL CONVERTER HAVING OFFSET ERROR COMPENSATION

Eiji Masuda, Kawasaki, and Yasoji Suzuki, Kanagawa, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Continuation of Ser. No. 51,215, Jun. 22, 1979, abandoned. This application Apr. 20, 1981, Ser. No. 255,373

Claims priority, application Japan, Jun. 30, 1978, 53-79498

Int. Cl.³ H03K 13/02

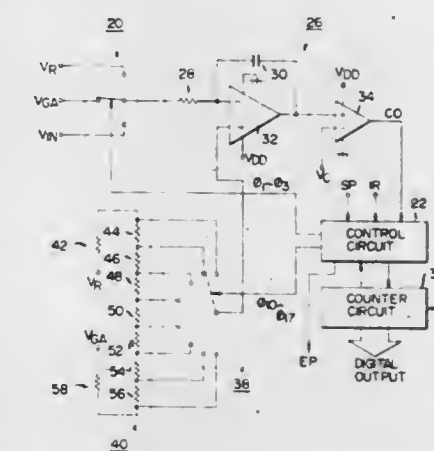
U.S. Cl. 340—347 NT

10 Claims

1. A method of converting an analog signal into a digital signal comprising the steps of:

providing an integrating circuit having first and second input terminals adapted to receive voltage signals, said integrating circuit for integrating the difference in voltage level between the voltage signals provided to said first and second input terminals to produce an integrating output signal including a voltage offset component;
 supplying a first reference voltage level at a first reference voltage terminal;
 supplying a second reference voltage level at a second reference voltage terminal;

supplying an analog input voltage to be represented as a digital signal at an analog input terminal;
 supplying a plurality of intermediate voltage levels between said first and second reference voltage levels;
 selecting and applying one of said plurality of intermediate voltage levels to said first input terminal to compensate said integrating circuit for said voltage offset component of said integrating output signal;
 applying said first reference voltage level to said second input terminal of said integrating circuit for a first time period;
 applying said input voltage to said second input terminal of said integrating circuit for a second time period equal to said first time period;



applying said second reference voltage level to said second input terminal of said integrating circuit for a time period terminated when said integrating output signal is equal to a predetermined voltage level;
 determining a third time period equal in duration to the period that said second reference voltage level was applied to said second input terminal of said integrating circuit; and
 generating a digital signal proportional to said second reference voltage level, said proportion comprising a ratio of said third time period of said first time period, said digital signal comprising said digital representation of said analog input signal.

4,364,029

FAST TRANSIENT DIGITIZER

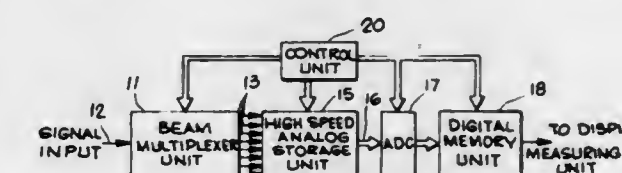
Francesco Villa, Palo Alto, Calif., assignor to The United States of America as represented by the Department of Energy, Washington, D.C.

Filed Jul. 8, 1981, Ser. No. 281,453

Int. Cl.³ H03K 13/02

U.S. Cl. 340—347 SH

11 Claims



5. A system for processing a high frequency analog electrical signal for subsequent analysis, said system comprising:
 means for generating a plurality of discrete analog signal samples corresponding to said high frequency analog electrical signal, said generating means including means for generating a scanning beam of electromagnetic radiation, a control element having a terminal adapted to be coupled to said analog electrical signal for modulating the intensity of said scanning beam in accordance with amplitude variations of said analog signals, and a plurality of target elements sequentially arranged along a scanning

path of said beam for receiving successive intensity modulated portions of said scanning beam;
a plurality of high speed analog storage devices coupled to different ones of said plurality of target elements for storing discrete analog signal samples received by associated target elements during successive scans thereof;
means coupled to said analog storage devices for converting said discrete analog signal samples to equivalent digital signal samples; and
means coupled to said converting means for storing said digital signal samples;
wherein each of said plurality of target elements comprises a semiconductive element for generating an amplified signal representative of the amplitude of said high frequency analog signal during scanning thereof; and
wherein each of said plurality of target elements comprises a spaced pair of semiconductive elements having a plurality of interleaved conducting electrodes.

4,364,030

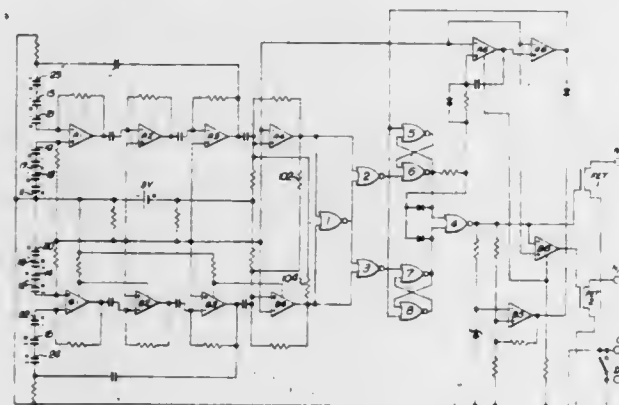
INTRUDER DETECTION SYSTEM

John A. Rossin, 1411 Norman Firestone Rd., Goleta, Calif. 93017

Filed Sep. 10, 1979, Ser. No. 73,869
Int. Cl.³ G08B 13/18

U.S. Cl. 340-567

11 Claims



1. An improved detection system for optically monitoring an area and producing an alarm signal only in response to motion of an intruder across the monitoring area, including:

- A sensor optically responsive to infrared radiation of an intruder, the sensor having at least a pair of discrete sensor areas each producing an electrical output in response to infrared radiation;
- Means optically directing infrared radiation from only the monitored area onto the discrete sensor areas of the sensor, radiation from only a portion of the monitored area being directed onto each sensor area, whereby movement of an intruder across the monitored area causes one then the other of the sensor areas of the pair to produce an electrical output;
- Electronic means accepting and analyzing the electrical outputs of the sensor areas and producing said alarm signal in response to the occurrence of an electrical output of one sensor area then of the other sensor area of a pair within a predetermined period of time, the electronic means including:
 - at least two separate electronic channels responding respectively to the electrical output of the discrete sensor areas of the pair, the channels each being responsive to the presence of the electrical output of a discrete sensor area to produce an output in response to said electrical output above a given threshold level,
 - means automatically adjusting the sensitivity of at least one channel in response to the output of the other channel to cause said one channel to produce an output in response to an input above a threshold level lower than said given threshold level, and
 - means analyzing the outputs of the electronic channels and producing an alarm signal in response to the occur-

rence of said channel outputs within a predetermined period of time.

4,364,031

IONIZATION SMOKE DETECTOR WITH INCREASED OPERATIONAL RELIABILITY

Andreas Scheidweiler, Uerikon, and Peter Müller, Oetwil am See, both of Switzerland, assignors to Cerberus AG, Männedorf, Switzerland

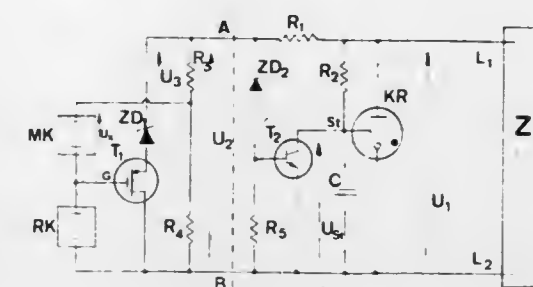
Filed Oct. 20, 1980, Ser. No. 198,807

Claims priority, application Switzerland, Dec. 14, 1979, 11077/79

Int. Cl.³ G08B 17/10

U.S. Cl. 340-629

6 Claims



1. In an ionization smoke detector containing an ionization chamber operated at an extra low voltage, said ionization chamber having a sensor composed of a measuring electrode and a counter electrode, the ambient air being accessible to the ionization chamber, the ionization chamber containing at least one radioactive source for generating ions, an electrical circuit for triggering an alarm, the smoke detector being connected by means of lines with a central signal station which delivers to the lines a detector operating voltage, the improvement which comprises:

- converter means provided for said smoke detector;
- said converter means reducing the detector operating voltage to the operating voltage of the sensor such that such sensor operating voltage is at least five times smaller than the detector operating voltage;
- a first circuit element which is at the sensor operating voltage and controlled by a voltage drop appearing across the ionization chamber;
- said first circuit element upon exceeding a predetermined smoke density becoming conductive and reducing the sensor operating voltage;
- a second circuit element which is at the detector operating voltage and controlled by the sensor operating voltage; and
- said second circuit element, when the sensor operating voltage falls below a predetermined value becoming conductive and triggering an alarm signal.

4,364,032

METHOD AND APPARATUS FOR DIAGNOSING LOCAL OVERHEATING IN A ROTARY ELECTRIC MACHINE

Kiyoshi Narato, Ibaraki; Keizou Ohtsuka, and Sadahiko Niwa, both of Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 4, 1980, Ser. No. 213,094

Claims priority, application Japan, Dec. 8, 1979, 54-158730

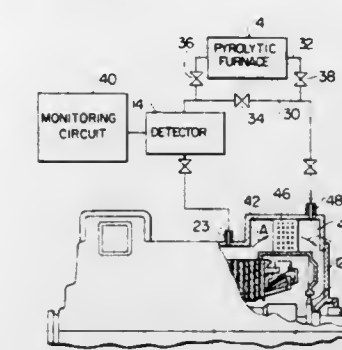
Int. Cl.³ G08B 17/12

U.S. Cl. 340-679

6 Claims

1. A method for diagnosing a local overheating state occurring in a gas cooled rotary electric machine using an insulating coating material which is subjected to thermal-decomposition when the coating material is exposed to high temperatures thereby generating submicron particles, said method comprising the steps of detecting the concentration in the cooling gas of submicron particles generated through thermal-decomposi-

tion of said insulating coating material, integrating a signal representing the concentration of said submicron particles with respect to time, and producing an alarm signal when said



time-integration value exceeds a predetermined reference integration value which is variable depending on the circulating volume of the cooling gas for a rotary electric machine to be diagnosed.

4,364,033

ALARMING SEISMO-METER

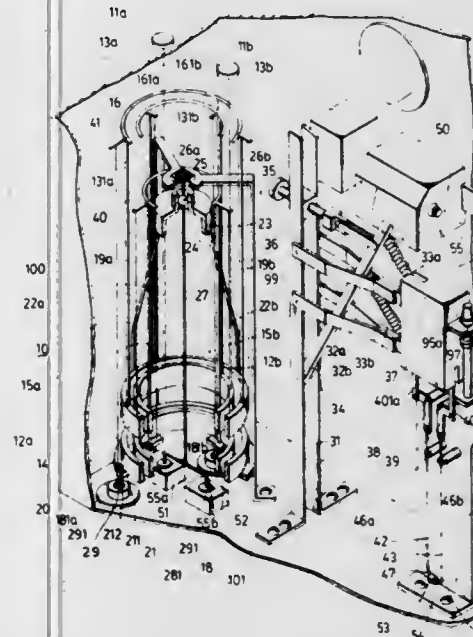
Yun-Tyng Tsay, Taipei, Taiwan

Filed Oct. 31, 1979, Ser. No. 89,988

Int. Cl.³ G08B 21/00

U.S. Cl. 340-690

9 Claims



1. An alarming seismometer apparatus comprising:

- a case having a plurality of supporting members therein, one of said supporting members being provided with a cylinder;
- a first seismometer for detecting left-right ground motions secured by certain ones of said supporting members, said first seismometer including a plurality of annular pendulums connected interlockingly;
- a steel ball contained within said cylinder;
- said cylinder being connected with at least one pendulum of said plurality of pendulums;
- a universal joint means connected to a second of said supporting members and located above said steel ball;
- a detecting needle actuated by motions of said pendulums, the upper end of said detecting needle being inserted through said steel ball into a recess in said universal joint whereby a higher magnification of the motions of said detecting needle may be obtained if said pendulums are moved in an earthquake;
- an electromagnetic means for producing a voltage by the motion of said detecting needle;
- rectifying circuit connected with said electromagnetic means whereby motions of said detecting needle can be

magnified interlockingly by said pendulums, in even a very brief earthquake;

- a second seismometer, for detecting up and down ground motions, secured by a third of said support members;
- an alarm system connected with said rectifying circuit; and
- a means for adjusting the sensitivity of said alarm system.

4,364,034

MONITORING SYSTEM FOR MOVEMENT OF TUNNELS AND OTHER STRUCTURES

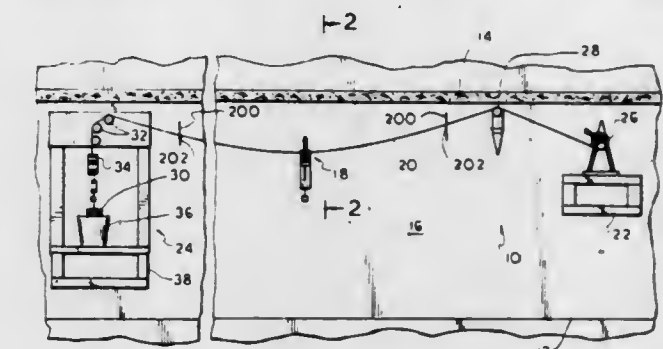
Thomas A. Bellatty, 139 Smull Ave., West Caldwell, N.J. 07006; Joseph S. Zadik, 944 52nd St., Brooklyn, N.Y. 11219, and Richard Mast, 97 Steele Ave., Staten Island, N.Y. 10306

Filed Dec. 19, 1980, Ser. No. 218,458

Int. Cl.³ G08B 21/00

U.S. Cl. 340-690

33 Claims



1. A wire system for monitoring movements of tunnels and other structures comprising a thin elongated wire with known properties of thermal expansion, means for supporting said wire between at least two fixed points in a tunnel, means for applying a constant tension to said wire to secure it in a stable configuration and means for monitoring movement of a measuring plate fixed to the tunnel at a monitoring point and having an aperture formed therein through which said wire extends and a pair of mutually perpendicular cursor means movably mounted on said plate relative to said wire for providing an indication of the position of said wire in said aperture.

4,364,035

ELECTRO-OPTICAL MOUSE

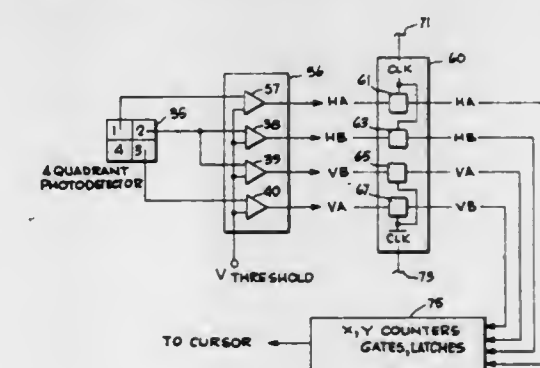
Steven T. Kirsch, 655 S. Fair Oaks Ave., #D313, Sunnyvale, Calif. 94086

Continuation-in-part of Ser. No. 264,478, May 18, 1981. This application Jun. 15, 1981, Ser. No. 273,641

Int. Cl.³ G08B 5/36

U.S. Cl. 340-710

10 Claims



1. A position control system for a cursor or the like comprising:

- a surface having a pattern of passive, position-related lines thereon, with a first group of lines characterized by reflection of one color and absorption of a second color and a second group of lines characterized by reflection of the second color and absorption of the first color,

a detector means, movable over the surface, having a light source directed at the surface, alternately emitting light of said first and second colors, upon receipt of clock pulses, and a light detector positioned for receiving light reflected from the surface and producing electrical output signals representing reflection from lines in said first and second groups of lines, clock means connected to said source and detector for generating clock pulses timing said light source and synchronizing the detector output signals to the source, and counter means connected to receive said electrical signals for counting said lines during detector motion over the surface, thereby deriving a position signal for a cursor or the like.

4,364,036

COMPOSITE LOGIC ANALYZER CAPABLE OF DATA DISPLAY IN TWO TIME-RELATED FORMATS

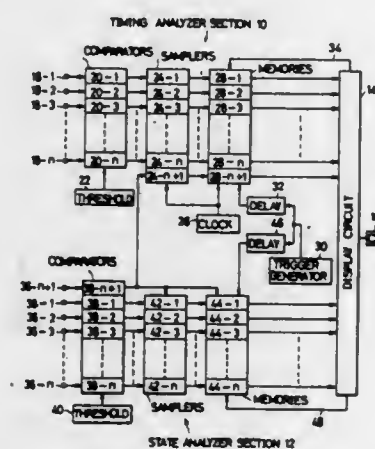
Kazunari Shimizu, Musashino, Japan, assignor to Iwatsu Electric Co., Ltd., Tokyo, Japan

Filed Nov. 24, 1980, Ser. No. 209,488

Claims priority, application Japan, Nov. 26, 1979, 54-152600 Int. Cl.³ G09G 1/08

U.S. Cl. 340—715

9 Claims



1. A composite logic analyzer capable of displaying a first and a second set of data in different, time-related formats, comprising:

- first input means for receiving a first set of logic signals;
- second input means for receiving a second set of logic signals;
- additional input means for receiving an external clock signal associated with the second set of logic signals;
- an internal clock for generating an internal clock signal having a repetition frequency higher than that of the external clock signal;
- first sampler means coupled to the first input means for sampling the first set of logic signals at a rate determined by the internal clock signal;
- second sampler means coupled to the second input means for sampling the second set of logic signals at a rate determined by the external clock signal;
- additional sampler means coupled to the additional input means for sampling the external clock signal at a rate determined by the internal clock signal;
- first memory means coupled to the first sampler means for storing the samples of the first set of logic signals under the control of the internal clock signal;
- second memory means coupled to the second sampler means for storing the samples of the second set of logic signals under the control of the external clock signal;
- additional memory means coupled to the additional sampler means for storing the samples of the external clock signal under the control of the internal clock signal;
- trigger means coupled to the first, the second and the additional memory means for triggering same and hence for suspending the introduction of the samples therein;

- a display circuit coupled to the first, the second and the additional memory means for producing a first set of display signals for displaying in a first format the data recovered from the first and the additional memory means, and for producing a second set of display signals for displaying in a second format the data recovered from the second memory means; and
- a display device coupled to the display circuit for making visual presentation of the output data in response to the first and the second sets of display signals.

4,364,037

TRANSITION DATA IMAGE PROCESSOR

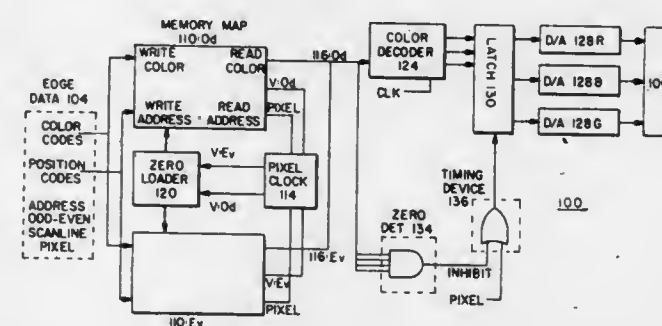
James T. Walker, Palo Alto, Calif., assignor to Cromemco Inc., Mountain View, Calif.

Filed Jun. 15, 1981, Ser. No. 274,036

Int. Cl.³ G09G 1/16

U.S. Cl. 340—744

18 Claims



1. An image processor for providing control signals to a raster type display device in response to input transition data, each unit of transition data corresponding to a transition in the image to be processed and displayed, each unit of transition data including a display portion defining the change in display caused by that transition and a position portion defining the position of that transition within the display relative to the other transitions in the image, comprising:

- position decoder responsive to the position portion of each unit of transition data for receiving the display portion thereof and providing a data stream of transition display codes in display sequence spaced by non-transition codes which define the non-transition period between sequential transition display codes;
- transition decoder responsive to the transition display codes in the data stream for providing a sequence of decoded control signals;
- maintenance means for receiving each decoded control signal from the transition decoder and holding the control signal during the non-transition period between sequential transition display codes for maintaining the display of the current transition on the display device during the non-transition period;
- detector responsive to the non-transition codes between sequential transition display codes in the data stream from the position decoder for providing a non-transition signal during the non-transition period between the sequential transition display codes; and
- advancing means responsive to the termination of the non-transition signal from the detector at the end of the non-transition period for causing the next decoded control signal from the transition decoder to advance into the maintenance means for controlling the display device until the next transition display code is decoded.

4,364,038

Patent Not Issued For This Number

4,364,039

STACKED ELECTRO-OPTIC DISPLAY

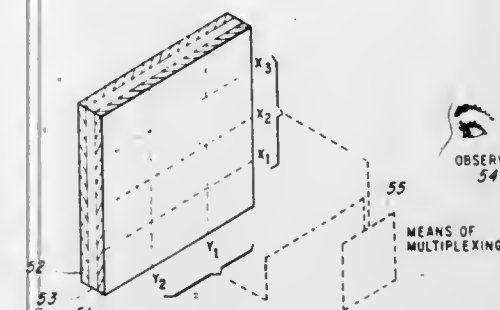
Perry A. Penz, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jul. 25, 1980, Ser. No. 172,108

Int. Cl.³ G09G 3/36

U.S. Cl. 340—784

4 Claims



1. A matrix of liquid crystal cells comprising:

- A center substrate having a first and opposite second surface, said first surface having a plurality of first surface electrodes connected to a plurality of second surface electrodes contained on said second surface and aligned to the first surface electrodes, said center substrate comprising polarizing material;
- a quantity of first liquid crystal material maintained on said first surface of said center substrate;
- a first substrate having a first surface containing a plurality of electrodes, said first surface of said first substrate disposed to enclose the first liquid crystal material between the center substrate and the first substrate;
- a quantity of second liquid crystal material maintained on said second surface of said center substrate;
- a second substrate having a first surface and opposite second surface, said first surface containing a plurality of electrodes, said first surface of said second substrate disposed to enclose the second liquid crystal material between the center substrate and the second substrate, and disposed so that each of the electrodes on the first substrate is aligned to an aligned electrode in the plurality of electrodes on the second substrate;
- means for sealing applied around the perimeter of said center substrate applied so that the first substrate is sealed to the center substrate and the second substrate is sealed to the center substrate; and
- means for electrically connecting each electrode on said first substrate to the aligned electrode on said second substrate.

4,364,040

ELECTROCHROMIC DISPLAY DRIVER WITH FACILITIES OF STABILIZING COLORATION CONTRAST AND INSURING UNIFORM BLEACHING CONDITION

Hiroshi Take; Katubumi Koyanagi, both of Tenri, and Hisashi Uede, Yamatokoriyama, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Nov. 15, 1979, Ser. No. 94,568

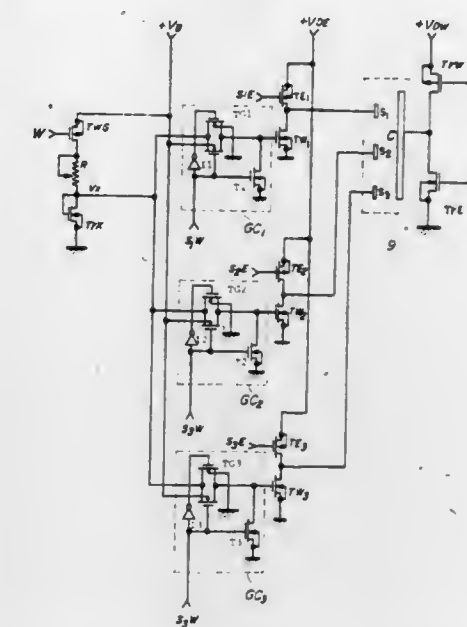
Claims priority, application Japan, Nov. 16, 1978, 53-141983 Int. Cl.³ G09G 3/34

U.S. Cl. 340—785

11 Claims

- Driving circuit means adapted to color and bleach selected segment electrode contained within an electrochromic display means to provide a change from one display configuration to another within a predetermined time frame, comprising: write means responsive to a write signal for applying a constant current to a first one or more segment electrodes to color same; erase means responsive to an erase signal for applying a constant voltage to a second one or more segment electrodes to erase same; time sharing means responsive to a said predetermined time frame for constraining said write means and said erase

means to color and erase said first and second one or more electrodes in time shared sequence within said predetermined time frame; and uniformizing means included in either said write means or said erase means, responsive to said time-sharing means



for short circuiting said first one or more segment electrodes following the coloration thereof with those previously colored electrodes common to said one and another display configurations between those periods in said predetermined time frame when said write means and erase means are actuated.

4,364,041

CONTRAST CONTROLLABLE ELECTROCHROMIC DISPLAY DRIVER CIRCUIT

Hiroaki Fukuda, Nara, and Shigeki Imai, Tenri, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

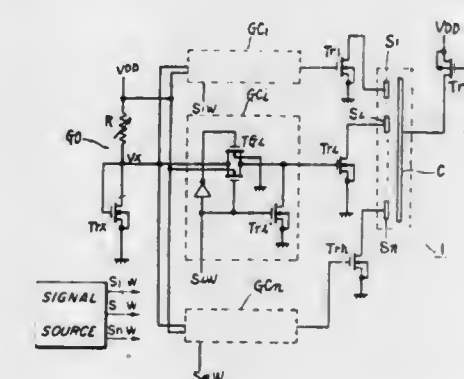
Continuation of Ser. No. 56,629, Jul. 11, 1979. This application Apr. 24, 1981, Ser. No. 257,419

Claims priority, application Japan, Jul. 12, 1978, 53-85552; Jul. 12, 1978, 53-85553

Int. Cl.³ G09G 3/16

U.S. Cl. 340—785

6 Claims



1. Coloring circuit means for driving a plurality of segment electrodes of differing sizes in an electrochromic display, comprising:

- means for providing a constant current to the segment electrodes; and
- a plurality of MOS transistors respectively connected to the segment electrodes for enabling the application of the constant current to the segment electrodes, the sizes of the respective MOS transistors being selected so that a factor W/L associated with those MOS transistors is proportional to the dimensions of the respective corresponding segment electrodes associated therewith, where

4,364,054

METHOD AND APPARATUS FOR FLUID JET PRINTING

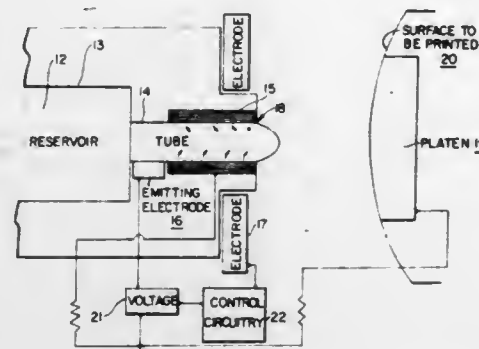
Arnold J. Kelly, Princeton Junction, N.J., assignor to Exxon Research and Engineering Co., Florham Park, N.J.

Filed Mar. 2, 1981, Ser. No. 239,217

Int. Cl.³ G01D 15/16

U.S. Cl. 346—1.1

44 Claims



1. A method of fluid jet printing, comprising the steps of:
 - (a) introducing a supply of ink fluid to a fluid jetting means comprising at least one capillary-sized orifice; and
 - (b) forceably injecting a controlled amount of electrical charge inside said ink fluid wherein said charge will be substantially trapped by said ink fluid, said charge being below a charge level necessary to cause jet atomization of said ink fluid, but of sufficient amount to permit proper formation and targeting of said ink fluid.

4,364,055

INK ISSUANCE DIRECTION CHECK SYSTEM IN AN INK JET SYSTEM PRINTER

Masahiko Aiba, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

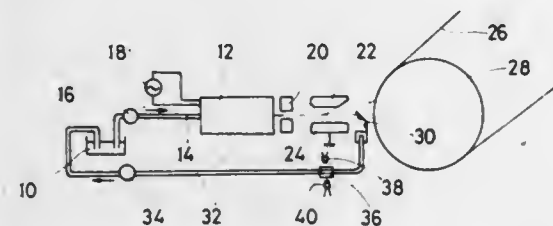
Filed Jun. 24, 1981, Ser. No. 276,971

Claims priority, application Japan, Jun. 30, 1980, 55-89773

Int. Cl.³ G01D 15/18

U.S. Cl. 346—1.1

13 Claims



7. Means for terminating the supply of ink liquid to an ink jet nozzle in an ink jet system printer in response to an abnormal deflection condition, comprising:
 - nozzle means for emitting a stream of ink drops;
 - ink liquid supply means for providing ink liquid to said nozzle means;
 - means for selectively imparting calibrated deflections to each of the ink drops in said stream including a predetermined deflection to a substantial number of said ink drops;
 - gutter means catching said substantial number of ink drops under normal calibrated deflection conditions;
 - ink liquid return means from said gutter means to said ink liquid supply means for returning said ink liquid from the former to the latter; and
 - detection means in said ink liquid return means responsive to the absence of ink liquid for a predetermined time period as an indication of the occurrence of an abnormal deflection condition for constraining said ink liquid supply means to cease providing ink liquid to said nozzle means.

4,364,056

INTERACTIVE GRAPHIC SYSTEM

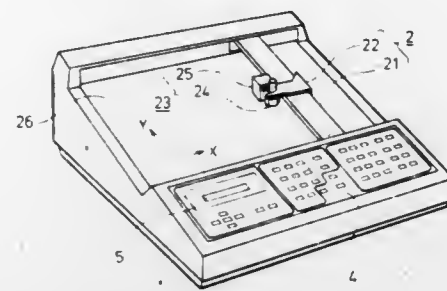
Yoshihiro Suzuki; Shuichi Nakagawa; Yasuo Wako; Yoshihiro Ogawa; Mamoru Yamaguchi, and Toshio Kimura, all of Tokyo, Japan, assignors to Yokogawa Electric Works, Ltd., Tokyo, Japan

Filed Jun. 15, 1981, Ser. No. 273,380

Int. Cl.³ G01D 9/40

U.S. Cl. 346—29

6 Claims



1. An interactive graphic system comprising:
 - a plotting means having a recording head with a recording pen positioned therein which is adapted to be driven by input signals, said plotting means having a plotting surface for recording lines, symbols or marks applied therein by said recording pen;
 - a keyboard including a plurality of special keys for various functions with respect to drawing a bar graph, a line graph, and a pie chart and general keys for characters, digits and symbols;
 - a controller coupled to said keyboard for executing predetermined programs according to data from said keyboard, and
 - display means coupled to said controller for displaying instructions having an appropriate input of necessary data for plotting in a step-by-step manner in an interactive system, whereby lines, symbols or marks can be directly recorded on said plotting surface of said plotting means by said keyboard.

4,364,057

ELECTROSTATIC INK-JET PRINTER

Yutaka Ebi, Kawasaki, and Kikuo Kubo, Yokohama, both of Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

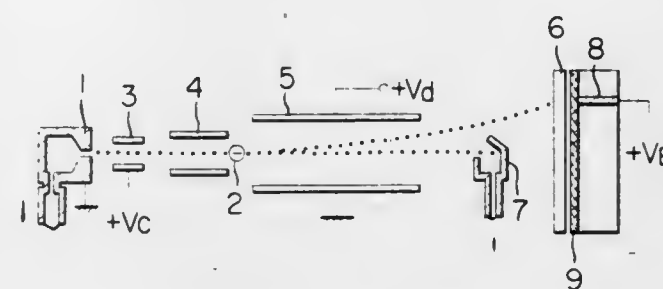
Filed May 6, 1980, Ser. No. 147,240

Claims priority, application Japan, May 11, 1979, 54-57671

Int. Cl.³ G01D 15/18

U.S. Cl. 346—75

5 Claims



1. An electrostatic ink-jet printer comprising:
 - (a) means for forming charged ink drops;
 - (b) a recording medium;
 - (c) means for deflecting the charged ink drops, interposed between the charged ink drop forming means and the recording medium;
 - (d) an insulating layer disposed adjacent to the back of the recording medium; and
 - (e) an ink-drop-landing-position control electrode provided in such a way that one end of said control electrode is positioned adjacent to the insulating layer at the back of a

recording medium in opposed relationship with a predetermined position on said recording medium at which a charged ink drop must be deposited or placed, a control voltage is applied to said control electrode in such a way that the electric lines of force of the electric field established by said control electrode are concentrated substantially at said predetermined landing position, the polarity of said control voltage being opposite to that of the charge on the ink drops.

4,364,058

INK DROP CHARGING DEVICE

Masayoshi Tamai; Michio Ueda, and Masatsugu Kikuchi, all of Kanagawa, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

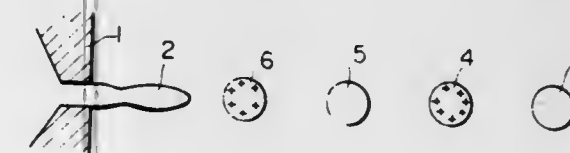
Filed Sep. 29, 1980, Ser. No. 191,621

Claims priority, application Japan, Oct. 29, 1979, 54-138735

Int. Cl.³ G01D 15/18

U.S. Cl. 346—75

4 Claims



1. An ink droplet charging device comprising: a nozzle for jetting an ink stream, said ink stream being divided into ink droplets; a charging electrode disposed at a position where said ink stream divides into said ink droplets for controlling a charge condition of said ink droplets according to whether said ink droplets are utilized for printing; and means for successively applying positive, negative and ground voltage levels to said charging electrode in synchronization with the formation of said ink droplets to deposit a charge on at least some of said ink droplets so that said charged ink droplets have an indentical type charge deposited thereon.

4,364,059

INK JET PRINTING APPARATUS

Haruhiko Nagayama, Tokyo, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

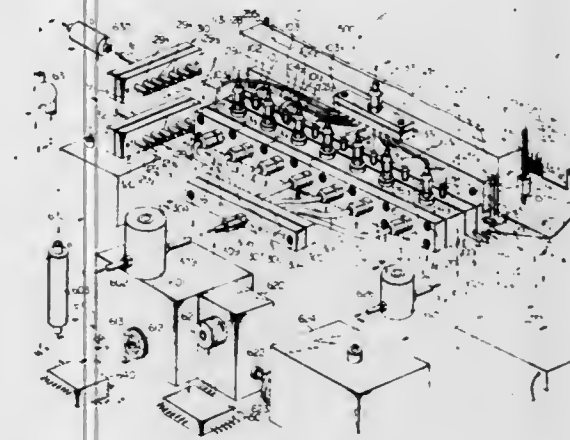
Filed Dec. 8, 1980, Ser. No. 214,387

Claims priority, application Japan, Dec. 17, 1979, 54-163809

Int. Cl.³ G01D 15/18

U.S. Cl. 346—75

12 Claims



1. An ink jet printing apparatus including an ink ejection head having a chamber therein and at least one ink ejection port communicating with the chamber, an ink reservoir containing ink and pump means for pumping ink from the reservoir to the chamber, characterized by comprising: a passageway communicating with the chamber;

valve means disposed in the passageway, the passageway leading from the chamber to the reservoir; and control means for opening the valve means at a start of operation of the apparatus to recirculate ink from the reservoir through the pump means, chamber and passageway back to the reservoir and subsequently closing the valve means, the passageway and said at least one ink ejection port being constructed such that, when the valve means is open, ink is not ejected from said at least one ejection port.

4,364,060

NOZZLE POSITION DEVIATION COMPENSATION ARRANGEMENT FOR INK JET PRINTING DEVICE

Koichiro Jinnai, Kawasaki; Masanori Horike, Yokohama; Kyuhachiro Iwasaki, Fujisawa, and Yutaka Kodama, Tokyo, all of Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 23,290, Mar. 23, 1979, abandoned. This

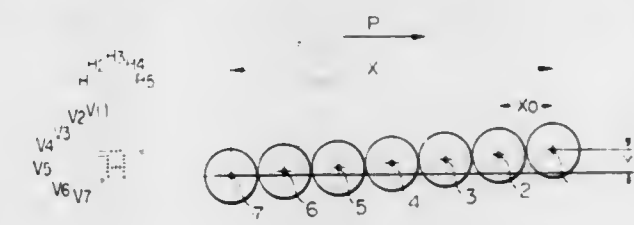
application Dec. 30, 1980, Ser. No. 221,203

Claims priority, application Japan, Mar. 25, 1978, 53-33619

Int. Cl.³ G01D 15/18

U.S. Cl. 346—75

1 Claim



1. A digital nozzle position deviation compensation system for an ink jet printing device having n nozzles for producing character-forming ink dots, said nozzles being vertically staggered with respect to each other and horizontally positioned with respect to each other in the printing direction, the horizontal distance between adjacent nozzles corresponding to m characters or character-forming ink dots said compensation system comprising:

- a character code buffer for providing a series of character code signals representing characters to be printed;
- a random access memory having m×n memory elements for storing respective ones of said character code signals;
- an address counter including a modulo-m counter circuit and a modulo-n counter circuit, the combined outputs of said circuits constituting an address code for specifying the location in said memory at which a corresponding character code signal is to be stored;
- a character generator for providing data respecting the ink-dot pattern of each character to be printed, in response to a corresponding code signal from said memory and a designation signal specifying the particular dot column of said character to be printed;
- a control circuit for (i) coupling said character code signals from said buffer to said memory serially, (ii) stepping said address counter in synchronism with the relative movement between said nozzles and a recording medium in said printing direction to cause successive character code signals to be stored in said memory at addresses differing from the addresses of the immediately preceding character code signals by n units, (iii) causing said character code signals to be sequentially read from said memory and coupled to said character generator in the order of the addresses of the elements of said memory, and (iv) providing said designation signal to said character generator in synchronism with the stepping of said address counter, so that character code signals are stored in said memory at address intervals of n units and are read from said memory at sequential address intervals; and
- print control means responsive to said data from said character generator for causing said nozzles to sequentially print ink dots on said recording medium in accordance,

whereby the effect of horizontal offset of said nozzles is compensated, so that said nozzles may produce groups of ink dots on said recording medium corresponding to said characters.

4,364,061

INK JET PRINTING APPARATUS COMPRISING AUTOMATIC INK JET DEFLECTION ADJUSTMENT MEANS

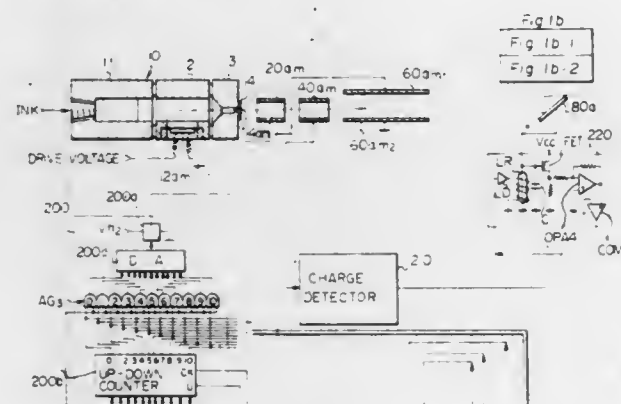
Masanori Horike, and Yutaka Ebi, both of Tokyo, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan
Filed Feb. 17, 1981, Ser. No. 235,184

Claims priority, application Japan, Feb. 28, 1980, 55-24302; Feb. 28, 1980, 55-24303

Int. Cl.³ G01D 15/18

U.S. Cl. 346—75

11 Claims



1. An ink jet printing apparatus including an ink ejection head for ejecting a jet of ink, charging means for electrostatically charging the ink jet and deflection means for electrostatically deflecting the charged ink jet, characterized by comprising:

- sweep means for causing the ink jet to sweepingly deflect along an axis;
- target electrode means disposed along said axis and having an edge intersecting said axis;
- integrating circuit means connected to the target electrode means for integrating a voltage induced on the target electrode means; and
- control means for controlling the sweep means to cause the ink jet to sweepingly deflect along said axis toward said edge, sensing an output voltage of the integrating circuit means, controlling the sweep means to stop sweepingly deflecting the ink jet when the output voltage of the integrating circuit means has a predetermined value indicating that the ink jet has just passed said edge and producing an electric signal having a magnitude corresponding to an amount of deflection force which the sweep means causes to be applied to the ink jet at a time the output voltage of the integrating circuit means has the predetermined value.

4,364,062

PAPER EDGE DETECTION IN A PRINTER

Hirotohi Matsui, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed May 21, 1981, Ser. No. 266,130

Claims priority, application Japan, May 27, 1980, 55-71197

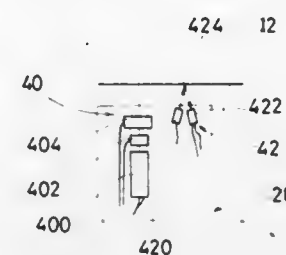
Int. Cl.³ G01D 15/18

U.S. Cl. 346—75

10 Claims

2. A printing device comprising
- a recording medium and a carriage, said recording medium being disposed in front of said carriage,
 - said carriage containing a printing head for conducting a printing operation and an optical recording medium edge detection system, both of said printing head and said optical detection system facing said recording medium, and

means for moving said carriage in the lateral direction across said recording medium, whereby said printing head ef-



fects a printing operation and said optical detection system detects the edge of said recording medium.

4,364,063

THERMAL RECORDING APPARATUS

Gousuke Anno, and Takashi Oozeki, both of Kawasaki, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

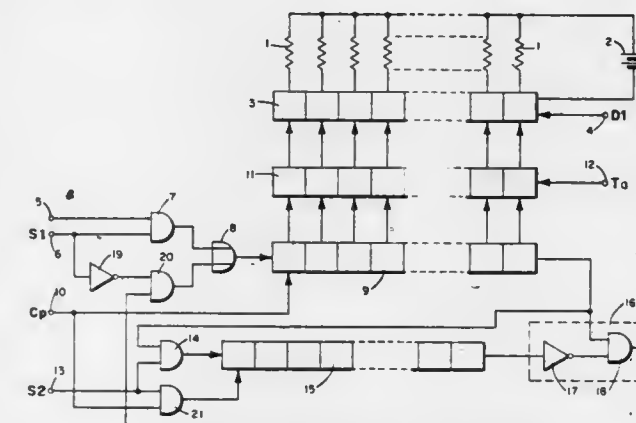
Filed Feb. 26, 1981, Ser. No. 238,602

Claims priority, application Japan, Mar. 31, 1980, 55-41542

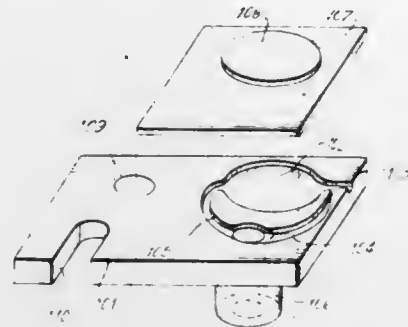
Int. Cl.³ G01D 15/10

U.S. Cl. 346—76 PH

4 Claims



internal volume of said pressure chamber being reduced by said vibration plate deflection;
 an ink nozzle communicating between said pressure chamber and an external surface of said ink jet print head, wherethrough ink from said chamber is ejected;
 a first ink supply channel communicating between a supply of ink and said pressure chamber, the inlet of said first ink supply channel to said pressure chamber being opposite to said ink nozzle;
 one wall of said first supply channel and said ink nozzle



being substantially coplanar with one said parallel wall of said pressure chamber, another wall of said first supply channel and said ink nozzle being substantially coplanar with the other parallel wall of said pressure chamber;
 a second ink supply channel communicating between said supply of ink and said ink nozzle;
 said second ink supply channel has one wall substantially coplanar with one said parallel wall of said pressure chamber, another wall of said second ink supply channel being substantially coplanar with the other parallel wall of said pressure chamber.

4,364,067

HIGHLY INTEGRATED INK JET HEAD

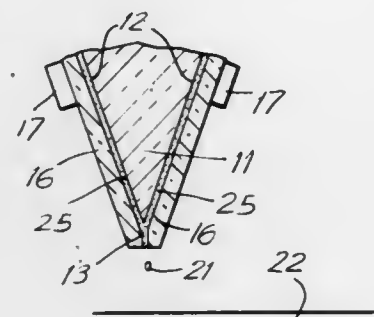
Haruhiko Koto, and Junichi Okada, both of Shiojiri, Japan, assignors to Kabushiki Kaisha Suwa Seikosha, Tokyo and Shinshu Seiki Kabushiki Kaisha, Nagano, both of, Japan
 Filed Oct. 28, 1980, Ser. No. 201,104

Claims priority, application Japan, Oct. 29, 1979, 54-139531; Oct. 29, 1979, 54-139532

Int. Cl.³ G01D 15/16

U.S. Cl. 346-140 R

10 Claims



1. A highly integrated ink jet head for printing on a print recording medium, comprising:
 a baseplate;
 a pair of vibration plates, each vibration plate abutting and attached to one of opposite sides of said baseplate;
 pressure chambers for containing ink between each said vibration plate and said baseplate;
 a supply channel for containing ink connected to each said pressure chamber;
 a plurality of piezoelectric elements attached to each said vibration plate, each said piezoelectric element being in registry with one of said pressure chambers;

a plurality of nozzles, each said nozzle connected with one of said pressure chambers;
 said opposed baseplate sides converging toward said nozzles and forming a narrowed end, said vibration plates extending on both sides beyond said narrowed end and abutting one to the other, said nozzles being formed between said abutting vibration plates, ink being ejected from associated nozzles when said piezoelectric elements are energized to deflect said vibration plates.

4,364,068

INK JET CONSTRUCTION AND METHOD OF CONSTRUCTION

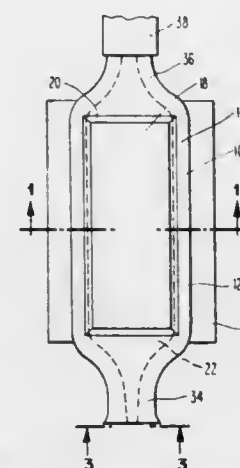
Arthur M. Lewis, Redding Ridge, Conn., assignor to Exxon Research & Engineering Company, Florham Park, N.J.

Filed Jan. 30, 1981, Ser. No. 229,993

Int. Cl.³ G01D 15/18

U.S. Cl. 346-140 R

26 Claims



1. An ink jet adapted to project droplets of ink comprising:
 a discrete glass tube having integrally formed walls of substantially uniform thickness, one of said walls being substantially planar and having a thickness of 1 to 20% of the length of said one of said walls transverse to the axis of the glass tube;
 a transducer coupled to one of said walls of said tube, the modulus of elasticity for the tube being substantially equal to the modulus of elasticity for the transducer;
 an orifice formed at the end of said tube for emitting droplets when said wall is moved in response to the state of said transducer.

4,364,069

MULTI-INK JET HEAD

Hiroshi Kobayashi, Tokyo, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan

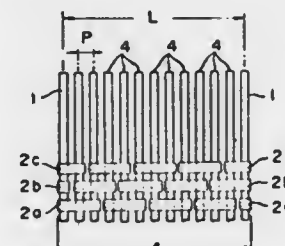
Filed May 4, 1981, Ser. No. 260,113

Claims priority, application Japan, May 8, 1980, 55-59960

Int. Cl.³ G01D 15/18

U.S. Cl. 346-140 R

2 Claims



1. A multi-ink-jet head comprising
 (a) a plurality of ink distribution tubes which are extended in a row in parallel with each other and spaced apart from

each other by a predetermined pitch and each of which is communicated with a nozzle and an ink manifold; and
 (b) n adjacent piezoelectric element arrays, each array comprising a plurality of piezoelectric elements each of which is mounted on each group comprising n adjacent ink distribution tubes and the piezoelectric elements in one array being staggered by one of the ink distribution tubes from the piezoelectric elements in the preceding array so that each ink distribution tube is mounted with n piezoelectric elements each belonging to each of said n piezoelectric element arrays;
 whereby only when said n piezoelectric elements mounted on one ink distribution tube are simultaneously excited, a stream of ink can be emitted through the nozzle of said one ink distribution tube.

4,364,070

DROP JET APPARATUS

Yasumasa Matsuda, Hitachi, Syoji Sagae, Hitachiohta; Masatoshi Kasahara, Hitachi, and Hiroyasu Uchida, Katsuta, all of Japan, assignors to Hitachi, Ltd. and Hitachi Koki Co., Ltd., both of Tokyo, Japan

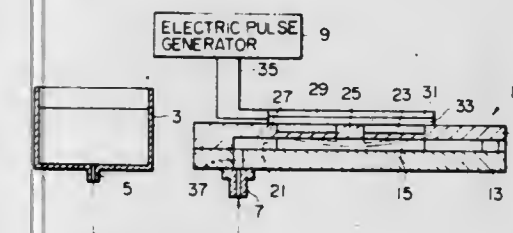
Filed Jul. 6, 1981, Ser. No. 280,207

Claims priority, application Japan, Jul. 4, 1980, 55-90589

Int. Cl.³ G01D 15/18

U.S. Cl. 346-140 R

9 Claims



1. A drop jet apparatus comprising housing means defining a pressure chamber;
 nozzle means communicating with said pressure chamber for jetting drops therethrough;
 diaphragm means, included in said housing means for defining a part of said pressure chamber, said diaphragm means having a thick central portion at the center and a thin portion surrounding said thick central portion;
 electro-mechanical transducer means, disposed on said housing so as to bridge said thin portion and secured to said diaphragm means at said thick central portion for deforming said diaphragm according to electric signals;
 liquid reservoir means communicating with said pressure chamber for storing therein a liquid; and
 electric signal generator means electrically connected to said electro-mechanical transducer means.

4,364,071

ELECTROGRAPHIC RECORDING

Donald E. Shafer, Littleton, Colo., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Oct. 29, 1980, Ser. No. 201,691

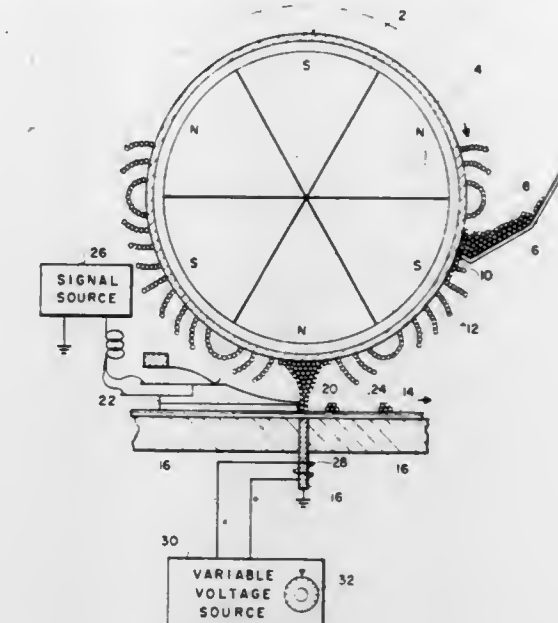
Int. Cl.³ G01D 15/06

U.S. Cl. 346-153.1

6 Claims

1. An electrographic recording system for recording information on an electrographic recording medium comprising
 a non-magnetic platen over which said recording medium passes;
 a multipolar magnetic structure;
 a non-magnetic shell;
 means mounting said shell for motion about said magnetic structure with the peripheral surface of said shell spaced a small predetermined distance above said platen
 means for supplying magnetic toner particles to the outer surface of said shell
 a magnetically permeable member positioned substantially in the plane of said platen and extending parallel to the

rotational axis of said shell, defining a recording station, said magnetically permeable member concentrating the magnetic field produced by said magnetic structure to form a dynamic bridge of toner particles between said shell and said recording medium at said recording station; means for superimposing a selectively variable magnetic field on said permeable member whereby to selectively vary the definition of said dynamic bridge;



a portion of said platen being electrically conductive;
 an array of recording electrodes spaced between the peripheral surface of said shell and said platen with the extremities of said electrodes positioned to conduct electrical energy to said toner particles in said bridge at said recording station.

4,364,072

STATIC INDUCTION TYPE SEMICONDUCTOR DEVICE WITH MULTIPLE DOPED LAYERS FOR POTENTIAL MODIFICATION

Jun-ichi Nishizawa, Sendai, Japan, assignor to Zaidan Hojin Handotai Kenkyu Shinkokai, Sendai, Japan

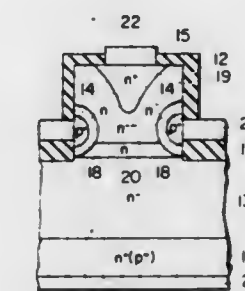
Filed Mar. 8, 1979, Ser. No. 18,774

Claims priority, application Japan, Mar. 17, 1978, 53/31223; Jan. 11, 1979, 54/2378; Jan. 24, 1979, 54/7609

Int. Cl.³ H01L 29/80

U.S. Cl. 357-22

4 Claims



1. A static induction type semiconductor device formed in a semiconductor wafer having a pair of principal surfaces, comprising:
 a low resistivity source region of one conductivity type exposed at one of said principal surfaces;
 a high resistivity main channel region of said one conductivity type disposed adjacent to said source region;
 a low resistivity gate region of the other conductivity type opposite to said one conductivity type extending from said one principal surface into said semiconductor wafer and substantially surrounding said main channel region;
 a subsidiary channel region having said one conductivity

type and a resistivity lower than that of said main channel region but higher than that of said source region and disposed adjacent to said main channel region and to said gate region on that side thereof facing the other one of the principal surfaces;
a low resistivity current electrode region exposed at other one of the principal surfaces; and
a high resistivity auxiliary region of said one conductivity type disposed between said subsidiary channel region and said current electrode region.

4,364,073

POWER MOSFET WITH AN ANODE REGION

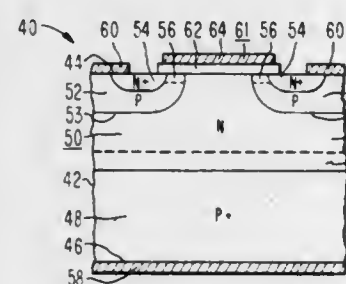
Hans W. Becke, Morristown, and Carl F. Wheatley, Jr., Somerset, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Mar. 25, 1980, Ser. No. 133,902

Int. Cl.³ H01L 29/00

U.S. Cl. 357—23

17 Claims



1. A vertical MOSFET device, comprising:
a semiconductor substrate, including in series, adjacent source, body, drain and anode regions of alternate conductivity type;
the body region being adjacent to a surface of the substrate; the source and drain regions being spaced so as to define a channel portion in the body region at said surface;
the source, body and drain regions having a first forward current gain α_1 and the anode, drain and body regions having a second forward current gain α_2 , such that the sum $\alpha_1 + \alpha_2$ is less than unity, and no thyristor action occurs under any device operating conditions.

4,364,074

V-MOS DEVICE WITH SELF-ALIGNED MULTIPLE ELECTRODES

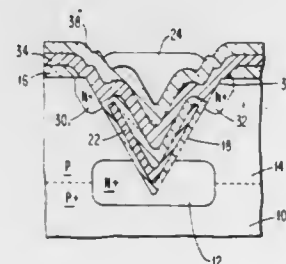
Richard R. Garnache, South Burlington; Donald M. Kenney, Shelburne, both of Vt., and Nandor G. Thoma, Boca Raton, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 12, 1980, Ser. No. 158,668

Int. Cl.³ H01L 29/78

U.S. Cl. 357—23

6 Claims



1. A semiconductor device comprising:
a semiconductor substrate having at least one recess provided in a surface thereof;
a first dielectrically insulated conductive layer on said substrate having at least a portion of which extends into said recess, said first conductive layer having at least a portion

of at least one edge thereof terminating within said recess below the level of the surface of said substrate, and
a second conductive layer overlying at least a portion of said first conductive layer which extends into said recess, said second conductive layer making physical contact to said substrate within said recess below the level of the surface of said substrate.

4,364,075

CMOS DYNAMIC RAM CELL AND METHOD OF FABRICATION

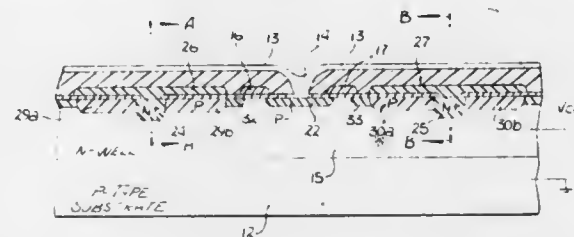
Mark T. Bohr, Beaverton; Kenneth K. Yu, Portland; Ronald J. C. Chwang, Beaverton, and Neil C. Berglund, Lake Oswego, all of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Filed Sep. 2, 1980, Ser. No. 182,870

Int. Cl.³ H01L 29/78, 27/02

U.S. Cl. 357—23

8 Claims



1. A metal-oxide-semiconductor, dynamic memory cell, disposed in an n-type well on a p-type silicon substrate comprising:
a transistor;
a capacitor coupled to said transistor for storing charge comprising:
a plate member disposed above said well with an insulating layer disposed between said plate member and said well;
a p-type region disposed within said well below said plate member;
an n-type buried contact region disposed within said p-type region, said n-type region extending into said well for coupling said plate member to said well;
whereby a high density dynamic memory cell is realized which has high immunity to failures associated with alpha particles.

4,364,076

CO-PLANAR WELL-TYPE CHARGE COUPLED DEVICE WITH ENHANCED STORAGE CAPACITY AND REDUCED LEAKAGE CURRENT

Pallab K. Chatterjee, Dallas, and Aloysius F. Tasch, Jr., Richardson, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

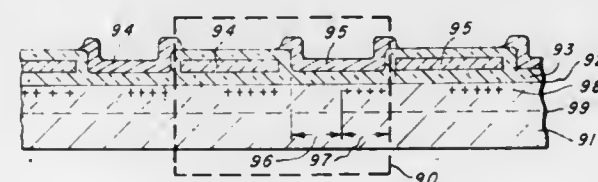
Filed Aug. 26, 1977, Ser. No. 828,080

The portion of the term of this patent subsequent to Apr. 8, 1997, has been disclaimed.

Int. Cl.³ H01L 29/78; G11C 19/28, 11/34

U.S. Cl. 357—24

8 Claims



1. A charge device comprising:
a substrate of semiconductor material having a dopant impurity of P-type conductivity, said substrate having a first surface;
a body of insulating material disposed on said first surface of said substrate;
means defining a surface charge transfer channel in said substrate lying along said first surface of said substrate;

first and second spaced apart phase electrodes overlying said surface channel in transverse relation thereto and arranged with respect to said body of insulating material so as to provide a layer of insulating material of uniform thickness between each of said phase electrodes and said first surface of said substrate;
spaced relatively shallow regions having a dopant impurity of N-type conductivity lying near said first surface of said substrate, each of said relatively shallow N-type conductivity regions extending beneath a corresponding one of said first and second phase electrodes and being respectively aligned adjacent one edge thereof but terminating short of the opposite edge of the electrode corresponding thereto;
said substrate under each of said first and second phase electrodes being divided into a barrier region and an adjacent well region, said well region including a respective shallow region of said N-type conductivity therein; an enhanced relatively deep layer having a dopant impurity of P-type conductivity and of greater concentration than the P-type conductivity dopant impurity in the semiconductor material of said substrate disposed within said substrate at a depth spaced from said first surface and extending through said barrier regions and said well regions beneath said first and second phase electrodes; and the N-type conductivity dopant impurity of each of said relatively shallow N-type conductivity regions having a Gaussian distribution with a peak lying within 500 Å–2000 Å from said first surface of said substrate, and the P-type conductivity dopant impurity of said enhanced relatively deep P-type conductivity layer having a Gaussian distribution with a peak lying within 5000 Å–15,000 Å from said first surface.

4,364,077

P+N GALLIUM PHOSPHIDE PHOTODIODES

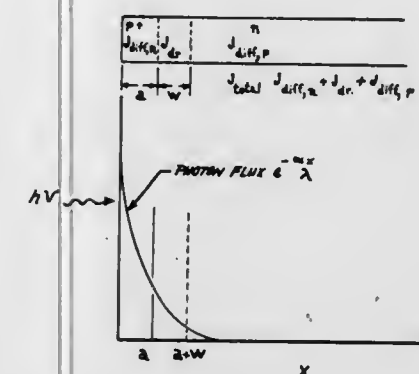
Alice M. Chiang, Weston, Mass., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Sep. 9, 1980, Ser. No. 185,471

Int. Cl.³ H01L 27/14

U.S. Cl. 357—30

1 Claim



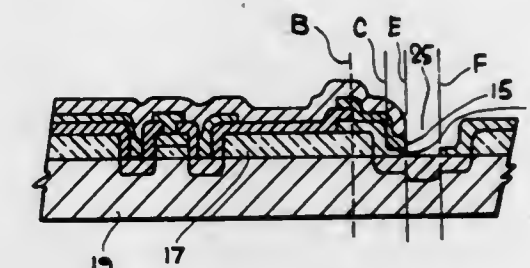
1. A photodiode detector apparatus with high quantum efficiency comprising in combination:
a semiconductor body of Group III-V compound having a photoelectric-sensitive surface;
a thin film deposition of a second group III-V compound atop said semiconductor body to form a p-n junction, said p-n junction forms a photodiode being highly responsive to upper-level ultraviolet light radiation, said p-n junction has a shallow junction depth, said photodiode has a quantum efficiency greater than 30% at a wavelength of 0.4 μm , said photodiode is responsive to ultraviolet radiation having a wavelength smaller than 0.4 μm , said photodiode junction is formed by a GaP ion implantation, and said photodiode junction depth equals 0.15 μm .

4,364,078
EDGE BARRIER OF POLYSILICON AND METAL FOR INTEGRATED CIRCUIT CHIPS

Paul W. Smith, San Jose; James J. Freeman, Milpitas; Donald D. Forsythe, Palo Alto; Megha Shyam, Santa Clara; Kenneth K. Yagura, Sunnyvale, and Gunnar Wetlesen, Los Gatos, all of Calif., assignors to Synertek, Santa Clara, Calif.
Continuation of Ser. No. 933,895, Aug. 15, 1978, abandoned, which is a continuation of Ser. No. 768,274, Feb. 14, 1977, abandoned. This application May 16, 1980, Ser. No. 150,439

U.S. Cl. 357—52

4 Claims



1. In a semiconductor integrated circuit die construction within which circuits are defined, including a thermal oxide layer immediately over portions of a substrate, inward from scribe line zones where the substrate is exposed, the improvement comprising,
a protective ion barrier forming lateral edges of the die, said edge barrier having a lower layer extending from a substrate surface upwardly, adjacent to scribe line zones where the substrate is exposed, at least as high as the thermal oxide layer disposed upon said substrate and an upper layer immediately covering said lower layer at least in said scribe line zones, said upper and lower ion barrier layers made of different materials, wherein the upper layer of said protective barrier is a metal layer, the lower layer being a layer of polysilicon, each layer resisting ion contamination past the material thereby protecting said die from edgewise ion migration.

4,364,079

PROCESS OF ANALYSIS OF THE CONVERGENCE OF A CATHODE-RAY TUBE WITH THREE GANGED GUNS AND A DEVICE FORMING A PICK-UP ALLOWING IMPLEMENTATION OF THIS PROCESS

Claude Pons, Grotta Ferrata, Italy, assignor to Videocolor (S.A.), France

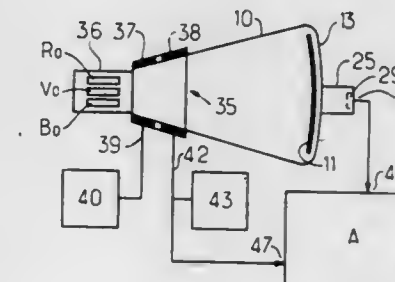
Filed Mar. 31, 1981, Ser. No. 249,568

Claims priority, application France, Apr. 2, 1980, 80 07412

Int. Cl.³ H04N 9/62

U.S. Cl. 358—10

13 Claims



1. Process for analysis of the convergence of the three beams of a color cathode-ray tube with three ganged guns and shadow mask perforated with holes, preferably oblong, equipped with a deviator having horizontal and vertical deflection coils, characterized by the fact that, for determining the projection of the convergence gaps between the three beams along at least one reference axis in a deviation direction preferably perpendicular to this reference axis, it consists of

turning on only one of the three guns and applying a slowly variable signal to at least one of the deflection coils and a scanning signal to at least the other deflection coiling so as to produce on the screen a luminous line moving slowly parallel to said reference axis, of measuring the light intensity through an analysis slit located parallel to the direction of the luminous line formed on the screen at the point where it is wished to determine the convergence characteristics, of fixing the values of the current in said coils when the light intensity perceived through said slit is maximum, of repeating the same operations for the other two guns, and of calculating said projections of the convergence gaps according to said reference axis, knowing at least the three values of the aforementioned current and the deflection sensitivities of the cathode-ray tube in said area of the screen.

4,364,080

DIGITAL VIDEO ANALYZER

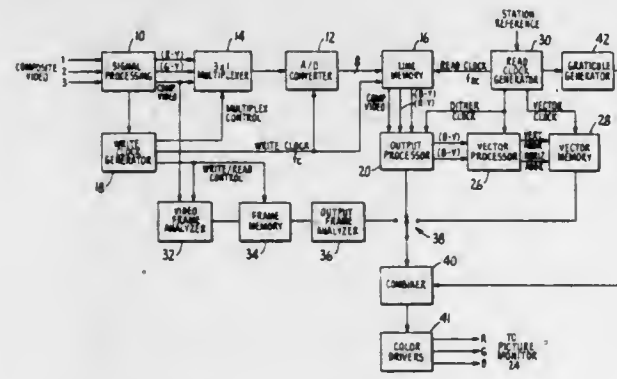
Jovan Vidovic, 1725 Bucknal Rd., Campbell, Calif. 95008

Filed Apr. 13, 1981, Ser. No. 253,667

Int. Cl.³ H04N 9/62, 7/02

U.S. Cl. 358—10

20 Claims



1. An apparatus for analyzing and visually displaying a selectable interval of a waveform on a raster-scanning type display comprising

level analyzer means for simultaneously detecting the presence of a plurality of predetermined signal reference magnitudes within a subinterval of the waveform interval and for generating a binary word representative of the magnitudes detected within the subinterval;

frame memory means for storing the binary word for each waveform subinterval so that a horizontal data word for each reference magnitude can be read from the frame memory means which indicates, with respect to the reference magnitude, in which of the subintervals the reference magnitude was present in the selected waveform interval; means for reading horizontal data words from said frame memory means for transfer to said raster-scanning display; and

timing means for controlling the formation of the binary word for each subinterval, the transfer of each binary word to the frame memory means, and the reading of the horizontal data words from the frame memory means for transfer to the raster-scanning display.

4,364,081

METHOD AND APPARATUS FOR PROCESSING A DIGITAL COLOR VIDEO SIGNAL

Yoshitaka Hashimoto, Chofu; Norihisa Shirota, Atsugi, and Kaichi Yamamoto, Zama, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Apr. 16, 1981, Ser. No. 254,851

Claims priority, application Japan, Apr. 16, 1980, 55-50887; Apr. 29, 1980, 55-56882

Int. Cl.³ H04N 9/00

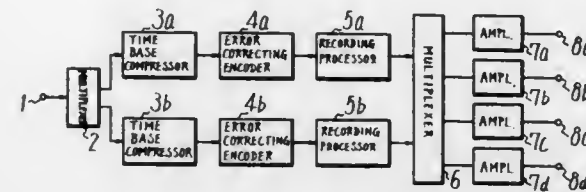
U.S. Cl. 358—13

31 Claims

1. A method of processing a digital signal comprised of a plurality of N-bit words which have been code converted from

a plurality of M-bit words in accordance with a predetermined mapping function, said method comprising the steps of:

reconverting each of said N-bit words to a respective one of said M-bit words in accordance with said mapping function, with said plurality of reconverted M-bit words forming a data unit for every predetermined number of words thereof;



detecting whether any of said M-bit words contain an error by failing to satisfy the mapping function during said step of reconverting; and

determining that each data unit that includes an M-bit word having an error is erroneous.

4,364,082

PHASE DETECTION CIRCUIT AND AUTOMATIC TINT CONTROL CIRCUIT OF COLOR TELEVISION RECEIVER UTILIZING THE SAME

Kenichi Tonomura, Tachikawa, and Kyoichi Takahashi, Kodaira, both of Japan, assignors to Hitachi, Ltd. and Hitachi Microcomputer Engineering Ltd., both of Japan

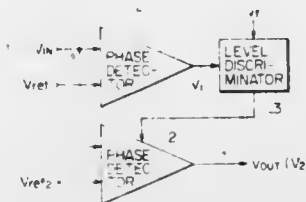
Filed Feb. 18, 1981, Ser. No. 235,608

Claims priority, application Japan, Mar. 12, 1980, 55-30374

Int. Cl.³ H04N 9/535; H03D 3/18

U.S. Cl. 358—28

4 Claims



1. An automatic tint control circuit for a color television receiver comprising:

a first phase detector having respective inputs to which a chroma signal and a first reference signal are to be impressed;

a second phase detector having respective inputs to which said chroma signal and a second reference signal are to be impressed;

level discriminator means responsive to the output signal of said first phase detector for directly inhibiting the operation of said second phase detector in accordance with the level of said output signal of said first phase detector.

4,364,083

BEAM INDEX TYPE COLOR TELEVISION RECEIVER

Katsuo Isono, Senri Miyaoka, and Kinya Shinkai, all of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

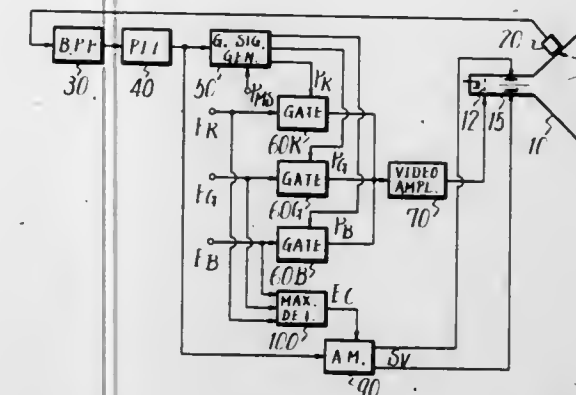
Filed Apr. 21, 1980, Ser. No. 142,029

Claims priority, application Japan, Apr. 23, 1979, 54-49948

Int. Cl.³ H04N 9/24

U.S. Cl. 358—69

7 Claims



1. In a beam index color television receiver of the type which comprises a beam index type color cathode tube including a screen and an electron gun emitting a cathode beam current which varies with a video input signal and which scans said screen, the latter having an array of color phosphor elements and index elements spaced periodically thereon; timing signal generating means for sensing the scanning by said cathode beam of said index elements and providing a timing signal whose phase depends on the timing of such scanning of said index elements; gating means controlled by said timing signal for sequentially selecting each of three primary color signals in said video input signal and supplying the sequentially selected primary color signals to said electron gun; and velocity modulating means for modulating the beam scanning velocity of said cathode beam; the improvement comprising modulating signal generating means responsive both to the level of said video input signal and to said timing signal to supply to said velocity modulating means a velocity modulating signal that varies with the amplitude of said timing signal.

4,364,084

COLOR CORRECTION MONITORING SYSTEM

Taizo Akimoto, Minami-ashigara, and Yasuo Kawase, Tokyo, both of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

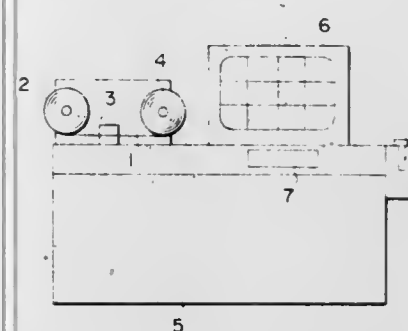
Filed Oct. 24, 1980, Ser. No. 200,553

Claims priority, application Japan, Oct. 25, 1979, 54-138113

Int. Cl.³ G03F 3/08

U.S. Cl. 358—76

2 Claims



1. A color film monitoring system for a color printing system comprising in combination:

a film scanning means for scanning the color images on a film and generating three color video signals of red, green and blue;

an A/D conversion means for converting the color video signal to a digital color video signal,

frame memory means for recording the digital color video signals of a plurality of frames of image,

table look-up memory means for image processing the digital color video signal read out from the frame memory means,

a D/A conversion means for converting the image processed digital color video signal into an analog color video signal,

a color video monitor means receiving said analog color video signal and displaying a plurality of frames of image on a cathode ray tube,

an automatic color film analyzer means for obtaining LATD, maximum value and minimum value based on the color video signal from said film scanning means and computing the conditions of correction of color and density using said values,

a computer means for controlling the sequence of operation of the whole system, correcting standard gradation conversion table values according to the conditions of correction from said automatic color film analyzer, and recording the corrected gradation conversion table values in table look-up memories,

a manually operable input means for correcting the gradation conversion table values recorded in said table look-up memories by inputting address of a frame and the amount of correction for the frame of image displayed on said color video monitor, and

a recording means for recording the automatically obtained conditions of correction and/or the conditions of correction which are manually inputted.

4,364,085

COLORIZED WEATHER SATELLITE CONVERTER

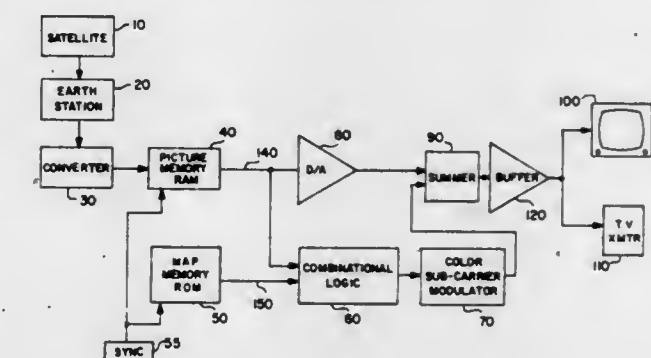
James Dalke, Bellevue, Wash., assignor to Arvin Industries, Inc., Columbus, Ind.

Filed Apr. 22, 1980, Ser. No. 142,781

Int. Cl.³ H04N 9/02, 9/535

U.S. Cl. 358—81

5 Claims



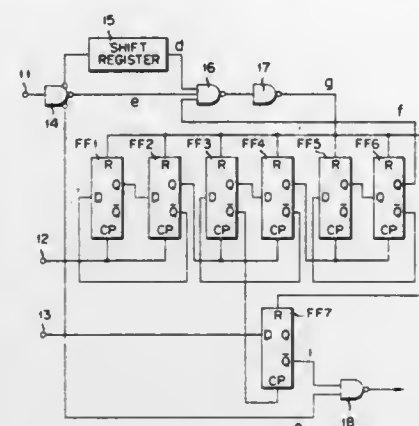
1. Method for presenting, in standard public television format, weather pictures comprising black and white video signals showing cloud cover, the method comprising the steps of selecting a portion of the video signal for a given geographical area and storing said selected portion in a temporary memory;

storing in a second memory information representing the location of water bodies and land masses within said given geographical area,

simultaneously interrogating both memories, generating a color sub-carrier which is modulated by the intensity information contained in the video signal stored in temporary memory and the water bodies and land masses location information stored in said second memory, and

combining the stored black and white video signals and the modulated color sub-carrier thereby to produce a composite picture in standard public television format.

signal by using the output signals from said frequency dividing circuit, said delay circuit and said inverting circuit and for resetting said frequency dividing circuit;
a gate pulse forming circuit for forming gate pulses with a fixed pulse width which is longer than said horizontal synchronizing pulse width but shorter than $\frac{1}{2}H$ at the



timing of the resetting of said frequency dividing circuit; and
a gate circuit for allowing the composite sync signal applied to said second input terminal to pass therethrough only during a period that said gate pulse forming circuit produces gate pulses.

4,364,092

TELEVISION SIGNAL GHOST DETECTOR

David D. Holmes, Chesterfield, N.J., assignor to RCA Corporation, New York, N.Y.

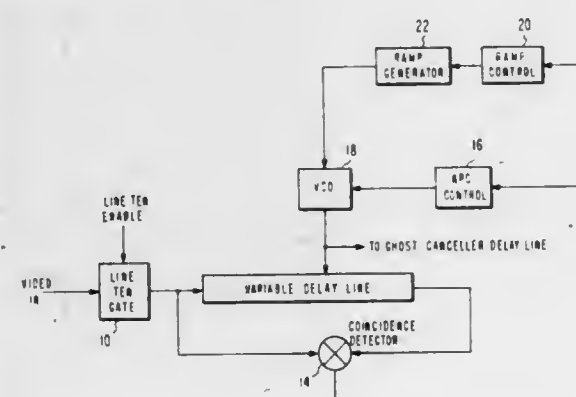
Filed Jan. 26, 1981, Ser. No. 228,595

Claims priority, application United Kingdom, Aug. 14, 1980, 8026515

Int. Cl.³ H04N 5/27

U.S. Cl. 358—167

5 Claims



1. In a television receiver, including a source of video signals which may be contaminated with a ghost signal, said video signal including a component subject to use as a training signal, a television ghost detector system comprising:
means responsive to said video signals and having an output for passing a portion of said video signals which includes said training signal, and a ghost of said training signal when a ghost signal is present;
a variable delay line having an input coupled to receive said portion of said video signals and an output, and a control signal input, and responsive to a control signal for controlling the delay imparted to said video signal portion by said delay line over a range of delay times;
a coincidence detector having a first input coupled to the input of said delay line and a second input coupled to the output of said delay line, and an output at which a coincidence signal is produced in response to the application of said training signal to said second input in time coinci-

dence with the application of its ghost signal to said first input; and
means having an input coupled to the output of said coincidence detector and an output coupled to said control signal input of said delay line, for providing a control signal to said delay line so as to establish its delay at a delay within said range of delay times.

4,364,093

TELEVISION GHOST CANCELLATION SYSTEM WITH PHASE-CONTROLLED REMODULATION

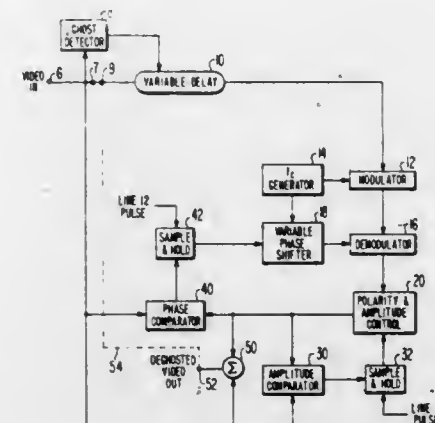
David D. Holmes, Chesterfield, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jun. 16, 1981, Ser. No. 274,179

Int. Cl.³ H04N 5/31

U.S. Cl. 358—167

9 Claims



1. In a television receiver, including a source of desired video signals, said signals being subject to contamination by ghost signals, and a television signal ghost detector responsive to said video signals for determining the time interval between the occurrence of said video signals and their corresponding ghost signal components when a ghost signal is present; a television signal ghost cancellation system for producing processed video signals comprising:

a variable delay line having an input coupled to receive one of said desired or processed video signals, and an output, and coupled to said ghost detector for delaying said video signals by a time substantially equal to the time interval between the occurrence of said desired video signals and their corresponding ghost signal components when a ghost signal is present;
a source of modulating carrier signals;
a modulator having a first input coupled to the output of said delay line for receiving said delayed video signals, and a second input coupled to said source of modulating carrier signals, and an output at which modulated delayed video signals are developed;
a variable phase shifter having a first input coupled to receive said modulating carrier signals, a control input, and an output;
a demodulator having a first input coupled to the output of said modulator, a second input coupled to the output of said variable phase shifter, and an output at which demodulated delayed video signals are developed;
means coupled to the output of said demodulator for developing pseudo-ghost signal components which are substantially equal in amplitude to, and aligned in time with said ghost signal components of said video signals from said source;
phase comparison means having a first input coupled to receive said pseudo-ghost signal components, a second input coupled to receive said video signals, and an output coupled to said control input of said variable phase shifter, for developing a control signal representative of the phase relationship between said ghost signal components and said pseudo-ghost signal components; and
means having a first input coupled to receive said pseudo-

ghost signal components, and a second input coupled to receive said video signals from said source, for combining said signals to produce said processed video signals, wherein said processed video signals are substantially free of ghost components.

4,364,095

APPARATUS FOR PREVENTING OR ALTERNATIVELY RESTRICTING THE DISCHARGE OF ANIONS AND X-RAYS FROM THE FRONT SIDE OF CATHODE RAY TUBES

Helmut R. Roeder, Klosterstrasse 2, 6474 Ortenberg-Selters, Fed. Rep. of Germany

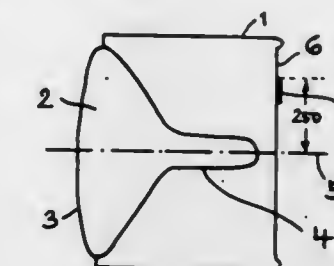
Filed Dec. 9, 1980, Ser. No. 214,471

Claims priority, application Fed. Rep. of Germany, Dec. 11, 1979, 2949661

Int. Cl.³ H04N 5/65

U.S. Cl. 358—245

8 Claims



DIGITAL ARRANGEMENT FOR DETECTING A CORRECT TELEVISION SYNCHRONIZATION SIGNAL OUTPUT USEFUL IN A SIGNAL SEEKING TUNING SYSTEM

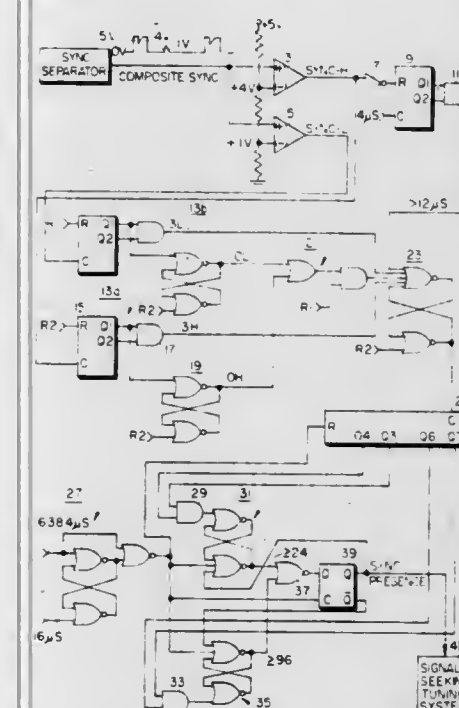
Michael P. French, and Juri Tufts, both of Indianapolis, Ind., assignors to RCA Corporation, New York, N.Y.

Filed May 8, 1981, Ser. No. 261,449

Int. Cl.³ H04N 5/50, 7/02

U.S. Cl. 358—193.1

5 Claims



1. A detector for determining the correctness of a television synchronization signal including synchronization pulses for use in a signal seeking tuning system, comprising:

first threshold comparator means for generating first output pulses when said synchronization signal has an amplitude component below a first predetermined threshold below the maximum excursion of said synchronization pulses;
second threshold comparator means for generating second output pulses when said synchronization signal has an amplitude component above a second predetermined threshold above the minimum excursion of said synchronization pulses;
first counter means for counting the number of said first output pulses during a measurement interval;
second counter means for counting the number of said second output pulses during said measurement interval;
first count comparator means for determining when said count counted by said first counter means is within predetermined count limits;
second count comparator means for determining when said count counted by said second counter means is within said predetermined count limits; and
error determining means for generating an error signal when one of said predetermined count limits is exceeded.

4,364,096

APPARATUS FOR REPRODUCING PCM MAGNETIC RECORDING TAPE

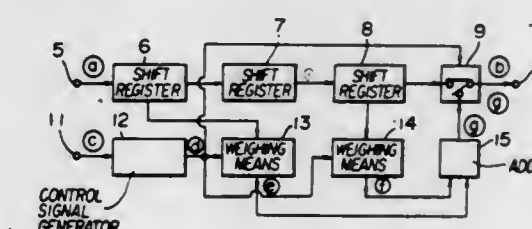
Minoru Ozaki, and Ken Onishi, both of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 35,404, May 2, 1979. This application Jul. 14, 1980, Ser. No. 168,553

Int. Cl.³ G11B 27/02, 5/00

U.S. Cl. 360—13

6 Claims



1. An apparatus for reproducing a PCM magnetic recording tape, comprising:

a detecting means for detecting an edited part from PCM signal rows reproduced from said magnetic recording tape;
a delay means for delaying said PCM signal rows in sequence during a specific time;
a first weighing means for weighing to gradually increase the backward signal recorded behind said edited point under the control of a signal detected by the detecting means;
a second weighing means under the control of said signal from said detecting means for weighing the output from said delay means to gradually decrease the forward signal recorded in front of said edited point;
an adder for summing output signals from said first weighing means and said second weighing means;
a switch under the control of said signal from said detecting means for switching to obtain a reproduced output from said adder during a specific term and to reproduce and to

output the output of said delay means during the other term.

4,364,097

TAPE SPEED CONTROL DEVICE

Jacob De Boer; Hendrik J. Sanderson, both of Eindhoven, Netherlands, and Friedrich Sommer, Vienna, Austria, assignors to U.S. Philips Corporation, New York, N.Y.

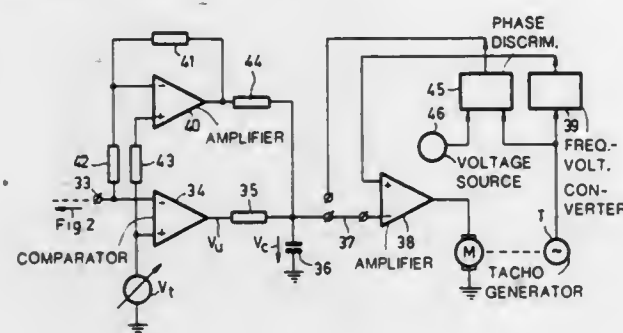
Filed May 30, 1980, Ser. No. 154,643

Claims priority, application Netherlands, Jun. 22, 1979, 7904885

Int. Cl.³ G11B 15/18, 21/10

U.S. Cl. 360—70

4 Claims



1. An apparatus for reading information from two recording tracks which extend substantially parallel to each other and make an angle with the longitudinal axis of a recording medium in the form of a tape, comprising at least a first and a second head for in turn sequentially reading consecutive recording tracks, at least a first and a second transducer for adjusting the position of the first and the second head respectively in a direction transverse to the direction of the recording tracks, a tracking signal generator for alternately generating at least a first and a second tracking signal respectively, which is a measure of the deviation of the first or the second head relative to the center of the track to be followed by said head, an energizing circuit for energizing the first and the second transducer as a function of the first and the second tracking signal respectively, so as to center the first and the second head relative to the track to be followed by said head, and a tape speed control circuit, characterized in that the tape speed control circuit comprises a first input to which alternately and consecutively the first and second tracking signals which occur are applied in order to control the speed of transport of the recording medium, such that the average value of the tracking signals is maintained at a constant reference value.

4,364,098

MULTIPLE-CHANNEL ROTARY TRANSFORMER CIRCUIT IN A MAGNETIC RECORDING AND/OR REPRODUCING APPARATUS

Akira Hirota, Chigasaki, and Masaharu Tsunekawa, Yokohama, both of Japan, assignors to Victor Company of Japan, Ltd., Yokohama, Japan

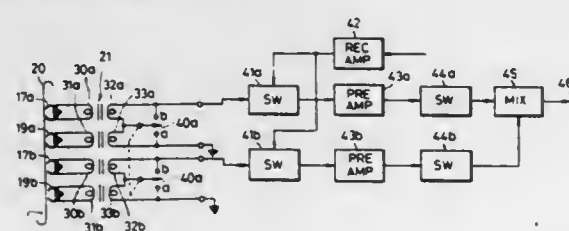
Filed Mar. 11, 1980, Ser. No. 129,336

Claims priority, application Japan, Mar. 14, 1979, 54/31697[U]

Int. Cl.³ G11B 15/14

U.S. Cl. 360—108

2 Claims



1. A rotary transformer circuit in a magnetic recording and/or reproducing apparatus including a rotary structure

with first and second sets of rotary magnetic heads which are used alternatively during either a signal recording or a reproducing mode, each head set comprising at least two rotary magnetic heads, and including a signal recording and reproducing circuit associated with the rotary magnetic heads, said rotary transformer circuit comprising:

rotary transformer means comprising a rotor having first and second groups of coils disposed thereon in a concentric circular arrangement, each group of said coils including two coils which are paired with a corresponding two coils of the other group of coils, each of said paired coils constituting a separate set of coils, said coils being respectively connected to the individual rotary magnetic heads of the first and second sets of rotary magnetic heads, and said coils and heads rotating together with the rotation of said rotary structure, each of the first group of said coils and each of the second group of said coils adjoining each other, and a stator having first and second groups of coils disposed in a concentric circular arrangement to respectively confront corresponding coils of the rotor, thereby to inductively transfer signals between the coils of the rotor and the coils of the stator; and switching means comprising first and second switches, each of said switches comprising two fixed contacts and a movable contact, said movable contact being operable to switch in a changeover action between the fixed contacts in accordance with a selection of either a signal recording mode or a signal reproducing mode, each of the coils of one set of coils of said first and second group being connected, at one end, to the signal recording and reproducing circuit and to the fixed contacts on one side of the first and second switches, and each of the coils of the other set of the first and second group being connected, at one end, to the other ends of said one set of coils and to the respective movable contacts of the first and second switches, and at its other end, to ground and to the other fixed contacts of each of the first and second switches.

4,364,099

TANTALUM THIN FILM CAPACITOR

Masataka Koyama, Yokohama; Kiyoshi Satoh, and Minoru Terashima, both of Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

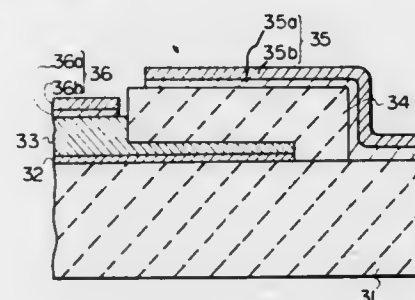
Filed Aug. 20, 1980, Ser. No. 179,791

Claims priority, application Japan, Aug. 31, 1979, 54/111158; Apr. 25, 1980, 55/54985

Int. Cl.³ H01G 4/10

U.S. Cl. 361—305

8 Claims



1. A tantalum thin film capacitor, comprising: a highly nitrogen-doped tantalum film, having a nitrogen concentration of from 14 to 30 atomic %; a lower electrode formed on the highly nitrogen-doped tantalum film and comprising an α -tantalum thin film, said thin film having a nitrogen concentration of from 6 to 15 atomic %, but lower than the nitrogen concentration of the highly nitrogen-doped tantalum film; a dielectric layer formed on the lower electrode and comprising a chemical conversion film of the α -tantalum; and an upper electrode formed on the dielectric layer.

4,364,100

MULTI-LAYERED METALLIZED SILICON MATRIX SUBSTRATE

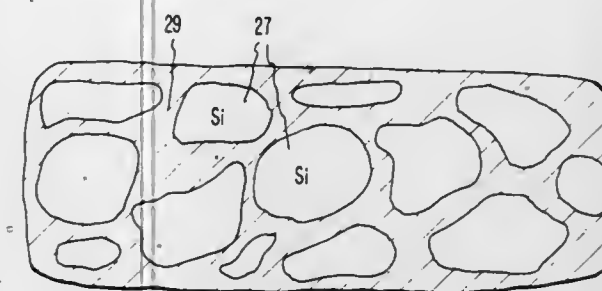
Harold D. Edmonds, Hopewell Junction, and Gary Markovits, Poughkeepsie, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 24, 1980, Ser. No. 143,216

Int. Cl.³ H05K 1/03

U.S. Cl. 361—395

5 Claims



1. A substrate having a coefficient of expansion in the range of 2.5×10^{-6} to $4.1 \times 10^{-6} \text{ } ^\circ\text{K}^{-1}$ comprising a matrix of sintered silicon particles of a size less than 5 microns, each particle joined and surrounded by an electrically insulating layer of a silicon compound selected from the group consisting of silicon dioxide, silicon nitride, and mixtures thereof, said insulating layer of a thickness in the range of 0.1 to 1 micron, said substrate including conductor lines formed therein, and having electrical connection pads on a surface thereof.

4,364,101

VEHICLE LAMP WITH A LAMP CARRIER MADE FROM A SHEET METAL BLANK

Hans P. Brockmeyer, Lippstadt, Fed. Rep. of Germany, assignor to Westfälische Metall Industrie KG Hueck & Co., Lippstadt, Fed. Rep. of Germany

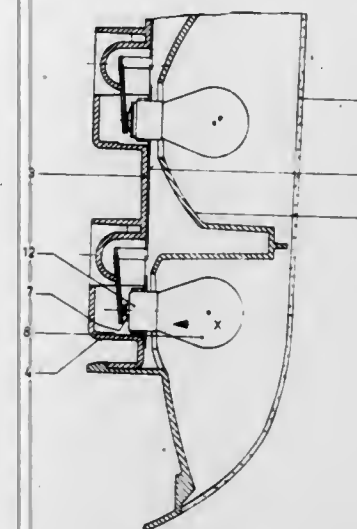
Filed Aug. 6, 1980, Ser. No. 175,770

Claims priority, application Fed. Rep. of Germany, Sep. 4, 1979, 2935650

Int. Cl.³ B60Q 1/26; F21M 11/00

U.S. Cl. 362—80

11 Claims



1. Vehicle lamp with a lamp carrier, comprising: a sheet metal blank having a plurality of openings; light bulbs accommodated in said openings and electrically conductively seated with sleeve-shaped socket contacts; electrical conductor strips stamped from said lamp carrier sheet metal blank and serving as electrical conductors for the individual light bulbs, said electrical conductor strips stamped from said lamp carrier remaining at their original position within said lamp carrier after having been stamped out from said lamp carrier, said light bulbs having center poles, said stamped-out conductor strips having free ends engaging springly the center pole of a respec-

tive light bulb, said conductor strip having a respective end portion contacting the center pole of the light bulb, said end portion being stamped out from a region of the lamp carrier substantially remote from an opening accommodating a light bulb socket, said end portion being brought by a deformation of the conductor strip from its original position into a central position underneath a central axis of said opening accommodating said light bulb, said electrical conductor strips being integral and one piece with said lamp carrier before being stamped out from said lamp carrier, said conductor strips after being stamped out having when operative an electrical polarity which is opposite to the electrical polarity of the lamp carrier.

4,364,102

INTERNALLY LIGHTED DECORATIVE DISPLAY

Vaughn P. Huppert, 9445 Goodwick Ct., San Diego, Calif. 92123, and Richard J. Castoro, 1940 Park Dale La., Encinitas, Calif. 92024

Filed Aug. 1, 1980, Ser. No. 174,588

Int. Cl.³ F21P 1/02

U.S. Cl. 362—123

12 Claims



1. A decorative display which is able to emit light from the exterior thereof, comprising: a display body having an apertured exterior surface and a hollow interior defined by an internal surface, an elongated electric illumination means contained and positioned within said interior, at least a portion of the internal surface of said display body being covered with a light-reflective layer which is in communication with said illumination means and the light reflective layer being capable of transmitting and reflecting light from said illumination means, and light transmitting means extending from said exterior surface to said interior to receive light from said illumination means and reflected light from said layer and transmit said light from apertures in said exterior surface.

4,364,103

BATTERY CASE FOR AN ELECTRICALLY OPERATED DEVICE

Thad L. Harshbarger, 4991 Northlawn Dr., Murrysville, Pa. 15668

Filed Aug. 11, 1980, Ser. No. 176,647

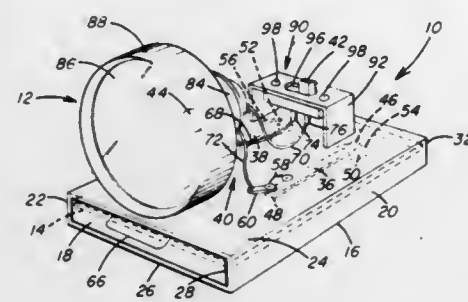
Int. Cl.³ F21L 9/00

U.S. Cl. 362—200

11 Claims

1. A battery case for an electrically operated device comprising: a battery housing having a pair of side walls, a top wall, a bottom wall, and at least one open end portion, said battery housing forming a low profile battery compartment of a preselected configuration as defined by said side walls and said top and bottom walls, said battery compartment being accessible through said one open end portion, an expended cassette film pack containing a multicelled

planar battery of the type employed in self-developing cameras as a power source positioned in said battery compartment, said expended cassette film pack including a housing having terminal ports for exposing electrical leads of said multicelled planar battery, a pair of electrically conductive terminal strips secured to said top wall, each of said terminal strips having a first contact end portion selectively positioned within said battery compartment and a second contact end portion projecting from said top wall externally of said battery compartment,



said terminal strips being spring biased to normally urge said first contact end portions downwardly from said top wall to securely make electrical contact with said multicelled planar battery and to securely retain said expended cassette film pack in an operative position within said battery compartment, a switch mounted on the upper surface of said wall, conductor means for electrically connecting said terminal strips to an electrically operated device in a circuit, and said conductor means being connected to said switch with said switch being operable between a first position and a second position to open and close said circuit.

4,364,104

NOVELTY LIGHT

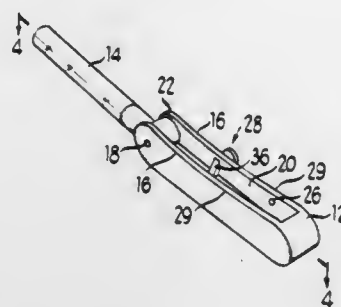
Edward T. Holahan, Chicago, and Burton C. Meyer, Downers Grove, both of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed Oct. 20, 1980, Ser. No. 198,722

Int. Cl.³ F21S 3/00

U.S. Cl. 362-223

10 Claims



1. A toy light, comprising:

a housing;
an extensible element mounted for rotation from a position within said housing to a position extending away from said housing;
means for biasing said element to its outwardly extending position;
means for releasably retaining said element in a position within said housing; and
means for internally illuminating said element when it is in its outwardly extending position.

4,364,105
STACKED FIXTURES WITH ANGULARLY POSITIONED LAMPS AND DOWNWARDLY LIGHT-DIRECTING REFLECTORS

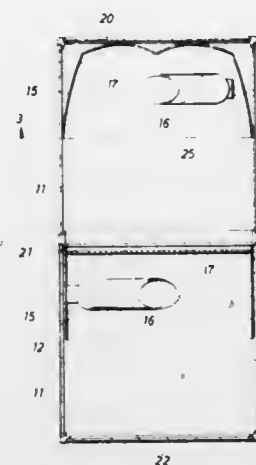
Albert C. McNamara, Jr., San Marcos, Tex., assignor to Esquire, Inc., New York, N.Y.

Continuation of Ser. No. 35,438, May 3, 1979, abandoned. This application Apr. 1, 1981, Ser. No. 249,951

Int. Cl.³ F21S 3/00

U.S. Cl. 362-224

7 Claims



1. A light fixture for bidirectional long range illumination of ground surfaces without significant light-dark boundaries and with reduced shadow effects comprising:

- a housing adapted to be mounted in an upright position above the ground surface and said housing having parallel opposite placed vertical windows in a rectangular lamp compartment;
- an electrical socket in said compartment to receive the electrical end of a lamp having an elongated arc, and said lamp placed substantially horizontally with its axis residing diagonally across said lamp compartment between said windows;
- reflector means carried on the inner side at the top of said lamp compartment;
- said reflector means comprising side by side reflector halves symmetrically positioned relative to a center line of the top of said lamp compartment, each reflector half including a parabolic reflector segment extending laterally from the middle of the top of said lamp compartment to adjacent said windows and a cylindrical reflector segment extending downwardly from each said parabolic reflector segment and terminating tangentially at said window adjacent thereto, whereby each said parabolic reflector segment reflects light from said lamp towards both near and opposite windows and each said cylindrical reflector segment reflects light primarily across said light compartment through said window opposite to it.

4,364,106

LIGHT DISPLAY DEVICE WITH TRAVELLING BALLS AND COMPOUND ROTATION

Anthony C. Lam, 371 Dalcourt, Quebec, Canada (J7V 6G5)

Filed Jan. 29, 1981, Ser. No. 229,420

Int. Cl.³ F21V 21/26

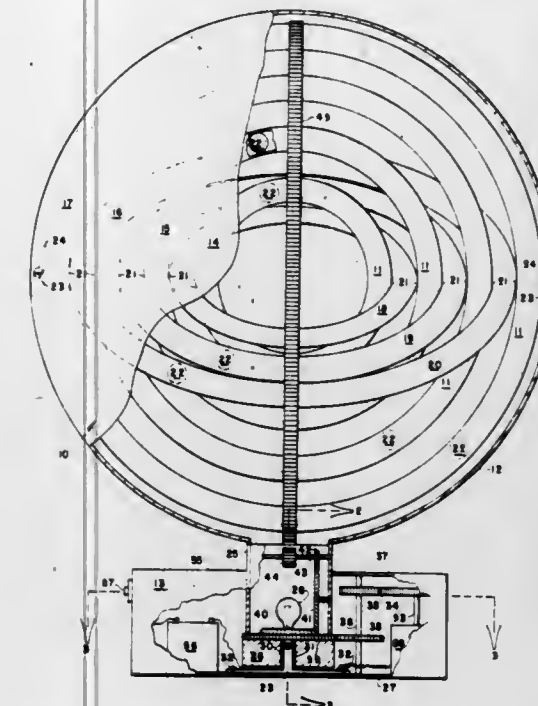
U.S. Cl. 362-272

9 Claims

1. A display device comprising:

- a rigid assembly of toroidally shaped hollow tubes which confine balls adapted for continuous travel within said tubes, said assembly having a plane of symmetry perpendicular to said tubes,
- a pair of pivot means associated in diametric opposition with the outermost tube of said assembly and adapted to permit rotation of said assembly about a first axis perpendicular to said plane of symmetry,

- housing means substantially centered within said plane of symmetry,
- support means associated with said housing means in a manner permitting rotation of said support means about a second axis within said plane of symmetry and perpendicular to said first axis, said support means engaging said pivot means.



- energizing means disposed within said housing means,
- motion coupling means which, when activated by said energizing means, rotate said assembly about said first and second axes simultaneously, and
- a light source associated with said housing means and adapted to illuminate said tubes substantially uniformly with respect to said second axis.

4,364,107

METHOD AND DEVICE FOR USING MASS-PRODUCED LIGHT-EMITTING DIODES AT A PREDETERMINED LUMINANCE

Hanne-Lore Wiczorek; Adolf Triller, both of Munich, and Helmut Gassenhuber, Söcking, all of Fed. Rep. of Germany, assignors to Optische Werke G. Rodenstock, Munich, Fed. Rep. of Germany

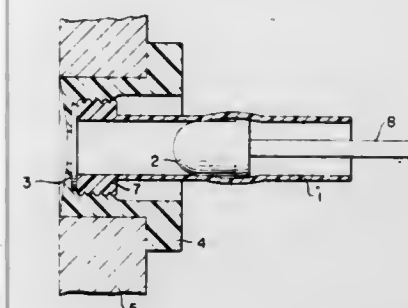
Filed Jul. 28, 1980, Ser. No. 172,948

Claims priority, application Fed. Rep. of Germany, Jul. 26, 1979, 2930405

Int. Cl.³ F21V 3/00

U.S. Cl. 362-285

9 Claims



1. Method of using mass-produced light-emitting diodes of a predetermined luminance in instruments requiring a precise luminance value comprising the steps of disposing a light-emitting diode (LED) in a lengthwise adjustable manner within a sleeve, closing said sleeve with a light diffusing disc at an end thereof from which the light from the LED is intended to emerge, and displacing the LED, within the sleeve in such manner that a precisely defined luminance appears at the diffusing disc.

4,364,108

LUMINAIRE COVER LOCKING APPARATUS

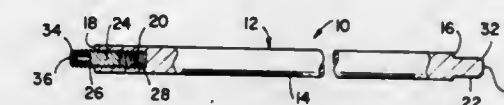
William J. Rapp, Hayward, Calif., assignor to Gardco Manufacturing, Inc., San Leandro, Calif.

Filed Jan. 12, 1981, Ser. No. 224,096

Int. Cl.³ F21V 17/00, 29/00

U.S. Cl. 362-374

4 Claims



1. In a luminaire including a housing having an opening and a cover for said opening, said cover including a frame having a pair of end members, a pair of side members extending between said pair of end members, a translucent panel carried by said frame, one end of said frame being hinged to said housing at one end of said opening, and a pair of pins each spring biased to extend longitudinally outward from a different one of said pair of side members at the other end of said frame, said housing having means for receiving said pins at said opening, each of said pair of pins carrying a clip extending outwardly of the face of said frame for manual engagement to move said clips toward each other and retract said pins into said frame against said spring bias, the improvement comprising coaxial channel means in said clips, an elongated rigid member, said elongated rigid member having a reduced portion at one end thereof dimensioned to be received in said channel means in said clips, said elongated rigid member being dimensioned to extend between said clips when said pins project outwardly from said side members and said reduced portion at one end thereof is received in said channel means in one of said clips, said elongated rigid member having a bore at the other end thereof, and rigid finger means retractably received in said bore of said elongated rigid member, said finger means being dimensioned to be received in said channel means of said clips.

4,364,109

CONTROL DEVICE OF INVERTERS

Chihiro Okado, Fuchu, and Isami Ugai, Kokubunji, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa, Japan

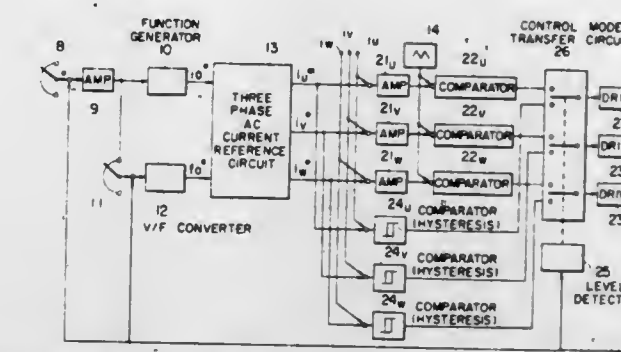
Filed Feb. 10, 1981, Ser. No. 233,052

Claims priority, application Japan, Feb. 19, 1980, 55/18514

Int. Cl.³ H02M 1/12

U.S. Cl. 363-41

5 Claims



1. An inverter control device including at least one current minor loop and a circuit for controlling the inverter in a pulse-width modulating mode, said device further comprising:
a first detector for detecting the operating frequency of the inverter;
a second detector for detecting an actual current delivered from said inverter;
a circuit for producing an AC current reference signal;
a first comparator for comparing the current reference signal with the output of said second detector;
a second comparator for comparing the current reference

signal with the output of said second detector and delivering an output in accordance with a hysteresis characteristic;

a waveform generator for delivering a signal of a triangular waveform;

a third comparator for comparing the output of said first comparator with said signal of the triangular waveform; and

switching means for transferring either one of the outputs of said second and third comparators to the inverter in accordance with the output of said first detector.

4,364,110

COMPUTERIZED MACHINE CONTROL SYSTEM

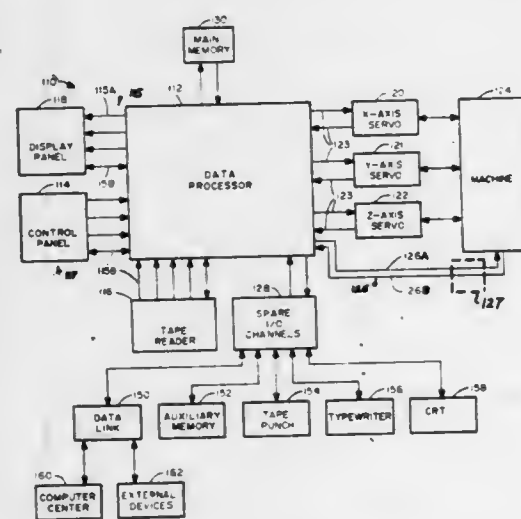
Gilbert P. Hyatt, P.O. Box 4584, Anaheim, Calif. 92803

Continuation-in-part of Ser. No. 101,881, Dec. 28, 1970, abandoned, Ser. No. 134,958, Apr. 19, 1971, Ser. No. 135,040, Apr. 19, 1971, Ser. No. 229,213, Apr. 13, 1972, Pat. No. 3,820,894, Ser. No. 230,872, Mar. 1, 1972, Ser. No. 232,459, Mar. 7, 1972, Ser. No. 246,867, Apr. 24, 1972, Pat. No. 4,310,878, Ser. No. 288,247, Sep. 11, 1972, Pat. No. 4,121,284, Ser. No. 291,394, Sep. 22, 1972, Ser. No. 302,771, Nov. 1, 1972, Ser. No. 325,941, Jan. 22, 1973, Pat. No. 4,016,540, and Ser. No. 339,817, Mar. 9, 1973, Pat. No. 4,034,276. This application Jun. 5, 1974, Ser. No. 476,743

Int. Cl.² G06F 15/46

U.S. Cl. 364—107

38 Claims



1. A machine control system comprising:

an operator control panel for generating operator command signals;

a memory CRT display for storing path information and for displaying path information in response to path display signals;

feedback means for generating feedback signals related to machine operations;

an integrated circuit read only memory for storing a plurality of instructions;

an integrated circuit end point memory for storing digital path end point information;

a data link to a host computer for communicating the path end point information from said host computer to said end point memory, said data link including means for storing the path end point information communicated from said host computer in said end point memory;

a digital data processor for processing the digital path end point information stored in said end point memory under control of the instructions stored in said read only memory, said digital data processor including

(a) means for processing the digital path end point information stored in said end point memory in response to the operator command signals from said operator control panel under control of the instructions stored in said read only memory,

(b) feedback processing means for processing the digital path end point information stored in said end point

memory in response to the feedback signals from said feedback means under control of the instructions stored in said read only memory,

(c) means for generating the path display signals to said memory CRT display in response to the digital path end point information stored in said end point memory under control of the instructions stored in said read only memory, and

(d) means for generating machine path control signals in response to the digital path end point information stored in said end point memory under control of the instructions stored in said read only memory; and

control means for controlling a machine along a path in response to the machine control signals.

4,364,111

ELECTRONICALLY CONTROLLED VALVE ACTUATOR

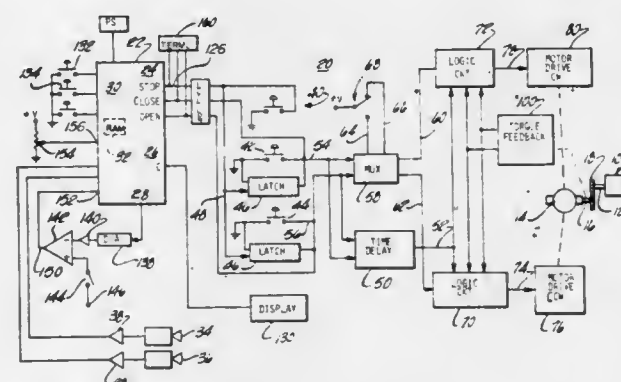
Armin E. Jocz, Ada, Mich., assignor to Westran Corporation, Muskegon, Mich.

Filed May 20, 1980, Ser. No. 151,666

Int. Cl.³ G05B 11/32; F16K 31/04

U.S. Cl. 364—175

10 Claims



1. For use in conjunction with a valve having an actuating member movable between a first position in which said valve is closed and a second position in which said valve is open, a valve actuator comprising:

reversible motor means having an output mechanically connected to the actuating member,

means for selectively activating said motor means to move said actuating member from either of said first or second position and toward the other of said first or second position,

means for repeatedly determining the actual position of said actuating member as said actuating member moves from either of said first or second position and toward the other of said first or second position,

means responsive to said determining means for automatically deactivating said motor means when said actuating member is at said other of said first or second position, and wherein said motor activating and deactivating means further comprises electrical circuit means, memory means accessible to said circuit means, said circuit means having means for storing upon operator command the output from said position determining means as values in said memory means corresponding to said first and second positions for said actuating member.

4,364,112

MINIATURE COMPUTER WITH SEPARATE HAND-HELD CONTROLLER

Toru Onodera, Kodaira; Akira Ohsawa, Higashimurayama; Hideki Nishino, Hino, and Masao Watari, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Division of Ser. No. 898,996, Apr. 21, 1978, Pat. No. 4,253,143.

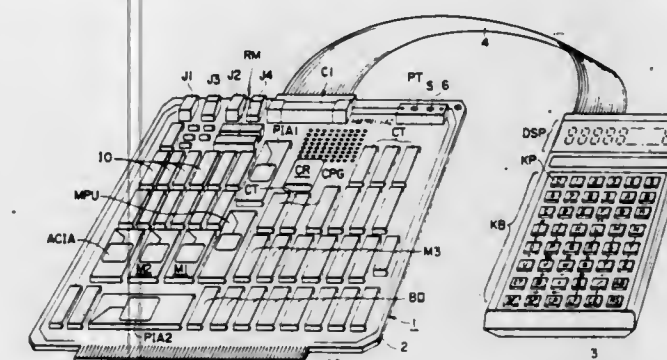
This application May 14, 1980, Ser. No. 149,581

Claims priority, application Japan, Apr. 25, 1977, 52-46845

Int. Cl.³ G06F 3/023

U.S. Cl. 364—200

6 Claims



1. A miniature computer comprising

a main section including a central processor, a read only memory for storing a program to control said central processor, and a random access memory connected to said central processor for reading out and writing in data under control of said central processor, said central processor, said read only memory and said random access memory being interconnected by a common bus and being mounted together in a compact housing; and

a hand-held control device mechanically separated from and electrically connected by cable means to said main section, said control device including a controlling keyboard for providing manual input command signals to said main section and display means for displaying said manual input command signals, said controlling keyboard having keys corresponding to the numerals of 0 to 9 and the alpha characters of A to Z for inputting data in the form of symbolic language command signals according to an assembler program; wherein said read only memory stores an assembler program for converting said symbolic language command signals to corresponding machine language control signals; and wherein said display means includes a segment driver circuit for displaying said symbolic language data inputted via said keys.

4,364,113

CRACK DEVELOPMENT MEASURING EQUIPMENT

Peter Sengebusch, Bergisch Gladbach, and Horst Nowack, Wetter, both of Fed. Rep. of Germany, assignors to Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt e.V., Cologne, Fed. Rep. of Germany

Filed Aug. 19, 1980, Ser. No. 179,519

Claims priority, application Fed. Rep. of Germany, Aug. 23, 1979, 2934038

Int. Cl.³ H04N 7/18

U.S. Cl. 364—507

17 Claims

1. Crack development measuring equipment for use in conjunction with a loading device in which a test piece can be clamped, and having an optical measuring tool trained on the test piece, said equipment comprising:

a television camera cooperating with said optical measuring tool,

control means coupled to said television camera and to said loading device, for causing said loading device to load said test piece in periodic intervals, and for causing said television camera to produce a television image only between such intervals of loading,

a discriminator, connected to said camera, for converting

the image elements of each television image into binary pulses,

a memory, connected to said discriminator, for temporarily storing the binary pulses of each television image, and

a digital comparator connected to said memory and to said discriminator to compare the contents of said memory with the binary pulses of a consecutive television image, the output of said comparator being indicative of the development of a crack in the test piece.

4,364,114

METHOD AND APPARATUS FOR DETERMINING THE ACOUSTIC VELOCITY OF A WORKPIECE

Peter Renzel, Düren, and Klaus Kroesen, Bonn, both of Fed. Rep. of Germany, assignors to Krautkrämer-Branson Incorporated, Stratford, Conn.

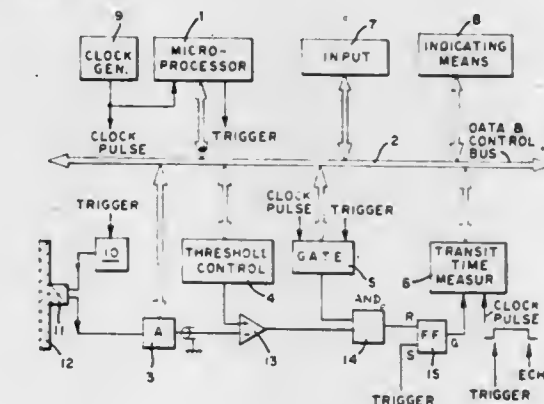
Filed Nov. 10, 1980, Ser. No. 205,302

Claims priority, application Fed. Rep. of Germany, Mar. 13, 1980, 3009574

Int. Cl.³ G01N 29/00

U.S. Cl. 364—565

5 Claims



1. The method for determining the acoustic velocity of a workpiece of known thickness by measuring the transit time of a first and of a second rear wall echo signal by utilizing an ultrasonic test instrument which includes an ultrasonic transmitter for providing an ultrasonic search pulse, a receiver circuit having adjustable amplifying means for processing received echo signals, an adjustable gate circuit for providing a gated time interval during which an echo signal is registered by said receiver circuit, and a threshold voltage means for evaluating the amplitude of an echo signal registered during said gated time interval, the steps comprising:

providing a trigger pulse to said ultrasonic transmitter which responsive to the receipt of said trigger pulse produces an electrical transmit pulse;

applying said transmit pulse to a transducer probe coupled to a workpiece for causing an ultrasonic search signal to be transmitted into the workpiece responsive to said transmit pulse, and said probe subsequently receiving consecutive echo signals arising from said search pulse intercepting the rear wall of said workpiece and then being reflected sequentially at the front wall and rear wall of the workpiece; providing echo responsive electrical signals from said probe to said receiver circuit and adjusting said gate circuit to cause the first rear wall echo responsive signal following said transmit pulse to be registered within a gated time interval by setting the start of said gate circuit in accordance with $t_{BA} = S_{MAT}/C_0$;

setting said amplifying means to a predetermined reference gain level and changing such setting to cause the amplitude of said first rear wall echo responsive signal to exceed within said gated interval a predetermined threshold amplitude of said threshold voltage means;

measuring the time interval between the start of the trigger pulse and the time at which said first rear wall responsive echo signal exceeds said predetermined threshold amplitude and storing such time interval value;

setting said amplifying means to said predetermined reference gain level;
 adjusting said gate circuit to cause the second rear wall echo responsive signal to be registered within a gated time interval by setting the start of the gate circuit in accordance with $t_{BA} = t_{BA} + T_1$;
 changing the setting of said amplifying means to cause the amplitude of said second rear wall echo responsive signal to exceed said predetermined threshold amplitude of said threshold means;
 measuring the time interval between the start of the trigger pulse and the time at which said second rear wall echo responsive signal exceeds said predetermined threshold amplitude, and
 calculating the acoustic velocity of the workpiece from the respective time interval values using the formula:

$$C_M = (2 \cdot S_{MAT}) / (T_2 - T_1)$$

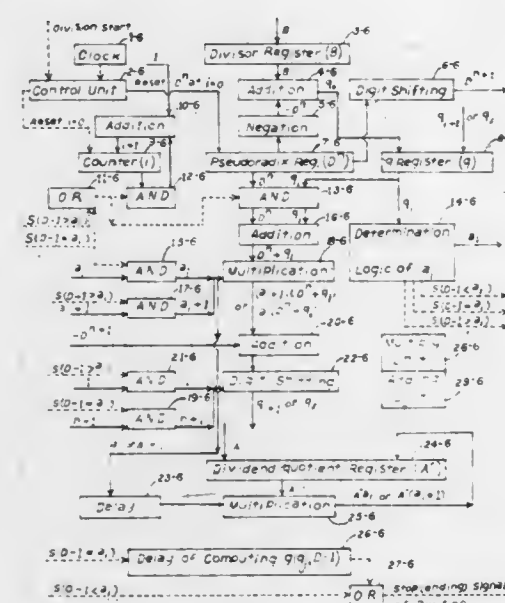
wherein C_M is the acoustic velocity of the workpiece, S_{MAT} is the known thickness of the workpiece, T_2 is the time interval value pertaining to the second rear wall echo responsive signal, T_1 is the time interval value pertaining to the first rear wall echo responsive signal, t_{BA} is the start of the gated time interval for the first rear wall echo responsive signal measured from the start of the trigger pulse, C_0 is an arbitrarily selected acoustic velocity value greater than the velocity to be determined, and t'_{BA} is the start of the gated time interval for the second rear wall echo responsive signal measured from the start of the trigger pulse.

4,364,115

APPARATUS FOR DIGITAL DIVISION COMPUTATION
 Hitohisa Asai, 892 Catalina Dr., Newport News, Va. 23602
 Continuation-in-part of Ser. No. 816,595, Jul. 18, 1977,
 abandoned. This application Nov. 9, 1978, Ser. No. 959,269
 Int. Cl.³ G06F 7/52

U.S. Cl. 364—765

10 Claims



SOLID LINE AND DOTTED LINE INDICATE DATA TRANSFERRING PATH AND CONTROL PATH, RESPECTIVELY, AND THE PARENTHESES IN EACH REGISTER INDICATE THE CONTENT OF THE REGISTER

1. Apparatus for digital division computation for producing a quotient by performing successive multiplication operations comprising:
 control means comprised of sequential circuitry for performing digital divisional operations to obtain a reciprocal of a constant,
 divisor register means comprised of a row of associated flipflops for receiving and storing a digital divisor quantity B,
 dividend/quotient register means comprised of a row of

associated flipflops for receiving and storing a digital dividend quantity A,
 means for simultaneously transmitting a digital divisor quantity B to said divisor register means and a digital dividend quantity A to said dividend/quotient register means,
 multiplication means for iteratively determining initially digital acceleration constants a_i and secondly digital quantities q_i computed successively from digital contents of a pseudoradix/q register comprised of two rows of associated flipflops,

counter means comprised of structured circuitry which performs the operation of counting the number of signals with feedback loops responsive not only to its present input but also to inputs that may have been presented previously,

adding means comprised of sequential logical circuitry which performs the operation of adding two digital quantities,

multiplying means comprised of sequential logical circuitry which performs the operation of multiplying two digital quantities,

determination logic a_i means for determining the acceleration constant a_i from the received digital quantity q_i ,
 said multiplication means being interconnected iteratively with said divisor register means to receive and store a digital pseudoradix D^n and a digital quantity q_i in said pseudoradix/q register,

means for transmitting a signal from said control means to said determination logic a_i means to initiate said iterative process to sequentially transmit a signal each time from said determination logic a_i means,

means for performing a digital evaluation process of the function $q_{i+1} = h_n + (q_i a_i) = -\{D^{n+1} + i - (a_i + 1)(D^{n+1} + q_i)\} / D^{n+1}$ for $i = 0, 1, 2, \dots$ where $q_0 = B - D^n$,

said control means initiating said counter means to count by one each time when said determination logic a_i means sends a signal $s(D-1 > a_i)$ when the condition $D-1 > a_i$ occurs, said control means actuating said determination logic a_i means to multiply the content of said dividend/quotient register by the digital quantity, one plus a digital acceleration constant from determination logic a_i means, said iterative process continuing until a digital quantity q_i representative of the smallest possible fraction of B, is determined by performing a digital evaluation of the function $q_f = g_n + (q_i a_i) = \{D^{n+1} + i - a_i(D^{n+1} + q_i)\} / D^{n+1} + i$ and a completion of the multiplying operation of the content of said dividend/quotient register by the acceleration constant when a signal $s(D-1 = a_i)$ is generated by said determination logic a_i means when the condition $D-1 = a_i$ occurs where q_i and a_i denote the last iterative values,

said multiplication means actuating said control means to bypass said iterative process when a signal $s(D-1 > a_0)$ is generated from said determination logic a_i means when the condition $D-1 > a_0$ occurs, namely when the present content of said pseudoradix/q register which contains said quantity q_0 becomes said quantity q_i ,

a determination logic b_k means which, upon receipt of digital quantity q_k , is activated by said control means to sequentially provide a digital acceleration factor b_k by the process of a squaring operation $Q_{k+1} = Q_k^2$ and adding operation $b_k = 1 + Q_{k+1}$ for $k = 0, 1, 2, \dots$ where $b_0 = 1 - q_f$ and $Q_0 = q_f$ and

means for transmitting said acceleration factor b_k to said dividend/quotient register means to sequentially multiply it with the present content of said dividend/quotient register means until a predetermined digital accuracy of the quotient has been accumulated when a signal $s(Q_{k+1} \leq C)$ is generated by said determination logic b_k means when the condition $Q_{k+1} \leq C$ occurs where C denotes a digital quantity less than the least significant digit of said divisor register.

4,364,116

SWITCHED-CAPACITOR FILTER CIRCUIT HAVING AT LEAST ONE SIMULATED INDUCTOR

Josef Nossek, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

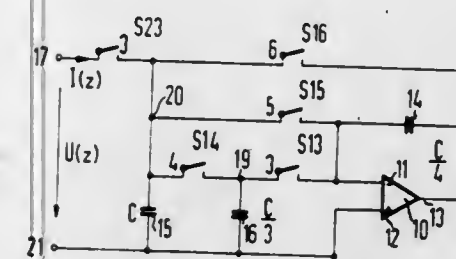
Filed Jul. 30, 1980, Ser. No. 173,759

Claims priority, application Fed. Rep. of Germany, Aug. 9, 1979, 2932419; Jan. 21, 1980, 3002056

Int. Cl.³ G06G 7/62

U.S. Cl. 364—825

9 Claims



1. In a switched-capacitor filter circuit having first and second input terminals and an operational amplifier having a capacitor connected between the output and the inverting input thereof, said operational amplifier further having a non-inverting input connected to a reference potential, the improvement of:

a first clock pulse-controlled switch interconnected between the inverting input of said operational amplifier and a first circuit node;
 a first capacitor interconnected between said first circuit node and said reference potential;
 a second clock pulse-controlled switch interconnected between said first circuit node and a second circuit node;
 a second capacitor interconnected between said second circuit node and said reference potential;
 a third clock pulse-controlled switch interconnected between the inverting input of said operational amplifier and said second circuit node;
 a fourth clock pulse-controlled switch interconnected between the output of said operational amplifier and said second circuit node; and
 a fifth clock pulse-controlled switch interconnected between said second circuit node and said first input terminal, said first and fifth clock pulse-controlled switches being closed during a first clock pulse and said second, third and fourth clock pulse-controlled switches being respectively closed during a second, a third, and a fourth clock pulse, said first, second, third and fourth clock pulses being sequential and non-overlapping.

4,364,117

SHOCK-HARDENED, HIGH PRESSURE CERAMIC SONAR TRANSDUCER

Gordon L. Snow, Salt Lake City, Utah, assignor to Edo Western Corporation, Salt Lake City, Utah

Filed Apr. 14, 1980, Ser. No. 140,156

Int. Cl.³ H04R 17/00

U.S. Cl. 367—152

18 Claims

1. A shock-hardened high pressure sonar transducer comprising:

a housing made from a first material having an open front, said housing being capable of withstanding high pressures and severe mechanical shock without damage resulting thereto;
 a flexible cover sealed over and around said open front thereby creating a sealed-over front of said housing;
 a fluid disposed inside of said housing for coupling pressures throughout the inside of said housing, said fluid being inserted into said housing under pressure;
 acoustic impedance mismatch means selectively placed on the inside of said housing for causing said transducer to

assume a desired directivity pattern wherein substantially all of the sonar signals associated with the operation of said transducer must be received or transmitted through the sealed-over front of said housing;

protection means for shielding said acoustic impedance mismatch means from direct contact with said pressurized fluid; and

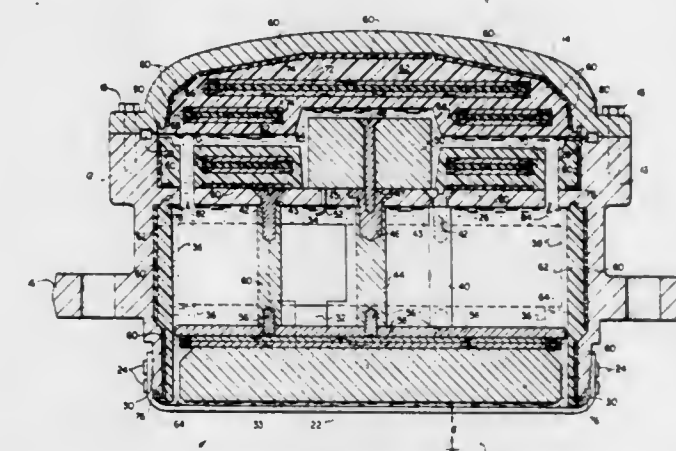
transducer means mounted inside said housing for sensing and generating sonar signals, said transducer means comprising

a plurality of piezoelectric stacks, each having front and rear ends, and each adapted to undergo a dimensional change when stressed electrically and to generate an electrical signal when stressed mechanically;
 a single front mass attached directly to the front ends of each of said stacks;
 respective rear masses attached directly to the rear ends of each of said stacks;

means for allowing said pressurized fluid to flow around and inside of said stacks;
 means for making electrical contact with said stacks, said means adapted to allow external electrical signals to electrically stress said stacks and to further allow electrical signals generated by mechanical stress of said stacks to be externally sensed.

11. A shock-hardened, high pressure ceramic sonar transducer comprising:

a housing having an open end;



a lining made of an acoustic impedance mismatch material affixed to at least a portion of the inside walls of said housing for causing the transducer to exhibit a desired directivity pattern wherein substantially all of the sonar signals associated with the operation of the transducer are received or transmitted through the open end of said housing;

a flange protruding inwardly around the inside wall of said housing;

a plurality of piezoelectric ceramic stacks attached to said flange with a front end of each of said stacks facing said open end of said housing, each of said stacks having electrical contact made therewith via an electrical conductor;

a front mass attached to the front ends of said ceramic stacks;

a flexible cover sealed over said open end of said housing, thereby creating a sealed-over front end of said housing;

a transformer mounted to said flange and electrically coupled to said electrical conductor;

means for making external electrical contact with said transformer through said housing;

a plurality of laminated baffle boards positioned near a rear end of said ceramic stacks, said baffle boards being comprised of material that exhibit a desired acoustic impedance;

a dehydrated, nonconductive oil disposed under pressure inside of said housing for transferring, equalizing, and distributing pressures within said transducer; and

a covering material selectively placed inside of said housing to cover said lining material and shield it from contact with the oil and to hold and maintain said baffle boards in a desired position.

4,364,118

OPTICAL DISK AND OPTICAL INFORMATION PROCESSOR

Takeshi Maeda, Kokubuji; Kazuo Shigematsu, Kawasaki, and Seiji Yonezawa, Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

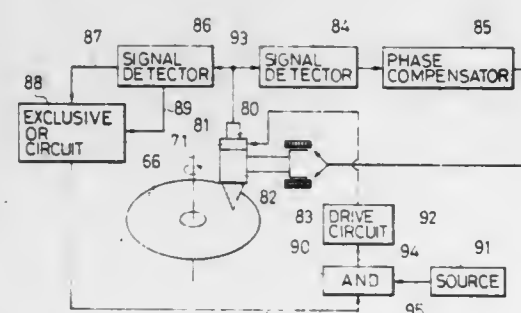
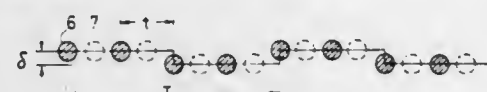
Filed Jun. 17, 1980, Ser. No. 160,199

Claims priority, application Japan, Jun. 25, 1979, 54-79210; Apr. 16, 1980, 55-49235

Int. Cl.³ G11B 7/00, 21/04

U.S. Cl. 369-44

6 Claims



1. In an optical disk having a recording medium which is capable of recording an information signal in a form permitting the information signal to be optically reproduced; a plurality of guide pits recorded in said recording medium at periodic intervals in a line which minutely wobbles in a rotating direction of said disk at a predetermined frequency, said line of guide pits forming a guide groove to be used for tracking control, and further including information pits designating predetermined information additionally recorded in said recording medium in the intervals between guide pits of said line of guide pits forming said guide groove.

4,364,119

VIDEO DISC PLAYER WITH RFI REDUCTION CIRCUIT INCLUDING A SIGNAL PRODUCT GENERATOR

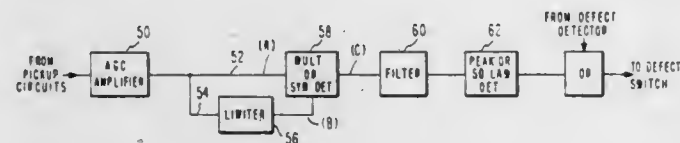
John J. Gibson, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 21, 1980, Ser. No. 208,982

Int. Cl.³ H04N 5/80

U.S. Cl. 369-126

9 Claims



1. In a video disc player of the type having: pickup apparatus for recovering an information signal recorded on a disc in the form of a modulated carrier signal; demodulation apparatus coupled to said pickup apparatus for demodulating said modulated carrier; defect detection apparatus coupled to said pickup apparatus for detecting defects in the recovered signal; and defect compensation apparatus coupled to said demodulation apparatus and to said defect detection apparatus and responsive to the operation of the defect detection apparatus for providing a substitute signal in place of the recovered signal in the

playback display of said information signals during occurrences of defects in the recovered signal; said player being subject to interference with normal playback display operations due to the pickup of unrecorded, externally applied signals; apparatus for reducing the influence of said external signals comprising:

amplifier means connected to said pickup apparatus; first and second conductive paths responsive to the signals provided by said amplifier means, said first conductive path including a signal limiter; product generation means responsive to the signals on said second path and to the signals provided by said limiter for providing a signal corresponding to the product of the signals applied thereto; filter means responsive to said product signal for providing a filtered signal; signal detector means responsive to said filtered signal for providing a detected signal indicative of the influence of the extraneous signal present at the output of said pickup apparatus; and means for coupling the detected output signal to said defect compensation apparatus.

4,364,120

PICKUP CARTRIDGE OF MOVING COIL TYPE FOR PHONOGRAPH

Kimiyasu Honma, Machida, Japan, assignor to Kabushiki Kaisha Audio-Technica, Tokyo, Japan

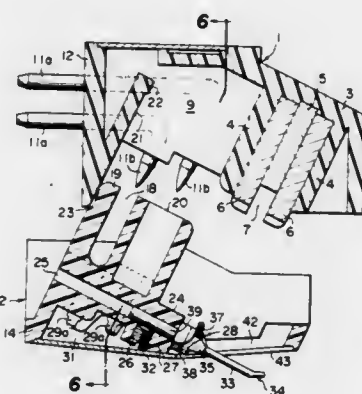
Filed Sep. 24, 1979, Ser. No. 78,136

Claims priority, application Japan, Oct. 6, 1978, 53-123396

Int. Cl.³ H04R 9/04, 9/16

U.S. Cl. 369-138

7 Claims



1. A replaceable stylus assembly for attachment to another phonograph cartridge portion, said stylus assembly comprising a body having a bottom wall and a pair of side walls, an upstanding post on said body projecting upwardly from said bottom wall and above said side walls to fit into a recess in the said other cartridge portion; a cantilever arm projecting downwardly and forwardly from said body; a stylus tip on an outer free end of said cantilever arm; armature means including a pair of rods of magnetic material projecting upwardly from said cantilever with the axes of the rods lying in a plane perpendicular to the axes of the cantilever arm and each forming an angle of 45° with respect to an imaginary vertical plane through the axis of the cantilever arm; a coil on each of said rods; said side walls defining a downwardly opening cavity in said body to admit pole pieces into close proximity to said coils on said rods; electrical connector means disposed on each side of said upstanding post for connection to electrical connectors on said other cartridge portion; and electrical lead means extending between said coils and said electrical connector means disposed on each side of said upstanding post.

4,364,121

PICKUP CARTRIDGE FOR VIDEO DISC PLAYER

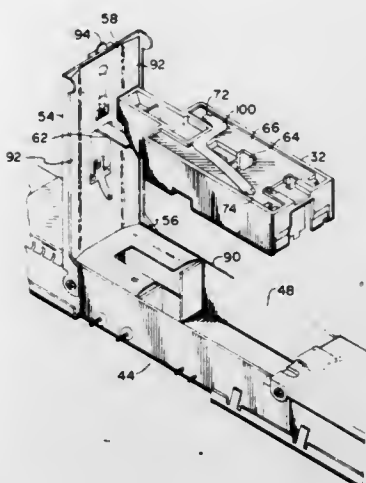
Myron C. Stewart, Coatesville, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Jan. 5, 1981, Ser. No. 222,416

Int. Cl.³ G11B 25/04

U.S. Cl. 369-256

5 Claims



1. A cartridge for use with a video disc player for recovering prerecorded signals disposed on a disc record by means of a pickup device; said pickup device being housed in said cartridge; said cartridge having a top surface and a plurality of peripheral surfaces; said player including a translatable carriage having a compartment for housing said cartridge; said carriage compartment having a bottom wall with an aperture through which said pickup device extends for record engagement, and side walls for enclosing said cartridge; said carriage compartment further having a cartridge access door subject to disposition in an open position and a closed position; said carriage further housing a source of RF energy coupled to said pickup device for sensing said prerecorded signals; said walls of said cartridge compartment and said access door having a conductive property for substantially confining said RF energy to said compartment; the top edges of said side walls of said cartridge compartment being continuous and subject to engagement with the underside of said access door; when said access door is closed, to reduce RF energy leakage; the spacing between said top edges of said side walls of said cartridge compartment and the periphery of said cartridge, upon its reception in said compartment, being such that the grasping of said peripheral surfaces of said cartridge directly with human

fingers is precluded; said cartridge having handling means disposed on said top surface thereof for facilitating placement and removal of said cartridge into and from said compartment when said access door is opened; said cartridge handling means comprising a substantially planar flexible strip having its ends attached to said top surface of said cartridge.

4,364,122

X-RAY DIFFRACTION METHOD AND APPARATUS

Erich R. Wölfel, Mozartweg 1b, D-6100 Darmstadt, and Hans-Georg Diercks, Willersweg 34d, D-2000 Hamburg 62, both of Fed. Rep. of Germany

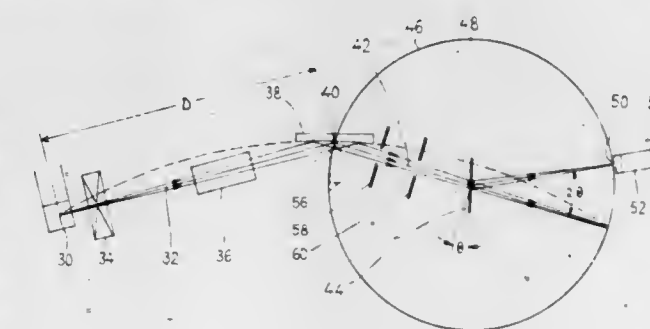
Filed Aug. 15, 1980, Ser. No. 178,442

Claims priority, application Fed. Rep. of Germany, Aug. 16, 1979, 2933047

Int. Cl.³ G01N 23/20

U.S. Cl. 378-73

24 Claims



1. In an X-ray diffraction method for determining the structure of a polycrystalline or liquid substance, which method includes focusing an X-ray beam by curved monochromator means onto the periphery of a circle, arranging a specimen sample of the substance in the center of the circle so that it is rotatable around an axis that is perpendicular to the plane of the circle, and measuring the structure dependent angles and intensities of the X-rays diffracted by the specimen sample by a detector means located at the periphery of the circle, the improvement comprising arranging said circle so that its periphery intersects the center of said monochromator means.

DESIGN PATENTS

GRANTED DEC. 14, 1982

ERRATA

For
CLASS

See
PATENT NO.

D23-138	267,223
D34-021	267,243

DESIGNS

DECEMBER 14, 1982

267,206

CHASUBLE

Dirk E. E. Slabbinck, c/o Kunststateliers Slabbinck P.V.B.A., Lieven Bauwensstraat, 18 Brugge, Belgium

Filed Apr. 14, 1980, Ser. No. 140,083

Claims priority, application Belgium, Nov. 9, 1979, 1993-01

Term of patent 14 years

Int. Cl. D2—02

U.S. Cl. D2—79



267,207

WELDER'S HELMET

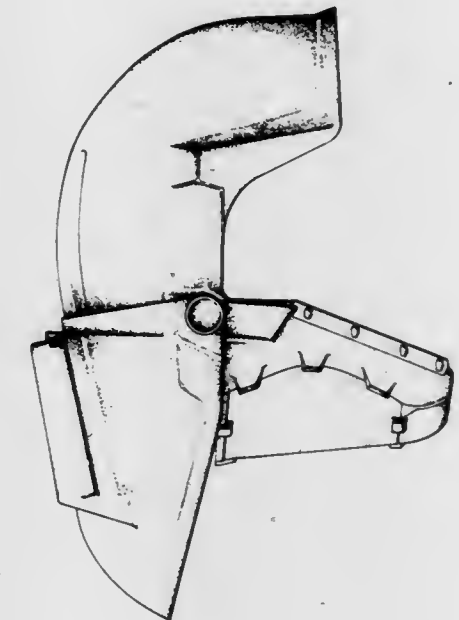
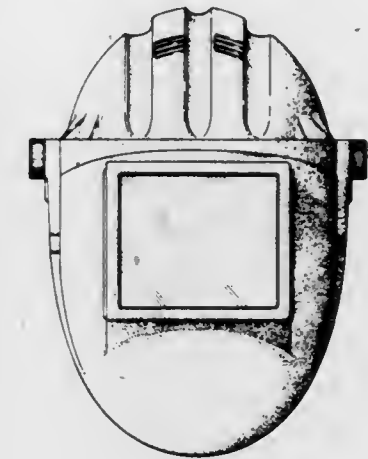
Joseph R. Hilton, Guildford, England, assignor to Racal Corporation, Rockville, Md.

Filed Oct. 17, 1980, Ser. No. 198,166

Term of patent 14 years

Int. Cl. D2—03

U.S. Cl. D2—232



267,208
HAT

Ronald J. Denison, 6652 Las Animas Dr., Martinez, Calif. 94553
Filed Aug. 18, 1980, Ser. No. 178,975
Term of patent 14 years
Int. Cl. D2-03

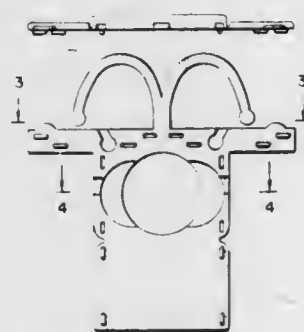
U.S. Cl. D2-252



267,209
TWIN LOCK KEY RING

Hanns W. Beier, 26 Clove Brook Rd., Valhalla, N.Y. 10595
Filed Dec. 11, 1980, Ser. No. 215,242
Term of patent 7 years
Int. Cl. D3-01

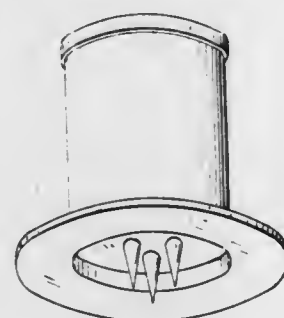
U.S. Cl. D3-61



267,210
SNOWMAN HAT CONTAINER

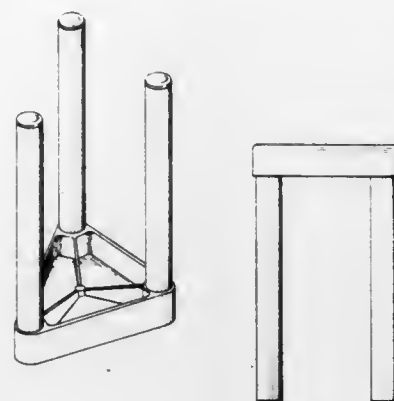
Brian P. Schwuchow, 2110 W. 3rd. St., Hobart, Ind. 46342
Filed Jan. 26, 1981, Ser. No. 228,287
Term of patent 14 years
Int. Cl. D3-02

U.S. Cl. D3-66



267,211
SHOWER STOOL OR SIMILAR ARTICLE
Roy C. Farrell, Herring Bldg. #400, Vernon, Tex. 76384
Filed Apr. 21, 1980, Ser. No. 141,772
Term of patent 14 years
Int. Cl. D6-01

U.S. Cl. D6-55



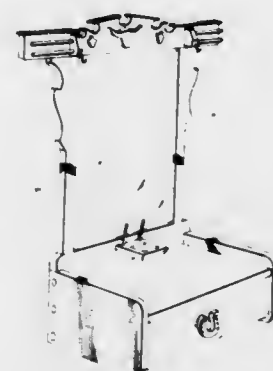
267,212
MAGNETIC RACK FOR POT HOLDERS
Ruediger Einhorn, Katonah, and Lee R. Chasen, Port Chester, both of N.Y., assignors to Coats & Clark, Inc., Stamford, Conn.

Filed Oct. 16, 1980, Ser. No. 197,636
Term of patent 14 years
Int. Cl. D6-06; D11-02
U.S. Cl. D6-114



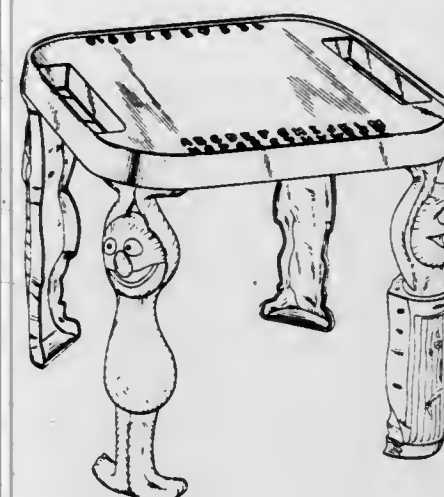
267,213
COMBINED VALET WALL RACK AND DRAWER UNIT
David Nusz, 2025 W. Mark, Layton, Utah 84041
Continuation-in-part of Ser. No. 67,837, Aug. 20, 1979, Pat. No. Des. 260,586, which is a continuation-in-part of Ser. No. 974,128, Dec. 26, 1978, Pat. No. Des. 257,303. This application Sep. 12, 1980, Ser. No. 186,524
Term of patent 14 years
Int. Cl. D6-04

U.S. Cl. D6-123



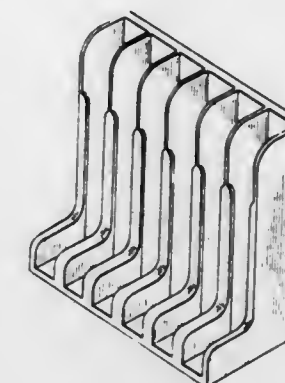
267,214
GAME TABLE OR SIMILAR ARTICLE
Henry Orenstein, 136 Lakeside Ave., Verona, N.J. 07044
Filed May 12, 1980, Ser. No. 148,708
Term of patent 3 1/2 years
Int. Cl. D6-03

U.S. Cl. D6-152



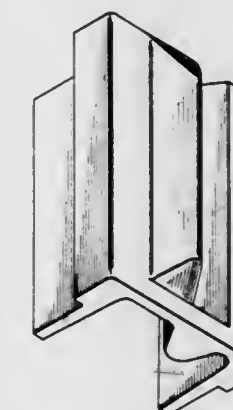
267,216
CASSETTE HOLDER
Milton D. Swan, 4417 Red Maple Ct., Concord, Calif. 94521
Filed Jul. 22, 1980, Ser. No. 171,167
Term of patent 14 years
Int. Cl. D6-04

U.S. Cl. D6-189



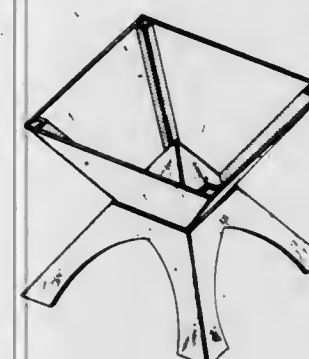
267,217
UNIVERSAL END CAP FOR A MOVABLE WALL PANEL
Dean S. White, and Scott A. Shaffer, both of New Castle, Ind., assignors to American Standard Inc., New York, N.Y.
Filed Dec. 15, 1980, Ser. No. 216,592
Term of patent 14 years
Int. Cl. D6-99

U.S. Cl. D6-191



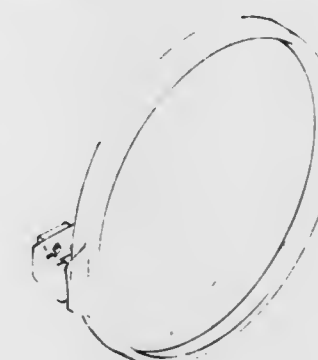
267,215
PLANTER
Paul D. Peterson, 3310 Azahar Pl., Rancho La Costa, Calif. 92008
Division of Ser. No. 76,474, Sep. 17, 1979, Pat. No. Des. 263,187. This application Feb. 4, 1982, Ser. No. 345,579
Term of patent 14 years
Int. Cl. D6-06; D11-02

U.S. Cl. D6-183



267,218
PIVOTING WALL MIRROR
Bruce R. Thompson, Tranmere, Australia, assignor to UPL Group Limited, Brisbane, Australia
Filed Feb. 13, 1980, Ser. No. 121,242
Term of patent 14 years
Int. Cl. D6-07

U.S. Cl. D6-243



267,219

SIMULATIVE PICTURE FRAME

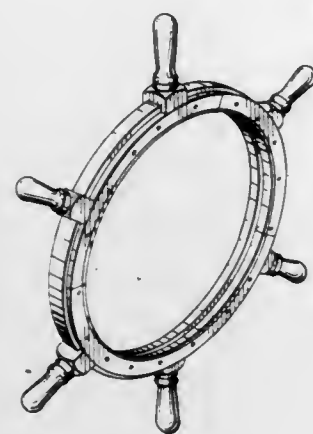
Daniel C. McNamara, 419 W. Fairbanks Ave., Winter Park, Fla. 32789

Filed Oct. 27, 1980, Ser. No. 201,144

Term of patent 14 years

Int. Cl. D6—07

U.S. Cl. D6—243



267,221

ROASTER

Bruce F. Williams, Toronto, Canada, assignor to American Home Products Corporation, New York, N.Y.

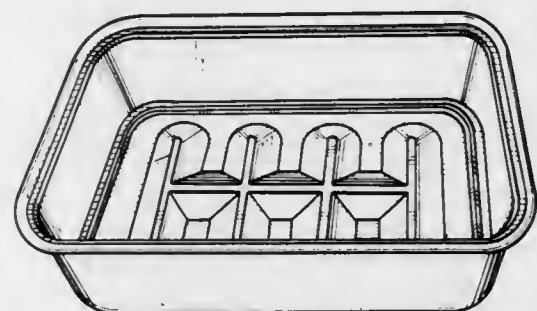
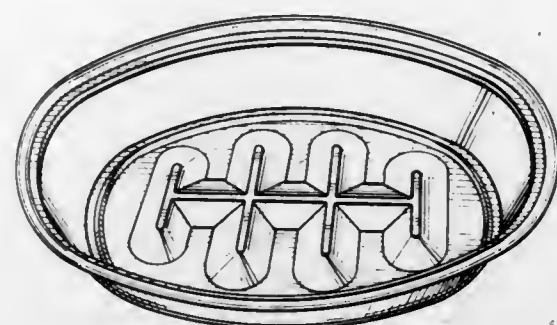
Filed Nov. 3, 1980, Ser. No. 203,859

Claims priority, application Canada, May 2, 1980, 02-05-80-7

Term of patent 14 years

Int. Cl. D7—02

U.S. Cl. D7—359

267,220
COASTER

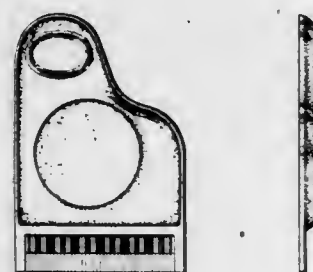
Richard B. Cronheim, St. Louis, Mo., assignor to Aluminum Housewares Co., Inc., Maryland Heights, Mo.

Filed Nov. 17, 1980, Ser. No. 207,150

Term of patent 14 years

Int. Cl. D7—06

U.S. Cl. D7—45



267,222

MICRO-WAVE OVEN

Masamichi Yamamura, Osaka; Toshio Harada, and Michio Tanaka, both of Nara, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

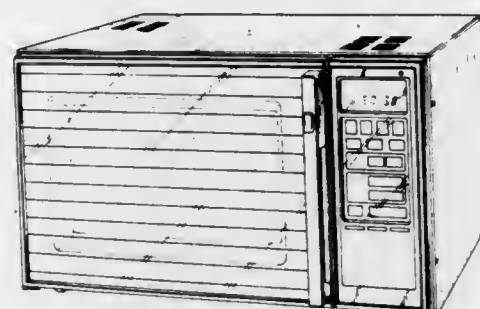
Filed Dec. 18, 1980, Ser. No. 217,882

Claims priority, application Japan, Jul. 3, 1980, 55-26650

Term of patent 14 years

Int. Cl. D7—02

U.S. Cl. D7—351



267,223

FIREPLACE GRATE

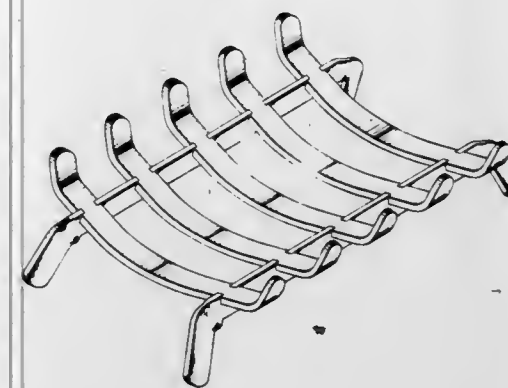
Robert D. Hassett, Prospect, Ky.; Robert C. Dew, New Albany, Ind., and Clifford E. Wieting, Louisville, Ky., assignors to S & T Industries, Inc., Louisville, Ky.

Filed Dec. 15, 1980, Ser. No. 216,551

Term of patent 14 years

Int. Cl. D7—08

U.S. Cl. D23—138.5



267,224

PNEUMATIC SUPPORT FRAME FOR A ROTARY SANDER

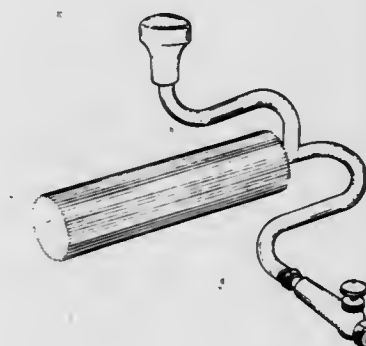
Ernest M. Rogers, 1360 E. 71st St., Los Angeles, Calif. 90001

Filed Nov. 4, 1977, Ser. No. 848,456

Term of patent 14 years

Int. Cl. D8—03

U.S. Cl. D8—62



267,225

HAND SAW

Hiroji Shimizu, Miki, Japan, assignor to Shin Nihon Kinzoku Kabushiki Kaisha, Miki, Japan

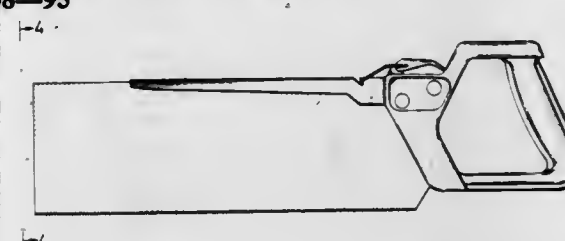
Filed Aug. 22, 1980, Ser. No. 180,516

Claims priority, application Japan, May 19, 1980, 55-19759

Term of patent 14 years

Int. Cl. D8—03

U.S. Cl. D8—95



267,226

COMBINED WALL PLATE AND COVER

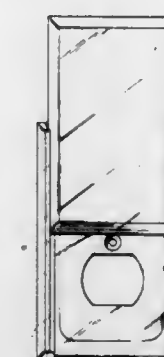
Stanley Oster, 8120 NW. 73rd Ter., Tamarac, Fla. 33319

Filed Aug. 16, 1979, Ser. No. 67,095

Term of patent 14 years

Int. Cl. D8—09

U.S. Cl. D8—353



267,227

SUPPORT BRACKET FOR A GAS CYLINDER

Theodore Ziaylek, Jr., Yardley, Pa., assignor to Ziamatic Corporation, Yardley, Pa.

Filed Jul. 28, 1980, Ser. No. 172,578

Term of patent 14 years

Int. Cl. D6—04; D8—08

U.S. Cl. D8—373



267,228

WEDGE FASTENER

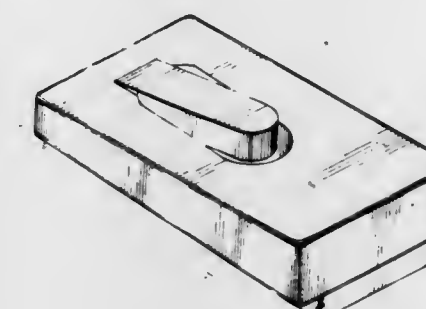
William H. Channell, 122 Oak Tree Dr., Glendora, Calif. 91740

Filed Jun. 17, 1980, Ser. No. 160,210

Term of patent 14 years

Int. Cl. D8—08

U.S. Cl. D8—382



267,229
SNAP HOOK

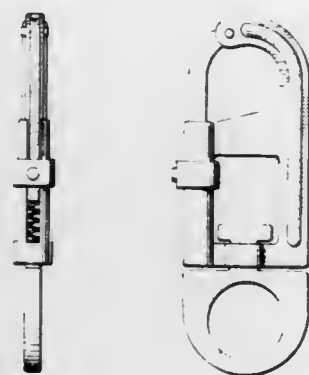
Alexander Garcia, Berlin, Conn., assignor to Gulf & Western Manufacturing Company, Southfield, Mich.

Filed Jul. 3, 1980, Ser. No. 165,899

Term of patent 14 years

Int. Cl. D8—08

U.S. Cl. D8—382



267,231
SKI POLE CLIP

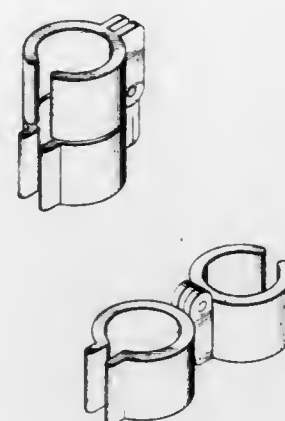
Thomas E. Guem, Jr., 3158 Grand View Blvd., Los Angeles, Calif. 90066

Filed Nov. 9, 1979, Ser. No. 93,147

Term of patent 14 years

Int. Cl. D8—08; D21—02

U.S. Cl. D8—395



267,232
BOTTLE

Diane C. Balich, Sturges Rd., Henderson, Auckland, New Zealand

Filed Nov. 7, 1979, Ser. No. 91,202

Claims priority, application New Zealand, May 29, 1979, 16078

Term of patent 14 years

Int. Cl. D9—01

U.S. Cl. D9—311



267,230
SNAP HOOK

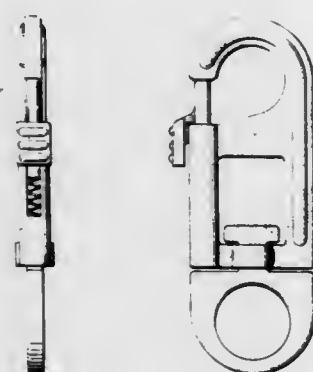
Paul A. LaViolette, North Haven, Conn., and Anthony Caccioli, Longmeadow, Mass., assignors to Gulf & Western Manufacturing Company, Southfield, Mich.

Filed Jul. 3, 1980, Ser. No. 165,900

Term of patent 14 years

Int. Cl. D8—08

U.S. Cl. D8—382



267,233
BOTTLE

Katashi Aoki, 6037 Ohazaminamijo, Sakaki-machi, Hanishina-gun, Nagano-ken, Japan

Filed Oct. 16, 1980, Ser. No. 197,557

Claims priority, application Japan, Apr. 18, 1980, 55-15329

Term of patent 14 years

Int. Cl. D9—01

U.S. Cl. D9—370



267,236
CLOCK

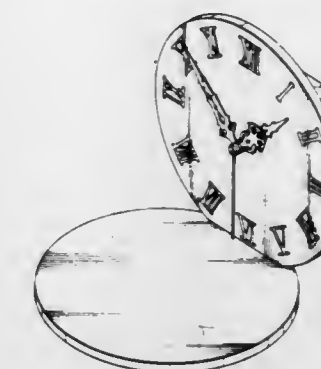
George A. Kemper, Jr., P.O. Box 745, Marble Falls, Tex. 78654

Filed Dec. 22, 1980, Ser. No. 219,354

Term of patent 14 years

Int. Cl. D10—01

U.S. Cl. D10—23



267,237
WATCH

Joseph Kanoui, Geneva, Switzerland, assignor to Interdica S.A., Villars-sur-Glane, Switzerland

Filed Jul. 7, 1980, Ser. No. 166,745

Claims priority, application Hague, Jan. 7, 1980, 69 774

Term of patent 14 years

Int. Cl. D10—02

U.S. Cl. D10—39



267,234
DISPENSING CONTAINER FOR PILLS OR THE LIKE

Hans-Göran H. Lunden, Södertälje, Sweden, assignor to Astra-Syntex Scandinavia Aktiebolag, Södertälje, Sweden

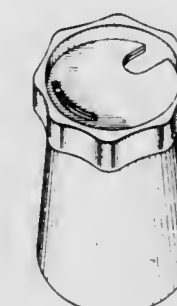
Filed Jun. 20, 1980, Ser. No. 161,226

Claims priority, application Sweden, Dec. 20, 1979, 79-2782

Term of patent 14 years

Int. Cl. D9—01

U.S. Cl. D9—389



267,235
DIGITAL PENDULUM CLOCK

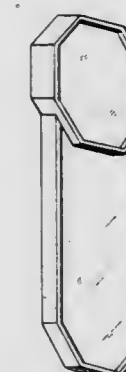
Anthony R. Tumeo, 8625 Hillary Dr., San Diego, Calif. 92126

Filed Sep. 27, 1979, Ser. No. 79,390

Term of patent 14 years

Int. Cl. D10—01

U.S. Cl. D10—15



267,238
CARBOHYDRATE-CALORIE RECORDER

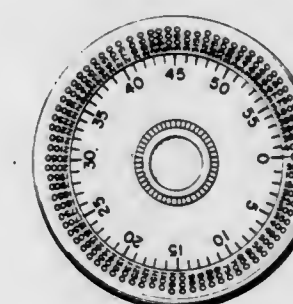
Carl M. Schafer, 1887 Hannibal Dr., Lafayette, Calif. 94549, assignor to Carl M. Schafer, Lafayette, Calif.

Filed Oct. 7, 1980, Ser. No. 192,094

Term of patent 14 years

Int. Cl. D10—04

U.S. Cl. D10—97



267,239

WATCH CRYSTAL PROTECTOR

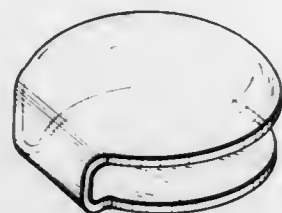
Norman H. Allen, North Scituate, R.I., assignor to RAS Industries, Inc., Providence, R.I.

Filed Oct. 20, 1980, Ser. No. 199,036

Term of patent 14 years

Int. Cl. D10-07

U.S. Cl. D10-132



267,240

METAL SCULPTURE

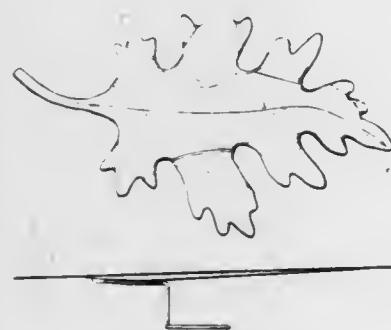
Donald R. Ditto, Rte. 2, Box 60F2, Winnsboro, Tex. 75494

Filed Nov. 28, 1980, Ser. No. 211,387

Term of patent 14 years

Int. Cl. D11-02

U.S. Cl. D11-157



267,241

EARRING

Marina Bulgari, Nafpaktos, Greece, assignor to Zoldia Anstalt, Vaduz, Liechtenstein

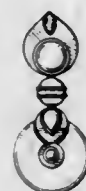
Filed Feb. 21, 1979, Ser. No. 13,314

Claims priority, application Switzerland, Aug. 24, 1978, 110058

Term of patent 14 years

Int. Cl. D11-01

U.S. Cl. D11-75



267,242

STACKABLE UNIT FOR A SEED GERMINATING DEVICE

William L. Smith, and Robert B. Whitson, both of P.O. Box 853, Dyersburg, Tenn. 38024

Filed Dec. 31, 1979, Ser. No. 108,568

Term of patent 14 years

Int. Cl. D11-02

U.S. Cl. D11-155



267,243

HOSPITAL SUPPLY CART

Noel L. Jemas, Chesterfield, Mo., assignor to Affiliated Hospital Products, Inc., St. Louis, Mo.

Filed Sep. 27, 1979, Ser. No. 79,573

Term of patent 14 years

Int. Cl. D12-02

U.S. Cl. D34-21



267,244

TRAILER BODY

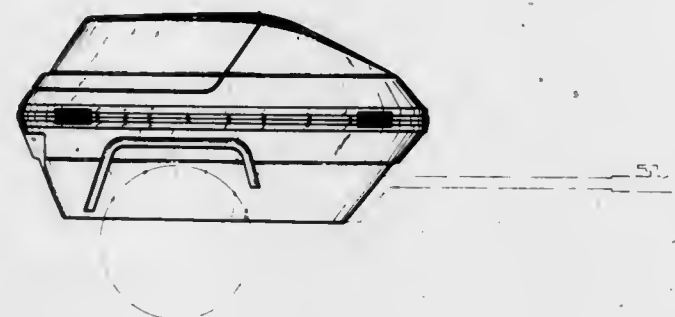
Donald J. Reid, Plymouth, Mich., assignor to Kelsey Hayes Co., Romulus, Mich.

Filed Dec. 22, 1980, Ser. No. 218,885

Term of patent 14 years

Int. Cl. D12-10

U.S. Cl. D12-102



267,245

MOTORCYCLE

Shinji Iwasaki, Tokyo, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Japan

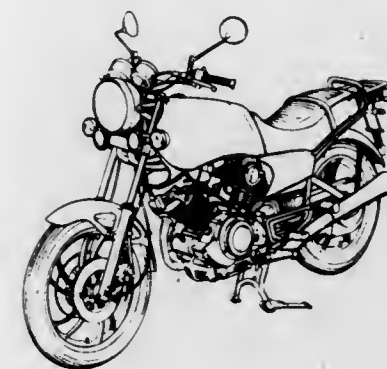
Filed Mar. 5, 1981, Ser. No. 240,802

Claims priority, application Japan, Sep. 6, 1980, 55-36784

Term of patent 14 years

Int. Cl. D12-11

U.S. Cl. D12-110



267,247

TIE DOWN BRACKET FOR LUGGAGE RACK

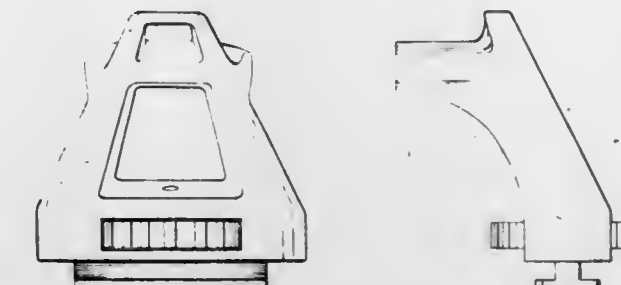
Ben C. Kowalski, Troy; Daniel J. Kowalski, Ortonville, and Douglas J. Ferguson, Davisburg, all of Mich., assignors to Four Star Corporation, Troy, Mich.

Filed Sep. 25, 1978, Ser. No. 945,257

Term of patent 14 years

Int. Cl. D12-16

U.S. Cl. D12-157



267,248

STEERING WHEEL, OR THE LIKE

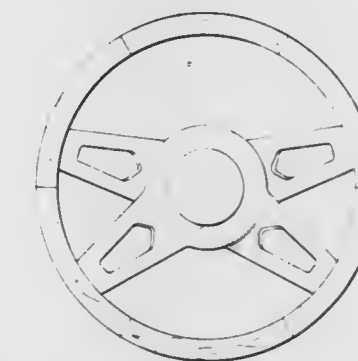
Tommy A. Poteet, Sylmar, Calif., assignor to Whittar Industries, Ltd., Bannockburn, Ill.

Filed Sep. 2, 1980, Ser. No. 183,351

Term of patent 14 years

Int. Cl. D12-16

U.S. Cl. D12-176



267,246

TIRE

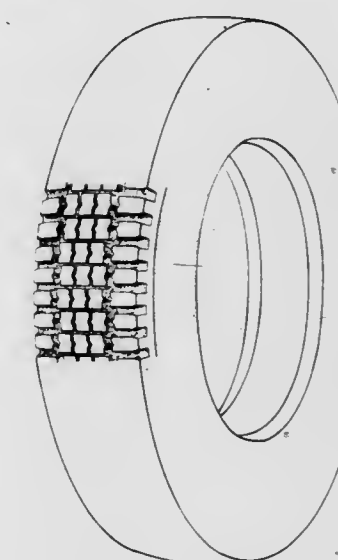
Philip S. Hammond, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Aug. 29, 1980, Ser. No. 182,558

Term of patent 14 years

Int. Cl. D12-15

U.S. Cl. D12-148



267,249

TRANSCIVER FOR A CAR TELEPHONE SET

Hisao Fukushima; Kimpei Yamauchi, and Junji Hirooka, all of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan

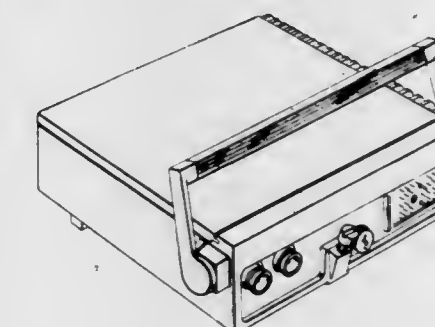
Filed Jun. 16, 1980, Ser. No. 159,507

Claims priority, application Japan, Dec. 25, 1979, 54-054179

Term of patent 14 years

Int. Cl. D14-03

U.S. Cl. D14-68



267,250

TIRE STRIPPING MACHINE OR THE LIKE

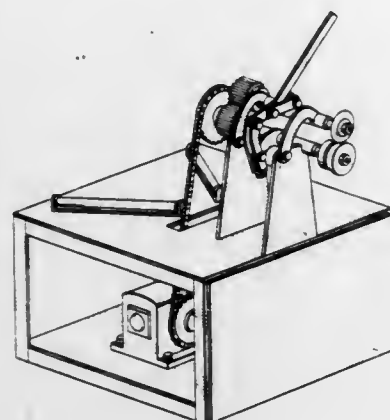
Ronald L. Meyer, 8710 Cory La., Boise, Id. 83704

Filed Oct. 14, 1980, Ser. No. 196,493

Term of patent 14 years

Int. Cl. D15-09

U.S. Cl. D15-130



267,252

CAMERA FLASH ATTACHMENT

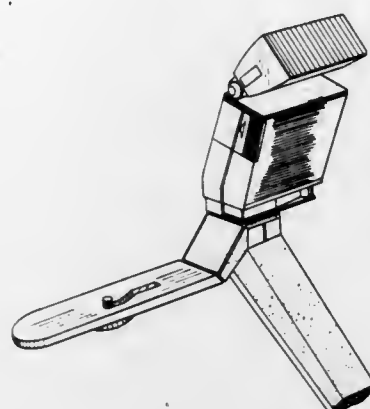
Peter T. Quinn, Littleton, Colo., assignor to Rollei of America, Inc., Littleton, Colo.

Filed Apr. 17, 1980, Ser. No. 141,143

Term of patent 14 years

Int. Cl. D16-05

U.S. Cl. D16-42



267,253

TYPEWRITING MACHINE

Mario Bellini, Milan, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Ivrea, Italy

Filed Oct. 16, 1980, Ser. No. 197,722

Claims priority, application Italy, Apr. 16, 1980, 53131-B/80[U]

Term of patent 14 years

Int. Cl. D18-01

U.S. Cl. D18-1



267,251

BRIEFCASE MICROFICHE READER

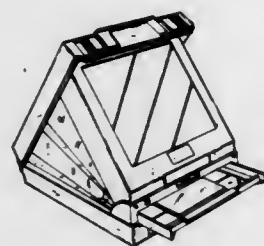
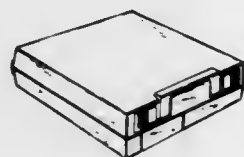
William T. Link, Berkeley, and Stephen Hobson, Palo Alto, both of Calif., assignors to Datagraphix, Inc., San Diego, Calif.

Filed Mar. 4, 1980, Ser. No. 127,263

Term of patent 14 years

Int. Cl. D16-03

U.S. Cl. D16-18



267,254

CONTROL KNOB FOR OFFICE MACHINES

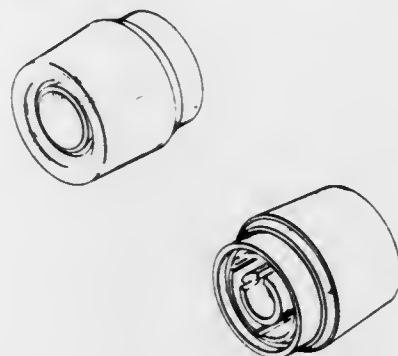
John E. Jolliffe, Manlius, N.Y., assignor to SCM Corporation, New York, N.Y.

Filed Oct. 31, 1980, Ser. No. 202,835

Term of patent 14 years

Int. Cl. D18-99

U.S. Cl. D18-12



267,255

CHECK

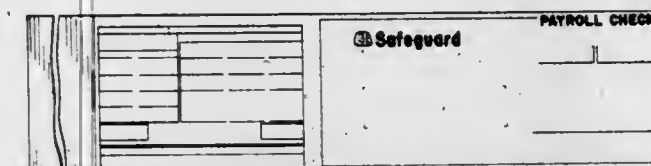
Vincent G. Bell, Jr., Berwyn; Thomas P. Burke, Harleysville, both of Pa.; George D. Margolin, Newport Beach, and Victor V. Vurpillat, Laguna Niguel, both of Calif., assignors to Centurion Data Corporation, King of Prussia, Pa.

Filed Feb. 21, 1978, Ser. No. 879,117

Term of patent 14 years

Int. Cl. D19-08

U.S. Cl. D19-11



267,258

TOY VEHICLE

Shinroku Nakao, Yokohama; Yoshiyasu Ishii, Tokyo; Susumu Matsumoto, Tokyo, and Kiyoshi Hoshino, Tokyo, all of Japan, assignors to Combi Co., Ltd., Tokyo, Japan

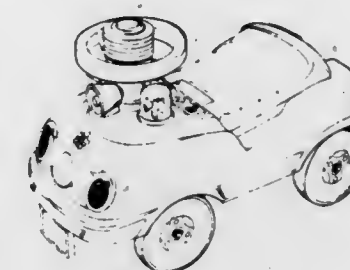
Filed Oct. 24, 1980, Ser. No. 200,355

Claims priority, application Japan, Aug. 8, 1980, 55-32406

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D21-78



267,256

COMBINED CLIP AND SLIDERS FOR A WRITING INSTRUMENT

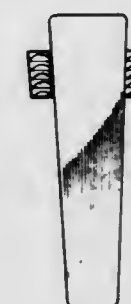
Nathan A. Zepell, 1359 Santa Teresita, Santa Barbara, Calif. 93101

Continuation-in-part of Ser. No. 899,004, Apr. 21, 1978, abandoned. This application Feb. 4, 1980, Ser. No. 117,871

Term of patent 14 years

Int. Cl. D19-06

U.S. Cl. D19-56



267,259

TOY VEHICLE

Shinroku Nakao, Yokohama; Yoshiyasu Ishii, Tokyo; Susumu Matsumoto, Tokyo, and Kiyoshi Hoshino, Tokyo, all of Japan, assignors to Combi Co., Ltd., Tokyo, Japan

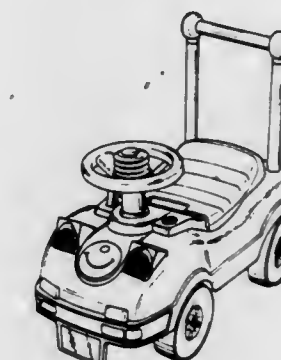
Filed Oct. 24, 1980, Ser. No. 200,357

Claims priority, application Japan, Aug. 8, 1980, 55-32408

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D21-78



267,257

SET OF CHESS PIECES

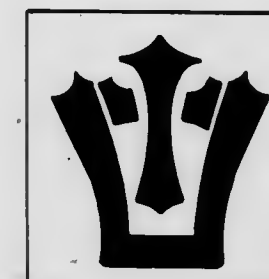
James J. Peraino, Hawthorne, Calif., assignor to Mattel, Inc., Hawthorne, Calif.

Filed Sep. 15, 1980, Ser. No. 187,236

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D21-52



267,260

TOY CAROUSEL

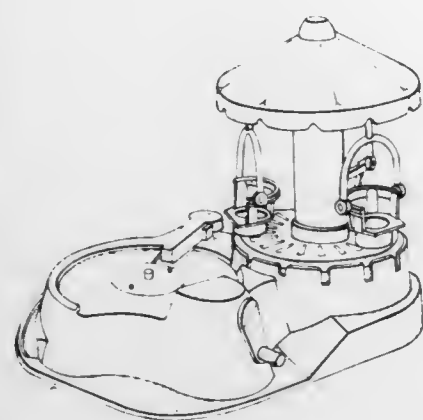
Larry R. Nagode, East Aurora, N.Y., assignor to The Quaker Oats Company, Chicago, Ill.

Filed Dec. 8, 1980, Ser. No. 213,937

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D21-124



267,261

EXERCISE BAR

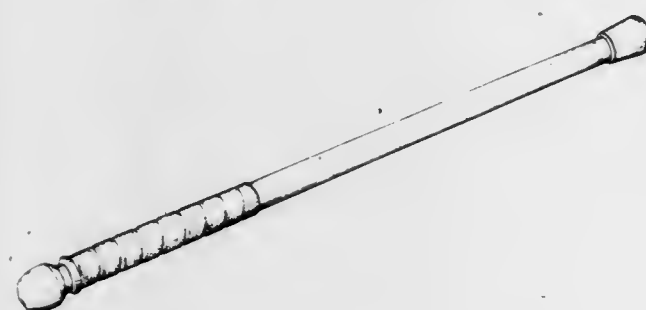
Casimer J. Pataluch, 218 Garden St., LaPorte, Ind. 46350

Filed Jun. 19, 1980, Ser. No. 161,217

Term of patent 14 years

Int. Cl. D21-01

U.S. Cl. D21-198



267,262

INFLATABLE FLOAT

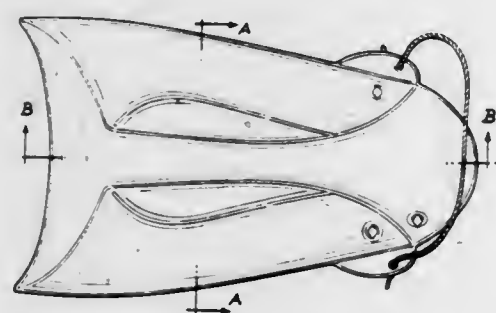
Geoffrey P. Gorick, Killarney Heights, and Robert W. Day, Mosman, both of Australia, assignors to Acme-Gorick Pty. Ltd., Five Dock and Day & Parsonage Publishing Co. Pty. Limited, North Sydney, both of, Australia

Filed Dec. 18, 1978, Ser. No. 970,500

Term of patent 14 years

Int. Cl. D21-03

U.S. Cl. D21-237



267,263

GUN STOCK BUTT ELEMENT

Timo Hyytinen, Keski-Palokka, Finland, assignor to Valmet Oy, Finland

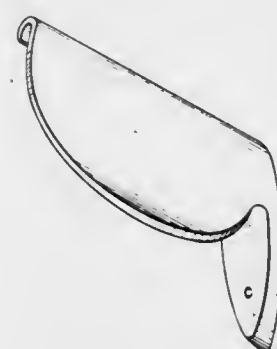
Filed Jun. 9, 1980, Ser. No. 157,968

Claims priority, application Finland, Dec. 20, 1979, 757/79

Term of patent 14 years

Int. Cl. D22-01

U.S. Cl. D22-7



267,264

MANURE HOLDING TANK

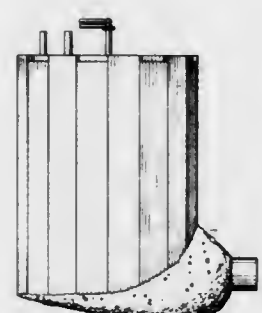
Roger F. Wacker, R.R. #2, Frazee, Minn. 56544

Filed May 23, 1980, Ser. No. 152,785

Term of patent 14 years

Int. Cl. D23-01

U.S. Cl. D23-2



267,265

FIREPLACE INSERT WITH OVEN

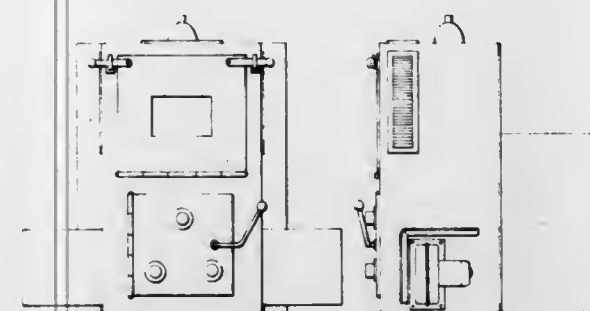
John H. Councill, Jr., 200 Council St., Boone, N.C. 28607

Filed Feb. 6, 1981, Ser. No. 232,203

Term of patent 14 years

Int. Cl. D23-03

U.S. Cl. D23-93



267,266

CAST IRON GRATE FOR COAL BURNING STOVES AND THE LIKE

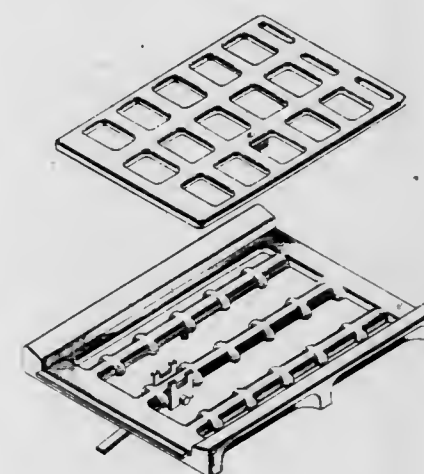
William H. Johnson, Harrisonburg, Va., assignor to Shenandoah Manufacturing Co., Inc., Harrisonburg, Va.

Filed Aug. 27, 1980, Ser. No. 185,540

Term of patent 14 years

Int. Cl. D23-03

U.S. Cl. D23-135



267,268

CAST IRON GRATE FOR SOLID FUEL BURNING STOVES AND THE LIKE

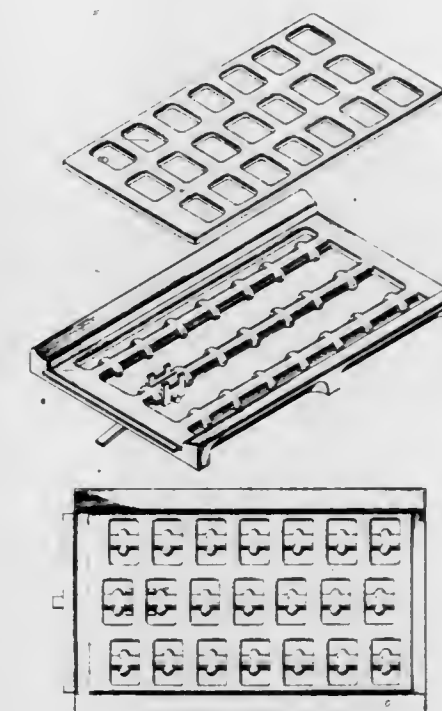
William H. Johnson, Harrisonburg, Va., assignor to Shenandoah Manufacturing Co., Inc., Harrisonburg, Va.

Filed Oct. 6, 1980, Ser. No. 193,913

Term of patent 14 years

Int. Cl. D23-03

U.S. Cl. D23-135



267,267

STOVE SHIELD

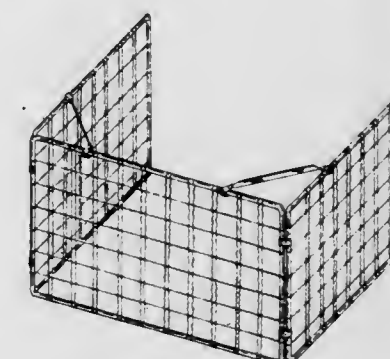
Kirkwood S. Nevin, III, Box 316A, R.D. #2, White Hall, Md. 21161

Filed Aug. 6, 1980, Ser. No. 175,659

Term of patent 14 years

Int. Cl. D23-03

U.S. Cl. D23-137

267,269
CONTAINER FOR USE IN ANAEROBIC BACTERIOLOGY

Alan Jukes, West Wickham, England, assignor to Oxoid Limited, Basingstoke, England

Filed Apr. 18, 1980, Ser. No. 141,674

Term of patent 14 years

Int. Cl. D24-02

U.S. Cl. D24-8



267,270

DRIP CHAMBER SPIKE

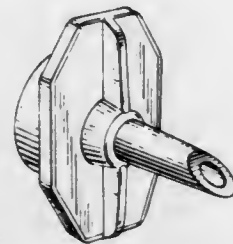
Herbert Mittleman, Deerfield, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Nov. 15, 1979, Ser. No. 94,378

Term of patent 14 years

Int. Cl. D24—02

U.S. Cl. D24—24



267,272

COMBINED ISLAND HYDROTHERAPY SPA AND TABLE THEREFOR

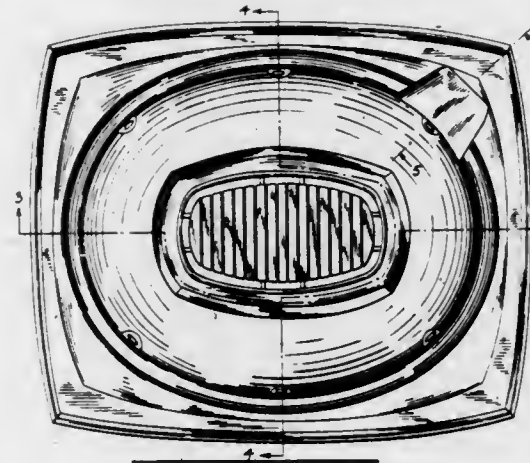
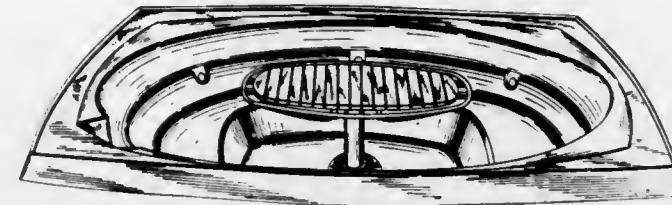
Donald W. Doman, Janesville, and Alfred W. Elsner, Plymouth, both of Wis., assignors to Kohler Co., Kohler, Wis.

Filed Aug. 28, 1980, Ser. No. 182,064

Term of patent 14 years

Int. Cl. D24—01; D23—02; D25—99

U.S. Cl. D24—38



267,273

DEVICE FOR CATCHING FECAL SAMPLES WHEN USING A TOILET STOOL

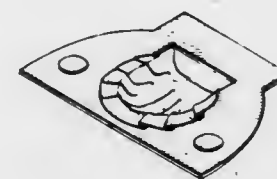
Esteban Paulin, Queretaro, Mexico, assignor to Manuel Gonzales Cosio, Mexico City, Mexico, a part interest

Filed Sep. 11, 1980, Ser. No. 186,503

Term of patent 14 years

Int. Cl. 24—02, 04

U.S. Cl. D24—57



267,271

BATHING POOL

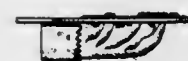
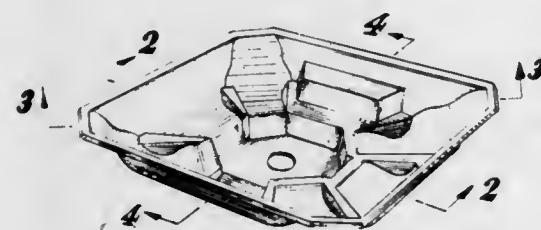
Warren W. Kingsley, Sherman Oaks, and Robert C. Kingsley, Los Angeles, both of Calif., assignors to Hydro-Spa, Inc., Piru, Calif.

Filed Dec. 13, 1979, Ser. No. 103,197

Term of patent 14 years

Int. Cl. D23—02; D24—01

U.S. Cl. D24—38



267,274

COMBINED DOOR AND HANDLE

William J. Horgan, Jr., Pittsburgh, Pa., assignor to Blumcraft of Pittsburgh, Pittsburgh, Pa.

Filed Aug. 29, 1980, Ser. No. 182,760

Term of patent 14 years

Int. Cl. D25—02

U.S. Cl. D25—48



267,276

COMBINED DOOR AND HANDLE

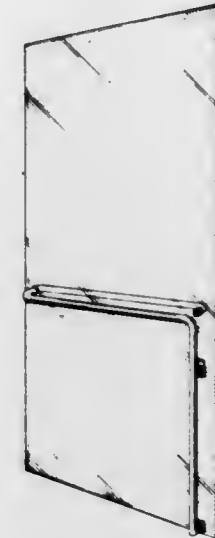
William J. Horgan, Jr., Pittsburgh, Pa., assignor to Blumcraft of Pittsburgh, Pittsburgh, Pa.

Filed Aug. 29, 1980, Ser. No. 182,692

Term of patent 14 years

Int. Cl. D25—02

U.S. Cl. D25—48



267,275

COMBINED DOOR AND HANDLE

William J. Horgan, Jr., Pittsburgh, Pa., assignor to Blumcraft of Pittsburgh, Pittsburgh, Pa.

Filed Aug. 29, 1980, Ser. No. 182,761

Term of patent 14 years

Int. Cl. D25—02

U.S. Cl. D25—48



267,277

WINDOW FRAME HINGE MEMBER

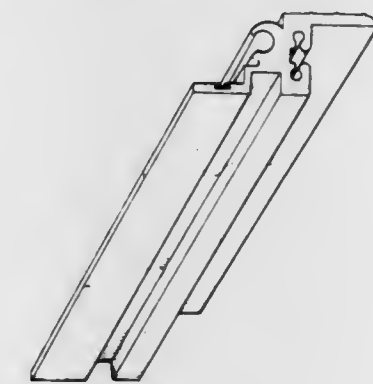
Marvin L. Goldhaber, 5102 Rock Run, West Bloomfield, Mich. 48033

Filed Nov. 6, 1980, Ser. No. 204,599

Term of patent 14 years

Int. Cl. D25—01

U.S. Cl. D25—74

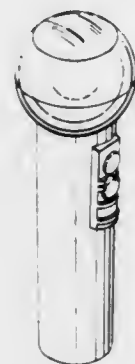


267,278
TORCH

Andrew K. Yau, Hong Kong, Hong Kong, assignor to Practical Products Mfy. Ltd., Hong Kong, Hong Kong
Filed Apr. 28, 1980, Ser. No. 144,109
Claims priority, application United Kingdom, Feb. 7, 1980, 993523

Term of patent 14 years
Int. Cl. D26—02

U.S. Cl. D26—49

267,279
TORCH

Andrew K. Yau, Hong Kong, Hong Kong, assignor to Practical Products Mfy. Ltd., Hong Kong, Hong Kong
Filed Jun. 9, 1980, Ser. No. 157,605
Claims priority, application United Kingdom, Apr. 10, 1980, 994435

Term of patent 14 years
Int. Cl. D26—02

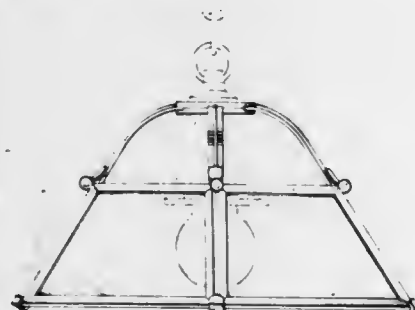
U.S. Cl. D26—49

267,280
LAMP SHADE

Franz K. Weber, 15930 Royal Oak Rd., Encino, Calif. 91436, and Martin R. Reed, 323 N. Maple St., Burbank, Calif. 91505
Filed Jul. 7, 1980, Ser. No. 166,106

Term of patent 14 years
Int. Cl. D26—05

U.S. Cl. D26—129



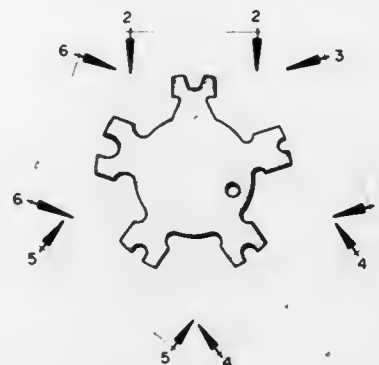
267,281

GRILL CLEANER DEVICE

Daniel J. Mottl, and Glen J. Mottl, both of Burr Ridge, Ill., assignors to Atlas Tool & Die Works, Inc., Lyons, Ill.
Filed Jul. 7, 1980, Ser. No. 166,741

Term of patent 14 years
Int. Cl. D7—05

U.S. Cl. D32—46



267,282

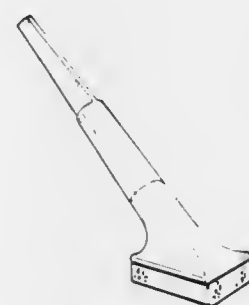
SPONGE APPLICATOR, OR THE LIKE

James R. Gross, Bartlett, Ill., assignor to Abbott Laboratories, North Chicago, Ill.

Filed Oct. 9, 1980, Ser. No. 195,709

Term of patent 14 years
Int. Cl. D7—05

U.S. Cl. D32—51



267,283

TOY PIGGY BANK

Larry R. Nagode, East Aurora, N.Y., assignor to The Quaker Oats Company, Chicago, Ill.

Filed Jan. 12, 1981, Ser. No. 224,617

Term of patent 14 years
Int. Cl. D31—00

U.S. Cl. D99—40



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 14TH DAY OF DECEMBER, 1982

NOTE.—Arranged in accordance with the first significant character or word of the name
(in accordance with city and telephone directory practice).

- A. Ahlstrom Osakeyhtiö: See—
Engstrom, Folke, 4,363,292, Cl. 122-4.00D.
Aakenu, Tiina; Mertanen, Pekka; and Peltonen, Reijo, to Oy Wartsila AB. Vessel for food preparation. 4,363,316, Cl. 126-390.000.
AB Asea-Atom: See—
Hannerz, Kare, 4,363,780, Cl. 376-282.000.
AB Welin: See—
Nilsson, Emanuel, 4,363,150, Cl. 14-69.500.
Abbott Laboratories: See—
Chittenden, Richard M., 4,363,321, Cl. 128-214.00R.
Abbott, Robert L., to Babcock & Wilcox Company, The. Monitor circuit for a control rod drive mechanism. 4,363,778, Cl. 376-228.000.
Abbott, Ronald L., to Inventco Sales Limited. Apparatus for producing and dispensing cold products. 4,363,223, Cl. 62-303.000.
Abe, Osamu: See—
Amano, Matsuo; Mouri, Yasunori; Abe, Osamu; Suda, Seiji; and Sasayama, Takao, 4,363,307, Cl. 123-492.000.
Achter, Eugene K.; Kremen, Jerome C.; Rodriguez, Rodolfo R.; and Priarone, Paolo, to Baxter Travenol Laboratories, Inc. Nephelometer having means semiautomatically canceling components from scattering by particles smaller or larger than those of interest. 4,363,551, Cl. 356-338.000.
ACI Operations Pty. Ltd.: See—
Marshall, Steven; and Papaluca, Vincent, 4,363,203, Cl. 53-109.000.
Acker, Rolf-Dieter; Hamprecht, Gerhard; and Mueller, Franz-Josef, to BASF Aktiengesellschaft. Preparation of aromatic silanes. 4,363,925, Cl. 556-415.000.
Adachi, Takao: See—
Onishi, Keizo; Adachi, Takao; Fuji, Akiyoshi; Chiba, Ryuichi; Naitoh, Katsuyuki; and Okada, Hachiro, 4,363,952, Cl. 219-76.120.
Adams, Allen S.; and Caesar, Michael B., to Occidental Chemical Corp. Apparatus for reacting a particulate solid and a liquid. 4,363,786, Cl. 422-189.000.
Adams Hard-Facing Company, Inc.: See—
Wetmore, Halsey J., 4,363,364, Cl. 172-732.000.
Adamson, James R., Jr.: See—
Efkenan, Edward J.; Lloyd, Elliott; Dickson, Howard K.; and Adamson, James R., Jr., 4,363,967, Cl. 250-339.000.
Advance Dental Corporation: See—
Johnston, Reece W., 4,363,624, Cl. 433-9.000.
Advanced Diagnostic Research Corporation: See—
Kopel, LeRoy, 4,363,326, Cl. 128-660.000.
Agfa-Gevaert AG: See—
Oberhoffner, Gerhard; Koninger, Horst; and Kastl, Alfons, 4,363,548, Cl. 354-298.000.
Ahuja, Ramesh C.: See—
van Turnhout, Jan; and Ahuja, Ramesh C., 4,363,860, Cl. 430-83.000.
Aiba, Masahiko, to Sharp Kabushiki Kaisha. Ink issuance direction check system in an ink jet system printer. 4,364,055, Cl. 346-1.100.
Aihara, Mamoru; Takahashi, Yutaka; Nakajima, Yoshio; and Matsuura, Tsuyoshi, to Olympus Optical Company Ltd. Photographing apparatus. 4,363,541, Cl. 354-23.00D.
Air Products and Chemicals, Inc.: See—
Markham, Larry D.; and Eklund, Henrik J., 4,363,697, Cl. 162-19.000.
Airway Industries, Inc.: See—
Phillips, Gary, 4,363,770, Cl. 264-87.000.
Aisin Seiki Kabushiki Kaisha: See—
Kawata, Shoji; Nishimura, Tomoaki; Sakakibar, Naoji; Imai, Nobuyuki; Amano, Hiroyuki; and Hamajima, Shigemitsu, 4,363,973, Cl. 307-10.00R.
Ohmi, Atsushi, 4,363,259, Cl. 91-422.000.
Watanabe, Yutaka; and Nishio, Hirochika, 4,363,839, Cl. 428-31.000.
Aizawa, Hiroshi: See—
Takishima, Yoshiyuki; Mashimo, Yukio; Uchidoi, Masanori; Aizawa, Hiroshi; Andresen, Bernhard H.; Martin, Robert C.; and Kwan, Stephen C., 4,363,540, Cl. 354-23.00D.
Aizawa, Tsuneo; and Onishi, Kenji, to Amada Company, Limited. Horizontal bandsaw machine. 4,363,254, Cl. 83-800.000.
Akamatsu, Akihiro; Takeuchi, Masaki; and Yamashita, Kiyoshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Discrete type automated chemical analytic apparatus. 4,363,781, Cl. 422-65.000.
Akanuma, Shigetake: See—
Nakamura, Joji; and Akanuma, Shigetake, 4,363,518, Cl. 299-14.000.
Akashiba, Takeo; Nakayama, Akira; and Murata, Atsuhiko, to Showa Denko K.K. Process for producing L-tryptophan, and a pure culture of a microorganism strain used in said process. 4,363,875, Cl. 435-108.000.
- Akatsuka, Masayuki: See—
Ishiki, Isao; Sato, Koji; Sunago, Katsuyoshi; Ohoka, Akihiro; and Akatsuka, Masayuki, 4,364,023, Cl. 340-146.30H.
Akebono Brake Industry Company, Ltd.: See—
Ogiwara, Osao, 4,363,884, Cl. 523-156.000.
AKG Akustische u.Kino-Gerate Gesellschaft m.b.H.: See—
Bruna, Bernhard, 4,363,937, Cl. 179-121.00R.
Akimoto, Norio: See—
Imamura, Kazuyoshi; Akimoto, Norio; and Awaya, Shozo, 4,363,853, Cl. 428-480.000.
Akimoto, Taizo; and Kawase, Yasuo, to Fuji Photo Film Co., Ltd. Color correction monitoring system. 4,364,084, Cl. 358-76.000.
Aktiebolaget Bofors: See—
Simmons, Bjorn, 4,363,272, Cl. 102-202.130.
Aktiebolaget Draco: See—
Bergstrom, Karl O.; Ulmius, Jan; and Wenngren, Bo L. T., 4,363,806, Cl. 424-241.000.
Aktiebolaget Electrolux: See—
Leinfelt, Karl E., 4,363,156, Cl. 15-327.00R.
Akzona Incorporated: See—
Schall, Roy F., Jr., 4,363,634, Cl. 23-230.00B.
Albaum, Joseph D.; Ponzoni, Ronald W.; and Johnson, Eric C., to General Foods Corporation. Flavor stabilized beet composition. 4,363,810, Cl. 426-262.000.
Albert, Rudolf; Willemsens, Albert; and van der Veken, Guido, to Janssen Pharmaceutica N.V. Method of preparing 1-alkyl-3-carboxy-1H pyrrole-2-acetic acids. 4,363,918, Cl. 548-531.000.
Albertson, Robert V. Heating apparatus. 4,363,314, Cl. 126-110.00B.
Alcolac, Inc.: See—
Panzer, George W.; and Boyer, William, 4,363,724, Cl. 209-166.000.
Allaire, Roger A.; and Blanding, Wendell S., to Corning Glass Works. Floating vanes for flat panel display system. 4,363,648, Cl. 65-42.000.
Allan, Colin J.; and McIntyre, Ian L., to Canada, Atomic Energy of, Limited. Self-powered neutron flux detector assembly. 4,363,970, Cl. 250-390.000.
Allegheny Ludlum Steel Corporation: See—
Zaremski, Donald R., 4,363,709, Cl. 204-145.00R.
Allen Engineering Corporation: See—
Allen, J. Dewayne, 4,363,618, Cl. 425-458.000.
Allen, J. Dewayne, to Allen Engineering Corporation. Triangular truss scree having an end mounted guide bracket for engaging a wall-mounted support member. 4,363,618, Cl. 425-458.000.
Allen, Keith: See—
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American Petro Mart, Inc.: See—
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AMF Incorporated: See—
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AMFU Limited: See—
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AMP Incorporated: See—
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- Hoffman, Norman E., 4,363,930, Cl. 174-68.500.
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 Andersson, Bror A. E. Deodorizing and disinfecting liquid-absorbing product and process for production thereof. 4,363,322, Cl. 128-290.00R.
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- Bell Telephone Laboratories, Incorporated: See—
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- Bouillet, Edmond: See—
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- Bouillon, Claude; Boulogne, Jean; Guillon, Michel; Zaffran, Christian; and Koulbanis, Constantin, to Societe Anonyme dite: L'Oreal. Cosmetic compositions for hardening soft brittle nails. 4,363,796, Cl. 424-61.000.
- Bouldin, Eric W., to Drexler Technology Corporation. Method for making a reflective laser recording and data storage medium with a dark underlayer. 4,363,870, Cl. 430-510.000.
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- Bourbeau, Frank J. Self-controlled polyphase synchronous motor drive system. 4,364,004, Cl. 318-721.000.
- Bousquet, Jacques; Gueguen, Claude; and Vautier, Daniel, to Elf France. Process for improving the stability of catalysts for the catalytic hydrotreatment of petroleum cuts. 4,363,719, Cl. 208-111.000.
- Boucher, Andrew G., Jr.; and Folk, Kenneth F., to AMP Incorporated. Method of terminating leading ends of a plurality of wires. 4,363,167, Cl. 29-863.000.
- Bouvet, Pierre E.; and Suzor, Norland L. C., to Davies Hamakua Sugar Company, a division of Theo. H. Davies & Co., Ltd. Process to increase the effectiveness of bagasse as a source of energy. 4,363,636, Cl. 44-10.00A.
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- Boyle, William G.: See—
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- Bozon, Alfred; Koberstein, Edgar; Pletka, Hans-Dieter; and Voelker, Herbert, to Degussa Aktiengesellschaft. Mechanically stable screen cloth construction made of metal. 4,363,753, Cl. 252-477.00R.
- Braly, Douglas E.; and Stein, James A. Thrust support for bicycle seats. 4,363,516, Cl. 297-195.000.
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- Braunger, Joachim: See—
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- Breslow, Jeffrey D.; Harper, Rex M.; and Glickson, David A., to Marvin Glass & Associates. Electronic table tennis game apparatus. 4,363,484, Cl. 273-85.00G.
- Brinkmann & Niemeyer N.V.: See—
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- Brisabois, Roger, to Regie Nationale des Usines Renault. Transmission differential gear. 4,363,248, Cl. 74-713.000.
- Bristol, Robert D. Crankless internal combustion engine. 4,363,299, Cl. 123-197.0AB.
- British-American Tobacco Company Limited: See—
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- British Broadcasting Corporation: See—
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- Broberg, Dewey O., Jr., to Du-Bro Products. Propeller spinner for model airplanes or the like. 4,363,604, Cl. 416-245.00R.
- Brock Manufacturing, Inc.: See—
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- Brockmeyer, Hans P., to Westfälische Metall Industrie KG Hueck & Co. Vehicle lamp with a lamp carrier made from a sheet metal blank. 4,364,101, Cl. 362-80.000.
- Brodsky, Marc H.; and Scott, Bruce A., to International Business Machines Corp. Method for depositing silicon films and related materials by a glow discharge in a disilane or higher order silane gas. 4,363,828, Cl. 427-39.000.
- Broemer, Heinz; and Meinert, Norbert, to Ernst Leitz Wetzlar GmbH. Alkaline fluoroborate in fluorophosphate glass free of beryllium. 4,363,879, Cl. 501-44.000.
- Bronicki, Lucien. Lubricating system for organic fluid power plant. 4,363,216, Cl. 60-657.000.
- Broodman, Johannes J., to B.V. Koninklijke Maatschappij "De Schelde". Method for producing a tube for a cracking plant. 4,363,435, Cl. 228-131.000.
- Broucek, Daniel M. Watertight cast cover. 4,363,317, Cl. 128-82.000.
- Brown, Albert M. Liquid filling machine. 4,363,338, Cl. 141-2.000.
- Brown, Leon C.; Campbell, Jesse L.; Fitts, Uscoe J.; and Gudgel, Willard L., to International Business Machines Corporation. Electro-mechanically operated fuser roll closure. 4,363,549, Cl. 355-3.0FU.
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- Bruna, Bernhard, to AKG Akustische u.Kino-Geräte Gesellschaft m.b.H. Sound inlet for microphones. 4,363,937, Cl. 179-121.00R.
- Brundage, Ruth P.: See—
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- Brune, Heinz. Casings for heat exchangers and burner/recuperator assemblies incorporating such casings. 4,363,623, Cl. 432-219.000.
- Brunelle, Daniel J., to General Electric Company. Polycarbonate transesterification from bis(ortho-nitroaryl)carbonate. 4,363,905, Cl. 528-196.000.
- Bruns, Klaus: See—
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- Brush, Gary T. Piano action magnetic tape recording process and apparatus for player piano playback. 4,363,255, Cl. 84-1.030.
- Bryant, David R.: See—
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- Bryer, James E.; Mayes, Alan P.; and Allen, Keith, to VO Offshore Ltd. Method of forming an electrical connection underwater. 4,363,168, Cl. 29-869.000.
- BS&B Safety Systems, Inc.: See—
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- Bucher, Jean-Philippe: See—
Boscaro, Louis; Demange, Michel; Bucher, Jean-Philippe; Dubrous, Francis; and Septier, Louis, 4,363,657, Cl. 75-80.000.
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- Buckler, Sheldon A.; Burns, Jeffrey B.; Kniazzezh, Alfredo G.; Plasse, Paul A.; and Sullivan, David J., to Polaroid Corporation. Method and system for testing and sorting batteries. 4,363,407, Cl. 209-3.300.
- Bucklew, Leonard E.: See—
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- Buczak, Stanley D.: See—
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- Budden, Kenneth J.: See—
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- Buffum, Richard J. Carrier for skates. 4,363,514, Cl. 294-1C2.000.
- Building Components, Inc.: See—
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- Burke, Edward F., Jr., to MFE Corporation. Limited rotation device having two degrees of freedom. 4,364,000, Cl. 318-128.000.
- Burns, Jeffrey B.: See—
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- Burroughs Wellcome Co.: See—
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- Burst, Hermann; and Macho, Leo, to Dr. Ing. h.c.F. Porsche A.G. Cover for passenger car trunks. 4,363,510, Cl. 296-37.160.
- Burton, Andrew F. Adjustable spectacles. 4,363,537, Cl. 351-90.000.
- Busemann, Eduard, to Hoesch Werke Aktiengesellschaft. Inductor for inductively heating raceways of antifriction bearing rings. 4,363,946, Cl. 219-10.590.
- Bussard, Robert W.; and Coppi, Bruno, to International Nuclear Energy Systems Co. Controlled nuclear fusion apparatus. 4,363,775, Cl. 376-133.000.
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- C. Delachaux: See—
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- C. Reichert Optische Werke, AG: See—
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- Cabot Corporation: See—
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- Cadbury Schweppes PCL: See—
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- Caesar, Michael B.: See—
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- Cain, Robert L., to Robinair Manufacturing Corporation. Environmental protection refrigerant disposal and charging system. 4,363,222, Cl. 62-292.000.
- Cal Detect, Inc.: See—
Hutson, Donald G., 4,363,635, Cl. 436-132.000.
- Caldera, Joseph B. Bolt hole locating and marking tool. 4,363,173, Cl. 33-180.00R.
- Callahan, Wayne B. Intraocular lens. 4,363,143, Cl. 3-13.000.
- Campbell, Jesse L.: See—
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- Canada, Atomic Energy of, Limited: See—
Allan, Colin J.; and McIntyre, Ian L., 4,363,970, Cl. 250-390.000.
- Cannella, Vincent D.; and McCormick-Goodhart, Mark H., to Energy Conversion Devices, Inc. Heat-sink imaging apparatus for live skin tissue using pulsed energy source. 4,363,691, Cl. 156-350.000.
- Canon Kabushiki Kaisha: See—
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- Nemoto, Takayuki; and Takimoto, Hiroyuki, 4,363,544, Cl. 354-60.00R.
- Takishima, Yoshiyuki; Mashimo, Yukio; Uchidoi, Masanori; Aizawa, Hiroshi; Andresen, Bernhard H.; Martin, Robert C.; and Kwan, Stephen C., 4,363,540, Cl. 354-23.00D.
- Canon Corporation: See—
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- Canella, Emiliano, to Atom S.p.A. Automatic hollow punch research device and relevant control, for die-cutting machines, particularly for footwear production. 4,363,253, Cl. 83-537.000.
- Capitol Records, Inc.: See—
Hunyar, Csaba K.; and Hand, Gary A., 4,363,705, Cl. 204-5.000.
- Capshaw, Charles E., to Phillips Petroleum Company. Composition of matter and method of preparing same, catalyst, method of producing

- the catalyst and polymerization process employing the catalyst. 4,363,746, Cl. 252-429.00B.
- Carava, Sam S. Ink tub cleaner. 4,363,153, Cl. 15-101.000.
- Carl Freudenberg, Firma: See—
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- Carl Zeiss-Stiftung: See—
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- Carlin, William G.: See—
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- Carlson, John L., to Jeno's Inc. Method and apparatus for cutting bread. 4,363,251, Cl. 83-105.000.
- Carpco, Inc.: See—
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- Carr, Susan H.; Schobert, Monique A.; and Taylor, John J., to Western Electric Co., Inc.; and Nassau Recycle Corporation. Process for reclaiming jelly-filled telecommunication cables. 4,363,449, Cl. 241-21.000.
- Carrico, Robert J.: See—
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- Carroll, Joseph W., to Kim Manufacturing Company. Television stand. 4,363,460, Cl. 248-415.000.
- Caserta, Richard E.: See—
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- Casimir, Donald J.: See—
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- Castera, Jean P.; and Dupont, Jean M., to Thomson-CSF. Magnetic transducer comprising a strained magnetic wire in a sheath of non-magnetic material. 4,364,013, Cl. 324-260.000.
- Castoro, Richard J.: See—
Huppert, Vaughn P.; and Castoro, Richard J., 4,364,102, Cl. 362-123.000.
- Catallo, Frank. Method and apparatus for the compressive treatment of fabric. 4,363,161, Cl. 26-18.600.
- Caterpillar Tractor Co.: See—
Kaveney, John R., Jr., 4,363,231, Cl. 70-484.000.
- Noc, Stephen L., 4,363,468, Cl. 266-76.000.
- Celeste Carrier: See—
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- Cellofoam A.G.: See—
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- Cerberus AG: See—
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- Cerrato, Vincent J., to Vending Components, Inc. Keg-tapping structure. 4,363,336, Cl. 137-212.000.
- Champion International Corporation: See—
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- Chandross, Edwin A.; and Hartless, Ray L., to Bell Telephone Laboratories, Incorporated. Process of imaging using an indanone containing material. 4,363,867, Cl. 430-302.000.
- Chatterjee, Pallab K.; and Tasch, Aloysius F., Jr., to Texas Instruments Incorporated. Co-planar well-type charge coupled device with enhanced storage capacity and reduced leakage current. 4,364,076, Cl. 357-24.000.
- Chatterjee, Shyam S.: See—
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- Chattha, Mohinder S., to Ford Motor Company. Composition with latent reactive catalyst-4. 4,363,896, Cl. 525-110.000.
- Chaudhry, Jagdish C.; and Chaudhry, Lorena. Electronic gaming apparatus. 4,363,486, Cl. 273-143.00B.
- Chaudhry, Lorena: See—
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- CHEMIMAS Vegyigep Tervezo es Fovallalkozo Vallalat: See—
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- Chen, Nai Y.: See—
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- Cheo, Peter K., to Electric Power Research Institute, Inc. Detection system for distinguishing between voids and foreign particles in materials and method. 4,363,966, Cl. 250-339.000.
- Chiang, Alice M., to United States of America, Air Force. P+N Gallium phosphide photodiodes. 4,364,077, Cl. 357-30.000.
- Chiba, Ryuichi: See—
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- Chiba, Toshiyuki: See—
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- Chicago Rawhide Manufacturing Company: See—
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- Chiku, Kiyoshi: See—
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- Childs, John M. Sash portlight for marine use. 4,363,349, Cl. 160-90.000.
- Chinoig Gyogyszer es Vegyeszeti Termekgyar R.T.: See—
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- Gado, Istvan; Jekkel nec Bokany, Antonia; Szvoboda, Gyuml/o/rgy; Jari, Miklos; Piukovich, Sandor; and Istvan, Sandor, 4,363,876, Cl. 435-253.000.
- Chion, Pierre; Menault, Jacques; and Rodier, Henry, to Rhone-Poulenc-Textile. Solutions, which can be shaped, from mixtures of cellulose and polyamide-imide, and shaped articles obtained. 4,363,895, Cl. 525-54.210.
- Chisso Corporation: See—
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- Chittenden, Richard M., to Abbott Laboratories. I.V. Administration flow rate gauge. 4,363,321, Cl. 128-214.00R.
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- Chodak, Jan B.; and Tran, Luan G., to Mattel, Inc. Electronic stock market terminal game. 4,363,489, Cl. 273-237.000.
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- Christian, Albert, heir: See—
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- Christian, David A., heir: See—
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- Christian, John D., deceased: See—
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- Christiansen, Keith W.: See—
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- Christiansen, Torben F., to Radiometer A/S. Reference liquid. 4,363,633, Cl. 436-19.000.
- Christie, Eugene P. Dispensing carton for plastic grocery bags. 4,363,405, Cl. 206-554.000.
- Christner, James E.: See—
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- Chujo, Takafumi: See—
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- Chwang, Ronald J. C.: See—
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- Ciba-Geigy Corporation: See—
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- Fischer, Walter; Kvita, Vratislav; and Zweifel, Hans, 4,363,917, Cl. 548-480.000.
- Cicchetti, Osvaldo; Fontani, Spartaco; Landoni, Gianluigi; Locatelli, Renato; Bertelli, Guido; and Roma, Pierpaolo, to Montedison S.p.A. Condensation product prepared from N,N'-ethylene-urea and formaldehyde. 4,363,906, Cl. 528-248.000.
- Cincinnati Milacron - Heald Corp.: See—
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- Cioca, Gheorghe, to Seton Company. Partially hydrolyzed elastin from limed hide trimmings. 4,363,760, Cl. 260-123.700.
- Clarion Co., Ltd.: See—
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- Clark, Justin S., to Intermountain Health Care. Cyclic injection method for continuous measurements of pulmonary parameters. 4,363,327, Cl. 128-719.000.
- Clark, R. Donald; and Pridgen, Herman S., to Eastman Kodak Company. Preparation of 2-aminobenzothiazoles. 4,363,913, Cl. 548-164.000.
- Cline, Larry D.; Hauser, Ambrose A.; Sidenstick, James E.; and Zlatich, Mark S., to General Electric Company. Clearance control. 4,363,599, Cl. 415-136.000.
- Clyde Corporation: See—
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- Coca-Cola Company, The: See—
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- Coker, Guy C., to General Foods Corporation. Process for making a coconut product. 4,363,825, Cl. 426-617.000.

- Cole, Peter H.; Eshraghian, Kamran; and Roy, Ashim K., to University of Adelaide, The. Efficient object identification system. 4,364,043, Cl. 340-825.540.
- Coles Cranes Limited: See—
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- Collins, Richard: See—
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- Columbus McKinnon Corporation: See—
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- Combustion Engineering, Inc.: See—
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- Commonwealth Scientific & Industrial Research Organization: See—
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- Compagnie Francaise de Raffinage: See—
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- Conchemco Incorporated: See—
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- Concord Laboratories, Inc.: See—
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- Condon, Larry J. Heater using hot waste flue gases. 4,363,442, Cl. 237-55.000.
- Connell, James, to J. Connell Associates. Wheel cover retention. 4,363,520, Cl. 301-37.00P.
- Connor, Charlie. Mail box. 4,363,438, Cl. 232-30.000.
- Conoco Inc.: See—
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- Yoon, Heeyoung, 4,363,787, Cl. 422-201.000.
- Conrad, Jens; Bruns, Klaus; and Upadek, Horst, to Henkel Kommanditgesellschaft auf Aktien. 4 (5)-Acetyl-9,9-dimethyltricyclo-[4,4,0,1,8]-undec-1-ene, its preparation and use in perfumery compositions and as an odorant. 4,363,754, Cl. 252-522.00R.
- Considine, Robert J., to Du Pont de Nemours, E. I., and Company. Static mixer. 4,363,552, Cl. 366-340.000.
- Construction Products Research and Development Corporation: See—
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- Container Corporation of America: See—
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- Continental Scale Corporation: See—
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- Cooper, Jamshed R.: See—
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- Coppi, Bruno: See—
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- Corning Glass Works: See—
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- Bachman, David L.; Lewis, William C., Jr.; Schultz, Peter C.; and Voorhees, Francis W., 4,363,647, Cl. 65-18.200.
- Cornu, Bernard; and Pierrey, Jean-Louis, to Novatome. Closure element for limiting the convection currents in an annular space about a nuclear reactor component. 4,363,777, Cl. 376-203.000.
- Correale, James V. Football helmet face guard. 4,363,140, Cl. 2-9.000.
- Cortorillo, Salvatore F.; Demas, Nickolas P.; and Schwickert, Russell C. Halogen lamp with strap-type bulb support mechanism. 4,363,994, Cl. 313-113.000.
- Cosentino, Louis C.; Niemi, Bill H.; Silbernagel, John P.; and Cooper, Jamshed R., to Renal Systems, Inc. Blood pump system. 4,363,609, Cl. 417-477.000.
- Cottrell, Ian W.; Sandford, Paul A.; and Baird, John K., to Merck & Co., Inc. Dispersible xanthan gum blends. 4,363,669, Cl. 106-205.000.
- Cottrell, Merlyn F.; Tegelman, Harold, Jr.; Holmes, Ronald E.; and Hofferber, John R., to E. R. Wagner Manufacturing Company. Stand-off for resistance wires. 4,363,959, Cl. 219-532.000.
- Coulter Systems Corporation: See—
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- Cousens, Alan K.: See—
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- Covert, Stanley R. Retractable mirror and lock therefor. 4,363,534, Cl. 350-289.000.
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- Cragar Industries Inc.: See—
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- Crate, Barry T. Power operated boat loading/unloading marine trailer. 4,363,590, Cl. 414-518.000.
- Crates, Fred J.; Fouss, James L.; and Parker, John J., to Hancor, Inc. Inlet and outlet baffle structure for sewage treatment tanks. 4,363,732, Cl. 210-532.200.
- Creel, Theodore R., Jr.; and Beckwith, Ivan E., to United States of America, National Aeronautics and Space Administration. Sound shield. 4,363,237, Cl. 73-147.000.
- Crockett, Dennis D.; and Weaver, Robert J., to Lincoln Electric Company, The. Granular flux for pipe welding. 4,363,676, Cl. 148-24.000.
- Crofts, David, to Raychem Limited. Seals. 4,363,843, Cl. 428-43.000.
- Cromemco Inc.: See—
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- Crosby, Gaius P., to Crafco, Inc. Asphalt dispenser vehicle. 4,363,427, Cl. 222-146.00H.
- Cross, Peter E.; and Dickinson, Roger P., to Pfizer Inc. Indole thromboxane synthetase inhibitors. 4,363,912, Cl. 546-273.000.
- Crow, John H.: See—
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- Crown Cork & Seal Company, Inc.: See—
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- Crum, Glen F.; and Paton, Samuel J., to El Paso Products Company. Catalyst composition for producing tertiary-butylstyrene. 4,363,748, Cl. 252-437.000.
- Cruzan, Robert E., II. Cutting torch guide. 4,363,469, Cl. 266-77.000.
- Cuer, Jean-Pierre: See—
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- Cummins, William T.: See—
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- Cuneo, Giuseppe, to Black & Decker Inc. Combination guard and rabbeting depth gauge associated with power planer. 4,363,343, Cl. 145-4.000.
- Curtis, Michael; Garrett, Peter R.; and Mead, John, to Lever Brothers Company. Process for making controlled sudsing detergent powder. 4,363,740, Cl. 252-91.000.
- Curtis, Ralph H. Gravity actuated guiding device for farm machines. 4,363,174, Cl. 33-264.000.
- Curtiss-Wright Corporation: See—
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- Cutler, John H.; Jarvinen, Willard B.; and Walker, Loren H., to General Electric Company. Unintentional impedance detection system. 4,364,007, Cl. 324-51.000.
- D.C.M.: See—
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- D. Gottlieb & Co.: See—
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- D.O.V.E. Equipment Corporation: See—
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- Dai Nippon Insatsu Kabushiki Kaisha: See—
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- Dai Nippon Torio Co., Ltd.: See—
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- Daiichi Seiyaku Company, Limited: See—
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- Daikin Kogyo Co., Ltd.: See—
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- Rauchle, Wilfried; Preisendanz, Walter; and Scholtissek, Leonhard, 4,363,708, Cl. 204-129.750.
- Schmidt, Adolf; Jambor, Arno; and Huber, Guntram, 4,363,838, Cl. 428-31.000.
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- Dammert, Wolfgang; and Enge, Horst. Compact minirelay. 4,364,018, Cl. 335-202.000.
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- Dastoor, Minoo N.: See—
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- Davies Hamakua Sugar Company, a division of Theo. H. Davies & Co., Ltd.: See—
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- De Boer, Jacob; Sanderson, Hendrik J.; and Sommer, Friedrich, to U.S. Phillips Corporation. Tape speed control device. 4,364,097, Cl. 360-70.000.

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- Deeg, Reinhard; and Hack, Oswald, to International Standard Electric Corporation. Assembly for the keyboards of electric typewriters or similar machines. 4,363,942, Cl. 200-5.00A.
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- De Feo, Angelo; and Drewniany, Edward, to Curtiss-Wright Corporation. High temperature lined conduits, elbows and tees. 4,363,504, Cl. 285-47.000.
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- Dejoie, Paul; and Lamarque, Bernard, to Perrot-France. Mobile irrigation bar. 4,363,444, Cl. 239-177.000.
- Delaney, John W., to Sterling Drug Inc. Novel compositions and processes. 4,363,664, Cl. 106-21.000.
- Delaney, Mark S.: See—
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- Del Bianco, Matthew A.; and Tancredi, Henry J., to Du Pont de Nemours, E. I., and Company. Take-up roll mandrel slip clutch tensioning device. 4,363,455, Cl. 242-75.500.
- de Maignt, Winfried: See—
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- Demange, Michel: See—
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- Demas, Nickolas P.: See—
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- Demus, Dietrich; Weissflog, Wolfgang; Zschke, Horst; Wolff, Rudolf; and Kresse, Horst, to VEB Werk fur Fernsehelektronik Berlin im VEB Kombinat Mikroelektronik. Esters of 4-[2,2-dicyano-ethenyl]-phenols. 4,363,767, Cl. 260-463.000.
- Dental Therapeutics AB: See—
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- der Avanessian, Mesrop. Dental technicians tool and tool retainer. 4,363,625, Cl. 433-74.000.
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- Deweese, Melvin T. Survival tool. 4,363,147, Cl. 7-158.000.
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- Diamond Shamrock Corporation: See—
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- Dickakian, Ghazi, to Exxon Research and Engineering Co. Production of carbon artifact precursors. 4,363,715, Cl. 208-40.000.
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- Diercks, Hans-Georg: See—
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- Di Vigano, Giovanni B. T. Ship's hull with a helical channel ahead of each propeller and method of establishing the shape of the same. 4,363,630, Cl. 440-69.000.
- Dixon, Robert L.; and Maxsted, Malcolm D., to Smith International, Inc. Large diameter drill bit. 4,363,367, Cl. 175-340.000.
- Dobson, Franklin A.: See—
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- Dr. Johannes Heidenhain GmbH: See—
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- Dofasco Inc.: See—
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- Donnelly Mirrors, Inc.: See—
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- D'Orazio, Vincent T., to S. C. Johnson & Son, Inc. Termite bait composition. 4,363,798, Cl. 424-84.000.
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- Hinze, Kenneth J., 4,363,745, Cl. 252-402.000.
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- Dresser Industries, Inc.: See—
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- Dunn, Wendell E., Jr. Alumina production via aluminum chloride oxidation. 4,363,789, Cl. 423-79.000.
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- Dynatech Laboratories, Incorporated: See—
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- Ezure, Yoji: See—
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- Favaro, Bernard J.: See—
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- Kovaes, Bela V., 4,363,661, Cl. 75-130.00R.
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- Freeman, James J.: See—
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- Fuji Electrochemical Co., Ltd.: See—
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- Fuji Jukogyo Kabushiki Kaisha: See—
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- Fuji Photo Film Co., Ltd.: See—
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- Seshimoto, Osamu; Nomaguchi, Hirotugu; Horie, Seiji; Sato, Hideo; Takimoto, Masaaki; and Kubotera, Kikuo, 4,363,829, Cl. 427-53.100.
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- Fuji Xerox Co., Ltd.: See—
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- Fujii, Hideo: See—
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- Fujisawa Pharmaceutical Company, Limited: See—
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- Fujitsu Fanuc Limited: See—
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- Takasaki, Kanetake; and Maeda, Mamoru, 4,363,868, Cl. 430-314.000.
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- Fukuda, Takeshi: See—
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- Fukui, Osamu; Umemoto, Yoshio; Sanmiya, Tsugumi; Sano, Yutaka; and Tanaka, Kazuyoshi, to UBE Industries, Ltd.; and Toyota Jidosha

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- Gebrüder Heller Maschinenfabrik GmbH. See—
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- Geiss, Alan C. Nasogastric tube adapted to avoid pressure necrosis. 4,363,323, Cl. 604-281.000.
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- General Electric Company. See—
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- Kaminski, Christopher A., 4,363,982, Cl. 310-61.000.
- Kliman, Gerald B., 4,363,988, Cl. 310-268.000.
- Laskaris, Evangelos T., 4,363,981, Cl. 310-52.000.
- Levinson, Lionel M., 4,364,021, Cl. 338-20.000.
- Martin, Jack R., 4,363,602, Cl. 416-230.000.
- Olashaw, William F.; Postlethwait, James H.; and Winterstein, Jeffrey L., 4,363,528, Cl. 312-292.000.
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- Coker, Guy C., 4,363,825, Cl. 426-617.000.
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- Mix, Renard E., 4,363,857, Cl. 429-234.000.
- Thebert, Glenn W., 4,363,600, Cl. 415-156.000.
- Thurston, Kelly W., 4,363,310, Cl. 123-572.000.
- Gentile, Charles J. Propel-repel solid stick dispenser. 4,363,560, Cl. 401-68.000.
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- Gerdlund, Carl P. Device for installing handle sticks in the ends of wieners. 4,363,158, Cl. 17-1.00S.
- Gerecke, Max; Haefely, Willy; Hunkeler, Walter; Kyburz, Emilio; Mohler, Hanns; Pieri, Lorenzo; and Polc, Petar, to Hoffmann-La Roche Inc. Process for preparing imidazobenzodiazepines. 4,363,762, Cl. 260-239.30T.
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- Giorgini, Norman L., to Minnesota Mining & Manufacturing Co. Pressure-fixing apparatus and method. 4,363,862, Cl. 430-98.000.
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- Givaudan Corporation. See—
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- Gladon, Richard J., to Iowa State University Research Foundation, Inc. Gas trap for removing atmospheric pollutants and method of operation. 4,363,639, Cl. 55-95.000.
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- Glasser, Fredrik P.; and Gunawardane, Richard P., to National Research Development Corporation. Fertilizer material from apatite. 4,363,650, Cl. 71-36.000.
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- Glyco-Metall-Werke Daelen & Loos GmbH. See—
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- Goad, Helen G. Prosthetic device for mastectomy patients. 4,363,144, Cl. 3-36.000.
- Goepp, Robert A.; and Freese, Uwe E., to University Patents, Inc. Custom valved cervical cap. 4,363,318, Cl. 128-130.000.
- Goldenberg, Joseph, to Construction Products Research and Development Corporation. Pre-cast building element and method. 4,363,200, Cl. 52-251.000.
- Goldfarb, Adolph E.; and Everitt, Delmar K., to Goldfarb, Adolph E. Toy motorcycle and launcher. 4,363,186, Cl. 46-209.000.
- Goldfarb, Adolph E. Sound-responsive electronic game. 4,363,482, Cl. 273-1.0GC.
- Goldstein, Gideon. See—
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- Goto, Shinichi, to Hitachi Maxell, Ltd. Magnetic recording tape cassette. 4,363,456, Cl. 242-197.000.

- Gottlieb, Sheldon K. Method for relief of burning, itching, and pain of cutaneous and mucosal surfaces. 4,363,818, Cl. 424-319.000.
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- Gould Inc. See—
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- Greene, Marvin I.; and Gelbein, Abraham P. Cracking of heavy carbonaceous liquid feedstocks utilizing hydrogen donor solvent. 4,363,716, Cl. 208-80.000.
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- Greer, Charles H., to Piqua Engineering, Inc. Vertical baler with improved safety gate and door latch system. 4,363,267, Cl. 100-255.000.
- Grunberg, Pierre, to Valeo. Braking system with anti-lock circuit. 4,363,524, Cl. 303-92.000.
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- Guillon, Michel. See—
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- Gulbins, Erich. See—
Kempter, Fritz E.; Schupp, Eberhard; Schenck, Hans-Uwe; and Gulbins, Erich, 4,363,710, Cl. 204-181.00C.
- Gulf Oil Corporation. See—
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- Gulf Research & Development Company. See—
Madgavkar, Ajay M.; and Vogel, Roger F., 4,363,361, Cl. 166-256.000.
- Gulf & Western Corporation. See—
Sinclair, Robert I.; Anderson, Verner; Logan, David J.; and Rich, Leonard G., 4,363,330, Cl. 131-105.000.
- Gunawardane, Richard P. See—
Glasser, Fredrik P.; and Gunawardane, Richard P., 4,363,650, Cl. 71-36.000.
- Gunesin, Binnur; Hamed, Gary R.; Kang, Jung W.; and Schulz, Donald N., to Firestone Tire & Rubber Company, The. Thermally reversible copolymers and process for the preparation thereof. 4,363,897, Cl. 525-195.000.
- Gunther, Dieter; Erckel, Rudiger; Rosch, Gunter; and Probst, Heinz, to Hoechst Aktiengesellschaft. Mixtures of optical brighteners and their use for the optical brightening. 4,363,744, Cl. 252-301.220.
- Gustafsson, Berth U., to Projectus Industrieprodukt AB. Lamellar separator. 4,363,730, Cl. 210-521.000.
- Guth, Friedrich, to Texas Instruments Deutschland GmbH. Alignment and recognition apparatus. 4,364,086, Cl. 358-101.000.
- Gyomrey, Karl M., to Coles Cranes Limited. Endless chain drive for telescopic jib sections. 4,363,413, Cl. 212-262.000.
- Hack, Oswald. See—
Deeg, Reinhard; and Hack, Oswald, 4,363,942, Cl. 200-5.00A.
- Hackett, Walter J.; and Galena, Peter E., to Purex Corporation. Spray buff reactant and application thereof. 4,363,835, Cl. 427-355.000.
- Haefely, Willy. See—
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- Hagel, Rainer; and Redecker, Klaus, to Dynamit Nobel Aktiengesellschaft. Use of zinc peroxide as oxidant for explosives and pyrotechnical mixtures. 4,363,679, Cl. 149-37.000.
- Hagner, Willi. See—
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- Hall, Charles B.; McBride, Edward D.; and Young, Robert F., to Outboard Marine Corporation. Hydraulic system for outboard motor with sequentially operating tilt and trim means. 4,363,629, Cl. 440-61.000.
- Hall, Henry H., to Mattel, Inc. Game top. 4,363,487, Cl. 273-147.000.
- Hall, Larry K. See—
Rosen, Marvin; and Hall, Larry K., 4,363,891, Cl. 524-317.000.
- Hallenius, Tore J.; and Sagefors, Karl I., to WP-System Aktiebolag. System for the storage of petroleum products and other fluids in a rock. 4,363,563, Cl. 405-55.000.
- Halstead Industries, Inc. See—
Nussbaum, Otto J., 4,363,218, Cl. 62-79.000.
- Halstead, Kenneth G.; and Benbow, Eugene C., to Westinghouse Electric Corp. Clutch mechanism for time of day watt-hour meter registers. 4,364,009, Cl. 324-116.000.
- Hamajima, Shigemitsu. See—
Kawata, Shoji; Nishimura, Tomoaki; Sakakibar, Naoki; Imai, Nobuyuki; Amano, Hiroyuki; and Hamajima, Shigemitsu, 4,363,973, Cl. 307-10.00R.
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- Hamprecht, Gerhard; and Wuerzer, Bruno, to BASF Aktiengesellschaft. 4H-3,1-Benzoxazine derivatives and their use for controlling undesired plant growth. 4,363,651, Cl. 71-88.000.
- Hamprecht, Gerhard. See—
Acker, Rolf-Dieter; Hamprecht, Gerhard; and Mueller, Franz-Josef, 4,363,925, Cl. 556-415.000.
- Hancor, Inc. See—
Crates, Fred J.; Fouss, James L.; and Parker, John J., 4,363,732, Cl. 210-532.200.
- Hand, Gary A. See—
Hunyar, Csaba K.; and Hand, Gary A., 4,363,705, Cl. 204-5.000.
- Hannerz, Kare, to AB Asea-Atom. Boiling reactor. 4,363,780, Cl. 376-282.000.
- Hara, Hikoyoshi. See—
Nasu, Sataro; Hara, Hikoyoshi; and Iwanaga, Kouichi, 4,363,169, Cl. 30-41.000.
- Hara, Takeshi. See—
Masuho, Yasuhiko; Kishida, Kazuo; and Hara, Takeshi, 4,363,758, Cl. 260-112.00B.
- Hardee's Food Systems, Inc. See—
Stahl, Lawrence E., 4,363,642, Cl. 55-233.000.
- Hardouin, Pierre. See—
Lucas, Gerard; and Hardouin, Pierre, 4,363,180, Cl. 40-316.000.
- Hargreaves, Brian; and Cousens, Alan K., to AMFU Limited. Flexible sheet material. 4,363,847, Cl. 428-283.000.
- Harmen, Jan H., to Brinkmann & Niemeyer N.V. Automatic cattle feeding device. 4,363,291, Cl. 119-51.00R.
- Harper, Rex M. See—
Breslow, Jeffrey D.; Harper, Rex M.; and Glickson, David A., 4,363,484, Cl. 273-85.00G.
- Harris, Robert M.; and Betzold, Edward R., to FMC Corporation. Strikedown service mechanism for a vertical launching system. 4,363,257, Cl. 89-1.802.
- Harshbarger, Thad L. Battery case for an electrically operated device. 4,364,103, Cl. 362-200.000.
- Hartless, Ray L. See—
Chandross, Edwin A.; and Hartless, Ray L., 4,363,867, Cl. 430-302.000.
- Hartman, Robert. Apparatus for converting power chain saw into a boring tool. 4,363,577, Cl. 408-20.000.
- Hartmann, Ludwig, to Carl Freudenberg, Firma. Spun non-woven fabrics with high dimensional stability, and processes for their production. 4,363,845, Cl. 428-198.000.
- Harvey, Andrew, to Foster-Miller Associates, Inc. Injector for a material transport system. 4,363,572, Cl. 406-58.000.
- Hasegawa, Taiji. See—
Atago, Takeshi; and Hasegawa, Taiji, 4,363,209, Cl. 60-274.000.
- Hasegawa, Takashi. See—
Suzuki, Takami; and Hasegawa, Takashi, 4,363,559, Cl. 400-175.000.
- Hashimoto, Akira; and Shirai, Hitoshi, to Olympus Optical Co., Ltd. Apparatus for mounting a film magazine into camera. 4,363,547, Cl. 354-212.000.
- Hashimoto, Kazunori. See—
Tanaka, Satoru; Shimada, Katsutoshi; Hashimoto, Kazunori; Ema, Kiichi; and Ueda, Koichiro, 4,363,921, Cl. 549-74.000.
- Hashimoto, Yoshitaka; Shiota, Norihisa; and Yamamoto, Kaichi, to Sony Corporation. Method and apparatus for processing a digital color video signal. 4,364,081, Cl. 358-13.000.
- Hasler, Peter H. See—
Murray, Bruce A.; Hasler, Peter H.; and Roth, Augustin, 4,363,610, Cl. 425-89.000.
- Haugeberg, Ronald H. Vacuum control apparatus. 4,363,373, Cl. 180-175.000.
- Hauser, Ambrose A. See—
Cline, Larry D.; Hauser, Ambrose A.; Sidenstick, James E.; and Zlatich, Mark S., 4,363,599, Cl. 415-136.000.
- Hauske, James R., to Pfizer Inc. 3',4'-Oxyallylene erythromycin and oleandomycin, composition and method of use. 4,363,803, Cl. 424-180.000.
- Hawthorne, M. Frederick; and Delaney, Mark S., to University of California, The Regents of the. Metallo-carborane precursor and catalyst. 4,363,747, Cl. 252-431.00P.
- Hay, Robert A., II, to Dow Chemical Company, The. Method for the lamination of foam including a reinforcing scrim. 4,363,684, Cl. 156-201.000.
- Hayashi, Midori. See—
Ochiai, Yoshihito; Nakashima, Syozi; and Hayashi, Midori, 4,363,794, Cl. 424-52.000.

Hazelrigg, Mark J., Jr.: See—
Hefner, Robert E., Jr.; Friedli, Hans R.; and Hazelrigg, Mark J., Jr., 4,363,907, Cl. 528-287.000.

Hazeltine Corporation: See—
Lopez, Alfred R., 4,364,050, Cl. 343-700.0MS.

Health Care Innovations, Inc.: See—
Paddon, Christopher M.; and Wetzel, Donald C., 4,363,368, Cl. 177-144.000.

Hecht, Gert: See—
Schonwald, Siegfried; and Hecht, Gert, 4,363,598, Cl. 415-53.00T.

Hedahl, Richard N., to FMC Corporation. Truck wheel clamp. 4,363,175, Cl. 33-288.000.

Hefner, Robert E., Jr.; Friedli, Hans R.; and Hazelrigg, Mark J., Jr., to Dow Chemical Company, The. Cohalogenation process for polyesters. 4,363,907, Cl. 528-287.000.

Heidt, Alfred; Link, Erich; and Ortlieb, Wolfgang, to Frankl & Kirchner GmbH & Co. KG Fabrik fur Elektromotoren u. elektrische Apparate. Circuit arrangement for energy economy. 4,364,001, Cl. 318-371.000.

Heikki, Hamalainen. Lift wall provided with lifting machinery. 4,363,348, Cl. 160-84.00R.

Heimbigner, Gary L., to Rockwell International Corporation. Reduced power tristate driver circuit. 4,363,978, Cl. 307-451.000.

Heine, Hans-Georg; Knops, Hans-Joachim; and Priesnitz, Uwe, to Bayer Aktiengesellschaft. Preparation of novel 1-hydroxycyclopropanecarboxylic acid intermediates. 4,363,926, Cl. 556-442.000.

Heinzel, Alfred; and Stadler, Heinz, to Siemens Aktiengesellschaft. Device for conveying and dispensing liquid media. 4,363,426, Cl. 222-134.000.

Hemp, John: See—
Rabeh, Riyadh H. A.; and Hemp, John, 4,363,244, Cl. 73-861.080.

Hendrikson, Kenneth L.: See—
Flint, John R.; Hendrikson, Kenneth L.; and Rabindran, K. George, 4,363,457, Cl. 242-203.000.

Henkel Corporation: See—
Roessler, Richard R., 4,363,689, Cl. 156-307.300.

Henkel Kommanditgesellschaft auf Aktien: See—
Conrad, Jens; Bruns, Klaus; and Upadek, Horst, 4,363,754, Cl. 252-522.00R.

Henson, Glen E.: See—
Fisher, Milton W.; and Henson, Glen E., 4,363,480, Cl. 272-69.000.

Henson, Kenneth A. Sloping-terrain vehicle. 4,363,495, Cl. 280-12.00H.

Herchenbach, Horst, to Klockner-Humboldt-Deutz AG. Method and apparatus for burning raw materials. 4,363,668, Cl. 106-100.000.

Hersh, David. Shoe polish. 4,363,893, Cl. 524-376.000.

Herzig, Peter, to Ewag A.G., Maschinen- und Werkzeugfabrik. Universal grinding machine. 4,363,193, Cl. 51-48.0HE.

Hesch, Harold; DiLuigi, Michael; and Lindauer, Thomas, to Pullman Incorporated. Cushioned low profile trailer. 4,363,578, Cl. 410-56.000.

Hester Industries, Inc.: See—
Williams, Charles E., 4,363,263, Cl. 99-352.000.

Heyman, Joseph S., to United States of America, National Aeronautics and Space Administration. Pulsed phase locked loop strain monitor. 4,363,242, Cl. 73-761.000.

Hickl, Anthony J., to Cabot Corporation. Nickel-base alloy resistant to wear. 4,363,659, Cl. 420-454.000.

Hidding, Daniel P. Method and apparatus for injection molding utilizing expandable cavity. 4,363,772, Cl. 264-328.700.

Hilbig, Josef; Holst, Arno; Kunkler, Hans; Stolting, Klaus; and Schminke, Wolfgang, to Hoechst Aktiengesellschaft. Apparatus for continuously producing water-soluble hydroxyalkyl cellulose and related ethers. 4,363,784, Cl. 422-134.000.

Hill, Herbert M.; and Shrader, Donald R. Apparatus for chopping scrap strip material into small pieces. 4,363,453, Cl. 241-222.000.

Hill, Nicholas J. Antimicrobial solution. 4,363,663, Cl. 106-18.310.

Hiller, Norbert, to Gebrueder Heller Maschinenfabrik GmbH. Automatic tool exchanger. 4,363,166, Cl. 29-568.000.

Hilty, Robert D., to Keck Consulting Services, Inc. Screened hollow stem auger for use in well drilling and testing process. 4,363,366, Cl. 175-314.000.

Hinze, Kenneth J., to Dow Chemical Company, The. Antioxidant compositions. 4,363,745, Cl. 252-402.000.

Hiraoka, Takeshi: See—
Takahashi, Kentaro; Hiraoka, Takeshi; and Urano, Shigeru, 4,363,662, Cl. 75-243.000.

Hiroki, Terushige: See—
Yoshida, Kazuyuki; Kaneko, Shizuo; Okawara, Mikio; and Hiroki, Terushige, 4,363,285, Cl. 118-19.000.

Hiromori, Yasutaka: See—
Yamamori, Kiyoshi; Hiromori, Yasutaka; and Mizoguchi, Akira, 4,364,065, Cl. 346-140.00R.

Hirota, Akira; and Tsunekawa, Masaharu, to Victor Company of Japan, Ltd. Multiple-channel rotary transformer circuit in a magnetic recording and/or reproducing apparatus. 4,364,098, Cl. 360-108.000.

Hirota, Yutaka: See—
Mishina, Noritoshi; Hirota, Yutaka; and Nakamura, Satoshi, 4,363,851, Cl. 428-333.000.

Hirschberg, Eugene H.; Bertolacini, Ralph J.; and Modica, Frank S., to Standard Oil Company (Indiana). Passivating metals on cracking catalysts with zinc. 4,363,720, Cl. 208-120.000.

Hirsekorn, Franklin D. Vacuum mold for plastics. 4,363,617, Cl. 425-388.000.

Hitachi Heating Appliances Co., Ltd.: See—
Tachikawa, Hajime; Watanabe, Mitsuru; and Yokoyama, Kenjiro, 4,363,957, Cl. 219-497.000.

Hitachi Koki Co., Ltd.: See—
Matsuda, Yasumasa; Sagae, Syoji; Kasahara, Masatoshi; and Uchida, Hiroyasu, 4,364,070, Cl. 346-140.00R.

Hitachi, Ltd.: See—
Amano, Matsuo; Mouri, Yasunori; Abe, Osamu; Suda, Seiji; and Sasayama, Takao, 4,363,307, Cl. 123-492.000.

Atago, Takeshi; and Hasegawa, Taiji, 4,363,209, Cl. 60-274.000.

Katsuta, Teiji; Nishiwaki, Koji; and Katagiri, Shinjiro, 4,363,953, Cl. 219-121.0EK.

Kodama, Churyo, 4,363,997, Cl. 313-487.000.

Koseki, Yasuo; Yamada, Akira; Nishimura, Yuusaku; and Takahashi, Sankichi, 4,363,219, Cl. 62-101.000.

Kusano, Masaaki, 4,364,044, Cl. 340-825.850.

Maeda, Takeshi; Shigematsu, Kazuo; and Yonezawa, Seiji, 4,364,118, Cl. 369-44.000.

Matsuda, Yasumasa; Sagae, Syoji; Kasahara, Masatoshi; and Uchida, Hiroyasu, 4,364,070, Cl. 346-140.00R.

Mizushima, Masashi; Maruyama, Masanori; Ehata, Shigeru; and Fukushima, Masakazu, 4,363,996, Cl. 313-449.000.

Narato, Kiyoshi; Ohtsuka, Keizou; and Niwa, Sadahiko, 4,364,032, Cl. 340-679.000.

Onodera, Toru; Ohsawa, Akira; Nishino, Hideki; and Watari, Masao, 4,364,112, Cl. 364-200.000.

Takayama, Teruo, 4,363,303, Cl. 123-339.000.

Tonomura, Kenichi; and Takahashi, Kyoichi, 4,364,082, Cl. 358-28.000.

Toya, Mitsuo, 4,363,935, Cl. 179-2.0EA.

Hitachi Maxell, Ltd.: See—
Goto, Shinichi, 4,363,456, Cl. 242-197.000.

Yasui, Masaaki; Matsuura, Takeshi; and Watatani, Seiji, 4,363,850, Cl. 428-329.000.

Hitachi Microcomputer Engineering Ltd.: See—
Tonomura, Kenichi; and Takahashi, Kyoichi, 4,364,082, Cl. 358-28.000.

Hodes, Erich; Steeg, Michael; and Lippok, Peter, to Glyco-Metall-Werke Daelen & Loos GmbH. Method for manufacturing workpieces having adaptation faces capable of withstanding extremely high surface pressures and temperatures, and product produced thereby. 4,363,854, Cl. 428-632.000.

Hodge, John C. W.: See—
Willison, Geoffrey; and Hodge, John C. W., 4,363,888, Cl. 523-502.000.

Hoechst Aktiengesellschaft: See—
Gunther, Dieter; Erckel, Rudiger; Rosch, Gunter; and Probst, Heinz, 4,363,744, Cl. 252-301.220.

Hilbig, Josef; Holst, Arno; Kunkler, Hans; Stolting, Klaus; and Schminke, Wolfgang, 4,363,784, Cl. 422-134.000.

Hoesch Werke Aktiengesellschaft: See—
Busemann, Eduard, 4,363,946, Cl. 219-10.590.

Hofferber, John R.: See—
Cottrell, Merlyn F.; Tegelman, Harold, Jr.; Holmes, Ronald E.; and Hofferber, John R., 4,363,959, Cl. 219-532.000.

Hoffman, Melvin G.; and Janneck, Frank W., to General Motors Corporation. Ceramic combustor mounting. 4,363,208, Cl. 60-39.320.

Hoffman, Norman E., to AMP Incorporated. Circuit path conductors in plural planes. 4,363,930, Cl. 174-68.500.

Hoffmann-La Roche Inc.: See—
Gerecke, Max; Haefely, Willy; Hunkeler, Walter; Kyburz, Emilio; Mohler, Hanns; Pieri, Lorenzo; and Polc, Petar, 4,363,762, Cl. 260-239.30T.

Holahan, Edward T.; and Meyer, Burton C., to Marvin Glass & Associates. Novelty light. 4,364,104, Cl. 362-223.000.

Holben, Clair D.; and Jeans, Edward L., to Cadbury Schweppes PCL. Quick coupling device for a gas pressurization system. 4,363,424, Cl. 222-4.000.

Holl, Gordon D.: See—
Marcolina, Gene A., 4,363,184, Cl. 43-85.000.

Hollander, Edward F., Jr., to Glass, John P. Packaging method. 4,363,205, Cl. 53-434.000.

Hollandsche Beton Groep N.V.: See—
van der Pot, Barend J. G., 4,363,570, Cl. 405-303.000.

Holmes, David D., to RCA Corporation. Television signal ghost detector. 4,364,092, Cl. 358-167.000.

Holmes, David D., to RCA Corporation. Television ghost cancellation system with phase-controlled remodulation. 4,364,093, Cl. 358-167.000.

Holmes, Ronald E.: See—
Cottrell, Merlyn F.; Tegelman, Harold, Jr.; Holmes, Ronald E.; and Hofferber, John R., 4,363,959, Cl. 219-532.000.

Holst, Arno: See—
Hilbig, Josef; Holst, Arno; Kunkler, Hans; Stolting, Klaus; and Schminke, Wolfgang, 4,363,784, Cl. 422-134.000.

Holze, Ernest P., Jr., to Branson Ultrasonics Corporation. Resonator exhibiting uniform motional output. 4,363,992, Cl. 310-323.000.

Holzer, Joseph C., to Joanna Western Mills Company. Adjustable wall mounted bracket. 4,363,459, Cl. 248-265.000.

Honda Giken Kogyo Kabushiki Kaisha: See—
Honda, Shoichi, 4,363,300, Cl. 123-315.000.

Kamiya, Tadashi, 4,363,375, Cl. 180-227.000.

Naito, Hiroyasu, 4,363,297, Cl. 123-146.50A.

Honda, Shoichi, to Honda Giken Kogyo Kabushiki Kaisha. Four-cycle internal combustion engine and associated methods of fuel combustion. 4,363,300, Cl. 123-315.000.

Honeywell Inc.: See—
Fahley, Jerome A., 4,363,239, Cl. 73-304.00C.

Shafer, Donald E., 4,364,071, Cl. 346-153.100.

Honeywell Information Systems Inc.: See—
Dalton, Christopher J., 4,364,025, Cl. 340-347.0DD.

Honig, Gunter; Braunger, Joachim; Krauter, Imanuel; and Bone, Rainer, to Robert Bosch GmbH. Evaluation circuit for electrical signals. 4,363,979, Cl. 307-519.000.

Honma, Kimiyasu, to Kabushiki Kaisha Audio-Technica. Pickup cartridge of moving coil type for phonograph. 4,364,120, Cl. 369-138.000.

Hook, Derek L. Removal of fly ash from the surface of liquids. 4,363,735, Cl. 210-776.000.

Hora, Richard E., to FMC Corporation. Blocking-type key. 4,363,562, Cl. 403-318.000.

Hori, Hisako: See—
Shirahata, Isao; Kitamura, Nobu; Nakamura, Nobuyuki; and Hori, Hisako, 4,363,899, Cl. 525-437.000.

Horie, Seiji: See—
Seshimoto, Osamu; Nomaguchi, Hirotugu; Horie, Seiji; Sato, Hideo; Takimoto, Masaaki; and Kubotera, Kikuo, 4,363,829, Cl. 427-53.100.

Horike, Masanori; and Ebi, Yutaka, to Ricoh Company, Ltd. Ink jet printing apparatus comprising automatic ink jet deflection adjustment means. 4,364,061, Cl. 346-75.000.

Horke, Masanori: See—
Jinnai, Koichiro; Horike, Masanori; Iwasaki, Kyuhachiro; and Kodama, Yutaka, 4,364,060, Cl. 346-75.000.

Horst, Robert L., to Armstrong World Industries, Inc. Pattern registration control bars. 4,363,271, Cl. 101-181.000.

Horstermann, Heinrich: See—
Ludwig, Peter; and Horstermann, Heinrich, 4,363,399, Cl. 198-833.000.

Hoshino, Minoru; Shinohara, Tosio; Tanabe, Hiroyuki; Taki, Tooru; and Nakayama, Shunsuke, to Dai Nippon Toray Co., Ltd. Anti-corrosive coating composition and process for formation of anti-corrosive coatings. 4,363,889, Cl. 523-513.000.

Hoshino, Shoji: See—
Tanioka, Susumu; Sasaki, Akiyoshi; and Hoshino, Shoji, 4,363,265, Cl. 99-510.000.

Hotine, William. Inflatable stressed skin microwave antenna. 4,364,053, Cl. 343-915.000.

Howard, Anthony J.: See—
Birchall, James D.; Kendall, Kevin; and Howard, Anthony J., 4,363,667, Cl. 106-90.000.

Howard, Thomas E., to Joy Manufacturing Company. Continuous mining machine. 4,363,519, Cl. 299-31.000.

Howden Equipment Services Pty. Ltd.: See—
Lang, Timothy R.; and Casimir, Donald J., 4,363,264, Cl. 99-510.000.

Hoya Corporation: See—
Nakajima, Yuji; and Izumitani, Tetsuro, 4,363,852, Cl. 428-432.000.

Hoyer, Gerd: See—
Schmidt, Manfred; Hoyer, Gerd; Leiberich, Hermann; and Pietschmann, Helmut, 4,363,626, Cl. 433-85.000.

Hoyle, Peter J.: See—
Knoll, Frank S.; Taylor, Joseph B.; and Hoyle, Peter J., 4,363,723, Cl. 209-128.000.

HPM Corporation: See—
Kruder, George A., 4,363,768, Cl. 264-68.000.

Hsieh, C. L., to Kung Hsue She Educational Supplies Co., Ltd. Locking device for percussion instruments' stand. 4,363,561, Cl. 403-92.000.

Hsu, Sheng T.; and Schnable, George L., to RCA Corporation. Method of forming tapered contact holes for integrated circuit devices. 4,363,830, Cl. 427-88.000.

Huber, Guntram: See—
Schmidt, Adolf; Jambor, Arno; and Huber, Guntram, 4,363,838, Cl. 428-31.000.

Huchler, Otto H.: See—
Mueller, Herbert; and Huchler, Otto H., 4,363,924, Cl. 549-509.000.

Huehne, Erwin D., to Eutectic Corporation. Gas-torch construction. 4,363,443, Cl. 239-79.000.

Hughes Aircraft Company: See—
Verzwylvel, Scott A., 4,363,834, Cl. 427-296.000.

Humphries, Darrel V.: See—
Austen, Alfred R.; and Humphries, Darrel V., 4,363,611, Cl. 425-97.000.

Hung, William M.: See—
Schmidt, Paul J.; and Hung, William M., 4,363,503, Cl. 282-27.500.

Hunkeler, Walter: See—
Gerecke, Max; Haefely, Willy; Hunkeler, Walter; Kyburz, Emilio; Mohler, Hanns; Pieri, Lorenzo; and Polc, Petar, 4,363,762, Cl. 260-239.30T.

Hunter, Joseph M. Rotary drilling head. 4,363,357, Cl. 166-84.000.

Hunyar, Csaba K.; and Hand, Gary A., to Capitol Records, Inc. Passivating and silver removal method. 4,363,705, Cl. 204-5.000.

Huppert, Vaughn P.; and Castoro, Richard J. Internally lighted decorative display. 4,364,102, Cl. 362-123.000.

Hutas, Istvan: See—
Ambrus, Dezso; Szabolcsi, Tamas; and Hutas, Istvan, 4,363,910, Cl. 546-172.000.

Hutchinson, Robert E., Jr. Photographic developing process. 4,363,869, Cl. 430-427.000.

Hutchinson, William Y., to Continental Scale Corporation. Pediatric tray and weighing scale. 4,363,371, Cl. 177-262.000.

Hutson, Donald G., to Cal Detect, Inc. Method and apparatus for measuring breath alcohol. 4,363,635, Cl. 436-132.000.

Hutter, Hans-Georg. Multipart actuating mechanism. 4,364,019, Cl. 335-207.000.

Hyatt, Gilbert P. Computerized machine control system. 4,364,110, Cl. 364-107.000.

Hydrodynamic Energy Systems Corporation: See—
Borgren, Peter M., 4,363,564, Cl. 405-77.000.

Hyman, Gregory E.; and Greenberg, Lawrence J. Electronic musical mobile. 4,363,181, Cl. 40-466.000.

Ichiyama, Tadashi; Yamaguchi, Shigehiro; Iuchi, Tooru; Nakamura, Motoharu; and Suga, Yozo, to Nippon Steel Corporation. Method for treating an electromagnetic steel sheet and an electromagnetic steel sheet having marks of laser-beam irradiation on its surface. 4,363,677, Cl. 148-111.000.

Ida, Yukio: See—
Shimoyama, Yuji; Yanagishima, Fumiya; Sunami, Hideo; Ida, Yukio; Katsushima, Goji; Ohnishi, Takeo; and Fukushima, Takeo, 4,363,472, Cl. 266-111.000.

Yanagishima, Fumiya; Shimoyama, Yuji; Sunami, Hideo; Ida, Yukio; Katsushima, Goji; Suzuki, Munetoshi; and Ohnishi, Takeo, 4,363,471, Cl. 266-111.000.

Iizuka, Hisakazu: See—
Nagakubo, Yoshihide; and Iizuka, Hisakazu, 4,363,696, Cl. 156-653.000.

Iizuka, Motohiko; Nakatani, Genji; and Kishimoto, Sumiyuki, to Nippon Kokan Kabushiki Kaisha. Method for operating blast furnace. 4,363,655, Cl. 75-41.000.

Iizuka, Syogo: See—
Suzuki, Yoshitsugu; Iizuka, Syogo; Kajiyama, Shigeo; Usui, Kenji; and Kobayashi, Masahiro, 4,363,165, Cl. 29-564.800.

Imai, Nobuyuki: See—
Kawata, Shoji; Nishimura, Tomoaki; Sakakibar, Naoji; Imai, Nobuyuki; Amano, Hiroyuki; and Hamajima, Shigemitsu, 4,363,973, Cl. 307-10.00R.

Imai, Shigeki: See—
Fukuda, Hiroaki; and Imai, Shigeki, 4,364,041, Cl. 340-785.000.

Imamura, Kazuyoshi; Akimoto, Norio; and Awaya, Shozo, to Asahi Kasei Kogyo Kabushiki Kaisha. Hot-melt polyester. 4,363,853, Cl. 428-480.000.

Imamura, Yoshiyuki; and Kawakami, Moriatsu, to Laurel Bank Machine Co., Ltd. Sheet binding apparatus. 4,363,692, Cl. 156-351.000.

IMI Kynoch Limited: See—
Williams, David E.; Verma, Kamal K.; and Fisher, John M., 4,363,706, Cl. 204-105.00R.

Imperial Chemical Industries Limited: See—
Birchall, James D.; Kendall, Kevin; and Howard, Anthony J., 4,363,667, Cl. 106-90.000.

Ealding, Cyril J., 4,363,872, Cl. 430-532.000.

Thomas, David H., 4,363,616, Cl. 425-339.000.

Innovationsteknik: See—
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Inohara, Junichi: See—
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Institut Francais du Pétrole: See—
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Institute of Gas Technology: See—
Anderson, Gerald L.; Borders, Harley A.; and Berry, F. Otis, 4,363,790, Cl. 423-230.000.

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Intel Corporation: See—
Bohr, Mark T.; Yu, Kenneth K.; Chwang, Ronald J. C.; and Berglund, Neil C., 4,364,075, Cl. 357-23.000.

Interholz Technik GmbH: See—
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Clark, Justin S., 4,363,327, Cl. 128-719.000.

International Business Machines Corp.: See—
Brodsky, Marc H.; and Scott, Bruce A., 4,363,828, Cl. 427-39.000.

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Edmonds, Harold D.; and Markovits, Gary, 4,364,100, Cl. 361-395.000.

Engler, Edward M.; Patel, Vishnubhai V.; and Schumaker, Robert R., 4,363,919, Cl. 549-32.000.

Garnache, Richard R.; Kenney, Donald M.; and Thoma, Nandor G., 4,364,074, Cl. 357-23.000.

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International Harvester Company: See—
Gagliani, John; and Lee, Raymond, 4,363,690, Cl. 156-307.500.

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International Nuclear Energy Systems Co.: See—
Bussard, Robert W.; and Coppi, Bruno, 4,363,775, Cl. 376-133.000.

International Standard Electric Corporation: See—
Bergersen, Hans A., 4,363,947, Cl. 219-528.000.

Deeg, Reinhard; and Hack, Oswald, 4,363,942, Cl. 200-5.00A.

Inventco Sales Limited: See—
Abbott, Ronald L., 4,363,223, Cl. 62-303.000.

Iowa State University Research Foundation, Inc.: See—
Gladon, Richard J., 4,363,639, Cl. 55-95.000.

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Ishii, Yasuo: See—
Nishimura, Naotsumi; Matsunaga, Akira; and Ishii, Yasuo, 4,363,678, Cl. 149-6.000.

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Nanjo, Toshio; Nakamura, Akinori; and Ishikawa, Hidekazu, 4,363,473, Cl. 266-187.000.

Ishikawajima-Harima Jukogyo Kabushiki Kaisha: See—
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Ishizuki, Katsuro: See—
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Isono, Katsuo; Miyaoka, Senji; and Shinkai, Kinya, to Sony Corporation. Beam index type color television receiver. 4,364,083, Cl. 358-69.000.

Isshiki, Isao; Sato, Koji; Sunago, Katsuyoshi; Ohoka, Akihiro; and Akatsuka, Masayuki, to Sumitomo Electric Industries, Ltd. Optical character reading system. 4,364,023, Cl. 340-146.30H.

Istvan, Sandor: See—
Gado, Istvan; Jekkel nee Bokany, Antonia; Szvoboda, Gyuml/o/rgy; Jarai, Miklos; Piukovich, Sandor; and Istvan, Sandor, 4,363,876, Cl. 435-253.000.

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Kuriyama, Kiyoshi; Nakano, Jun; Itikawa, Kiyonosin; Ito, Kiyoshi; Suzuki, Yuji; and Ishizuki, Katsuro, 4,363,812, Cl. 424-269.000.

Itoh, Teturoh, to Mitsubishi Denki Kabushiki Kaisha. Method of electrically cutting materials with a wire-shaped electrode and apparatus for practicing the same. 4,363,948, Cl. 219-69.00W.

ITW Ateco GmbH: See—
Wibrow, Gunter, 4,363,160, Cl. 24-297.000.

Iuchi, Tohru: See—
Ichiyama, Tadashi; Yamaguchi, Shigehiro; Iuchi, Tohru; Nakamura, Motoharu; and Suga, Yoza, 4,363,677, Cl. 148-111.000.

Ives, Kenneth D., to United States Steel Corporation. Apparatus for measuring eccentricity of rolls. 4,363,172, Cl. 33-174.00Q.

Ives, Kenneth D., to United States Steel Corporation. Gas-entrained particulate feed system. 4,363,470, Cl. 266-81.000.

Iwamatsu, Noboru: See—
Kohzai, Yoshinori; Amemiya, Yoichi; Fujioka, Yoshiki; and Iwamatsu, Noboru, 4,364,005, Cl. 322-31.000.

Iwanaga, Kouichi: See—
Nasu, Sataro; Hara, Hikoyoshi; and Iwanaga, Kouichi, 4,363,169, Cl. 30-41.000.

Iwasaki, Kyuhachiro: See—
Jinnai, Koichiro; Horike, Masanori; Iwasaki, Kyuhachiro; and Kodama, Yutaka, 4,364,060, Cl. 346-75.000.

Iwatsu Electric Co., Ltd.: See—
Shimizu, Kazunari, 4,364,036, Cl. 340-715.000.

Izumitani, Tetsuro: See—
Nakajima, Yuji; and Izumitani, Tetsuro, 4,363,852, Cl. 428-432.000.

J. Connell Associates: See—
Connell, James, 4,363,520, Cl. 301-37.00P.

J. I. Case Company: See—
Erickson, Terry D., 4,363,178, Cl. 37-191.00A.

Jackson, Carroll V.; and Rau, Blase C., to United Conveyor Corporation. System for feeding pulverulent material into a pressurized air conveyor pipeline. 4,363,571, Cl. 406-56.000.

Jacques, Steven L. Focusing probe for moisture measurement device. 4,364,008, Cl. 324-58.50R.

Jacquet, Bernard; Papantoniou, Christos; Land, Gerard; and Forestier, Serge, to Societe Anonyme dite: l'Oreal. Polyaspartic acid derivatives, their preparation and their use in cosmetic composition. 4,363,797, Cl. 424-70.000.

Jaggle, Gunther; Lang, Ernst; and Knapp, Heinrich, to Robert Bosch GmbH. Fuel injection nozzle. 4,363,446, Cl. 239-453.000.

Jakobs, Jurgen: See—
Koster, Rainer; Rudolph, Gunter; Gebauer, Rainer; Boch, Iris; Schroter, Wilfried; and Jakobs, Jurgen, 4,363,757, Cl. 252-628.000.

Jambor, Arno: See—
Schmidt, Adolf; Jambor, Arno; and Huber, Guntram, 4,363,838, Cl. 428-31.000.

Jamerson, Jackie D.: See—
Billig, Ernst; Bryant, David R.; and Jamerson, Jackie D., 4,363,764, Cl. 260-429.00R.

James River Corporation of Virginia: See—
VanderLugt, Thomas, Jr., 4,363,821, Cl. 426-393.000.

Janneck, Frank W.: See—
Hoffman, Melvin G.; and Janneck, Frank W., 4,363,208, Cl. 60-39.320.

Janssen Pharmaceutica N.V.: See—
Albert, Rudolf; Willemsens, Albert; and van der Veken, Guido, 4,363,918, Cl. 548-531.000.

Japan Steel Works, Ltd.: See—
Onishi, Keizo; Adachi, Takao; Fuji, Akiyoshi; Chiba, Ryuichi; Naitoh, Katsuyuki; and Okada, Hachiro, 4,363,952, Cl. 219-76.120.

Jaques, Dean. Painter's holster. 4,363,433, Cl. 224-253.000.

Jarai, Miklos: See—
Gado, Istvan; Jekkel nee Bokany, Antonia; Szvoboda, Gyuml/o/rgy; Jarai, Miklos; Piukovich, Sandor; and Istvan, Sandor, 4,363,876, Cl. 435-253.000.

Jardin, Hans: See—
Lutz, Alfons; and Jardin, Hans, 4,363,515, Cl. 296-222.000.

Jargiello, Paul; and Bosshardt, William, to Polychrome Corporation. Antibuckling apparatus for lithographic printing plates. 4,363,176, Cl. 34-4.000.

Jarvinen, Willard B.: See—
Cutler, John H.; Jarvinen, Willard B.; and Walker, Loren H., 4,364,007, Cl. 324-51.000.

Jears, Edward L.: See—
Holben, Clair D.; and Jears, Edward L., 4,363,424, Cl. 222-4.000.

Jekkel nee Bokany, Antonia: See—
Gado, Istvan; Jekkel nee Bokany, Antonia; Szvoboda, Gyuml/o/rgy; Jarai, Miklos; Piukovich, Sandor; and Istvan, Sandor, 4,363,876, Cl. 435-253.000.

JENAer Glaswerk Schott & Gen.: See—
Scheidler, Herwig; and Keller, Gunther, 4,363,956, Cl. 219-464.000.

Jeno's Inc.: See—
Carlson, John L., 4,363,251, Cl. 83-105.000.

Jersey Nuclear-Avco Isotopes, Inc.: See—
Drake, J. Michael; and Furumoto, Horace W., 4,364,015, Cl. 372-53.000.

Jibiki, Hiroshi: See—
Fukui, Kiyoshi; Kakeya, Noboru; Jibiki, Hiroshi; and Kita, Junichiro, 4,363,916, Cl. 548-313.000.

Jinnai, Koichiro; Horike, Masanori; Iwasaki, Kyuhachiro; and Kodama, Yutaka, to Ricoh Co., Ltd. Nozzle position deviation compensation arrangement for ink jet printing device. 4,364,060, Cl. 346-75.000.

Joanna Western Mills Company: See—
Holzer, Joseph C., 4,363,459, Cl. 248-265.000.

Jocz, Armin E., to Westran Corporation. Electronically controlled valve actuator. 4,364,111, Cl. 364-175.000.

Johansing, P. G., Jr. Hydraulic fluid cooling system. 4,363,356, Cl. 165-110.000.

Johansson, Sven L., to Innovationsteknik. Method of positively controlling, storing and transporting banknotes, and a safety cassette and banknote-infeed unit for carrying out the method. 4,363,279, Cl. 109-29.000.

Johnson, Eric C.: See—
Albaum, Joseph D.; Ponzone, Ronald W.; and Johnson, Eric C., 4,363,810, Cl. 426-262.000.

Johnson, Lester. Pseudo electrode assembly. 4,363,989, Cl. 310-306.000.

Johnson, Robert M.; and Melling, Elmer M., to National Gypsum Company. Reinforced cement sheet product containing fibers other than asbestos, clay and thickener. 4,363,666, Cl. 106-90.000.

Johnston, Reece W., to Advance Dental Corporation. Method of affixing a dental appliance. 4,363,624, Cl. 433-9.000.

Joho, Reinhard; and Pohl, Herbert, to BBC Brown, Boveri & Company, Limited. Rotor of an electrical machine. 4,363,986, Cl. 310-214.000.

Jones, Andrew W.; and Merry, Raymond. Airfoil structure. 4,363,458, Cl. 244-153.00R.

Jossin, Alain: See—
Farge, Daniel; Jossin, Alain; Ponsinet, Gerard; and Reisdorf, Daniel, 4,363,909, Cl. 544-238.000.

Joubert, Raymond J. M.: See—
Bouiller, Jean G.; Pous, Jacques A. J.; and Joubert, Raymond J. M., 4,363,445, Cl. 239-265.350.

Joy Manufacturing Company: See—
Duff, John, 4,363,258, Cl. 91-165.000.

Howard, Thomas E., 4,363,519, Cl. 299-31.000.

Joyner, Frederick B.; Trotter, Jimmy R.; and McConnell, Richard L., to Eastman Kodak Company. Polyester modified with alkyl- or alkenylsuccinic anhydrides. 4,363,908, Cl. 528-302.000.

Jungheinrich Unternehmensverwaltung KG, Firma: See—
Archer, Michael A., 4,364,047, Cl. 340-870.370.

Jungwirth, Dieter: See—
Wlodkowski, Johann; and Jungwirth, Dieter, 4,363,462, Cl. 249-190.000.

Kabushiki Kaisha Audio-Technica: See—
Honma, Kimiyasu, 4,364,120, Cl. 369-138.000.

Kabushiki Kaisha Komatsu Seisakusho: See—
Nakamura, Joji; and Akanuma, Shigetake, 4,363,518, Cl. 299-14.000.

Kabushiki Kaisha Morita Kouken: See—
Morita, Takeshi; and Morita, Kiyoshi, 4,363,725, Cl. 209-257.000.

Kabushiki Kaisha Sato: See—
Sato, Yo; and Shibayama, Tooru, 4,363,268, Cl. 101-110.000.

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Kabushiki Kaisha Suwa Seikosha: See—
Koto, Haruhiko, 4,364,066, Cl. 346-140.00R.

Koto, Haruhiko; and Okada, Junichi, 4,364,067, Cl. 346-140.00R.

Kabushiki Kaisha Toyoda Jidoshokki Seisakusho: See—
Suzuki, Hajime; and Arakawa, Akio, 4,364,002, Cl. 318-467.000.

Kaim, John W., to AMSTED Industries Incorporated. Type-E railroad car coupler head. 4,363,414, Cl. 213-147.000.

Kaiser, Klaus-Peter: See—
Viertel, Lothar; Kaiser, Klaus-Peter; and Nowak, Manfred, 4,363,511, Cl. 296-97.00K.

Kaiser, Roman; and Lamparsky, Dietmar, to Givaudan Corporation. Tobacco products containing oxygenated ionone derivatives. 4,363,331, Cl. 131-275.000.

Kaji, Kazusuke, to SI Handling Systems, Inc. Conveyor system and vehicle for use therein. 4,363,275, Cl. 104-166.000.

Kajiyama, Shigeo: See—
Suzuki, Yoshitsugu; Iizuka, Syogo; Kajiyama, Shigeo; Usui, Kenji; and Kobayashi, Masahiro, 4,363,165, Cl. 29-564.800.

Kakenyaku Kako Co., Ltd.: See—
Kuriyama, Kiyoshi; Nakano, Jun; Itikawa, Kiyonosin; Ito, Kiyoshi; Suzuki, Yuji; and Ishizuki, Katsuro, 4,363,812, Cl. 424-269.000.

Kakeya, Noboru: See—
Fukui, Kiyoshi; Kakeya, Noboru; Jibiki, Hiroshi; and Kita, Junichiro, 4,363,916, Cl. 548-313.000.

Kakimura, Michio: See—
Kawae, Yasunobu; and Kakimura, Michio, 4,363,701, Cl. 162-301.000.

Kaminski, Christopher A., to General Electric Company. Dual curved inlet gap pickup wedge. 4,363,982, Cl. 310-61.000.

Kamiya, Tadashi, to Honda Giken Kogyo Kabushiki Kaisha. Motorcycle. 4,363,375, Cl. 180-227.000.

Kanamori, Takeshi: See—
Kimura, Yukichi; and Kanamori, Takeshi, 4,363,823, Cl. 426-542.000.

Kanazashi, Akihiro: See—
Toshimitsu, Kenshi; Kanazashi, Akihiro; and Kohyama, Mitsuki, 4,363,550, Cl. 355-3.0TR.

Kanbe, Junichiro: See—
Nakamura, Shunji; Kanbe, Junichiro; Toyono, Tsutomu; Takahashi, Tohru; and Tamura, Yasuyuki, 4,363,861, Cl. 430-97.000.

Kanegafuchi Kagaku Kogyo Kabushiki Kaisha: See—
Yamane, Kazumasa; Kobayashi, Masahiro; and Takada, Masahiko, 4,363,903, Cl. 526-273.000.

Kaneki, Satoru, to Dai Nippon Insatsu Kabushiki Kaisha. Photomask and photomask blank. 4,363,846, Cl. 428-203.000.

Kaneko, Shizuo: See—
Yoshida, Kazuyuki; Kaneko, Shizuo; Okawara, Mikio; and Hiroki, Terushige, 4,363,285, Cl. 118-19.000.

Kang, Jung W.: See—
Gunesin, Binnur; Hamed, Gary R.; Kang, Jung W.; and Schulz, Donald N., 4,363,897, Cl. 525-195.000.

Karol, Frederick J.: See—
Fraser, William A.; Maraschin, Norma J.; Karol, Frederick J.; and Makai, Alexander J., 4,363,904, Cl. 526-348.200.

Karpanty, David J., to Scott & Fetzer Company, The. Squeegee assembly for a scrubbing machine. 4,363,152, Cl. 15-98.000.

Kasahara, Masatoshi: See—
Matsuda, Yasumasa; Sagae, Syoji; Kasahara, Masatoshi; and Uchida, Hiroyasu, 4,364,070, Cl. 346-140.00R.

Kastl, Alfons: See—
Oberhoffner, Gerhard; Koninger, Horst; and Kastl, Alfons, 4,363,548, Cl. 354-298.000.

Katagiri, Shinjiro: See—
Katsuta, Teiji; Nishiwaki, Koji; and Katagiri, Shinjiro, 4,363,953, Cl. 219-121.00E.

Katayama, Kazuo: See—
Watanabe, Kenichi; Katayama, Kazuo; and Kijima, Takao, 4,363,499, Cl. 280-775.000.

Kato, Yoji: See—
Kobayashi, Akihiro; Kida, Masashi; and Kato, Yoji, 4,363,958, Cl. 219-505.000.

Katsushima, Goji: See—
Shimoyama, Yuji; Yanagishima, Fumiya; Sunami, Hideo; Ida, Yukio; Katsushima, Goji; Ohnishi, Takeo; and Fukushima, Takeo, 4,363,472, Cl. 266-111.000.

Yanagishima, Fumiya; Shimoyama, Yuji; Sunami, Hideo; Ida, Yukio; Katsushima, Goji; Suzuki, Munetoshi; and Ohnishi, Takeo, 4,363,471, Cl. 266-111.000.

Katsuta, Teiji; Nishiwaki, Koji; and Katagiri, Shinjiro, to Hitachi, Ltd. Electron beam scribing method. 4,363,953, Cl. 219-121.00E.

Kaveney, John R., Jr., to Caterpillar Tractor Co. Door lock. 4,363,231, Cl. 70-484.000.

Kawae, Yasunobu; and Kakimura, Michio, to Kyoto Ceramic Kabushiki Kaisha. Supporting member for paper-making screen in paper machines. 4,363,701, Cl. 162-301.000.

Kawai, Hisasi; Sakurai, Kazuhiro; and Matsumoto, Muneaki, to Nippon Soken, Inc.; and Toyota Jidosha Kogyo Kabushiki Kaisha. Exhaust gas purifying system for internal combustion engines. 4,363,210, Cl. 60-276.000.

Kawakami, Moriatsu: See—
Imamura, Yoshiyuki; and Kawakami, Moriatsu, 4,363,692, Cl. 156-351.000.

Kawamura, Duro: See—
Ohude, Masao; and Kawamura, Duro, 4,363,204, Cl. 53-381.00A.

Kawasaki Steel Corporation: See—
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Shimoyama, Yuji; Yanagishima, Fumiya; Sunami, Hideo; Ida, Yukio; Katsushima, Goji; Ohnishi, Takeo; and Fukushima, Takeo, 4,363,472, Cl. 266-111.000.

Yanagishima, Fumiya; Shimoyama, Yuji; Sunami, Hideo; Ida, Yukio; Katsushima, Goji; Suzuki, Munetoshi; and Ohnishi, Takeo, 4,363,471, Cl. 266-111.000.

Kawasaki, Takao; Osaka, Yoshiaki; and Tsuchiya, Tadashi, to Kureha Kagaku Kogyo Kabushiki Kaisha. 2-(3,4,5-Trimethoxyphenyl)-4,5-disubstituted thiazoles. 4,363,813, Cl. 424-270.000.

Kawase, Yasuo: See—
Akimoto, Taizo; and Kawase, Yasuo, 4,364,084, Cl. 358-76.000.

Kawata, Shoji; Nishimura, Tomoaki; Sakakibara, Naoki; Imai, Nobuyuki; Amano, Hiroyuki; and Hamajima, Shigemitsu, to Aisin Seiki Kabushiki Kaisha. Safety circuit of automatic transmission control system. 4,363,973, Cl. 307-10.00R.

Kawesch, Stanley. Traction means on showering surfaces and method of producing the same. 4,363,145, Cl. 4-583.000.

Keck Consulting Services, Inc.: See—
Hilty, Robert D., 4,363,366, Cl. 175-314.000.

Keller, Alex J.; Fechner, Erhard A.; and Williams, Joseph R., to Automatic Material Handling, Inc. Bale level control system for mechanical hopper feeder. 4,363,585, Cl. 414-273.000.

Keller, Gunther: See—
Scheidler, Herwig; and Keller, Gunther, 4,363,956, Cl. 219-464.000.

Keller, Josef: See—
Eisend, Ewald; and Keller, Josef, 4,363,390, Cl. 192-46.000.

Kelly, Arnold J., to Exxon Research and Engineering Co. Method and apparatus for fluid jet printing. 4,364,054, Cl. 346-1.100.

Kempter, Fritz E.; Schupp, Eberhard; Schenck, Hans-Uwe; and Gulbins, Erich, to BASF Aktiengesellschaft. Polyadducts of ammonia and epoxide compounds, processes for their modification, and their use. 4,363,710, Cl. 204-181.00C.

Kendall, Kevin: See—
Birchall, James D.; Kendall, Kevin; and Howard, Anthony J., 4,363,667, Cl. 106-90.000.

Kennecott Corporation: See—
Kucheria, Chhattar S.; and Smith, Russell D., 4,363,199, Cl. 52-221.000.

Kenney, Donald M.: See—
Garnache, Richard R.; Kenney, Donald M.; and Thoma, Nandor G., 4,364,074, Cl. 357-23.000.

Kenyon, Eugene B. Apparatus for lining kilns, tunnels and the like. 4,363,202, Cl. 52-749.000.

Kerfeld, Donald J.: See—
Lewis, Terry W.; Anderson, Roger J.; and Kerfeld, Donald J., 4,363,844, Cl. 428-65.000.

Kernforschungszentrum Karlsruhe GmbH: See—
Koster, Rainer; Rudolph, Gunter; Gebauer, Rainer; Boch, Iris; Schroter, Wilfried; and Jakobs, Jurgen, 4,363,757, Cl. 252-628.000.

Kida, Masashi: See—
Kobayashi, Akihiro; Kida, Masashi; and Kato, Yoji, 4,363,958, Cl. 219-505.000.

Kidde, Inc.: See—
Patel, Ramesh P.; and Bonnell, Alfred, Jr., 4,363,412, Cl. 212-196.000.

Kido, Jun-ichiro: See—
Wada, Isao; Kido, Jun-ichiro; and Koido, Kazuo, 4,363,700, Cl. 162-72.000.

Kijima, Takao: See—
Watanabe, Kenichi; Katayama, Kazuo; and Kijima, Takao, 4,363,499, Cl. 280-775.000.

Kikuchi, Masatsugu: See—
Tamai, Masayoshi; Ueda, Michio; and Kikuchi, Masatsugu, 4,364,058, Cl. 346-75.000.

Kikuta, Kazutsune; Tachibana, Masami; and Sato, Akihiro, to Chisso Corporation. Process for producing α -olefin polymers. 4,363,901, Cl. 526-97.000.

Kilgore, Raymond L. Free piston pump for pumping liquids from a well. 4,363,606, Cl. 417-59.000.

Kilin, Viktor E.: See—
Nikolaev, Igor V.; Evpolov, Vladimir A.; Dronova, Lidia M.; Lednikov, Anatoly I.; Moskvin, Mikhail A.; Sutyagin, Oleg Y.; Yankovsky, Oleg A.; Kilin, Viktor E.; Kolmyk, Evgeny S.; Tupitsyn, Konstantin K.; and Makarov, Alexei M., 4,363,365, Cl. 173-139.000.

Kim Manufacturing Company: See—
Carroll, Joseph W., 4,363,460, Cl. 248-415.000.

Kimura, Toshio: See—
Suzuki, Yoshihiro; Nakagawa, Shuichi; Wako, Yasuo; Ogawa, Yoshihiro; Yamaguchi, Mamoru; and Kimura, Toshio, 4,364,056, Cl. 346-29.000.

Kimura, Yukichi; and Kanamori, Takeshi, to Lion Corporation. Method of frying foods in the presence of a spice antioxidant. 4,363,823, Cl. 426-542.000.

Kirchhoff, Hans, to Schloemann-Siemag Aktiengesellschaft. Apparatus for conveying rolled stock. 4,363,394, Cl. 198-369.000.

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Matsuda, Satoshi; and Kiyohara, Etsuo, 4,363,985, Cl. 310-184.000.

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- Klawitter, Ronald R., to Steven Manufacturing Company. Roller skate. 4,363,494, Cl. 280-11.280.
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- Kleptz, Charles F. Method for producing a restructured meat product. 4,363,822, Cl. 426-513.000.
- Klessing, Klaus; Chatterjee, Shyam S.; and Gabard, Bernard L., to Willmar Schwabe, Firma. Aminodesoxy-1,4:3,6-dianhydrohexitol nitrates and pharmaceutical composition. 4,363,805, Cl. 424-230.000.
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Herchenbach, Horst, 4,363,668, Cl. 106-100.000.
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Stock, Hugo; and Tholen, Paul, 4,363,301, Cl. 123-321.000.
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- Kniazzezh, Alfredo G.: See—
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- Knitter, Kathy A.; and Villa, Jose L., to Diamond Shamrock Corporation. Stabilized oil slurries of carbonaceous materials. 4,363,637, Cl. 44-51.000.
- Knoll, Frank S.; Taylor, Joseph B.; and Hoyle, Peter J., to Carpc, Inc. Multifield electrostatic separator. 4,363,723, Cl. 209-128.000.
- Knops, Hans-Joachim: See—
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- Knowlton, Christopher M., to Scott & Fetzer Company, The. Riding sweeper with high dump mechanism. 4,363,151, Cl. 15-83.000.
- Koa Oil Company, Limited: See—
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- Kobayashi, Hiroshi, to Ricoh Co., Ltd. Multi-ink jet head. 4,364,069, Cl. 346-140.00R.
- Kobayashi, Masahiro: See—
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- Yamane, Kazumasa; Kobayashi, Masahiro; and Takada, Masahiko, 4,363,903, Cl. 526-273.000.
- Kobayashi, Tohru: See—
Shibue, Toshiaki; Nagayasu, Koichi; Kobayashi, Tohru; and Tokitoku, Kouji, 4,363,871, Cl. 430-523.000.
- Koberstein, Edgar: See—
Bozon, Alfred; Koberstein, Edgar; Pletka, Hans-Dieter; and Voelker, Herbert, 4,363,753, Cl. 252-477.00R.
- Kodama, Churyo, to Hitachi, Ltd. Fluorescent lamp having reflective layer. 4,363,997, Cl. 313-487.000.
- Kodama, Yutaka: See—
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- Kohyama, Mitsuki: See—
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- Koido, Kazuo: See—
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- Koizumi, Shun: See—
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- Koizumi, Yoshihito: See—
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- Kolmyk, Evgeny S.: See—
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Nakamura, Kazuharu; Matsumoto, Motoki; and Kondo, Akinobu, 4,363,621, Cl. 431-90.000.
- Kondo, Isao; and Nakajima, Yukio, to Olympus Optical Company Ltd. Camera and electronic flash combination. 4,363,542, Cl. 354-31.000.
- Kondo, Mitsushige: See—
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- Kondo, Tokio; and Morishige, Ryuma. Earthquake-proof shoe for bridges. 4,363,149, Cl. 14-16.100.
- Koninger, Horst: See—
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- Kopel, LeRoy, to Advanced Diagnostic Research Corporation. Ultrasonic apparatus for needle insertion. 4,363,326, Cl. 128-660.000.
- Koseki, Yasuo; Yamada, Akira; Nishimura, Yuusaku; and Takahashi, Sankichi, to Hitachi, Ltd. Method and system of heat energy conversion. 4,363,219, Cl. 62-101.000.
- Kosove, Michael. Breathing airway. 4,363,320, Cl. 128-207.140.
- Koster, Rainer; Rudolph, Gunter; Gebauer, Rainer; Boch, Iris; Schroter, Wilfried; and Jakobs, Jurgen, to Kernforschungszentrum Karlsruhe GmbH. Method for noncontaminating solidification for final storage of aqueous, radioactive waste liquids. 4,363,757, Cl. 252-628.000.
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Bouillon, Claude; Boulogne, Jean; Guillon, Michel; Zaffran, Christian; and Koulbanis, Constantin, 4,363,796, Cl. 424-61.000.
- Kovacs, Bela V., to Ford Motor Company. Method for increasing mechanical properties in ductile iron by alloy additions. 4,363,661, Cl. 75-130.00R.
- Kowbuz, Miro F., to UOP Inc. Process for the production of high purity iron powder. 4,363,652, Cl. 75-0.5AA.
- Koyama, Masataka; Satoh, Kiyoshi; and Terashima, Minoru, to Fujitsu Limited. Tantalum thin film capacitor. 4,364,099, Cl. 361-305.000.
- Koyanagi, Katsumi: See—
Take, Hiroshi; Koyanagi, Katsumi; and Uede, Hisashi, 4,364,040, Cl. 340-785.000.
- Krappel, Alfred: See—
Fritz, Adolf R.; Gottschick, Michael; Krappel, Alfred; and Gugenmos, Johannes, 4,363,304, Cl. 123-418.000.
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- Krautkramer-Branson Incorporated: See—
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- Kremen, Jerome C.: See—
Achter, Eugene K.; Kremen, Jerome C.; Rodriguez, Rodolfo R.; and Priarone, Paolo, 4,363,551, Cl. 356-338.000.
- Krespan, Carl G.; and Darling, Thomas R., to Du Pont de Nemours, E. I., and Company. Perfluorodiglycidyl ethers. 4,363,898, Cl. 525-404.000.
- Kresse, Horst: See—
Demus, Dietrich; Weissflog, Wolfgang; Zaschke, Horst; Wolff, Rudolf; and Kresse, Horst, 4,363,767, Cl. 260-463.000.
- Krevitz, Kenneth: See—
Soberman, Robert K.; Krevitz, Kenneth; and Pytlewski, Louis L., 4,363,965, Cl. 250-302.000.
- Kroesen, Klaus: See—
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- Kruder, George A., to HPM Corporation. Method of injection molding employing multichannel wave screw. 4,363,768, Cl. 264-68.000.
- Kruger, Joseph A., to Brock Manufacturing, Inc. Bulk bin feed delivery apparatus. 4,363,428, Cl. 222-227.000.
- Kubo, Kikuo: See—
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- Kubota, Yutaka, to Stanley Electric Co. Apparatus for inspecting whether an object is good or bad. 4,364,088, Cl. 358-106.000.
- Kubotera, Kikuo: See—
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- Kucher, Valery N.; Reiman, Georgy R.; Zhovtobryukh, Grigory D.; Likhogub, Evgeny P.; Dorfman, Gersh A.; Durachenko, Mikhail I.; Minakov, Alexandr N.; Bocharov, Valentin B.; and Popenko, Alexandr Z. Apparatus for receiving incandescent coke. 4,363,702, Cl. 202-262.000.
- Kuchera, Chhattar S.; and Smith, Russell D., to Kennecott Corporation. Fire resistant sealing system for holes in fire resistant building partitions. 4,363,199, Cl. 52-221.000.
- Kuehn, Howard E., to USM Corporation. Crown roll seal arrangement sealed by lubricating oil in labyrinth. 4,363,490, Cl. 277-15.000.
- Kuehnle, Manfred R., to Coulter Systems Corporation. Method of making photoconductive coating. 4,363,711, Cl. 204-192.00P.
- Kugler, Artur: See—
Zaunberger, Franz X.; and Kugler, Artur, 4,363,389, Cl. 192-0.042.
- Kuhlman, Harry S.; and Wyvill, Jeffrey R., III, to Combustion Engineering, Inc. Wide range noble gas radiation monitor. 4,363,972, Cl. 250-430.000.
- Kuhn, John B., to Outboard Marine Corporation. Lawn mower brake and starter. 4,363,298, Cl. 123-179.00S.

- Kulprathipanja, Santi, to UOP Inc. Separation process using cellulose acetate butyrate bound zeolite adsorbents. 4,363,672, Cl. 127-46.300.
- Kummer, Emanuel: See—
Machler, Ernst; and Kummer, Emanuel, 4,363,448, Cl. 241-10.000.
- Kummermehr, Hans, to Grunzweig + Hartmann und Glasfaser AG. Process for making a thermal insulating body. 4,363,738, Cl. 252-62.000.
- Kumura, Yukimasa: See—
Noguchi, Kosaku; Tanaka, Honami; Kumura, Yukimasa; Kitajima, Eiji; Tsuchiya, Noriyuki; and Sunada, Tomonori, 4,363,670, Cl. 106-278.000.
- Kunczynski, Jan K. Cable derailment responsive apparatus. 4,363,945, Cl. 200-61.180.
- Kung, Hank F.: See—
Blau, Monte; and Kung, Hank F., 4,363,793, Cl. 424-1.000.
- Kung Hsue She Educational Supplies Co., Ltd.: See—
Hsieh, C. L., 4,363,561, Cl. 403-92.000.
- Kung, Patrick C.; and Goldstein, Gideon, to Ortho Pharmaceutical Corporation. Monoclonal antibody to human T cells, and methods for preparing same. 4,363,799, Cl. 424-85.000.
- Kunkler, Hans: See—
Hilbig, Josef; Holst, Arno; Kunkler, Hans; Stolting, Klaus; and Schminke, Wolfgang, 4,363,784, Cl. 422-134.000.
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Makabe, Takayoshi; and Kuraishi, Yoshiaki, 4,364,006, Cl. 323-353.000.
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Kawasaki, Takao; Osaka, Yoshiaki; and Tsuchiya, Tadashi, 4,363,813, Cl. 424-270.000.
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- Kurz, Dieter, to Wacker-Chemie GmbH. Process and heavy metal catalyst for the polymerization of α -olefins, particularly polyethylene. 4,363,902, Cl. 526-114.000.
- Kusano, Masaaki, to Hitachi, Ltd. Semiconductor speech path switch. 4,364,044, Cl. 340-825.850.
- Kusserow, Bernd, to Siemens Aktiengesellschaft. Electromedical apparatus. 4,363,324, Cl. 128-419.00R.
- Kuze, Yoshikazu. Photoelectric write-only sequence controller. 4,363,960, Cl. 235-454.000.
- Kvita, Vratislav: See—
Fischer, Walter; Kvita, Vratislav; and Zweifel, Hans, 4,363,917, Cl. 548-480.000.
- Kwan, Stephen C.: See—
Takishima, Yoshiyuki; Mashimo, Yukio; Uchidoi, Masanori; Aizawa, Hiroshi; Andresen, Bernhard H.; Martin, Robert C.; and Kwan, Stephen C., 4,363,540, Cl. 354-23.00D.
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- la Telemecanique Electrique: See—
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- Lacelle, Gilles. Ski traction device. 4,363,497, Cl. 280-604.000.
- Lam, Anthony C. Light display device with travelling balls and compound rotation. 4,364,106, Cl. 362-272.000.
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Dejoie, Paul; and Lamarque, Bernard, 4,363,444, Cl. 239-177.000.
- Lamparsky, Dietmar: See—
Kaiser, Roman; and Lamparsky, Dietmar, 4,363,331, Cl. 131-275.000.
- Lancaster, Jesse F., to Dynatech Laboratories, Incorporated. Electrical jack and patch cord assemblies. 4,363,531, Cl. 339-107.000.
- Land, Gerard: See—
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- Lander, Lynn H.: See—
Sepulveda, Ralph R.; and Lander, Lynn H., 4,363,756, Cl. 252-550.000.
- Landoni, Gianluigi: See—
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- Lang, Ernst: See—
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- Lang, Timothy R.; and Casimir, Donald J., to Howden Equipment Services Pty. Ltd.; and Commonwealth Scientific and Industrial Research Organisation. Counter current diffusion extractor. 4,363,264, Cl. 99-510.000.
- Langen, Peter. Feed pipe for conveying sticky bulk material. 4,363,391, Cl. 193-2.00D.
- Larkin, Simon J.: See—
Belliveau, Raymond E.; and Larkin, Simon J., 4,363,556, Cl. 374-183.000.
- Larsen, Richard R., to Pacific Scientific Company. Diaphragm dispenser. 4,363,423, Cl. 221-82.000.
- Laskaris, Evangelos T., to General Electric Company. Means to reduce frictional heating of a superconducting winding at an interface with its support structure. 4,363,981, Cl. 310-52.000.
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Imamura, Yoshiyuki; and Kawakami, Moriatsu, 4,363,692, Cl. 156-351.000.
- Kokubo, Eiichi, 4,363,584, Cl. 414-33.000.
- Laurich-Trost, Victor R. Multi-purpose utility vehicle. 4,363,409, Cl. 212-184.000.
- Leavitt, Larry: See—
Leavitt, Larry J.; and Madigan, John E., 4,363,286, Cl. 118-31.500.
- Leavitt, Larry J.; and Madigan, John E., to Leavitt, Larry. Finger-printing packet. 4,363,286, Cl. 118-31.500.
- Leblanc, Raymond F.; and Cummins, William T., to Teledyne Industries, Inc. Anti-pull-out bumper. 4,363,474, Cl. 267-140.000.
- Lednikov, Anatoly I.: See—
Nikolaev, Igor V.; Evpolov, Vladimir A.; Dronova, Lidia M.; Lednikov, Anatoly I.; Moskvina, Mikhail A.; Sutyagin, Oleg Y.; Yankovsky, Oleg A.; Kilin, Viktor E.; Kolmyk, Evgeny S.; Tupitsyn, Konstantin K.; and Makarov, Alexei M., 4,363,365, Cl. 173-139.000.
- Ledoux, Pierre: See—
DeCuster, Jean; Essemacker, Paul; Bouillet, Edmond; Decamps, Alain; and Ledoux, Pierre, 4,363,699, Cl. 162-71.000.
- Le Du, Yannick: See—
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- Le Duc, Edward C.; and Schubert, John C., to Standard Oil Company (Indiana). Three layered foam-containing laminate suitable for use as an automobile headliner. 4,363,848, Cl. 428-286.000.
- Lee, Raymond: See—
Gagliani, John; and Lee, Raymond, 4,363,690, Cl. 156-307.500.
- Gagliani, John; and Lee, Raymond, 4,363,883, Cl. 521-122.000.
- Lee, Robert K. Machine for removing ink from overhead projector rolls. 4,363,154, Cl. 15-102.000.
- Leep, Gus W., to Seymour of Sycamore, Inc. Solvent resin emulsion enamel composition. 4,363,887, Cl. 523-402.000.
- Legrand, Pierre: See—
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- Leiberich, Hermann: See—
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- Leinfelt, Karl E., to Aktiebolaget Electrolux. Vacuum cleaner dust container having compressing means associated therewith. 4,363,156, Cl. 15-327.00R.
- Leland Stanford Junior University, The Board of Trustees of the: See—
Auld, Bertram A., 4,364,012, Cl. 324-237.000.
- Leshner, George Y.; and Brundage, Ruth P., to Sterling Drug Inc. 1,2-Dihydro-6-[2-(dimethylamino)ethenyl]-2-oxo-5-(pyridinyl) nicotinonitriles. 4,363,911, Cl. 546-257.000.
- Leskinen, Seppo J., to OY Nokia AB. Impeller in a centrifugal blower. 4,363,601, Cl. 416-188.000.
- Le Van, Tiu: See—
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- Lever Brothers Company: See—
Curtis, Michael; Garrett, Peter R.; and Mead, John, 4,363,740, Cl. 252-91.000.
- Sepulveda, Ralph R.; and Lander, Lynn H., 4,363,756, Cl. 252-550.000.
- Levinson, Lionel M., to General Electric Company. Low voltage varistor configuration. 4,364,021, Cl. 338-20.000.
- Lewis, Arthur M., to Exxon Research & Engineering Company. Ink jet construction and method of construction. 4,364,068, Cl. 346-140.00R.
- Lewis, Phillip W., to Container Corporation of America. Display carton with internal spacer. 4,363,400, Cl. 206-44.00R.
- Lewis, Terry W.; Anderson, Roger J.; and Kerfeld, Donald J. Metalized information carrying discs. 4,363,844, Cl. 428-65.000.
- Lewis, William C., Jr.: See—
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- Liao, John C.: See—
Custard, Elizabeth; Liao, John C.; and Ponzo, John L., 4,363,632, Cl. 8-506.000.
- Liautaud, John R. Eye wash fountain. 4,363,146, Cl. 4-620.000.
- Liba Maschinenfabrik GmbH: See—
Wunner, Roland, 4,363,224, Cl. 66-120.000.
- Licentia Patent-Verwaltungs-G.m.b.H.: See—
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Kucher, Valery N.; Reiman, Georgy R.; Zhovtobryukh, Grigory D.; Likhogub, Evgeny P.; Dorfman, Gersh A.; Durachenko, Mikhail I.; Minakov, Alexandr N.; Bocharov, Valentin B.; and Popenko, Alexandr Z., 4,363,702, Cl. 202-262.000.
- Lin, Kou C.; and Ellis, Belvin B., to Westinghouse Electric Corp. Amorphous metal core laminations. 4,364,020, Cl. 336-212.000.
- Lincoln Electric Company, The: See—
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- Lindauer, Thomas: See—
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- Linde, George J.: See—
Waters, William M.; and Linde, George J., 4,364,048, Cl. 343-5.0EM.

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Kimura, Yukichi; and Kanamori, Takeshi, 4,363,823, Cl. 426-542.000.
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Lipowski, Stanley A.; and Miskel, John J., Jr., to Diamond Shamrock Corporation. Preparation of amphoteric water-in-oil self-inverting polymer emulsion. 4,363,886, Cl. 523-336.000.
Lippok, Peter: See—
Hodes, Erich; Steeg, Michael; and Lippok, Peter, 4,363,854, Cl. 428-632.000.
Lipschutz, Paul, to SODEX-MAGISTER, Societe d'Exploitation des Brevets Neiman. Cylindrical locks. 4,363,230, Cl. 70-370.000.
Lischick, K. Edward. Separable fastening device. 4,363,159, Cl. 24-201.0HH.
Lloyd, Elliott: See—
Ekeman, Edward J.; Lloyd, Elliott; Dickson, Howard K.; and Adamson, James R., Jr., 4,363,967, Cl. 250-339.000.
Lo, Jung-P'eng. Door lock construction. 4,363,227, Cl. 70-144.000.
Load Cells Inc.: See—
Sarkison, Warren, 4,363,370, Cl. 177-210.00R.
Locatelli, Jean-Louis, to Rhone-Poulenc Industries. Glass reinforced polyamide compositions having improved impact strengths. 4,363,894, Cl. 524-494.000.
Locatelli, Renato: See—
Cicchetti, Osvaldo; Fontani, Spartaco; Landoni, Gianluigi; Locatelli, Renato; Bertelli, Guido; and Roma, Pierpaolo, 4,363,906, Cl. 528-248.000.
Logan, David J.: See—
Sinclair, Robert I.; Anderson, Verner; Logan, David J.; and Rich, Leonard G., 4,363,330, Cl. 131-105.000.
London, Wallace; and Meyer, Kurt L., to London, Wallace. Garment bag unit. 4,363,388, Cl. 190-41.00B.
Long, John W.; and Vacek, Lubomir, to Sherwin-Williams Company. The Preparation of benzotriazoles. 4,363,914, Cl. 548-257.000.
Loose, Winfield W., to AMP Incorporated. Terminal having improved mounting means. 4,363,529, Cl. 339-17.00C.
Lopez, Alfred R., to Hazeltine Corporation. Microstrip antenna. 4,364,050, Cl. 343-700.0MS.
Lorenzi, Donald E.: See—
Schaefer, Edward F.; Lozynski, Lawrence R.; and Lorenzi, Donald E., 4,363,545, Cl. 354-63.000.
Loughmiller, Bert E., to APM, Inc. Wine cork. 4,363,416, Cl. 215-364.000.
Lozynski, Lawrence R.: See—
Schaefer, Edward F.; Lozynski, Lawrence R.; and Lorenzi, Donald E., 4,363,545, Cl. 354-63.000.
Lucas, Gerard; and Hardouin, Pierre, to la Telemecanique Electrique. Cable ferrule identification. 4,363,180, Cl. 40-316.000.
Lucas Industries Limited: See—
Anderson, Robert A., 4,363,382, Cl. 188-71.400.
Ludwig, George C., to AVM Corporation. Valve, particularly cross-over passage valve. 4,363,309, Cl. 123-552.000.
Ludwig, Peter; and Horstmann, Heinrich. Belt conveyor. 4,363,399, Cl. 198-833.000.
Luebben, Manfred; and Witt, Wolfram, to Rheinmetall GmbH. Ammunition with protective surface layer and method of making same. 4,363,273, Cl. 102-431.000.
Lund, Raymond R., to Canon Corporation. Center line follower. 4,363,274, Cl. 104-2.000.
Luthi, Rudolf: See—
Bloock, Siegfried; and Luthi, Rudolf, 4,363,582, Cl. 413-12.000.
Lutz, Alfons; and Jandin, Hans, to Webasto-Werk W. Baier GmbH and Co. Motor vehicle sliding top. 4,363,515, Cl. 296-222.000.
Lynch, Robert F.: See—
Poirier, Victor L.; Buczak, Stanley D.; Lynch, Robert F.; and Salvo, Thomas R., 4,363,328, Cl. 128-728.000.
MacDonald, Murdo A.: See—
Ginther, Gary D.; and MacDonald, Murdo A., 4,363,573, Cl. 406-76.000.
Machler, Ernst; and Kummer, Emanuel, to Gebruder Buhler AG. Milling of cereals and the like. 4,363,448, Cl. 241-10.000.
Macho, Leo: See—
Burst, Hermann; and Macho, Leo, 4,363,510, Cl. 296-37.160.
Mackall, Kenneth, Jr.; and Noling, Richard. Towing attachment for vehicles. 4,363,591, Cl. 414-563.000.
MacKenzie, Colin N. P. Tunneling. 4,363,565, Cl. 405-146.000.
Madgavkar, Ajay M.; and Vogel, Roger F., to Gulf Research & Development Company. Substoichiometric combustion of low heating value gases. 4,363,361, Cl. 166-256.000.
Madigan, John E.: See—
Leavitt, Larry J.; and Madigan, John E., 4,363,286, Cl. 118-31.500.
Maeda, Mamoru: See—
Takasaki, Kanetake; and Maeda, Mamoru, 4,363,868, Cl. 430-314.000.

Maeda, Takeshi; Shigematsu, Kazuo; and Yonezawa, Seiji, to Hitachi, Ltd. Optical disk and optical information processor. 4,364,118, Cl. 369-44.000.
Magerlein, Barney J.; and Whaley, Howard A., to Upjohn Company. The Esters of antibiotic nodusmicin. 4,363,922, Cl. 549-266.000.
Magnaflux Corporation: See—
Schaefer, Edward F.; Lozynski, Lawrence R.; and Lorenzi, Donald E., 4,363,545, Cl. 354-63.000.
Magnetic Controls Company: See—
Nelson, Calvin G., 4,363,941, Cl. 200-1.00R.
Makabe, Takayoshi; and Kuraishi, Yoshiaki, to Nippon Electric Co., Ltd. Reference voltage generator for use in an A/D or D/A converter. 4,364,006, Cl. 323-353.000.
Makai, Alexander J.: See—
Fraser, William A.; Maraschin, Norma J.; Karol, Frederick J.; and Makai, Alexander J., 4,363,904, Cl. 526-348.200.
Makarov, Alexei M.: See—
Nikolaev, Igor V.; Evpolov, Vladimir A.; Dronova, Lidia M.; Lednikov, Anatoly I.; Moskvina, Mikhail A.; Sutyagin, Oleg Y.; Yankovsky, Oleg A.; Kilin, Viktor E.; Kolmyk, Evgeny S.; Tupitsyn, Konstantin K.; and Makarov, Alexei M., 4,363,365, Cl. 173-139.000.
Manian, Harry. Mail delivery signal device for mailboxes. 4,363,439, Cl. 232-35.000.
Maraschin, Norma J.: See—
Fraser, William A.; Maraschin, Norma J.; Karol, Frederick J.; and Makai, Alexander J., 4,363,904, Cl. 526-348.200.
Marass, Josef, to Georg Spiess GmbH. Automatic reel change system. 4,363,695, Cl. 156-504.000.
Marchisio, Giovanni, to Giovanni Marchisio & C. S.r.l. Creel for circular knitting machines. 4,363,225, Cl. 66-125.00R.
Marcolina, Gene A., to Holl, Gordon D., a part interest. Disposable rodent trap. 4,363,184, Cl. 43-85.000.
Marcus, Konrad H., to Prince Corporation. Auxiliary visor. 4,363,512, Cl. 296-97.00G.
Mariani, Eliseo O. Biomass gas producer. 4,363,638, Cl. 48-111.000.
Marienfeld, Gottfried: See—
Gessler, Hans; and Marienfeld, Gottfried, 4,363,586, Cl. 414-311.000.
Mark Twain Bancshares: See—
Kirkpatrick, C. Virginia; and Watson, Grace E., 4,363,628, Cl. 434-107.000.
Markham, Larry D.; and Eklund, Henrik J., to Black Clawson Company, The; and Air Products and Chemicals, Inc. Method for medium consistency oxygen delignification of pulp. 4,363,697, Cl. 162-19.000.
Marko, Magda; and Welle, Hendricus B. A., to Sandoz Ltd. Organic compounds. 4,363,809, Cl. 424-260.000.
Markovits, Gary: See—
Edmonds, Harold D.; and Markovits, Gary, 4,364,100, Cl. 361-395.000.
Maroth, Arthur M.; and Maroth, Sybil. Swing force indicator for playing piece of sports equipment. 4,363,488, Cl. 273-186.00A.
Maroth, Sybil: See—
Maroth, Arthur M.; and Maroth, Sybil, 4,363,488, Cl. 273-186.00A.
Marshall, Steven; and Papaluca, Vincent, to ACI Operations Pty. Ltd. Liquid fill apparatus. 4,363,203, Cl. 53-109.000.
Martin, Henry; and Thompson, Charles R., to Dofasco Inc. Stabilizing high speed railway truck safety device. 4,363,277, Cl. 105-201.000.
Martin, Jack R., to General Electric Company. Composite air foil and disc assembly. 4,363,602, Cl. 416-230.000.
Martin, Lucien: See—
Prigent, Michel; and Martin, Lucien, 4,363,707, Cl. 204-129.000.
Martin, Robert C.: See—
Takishima, Yoshiyuki; Mashimo, Yukio; Uchidoi, Masanori; Aizawa, Hiroshi; Andresen, Bernhard H.; Martin, Robert C.; and Kwan, Stephen C., 4,363,540, Cl. 354-23.00D.
Maruo, Shigeaki: See—
Matsumura, Shingo, deceased; Enomoto, Hiroshi; Aoyagi, Yoshiaki; Ezure, Yoji; Yoshikuni, Yoshiaki; Maruo, Shigeaki; Ojima, Nobutoshi; and Konno, Kiyotaka, 4,363,802, Cl. 424-180.000.
Maruyama, Masanori: See—
Mizushima, Masashi; Maruyama, Masanori; Ehata, Shigeru; and Fukushima, Masakazu, 4,363,996, Cl. 313-449.000.
Marvin Glass & Associates: See—
Breslow, Jeffrey D.; Harper, Rex M.; and Glickson, David A., 4,363,484, Cl. 273-85.00G.
Holahan, Edward T.; and Meyer, Burton C., 4,364,104, Cl. 362-223.000.
Mashimo, Yukio: See—
Takishima, Yoshiyuki; Mashimo, Yukio; Uchidoi, Masanori; Aizawa, Hiroshi; Andresen, Bernhard H.; Martin, Robert C.; and Kwan, Stephen C., 4,363,540, Cl. 354-23.00D.
Massey-Ferguson Inc.: See—
Richardson, Leonard H.; Mueller, Otto, Jr.; and Elfes, Lee E., 4,363,384, Cl. 188-72.700.
Masstron Scale Inc.: See—
Susor, William C., 4,363,369, Cl. 177-163.000.
Mast, Richard: See—
Bellatty, Thomas A.; Zadik, Joseph S.; and Mast, Richard, 4,364,034, Cl. 340-690.000.
Masubuchi, Hiroshi, to Tonka Corporation. Vehicle with gear-changing mechanism including two displaceable gears. 4,363,185, Cl. 46-209.000.

Masuda, Eiji; and Suzuki, Yasoji, to Tokyo Shibaura Denki Kabushiki Kaisha. Integrating analog to digital converter having offset error compensation. 4,364,028, Cl. 340-347.0NT.
Masugi, Takashi: See—
Takaya, Takao; Masugi, Takashi; and Chiba, Toshiyuki, 4,363,807, Cl. 424-246.000.
Masuho, Yasuhiko; Kishida, Kazuo; and Hara, Takeshi, to Teijin Limited. Cytotoxic protein hybrid and process for the preparation thereof. 4,363,758, Cl. 260-112.00B.
Masuy, Jean-Marie: See—
Ponghis, Nikolas; and Masuy, Jean-Marie, 4,363,656, Cl. 75-42.000.
Mateja, Ludvik; and Prasek, Josef, to Motor Jihlava narodni podnik. Arrangement for electrospray working of internal conical surfaces of metal parts. 4,363,950, Cl. 219-69.00R.
Matkin, David A., to British-American Tobacco Company Limited. Tobacco-smoke filters. 4,363,333, Cl. 131-334.000.
Matsuda, Satoshi; and Kiyohara, Etsuo, to Tokyo Shibaura Denki Kabushiki Kaisha. Pole change dynamo-electric machines. 4,363,985, Cl. 310-184.000.
Matsuda, Yasumasa; Sagae, Syoji; Kasahara, Masatoshi; and Uchida, Hiroyasu, to Hitachi, Ltd.; and Hitachi Koki Co., Ltd. Drop jet apparatus. 4,364,070, Cl. 346-140.00R.
Matsui, Hiroto; and Sharp Kabushiki Kaisha. Paper edge detection in a printer. 4,364,062, Cl. 346-75.000.
Matsumoto, Motoki: See—
Nakamura, Kazuharu; Matsumoto, Motoki; and Kondo, Akinobu, 4,363,621, Cl. 431-90.000.
Matsumoto, Muneaki: See—
Kawai, Hisasi; Sakurai, Kazuhiro; and Matsumoto, Muneaki, 4,363,210, Cl. 60-276.000.
Matsumura, Rumiko, legal representative: See—
Matsumura, Shingo, deceased; Enomoto, Hiroshi; Aoyagi, Yoshiaki; Ezure, Yoji; Yoshikuni, Yoshiaki; Maruo, Shigeaki; Ojima, Nobutoshi; and Konno, Kiyotaka, 4,363,802, Cl. 424-180.000.
Matsumura, Shingo, deceased (by Matsumura, Rumiko, legal representative); Enomoto, Hiroshi; Aoyagi, Yoshiaki; Ezure, Yoji; Yoshikuni, Yoshiaki; Maruo, Shigeaki; Ojima, Nobutoshi; and Konno, Kiyotaka, to Nippon Shinyaku Co. Ltd. Moranoline derivatives. 4,363,802, Cl. 424-180.000.
Matsunaga, Akira: See—
Nishimura, Naotsumi; Matsunaga, Akira; and Ishii, Yasuo, 4,363,678, Cl. 149-6.000.
Matsushita Electric Industrial Company, Limited: See—
Yamamoto, Kiyoshi; Hiromori, Yasutaka; and Mizoguchi, Akira, 4,364,065, Cl. 346-140.00R.
Yamazaki, Osamu; Inohara, Junichi; Tazuke, Kazuo; and Wasa, Kiyotaka, 4,363,990, Cl. 310-313.00C.
Matsushita Electric Works, Ltd.: See—
Nasu, Sataro; Hara, Hikoyoshi; and Iwanaga, Kouichi, 4,363,169, Cl. 30-41.000.
Matsuura, Hideo: See—
Fukuda, Tetsuro; Matsuura, Hideo; Koizumi, Yoshihito; and Yamaguchi, Takeshi, 4,363,826, Cl. 426-653.000.
Matsuura, Takeshi: See—
Yasui, Masaaki; Matsuura, Takeshi; and Watatani, Seiji, 4,363,850, Cl. 428-329.000.
Matsuura, Tsuyoshi: See—
Aihara, Mamoru; Takahashi, Yutaka; Nakajima, Yoshio; and Matsuura, Tsuyoshi, 4,363,541, Cl. 354-23.00D.
Mattel, Inc.: See—
Chodak, Jan B.; and Tran, Luan G., 4,363,489, Cl. 273-237.000.
Hall, Henry H., 4,363,487, Cl. 273-147.000.
Mattori, Horaki; and Tateishi, Iwao, to Sharp Kabushiki Kaisha. Anti-skid controller system. 4,363,523, Cl. 303-92.000.
Matz, Duane G., to BS&B Safety Systems, Inc. Knife blade apparatus for severing rupture disks. 4,363,418, Cl. 220-89.00A.
Maute, Willy: See—
Willi, Albert; Maute, Willy; and Mooser, Oswald, 4,363,824, Cl. 426-589.000.
Maxsted, Malcolm D.: See—
Dixon, Robert L.; and Maxsted, Malcolm D., 4,363,367, Cl. 175-340.000.
Mayes, Alan P.: See—
Bryer, James E.; Mayes, Alan P.; and Allen, Keith, 4,363,168, Cl. 29-869.000.
McBride, Edward D.: See—
Hall, Charles B.; McBride, Edward D.; and Young, Robert F., 4,363,629, Cl. 440-61.000.
McCarty, Robert W. Vise-like C-clamp for gripping variously shaped work pieces in varying positions. 4,363,475, Cl. 269-69.000.
McConnell, Richard L.: See—
Joyner, Frederick B.; Trotter, Jimmy R.; and McConnell, Richard L., 4,363,908, Cl. 528-302.000.
McCormick-Goodhart, Mark H.: See—
Cannella, Vincent D.; and McCormick-Goodhart, Mark H., 4,363,691, Cl. 156-350.000.
McCullough, Timothy J. Blade holder for meat trimming knife. 4,363,170, Cl. 30-276.000.
McDonald, Winford G. Product dispenser having increased coin holding capacity. 4,363,392, Cl. 194-1.00B.
McDonald, Winford G. Coin controlled mechanism for vending machine. 4,363,393, Cl. 194-63.000.
McGowan, Paul T.; and Wright, Raymond E., to Owens-Corning Fiberglas Corporation. Method and apparatus for determining the binder content in a fibrous mat. 4,363,968, Cl. 250-339.000.

McGrath, Richard F., to Minnesota Mining and Manufacturing Company. Buffing pad cleaning tool. 4,363,157, Cl. 15-388.000.
McIntyre, Ian L.: See—
Allan, Colin J.; and McIntyre, Ian L., 4,363,970, Cl. 250-390.000.
McMaster, Harold A. Quench roll including helically wrapped support. 4,363,163, Cl. 29-127.000.
McNamara, Albert C., Jr., to Esquire, Inc. Stacked fixtures with angularly positioned lamps and downwardly light-directing reflectors. 4,364,105, Cl. 362-224.000.
McQuay-Perfex, Inc.: See—
Watson, Thomas E.; and Smallwood, Paul R., Jr., 4,363,596, Cl. 415-1.000.
Mead, John: See—
Curtis, Michael; Garrett, Peter R.; and Mead, John, 4,363,740, Cl. 252-91.000.
Medtronic, Inc.: See—
Roline, Glenn; and Walmsley, Frank, 4,363,325, Cl. 128-419.0PG.
Mehta, Mehar K., to Equipment Company of America. Cylinder assembly and method of replacing seals and bearings. 4,363,261, Cl. 92-128.000.
Meiller, Francois; and Le Du, Yannick, to Rhone-Poulenc Industries. Process for water treatment by flocculation. 4,363,733, Cl. 210-727.000.
Meinert, Norbert: See—
Broemer, Heinz; and Meinert, Norbert, 4,363,879, Cl. 501-44.000.
Melling, Elmer M.: See—
Johnson, Robert M.; and Melling, Elmer M., 4,363,666, Cl. 106-90.000.
Melocik, Grant C.; and Wible, Wayne T., to Towmotor Corporation. Magnetic control pedal apparatus. 4,364,022, Cl. 338-32.00H.
Menault, Jacques: See—
Chion, Pierre; Menault, Jacques; and Rodier, Henry, 4,363,895, Cl. 525-54.210.
Mentrup, Anton; Schromm, Kurt; Renth, Ernst-Otto; Reichl, Richard; and Trauneker, Werner, to Boehringer Ingelheim GmbH. Aminoalkyl-substituted heterocycles. 4,363,814, Cl. 424-272.000.
Mercer, John E. Automatic navigation station identifier and monitor. 4,363,933, Cl. 178-118.000.
Merck & Co., Inc.: See—
Bacher, Stuart; Rosas, Carlos B.; and Sharkey, John J., 4,363,751, Cl. 252-469.000.
Cottrell, Ian W.; Sandford, Paul A.; and Baird, John K., 4,363,669, Cl. 106-205.000.
Merry, Raymond: See—
Jones, Andrew W.; and Merry, Raymond, 4,363,458, Cl. 244-153.00R.
Mertanen, Pekka: See—
Aakens, Tiina; Mertanen, Pekka; and Peltonen, Reijo, 4,363,316, Cl. 126-390.000.
Met-Pro Corporation: See—
Petersen, Ray R., 4,363,603, Cl. 416-244.00R.
Meyer, Burton C.: See—
Holahan, Edward T.; and Meyer, Burton C., 4,364,104, Cl. 362-223.000.
Meyer, Friedhelm: See—
Frister, Manfred; Renner, Stefan; Meyer, Friedhelm; and Christ, Klaus H., 4,363,983, Cl. 310-68.00R.
Meyer, Gordon R. Anchor system. 4,363,198, Cl. 52-155.000.
Meyer, Kurt L.: See—
London, Wallace; and Meyer, Kurt L., 4,363,388, Cl. 190-41.00B.
Meyer, Louis C., to Mitral Medical, Inc. Prosthetic heart valve. 4,363,142, Cl. 31-1.500.
Meyers, Harry W. Method and apparatus for detecting leaks in a structure. 4,363,236, Cl. 73-40.000.
MFE Corporation: See—
Burke, Edward F., Jr., 4,364,000, Cl. 318-128.000.
MGI Strength/Fitness, Inc.: See—
Fisher, Milton W.; and Henson, Glen E., 4,363,480, Cl. 272-69.000.
Michals, Richard A.; Mozer, Frank H.; and Zum Bahlen, Ralph E., to Stenograph Corporation. Shorthand machine having electric platen advancement. 4,363,558, Cl. 400-94.000.
Miles Laboratories, Inc.: See—
Biddlecom, William G., 4,363,817, Cl. 424-311.000.
Boguslaski, Robert C.; Carrico, Robert J.; and Christner, James E., 4,363,759, Cl. 260-112.700.
Custard, Elizabeth; Liao, John C.; and Ponzo, John L., 4,363,632, Cl. 8-506.000.
Greenquist, Alfred C., 4,363,874, Cl. 435-7.000.
Miller Foam Enterprises, Inc.: See—
Murray, Bruce A.; Hasler, Peter H.; and Roth, Augustin, 4,363,610, Cl. 425-89.000.
Milliken Research Corporation: See—
Fay, Robert C., 4,363,694, Cl. 156-435.000.
Mills, Manuel D. Apparatus for generating an electrical signal which is proportional to the tension in a bridle. 4,363,605, Cl. 417-44.000.
Milum, Jimmy L.: See—
Elbrader, Clifford B.; and Milum, Jimmy L., 4,363,643, Cl. 55-499.000.
Minami, Koichi, to Tomy Kogyo Company, Inc. Competitive water filled game. 4,363,483, Cl. 273-85.00C.
Minasov, Alexandr N.: See—
Kucher, Valery N.; Reiman, Georgy R.; Zhovtobryukh, Grigory D.; Likhogub, Evgeny P.; Dorfman, Gersh A.; Durachenko, Mikhail I.; Minasov, Alexandr N.; Bocharov, Valentin B.; and Popenko, Alexandr Z., 4,363,702, Cl. 202-262.000.

- Mine, Susumu, to Tokyo Shibaura Denki Kabushiki Kaisha. Superconductive electromagnet apparatus. 4,363,773, Cl. 376-142.000.
- Mink, George. Material handling device. 4,363,395, Cl. 198-486.000.
- Minnesota Mining and Manufacturing Company. See—
- Boon, John R.; and Wagner, Gregory J., 4,363,873, Cl. 430-546.000.
- Giorgini, Norman L., 4,363,862, Cl. 430-98.000.
- McGrath, Richard F., 4,363,157, Cl. 15-388.000.
- Nelson, Paul N., 4,363,842, Cl. 428-36.000.
- Rutledge, Robert L., 4,363,864, Cl. 430-202.000.
- Minor, Timothy R., to Rockwell International Corporation. Subinterval sampler. 4,363,976, Cl. 307-353.000.
- Mishina, Noritoshi; Hirota, Yutaka; and Nakamura, Satoshi, to Mitsui Petrochemical Industries, Ltd. Metal-deposited paper and method for production thereof. 4,363,851, Cl. 428-333.000.
- Miskel, John J., Jr.: See—
- Lipowski, Stanley A.; and Miskel, John J., Jr., 4,363,886, Cl. 523-336.000.
- Mitral Medical, Inc.: See—
- Meyer, Louis C., 4,363,142, Cl. 3-1.500.
- Mitsubishi Denki Kabushiki Kaisha: See—
- Itoh, Teturoh, 4,363,948, Cl. 219-69.00W.
- Okada, Kazuo; and Kondo, Mitsushige, 4,363,961, Cl. 250-201.000.
- Ozaki, Minoru; and Onishi, Ken, 4,364,096, Cl. 360-13.000.
- Yoshizaki, Kiyoshi, 4,363,675, Cl. 148-11.50P.
- Mitsubishi Kinzoku Kabushiki Kaisha: See—
- Wakita, Saburo; and Sakonooka, Akihiko, 4,363,660, Cl. 75-128.00B.
- Mitsuchi Corporation: See—
- Okada, Hiroshi, 4,363,164, Cl. 29-270.000.
- Mitsui Petrochemical Industries, Ltd.: See—
- Mishina, Noritoshi; Hirota, Yutaka; and Nakamura, Satoshi, 4,363,851, Cl. 428-333.000.
- Mix, Renard E., to General Motors Corporation. Laminated metal-plastic battery grid. 4,363,857, Cl. 429-234.000.
- Miyaoka, Senri: See—
- Isono, Katsuo; Miyaoka, Senri; and Shinkai, Kinya, 4,364,083, Cl. 358-69.000.
- Miyashita, Kiyoshi, to Olympus Optical Company, Ltd. Extra sheet feeder for copying machine. 4,363,477, Cl. 271-9.000.
- Mizoguchi, Akira: See—
- Yamamori, Kiyoshi; Hiromori, Yasutaka; and Mizoguchi, Akira, 4,364,065, Cl. 346-140.00R.
- Mizusaki, Yoshinobu, to Nissin Kogyo Co., Ltd. Liquid-level indicating window. 4,363,240, Cl. 73-334.000.
- Mizushima, Masashi; Maruyama, Masanori; Ehata, Shigeru; and Fukushima, Masakazu, to Hitachi, Ltd. Vidicon type camera tube. 4,363,996, Cl. 313-449.000.
- Mobil Oil Corporation: See—
- Murray, James G., 4,363,771, Cl. 264-119.000.
- Pelrine, Bruce P.; Chen, Nai Y.; and Yan, Tsoung Y., 4,363,717, Cl. 208-108.000.
- Modica, Frank S.: See—
- Hirschberg, Eugene H.; Bertolacini, Ralph J.; and Modica, Frank S., 4,363,720, Cl. 208-120.000.
- Moeller, Alexander; and Scherowsky, Guenther, to Siemens Aktiengesellschaft. Liquid crystals having pleochroic dyes. 4,363,743, Cl. 252-299.100.
- Mohar, Louis. Tissue roll storage and dispenser apparatus. 4,363,454, Cl. 242-55.530.
- Mohler, Hanns: See—
- Gerecke, Max; Haefely, Willy; Hunkeler, Walter; Kyburz, Emilio; Mohler, Hanns; Pieri, Lorenzo; and Polc, Petar, 4,363,762, Cl. 260-239.30T.
- Molins Limited: See—
- Preston, Edward G.; and Rakowicz, Jan A., 4,363,332, Cl. 131-282.000.
- Monroe, William E. Dock-side boat cover. 4,363,284, Cl. 114-361.000.
- Montedison S.p.A.: See—
- Cicchetti, Osvaldo; Fontani, Spartaco; Landoni, Gianluigi; Locatelli, Renato; Bertelli, Guido; and Roma, Pierpaolo, 4,363,906, Cl. 528-248.000.
- Moon, William T., Jr., to Robertshaw Controls Company. Plunger seal assembly and method of making the same. 4,363,463, Cl. 251-61.000.
- Moore, Alan R.; and Waterworth, John, to United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Majesty's Government of the. Radar transponders. 4,364,049, Cl. 343-6.00R.
- Mooser, Oswald: See—
- Willi, Albert; Maute, Willy; and Mooser, Oswald, 4,363,824, Cl. 426-589.000.
- Morgan, Cleon C., to Donnelly Mirrors, Inc. Hinged window assembly. 4,363,191, Cl. 49-381.000.
- Morimoto, Ichiro: See—
- Enomoto, Fujio; and Morimoto, Ichiro, 4,363,546, Cl. 354-195.000.
- Morin, Andre, to Perini Corporation. Pipe section positioning apparatus. 4,363,594, Cl. 414-747.000.
- Morishige, Ryuma: See—
- Kondo, Tokio; and Morishige, Ryuma, 4,363,149, Cl. 14-16.100.
- Morita, Kiyoshi: See—
- Morita, Takeshi; and Morita, Kiyoshi, 4,363,725, Cl. 209-257.000.
- Morita, Takeshi; and Morita, Kiyoshi, to Kabushiki Kaisha Morita Kouken. Apparatus for removing gravel from excavated soil. 4,363,725, Cl. 209-257.000.
- Morrill, Charles D., to Smith International, Inc. Extreme temperature, high pressure balanced, rising stem gate valve with super preloaded,

- stacked, solid lubricated, metal-to-metal seal. 4,363,465, Cl. 251-214.000.
- Morris, Keith W.: See—
- Nelson, Hugh W.; Prohazka, George J.; and Morris, Keith W., 4,363,698, Cl. 162-30.100.
- Morton, Arthur W., to Conoco Inc. Flow line bundle and method of towing same. 4,363,566, Cl. 405-169.000.
- Moskvyn, Mikhail A.: See—
- Nikolaev, Igor V.; Evpolov, Vladimir A.; Dronova, Lidia M.; Lednikov, Anatoly I.; Moskvyn, Mikhail A.; Sutyagin, Oleg Y.; Yankovsky, Oleg A.; Kilin, Viktor E.; Kolmyk, Evgeny S.; Tupitsyn, Konstantin K.; and Makarov, Alexei M., 4,363,365, Cl. 173-139.000.
- Motor Jihlava narodni podnik: See—
- Mateja, Ludvik; and Prasek, Josef, 4,363,950, Cl. 219-69.00R.
- Mouri, Yasunori: See—
- Amano, Matsuo; Mouri, Yasunori; Abe, Osamu; Suda, Seiji; and Sasayama, Takao, 4,363,307, Cl. 123-492.000.
- Moser, Frank H.: See—
- Michals, Richard A.; Moser, Frank H.; and Zum Bahlen, Ralph E., 4,363,558, Cl. 400-94.000.
- Mueller, Franz-Josef: See—
- Acker, Rolf-Dieter; Hamprecht, Gerhard; and Mueller, Franz-Josef, 4,363,925, Cl. 556-415.000.
- Mueller, Herbert; and Huchler, Otto H., to BASF Aktiengesellschaft. Depolymerization of polytetramethylene glycol ethers. 4,363,924, Cl. 549-509.000.
- Mueller, Otto, Jr.: See—
- Richardson, Leonard H.; Mueller, Otto, Jr.; and Elfes, Lee E., 4,363,384, Cl. 188-72.700.
- Muhlbach, Anton, to USM Corporation. Shoe sole attaching press. 4,363,148, Cl. 12-33.000.
- Mulcahy, Harry W., to AMSTED Industries Incorporated. Resilient railway truck bearing adaptor. 4,363,278, Cl. 105-218.00R.
- Mulders, Jan A., to Borg-Warner Corporation. Thrust bearing arrangement. 4,363,608, Cl. 417-424.000.
- Muller, Jacques: See—
- Schaffner, Jean-Claude; and Muller, Jacques, 4,363,554, Cl. 368-190.000.
- Muller, Peter: See—
- Scheidweiler, Andreas; and Muller, Peter, 4,364,031, Cl. 340-629.000.
- Munoz, Bernard; and Tavenne, Eric, to Societe d'Etudes de Machines Thermiques S.E.M.T. Piston for a reciprocating piston machine, particularly an internal combustion engine. 4,363,293, Cl. 123-41.380.
- Murakami, Norio: See—
- Tsuda, Toshitaka; Murano, Kazuo; Yamaguchi, Kazuo; Chujo, Takafumi; Murakami, Norio; and Takahashi, Motohide, 4,363,977, Cl. 307-358.000.
- Murano, Kanji: See—
- Nishigaki, Susumu; Murano, Kanji; and Watanabe, Yoshihisa, 4,363,993, Cl. 310-332.000.
- Murano, Kazuo: See—
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- Murata, Atsuhiko: See—
- Akashiba, Takeo; Nakayama, Akira; and Murata, Atsuhiko, 4,363,875, Cl. 435-108.000.
- Murata Kikai Kabushiki Kaisha: See—
- Fukunaga, Mitsuo, 4,363,207, Cl. 57-58.860.
- Murooka, Rikichi, to Sony/Tektronix. Calibration apparatus for analog-to-digital converter. 4,364,027, Cl. 340-347.00C.
- Murray, Bruce A.; Hasler, Peter H.; and Roth, Augustin, to Miller Foam Enterprises, Inc. Apparatus for continuously molding cylindrical blocks of foamed polymeric material. 4,363,610, Cl. 425-89.000.
- Murray, James G., to Mobil Oil Corporation. Process for preparing non-oriented polyolefin film. 4,363,771, Cl. 264-119.000.
- Muschalek, Ben E. Pickup truck spare tire rack. 4,363,431, Cl. 224-42.230.
- Naftulin, Henry. Apparatus for collecting fluids. 4,363,340, Cl. 141-51.000.
- Nagakubo, Yoshihide; and Iizuka, Hisakazu, to Tokyo Shibaura Denki Kabushiki Kaisha. Short circuit prevention in the manufacture of semiconductor devices. 4,363,696, Cl. 156-653.000.
- Nagao, Nobuya: See—
- Taguchi, Shinichiro; Nagao, Nobuya; and Ogihara, Yutaka, 4,364,091, Cl. 358-148.000.
- Nagayama, Haruhiko, to Ricoh Company, Ltd. Ink jet printing apparatus. 4,364,059, Cl. 346-75.000.
- Nagayasu, Koichi: See—
- Shibue, Toshiaki; Nagayasu, Koichi; Kobayashi, Tohru; and Tokitoku, Kouji, 4,363,871, Cl. 430-523.000.
- Nagy, Egon, to CHEMIMAS Vegyigep Tervezo es Fovallalkozo Vallalat. Centrifugal crusher with a rotating grate having grate bars adapting the grate for separating the grit also according to its width. 4,363,452, Cl. 241-91.000.
- Nagyvary, Joseph J., to Texas A&M University System, The. Method for treating hyperbilirubinemia. 4,363,801, Cl. 424-180.000.
- Naito, Hiroyasu, to Honda Giken Kogyo Kabushiki Kaisha. Ignition timing control device for internal combustion engine. 4,363,297, Cl. 123-146.50A.
- Naitoh, Katsuyuki: See—
- Onishi, Keizo; Adachi, Takao; Fuji, Akiyoshi; Chiba, Ryuichi; Naitoh, Katsuyuki; and Okada, Hachiro, 4,363,952, Cl. 219-76.120.

- Nakagawa, Shuichi: See—
- Suzuki, Yoshihiro; Nakagawa, Shuichi; Wako, Yasuo; Ogawa, Yoshihiro; Yamaguchi, Mamoru; and Kimura, Toshio, 4,364,056, Cl. 346-29.000.
- Nakagawa, Toyooki: See—
- Sone, Kohki; Okamura, Kenji; and Nakagawa, Toyooki, 4,363,306, Cl. 123-440.000.
- Nakajima, Yoshio: See—
- Aihara, Mamoru; Takahashi, Yutaka; Nakajima, Yoshio; and Matsumura, Tsuyoshi, 4,363,541, Cl. 354-23.00D.
- Nakajima, Yuji; and Izumitani, Tetsuro, to Hoya Corporation. Coated phosphate glass. 4,363,852, Cl. 428-432.000.
- Nakajima, Yukio: See—
- Kondo, Isao; and Nakajima, Yukio, 4,363,542, Cl. 354-31.000.
- Nakamura, Akinori: See—
- Nanjo, Toshio; Nakamura, Akinori; and Ishikawa, Hidekazu, 4,363,473, Cl. 266-187.000.
- Nakamura, Joji; and Akanuma, Shigetake, to Kabushiki Kaisha Komatsu Seisakusho. Method and apparatus for fracturing rock beds. 4,363,518, Cl. 299-14.000.
- Nakamura, Kazuharu; Nakanishi, Yutaka; and Yamada, Toshihiko, to Toyotomi Kogyo Co., Ltd. Fire extinguishing device for oil burner. 4,363,620, Cl. 431-33.000.
- Nakamura, Kazuharu; Matsumoto, Motoki; and Kondo, Akinobu, to Toyotomi Kogyo Co., Ltd. Oil burner of type of pumping up fuel oil. 4,363,621, Cl. 431-90.000.
- Nakamura, Motoharu: See—
- Ichiyama, Tadashi; Yamaguchi, Shigehiro; Iuchi, Tohru; Nakamura, Motoharu; and Suga, Yozo, 4,363,677, Cl. 148-111.000.
- Nakamura, Nobuyuki: See—
- Shirahata, Isao; Kitamura, Nobu; Nakamura, Nobuyuki; and Hori, Hisako, 4,363,899, Cl. 525-437.000.
- Nakamura, Norio: See—
- Sakato, Naoyuki; and Nakamura, Norio, 4,363,836, Cl. 427-393.600.
- Nakamura, Satoshi: See—
- Mishina, Noritoshi; Hirota, Yutaka; and Nakamura, Satoshi, 4,363,851, Cl. 428-333.000.
- Nakamura, Shunji; Kanbe, Junichiro; Toyono, Tsutomu; Takahashi, Tohru; and Tamura, Yasuyuki, to Canon Kabushiki Kaisha. Toner transfer development using alternating electric field. 4,363,861, Cl. 430-97.000.
- Nakanishi, Yutaka: See—
- Nakamura, Kazuharu; Nakanishi, Yutaka; and Yamada, Toshihiko, 4,363,620, Cl. 431-33.000.
- Nakano, Jun: See—
- Kuriyama, Kiyoshi; Nakano, Jun; Itikawa, Kiyonosin; Ito, Kiyoshi; Suzuki, Yuji; and Ishizuki, Katsuro, 4,363,812, Cl. 424-269.000.
- Nakashima, Syozi: See—
- Ochiai, Yoshihito; Nakashima, Syozi; and Hayashi, Midori, 4,363,794, Cl. 424-52.000.
- Nakatani, Genji: See—
- Iizuka, Motohiko; Nakatani, Genji; and Kishimoto, Sumiyuki, 4,363,655, Cl. 75-41.000.
- Nakayama, Akira: See—
- Akashiba, Takeo; Nakayama, Akira; and Murata, Atsuhiko, 4,363,875, Cl. 435-108.000.
- Nakayama, Shunsuke: See—
- Hoshino, Minoru; Shinohara, Tosio; Tanabe, Hiroyuki; Taki, Tooru; and Nakayama, Shunsuke, 4,363,889, Cl. 523-513.000.
- Nalco Chemical Company: See—
- Goretta, Louis A.; and Sibert, Frederick J., 4,363,752, Cl. 252-475.000.
- Slovinsky, Manuel, 4,363,734, Cl. 210-750.000.
- Nanjo, Toshio; Nakamura, Akinori; and Ishikawa, Hidekazu, to Ishikawajima-Harima Fukugyo Kabushiki Kaisha. Apparatus for reducing iron ore or the like. 4,363,473, Cl. 266-187.000.
- Narato, Kiyoshi; Ohtsuka, Keizou; and Niwa, Sadahiko, to Hitachi, Ltd. Method and apparatus for diagnosing local overheating in a rotary electric machine. 4,364,032, Cl. 340-679.000.
- Nashua Corporation: See—
- Veillette, Norman T.; and Pian, Charles H. C., 4,363,863, Cl. 430-115.000.
- Nassau Recycle Corporation: See—
- Carr, Susan H.; Schobert, Monique A.; and Taylor, John J., 4,363,449, Cl. 241-21.000.
- Nasu, Sataro; Hara, Hikoyoshi; and Iwanaga, Kouichi, to Matsushita Electric Works, Ltd. Electric shaver. 4,363,169, Cl. 30-41.000.
- National Gypsum Company: See—
- Johnson, Robert M.; and Melling, Elmer M., 4,363,666, Cl. 106-90.000.
- National Research Development Corporation: See—
- Glasser, Fredrik P.; and Gunawardane, Richard P., 4,363,650, Cl. 71-36.000.
- Nederlandsch Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek Ten Behoeve van Nysrheid, Handel en Verkeer: See—
- van Turnhout, Jan; and Ahuja, Ramesh C., 4,363,860, Cl. 430-83.000.
- Nelson, Calvin G., to Magnetic Controls Company. Patch module. 4,363,941, Cl. 200-1.00R.
- Nelson, Hugh W.; Prohazka, George J.; and Morris, Keith W., to Combustion Engineering, Inc. Method for drying and burning viscous aqueous liquors which contain organics. 4,363,698, Cl. 162-30.100.
- Nelson, Paul N., to Minnesota Mining and Manufacturing Company. Elastomeric pre-stretched tubes for providing electrical stress control. 4,363,842, Cl. 428-36.000.
- Nemoto, Takayuki; and Takimoto, Hiroyuki, to Canon Kabushiki Kaisha. Remote releasable camera. 4,363,544, Cl. 354-60.00R.
- Neumann, Otto W., to AMSTED Industries Incorporated. Railroad car truck side frame - bolster connection. 4,363,276, Cl. 105-197.00R.
- New York University: See—
- Rugg, Barry A.; and Stanton, Robert, 4,363,671, Cl. 127-1.000.
- Nickson Industries, Inc.: See—
- Evans, Ralph K.; and Florian, Roy S., 4,363,436, Cl. 228-144.000.
- Niemi, Bill H.: See—
- Cosentino, Louis C.; Niemi, Bill H.; Silbernagel, John P.; and Cooper, Jamshed R., 4,363,609, Cl. 417-477.000.
- Nightingale, James P. Combustion chamber pressure tap. 4,363,296, Cl. 123-59.00B.
- Nikolaev, Igor V.; Evpolov, Vladimir A.; Dronova, Lidia M.; Lednikov, Anatoly I.; Moskvyn, Mikhail A.; Sutyagin, Oleg Y.; Yankovsky, Oleg A.; Kilin, Viktor E.; Kolmyk, Evgeny S.; Tupitsyn, Konstantin K.; and Makarov, Alexei M. Impact tool with damping chambers. 4,363,365, Cl. 173-139.000.
- Nilsson, Emanuel, to AB Welin. Ship's embarkation device. 4,363,150, Cl. 14-69.500.
- Nippon Electric Co., Ltd.: See—
- Makabe, Takayoshi; and Kuraishi, Yoshiaki, 4,364,006, Cl. 323-353.000.
- Yamashita, Koji, 4,364,051, Cl. 343-715.000.
- Nippon Hoso Kyokai: See—
- Ando, Fumihiko, 4,363,963, Cl. 250-211.00J.
- Nippon Kokan Kabushiki Kaisha: See—
- Iizuka, Motohiko; Nakatani, Genji; and Kishimoto, Sumiyuki, 4,363,655, Cl. 75-41.000.
- Nippon Piston Ring Co., Ltd.: See—
- Takahashi, Kentaro; Hiraoka, Takeshi; and Urano, Shigeru, 4,363,662, Cl. 75-243.000.
- Nippon Shinyaku Co. Ltd.: See—
- Matsumura, Shingo, deceased; Enomoto, Hiroshi; Aoyagi, Yoshiaki; Ezure, Yoji; Yoshikuni, Yoshiaki; Maruo, Shigeaki; Ojima, Nobutoshi; and Konno, Kiyotaka, 4,363,802, Cl. 424-180.000.
- Nippon Soken, Inc.: See—
- Kawai, Hisasi; Sakurai, Kazuhiro; and Matsumoto, Muneaki, 4,363,210, Cl. 60-276.000.
- Kobayashi, Akihiro; Kida, Masashi; and Kato, Yoji, 4,363,958, Cl. 219-505.000.
- Sato, Susumu; Takeuchi, Yukihisa; and Tomita, Masahiro, 4,363,644, Cl. 55-523.000.
- Nippon Steel Corporation: See—
- Ichiyama, Tadashi; Yamaguchi, Shigehiro; Iuchi, Tohru; Nakamura, Motoharu; and Suga, Yozo, 4,363,677, Cl. 148-111.000.
- Nishigaki, Susumu; Murano, Kanji; and Watanabe, Yoshihisa, to Sony Corporation. Piezoelectric electro-mechanical bimorph transducer. 4,363,993, Cl. 310-332.000.
- Nishimura, Naozumi; Matsunaga, Akira; and Ishii, Yasuo, to Tohoku Metal Industries. Explosives having powdered ferrite magnet as a tracer dispersed therethrough and a method for producing the same. 4,363,678, Cl. 149-6.000.
- Nishimura, Tomoaki: See—
- Kawata, Shoji; Nishimura, Tomoaki; Sakakibar, Naoki; Imai, Nobuyuki; Amano, Hiroyuki; and Hamajima, Shigemitsu, 4,363,973, Cl. 307-10.00R.
- Nishimura, Yuusaku: See—
- Koseki, Yasuo; Yamada, Akira; Nishimura, Yuusaku; and Takahashi, Sankichi, 4,363,219, Cl. 62-101.000.
- Nishino, Hideki: See—
- Onodera, Toru; Ohsawa, Akira; Nishino, Hideki; and Watari, Masao, 4,364,112, Cl. 364-200.000.
- Nishio, Hirochika: See—
- Watanabe, Yutaka; and Nishio, Hirochika, 4,363,839, Cl. 428-31.000.
- Nishiwaki, Koji: See—
- Katsuta, Teiji; Nishiwaki, Koji; and Katagiri, Shinjiro, 4,363,953, Cl. 219-121.00EK.
- Nishiyama, Yoshihisa: See—
- Fujii, Kunihiko; and Nishiyama, Yoshihisa, 4,363,693, Cl. 156-360.000.
- Nishizawa, Jun-ichi, to Zaidan Hojin Handotai Kenkyu Shinkokai. Static induction type semiconductor device with multiple doped layers for potential modification. 4,364,072, Cl. 357-22.000.
- Nissan Motor Co., Ltd.: See—
- Sone, Kohki; Okamura, Kenji; and Nakagawa, Toyooki, 4,363,306, Cl. 123-440.000.
- Nissin Kogyo Co., Ltd.: See—
- Mizusaki, Yoshinobu, 4,363,240, Cl. 73-334.000.
- Nitto Boseki Co., Ltd.: See—
- Yamamoto, Osamu; Takehara, Keishin; and Yasiro, Yutaka, 4,363,878, Cl. 501-36.000.
- Niwa, Sadahiko: See—
- Narato, Kiyoshi; Ohtsuka, Keizou; and Niwa, Sadahiko, 4,364,032, Cl. 340-679.000.
- Nixdorf Computer AG: See—
- Baitz, Guenter, 4,363,229, Cl. 70-279.000.

- Nizova, Svetlana A.: See—
Rozovsky, Alexandr Y.; Stytsenko, Valentin D.; Nizova, Svetlana A.; Belov, Petr S.; and Dyakonov, Alexandr J., 4,363,750, Cl. 252-459,000.
- NJM, Inc.: See—
White, Rollin T., 4,363,685, Cl. 156-212,000.
- Noe, Stephen L., to Caterpillar Tractor Co. Cutting torch height control apparatus. 4,363,468, Cl. 266-76,000.
- Noguchi, Kosaku; Tanaka, Honami; Kumura, Yukimasa; Kitajima, Eiji; Tsuchiya, Noriyuki; and Sunada, Tomonori, to Koa Oil Company, Limited. Continuous process for industrially producing mesocarbon microbeads. 4,363,670, Cl. 106-278,000.
- Noling, Richard: See—
Mackall, Kenneth, Jr.; and Noling, Richard, 4,363,591, Cl. 414-563,000.
- Nomaguchi, Hirotosugu: See—
Seshimoto, Osamu; Nomaguchi, Hirotosugu; Horie, Seiji; Sato, Hideo; Takimoto, Masaaki; and Kubotera, Kikuo, 4,363,829, Cl. 427-53,100.
- Northern Telecom Limited: See—
Daaboul, Fouad; Le Van, Tiu; and Fung, Kit-Chung, 4,363,938, Cl. 179-170,200.
- Northrop Corporation: See—
Spiegel, Leo, 4,364,045, Cl. 340-870,310.
- Nossek, Josef, to Siemens Aktiengesellschaft. Switched-capacitor filter circuit having at least one simulated inductor. 4,364,116, Cl. 364-825,000.
- Novatome: See—
Cornu, Bernard; and Pierrey, Jean-Louis, 4,363,777, Cl. 376-203,000.
- Nowack, Horst: See—
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- Nowak, Manfred: See—
Viertel, Lothar; Kaiser, Klaus-Peter; and Nowak, Manfred, 4,363,511, Cl. 296-97,000.
- Nussbaum, Otto J., to Halstead Industries, Inc. Heat pump using solar and outdoor air heat sources. 4,363,218, Cl. 62-79,000.
- Oberhoffner, Gerhard; Koninger, Horst; and Kastl, Alfons, to Agfa-Gevaert AG. Arrangement for introducing band light-sensitive material into developing device and the developing device provided therewith. 4,363,548, Cl. 354-298,000.
- O'Brien, Michael; Smith, Nelson E., Jr.; and Prussia, Stanley E., to University of California, The Regents of The. Weighing and grading samples in order to grade large batches of fruit. 4,363,408, Cl. 209-546,000.
- Occidental Chemical Corp.: See—
Adams, Allen S.; and Caesar, Michael B., 4,363,786, Cl. 422-189,000.
- Oce-van der Grinten N.V.: See—
Vercoulen, Johannes C. A., 4,363,858, Cl. 430-56,000.
- Ocheltree, William A.: See—
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- Ochiai, Yoshihito; Nakashima, Syozi; and Hayashi, Midori, to Lion Corporation. Oral composition for caries prophylaxis. 4,363,794, Cl. 424-52,000.
- Ochmann, Rudolf, to U.S. Philips Corporation. Method of and apparatus for controlling the electric power applied to a rotary-anode X-ray tube. 4,363,971, Cl. 378-110,000.
- Odawara, Osamu, to Director-General of the Agency of Industrial Science & Technology. Method for providing ceramic lining to a hollow body by thermit reaction. 4,363,832, Cl. 427-183,000.
- O'Donnell, John T., III. Transplantable planter. 4,363,189, Cl. 47-73,000.
- Ogasawara, Hiroomi; and Ogasawara, Masaomi. Rotation angle detecting device. 4,364,046, Cl. 340-870,370.
- Ogasawara, Masaomi: See—
Ogasawara, Hiroomi; and Ogasawara, Masaomi, 4,364,046, Cl. 340-870,370.
- Ogawa, Hisashi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Automatic seat belt device. 4,363,500, Cl. 280-802,000.
- Ogawa, Kazuaki: See—
Yamato, Yoshihiro; Ogawa, Kazuaki; Satoh, Hiromasa; Chiku, Kiyoshi; and Okada, Hideo, 4,363,649, Cl. 65-158,000.
- Ogawa, Yoshihiro: See—
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- Oger, Rene, to C. Delachaux. Electrical supply line for the supply or current to railway vehicles. 4,363,939, Cl. 191-43,000.
- Ogihara, Yutaka: See—
Taguchi, Shinichiro; Nagao, Nobuya; and Ogihara, Yutaka, 4,364,091, Cl. 358-148,000.
- Ogiwara, Osao, to Akebono Brake Industry Company, Ltd. Friction material. 4,363,884, Cl. 523-156,000.
- Ogami, Masaaki; and Suzuki, Hitoshi, to Fuji Jukogyo Kabushiki Kaisha. Control system. 4,363,305, Cl. 123-440,000.
- Ohkawara Mfg. Co., Ltd.: See—
Yoshida, Kazuyuki; Kaneko, Shizuo; Okawara, Mikio; and Hiroki, Terushige, 4,363,285, Cl. 118-19,000.
- Ohm, Edward A., to Bell Telephone Laboratories, Incorporated. Antenna arrangements for suppressing selected sidelobes. 4,364,052, Cl. 343-781,000.
- Ohmi, Atsushi, to Aisin Seiki Kabushiki Kaisha. Brake booster. 4,363,259, Cl. 91-422,000.
- Ohnishi, Takeo: See—
Shimoyama, Yuji; Yanagishima, Fumiya; Sunami, Hideo; Ida, Yukio; Katsushima, Goji; Ohnishi, Takeo; and Fukushima, Takeo, 4,363,472, Cl. 266-111,000.
- Yanagishima, Fumiya; Shimoyama, Yuji; Sunami, Hideo; Ida, Yukio; Katsushima, Goji; Suzuki, Munetoshi; and Ohnishi, Takeo, 4,363,471, Cl. 266-111,000.
- Ohoka, Akihiro: See—
Isshiki, Isao; Sato, Koji; Sunago, Katsuyoshi; Ohoka, Akihiro; and Akatsuka, Masayuki, 4,364,023, Cl. 340-146,30H.
- Ohsawa, Akira: See—
Onodera, Toru; Ohsawa, Akira; Nishino, Hideki; and Watari, Masao, 4,364,112, Cl. 364-200,000.
- Ohshita, Hiroshi; and Tsutsumi, Tadao, to Toray Industries, Inc. Process for producing flame retardant polyamide molding resin containing melamine cyanurate. 4,363,890, Cl. 524-101,000.
- Ohtsuka, Keizou: See—
Narato, Kiyoshi; Ohtsuka, Keizou; and Niwa, Sadahiko, 4,364,032, Cl. 340-679,000.
- Ohude, Masao; and Kawamura, Duro, to Shibuya Kogyo Co., Ltd. Apparatus for simultaneous operation of uncasing and cap removing. 4,363,204, Cl. 53-381,00A.
- Oji Paper Co., Ltd.: See—
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- Ojima, Nobutoshi: See—
Matsumura, Shingo, deceased; Enomoto, Hiroshi; Aoyagi, Yoshiaki; Ezure, Yoji; Yoshikuni, Yoshiaki; Maruo, Shigeaki; Ojima, Nobutoshi; and Konno, Kiyotaka, 4,363,802, Cl. 424-180,000.
- Okada, Hachiro: See—
Onishi, Keizo; Adachi, Takao; Fuji, Akiyoshi; Chiba, Ryuichi; Naitoh, Katsuyuki; and Okada, Hachiro, 4,363,952, Cl. 219-76,120.
- Okada, Hideo: See—
Yamato, Yoshihiro; Ogawa, Kazuaki; Satoh, Hiromasa; Chiku, Kiyoshi; and Okada, Hideo, 4,363,649, Cl. 65-158,000.
- Okada, Hiroshi, to Mitsuchi Corporation. Device for removing dump nut from bolt. 4,363,164, Cl. 29-270,000.
- Okada, Junichi: See—
Koto, Haruhiko; and Okada, Junichi, 4,364,067, Cl. 346-140,00R.
- Okada, Kazuo; and Kondo, Mitsushige, to Mitsubishi Denki Kabushiki Kaisha. Automatic focusing apparatus. 4,363,961, Cl. 250-201,000.
- Okado, Chihiro; and Ugai, Isami, to Tokyo Shibaura Denki Kabushiki Kaisha. Control device of inverters. 4,364,109, Cl. 363-41,000.
- Okamura, Kenji: See—
Sone, Kohki; Okamura, Kenji; and Nakagawa, Toyooki, 4,363,306, Cl. 123-440,000.
- Okamura, Tatsuhiro; and Irifune, Hideki, to Okamura, Tatsuhiro; and Yoshida Kogyo K.K. Aluminum hydroxide-based spray-on insulating material for building and method for the preparation thereof. 4,363,739, Cl. 252-62,000.
- Okawara, Mikio: See—
Yoshida, Kazuyuki; Kaneko, Shizuo; Okawara, Mikio; and Hiroki, Terushige, 4,363,285, Cl. 118-19,000.
- Okuda, Masanao: See—
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- Kondo, Isao; and Nakajima, Yukio, 4,363,542, Cl. 354-31,000.
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- Onishi, Kenji: See—
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- Ono, Toru: See—
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- Petersen, Ray R., to Met-Pro Corporation. Pump impeller assembly with anti-rotation device. 4,363,603, Cl. 416-244,00R.
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- Ricoh Co., Ltd.: See—
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- Horike, Masanori; and Ebi, Yutaka, 4,364,061, Cl. 346-75.000.
- Jinnai, Koichiro; Horike, Masanori; Iwasaki, Kyuhachiro; and Kodama, Yutaka, 4,364,060, Cl. 346-75.000.
- Kobayashi, Hiroshi, 4,364,069, Cl. 346-140.00R.
- Nagayama, Haruhiko, 4,364,059, Cl. 346-75.000.
- Sasaki, Masaomi; and Tsutsui, Kyoji, 4,363,859, Cl. 430-59.000.
- Suzuki, Takami; and Hasegawa, Takashi, 4,363,559, Cl. 400-175.000.
- Riegel, Horst: See—
Thaer, Andreas; Hagner, Willi; Frimmel, Horst; and Riegel, Horst, 4,363,536, Cl. 351-245.000.
- Riese, Gunter: See—
Tietgen, Hans P.; and Riese, Gunter, 4,363,283, Cl. 114-201.00R.
- Riken Vitamine Oil Co., Ltd.: See—
Fukuda, Tetsuro; Matsuura, Hideo; Koizumi, Yoshihito; and Yamaguchi, Takeshi, 4,363,826, Cl. 426-653.000.
- Rinaldi, Fernando, to Saipem, S.p.A. Device for the back support of the first run weld pool in the automatic butt-welding of pipes, 4,363,954, Cl. 219-160.000.
- Ripley, Wayne H. Ice making apparatus, 4,363,220, Cl. 62-138.000.
- Robert Bosch GmbH: See—
Frister, Manfred; Renner, Stefan; Meyer, Friedhelm; and Christ, Klaus H., 4,363,983, Cl. 310-68.00R.
- Fritz, Adolf R.; Gottschick, Michael; Krappel, Alfred; and Guggenmos, Johannes, 4,363,304, Cl. 123-418.000.
- Honig, Gunter; Braunger, Joachim; Krauter, Imanuel; and Bone, Rainer, 4,363,979, Cl. 307-519.000.
- Jaggel, Gunther; Lang, Ernst; and Knapp, Heinrich, 4,363,446, Cl. 239-453.000.
- Roberts, Alan: See—
Storey, Richard; and Roberts, Alan, 4,364,087, Cl. 358-105.000.
- Roberts, James K., to Bendix Corporation, The. Wheel cylinder and torque plate construction, 4,363,387, Cl. 188-333.000.
- Roberts, Sandra: See—
Phipps, Gregory F., 4,364,003, Cl. 318-467.000.
- Robertshaw Controls Company: See—
Moon, William T., Jr., 4,363,463, Cl. 251-61.000.
- Robinaur Manufacturing Corporation: See—
Cain, Robert L., 4,363,222, Cl. 62-292.000.
- Robinson, Curtiss W.; and Raymond, Eugene T., to Boeing Company, The. Quasi-open loop hydraulic ram incremental actuator with power conserving properties, 4,363,211, Cl. 60-476.000.
- Rockwell International Corporation: See—
Heimbigner, Gary L., 4,363,978, Cl. 307-451.000.
- Minor, Timothy R., 4,363,976, Cl. 307-353.000.
- Palovick, John, 4,363,522, Cl. 301-131.000.
- Rodier, Henry: See—
Chion, Pierre; Menault, Jacques; and Rodier, Henry, 4,363,895, Cl. 525-54.210.
- Rodney, Peter W. Golf ball driving device, 4,363,311, Cl. 124-16.000.
- Rodriguez, Alvaro. Lubrication pastes, 4,363,737, Cl. 252-26.000.
- Rodriguez, Rodolfo R.: See—
Achter, Eugene K.; Kremen, Jerome C.; Rodriguez, Rodolfo R.; and Priarone, Paolo, 4,363,551, Cl. 356-338.000.
- Roecar Holdings (Netherlands Antilles): See—
Bindon, Jeffery P., 4,363,713, Cl. 204-278.000.
- Roeder, Helmut R. Apparatus for preventing or alternatively restricting the discharge of anions and X-rays from the front side of cathode ray tubes, 4,364,095, Cl. 358-245.000.
- Roesler, Richard R., to Henkel Corporation. Adhesive bonding process, 4,363,689, Cl. 156-307.300.
- Rogers, Eugene A. Damage prevention void filler for separating loads during transit, 4,363,579, Cl. 410-154.000.
- Rogier, Leonce E. R., to Societe Anonyme Francaise du Ferodo. Brake with axially expanding brake shoes, 4,363,383, Cl. 188-72.500.
- Roline, Glenn; and Walmsley, Frank, to Medtronic, Inc. Mode adaptive pacer, 4,363,325, Cl. 128-419.00G.
- Roma, Pierpaolo: See—
Cicchetti, Osvaldo; Fontani, Spartaco; Landoni, Gianluigi; Locatelli, Renato; Bertelli, Guido; and Roma, Pierpaolo, 4,363,906, Cl. 528-248.000.
- Rommeler, Josef: See—
Paisley, Gary V.; Altschuler, J. George; and Rommeler, Josef, 4,363,849, Cl. 428-318.800.
- Rooklyn, Jack. Bench with self-leveling production cart, 4,363,587, Cl. 414-401.000.
- Rosas, Carlos B.: See—
Bacher, Stuart; Rosas, Carlos B.; and Sharkey, John J., 4,363,751, Cl. 252-469.000.
- Rosch, Gunter: See—
Günther, Dieter; Erckel, Rudiger; Rosch, Gunter; and Probst, Heinz, 4,363,744, Cl. 252-301.220.
- Rosell, Jean, to La Perche. Latch having a releasable actuating rod, 4,363,506, Cl. 292-336.300.
- Rosen, Marvin; and Hall, Larry K., to Glyco Inc. Glyceryl monostearate plastic lubricants, 4,363,891, Cl. 524-317.000.
- Rossin, John A. Intruder detection system, 4,364,030, Cl. 340-567.000.
- Roth, Augustin: See—
Murray, Bruce A.; Hasler, Peter H.; and Roth, Augustin, 4,363,610, Cl. 425-89.000.
- Roto-Finish Company, Inc.: See—
Balz, Gunther W., 4,363,194, Cl. 51-163.100.
- Rouillet, Gilbert; and Legrand, Pierre, to Rhone-Poulenc Industries. Packaging films, sheets and blown or molded hollow bodies, 4,363,840, Cl. 428-35.000.
- Roy, Ashim K.: See—
Cole, Peter H.; Eshraghian, Kamran; and Roy, Ashim K., 4,364,043, Cl. 340-825.540.
- Rozovsky, Alexandr Y.; Stytsenko, Valentin D.; Nizova, Svetlana A.; Belov, Petr S.; and Dyakonov, Alexandr J. Catalyst for dehydrogenation of oxygen containing derivatives of the cyclohexane series into corresponding cyclic ketones and/or phenols, 4,363,750, Cl. 252-459.000.
- Rozwadowski, Boleslaw; and Bucklew, Leonard E., to General Foods Corporation. Vibrating bin unloader, 4,363,589, Cl. 414-415.000.
- Rudolph, Gunter: See—
Koster, Rainer; Rudolph, Gunter; Gebauer, Rainer; Boch, Iris; Schroter, Wilfried; and Jakobs, Jürgen, 4,363,757, Cl. 252-628.000.
- Rued, Glen A.; and Simpson, Elmer J. Elevator and method of lifting, 4,363,380, Cl. 187-17.000.
- Ruemer, John, Jr.; and Potts, Vinson S., to Crown Cork & Seal Company, Inc. Promotional can end, 4,363,179, Cl. 40-307.000.
- Rugg, Barry A.; and Stanton, Robert, to New York University. Apparatus for chemical conversion of materials, 4,363,671, Cl. 127-1.000.
- Rusch, Larry P.: See—
Graff, Eugene A.; and Rusch, Larry P., 4,363,998, Cl. 313-487.000.
- Russell, Roger V.: See—
Buck, George S., Jr.; and Russell, Roger V., 4,363,680, Cl. 156-62.600.
- Russell, Stanley L.: See—
Christiansen, Ronald W.; Pommerening, Uwe A.; Russell, Stanley L.; Slingsby, Barry; and West, Julian W., 4,363,936, Cl. 179-18.00E.
- Rutledge, Robert L., to Minnesota Mining and Manufacturing Company. Colloid relief images by oxidized developer transfer, 4,363,864, Cl. 430-202.000.
- S. C. Johnson & Son, Inc.: See—
D'Orazio, Vincent T., 4,363,798, Cl. 424-84.000.
- Sagae, Syoji: See—
Matsuda, Yasumasa; Sagae, Syoji; Kasahara, Masatoshi; and Uchida, Hiroyasu, 4,364,070, Cl. 346-140.00R.
- Sagefors, Karl I.: See—
Hallenius, Tore J.; and Sagefors, Karl I., 4,363,563, Cl. 405-55.000.
- Sahar, Raphael. Automobile protecting sun shade, 4,363,513, Cl. 296-140.000.
- Saipem, S.p.A.: See—
Rinaldi, Fernando, 4,363,954, Cl. 219-160.000.
- Scodino, Ambrogio; and Po, Fernando, 4,363,569, Cl. 405-303.000.
- Sakai Manufacturing Co., Ltd.: See—
Sakai, Yoshitaka, 4,363,260, Cl. 92-13.000.
- Sakai, Yoshitaka, to Sakai Manufacturing Co., Ltd. Air cylinder, 4,363,260, Cl. 92-13.000.
- Sakakibar, Naoji: See—
Kawata, Shoji; Nishimura, Tomoaki; Sakakibar, Naoji; Imai, Nobuyuki; Amano, Hiroyuki; and Hamajima, Shigemitsu, 4,363,973, Cl. 307-10.00R.
- Sakato, Naoyuki; and Nakamura, Norio, to Shin-Etsu Chemical Co., Ltd. Priming compositions for a base of cement mortar or concrete, 4,363,836, Cl. 427-393.600.
- Sakonooka, Akihiko: See—
Wakita, Saburo; and Sakonooka, Akihiko, 4,363,660, Cl. 75-128.00B.
- Sakurai, Kazuhiro: See—
Kawai, Hisasi; Sakurai, Kazuhiro; and Matsumoto, Muneaki, 4,363,210, Cl. 60-276.000.
- Salvadori, Lawrence A., to Plastronics, Inc. Fluid drainage bag with tear tab drain, 4,363,406, Cl. 206-604.000.
- Salvo, Thomas R.: See—
Poirier, Victor L.; Buczak, Stanley D.; Lynch, Robert F.; and Salvo, Thomas R., 4,363,328, Cl. 128-728.000.
- Sanderson, Hendrik J.: See—
De Boer, Jacob; Sanderson, Hendrik J.; and Sommer, Friedrich, 4,364,097, Cl. 360-70.000.
- Sandford, Paul A.: See—
Cottrell, Ian W.; Sandford, Paul A.; and Baird, John K., 4,363,669, Cl. 106-205.000.
- Sandoz Ltd.: See—
Marko, Magda; and Welle, Hendricus B. A., 4,363,809, Cl. 424-260.000.
- Pedrazzi, Reinhard, 4,363,761, Cl. 260-153.000.

Sanmiya, Tsugumi: See—
Fukui, Osamu; Umamoto, Yoshiro; Sanmiya, Tsugumi; Sano, Yutaka; and Tanaka, Kazuyoshi, 4,363,885, Cl. 523-212.000.

Sano, Yutaka: See—
Fukui, Osamu; Umamoto, Yoshiro; Sanmiya, Tsugumi; Sano, Yutaka; and Tanaka, Kazuyoshi, 4,363,885, Cl. 523-212.000.

Sarkison, Warren, to Load Cells Inc. Accurate weight measurement using digital to analog converter means and analog to digital converter means. 4,363,370, Cl. 177-210.00R.

Sasaki, Akiyoshi: See—
Tanioka, Susumu; Sasaki, Akiyoshi; and Hoshino, Shoji, 4,363,265, Cl. 99-510.000.

Sasaki, Isao: See—
Takigawa, Tadahiyo; Sasaki, Isao; and Tsuji, Kazuo, 4,363,995, Cl. 313-346.00R.

Sasaki, Masaomi; and Tsutsui, Kyoji, to Ricoh Company, Ltd. Electro-photographic photoconductor. 4,363,859, Cl. 430-59.000.

Sasayama, Takao: See—
Amano, Matsuo; Mouri, Yasunori; Abe, Osamu; Suda, Seiji; and Sasayama, Takao, 4,363,307, Cl. 123-492.000.

Saskatchewan Power Corporation: See—
Beattie, Jay E., 4,363,975, Cl. 307-150.000.

Satake, Yoshinori. Device for retaining inner shuttle member against rotation. 4,363,282, Cl. 112-184.000.

Sato, Akihiro: See—
Kikuta, Kazutsune; Tachibana, Masami; and Sato, Akihiro, 4,363,901, Cl. 526-97.000.

Sato, Hideo: See—
Seshimoto, Osamu; Nomaguchi, Hirotsugu; Horie, Seiji; Sato, Hideo; Takimoto, Masaaki; and Kubotera, Kikuo, 4,363,829, Cl. 427-53.100.

Sato, Koji: See—
Ishiki, Isao; Sato, Koji; Sunago, Katsuyoshi; Ohoka, Akihiro; and Akatsuka, Masayuki, 4,364,023, Cl. 340-146.30H.

Sato, Susumu; Takeuchi, Yukihisa; and Tomita, Masahiro, to Nippon Soken, Inc. Filter for purifying exhaust gas. 4,363,644, Cl. 55-523.000.

Sato, Yo; and Shibayama, Tooru, to Kabushiki Kaisha Sato. Drum type bar code line printer. 4,363,268, Cl. 101-110.000.

Sato, Yo, to Kabushiki Kaisha Sato. Index wheel for printing device. 4,363,269, Cl. 101-110.000.

Satoh, Hiromasa: See—
Yamato, Yoshihiro; Ogawa, Kazuaki; Satoh, Hiromasa; Chiku, Kiyoshi; and Okada, Hideo, 4,363,649, Cl. 65-158.000.

Satoh, Kiyoshi: See—
Koyama, Masataka; Satoh, Kiyoshi; and Terashima, Minoru, 4,364,099, Cl. 361-305.000.

Savagian, Michael D., to W. H. Brady Co. Sleeve marker assembly. 4,363,401, Cl. 206-345.000.

Scandella, Louis, to Stanley Mabo, S.A. Coilable rule and replacement cartridge therefor. 4,363,171, Cl. 33-138.000.

Schaefer, Edward F.; Lozynski, Lawrence R.; and Lorenzi, Donald E., to Magnaflex Corporation. Photographic pipeline inspection apparatus including an optical port wiper. 4,363,545, Cl. 354-63.000.

Schafer, Otto: See—
Emmenthal, Klaus-Dieter; Schafer, Otto; and Strozky, Rudolf-Helmut, 4,363,308, Cl. 123-533.000.

Schaffner, Jean-Claude; and Muller, Jacques, to ETA S.A., Fabriques d'Ebauches. Setting mechanism for an analog display watch. 4,363,554, Cl. 368-190.000.

Schall, Roy F., Jr., to Akzona Incorporated. Glass support coated with synthetic polymer for bioprocess. 4,363,634, Cl. 23-230.00B.

Scheibner, Gerald H., to Union Carbide Corporation. Reclosable container. 4,363,345, Cl. 150-3.000.

Scheidler, Herwig; and Keller, Gunther, to JENAer Glaswerk Schott & Gen. Cooking panel unit for installation in work surface. 4,363,956, Cl. 219-464.000.

Scheidweiler, Andreas; and Muller, Peter, to Cerberus AG. Ionization smoke detector with increased operational reliability. 4,364,031, Cl. 340-629.000.

Schenck, Hans-Uwe: See—
Kempter, Fritz E.; Schupp, Eberhard; Schenck, Hans-Uwe; and Gulbins, Erich, 4,363,710, Cl. 204-181.00C.

Scherowsky, Guenther: See—
Moeller, Alexander; and Scherowsky, Guenther, 4,363,743, Cl. 252-299.100.

Scherz, Wilhelm. Web of bags. 4,363,437, Cl. 229-53.000.

Schindler, Peter V., to Angelus Sanitary Can Machine Company. Pouch filler nozzle and valve. 4,363,429, Cl. 222-504.000.

Schlanger, Alfred. Transmission brake band end connection. 4,363,385, Cl. 188-249.000.

Schlegel, Hans J.: See—
Wolf, Helmut; and Schlegel, Hans J., 4,363,396, Cl. 198-508.000.

Schloemann-Siemag Aktiengesellschaft: See—
Kirchhoff, Hans, 4,363,394, Cl. 198-369.000.

Schmelzer Corporation: See—
Spitzke, Arthur, 4,363,312, Cl. 124-45.000.

Schmid, Carl J., to Peerless Electronics Research Corp. Sampling apparatus. 4,363,245, Cl. 73-864.220.

Schmidt, Adolf; Jambor, Arno; and Huber, Guntram, to Daimler-Benz Aktiengesellschaft. Protective edge molding for vehicle parts. 4,363,838, Cl. 428-31.000.

Schmidt, Manfred; Hoyer, Gerd; Leiberich, Hermann; and Pietschmann, Helmut, to Sybron Corporation. Dental syringe. 4,363,626, Cl. 433-85.000.

Schmidt, Manfred: See—
Biermann, Peter; Ewald, Otto; Feucht, Rudi; and Schmidt, Manfred, 4,363,498, Cl. 280-615.000.

Schmidt, Paul J.; and Hung, William M., to Sterling Drug Inc. Pyridine color formers. 4,363,503, Cl. 282-27.500.

Schmidt, Peter. Method for manufacture of rubber granulate from old tires. 4,363,450, Cl. 241-24.000.

Schminke, Wolfgang: See—
Hilbig, Josef; Holst, Arno; Kunkler, Hans; Stolling, Klaus; and Schminke, Wolfgang, 4,363,784, Cl. 422-134.000.

Schmitt, Larry D., to Conchemco Incorporated. Method and apparatus for controlling blade clutch assembly. 4,363,206, Cl. 56-11.300.

Schmitt, Walter, to Dr. Johannes Heidenhain GmbH. Incremental measuring system with selectively designated reference marks. 4,363,964, Cl. 250-237.00G.

Schnable, George L.: See—
Hsu, Sheng T.; and Schnable, George L., 4,363,830, Cl. 427-88.000.

Schobert, Monique A.: See—
Carr, Susan H.; Schobert, Monique A.; and Taylor, John J., 4,363,449, Cl. 241-21.000.

Scholtissek, Leonhard: See—
Rauchle, Wilfried; Preisendanz, Walter; and Scholtissek, Leonhard, 4,363,708, Cl. 204-129.750.

Scholz, Donald T. Volume control device. 4,363,934, Cl. 179-1.0VL.

Schonwald, Siegfried; and Hecht, Gert, to Siemens Aktiengesellschaft. Multistage side-channel compressor. 4,363,598, Cl. 415-53.00T.

Schreiner, Charles P., to Westinghouse Electric Corp. Material handling cart. 4,363,496, Cl. 280-47.350.

Schreyer, Kenneth D., to Columbus McKinnon Corporation. Chain grab hook providing for a flat lay cross-over link. 4,363,509, Cl. 294-82.00R.

Schroeder, Kurt: See—
Mentrup, Anton; Schroeder, Kurt; Renth, Ernst-Otto; Reichl, Richard; and Trautenecker, Werner, 4,363,814, Cl. 424-272.000.

Schroter, Wilfried: See—
Koster, Rainer; Rudolph, Gunter; Gebauer, Rainer; Boch, Iris; Schroter, Wilfried; and Jakobs, Jurgen, 4,363,757, Cl. 252-628.000.

Schubert, John C.: See—
Le Duc, Edward C.; and Schubert, John C., 4,363,848, Cl. 428-286.000.

Schubert, Wayne W.: See—
United States of America, National Aeronautics and Space Administration; Dastoor, Minoo N.; Schubert, Wayne W.; and Petersen, Gene R., 4,363,188, Cl. 47-58.000.

Schuh, Frank J., to Atlantic Richfield Company. Conductors for a guyed tower and method for installing same. 4,363,568, Cl. 405-227.000.

Schultz, Peter C.: See—
Bachman, David L.; Lewis, William C., Jr.; Schultz, Peter C.; and Voorhees, Francis W., 4,363,647, Cl. 65-18.200.

Schulz, Donald N.: See—
Gunesin, Binnur; Hamed, Gary R.; Kang, Jung W.; and Schulz, Donald N., 4,363,897, Cl. 525-195.000.

Schulze, Clayton E. Chip spreader. 4,363,447, Cl. 239-659.000.

Schumaker, Robert R.: See—
Engler, Edward M.; Patel, Vishnubhai V.; and Schumaker, Robert R., 4,363,919, Cl. 549-32.000.

Schupp, Eberhard: See—
Kempter, Fritz E.; Schupp, Eberhard; Schenck, Hans-Uwe; and Gulbins, Erich, 4,363,710, Cl. 204-181.00C.

Schwabische Huttenwerke Gesellschaft mit beschränkter Haftung: See—
Gessler, Hans; and Marienfeld, Gottfried, 4,363,586, Cl. 414-311.000.

Schwickert, Russell C.: See—
Cortorillo, Salvatore F.; Demas, Nickolas P.; and Schwickert, Russell C., 4,363,994, Cl. 313-113.000.

Scodino, Ambrogio; and Po, Fernando, to Saipem S.p.A. Apparatus for supporting and erecting supporting means for supporting undersea pipelines at all depths. 4,363,569, Cl. 405-303.000.

Scott, Bruce A.: See—
Brodsky, Marc H.; and Scott, Bruce A., 4,363,828, Cl. 427-39.000.

Scott & Fetzer Company, The: See—
Karpanty, David J., 4,363,152, Cl. 15-98.000.

Knowlton, Christopher M., 4,363,151, Cl. 15-83.000.

Scott, Janet. Portable back rest. 4,363,517, Cl. 297-377.000.

Searle, Russell J. Piston and cylinder machines. 4,363,294, Cl. 123-43.00A.

Secor, Vincent E., to Stavo Industries, Inc. Shaft seal assembly. 4,363,491, Cl. 277-81.00R.

Seeburg, Peter H.: See—
Goodman, Howard M.; Shine, John; and Seeburg, Peter H., 4,363,877, Cl. 435-317.000.

Semenkov, Leonid I.: See—
Vorotyntseva, Ljudmila A.; Florinsky, Eduard A.; Semenov, Leonid I.; and Sysoev, Valentin S., 4,363,987, Cl. 310-216.000.

Sengebusch, Peter; and Nowack, Horst, to Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt e.V. Crack development measuring equipment. 4,364,113, Cl. 364-507.000.

Senn-Bilfinger, Jorg, to BYK Gulden Lomborg Chemische Fabrik Gesellschaft mit beschränkter Haftung. Tricyclic pyrroles, their compositions and their use. 4,363,816, Cl. 424-274.000.

Seplast: See—
Thiebault, Bernard, 4,363,682, Cl. 156-181.000.

Septier, Louis: See—
Boscaro, Louis; Demange, Michel; Bucher, Jean-Philippe; Dubrous, Francis; and Septier, Louis, 4,363,657, Cl. 75-80.000.

Sepulveda, Ralph R.; and Lander, Lynn H., to Lever Brothers Company. Pretreatment composition for stain removal. 4,363,756, Cl. 252-550.000.

Serrao, Carlton. Locking mechanism for ranges. 4,363,228, Cl. 70-177.000.

Seshimoto, Osamu; Nomaguchi, Hirotsugu; Horie, Seiji; Sato, Hideo; Takimoto, Masaaki; and Kubotera, Kikuo, to Fuji Photo Film Co., Ltd. Process for forming an electrically conductive film. 4,363,829, Cl. 427-53.100.

Seton Company: See—
Cioca, Gheorghe, 4,363,760, Cl. 260-123.700.

Settineri, William J.; Klassen, Harold E.; and Tolly, Milton C., to Dow Chemical Company. The Process for the removal of carbon from solid surfaces. 4,363,673, Cl. 134-2.000.

Seymour of Sycamore, Inc.: See—
Leep, Gus W., 4,363,887, Cl. 523-402.000.

Shafer, Donald E., to Honeywell Inc. Electrographic recording. 4,364,071, Cl. 346-153.100.

Shain, Albert L., to Du Pont de Nemours & E. I., and Company. Thermoplastic copolyester elastomers modified with salts of phenolic compounds. 4,363,892, Cl. 524-327.000.

Sharkey, John J.: See—
Bacher, Stuart; Rosas, Carlos B.; and Sharkey, John J., 4,363,751, Cl. 252-469.000.

Sharp Kabushiki Kaisha: See—
Aiba, Masahiko, 4,364,055, Cl. 346-1.100.

Fukuda, Hiroaki; and Imai, Shigeki, 4,364,041, Cl. 340-785.000.

Matsui, Hirotsugu, 4,364,062, Cl. 346-75.000.

Mattori, Hiroaki; and Tateishi, Iwao, 4,363,523, Cl. 303-92.000.

Take, Hiroshi; Koyanagi, Katubumi; and Uede, Hisashi, 4,364,040, Cl. 340-785.000.

Sharp, Spencer G., to Pacific Gas and Electric Company. H₂S Abatement process. 4,363,215, Cl. 60-641.200.

Shell Oil Company: See—
Van der Graaf, Gerhardus C., 4,363,567, Cl. 405-195.000.

Sherwin-Williams Company, The: See—
Long, John W.; and Vacek, Lubomir, 4,363,914, Cl. 548-257.000.

Shibayama, Tooru: See—
Sato, Yo; and Shibayama, Tooru, 4,363,268, Cl. 101-110.000.

Shibue, Toshiaki; Nagayasu, Koichi; Kobayashi, Tooru; and Tokitoku, Kouji, to Konishiroku Photo Industry Co., Ltd. Light-sensitive photographic material. 4,363,871, Cl. 430-523.000.

Shibuya Kogyo Co., Ltd.: See—
Ohude, Masao; and Kawamura, Duro, 4,363,204, Cl. 53-381.00A.

Shida, Takao, to Fujitsu Limited. Focusing apparatus with plural emitter-detector pairs. 4,363,962, Cl. 250-201.000.

Shiga, Atsushi, to Kawasaki Steel Corporation. Both-side single layer, high speed submerged arc welding process. 4,363,951, Cl. 219-73.000.

Shigematsu, Kazuo: See—
Maeda, Takeshi; Shigematsu, Kazuo; and Yonezawa, Seiji, 4,364,118, Cl. 369-44.000.

Shimada, Katsutoshi: See—
Tanaka, Satoru; Shimada, Katsutoshi; Hashimoto, Kazunori; Ema, Kiichi; and Ueda, Koichiro, 4,363,921, Cl. 549-74.000.

Shimizu, Kazunari, to Iwatsu Electric Co., Ltd. Composite logic analyzer capable of data display in two time-related formats. 4,364,036, Cl. 340-715.000.

Shimizu, Tetsuo; and Koizumi, Shun, to Daikin Kogyo Co., Ltd. Process for preparing polytetrafluoroethylene fine powder. 4,363,900, Cl. 526-83.000.

Shimoyama, Yuji; Yanagishima, Fumiya; Sunami, Hideo; Ida, Yukio; Katsushima, Goji; Ohnishi, Takeo; and Fukushima, Takeo, to Kawasaki Steel Corporation. Steel strip continuous annealing apparatus. 4,363,472, Cl. 266-111.000.

Shimoyama, Yuji: See—
Yanagishima, Fumiya; Shimoyama, Yuji; Sunami, Hideo; Ida, Yukio; Katsushima, Goji; Suzuki, Munetoshi; and Ohnishi, Takeo, 4,363,471, Cl. 266-111.000.

Shin-Etsu Chemical Co., Ltd.: See—
Sakato, Naoyuki; and Nakamura, Norio, 4,363,836, Cl. 427-393.600.

Shine, John: See—
Goodman, Howard M.; Shine, John; and Seeburg, Peter H., 4,363,877, Cl. 435-317.000.

Shinkai, Kinya: See—
Isono, Katsuo; Miyaoka, Senri; and Shinkai, Kinya, 4,364,083, Cl. 358-69.000.

Shinohara, Masao, to Tomy Kogyo Co., Inc. Toy capable of repeatedly upsetting and then righting itself. 4,363,187, Cl. 46-211.000.

Shinohara, Tosio: See—
Hoshino, Minoru; Shinohara, Tosio; Tanabe, Hiroyuki; Taki, Tooru; and Nakayama, Shunsuke, 4,363,889, Cl. 523-513.000.

Shinshu Seiki Kabushiki Kaisha: See—
Koto, Haruhiko, 4,364,066, Cl. 346-140.00R.

Koto, Haruhiko; and Okada, Junichi, 4,364,067, Cl. 346-140.00R.

Shirahata, Isao; Kitamura, Nobu; Nakamura, Nobuyuki; and Hori, Hisako, to Furukawa Electric Co., Ltd. The Process for cross-linking polyester series resin. 4,363,899, Cl. 525-437.000.

Shirai, Hitoshi: See—
Hashimoto, Akira; and Shirai, Hitoshi, 4,363,547, Cl. 354-212.000.

Shirasu, Katsunori: See—
Tsunoda, Sachio; and Shirasu, Katsunori, 4,363,597, Cl. 415-1.000.

Shirota, Norihisa: See—
Hashimoto, Yoshitaka; Shirota, Norihisa; and Yamamoto, Kaichi, 4,364,081, Cl. 358-13.000.

Shiun, Toshimi; and Fujii, Hideo, to Clarion Co., Ltd. Data-transmission and data-processing system. 4,364,042, Cl. 340-825.040.

Shoemaker, Richard G., to Pfizer Inc. Security seal for containers. 4,363,421, Cl. 220-319.000.

Showa Denko K.K.: See—
Akashiba, Takeo; Nakayama, Akira; and Murata, Atsuhiko, 4,363,875, Cl. 435-108.000.

Showell, Graham A.: See—
Evans, John M.; Showell, Graham A.; and Fake, Charles S., 4,363,811, Cl. 424-267.000.

Shrader, Donald R.: See—
Hill, Herbert M.; and Shrader, Donald R., 4,363,453, Cl. 241-222.000.

Shushlebin, Boris A.; Bogdanov, Nikolai A.; Tregubenko, Viktor V.; Subbotin, Nikolai I.; and Galkin, Mikhail V. Process for combined production of metal alloys and zirconium corundum. 4,363,658, Cl. 75-84.000.

Shyam, Megha: See—
Smith, Paul W.; Freeman, James J.; Forsythe, Donald D.; Shyam, Megha; Yagura, Kenneth K.; and Wetlesen, Gunnar, 4,364,078, Cl. 357-52.000.

SI Handling Systems, Inc.: See—
Kaji, Kazusuke, 4,363,275, Cl. 104-166.000.

Sibert, Frederick J.: See—
Goretta, Louis A.; and Sibert, Frederick J., 4,363,752, Cl. 252-475.000.

Sidenstick, James E.: See—
Cline, Larry D.; Hauser, Ambrose A.; Sidenstick, James E.; and Zlatich, Mark S., 4,363,599, Cl. 415-136.000.

Siemens Aktiengesellschaft: See—
Baues, Peter, 4,364,064, Cl. 346-107.00R.

Birkle, Siegfried; Gehring, Johann; and Stoeger, Klaus, 4,363,712, Cl. 204-199.000.

Heinzel, Alfred; and Stadler, Heinz, 4,363,426, Cl. 222-134.000.

Kusserow, Bernd, 4,363,324, Cl. 128-419.00R.

Moeller, Alexander; and Scherowsky, Guenther, 4,363,743, Cl. 252-299.100.

Nossek, Josef, 4,364,116, Cl. 364-825.000.

Schonwald, Siegfried; and Hecht, Gert, 4,363,598, Cl. 415-53.00T.

Siggen, Guy: See—
Vulliens, Philippe; and Siggen, Guy, 4,363,235, Cl. 73-38.000.

Silbernagel, John P.: See—
Cosentino, Louis C.; Niemi, Bill H.; Silbernagel, John P.; and Cooper, Jamshed R., 4,363,609, Cl. 417-477.000.

Simmons, Bjorn, to Aktiebolaget Bofors. Device for an electric igniter. 4,363,272, Cl. 102-202.130.

Simons, Bill R., to Evans, Max K. Splice stabilizer. 4,363,931, Cl. 174-135.000.

Simpson, Elmer J.: See—
Rued, Glen A.; and Simpson, Elmer J., 4,363,380, Cl. 187-17.000.

Sinclair, Robert I.; Anderson, Verner; Logan, David J.; and Rich, Leonard G., to Gulf & Western Corporation. Method, system and apparatus for cutting profiles from natural leaves. 4,363,330, Cl. 131-105.000.

Singh, Kanwal N. Water heating system having a heat pump. 4,363,221, Cl. 62-238.600.

Sitte, Hellmuth, to C. Reichert Optische Werke, AG. Apparatus for specimen treatment. 4,363,783, Cl. 422-68.000.

Sjoberg, Ake L.; Sjoberg, Per E.; and Sjogren, Frans B. Device on a motor-driven vehicle to detect an obstacle in the way of the vehicle during backing. 4,363,376, Cl. 180-275.000.

Sjoberg, Per E.: See—
Sjoberg, Ake L.; Sjoberg, Per E.; and Sjogren, Frans B., 4,363,376, Cl. 180-275.000.

Sjogren, Frans B.: See—
Sjoberg, Ake L.; Sjoberg, Per E.; and Sjogren, Frans B., 4,363,376, Cl. 180-275.000.

Slingsby, Barry: See—
Christain, Ronald W.; Pommerening, Uwe A.; Russell, Stanley L.; Slingsby, Barry; and West, Julian W., 4,363,936, Cl. 179-18.00E.

Slovinsky, Manuel, to Nalco Chemical Company. 1,3-Dihydroxy acetone as an oxygen scavenger for water. 4,363,734, Cl. 210-750.000.

Smallwood, Paul R., Jr.: See—
Watson, Thomas E.; and Smallwood, Paul R., Jr., 4,363,596, Cl. 415-1.000.

Smejkal, George, to Eitel Corporation. Tape reader motor mount. 4,363,461, Cl. 248-655.000.

Smith, Alvin J. Pipe coupling. 4,363,505, Cl. 285-369.000.

Smith International, Inc.: See—
Dixon, Robert L.; and Maxsted, Malcolm D., 4,363,367, Cl. 175-340.000.

Morrill, Charles D., 4,363,465, Cl. 251-214.000.

Smith, Nelson E., Jr.: See—
O'Brien, Michael; Smith, Nelson E., Jr.; and Prussia, Stanley E., 4,363,408, Cl. 209-546.000.

Smith, Paul W.; Freeman, James J.; Forsythe, Donald D.; Shyam, Megha; Yagura, Kenneth K.; and Wetlesen, Gunnar, to Synertek. Edge barrier of polysilicon and metal for integrated circuit chips. 4,364,078, Cl. 357-52.000.

Smith, Robert J. Portable campfire fireplace. 4,363,313, Cl. 126-9.00R.

Smith, Robert L. Easy fret. 4,363,256, Cl. 84-317.000.

- Smith, Russell D.: See—
Kucheria, Chhattar S.; and Smith, Russell D., 4,363,199, Cl. 52-221.000.
- Smith, Stuart B., to Cellofoam A.G. Method of making uniformly-sized expandable polymeric particles. 4,363,881, Cl. 521-56.000.
- Snelgrove, Brian: See—
Bloomfield, Edward J.; and Snelgrove, Brian, 4,364,011, Cl. 324-174.000.
- Snow, Gordon L., to Edo Western Corporation. Shock-hardened, high pressure ceramic sonar transducer. 4,364,117, Cl. 367-152.000.
- Snow, John E., to Champion International Corporation. Laminated packaging material. 4,363,841, Cl. 428-35.000.
- Soberman, Robert K.; Krevitz, Kenneth; and Pytlewski, Louis L., to Franklin Institute. The Detection and identification method employing mossbauer isotopes. 4,363,965, Cl. 250-302.000.
- Societe Anonyme Cockerill: See—
Ponghis, Nikolas; and Masuy, Jean-Marie, 4,363,656, Cl. 75-42.000.
- Societe Anonyme dite: L'Oreal: See—
Bouillon, Claude; Boulogne, Jean; Guillon, Michel; Zaffran, Christian; and Koulbanis, Constantin, 4,363,796, Cl. 424-61.000.
- Jacquet, Bernard; Papantonio, Christos; Land, Gerard; and Forestier, Serge, 4,363,797, Cl. 424-70.000.
- Societe Anonyme Francaise du Ferodo: See—
Rogier, Leonce E. R., 4,363,383, Cl. 188-72.500.
- Societe D'Assistance Technique pour Produits Nestle S.A.: See—
Willi, Albert; Maute, Willy; and Mooser, Oswald, 4,363,824, Cl. 426-589.000.
- Societe d'Etudes de Machines Thermiques S.E.M.T.: See—
Munoz, Bernard; and Tavenne, Eric, 4,363,293, Cl. 123-41.380.
- Societe Francaise d'Electrometallurgie Sofrem: See—
Boscaro, Louis; Demange, Michel; Bucher, Jean-Philippe; Dubrous, Francis; and Septier, Louis, 4,363,657, Cl. 75-80.000.
- Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, "S.N.E.C.M.A.": See—
Bouillier, Jean G.; Pous, Jacques A. J.; and Joubert, Raymond J. M., 4,363,445, Cl. 239-265.350.
- Societe Nationale Industrielle Aerospatiale: See—
Poubeau, Pierre, 4,363,525, Cl. 308-10.000.
- SODEX-MAGISTER, Societe d'Exploitation des Brevets Neiman: See—
Lipschutz, Paul, 4,363,230, Cl. 70-370.000.
- Solvay & Cie.: See—
DeCeuster, Jean; Essemacker, Paul; Bouillet, Edmond; Decamps, Alain; and Ledoux, Pierre, 4,363,699, Cl. 162-71.000.
- Sommer, Friedrich: See—
De Boer, Jacob; Sanderson, Hendrik J.; and Sommer, Friedrich, 4,364,097, Cl. 360-70.000.
- Sone, Kohki; Okamura, Kenji; and Nakagawa, Toyooki, to Nissan Motor Co., Ltd. System for feedback control of air/fuel ratio in IC engine having means for supplying controlled current to oxygen sensor. 4,363,306, Cl. 123-440.000.
- Sony Corporation: See—
Hashimoto, Yoshiaki; Shiota, Norihisa; and Yamamoto, Kaichi, 4,364,081, Cl. 358-13.000.
- Isono, Katsuo; Miyaoka, Senri; and Shinkai, Kinya, 4,364,083, Cl. 358-69.000.
- Nishigaki, Susumu; Murano, Kanji; and Watanabe, Yoshihisa, 4,363,993, Cl. 310-332.000.
- Sony/Tektronix: See—
Murooka, Rikichi, 4,364,027, Cl. 340-347.000.
- Sorensen, Egon, to AMF Incorporated. Interval timer. 4,363,943, Cl. 200-38.000.
- Soucy, Armand L. Window mounting system. 4,363,192, Cl. 49-453.000.
- Sperry Corporation: See—
Tanski, William J., 4,364,016, Cl. 333-193.000.
- Spiegel, Leo, to Northrop Corporation. Digitized displacement transducer. 4,364,045, Cl. 340-870.310.
- Spils, Richard W. Angle globe valve. 4,363,464, Cl. 251-121.000.
- Spitzke, Arthur, to Schmelzer Corporation. Bow mounted quiver. 4,363,312, Cl. 124-45.000.
- Sprengel, Ernst-Helmuth, to Blohm & Voss AG. Split topping lift gear. 4,363,410, Cl. 212-190.000.
- Stacey, Ronald J.: See—
Rennison, Stuart C.; and Stacey, Ronald J., 4,363,866, Cl. 430-290.000.
- Stadler, Heinz: See—
Heinzl, Alfred; and Stadler, Heinz, 4,363,426, Cl. 222-134.000.
- Stahl, Lawrence E., to Hardee's Food Systems, Inc. Control of range hood emissions. 4,363,642, Cl. 55-233.000.
- Standard Oil Company (Indiana): See—
Hirschberg, Eugene H.; Bertolacini, Ralph J.; and Modica, Frank S., 4,363,720, Cl. 208-120.000.
- Klotz, Marvin R., 4,363,718, Cl. 208-110.000.
- Le Duc, Edward C.; and Schubert, John C., 4,363,848, Cl. 428-286.000.
- Stanley Electric Co.: See—
Kubota, Yutaka, 4,364,088, Cl. 358-106.000.
- Stanley Mabo, S.A.: See—
Scandella, Louis, 4,363,171, Cl. 33-138.000.
- Stanton, Robert: See—
Rugg, Barry A.; and Stanton, Robert, 4,363,671, Cl. 127-1.000.
- State University of New York: See—
Blau, Monte; and Kung, Hank F., 4,363,793, Cl. 424-1.000.
- Stauffer Chemical Company: See—
Fancher, Llewellyn W., 4,363,804, Cl. 424-200.000.
- Stavo Industries, Inc.: See—
Secor, Vincent E., 4,363,491, Cl. 277-81.000.
- Steckler, Steven A.; and Balaban, Alvin R., to RCA Corporation. Digital-to-analog converter useful in a television receiver. 4,364,026, Cl. 340-347.000.
- Steeg, Michael: See—
Hodes, Erich; Steeg, Michael; and Lippok, Peter, 4,363,854, Cl. 428-632.000.
- Steffen, Remy A. E. Sausage-casing loading method and casing/sleeve combination therefor. 4,363,819, Cl. 426-132.000.
- Stein, James A.: See—
Brady, Douglas E.; and Stein, James A., 4,363,516, Cl. 297-195.000.
- Stelck, Larry W. Apparatus for forming protuberances on a line. 4,363,613, Cl. 425-237.000.
- Stenograph Corporation: See—
Fowler, Paul J.; and Chvojsek, Frank, 4,363,557, Cl. 400-91.000.
- Michals, Richard A.; Mozer, Frank H.; and Zum Bahlen, Ralph E., 4,363,558, Cl. 400-94.000.
- Sterling Drug Inc.: See—
Delaney, John W., 4,363,664, Cl. 106-21.000.
- Leshner, George Y.; and Brundage, Ruth P., 4,363,911, Cl. 546-257.000.
- Schmidt, Paul J.; and Hung, William M., 4,363,503, Cl. 282-27.500.
- Steven Manufacturing Company: See—
Klawitter, Ronald R., 4,363,494, Cl. 280-11.280.
- Stewart, Myron C., to RCA Corporation. Pickup cartridge for video disc player. 4,364,121, Cl. 369-256.000.
- Stickney, Arwood D. Refuse handling system. 4,363,588, Cl. 414-408.000.
- Stix, Thomas H.: See—
Yamada, Masaaki; Furth, Harold P.; Stix, Thomas H.; and Todd, Alan M. M., 4,363,776, Cl. 376-137.000.
- Stock, Hugo; and Tholen, Paul, to Klockner-Humboldt-Deutz Aktiengesellschaft. Braking device for a four-cycle engine of a vehicle. 4,363,301, Cl. 123-321.000.
- Stoeger, Klaus: See—
Birkle, Siegfried; Gehring, Johann; and Stoeger, Klaus, 4,363,712, Cl. 204-199.000.
- Stolting, Klaus: See—
Hilbig, Josef; Holst, Arno; Kunkler, Hans; Stolting, Klaus; and Schminke, Wolfgang, 4,363,784, Cl. 422-134.000.
- Stone, Milton, to Pettibone Corporation. Method and apparatus for making battery paste. 4,363,742, Cl. 252-182.100.
- Storey, Richard; and Roberts, Alan, to British Broadcasting Corporation. Movement detector for television signals. 4,364,087, Cl. 358-105.000.
- Stork Brabant B.V.: See—
Blaak, Cornelis, 4,363,833, Cl. 427-211.000.
- Stowe, David W.; Christian, John D., deceased; by Christian, Albert, heir; by Christian, Martha R., heir; by Ziegler, Ann L., heir; and by Christian, David A., heir, to Gould Inc. Concentric fiber optical transducer. 4,363,533, Cl. 350-96.330.
- Strandell, Per-Olof. Method and apparatus for forging sections. 4,363,234, Cl. 72-402.000.
- Strickland, Benjamin W. Solar furnace supporting apparatus. 4,363,354, Cl. 165-67.000.
- Stromberg-Carlson Corporation: See—
Christain, Ronald W.; Pommerening, Uwe A.; Russell, Stanley L.; Slingsby, Barry; and West, Julian W., 4,363,936, Cl. 179-18.000.
- Strozyk, Rudolf-Helmut: See—
Emmenthal, Klaus-Dieter; Schafer, Otto; and Strozyk, Rudolf-Helmut, 4,363,308, Cl. 123-533.000.
- Studer, Raymond: See—
Thomi, Michel; and Studer, Raymond, 4,363,553, Cl. 368-140.000.
- Stuart, Jerald L. Safety apparatus for vehicles having automatic transmissions. 4,363,249, Cl. 74-850.000.
- Stytsenko, Valentin D.: See—
Rozovsky, Alexandr Y.; Stytsenko, Valentin D.; Nizova, Svetlana A.; Belov, Petr S.; and Dyakonov, Alexandr J., 4,363,750, Cl. 252-459.000.
- Subbotin, Nikolai I.: See—
Shushlebin, Boris A.; Bogdanov, Nikolai A.; Tregubenko, Viktor V.; Subbotin, Nikolai I.; and Galkin, Mikhail V., 4,363,658, Cl. 75-84.000.
- Suda, Seiji: See—
Amano, Matsuo; Mouri, Yasunori; Abe, Osamu; Suda, Seiji; and Sasayama, Takao, 4,363,307, Cl. 123-492.000.
- Suga, Asakichi. Device for driving screw, pin, rivet or the like. 4,363,250, Cl. 81-455.000.
- Suga, Yozo: See—
Ichiyama, Tadashi; Yamaguchi, Shigehiro; Iuchi, Tohru; Nakamura, Motoharu; and Suga, Yozo, 4,363,677, Cl. 148-111.000.
- Suisman & Blumenthal, Incorporated: See—
Dresty, John E., Jr.; and Klein, Eugene M., 4,363,722, Cl. 209-3.000.
- Sullivan, David J.: See—
Buckler, Sheldon A.; Burns, Jeffrey B.; Kniazeh, Alfredo G.; Plasse, Paul A.; and Sullivan, David J., 4,363,407, Cl. 209-3.300.
- Sumitomo Electric Industries, Ltd.: See—
Ishiki, Isao; Sato, Koji; Sunago, Katsuyoshi; Ohoka, Akihiro; and Akatsuka, Masayuki, 4,364,023, Cl. 340-146.30H.
- Sunada, Tomonori: See—
Noguchi, Kosaku; Tanaka, Honami; Kumura, Yukimasa; Kitajima, Eiji; Tsuchiya, Noriyuki; and Sunada, Tomonori, 4,363,670, Cl. 106-278.000.

- Sunago, Katsuyoshi: See—
Ishiki, Isao; Sato, Koji; Sunago, Katsuyoshi; Ohoka, Akihiro; and Akatsuka, Masayuki, 4,364,023, Cl. 340-146.30H.
- Sunami, Hideo: See—
Shimoyama, Yuji; Yanagishima, Fumiya; Sunami, Hideo; Ida, Yukio; Katsushima, Goji; Ohnishi, Takeo; and Fukushima, Takeo, 4,363,472, Cl. 266-111.000.
- Yanagishima, Fumiya; Shimoyama, Yuji; Sunami, Hideo; Ida, Yukio; Katsushima, Goji; Suzuki, Munetoshi; and Ohnishi, Takeo, 4,363,471, Cl. 266-111.000.
- Susor, William C., to Masstron Scale Inc. Overhead track scale. 4,363,369, Cl. 177-163.000.
- Sutyagin, Oleg Y.: See—
Nikolaev, Igor V.; Evpolov, Vladimir A.; Dronova, Lidia M.; Lednikov, Anatoly I.; Moskvina, Mikhail A.; Sutyagin, Oleg Y.; Yankovsky, Oleg A.; Kilin, Viktor E.; Kolmyk, Evgeny S.; Tupitsyn, Konstantin K.; and Makarov, Alexei M., 4,363,365, Cl. 173-139.000.
- Suzor, Norland L. C.: See—
Bouvet, Pierre E.; and Suzor, Norland L. C., 4,363,636, Cl. 44-10.00A.
- Suzuki, Hajime; and Arakawa, Akio, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Control of operation of loom. 4,364,002, Cl. 318-467.000.
- Suzuki, Hitoshi: See—
Ohgami, Masaaki; and Suzuki, Hitoshi, 4,363,305, Cl. 123-440.000.
- Suzuki, Munetoshi: See—
Yanagishima, Fumiya; Shimoyama, Yuji; Sunami, Hideo; Ida, Yukio; Katsushima, Goji; Suzuki, Munetoshi; and Ohnishi, Takeo, 4,363,471, Cl. 266-111.000.
- Suzuki, Takami; and Hasegawa, Takashi, to Ricoh Co., Ltd. Print wheel mounting assembly for serial printer. 4,363,559, Cl. 400-175.000.
- Suzuki, Yasoji: See—
Masuda, Eiji; and Suzuki, Yasoji, 4,364,028, Cl. 340-347.000.
- Suzuki, Yoshihiro; Nakagawa, Shuichi; Wako, Yasuo; Ogawa, Yoshihiro; Yamaguchi, Mamoru; and Kimura, Toshio, to Yokogawa Electric Works, Ltd. Interactive graphic system. 4,364,056, Cl. 346-29.000.
- Suzuki, Yoshitsugu; Iizuka, Syogo; Kajiyama, Shigeo; Usui, Kenji; and Kobayashi, Masahiro, to Yazaki Corporation. Wire harness. 4,363,165, Cl. 29-564.800.
- Suzuki, Yuji: See—
Kuriyama, Kiyoshi; Nakano, Jun; Itikawa, Kiyonoson; Ito, Kiyoshi; Suzuki, Yuji; and Ishizuki, Katsuro, 4,363,812, Cl. 424-269.000.
- Suzuki, Yuzuru: See—
Torii, Michihiro; Okuda, Masanao; and Suzuki, Yuzuru, 4,363,984, Cl. 310-156.000.
- Swiss Aluminium Ltd.: See—
Bloock, Siegfried; and Luthi, Rudolf, 4,363,582, Cl. 413-12.000.
- Sybron Corporation: See—
Schmidt, Manfred; Hoyer, Gerd; Leiberich, Hermann; and Pietschmann, Helmut, 4,363,626, Cl. 433-85.000.
- Synertek: See—
Smith, Paul W.; Freeman, James J.; Forsythe, Donald D.; Shyam, Megha; Yagura, Kenneth K.; and Wetlesen, Gunnar, 4,364,078, Cl. 357-52.000.
- Sysoev, Valentin S.: See—
Vorotynsteva, Ljudmila A.; Florinsky, Eduard A.; Semenov, Leonid I.; and Sysoev, Valentin S., 4,363,987, Cl. 310-216.000.
- Szabo, Georges: See—
Engelhard, Philippe; and Szabo, Georges, 4,363,721, Cl. 208-139.000.
- Szabolcsi, Tamas: See—
Ambrus, Dezso; Szabolcsi, Tamas; and Huias, Istvan, 4,363,910, Cl. 546-172.000.
- Szewczyk, Richard S., to USM Corporation. Multi worm-rack apparatus. 4,363,246, Cl. 74-89.140.
- Szvoboda, Gyuml/o/ rgy: See—
Gado, Istvan; Jekkel nee Bokany, Antonia; Szvoboda, Gyuml/o/ rgy; Jarai, Miklos; Plukovich, Sandor; and Istvan, Sandor, 4,363,876, Cl. 435-253.000.
- Tachibana, Masami: See—
Kikuta, Kazutsune; Tachibana, Masami; and Sato, Akihiro, 4,363,901, Cl. 526-97.000.
- Tachikawa, Hajime; Watanabe, Mitsuru; and Yokoyama, Kenjiro, to Hitachi Heating Appliances Co., Ltd. Heating apparatus with char detecting and heating controller. 4,363,957, Cl. 219-497.000.
- Taguchi, Shinichiro; Nagao, Nobuya; and Ogiwara, Yutaka, to Tokyo Shibaura Denki Kabushiki Kaisha. Equalizing pulse removal circuit. 4,364,091, Cl. 358-148.000.
- Takada, Juichiro. Passive type vehicle occupant restraint belt system. 4,363,501, Cl. 280-804.000.
- Takada, Kazuo: See—
Umeki, Shinji; and Takada, Kazuo, 4,363,831, Cl. 427-127.000.
- Takada, Masahiko: See—
Yamanie, Kazumasa; Kobayashi, Masahiro; and Takada, Masahiko, 4,363,903, Cl. 526-273.000.
- Takahashi, Kentaro; Hiraoka, Takeshi; and Urano, Shigeru, to Nippon Piston Ring Co., Ltd. Abrasion resistant ferro-based sintered alloy. 4,363,662, Cl. 75-243.000.
- Takahashi, Kyoichi: See—
Tomomura, Kenichi; and Takahashi, Kyoichi, 4,364,082, Cl. 358-28.000.
- Takahashi, Motohide: See—
Tsuda, Toshitaka; Murano, Kazuo; Yamaguchi, Kazuo; Chujo, Takafumi; Murakami, Norio; and Takahashi, Motohide, 4,363,977, Cl. 307-358.000.
- Takahashi, Sankichi: See—
Koseki, Yasuo; Yamada, Akira; Nishimura, Yuusaku; and Takahashi, Sankichi, 4,363,219, Cl. 62-101.000.
- Takahashi, Tohru: See—
Nakamura, Shunji; Kanbe, Junichiro; Toyono, Tsutomu; Takahashi, Tohru; and Tamura, Yasuyuki, 4,363,861, Cl. 430-97.000.
- Takahashi, Yutaka: See—
Aihara, Mamoru; Takahashi, Yutaka; Nakajima, Yoshio; and Matsura, Tsuyoshi, 4,363,541, Cl. 354-23.000.
- Takasaki, Kanetake; and Maeda, Mamoru, to Fujitsu Limited. Process of producing semiconductor devices by forming a silicon oxynitride layer by a plasma CVD technique which is employed in a selective oxidation process. 4,363,868, Cl. 430-314.000.
- Takaya, Takao; Masugi, Takashi; and Chiba, Toshiyuki, to Fujisawa Pharmaceutical Company, Limited. Cepham compounds. 4,363,807, Cl. 424-246.000.
- Takayama, Teruo, to Hitachi, Ltd. Throttle valve opening control device. 4,363,303, Cl. 123-339.000.
- Take, Hiroshi; Koyanagi, Katubumi; and Uede, Hisashi, to Sharp Kabushiki Kaisha. Electrochromic display driver with faculties of stabilizing coloration contrast and insuring uniform bleaching condition. 4,364,040, Cl. 340-785.000.
- Takehara, Keishin: See—
Yamamoto, Osamu; Takehara, Keishin; and Yasiro, Yutaka, 4,363,878, Cl. 501-36.000.
- Takeuchi, Masaki: See—
Akamatsu, Akihiro; Takeuchi, Masaki; and Yamashita, Kiyoshi, 4,363,781, Cl. 422-65.000.
- Takeuchi, Yukihisa: See—
Sato, Susumu; Takeuchi, Yukihisa; and Tomita, Masahiro, 4,363,644, Cl. 55-523.000.
- Taki, Tooru: See—
Hoshino, Minoru; Shinohara, Tosio; Tanabe, Hiroyuki; Taki, Tooru; and Nakayama, Shunsuke, 4,363,889, Cl. 523-513.000.
- Takigawa, Tadahi; Sasaki, Isao; and Tsuji, Kazuo, to Tokyo Shibaura Denki Kabushiki Kaisha; and Toshiba Machine Company Limited. Electron gun. 4,363,995, Cl. 313-346.000.
- Takimoto, Hiroyuki: See—
Nemoto, Takayuki; and Takimoto, Hiroyuki, 4,363,544, Cl. 354-60.000.
- Takimoto, Masaaki: See—
Seshimoto, Osamu; Nomaguchi, Hirotosugu; Horie, Seiji; Sato, Hideo; Takimoto, Masaaki; and Kubotera, Kikuo, 4,363,829, Cl. 427-53.100.
- Takishima, Yoshiyuki; Mashimo, Yukio; Uchidoi, Masanori; Aizawa, Hiroshi; Andresen, Bernhard H.; Martin, Robert C.; and Kwan, Stephen C., to Canon Kabushiki Kaisha; and Texas Instruments Incorporated. Exposure information storage device for a photographic camera. 4,363,540, Cl. 354-23.000.
- Tamai, Masayoshi; Ueda, Michio; and Kikuchi, Masatsugu, to Fuji Xerox Co., Ltd. Ink drop charging device. 4,364,058, Cl. 346-75.000.
- Tamura, Yasuyuki: See—
Nakamura, Shunji; Kanbe, Junichiro; Toyono, Tsutomu; Takahashi, Tohru; and Tamura, Yasuyuki, 4,363,861, Cl. 430-97.000.
- Tanabe, Hiroyuki: See—
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- Tanaka, Honami: See—
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- Tanaka, Kazuyoshi: See—
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- Tanaka, Satoru; Shimada, Katsutoshi; Hashimoto, Kazunori; Ema, Kiichi; and Ueda, Koichiro, to Eisai Co., Ltd. Cyanoguanidine derivatives. 4,363,921, Cl. 549-74.000.
- Tancredi, Henry J.: See—
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- Tanioka, Susumu; Sasaki, Akiyoshi; and Hoshino, Shoji, to Tokyo Electric Co., Ltd. Adjustable pulp outlet for juice extractor. 4,363,265, Cl. 99-510.000.
- Tannerstall, Harding, to Bruks Mekaniska AB. Log milling apparatus. 4,363,342, Cl. 144-2.000.
- Tanski, William J., to Sperry Corporation. Method for post fabrication frequency trimming of surface acoustic wave devices. 4,364,016, Cl. 333-193.000.
- Tapper, William R. Gutter cleaner. 4,363,335, Cl. 134-167.000.
- Tasch, Aloysius F., Jr.: See—
Chatterjee, Pallab K.; and Tasch, Aloysius F., Jr., 4,364,076, Cl. 357-24.000.
- Tateishi, Iwao: See—
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- Tattersall, Edward G., to Vosper Hovermarine Limited. Gas-cushion vehicles. 4,363,372, Cl. 180-118.000.
- Tavenne, Eric: See—
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- Taylor, Donald F.; and Boyle, William G., to Otis Engineering Corporation. Locking assembly for well devices. 4,363,359, Cl. 166-214.000.

- Taylor, John J.: See—
Carr, Susan H.; Schobert, Monique A.; and Taylor, John J., 4,363,449, Cl. 241-21.000.
- Taylor, Joseph B.: See—
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- Tazuke, Kazuo: See—
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- TDK Electronics Co., Ltd.: See—
Umeki, Shinji; and Takada, Kazuo, 4,363,831, Cl. 427-127.000.
- Tebbit, Guy L.: See—
Kunz, Lee R.; and Tebbit, Guy L., 4,363,290, Cl. 119-3.000.
- Technal International: See—
Bos, Andre, 4,363,467, Cl. 256-68.000.
- Tedder, Joseph A., to Combustion Engineering, Inc. Tool for remotely installing equipment through an access opening. 4,363,592, Cl. 414-590.000.
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- Teijin Limited: See—
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- Teledyne Industries, Inc.: See—
Leblanc, Raymond F.; and Cummins, William T., 4,363,474, Cl. 267-140.000.
- Temme, Helmut, to Gewerkschaft Eisenhütte Westfalen. Scraper-chain conveyors. 4,363,398, Cl. 198-735.000.
- Teramachi, Hiroshi. Linear motion ball bearing unit. 4,363,526, Cl. 308-6.00C.
- Teranchi, Iraj: See—
Tichy, Oldrich J.; and Teranchi, Iraj, 4,363,266, Cl. 99-545.000.
- Terashima, Minoru: See—
Koyama, Masataka; Satoh, Kiyoshi; and Terashima, Minoru, 4,364,099, Cl. 361-305.000.
- Texas A&M University System, The: See—
Nagyvary, Joseph J., 4,363,801, Cl. 424-180.000.
- Texas Instruments Deutschland GmbH: See—
Guth, Friedrich, 4,364,086, Cl. 358-101.000.
- Texas Instruments Incorporated: See—
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- Penz, Perry A., 4,364,039, Cl. 340-784.000.
- Takishima, Yoshiyuki; Mashimo, Yukio; Uchidoi, Masanori; Aizawa, Hiroshi; Andresen, Bernhard H.; Martin, Robert C.; and Kwan, Stephen C., 4,363,540, Cl. 354-23.00D.
- Texon Inc.: See—
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- Thaer, Andreas; Hagner, Willi; Frimmel, Horst; and Riegel, Horst, to Ernst Leitz Wetzlar GmbH. Instrument base for optical devices. 4,363,536, Cl. 351-245.000.
- Thebert, Glenn W., to General Motors Corporation. Variable vane mounting. 4,363,600, Cl. 415-156.000.
- Thermo Electron Corp.: See—
Poirier, Victor L.; Buczak, Stanley D.; Lynch, Robert F.; and Salvo, Thomas R., 4,363,328, Cl. 128-728.000.
- Thiebault, Bernard, to Seplast. Process for the superficial treatment of a fibrous filtering layer, which is non-woven and highly aerated, forming electret. 4,363,682, Cl. 156-181.000.
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- Thoma, Nandor G.: See—
Garnache, Richard R.; Kenney, Donald M.; and Thoma, Nandor G., 4,364,074, Cl. 357-23.000.
- Thomas, David H., to Imperial Chemical Industries Limited. Machine and part therefor. 4,363,616, Cl. 425-339.000.
- Thomi, Michel; and Studer, Raymond, to Compagnie des Montres Longines Franchillon S.A. Watch mechanism incorporating two barrels. 4,363,553, Cl. 368-140.000.
- Thompson, Charles R.: See—
Martin, Henry; and Thompson, Charles R., 4,363,277, Cl. 105-201.000.
- Thomson-CSF: See—
Castera, Jean P.; and Dupont, Jean M., 4,364,013, Cl. 324-260.000.
- Thrasher, Howard. Split race bearing. 4,363,527, Cl. 308-184.00R.
- Thurston, Kelly W., to General Motors Corporation. Diesel engine with blowby scavenging. 4,363,310, Cl. 123-572.000.
- Tichy, Oldrich J.; and Teranchi, Iraj, to Atlas Pacific Engineering Company. Machine for slicing unpeeled apples into rings. 4,363,266, Cl. 99-545.000.
- Tietgen, Hans P.; and Riese, Gunter, to Bastian Belzona Verfahrenstechnik, Wolfgang Bastian. Supporting pad for hatch covers of ships. 4,363,283, Cl. 114-201.00R.
- Toioxide Group Limited: See—
Willison, Geoffrey; and Hodge, John C. W., 4,363,888, Cl. 523-502.000.
- Todd, Alan M. M.: See—
Yamada, Masaaki; Furth, Harold P.; Stix, Thomas H.; and Todd, Alan M. M., 4,363,776, Cl. 376-137.000.
- Tohoku Metal Industries: See—
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- Tokitou, Kouji: See—
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- Tokunaga, Shizuo; Yamada, Takushi; Yabukawa, Kazuhisa; Kita, Shigeyuki; and Yase, Tomoyoshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Elastic surface wave device. 4,364,017, Cl. 333-194.000.
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- Tanioka, Susumu; Sasaki, Akiyoshi; and Hoshino, Shoji, 4,363,265, Cl. 99-510.000.
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Akamatsu, Akihiro; Takeuchi, Masaki; and Yamashita, Kiyoshi, 4,363,781, Cl. 422-65.000.
- Anno, Gousuke; and Oozeki, Takashi, 4,364,063, Cl. 346-76.0PH.
- Masuda, Eiji; and Suzuki, Yasoji, 4,364,028, Cl. 340-347.0NT.
- Matsuda, Satoshi; and Kiyohara, Etsuo, 4,363,985, Cl. 310-184.000.
- Mine, Susumu, 4,363,773, Cl. 376-142.000.
- Nagakubo, Yoshihide; and Iizuka, Hisakazu, 4,363,696, Cl. 156-653.000.
- Okado, Chihiro; and Ugai, Isami, 4,364,109, Cl. 363-41.000.
- Taguchi, Shinichiro; Nagao, Nobuya; and Ogihara, Yutaka, 4,364,091, Cl. 358-148.000.
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- Toshimitsu, Kenji; Kanazashi, Akihiro; and Kohyama, Mitsuaki, 4,363,550, Cl. 355-3.0TR.
- Tsunoda, Sachio; and Shirasu, Katsunori, 4,363,597, Cl. 415-1.000.
- Yamashita, Kiyoshi, 4,363,782, Cl. 422-65.000.
- Tolly, Milton C.: See—
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- Tomita, Masahiro: See—
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- Tomy Kogyo Company, Inc.: See—
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- Shinohara, Masao, 4,363,187, Cl. 46-211.000.
- Tonka Corporation: See—
Masubuchi, Hiroshi, 4,363,185, Cl. 46-209.000.
- Tonomura, Kenichi; and Takahashi, Kyoichi, to Hitachi, Ltd.; and Hitachi Microcomputer Engineering Ltd. Phase detection circuit and automatic tint control circuit of color television receiver utilizing the same. 4,364,082, Cl. 358-28.000.
- Toray Industries, Inc.: See—
Ohshita, Hiroshi; and Tsutsumi, Tadao, 4,363,890, Cl. 524-101.000.
- Torii, Michihiro; Okuda, Masanao; and Suzuki, Yuzuru, to Fuji Electrochemical Co., Ltd. Digitally controlled brushless motor. 4,363,984, Cl. 310-156.000.
- Torobin, Leonard B. Method and apparatus for producing microfilaments. 4,363,646, Cl. 65-5.000.
- Toshiba Machine Company Limited: See—
Takigawa, Tadashi; Sasaki, Isao; and Tsuji, Kazuo, 4,363,995, Cl. 313-346.00R.
- Toshimitsu, Kenji; Kanazashi, Akihiro; and Kohyama, Mitsuaki, to Tokyo Shibaura Denki Kabushiki Kaisha. Recording sheet separating device in a transfer-type electronic copying machine. 4,363,550, Cl. 355-3.0TR.
- Towilson, Howard E., to General Electric Company. Light valve disk assembly and method of assembling the same. 4,363,535, Cl. 350-361.000.
- Towmotor Corporation: See—
Melocik, Grant C.; and Wiblin, Wayne T., 4,364,022, Cl. 338-32.00H.
- Toya, Mitsuo, to Hitachi, Ltd. Mobile radio telephone system. 4,363,935, Cl. 179-2.0EA.
- Toyo Garasu Kabushiki Kaisha: See—
Yamato, Yoshihiro; Ogawa, Kazuaki; Satoh, Hiromasa; Chiku, Kiyoshi; and Okada, Hideo, 4,363,649, Cl. 65-158.000.
- Toyo Kogyo Co., Ltd.: See—
Watanabe, Kenichi; Katayama, Kazuo; and Kijima, Takao, 4,363,499, Cl. 280-775.000.
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- Toyota Jidosha Kogyo Kabushiki Kaisha: See—
Fukui, Osamu; Umamoto, Yoshiro; Sanmiya, Tsugumi; Sano, Yutaka; and Tanaka, Kazuyoshi, 4,363,885, Cl. 523-212.000.
- Toyota Jidosha Kogyo Kabushiki Kaisha: See—
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- Ogawa, Hisashi, 4,363,500, Cl. 280-802.000.
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- Nakamura, Kazuharu; Matsumoto, Motoki; and Kondo, Akinobu, 4,363,621, Cl. 431-90.000.
- Tran, Luan G.: See—
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- Trautnecker, Werner: See—
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- Tregubenko, Viktor V.: See—
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- Trentham Corporation: See—
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- Triller, Adolf: See—
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- Trotter, Jimmy R.: See—
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- Tsuchiya, Noriyuki: See—
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- Tsuchiya, Tadashi: See—
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- Tsuda, Toshihiko; Murano, Kazuo; Yamaguchi, Kazuo; Chujo, Takafumi; Murakami, Norio; and Takahashi, Motohide, to Fujitsu Limited. Device for discriminating between two values of a signal with DC offset compensation. 4,363,977, Cl. 307-358.000.
- Tsuji, Kazuo: See—
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- Tsukasaki, Yasuhiro. Method and apparatus of feeding corrugated boards. 4,363,478, Cl. 271-10.000.
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- Tsunoda, Sachio; and Shirasu, Katsunori, to Tokyo Shibaura Denki Kabushiki Kaisha. Method for operating pumps. 4,363,597, Cl. 415-1.000.
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- Tuck, Brian: See—
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- Tyler, Derek E.: See—
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- Ube Industries, Ltd.: See—
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- Uchida, Hiroyasu: See—
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- Uchidoi, Masanori: See—
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- Uhtenwoldt, Herbert R., to Cincinnati Milacron-Heald Corp. Gage controlled grinding method. 4,363,196, Cl. 51-291.000.
- Ulmius, Jan: See—
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- Fiato, Rocco A.; and Vidal, Jose L., 4,363,765, Cl. 260-429.00R.
- Fraser, William A.; Maraschin, Norma J.; Karol, Frederick J.; and Makai, Alexander J., 4,363,904, Cl. 526-348.200.
- Scheibner, Gerald H., 4,363,345, Cl. 150-3.000.
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- U.S. Philips Corporation: See—
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- Ochmann, Rudolf, 4,363,971, Cl. 378-110.000.
- van Laarhoven, Aloisius M. M., 4,363,622, Cl. 431-362.000.
- United States Steel Corporation: See—
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- Ives, Kenneth D., 4,363,470, Cl. 266-81.000.
- United Technologies Corporation: See—
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- University of Adelaide, The: See—
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- University of California, The Regents of the: See—
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- University Patents, Inc.: See—
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- UOP Inc.: See—
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- Upjohn Company, The: See—
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- Muhlbach, Anton, 4,363,148, Cl. 12-33.000.
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- V. E. Anderson Mfg. Company: See—
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- Vacek, Lubomir: See—
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- Valeo: See—
Grunberg, Pierre, 4,363,524, Cl. 303-92.000.
- Valeron Corporation, The: See—
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- Van der Graaf, Gerhardus C., to Shell Oil Company. Multiple bore marine riser with flexible reinforcement. 4,363,567, Cl. 405-195.000.
- Vander Lugt, Thomas, Jr., to James River Corporation of Virginia. Method of packaging ice cream in a closable container. 4,363,821, Cl. 426-393.000.
- van der Pot, Barend J. G., to Hollandsche Beton Groep N.V. Upper end mounting for deep water thermal conduit. 4,363,570, Cl. 405-303.000.
- van der Veken, Guido: See—
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- Van Gerpen, Harlan W., to Deere & Company. Active seat suspension control system. 4,363,377, Cl. 180-282.000.
- van Laarhoven, Aloysius M. M., to U.S. Philips Corporation. Combustion flashbulb. 4,363,622, Cl. 431-362.000.
- Van Scott, Eugene J.: See—
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- van Turnhout, Jan; and Ahuja, Ramesh C., to Nederlandsche Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek Ten Behoeve van, Nyskerheid, Handel en Verkeer. Photoconductive polyimide coating upon a substrate. 4,363,860, Cl. 430-83.000.
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- Vautier, Daniel: See—
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- VEB Werk für Fernsehelektronik Berlin im VEB Kombinat Mikroelektronik: See—
Demus, Dietrich; Weissflog, Wolfgang; Zschke, Horst; Wolff, Rudolf; and Kresse, Horst, 4,363,767, Cl. 260-463.000.
- Veilleux, Norman T.; and Pian, Charles H. C., to Nashua Corporation. Liquid negative developer compositions for electrostatic copying containing polymeric charge control agent. 4,363,863, Cl. 430-115.000.
- Vending Components, Inc.: See—
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- Veneklasen, Paul S. Uni-wheel skate. 4,363,493, Cl. 280-112.000.
- Venuti, Guy S. Vibration damping apparatus. 4,363,217, Cl. 62-55.500.
- Vercoulen, Johannes C. A., to Océ van der Grinten N.V. Photoconductive belt joint. 4,363,858, Cl. 430-56.000.
- Verhoeven, Laurentius M., to Du Pont de Nemours & E. I., and Company. Spacer element for use in an electrical connector apparatus. 4,363,530, Cl. 339-17.00C.
- Verma, Kamal K.: See—
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- Verzwyvelt, Scott A., to Hughes Aircraft Company. Process for preparing wettable composites from inert organic polymer fibers with inorganic particles. 4,363,834, Cl. 427-296.000.
- Victor Company of Japan, Ltd.: See—
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- Vidal, Jose L.: See—
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- Videocolor (S.A.): See—
Pons, Claude, 4,364,079, Cl. 358-10.000.
- Vidovic, Jovan. Digital video analyzer. 4,364,080, Cl. 358-10.000.
- Viertel, Lothar; Kaiser, Klaus-Peter; and Nowak, Manfred, to Gebr. Happich GmbH. Bearing for a sun visor for a vehicle having a mirror illuminated by an electric source of light. 4,363,511, Cl. 296-97.00K.
- Villa, Francesco, to United States of America, Energy. Fast transient digitizer. 4,364,029, Cl. 340-347.05H.
- Villa, Jose L.: See—
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- Village Mold Co., Inc.: See—
Raucci, Charles C., Jr.; and Raucci, Timothy J., 4,363,403, Cl. 206-387.000.
- Viscardi, Renzo, to B.T.B. Industria Chimica S.p.A. Process for the preparation of N-[2-(thenyl)thiopropionyl]-glycine. 4,363,920, Cl. 549-72.000.
- VO Offshore Ltd.: See—
Bryer, James E.; Mayes, Alan P.; and Allen, Keith, 4,363,168, Cl. 29-869.000.
- Voelker, Herbert: See—
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- Vogel, Roger F.: See—
Madgavkar, Ajay M.; and Vogel, Roger F., 4,363,361, Cl. 166-256.000.
- Volk, Karl, to Interholz Technik GmbH. Multiple blade circular sawing machine. 4,363,252, Cl. 83-422.000.
- Volkswagenwerk Aktiengesellschaft: See—
Emmenthal, Klaus-Dieter; Schaefer, Otto; and Strozzyk, Rudolf-Helmut, 4,363,308, Cl. 123-533.000.
- von Blanquet, Georg, to Gaggenu-Werke Haus- und Lufttechnik GmbH. Oven with visible displays. 4,363,315, Cl. 126-273.00R.
- Voorhees, Francis W.: See—
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- Vorotynseva, Ljudmila A.; Florinsk, Eduard A.; Semenov, Leonid I.; and Sysoev, Valentin S. Direct current machine stator. 4,363,987, Cl. 310-216.000.
- Vosper Hovermarine Limited: See—
Tattersall, Edward G., 4,363,372, Cl. 180-118.000.
- Vulliens, Philippe; and Siggen, Guy, to Baumgartner Papiers S.A. Sampling apparatus for a production line. 4,363,235, Cl. 73-38.000.
- W. H. Brady Co.: See—
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- W. R. Grace & Co.: See—
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- Wacker-Chemie GmbH: See—
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- Wada, Isao; Kido, Jun-ichiro; and Koido, Kazuo, to Oji Paper Co., Ltd. Process for pulping lignocellulosic material with an alkaline sulfide cooking liquor containing an accelerating additive and reducing assistant. 4,363,700, Cl. 162-72.000.
- Wagner, Gregory J.: See—
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- Wahlstam, Hans, to Dental Therapeutics AB. Cleaning agent for dentine surfaces. 4,363,795, Cl. 424-54.000.
- Wakita, Saburo; and Sakonooka, Akihiko, to Mitsubishi Kinzoku Kabushiki Kaisha. Iron-base alloy having high resistance to molten zinc attack. 4,363,660, Cl. 75-128.00B.
- Wako, Yasuo: See—
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- Walchhutter, Ulrich. Flywheel and screw press for producing ceramic articles. 4,363,612, Cl. 425-167.000.
- Walker, James T., to Cromemco Inc. Transition data image processor. 4,364,037, Cl. 340-744.000.
- Walker, Loren H.: See—
Cutler, John H.; Jarvinen, Willard B.; and Walker, Loren H., 4,364,007, Cl. 324-51.000.
- Walmsley, Frank: See—
Roline, Glenn; and Walmsley, Frank, 4,363,325, Cl. 128-419.0PG.
- Walter Kidde & Co.: See—
Belliveau, Raymond E.; and Larkin, Simon J., 4,363,556, Cl. 374-183.000.
- Walz, Karl, Sr. Self-storing permanently attached cap opening means. 4,363,419, Cl. 220-269.000.
- Warthen, William H. Cigarette lighter support. 4,363,432, Cl. 224-247.000.
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- Watanabe, Kenichi; Katayama, Kazuo; and Kijima, Takao, to Toyo Kogyo Co., Ltd. Tilttable steering mechanism for automobiles. 4,363,499, Cl. 280-775.000.
- Watanabe, Mitsuru: See—
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- Watari, Kiyoto; and Fukuda, Takeshi, to Fujitsu Limited. Semiconductor device with monitor pattern, and a method of monitoring device parameters. 4,364,010, Cl. 324-158.00T.
- Watari, Masao: See—
Onodera, Toru; Ohsawa, Akira; Nishino, Hideki; and Watari, Masao, 4,364,112, Cl. 364-200.000.
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- Waterhouse, John F., to Texon Inc. Battery separator material. 4,363,856, Cl. 429-143.000.
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- Waterworth, John: See—
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- Watson, Grace E.: See—
Kirkpatrick, C. Virginia; and Watson, Grace E., 4,363,628, Cl. 434-107.000.
- Watson, Thomas E.; and Smallwood, Paul R., Jr., to McQuay-Perfex, Inc. Method and apparatus for surge detection and control in centrifugal gas compressors. 4,363,596, Cl. 415-1.000.
- Weaver, Robert J.: See—
Crockett, Dennis D.; and Weaver, Robert J., 4,363,676, Cl. 148-24.000.
- Webasto-Werk W. Baier GmbH and Co.: See—
Lutz, Alfons; and Jardin, Hans, 4,363,515, Cl. 296-222.000.
- Weber, Klaus, to Carl Zeiss-Stiftung. Automatic substage illumination for microscopes. 4,363,532, Cl. 350-523.000.
- Wegner, Gunter H., to Reeves Brothers, Inc. Method for producing flame retardant flexible polyurethane foams with blends of dibromoneopentyl glycol and flame retardant plasticizer. 4,363,882, Cl. 521-107.000.
- Weiss, Donald E.; Kolarik, Luis O.; Priestley, Anthony J.; and Anderson, Nevil J., to Commonwealth Scientific & Industrial Research Organization. Water clarification coagulant sorbent. 4,363,749, Cl. 252-455.00R.
- Weissflog, Wolfgang: See—
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- Weitz, Henry. Artificial flower. 4,363,837, Cl. 428-26.000.
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Marko, Magda; and Welle, Hendricus B. A., 4,363,809, Cl. 424-260.000.

- Welter, Thomas R.: See—
Reczek, James A.; and Welter, Thomas R., 4,363,865, Cl. 430-223.000.
- Wendland, Broder, to Licentia Patent-Verwaltungs-G.m.b.H. Method for a compatible increase in resolution in television systems. 4,364,090, Cl. 358-140.000.
- Wenggren, Bo L. T.: See—
Bergstrom, Karl O.; Ulmius, Jan; and Wenggren, Bo L. T., 4,363,806, Cl. 424-241.000.
- Weseloh, William E., to Orshansky Transmission Corporation. Transmission with a first-stage hydrostatic mode and two hydromechanical stages. 4,363,247, Cl. 74-687.000.
- West, Julian W.: See—
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- Western Electric Co., Inc.: See—
Carr, Susan H.; Schobert, Monique A.; and Taylor, John J., 4,363,449, Cl. 241-21.000.
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Brockmeyer, Hans P., 4,364,101, Cl. 362-80.000.
- Westinghouse Electric Corp.: See—
Bains, Gurdeep S., 4,363,201, Cl. 52-584.000.
- Graff, Eugene A.; and Rusch, Larry P., 4,363,998, Cl. 313-487.000.
- Halstead, Kenneth G.; and Benbow, Eugene C., 4,364,009, Cl. 324-116.000.
- Lin, Kou C.; and Ellis, Belvin B., 4,364,020, Cl. 336-212.000.
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- Wolfson, Martin G., 4,364,089, Cl. 358-125.000.
- Westphal, Teddy M., to Boise Cascade Corporation. End closure for stackable frozen food containers. 4,363,404, Cl. 206-508.000.
- Westran Corporation: See—
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- Wetlesen, Gunnar: See—
Smith, Paul W.; Freeman, James J.; Forsythe, Donald D.; Shyam, Megha; Yagura, Kenneth K.; and Wetlesen, Gunnar, 4,364,078, Cl. 357-52.000.
- Wetmore, Halsey J., to Adams Hard-Facing Company, Inc. Plow chisel with pointed shank having pointed chisel cap secured thereto by weld. 4,363,364, Cl. 172-732.000.
- Wetzel, Donald C.: See—
Paddon, Christopher M.; and Wetzel, Donald C., 4,363,368, Cl. 177-144.000.
- Whaley, Howard A.: See—
Magerlein, Barney J.; and Whaley, Howard A., 4,363,922, Cl. 549-266.000.
- Wheatley, Carl F., Jr.: See—
Becke, Hans W.; and Wheatley, Carl F., Jr., 4,364,073, Cl. 357-23.000.
- White, Rollin T., to NJM, Inc. Package label and manufacture of same. 4,363,685, Cl. 156-212.000.
- Whitney, Solon G.; and Erickson, William R., to American Petro Mart, Inc. Method of selectively removing adsorbed calcium and magnesium from cation exchange resins. 4,363,880, Cl. 521-26.000.
- Whittle, William C. Hand tool actuator. 4,363,476, Cl. 269-96.000.
- Wiblin, Wayne T.: See—
Melocik, Grant C.; and Wiblin, Wayne T., 4,364,022, Cl. 338-32.00H.
- Wibrow, Gunter, to ITW Ateco GmbH. Fastening element of synthetic material. 4,363,160, Cl. 24-297.000.
- Wieczorek, Hanne-Lore; Triller, Adolf; and Gassenhuber, Helmut, to Optische Werke G. Rodenstock. Method and device for using mass-produced light-emitting diodes at a predetermined luminance. 4,364,107, Cl. 362-285.000.
- Wildlife Vaccines, Inc.: See—
Kunz, Lee R.; and Tebbitt, Guy L., 4,363,290, Cl. 119-3.000.
- Wilkinson, Samuel, to Burroughs Wellcome Co. Biologically active amides. 4,363,800, Cl. 424-177.000.
- Willam, Franz. Device for measuring the breath of patients. 4,363,238, Cl. 73-204.000.
- Willemsens, Albert: See—
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- Willi, Albert; Maute, Willy; and Mosser, Oswaldo, to Societe D'Assistance Technique pour Produits Nestle S.A. Process for the production of a food base instantaneously dispersible in water. 4,363,824, Cl. 426-589.000.
- Williams, Charles E., to Hester Industries, Inc. Efficient high humidity food processing system with sanitizing improvements. 4,363,263, Cl. 99-352.000.
- Williams, David E.; Verma, Kamal K.; and Fisher, John M., to IMI Kynoch Limited. Anode. 4,363,706, Cl. 204-105.00R.
- Williams, Joseph R.: See—
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- Williams, Richard E.; and Budden, Kenneth J. Ladder securing devices and ladder assembly. 4,363,378, Cl. 182-93.000.
- Williams, Robert O. Method for making pipe insulator. 4,363,681, Cl. 156-64.000.
- Willison, Geoffrey; and Hodge, John C. W., to Tioxide Group Limited. Bead polymerization process. 4,363,888, Cl. 523-502.000.
- Willmar Schwabe, Firma: See—
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- Willson, Allan C. Wood stove having catalytic converter. 4,363,785, Cl. 422-173.000.
- Wilson, Gordon R.: See—
Wisdom, Lawrence W.; and Wilson, Gordon R., 4,363,575, Cl. 406-122.000.
- Wilson, Kenneth T. Thermoelectric generator panel and heater device therefor. 4,363,927, Cl. 136-206.000.
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- Windeler, Alfred S. Method of fabricating a dental prosthesis. 4,363,627, Cl. 433-167.000.
- Winsel, August, to Varta Batterie Aktiengesellschaft. Galvanic primary element. 4,363,855, Cl. 429-101.000.
- Winterstein, Jeffrey L.: See—
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- Wisdom, Lawrence W.; and Wilson, Gordon R., to Frito-Lay, Inc. Liquid-solid contacting apparatus. 4,363,575, Cl. 406-122.000.
- Witt, Wolfram: See—
Luebben, Manfred; and Witt, Wolfram, 4,363,273, Cl. 102-431.000.
- Wlodkowski, Johann; and Jungwirth, Dieter, to Dyckerhoff & Widmann Aktiengesellschaft. Recoverable formwork part for forming the anchoring location of a tendon in a concrete structural component. 4,363,462, Cl. 249-190.000.
- Wloka, Gert, to Feldmühle Aktiengesellschaft. Structural arrangement for oxide ceramic shafts. 4,363,631, Cl. 464-181.000.
- Wohl, Ronald A.: See—
Diamond, Julius; and Wohl, Ronald A., 4,363,808, Cl. 424-248.510.
- Wolf, Helmut; and Schlegel, Hans J. Device for building-up and discharging an annular dump of bulk material. 4,363,396, Cl. 198-508.000.
- Wolfe, Erich R.; and Diercks, Hans-Georg. X-Ray diffraction method and apparatus. 4,364,122, Cl. 378-73.000.
- Wolff, Rudolf: See—
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- Woolson, Martin G., to Westinghouse Electric Corp. Binary correlation video tracker. 4,364,089, Cl. 358-125.000.
- WP-System Aktiebolag: See—
Hallén, Tore J.; and Sagefors, Karl I., 4,363,563, Cl. 405-55.000.
- Wright, Raymond E.: See—
McGowan, Paul T.; and Wright, Raymond E., 4,363,968, Cl. 250-339.000.
- Wuerzer, Bruno: See—
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- Wyvill, Jeffrey R., III: See—
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- Yagura, Kenneth K.: See—
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- Yamada, Akira: See—
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- Yamada, Masaaki; Furth, Harold P.; Stix, Thomas H.; and Todd, Alan M. M., to United States of America, Energy. Method and apparatus for the formation of a spheromak plasma. 4,363,776, Cl. 376-137.000.
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- Yamada, Toshihiko: See—
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- Yamada, Toyotaka; and Enomoto, Fujio. Camera. 4,363,543, Cl. 354-58.000.
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- Yamaguchi, Mamoru: See—
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- Yamaguchi, Shigehiro: See—
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- Yamaguchi, Takeshi: See—
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- Yamamori, Kiyoshi; Hiromori, Yasutaka; and Mizoguchi, Akira, to Matsushita Electric Industrial Company, Limited. Ink jet writing apparatus having a nozzle moistening device. 4,364,065, Cl. 346-140.00R.
- Yamamoto, Kaichi: See—
Hashimoto, Yoshitaka; Shiota, Norihisa; and Yamamoto, Kaichi, 4,364,081, Cl. 358-13.000.
- Yamamoto, Osamu; Takehara, Keishin; and Yasiro, Yutaka, to Nitto Boseki Co., Ltd. Alkali- and heat-resistant inorganic fiber. 4,363,878, Cl. 501-36.000.

- Yamane, Kazumasa; Kobayashi, Masahiro; and Takada, Masahiko, to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha. Vinyl chloride copolymer and composition containing the same. 4,363,903, Cl. 526-273.000.
- Yamashita, Kiyoshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Discrete type automated chemical analytic apparatus. 4,363,782, Cl. 422-65.000.
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- Yamashita, Koji, to Nippon Electric Co., Ltd. Mobile antenna mounting assembly with resilient locking means. 4,364,051, Cl. 343-715.000.
- Yamato, Yoshihiro; Ogawa, Kazuaki; Satoh, Hiromasa; Chiku, Kiyoshi; and Okada, Hideo, to Toyo Garasu Kabushiki Kaisha. Apparatus for inspection of glass containers. 4,363,649, Cl. 65-158.000.
- Yamazaki, Osamu; Inohara, Junichi; Tazuke, Kazuo; and Wasa, Kiyotaka, to Matsushita Electric Industrial Co., Ltd. Surface acoustic wave transducer. 4,363,990, Cl. 310-313.00C.
- Yan, Tsoung Y.: See—
Pelrine, Bruce P.; Chen, Nai Y.; and Yan, Tsoung Y., 4,363,717, Cl. 208-108.000.
- Yanagishima, Fumiya; Shimoyama, Yuji; Sunami, Hideo; Ida, Yukio; Katsushima, Goji; Suzuki, Munetoshi; and Ohnishi, Takeo, to Kawasaki Steel Corporation. Steel strip continuous annealing apparatus. 4,363,471, Cl. 266-111.000.
- Yanagishima, Fumiya: See—
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- Yankovsky, Oleg A.: See—
Nikolaev, Igor V.; Evpolov, Vladimir A.; Dronova, Lidia M.; Lednikov, Anatoly I.; Moskvina, Mikhail A.; Sutyagin, Oleg Y.; Yankovsky, Oleg A.; Kilin, Viktor E.; Kolmyk, Evgeny S.; Tupitsyn, Konstantin K.; and Makarov, Alexei M., 4,363,363, Cl. 173-139.000.
- Yano, Junichi, to Daidotokushuko Kabushiki Kaisha. Magnetic filter. 4,363,729, Cl. 210-223.000.
- Yase, Tomoyoshi: See—
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- Yasiro, Yutaka: See—
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- Yasue, Kazo, to Anmin Manufacturing Co., Ltd. Process and apparatus for producing filling material. 4,363,688, Cl. 156-251.000.
- Yasui, Masaaki; Matsuura, Takeshi; and Watatani, Seiji, to Hitachi Maxell, Ltd. Magnetic recording medium. 4,363,850, Cl. 428-329.000.
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- Yokogawa Electric Works, Ltd.: See—
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- Yokoyama, Kenjiro: See—
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- Yonezawa, Seiji: See—
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- Yoon, Heeyoung, to Conoco Inc. Monolith heat exchange reactor. 4,363,787, Cl. 422-201.000.
- Yoshida, Kazuyuki; Kaneko, Shizuo; Okawara, Mikio; and Hiroki, Terushige, to Ohkawara Mfg. Co., Ltd.; and Daiichi Seiyaku Com-
- pany, Limited. Device for coating granular solids. 4,363,285, Cl. 118-19.000.
- Yoshida Kogyo K.K.: See—
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- Yoshikuni, Yoshiaki: See—
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- Yoshizaki, Kiyoshi, to Mitsubishi Denki Kabushiki Kaisha. Process for producing compound based superconductor wire. 4,363,675, Cl. 148-11.50P.
- Young, Robert F.: See—
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- Yu, Kenneth K.: See—
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- Yu, Ruey J.; and Van Scott, Eugene J. Alpha hydroxyacids, alpha ketoacids and their use in treating skin conditions. 4,363,815, Cl. 424-274.000.
- Yudow, Bernard D.: See—
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- Zadik, Joseph S.: See—
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- Zaffran, Christian: See—
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- Zahnradfabrik Renk A.G.: See—
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- Zahnradfabrik Friedrichshafen, AG: See—
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- Zaidan Hojin Handotai Kenkyu Shinkokai: See—
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- Zaremba, Tadeusz. Dumpling or ravioli press. 4,363,614, Cl. 425-298.000.
- Zaremski, Donald R., to Allegheny Ludlum Steel Corporation. High current density, acid-free electrolytic descaling process. 4,363,709, Cl. 204-145.00R.
- Zaschke, Horst: See—
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- Zhovtobryukh, Grigory D.: See—
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- Ziegler, Ann L., heir: See—
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- Zum Bahlen, Ralph E.: See—
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- Baldi, Alfonso L.; and Damiano, Victor V., to Alloy Surfaces Company, Inc. Catalytic structure. Re. 31,104, Cl. 252-466.0PT.
- Berghahn, Martha L.: See—
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- Berghahn, Walter G.; and Berghahn, Martha L., to Bristol-Myers Company. Child resistant package. Re. 31,101, Cl. 206-1.500.
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- Chouings, Leslie C. Torque limitation device for a drum brake. Re. 31,100, Cl. 188-328.000.
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- Germeraad, Paul B.: See—
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- Gotcher, Alan J.; Germeraad, Paul B.; and Jansons, Viktors, to Raychem Corporation. Crosslinking agent for polymers and wire construction utilizing crosslinked polymers. Re. 31,103, Cl. 428-35.000.
- Jansons, Viktors: See—
Gotcher, Alan J.; Germeraad, Paul B.; and Jansons, Viktors, Re. 31,103, Cl. 428-35.000.
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- Atlas Tool & Die Works, Inc.: See—
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- Bell, Vincent G., Jr.; Burke, Thomas P.; Margolin, George D.; and Vurpillat, Victor V., to Centurion Data Corporation. Check. 267,255, 12-14-82, Cl. D19-11.000.
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- Yamauchi, Kimpei: *See—*
Fukushima, Hisao; Yamauchi, Kimpei; and Hirooka, Junji, 267,249, Cl. D14-68.000.
- Yau, Andrew K., to Practical Products Mfy. Ltd. Torch. 267,278, 12-14-82, Cl. D26-49.000.
- Yau, Andrew K., to Practical Products Mfy. Ltd. Torch. 267,279, 12-14-82, Cl. D26-49.000.
- Zepell, Nathan A. Combined clip and sliders for a writing instrument. 267,256, 12-14-82, Cl. D19-56.000.
- Ziamatic Corporation: *See—*
Ziaylek, Theodore, Jr., 267,227, Cl. D8-373.000.
- Ziaylek, Theodore, Jr., to Ziamatic Corporation. Support bracket for a gas cylinder. 267,227, 12-14-82, Cl. D8-373.000.
- Zoldia Anstalt: *See—*
Bulgari, Marina, 267,241, Cl. D11-75.000.

LIST OF PLANT PATENTEEES

- Beineke, Walter F., to Purdue Research Foundation. Black walnut tree. 4,964, 12-14-82, Cl. 32.000.
- Purdue Research Foundation: *See—*
Beineke, Walter F., 4,964, Cl. 32.000.
- Superior Farming Company: *See—*
Weinberger, John H., 4,965, Cl. 38.000.
- Weinberger, John H., to Superior Farming Company. Plum tree. 4,965, 12-14-82, Cl. 38.000.

CLASSIFICATION OF PATENTS

ISSUED DECEMBER 14, 1982

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2	4,363,140	CLASS 47	40	4,363,236	CLASS 112	CLASS 141	163	4,363,369
9	4,363,141	58	4,363,188	147	4,363,237	2	210 R	4,363,370
69.5	4,363,141	73	4,363,189	204	4,363,238	39	262	4,363,371
CLASS 3	4,363,142	CLASS 48	111	4,363,638	121.11	4,363,281	CLASS 178	
1.5	4,363,143	181	4,363,190	334	4,363,240	51	118	4,363,933
13	4,363,143	381	4,363,191	536	4,363,241	78	CLASS 179	
36	4,363,144	453	4,363,192	761	4,363,242	2 R	1 VL	4,363,934
CLASS 4	4,363,145	CLASS 49	861.08	766	4,363,243	CLASS 144	2 EA	4,363,935
583	4,363,146	181	4,363,190	864.22	4,363,244	CLASS 145	18 E	4,363,936
620	4,363,146	381	4,363,191	CLASS 74	4,363,245	CLASS 146	121 R	4,363,937
CLASS 7	4,363,147	453	4,363,192	89.14	4,363,246	CLASS 147	170.2	4,363,938
158	4,363,147	48 HE	4,363,193	687	4,363,247	CLASS 148	CLASS 180	
CLASS 8	4,363,148	163.1	4,363,194	713	4,363,248	CLASS 149	118	4,363,372
506	4,363,148	165.77	4,363,195	850	4,363,249	CLASS 150	175	4,363,373
CLASS 12	4,363,149	291	4,363,196	CLASS 75	4,363,250	CLASS 151	209	4,363,374
33	4,363,149	CLASS 52	9	0.5 AA	4,363,251	CLASS 152	227	4,363,375
CLASS 14	4,363,150	155	4,363,197	10 R	4,363,252	CLASS 153	275	4,363,376
69.5	4,363,150	221	4,363,198	34	4,363,253	CLASS 154	282	4,363,377
CLASS 15	4,363,151	251	4,363,199	41	4,363,254	CLASS 155	93	4,363,378
83	4,363,151	584	4,363,201	80	4,363,255	CLASS 156	CLASS 187	
98	4,363,152	749	4,363,202	84	4,363,256	CLASS 157	17	4,363,380
101	4,363,153	CLASS 53	109	128 B	4,363,257	CLASS 158	29 R	4,363,381
102	4,363,154	381 A	4,363,203	130 R	4,363,258	CLASS 159	CLASS 188	
236 R	4,363,155	434	4,363,204	243	4,363,259	CLASS 160	71.4	4,363,382
327 R	4,363,156	CLASS 55	95	CLASS 81	4,363,260	CLASS 161	72.5	4,363,383
388	4,363,157	112	4,363,205	455	4,363,261	CLASS 162	72.7	4,363,384
CLASS 17	4,363,158	205	4,363,206	CLASS 83	4,363,262	CLASS 163	249	4,363,385
1 S	4,363,159	233	4,363,207	105	4,363,263	CLASS 164	328	Re.31,100
CLASS 23	4,363,160	499	4,363,208	422	4,363,264	CLASS 165	331	4,363,386
230 B	4,363,161	523	4,363,209	537	4,363,265	CLASS 166	333	4,363,387
CLASS 24	4,363,162	CLASS 56	11.3	800	4,363,266	CLASS 167	CLASS 190	
201 HH	4,363,163	CLASS 57	58.86	CLASS 84	4,363,267	CLASS 168	41 B	4,363,388
297	4,363,164	CLASS 58	39.32	1.03	4,363,268	CLASS 169	CLASS 191	
CLASS 26	4,363,165	CLASS 59	274	317	4,363,269	CLASS 170	43	4,363,389
18.6	4,363,166	CLASS 60	276	1.802	4,363,270	CLASS 171	59.1	4,363,390
CLASS 29	4,363,167	CLASS 61	476	CLASS 91	4,363,271	CLASS 172	0.042	4,363,391
25.42	4,363,168	CLASS 62	496	CLASS 92	4,363,272	CLASS 173	46	4,363,392
127	4,363,169	CLASS 63	505	CLASS 93	4,363,273	CLASS 174	CLASS 193	
270	4,363,170	CLASS 64	605	CLASS 94	4,363,274	CLASS 175	2 D	4,363,393
564.8	4,363,171	CLASS 65	641.2	CLASS 95	4,363,275	CLASS 176	CLASS 194	
568	4,363,172	CLASS 66	657	CLASS 96	4,363,276	CLASS 177	1 B	4,363,394
863	4,363,173	CLASS 67	55.5	CLASS 97	4,363,277	CLASS 178	63	4,363,395
869	4,363,174	CLASS 68	79	CLASS 98	4,363,278	CLASS 179	CLASS 198	
CLASS 30	4,363,175	CLASS 69	101	CLASS 99	4,363,279	CLASS 180	369	4,363,396
41	4,363,176	CLASS 70	138	CLASS 100	4,363,280	CLASS 181	486	4,363,397
276	4,363,177	CLASS 71	238.6	CLASS 101	4,363,281	CLASS 182	508	4,363,398
CLASS 33	4,363,178	CLASS 72	292	CLASS 102	4,363,282	CLASS 183	655	4,363,399
138	4,363,179	CLASS 73	303	CLASS 103	4,363,283	CLASS 184	735	4,363,400
174 Q	4,363,180	CLASS 74	2	CLASS 104	4,363,284	CLASS 185	833	4,363,401
180 R	4,363,181	CLASS 75	18.2	CLASS 105	4,363,285	CLASS 186	CLASS 200	
264	4,363,182	CLASS 76	42	CLASS 106	4,363,286	CLASS 187	1 R	4,363,402
288	4,363,183	CLASS 77	158	CLASS 107	4,363,287	CLASS 188	5 A	4,363,403
CLASS 34	4,363,184	CLASS 78	120	CLASS 108	4,363,288	CLASS 189	38 R	4,363,404
4	4,363,185	CLASS 79	125 R	CLASS 109	4,363,289	CLASS 190	42 R	4,363,405
CLASS 36	4,363,186	CLASS 80	70	CLASS 110	4,363,290	CLASS 191	61.18	4,363,406
101	4,363,187	CLASS 81	144	CLASS 111	4,363,291	CLASS 192	CLASS 202	
CLASS 37	4,363,188	CLASS 82	177	CLASS 112	4,363,292	CLASS 193	262	4,363,702
191 A	4,363,189	CLASS 83	279	CLASS 113	4,363,293	CLASS 194	CLASS 203	
CLASS 40	4,363,190	CLASS 84	370	CLASS 114	4,363,294	CLASS 195	10	4,363,703
307	4,363,191	CLASS 85	484	CLASS 115	4,363,295	CLASS 196	58	4,363,704
316	4,363,192	CLASS 86	CLASS 71	CLASS 116	4,363,296	CLASS 197	CLASS 204	
466	4,363,193	CLASS 87	36	CLASS 117	4,363,297	CLASS 198	5	4,363,705
607	4,363,194	CLASS 88	88	CLASS 118	4,363,298	CLASS 199	105 R	4,363,706
CLASS 43	4,363,195	CLASS 89	350	CLASS 119	4,363,299	CLASS 200	129	4,363,707
81.5	4,363,196	CLASS 90	383	CLASS 120	4,363,300	CLASS 201	129.75	4,363,708
85	4,363,197	CLASS 91	402	CLASS 121	4,363,301	CLASS 202	145 R	4,363,709
CLASS 44	4,363,198	CLASS 92	CLASS 72	CLASS 122	4,363,302	CLASS 203	181 C	4,363,710
10 A	4,363,199	CLASS 93	CLASS 73	CLASS 123	4,363,303	CLASS 204	192 P	4,363,711
51	4,363,200	CLASS 94	CLASS 74	CLASS 124	4,363,304	CLASS 205	199	4,363,712
CLASS 46	4,363,201	CLASS 95	CLASS 75	CLASS 125	4,363,305	CLASS 206	278	4,363,713
209	4,363,202	CLASS 96	CLASS 76	CLASS 126	4,363,306	CLASS 207	CLASS 206	
211	4,363,203	CLASS 97	CLASS 77	CLASS 127	4,363,307	CLASS 208	1.5	Re.31,101
	4,363,204	CLASS 98	CLASS 78	CLASS 128	4,363,308	CLASS 209	44 R	4,363,400
	4,363,205	CLASS 99	CLASS 79	CLASS 129	4,363,309	CLASS 210	345	4,363,401
	4,363,206	CLASS 100	CLASS 80	CLASS 130	4,363,310	CLASS 211	380	4,363,402
	4,363,207	CLASS 101	CLASS 81	CLASS 131	4,363,311	CLASS 212		
	4,363,208	CLASS 102	CLASS 82	CLASS 132	4,363,312	CLASS 213		
	4,363,209	CLASS 103	CLASS 83	CLASS 133	4,363,313	CLASS 214		
	4,363,210	CLASS 104	CLASS 84	CLASS 134	4,363,314	CLASS 215		
	4,363,211	CLASS 105	CLASS 85	CLASS 135	4,363,315	CLASS 216		
	4,363,212	CLASS 106	CLASS 86	CLASS 136	4,363,316	CLASS 217		
	4,363,213	CLASS 107	CLASS 87	CLASS 137	4,363,317	CLASS 218		
	4,363,214	CLASS 108	CLASS 88	CLASS 138	4,363,318	CLASS 219		
	4,363,215	CLASS 109	CLASS 89	CLASS 139	4,363,319	CLASS 220		
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	4,363,217	CLASS 111	CLASS 91	CLASS 141	4,363,321	CLASS 222		
	4,363,218	CLASS 112	CLASS 92	CLASS 142	4,363,322	CLASS 223		
	4,363,219	CLASS 113	CLASS 93	CLASS 143	4,363,323	CLASS 224		
	4,363,220	CLASS 114	CLASS 94	CLASS 144	4,363,324	CLASS 225		
	4,363,221	CLASS 115	CLASS 95	CLASS 145	4,363,325	CLASS 226		
	4,363,222	CLASS 116	CLASS 96	CLASS 146	4,363,326	CLASS 227		
	4,363,223	CLASS 117	CLASS 97	CLASS 147	4,363,327	CLASS 228		
	4,363,224	CLASS 118	CLASS 98	CLASS 148	4,363,328	CLASS 229		
	4,363,225	CLASS 119	CLASS 99	CLASS 149	4,363,329	CLASS 230		
	4,363,226	CLASS 120	CLASS 100	CLASS 150	4,363,330	CLASS 231		
	4,363,227	CLASS 121	CLASS 101	CLASS 151	4,363,331	CLASS 232		
	4,363,228	CLASS 122	CLASS 102	CLASS 152	4,363,332	CLASS 233		
	4,363,229	CLASS 123	CLASS 103	CLASS 153	4,363,333	CLASS 234		
	4,363,230	CLASS 124	CLASS 104	CLASS 154	4,363,334	CLASS 235		
	4,363,231	CLASS 125	CLASS 105	CLASS 155	4,363,335	CLASS 236		
	4,363,232	CLASS 126	CLASS 106	CLASS 156	4,363,336	CLASS 237		
	4,363,233	CLASS 127	CLASS 107	CLASS 157	4,363,337	CLASS 238		
	4,363,234	CLASS 128	CLASS 108	CLASS 158	4,363,338	CLASS 239		
	4,363,235	CLASS 129	CLASS 109	CLASS 159	4,363,339	CLASS 240		
	4,363,236	CLASS 130	CLASS 110	CLASS 160	4,363,340	CLASS 241		
	4,363,237	CLASS 131	CLASS 111	CLASS 161	4,363,341	CLASS 242		
	4,363,238	CLASS 132	CLASS 112	CLASS 162	4,363,342	CLASS 243		
	4,363,239	CLASS 133	CLASS 113	CLASS 163	4,363,343	CLASS 244		
	4,363,240	CLASS 134	CLASS 114	CLASS 164	4,363,344	CLASS 245		
	4,363,241	CLASS 135	CLASS 115	CLASS 165	4,363,345	CLASS 246		
	4,363,242	CLASS 136	CLASS 116	CLASS 166	4,363,346	CLASS 247		
	4,363,243	CLASS 137	CLASS 117	CLASS 167	4,363,347	CLASS 248		
	4,363,244	CLASS 138	CLASS 118	CLASS 168	4,363,348	CLASS 249		
	4,363,245	CLASS 139	CLASS 119	CLASS 169	4,363,349	CLASS 250		
	4,363,246	CLASS 140	CLASS 120	CLASS 170	4,363,350	CLASS 251		
	4,363,247	CLASS 141	CLASS 121	CLASS 171	4,363,351	CLASS 252		
	4,363,248	CLASS 142	CLASS 122	CLASS 172	4,363,352	CLASS 253		
	4,363,249	CLASS 143	CLASS 123	CLASS 173	4,363,353	CLASS 254		
	4,363,250	CLASS 144	CLASS 124	CLASS 174	4,363,354	CLASS 255		
	4,363,251	CLASS 145	CLASS 125	CLASS 175	4,363,355	CLASS 256		
	4,363,252	CLASS 146	CLASS 126	CLASS 176	4,363,356	CLASS 257		
	4,363,253	CLASS 147	CLASS 127	CLASS 177	4,363,357	CLASS 258		
	4,363,254	CLASS 148	CLASS 128	CLASS 178	4,363,358	CLASS 259		
	4,363,255	CLASS 149	CLASS 129	CLASS 179	4,363,359	CLASS 260		
	4,363,256	CLASS 150	CLASS 130	CLASS 180	4,363,360	CLASS 261		
	4,363,257	CLASS 151	CLASS 131	CLASS 181	4,363,361	CLASS 262		
	4,363,258	CLASS 152	CLASS 132	CLASS 182	4,363,362	CLASS 263		
	4,363,259	CLASS 153	CLASS 133	CLASS 183	4,363,363	CLASS 264		
	4,363,260	CLASS 154	CLASS 134	CLASS 184	4,363,364	CLASS 265		
	4,363,261	CLASS 155	CLASS 135	CLASS 185				

477	4,363,609	269	4,363,812	296	4,363,834	290	4,363,866	273	4,363,903
CLASS 420	270	272	4,363,813	355	4,363,835	302	4,363,867	348.2	4,363,904
454	4,363,659	274	4,363,814	393.6	4,363,836	314	4,363,868	181	4,363,631
CLASS 422			4,363,815	CLASS 428		427	4,363,869	CLASS 501	CLASS 528
65	4,363,781	311	4,363,817	26	4,363,837	510	4,363,870	36	4,363,905
68	4,363,782	319	4,363,818	31	4,363,838	523	4,363,871	44	4,363,906
134	4,363,783	CLASS 425		35	4,363,839	546	4,363,872	44	4,363,907
173	4,363,784	89	4,363,610		Re.31,103	CLASS 431		CLASS 521	4,363,908
189	4,363,785	97	4,363,611		4,363,840	33	4,363,620	26	4,363,880
201	4,363,786	167	4,363,612	36	4,363,842	90	4,363,621	56	4,363,881
CLASS 423	4,363,787	237	4,363,613	43	4,363,843	362	4,363,622	107	4,363,882
9	4,363,788	298	4,363,614	65	4,363,844	CLASS 432		122	4,363,883
79	4,363,789	339	4,363,616	198	4,363,845	219	4,363,623	CLASS 523	172
230	4,363,790	363	4,363,615	203	4,363,846	CLASS 433		156	4,363,884
243	4,363,791	388	4,363,617	283	4,363,847	9	4,363,624	212	4,363,885
335	4,363,792	458	4,363,618	286	4,363,848	74	4,363,625	336	4,363,886
CLASS 424		525	4,363,619	318.8	4,363,849	85	4,363,626	402	4,363,887
1	4,363,793	132	4,363,819	329	4,363,850	167	4,363,627	502	4,363,888
52	4,363,794	257	4,363,820	333	4,363,851	CLASS 434		513	4,363,889
54	4,363,795	262	4,363,810	432	4,363,852	107	4,363,628	CLASS 524	313
61	4,363,796	393	4,363,821	480	4,363,853	7	4,363,629	101	4,363,890
70	4,363,797	513	4,363,822	632	4,363,854	108	4,363,629	317	4,363,891
84	4,363,798	542	4,363,823	CLASS 429		253	4,363,629	327	4,363,892
85	4,363,799	589	4,363,824	101	4,363,855	317	4,363,629	376	4,363,893
177	4,363,800	617	4,363,825	143	4,363,856	CLASS 435		494	4,363,894
180	4,363,801	653	4,363,826	234	4,363,857	19	4,363,633	CLASS 525	32
CLASS 427				56	4,363,858	132	4,363,635	54.21	72
200	4,363,803	8	4,363,827	59	4,363,859	CLASS 436		110	4,363,920
230	4,363,805	39	4,363,828	83	4,363,860	437	4,363,635	195	4,363,921
241	4,363,806	53.1	4,363,829	97	4,363,861	CLASS 440		404	4,363,922
246	4,363,807	88	4,363,830	98	4,363,862	61	4,363,629	437	4,363,923
248.51	4,363,808	127	4,363,831	115	4,363,863	69	4,363,630	CLASS 526	266
260	4,363,809	183	4,363,832	202	4,363,864	CLASS 437		CLASS 527	329
267	4,363,811	211	4,363,833	223	4,363,865	CLASS 438		CLASS 528	4,363,924
						CLASS 439		CLASS 529	415
						CLASS 440		CLASS 530	442
						CLASS 441		CLASS 531	
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[illegible]

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(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

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4,363,427	4,363,747	4,363,972	4,363,604	4,363,551	4,363,896
4,363,516	4,363,804	4,364,068	4,363,629	4,363,724	4,363,922
4,363,652	4,363,820	4,363,825	4,363,672	4,363,736	4,364,111
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4,363,188	4,364,012	4,363,488	4,363,212	4,363,438	4,363,841
4,363,214	4,364,014	4,363,646	4,363,278	4,363,572	4,363,842
4,363,215	4,364,029	4,363,723	4,363,284	4,363,602	4,363,844
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4,363,243	4,364,035	4,363,880	4,363,313	4,363,663	4,363,864
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4,363,228	4,363,175	4,363,440	4,364,020	4,363,801	4,363,487
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4,363,246	4,363,151	4,363,613	4,363,274	4,363,969	4,363,848
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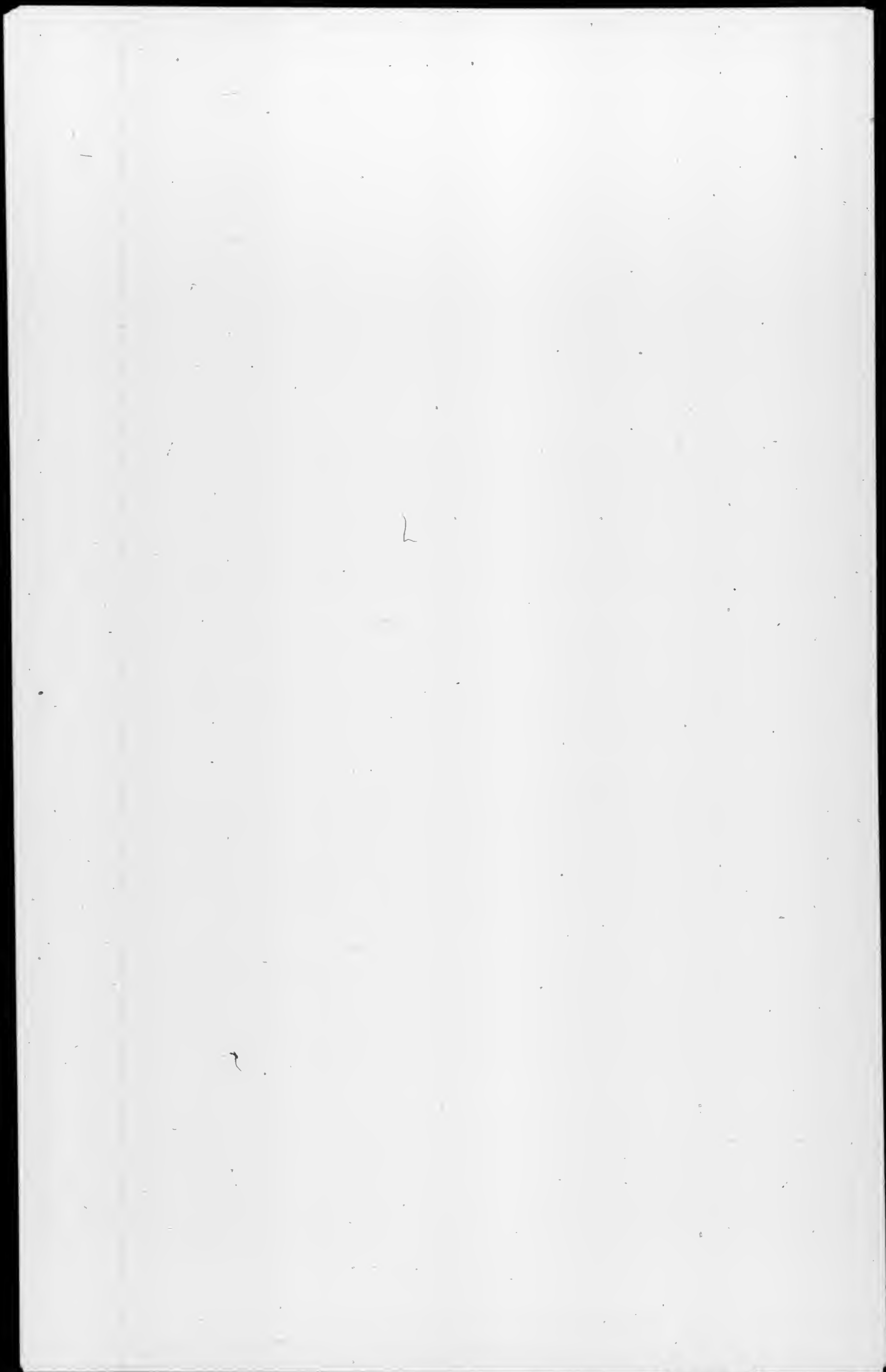
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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries and the most recent PCT rule changes, see the notices appearing in the Official Gazette at 1001 O.G. 14 on Dec. 9, 1980 and at 1012 O.G. 20 on Nov. 17, 1981. For use of the European Patent Office as a searching authority for PCT applications filed in the United States, see the notice in the Official Gazette of Sept. 28, 1982 at 1022 O.G. 52.

Note that the international fees have been increased as of Jan. 1, 1982 and that the domestic PCT fees have been increased as of Oct. 1, 1982. Domestic PCT fees were increased by a rule change which was published at 1021 O.G. 11 on Aug. 10, 1982. The current schedule of fees is as follows:

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• All cases	710.00
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Basic Supplemental Fee (for each sheet over 30)	6.00
Designation fee (for each national or regional office)	65.00

Sept. 10, 1982. DONALD J. QUIGG,
Deputy Commissioner
of Patents & Trademarks.

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,884,882, Re. S.N. 394,462, Filed July 1, 1982, Cl. 525/10, CERTAIN EPDM COPOLYMER/MALEIC ANHYDRIDE ADDUCTS AND THERMOPLASTIC ELASTOMERS THEREFROM, Stanley William Caywood, Jr., Owner of Record: *E. I. du Pont de Nemours and Co., Wilmington, Del.*, Attorney or Agent: Paul R. Steyermark, Ex. Gp.: 144

3,922,377, Re. S.N. 421,785, Filed Sept. 23, 1982, Cl. 426/645, HEAT-PROCESSED DEHYDRATED BACTERIOLOGICALLY-STABLE PORK RIND PRODUCT AND PROCESS FOR PREPARING SAME, Kenneth F. Whittle, Owner of Record: *Protein Foods (U.K.) Ltd., Tipton, England*, Attorney or Agent: Leo A. Rosetta, Ex. Gp.: 172

3,946,746, Re. S.N. 432,165, Filed Sept. 30, 1982, Cl. 130/27-P, HARVESTING MACHINES, Frans J. G. C. Decoene, et al., Owner of Record: *Sperry Corp., New Holland, Pa.*, Attorney or Agent: Frank A. Seemar, et al., Ex. Gp.: 333

3,979,548, Re. S.N. 427,148, Filed Sept. 29, 1982, Cl. 428/425, POLYURETHANE COATED SAFETY

GLASS, Wolfgang Schafer, et al., Owner of Record: *Saint-Gobain Industries, Neuilly-sur-Seine, France*, Attorney or Agent: John T. Synnestvedt, et al., Ex. Gp.: 164

3,997,134, Re. S.N. 325,706, Filed Nov. 30, 1981, Cl. 244/110B, FUSELAGE TAIL JET ENGINE THRUST REVERSER, George T. Drakeley, Owner of Record: *The Boeing Co., Seattle, Wash.*, Attorney or Agent: Robert W. Beach, et al., Ex. Gp.: 315

4,109,903, Re. S.N. 281,145, Filed July 7, 1981, Cl. 271/3, FLUIDIC FEEDING OF DOCUMENTS TO AN EXPOSURE STATION, Klaus K. Stange, et al., Owner of Record: *Xerox Corp., Stamford, Conn.*, Attorney or Agent: Paul F. Morgan, Ex. Gp.: 313

4,118,242, Re. S.N. 431,097, Filed Sept. 30, 1982, Cl. 106/98, PROCESS FOR MANUFACTURING CONCRETE OF HIGH CORROSION RESISTANCE, Olav Kjøhl, et al., Owner of Record: *Aksjeselskapet Norcem, Oslo, Norway*, Attorney or Agent: John E. Lind, et al., Ex. Gp.: 113

4,124,488, Re. S.N. 430,686, Filed Sept. 30, 1982, Cl. 210/134, WATER PURIFICATION BY REVERSE OSMOSIS, Leslie P. S. Wilson, Owner of Record: *Ocean Water Ltd., Turks and Caicos Island, British West Indies*, Attorney or Agent: Edward F. Connors, Ex. Gp.: 176

4,168,551, Re. S.N. 427,493, Filed Sept. 29, 1982, Cl. 4/231, TOILET FLUSH WATER COLORIZER, Horst Hautmann, et al., Owner of Record: *Globol-Werk GmbH, Neuburg, Germany*, Attorney or Agent: Gilbert L. Wells, Ex. Gp.: 243

4,199,107, Re. S.N. 424,646, Filed Sept. 27, 1982, Cl. 239/600, LIQUID SPRAY JET ASSEMBLY AND A MINERAL MINING MACHINE CUTTING HEAD INCORPORATING SUCH ASSEMBLY, Garrick R. Bingham, Owner of Record: *Green and Bingham Ltd., Doncaster, Yorkshire, England*, Attorney or Agent: Norbert P. Holler, et al., Ex. Gp.: 313

4,221,148, Re. S.N. 427,159, Filed Sept. 29, 1982, Cl. 83/869, SLICE-CUTTING-WIRE OPERATIVE PORTIONS, David L. Lewis, Owner of Record: *Inventor*, Attorney or Agent: Peter L. Costas, Ex. Gp.: 324

4,225,357, Re. S.N. 429,138, Filed Sept. 29, 1982, Cl. 106/86, METHOD OF PRODUCING AND DISTRIBUTING CONCRETE PRODUCT, Harry Hodson, Owner of Record: *Inventor*, Attorney or Agent: Arthur W. Fisher, Ex. Gp.: 113

4,233,031, Re. S.N. 426,690, Filed Sept. 29, 1982, Cl. 023/230.002, ELECTROCHEMICAL TESTING SYSTEM AND METHOD, Wayne R. Matson, et al., Owner of Record: *Environmental Sciences Associates, Inc., Bedford, Mass.*, Attorney or Agent: Oliver W. Hayes, et al., Ex. Gp.: 173

4,236,521, Re. S.N. 430,555, Filed Sept. 30, 1982, Cl. 128/348, PROBE, Friedrich G. Lauterjung, Owner of Record: *Inventor*, Attorney or Agent: Martin A. Farber, Ex. Gp.: 335

4,238,162, Re. S.N. 426,563, Filed Sept. 29, 1982, Cl. 401/198, NIB RETAINING ASSEMBLY FOR A WRITING INSTRUMENT, Edward E. Sherwood, Owner of Record: *Sanford Research Co., Bellwood, Ill.*, Attorney or Agent: Ernest A. Wegner, et al., Ex. Gp.: 336

4,239,533, Re. S.N. 419,507, Filed Sept. 17, 1982, Cl. 75/134.006, MAGNETIC ALLOY HAVING A LOW

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MELTING POINT, Takeshi Miyazaki, Owner of Record: *Hitachi Metals, Ltd., Tokyo, Japan*, Attorney or Agent: Donald R. Antonelli, et al., Ex. Gp.: 111

4,244,707, Re. S.N. 426,584, Filed Sept. 29, 1982, Cl. 51/308, ABRASIVE COMPOSITION FOR USE IN TOOTHPASTE, Satish K. Wason, Owner of Record: *J. M. Huber Corp., Locust, N.J.*, Attorney or Agent: Harold H. Flanders, Ex. Gp.: 147

4,256,004, Re. S.N. 431,738, Filed Sept. 30, 1982, Cl. 84/1.21, ELECTRONIC MUSICAL INSTRUMENT OF THE HARMONIC SYNTHESIS TYPE, Chifumi Takeuchi, Owner of Record: *Nippon Gakki Seizo Kabushiki, Kaisha, Hamamatsu, Japan*, Attorney or Agent: W. Robert Spensely, et al., Ex. Gp.: 217

4,262,034, Re. S.N. 426,959, Filed Sept. 29, 1982, Cl. 427/34, METHODS AND APPARATUS FOR APPLYING WEAR RESISTANT COATINGS TO ROTO-GRAVURE CYLINDERS, Dennis Andersen, Owner of Record: *Armotek Industries, Palmyra, N.J.*, Attorney or Agent: Ronald L. Grudziecki, Ex. Gp.: 162

4,278,788, Re. S.N. 319,374, Filed Nov. 9, 1981, Cl. 528/494, REMOVAL OF RESIDUAL CATALYST FROM POLYOLEFIN POLYMERS, James R. Hatfield, et al., Owner of Record: *Northern Natural Gas Co., Omaha, Neb.*, Attorney or Agent: Donald F. Haas, et al., Ex. Gp.: 144

4,280,904, Re. S.N. 424,676, Filed Sept. 27, 1982, Cl. 176/210, HIGH CAPACITY FOLDED MOVING BED ION EXCHANGE APPARATUS AND METHOD FOR TREATING PHOSPHORIC ACID, Lee G. Carlson, Owner of Record: *American Petro Mart, Inc., Barton, Fla.*, Attorney or Agent: Timothy L. Tilton, et al., Ex. Gp.: 176

4,283,989, Re. S.N. 424,321, Filed Sept. 27, 1982, Cl. 89/65, DOPPLER-TYPE PROJECTILE VELOCITY MEASUREMENT AND COMMUNICATION APPARATUS AND METHOD, Peter P. Toullos, Owner of Record: *Ares, Inc., Port Clinton, Ohio*, Attorney or Agent: Allan R. Fowler, et al., Ex. Gp.: 221

4,296,591, Re. S.N. 432,164, Filed Sept. 30, 1982, Cl. 56/10.3, DAMPED APPARATUS FOR QUICK-STOPPING ROTATING MEMBERS, Wayne B. Martenas, et al., Owner of Record: *Sperry Corp., New Holland, Pa.*, Attorney or Agent: Frank A. Seemar, et al., Ex. Gp.: 333

4,302,369, Re. S.N. 394,000, Filed June 30, 1982, Cl. 260/17.4GC, ALUMINUM MODIFIED WATER ABSORBENT COMPOSITION, Lyle F. Emmquist, Owner of Record: *Henkle Corp., Minneapolis, Minn.*, Attorney or Agent: Forrest L. Collins, et al., Ex. Gp.: 143

4,305,234, Re. S.N. 431,305, Filed Sept. 30, 1982, Cl. 51/330, COMPOSITE BRUSH, Franklin D. Pichelman, Owner of Record: *Flo-Pac Corp., Minneapolis, Minn.*, Attorney or Agent: James R. Haller, Ex. Gp.: 323

4,322,449, Re. S.N. 433,848, Filed Oct. 12, 1982, Cl. 427/3, PHARMACEUTICALS HAVING DOTTED ACTIVE INGREDIENTS AND A METHOD AND APPARATUS FOR THE PREPARATION THEREOF, Gunther Voss, et al., Owner of Record: *Boehringer Ingelheim GmbH, Ingelheim am Rhein, Germany*, Attorney or Agent: Nelson Littell, et al., Ex. Gp.: 162

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

3,652,645, Reexam. No. 90/000,280, Requested: Oct. 28, 1982, Cl. 560/2, HAOLPHENOXY BENZOIC ACID HERBICIDES, Robert J. Theissen, Owner of Record: *Rhone-Poulenc Agrochimie, Lyon, France*, Attorney or Agent: None, Ex. Gp.: 120, Requester: Rohm & Haas Co., Philadelphia, Pa.

3,776,715, Reexam. No. 90/000,279, Requested: Oct. 28, 1982, Cl. 71/111, HALOPHENOXY BENZOIC ACID HERBICIDES, Robert J. Theissen, Owner of Record: *Rhone-Poulenc Agrochimie, Lyon, France*, Attorney or Agent: Oswald G. Hayes, Ex. Gp.: 126, Requester: Rohm and Haas Co., Philadelphia, Pa.

3,941,830, Reexam. No. 90/000,278, Requested: Oct. 28, 1982, Cl. 560/2, SUBSTITUTED PHENOXYBENZOIC ACIDS AND ESTERS THEREOF, Robert J. Theissen, Owner of Record: *Rhone-Poulenc Agrochimie, Lyon, France*, Attorney or Agent: Andrew L. Gaboriault, Ex. Gp.: 120, Requester: Rohm & Haas, Philadelphia, Pa.

4,112,921, Reexam. No. 90/000,292, Requested: Nov. 22, 1982, Cl. 126/448, METHOD AND SYSTEM FOR UTILIZING A FLEXIBLE TUBING SOLAR COLLECTOR, Calvin D. McCracken, Owner of Record: *Bio-Systems, Inc., Ellenville, N.Y.*, Attorney or Agent: Parmelee, et al., Ex. Gp.: 340, Requester: Environmental Resources, Inc., Las Vegas, Nev.

4,161,436, Reexam. No. 90/000,289, Requested: Nov. 17, 1982, Cl. 204/157.1R, METHOD OF ENERGIZING A MATERIAL, Gordon Gould, Owner of Record: *Patlex Corp., Ardmore, Pa.*, Attorney or Agent: Lerner, et al., Ex. Gp.: 112, Requester: General Motors Corp., Detroit, Mich.

Notice of Application for Recordation of Trade Name "COMBE INCORPORATED"

Application has been filed pursuant to section 133.12, Customs Regulations (19 CFR 133.12), for the recordation under section 42 of the Act of July 5, 1946, as amended (15 U.S.C. 1124), of the trade name "COMBE INCORPORATED," used by Combe Incorporated, a corporation organized under the laws of the State of Delaware, located at 1101 Westchester Avenue, White Plains, N.Y. 10604.

The application states that the trade name is used in connection with the following merchandise manufactured in several foreign countries: hair coloring; toiletries; cosmetics; odor-destroying insoles; odor-destroying hosiery; denture adhesives; pharmaceutical creams, ointments and lotions; veterinary medications and shampoos; and hair care products. Various foreign subsidiaries are authorized to use the trade name. Appropriate accompanying papers were submitted with the application.

Before final action is taken on the application, consideration will be given to any relevant data, views, or arguments submitted in writing by any person in opposition to the recordation of this trade name. Any such submission should be addressed to the Commissioner of Customs, Entry, Licensing and Restricted Merchandise Branch, Wash., D.C. 20229, in time to be received no later than 60 days from the date of publication of this notice in the Federal Register.

For Further Information Contact:

Harriet Lane, Entry, Licensing and Restricted Merchandise Branch, U.S. Customs Service, 1301 Constitution Avenue, NW., Wash., D.C. 20229 (202-566-5765).

Notice of the action taken on the application for recordation of this trade name will be published in the Federal Register.

Nov. 18, 1982. DONALD W. LEWIS,
Director, Entry Procedures
and Penalties Division.

Errata

The following registration numbers, listed in the "Trademark Registrations Issued" section of the Official Gazettes of Oct. 5, 1982 and Oct. 12, 1982, were inadvertently issued:

TMOG Oct. 5, 1982

TMOG Oct. 12, 1982

1,211,759

1,212,623
1,212,624

Consequently, certificates of registration bearing the above-identified numbers were not issued on the dates indicated, and these registration numbers have been vacated.

Nov. 15, 1982.

HERBERT C. MANSLEY,
Director, Trademark
Examining Operation.

PATENT NOTICES**Certificates of Correction for the Week of Dec. 21, 1982**

4,032,900	4,314,777	4,333,421	4,346,607
4,091,248	4,315,004	4,334,212	4,347,105
4,173,409	4,317,957	4,334,501	4,347,575
4,202,983	4,318,537	4,334,567	4,347,836
4,216,283	4,318,986	4,334,763	4,348,938
4,234,421	4,319,334	4,334,951	4,349,560
4,235,239	4,319,868	4,334,999	4,351,119
4,235,907	4,321,392	4,335,504	4,351,430
4,258,358	4,321,749	4,335,796	4,351,864
4,263,081	4,321,790	4,336,416	4,351,907
4,279,459	4,323,237	4,338,667	4,351,982
4,279,644	4,323,837	4,338,972	4,352,970
4,284,016	4,325,311	4,339,806	4,353,758
4,284,499	4,325,517	4,340,137	4,353,840
4,284,790	4,325,700	4,340,481	4,354,091
4,292,755	4,326,590	4,340,778	4,354,226
4,297,125	4,327,280	4,341,765	4,354,248
4,297,360	4,327,702	4,342,841	4,354,784
4,301,899	4,329,645	4,343,036	4,354,812
4,305,554	4,331,367	4,343,739	4,354,913
4,307,092	4,331,952	4,343,913	4,354,999
4,307,859	4,332,277	4,344,115	4,355,382
4,310,572	4,332,554	4,344,878	4,355,930
4,311,614	4,332,673	4,344,992	4,356,277
4,311,738	4,332,719	4,345,851	
4,312,457	4,333,363	4,346,291	

Disclaimers

3,819,547.—*Walter O. Pillar*, Monroeville, and *Robert A. Sutton*, Coraopolis, Pa. SELF-EXTINGUISHING POLYMER COMPOSITIONS CONTAINING HEXABROMO-2-BUTENE. Patent dated June 25, 1974. Disclaimer filed Oct. 12, 1982, by the assignee, *Atlantic Richfield Co.*

Hereby enters this disclaimer to claims 1, 2, 3, 4, 5, 6 and 7 of said patent.

3,919,548.—*David E. Porter*, Burlingame, Calif. X-RAY ENERGY SPECTROMETER SYSTEM. Patent dated Nov. 11, 1975. Disclaimer filed Oct. 10, 1982, by the assignee, *Keveex Corp.*

Hereby enters this disclaimer to claims 1, 2 and 3 of said patent.

4,024,979.—*Walter J. Craig*, Crest Hill; *Walter K. Lewis*, New Lenox; and *Rondell L. Bailey*, Chicago, Ill. HANDLING RING FOR PLASTIC DRUM. Patent dated May 24, 1977. Disclaimer filed Oct. 29, 1982, by the assignee, *Plasti-Drum, Inc.*

Hereby enters this disclaimer to claims 1 to 3 of said patent.

4,354,993.—*Franciscus X. N. M. Kools*; and *Sytse Strijbos*, Eindhoven, Netherlands. METHOD OF MANUFACTURING A MAGNET BODY. Patent dated Oct. 19, 1982. Disclaimer filed Oct. 12, 1982, by the assignee, *U. S. Philips Corp.*

The term of this patent subsequent to Jan. 29, 1999 has been disclaimed.

Dedication

3,882,598.—*Paul Lewis Earle*, Denver; *Timothy Howard Seeber*, Evergreen; and *Milton French Trosper, Jr.*, Thornton, Colo. DUST CONTROL CUTTING ASSEMBLY FOR CUTTING SHEET MATERIAL. Patent dated May 13, 1975. Dedication filed July 19, 1982, by the assignee, *Johns-Manville Corp.*

Hereby dedicates all claims for the entire remaining term of said patent to the Public.

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the

table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	Name of Library	Telephone Contact
Alabama	Birmingham Public Library	(205) 254-2555
Arizona	Tempe: Science Library, Arizona State University	(602) 965-7607
California	Los Angeles Public Library	(213) 626-7555 Ext. 273
	Sacramento: California State Library	(916) 322-4572
	Sunnyvale: Patent Information Clearinghouse*	(408) 738-5580
Colorado	Denver Public Library	(303) 571-2122
Delaware	Newark: University of Delaware	(302) 738-2238
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4508
Illinois	Chicago Public Library	(312) 269-2865
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library & Information Center	(612) 372-6552
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214, Ext. 215
Nebraska	Lincoln: University of Nebraska-Lincoln, Engineering Library	(402) 472-3411
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7814
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 255-7055 Ext. 212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1321**
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 226
South Carolina	Charleston: Medical University of South Carolina	(803) 792-2372
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 748-9071
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

*Collection organized by subject matter.

**Call only between the hours of 10:00 a.m. and 5:00 p.m.

1025 OG 22

PATENT EXAMINING CORPS RENE D. TEGTMEYER, Assistant Commissioner WILLIAM FELDMAN, Deputy Assistant Commissioner CONDITION OF PATENT APPLICATIONS AS OF October 16, 1982

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director	11-12-80
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal-lurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director	7-20-81
Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director	5-13-81
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthodontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director	4-27-81
Coating; Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director	1-18-81
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director	9-08-80
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director	3-02-81
Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—EARL LEVY, Director	11-24-80
Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240—G. M. FORLENZA, Director	2-02-80
Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director	11-26-79
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
DESIGN, GROUP 290—KENNETH L. CAGE, Director	10-20-80
Industrial Arts; Household, Personal and Fine Arts.	
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director	5-01-81
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director	2-06-81
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding; Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director	2-13-80
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director	11-17-80
Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—A. L. SMITH, Director	8-22-80
Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	

Expiration of patents: The patents within the range of numbers indicated below expire during October 1982, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents Numbers 3,209,369 to 3,214,766, inclusive

Plant Patents Numbers 2,558 to 2,565 inclusive

1025 OG 23

REISSUES

DECEMBER 21, 1982

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 31,105

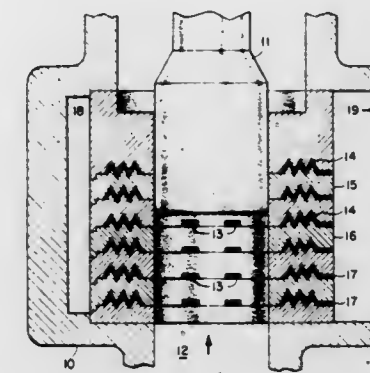
CONTROLLED PRESSURE DROP VALVE

Charles L. Bates, Jr., P.O. Box 100C, Springville, Utah 84663
Original No. 3,977,435, dated Aug. 31, 1976, Ser. No. 444,524,
Feb. 21, 1974. Application for reissue Aug. 30, 1978, Ser. No.
938,163

Int. Cl.³ F16K 47/08

U.S. Cl. 137—625.3

13 Claims



13. A valve for high pressure fluids comprising:

a valve housing;

a plunger; and

a plurality of stacked annular disks mounted within said housing, each said disk comprising:

an annular center opening in register with the annular center openings of the remaining disks, said annular center openings together providing a cylindrical cavity that accommodates reciprocating movement of said plunger so as to control the flow of fluid through said stacked disks;

a plurality of substantially circular ridges on at least one face of each said disk;

a plurality of projections on at least one face of each said disk, said projections overlapping the rim of an adjacent disk in order to prevent lateral movement thereof, said projections also spacing the disk from an adjacent disk so as to permit fluid flow therebetween;

a first substantial opening about the inside periphery of each said disk, said first opening communicating with the space between the disk and an adjacent disk; and

a second substantial opening about the outside periphery of each said disk, said second opening communicating with (1) said space between the disk and an adjacent disk and (2) a discharge outlet of said valve.

Re. 31,106

QUARTER TURN INDUSTRIAL FASTENER

Frederick J. Puffaff, Loudonville, and Cuyler Hoen, Rennselaer, both of N.Y., assignors to Simmons Fastener Corporation, Albany, N.Y.

Original No. 4,212,560, dated Jul. 15, 1980, Ser. No. 54,015, Jul. 2, 1979. Application for reissue Jul. 6, 1981, Ser. No. 280,555

Int. Cl.³ B25G 3/00; F16D 1/00

U.S. Cl. 403—353

13 Claims

7. An industrial fastener assembly for removably locking together two plates on one-quarter turn of the fastener, including

a first plate having a non-round opening therethrough having an elongated slit portion and a shortened slit portion crossing at substantially a right angle thereto;

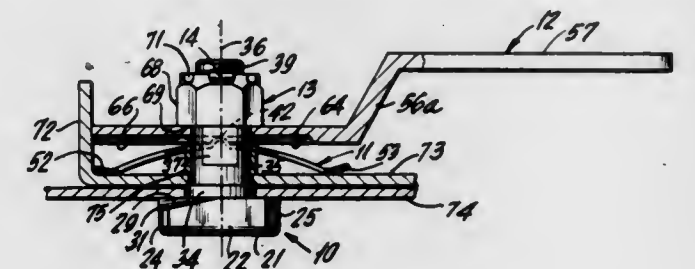
a second plate having an opening therethrough which opening is adapted to align with the opening of the first plate upon locking together the two plates;

a cam bolt member having a head portion having a top face,

a bottom face, a pair of elongated opposite sides and a pair of relatively shortened opposite sides in its width direction at a right angle to said elongated sides so that said elongated opposite sides of said head portion fit through said elongated slit portion in said first plate, said cam bolt member bottom face having at least one cam surface;

said cam bolt member having a shaft portion having at an intermediate position contact means to rotate said shaft, said shaft portion having [adjustment] securing means proximate to its end opposite said head portion;

a spring member of resilient material having a hole through which said shaft protrudes and freely rotates therein, said spring member having a pair of oppositely directed raised detents extending substantially outwardly from said hole;



a turning means having external means to permit the turning means to be rotated, said turning means having means to contact said contact means of said cam bolt shaft so that rotation of said turning means will rotate said cam bolt member, said turning means having a body portion in a plane vertical to the axis of said cam bolt shaft having an upper and a lower face, and a series of indentations in said lower face at a substantially equal spacing, said indentations being outwardly directed from said turning means hole, said detent portions of said spring removably detenting in said indentations; and

a fastening member having fastening means which is [removably] attached onto said [adjustment] securing means of said cam bolt member; said spring member exerting pressure between said turning means and said second plate.

Re. 31,107

FEEDBACK SHAFT EXTENDING BETWEEN SWASHPLATE AND DISPLACEMENT CONTROL VALVE

John J. Kass, Dubuque, and Donald O. Johannsen, Sherrill, both of Iowa, assignors to Deere & Company, Moline, Ill.
Original No. 4,229,144, dated Oct. 21, 1980, Ser. No. 967,368,
Dec. 7, 1978. Application for reissue Jan. 19, 1981, Ser. No.
226,574

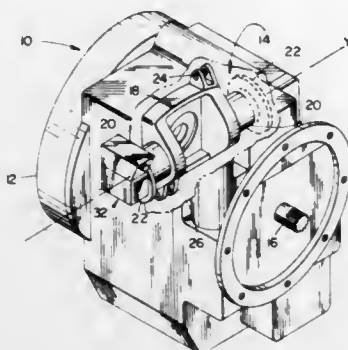
Int. Cl.³ F04B 49/00, 1/30

U.S. Cl. 417—222

3 Claims

13. In a control for selectively adjusting a swashplate, of an axial piston pump or motor, angularly about a first axis and including a hydraulic actuator means coupled to the swashplate and located together within a transmission housing; a normally balanced control valve located exteriorly of the housing and connected to the actuator means, to a sump defined by the housing and to a source of fluid pressure and normally blocking the actuator means from the sump and source of fluid pressure, a control input means connected to the control valve for selectively effecting an unbalanced condition wherein fluid pressure is routed to the actuator means to cause the latter to effect a preselected change in the angular position of the swashplate, and a feedback shaft connected between the swashplate and the control valve for restoring

the latter to its balanced condition upon the swashplate undergoing said preselected change in angular position about said axis, the improvement residing in said feedback shaft and including a fluid passage extending lengthwise through the feedback shaft and serving as the sole fluid connection between the control valve and



the sump and a check valve located in said drain passage for preventing fluid from flowing from the housing toward the control valve whereby the control valve may be disconnected from the feedback shaft and removed for servicing without a substantial amount of fluid being lost from the housing.

Re. 31,108

APPARATUS FOR MONITORING CHEMICAL REACTIONS AND EMPLOYING MOVING PHOTOMETER MEANS

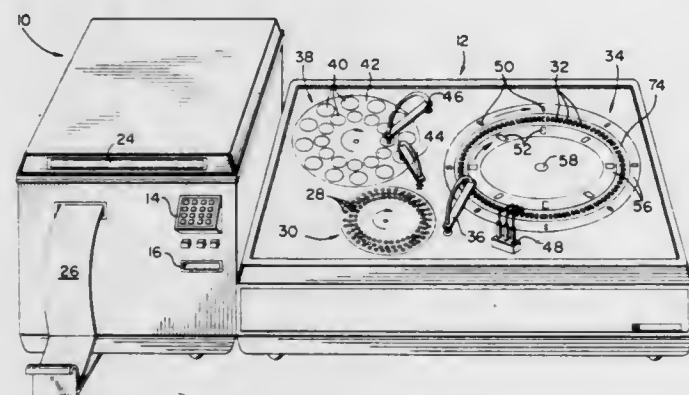
Guenter Ginsberg, Miami, Fla.; Thomas Horne, Harpenden, England, and Robert L. Kreiselman, Melbourne, Fla., assignors to Coulter Electronics, Inc., Hialeah, Fla.

Original No. 4,234,540, dated Nov. 18, 1980, Ser. No. 69,256, Aug. 24, 1979. Continuation of Ser. No. 846,337, Oct. 8, 1977, Pat. No. 4,234,538, which is a continuation-in-part of Ser. No. 808,166, Jun. 20, 1977, abandoned. Application for reissue Aug. 27, 1981, Ser. No. 296,779.

Int. Cl.³ G01N 21/24, 1/14

U.S. Cl. 422-64

15 Claims



1. Apparatus for monitoring chemical reactions occurring in a plurality of liquid or the like sample substances carried [in] by a plurality of respective [cuvettes whose walls are at least to some extent capable of transmitting radiant energy] sample support members which comprises:

- A. support means,
- B. a rotor and a turntable mounted coaxially on the support means and capable of rotation relative to the support means and relative to one another, one of said rotor and turntable being journaled on the other, said other being journaled on said support means,
- C. a plurality of [radiant energy transmissive cuvettes] sample support members mounted to the turntable and disposed in a circular arrangement about said axis and adapted to have sample substances producing chemical reactions carried [in] by at least some of said [cuvettes] sample support members,
- D. first drive means for rotating the turntable on its axis in a first program of rotation whereby the [cuvettes] sample

support members describe an annular path as the turntable rotates,

E. second drive means for rotating the rotor on said axis in a second program of rotation in which the number of total revolutions of the rotor for a given period of time is greater than the number of revolutions of the turntable for the same period of time,

F. photometer means mounted on the rotor and defining at least one beam path for radiant energy which extends at least through said annular path such that the beam path includes and traverses at least a portion of the sample substance which may be [contained in] carried by any of said [cuvettes] sample support members which intersects such beam path during rotation of the turntable or rotor,

G. the photometer means including means responsive to any radiant energy projected along said beam path to produce electrical signals as the [cuvettes] sample support members intersect the beam path, which signals are related to chemical conditions of the sample substances, if any, which may be [contained in] carried by said [cuvettes] sample support members,

H. means for generating usable data from any such signals and

I. means for coupling at most all of the electrical signals from said photometer means to said data generating means.

Re. 31,109

SINGLE MAGNETIC STRAY FIELD SENSOR WHOSE SIGNALS ARE DIFFERENTLY ATTENUATED IN TWO CHANNELS AND THEN COMPARED

Friedrich M. O. Förster, In Laisen 70, and Alfons Kalisch, Fliederweg 3, both of D-7410 Reutlingen 1, Fed. Rep. of Germany

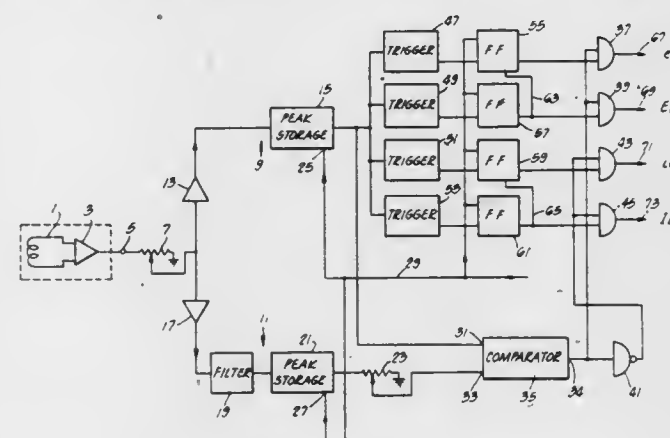
Original No. 4,117,403, dated Sep. 26, 1978, Ser. No. 780,401, Mar. 23, 1977. Application for reissue Jun. 23, 1980, Ser. No. 162,051

Claims priority, application Fed. Rep. of Germany, Mar. 25, 1976, 2612697

Int. Cl.³ G01N 27/82

U.S. Cl. 324-240

12 Claims



4. Apparatus for defects testing of metal tube, comprising: means for magnetizing the tubes;
- a single magnetic sensing element scanning the tube surface and producing signals responsive to defects in the tubes;
- a first channel connected to the single sensing element, said channel including first signal storage means;
- a second channel connected to the single sensing element, said second channel including filter means and a second signal storage means connected with the filter means, said filter attenuating the signals of external defects and internal defects to a different degree; and
- said signal storage means consisting of analog storage elements and the outputs of the first and second channels being connected to a comparator.

PLANT PATENTS

GRANTED DECEMBER 21, 1982

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,966

BLACK WALNUT TREE

Walter F. Beineke, West Lafayette, Ind., assignor to Purdue Research Foundation, West Lafayette, Ind.

Filed Apr. 16, 1981, Ser. No. 254,906

Int. Cl.³ A01H 5/03

U.S. Cl. Plt.—32

1 Claim

1. A new and distinct variety of black walnut tree substantially as illustrated and described, which has good timber quality, is very fast growing, has fair central stem tendency, earlier than average in time of leafing, pistillate flowers early, pollen sheds mid-season, produces abundant annual crops of large-size nuts; averages 2 per cluster, the percentage of weight of kernel to nut averages approximately 17 percent; nut bearing begins early in life of tree.

4,967

CHRYSANTHEMUM NAMED DARK WESTLAND

Jacques C. M. van der Knaap, De Lier, Netherlands, assignor to Pan American Plant Company, Parrish, Fla.

Filed Jun. 12, 1981, Ser. No. 272,971

Int. Cl.³ A01H 5/00

U.S. Cl. Plt.—76

1 Claim

1. A new and distinct variety of chrysanthemum plant, substantially as herein shown and described, characterized by the spider form of its flowers with quill-shaped ray florets which are of a darker color than that of its parent and having a much better color retention character.

PATENTS

GRANTED DEC. 21, 1982

ERRATA

For CLASS	See PATENT NO.
419-026	4,364,162
604-096	4,364,394
604-010	4,364,395
181-120	4,364,446
525-127	4,364,860
548-567	4,364,867
378-049	4,365,155
378-084	4,365,156
378-099	4,365,161
378-170	4,365,162

PATENTS

GRANTED DECEMBER 21, 1982

GENERAL AND MECHANICAL

4,364,123 COMBINATION SUN SHADE AND ARTICLE CARRY-ALL

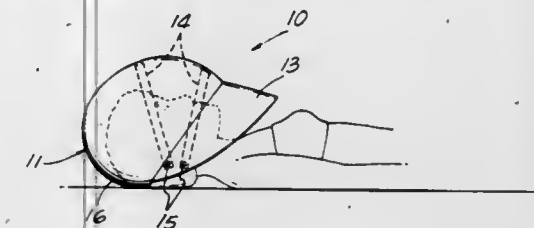
Doris L. Sam, 927 Fernrest Dr., Harbor City, Calif. 90710

Filed Nov. 17, 1980, Ser. No. 207,207

Int. Cl.³ A42B 1/06

U.S. Cl. 2—209.1

5 Claims



1. A sun bathing accessory having an elongated scoop-like main body of opaque plastic material shaped and sized to accommodate and shade the head of a sunbather, said main body having a cup-shaped chamber at the rear end thereof substantially larger than the user's head and coiffeur and provided with a canopy at its forward end adapted to overlie and shade the user's face and neck, and carrying handle means extending crosswise of the midlength of said main body for use in stowing and carrying said accessory and personal articles placed therein when said accessory is not in use as a sunshade.

4,364,124 TROUSER FLY CONSTRUCTION

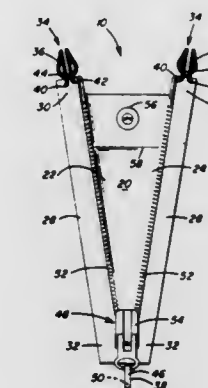
Alex J. Barna, 1216 Crawford St., Duquesne, Pa. 15110

Continuation-in-part of Ser. No. 128,903, Mar. 10, 1980, Pat. No. 4,259,750. This application Apr. 1, 1981, Ser. No. 250,014

Int. Cl.³ A41D 1/06

U.S. Cl. 2—234

10 Claims



1. An article of wearing apparel comprising, a trouser construction including a waist portion with a fly attached thereto, closure means associated with said fly for opening and closing said fly, a flap portion connected to said waist portion for movement into and out of position overlying said closure means, said flap portion having an outer surface and an inner surface overlying said closure means to conceal said closure means when said fly is closed, imitation closure means secured to said flap portion outer surface for stimulating the appearance of said trouser construction having said fly in an open position, and said imitation closure means including fastener elements secured to said flap portion outer surface in spaced relation to form with said flap portion an imitation open fly construction overlying and concealing said fly.

8. A method of making a trouser construction comprising the steps of, positioning a zipper assembly on the outer surface of a trouser flap portion that overlies and conceals a trouser fly, twisting a pair of material strips each supporting a row of zipper teeth, positioning the twisted material strips in abutting relation and between the rows of zipper teeth extending the length of the material strips, securing the abutting material strips to the outer surface of the trouser flap portion, and extending the rows of zipper teeth in spaced relation from the upper ends of the zipper teeth toward one another to the lower end of the zipper teeth at the bottom of the trouser flap portion to simulate a trouser fly in an open position.

4,364,125 STIFFENING INSERT FOR WEARING APPAREL

Erich de Riz, Heppenheim, and Wolfgang Ringel, Rimbach, both of Fed. Rep. of Germany, assignors to Firma Carl Freudenberg, Weinheim, Fed. Rep. of Germany

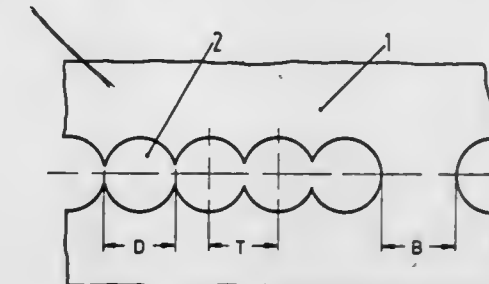
Filed Mar. 24, 1981, Ser. No. 247,056

Claims priority, application Fed. Rep. of Germany, Apr. 10, 1980, 3013764

Int. Cl.³ E03D 11/00

U.S. Cl. 2—255

8 Claims



1. A stiffening insert for wearing apparel, which comprises: a stiff, flat material having an outline appropriate for the wearing apparel and having at least one series of internal multiple openings parallel to the long axis of the material, wherein each opening is defined by a set of circular holes which overlap each other, and wherein the portions of material between adjacent openings of a series have widths which are smaller than twice the diameter of the circular holes.

4,364,126 HEART VALVE WITH REMOVABLE CUSP PROTECTOR BAND

Jonathan J. Rosen, Fountain Valley; George M. Acosta, Long Beach, and Christopher J. Bowman, Newport Beach, all of Calif., assignors to Vascor, Inc., Anaheim, Calif.

Filed Jul. 28, 1981, Ser. No. 287,606

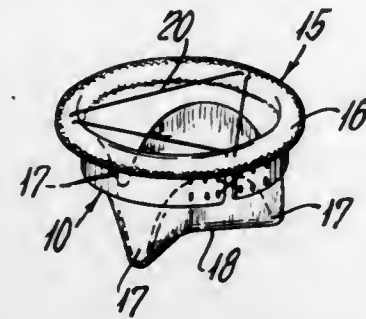
Int. Cl.³ A61F 1/22

U.S. Cl. 3—1.5

18 Claims

1. In a prosthetic heart valve comprising a cylindrical stent, sheet material overlying the stent and extending inwardly to form a closure within the confines of said stent, and a sewing

cushion encircling the stent at one end thereof, the improvement comprising a removable protective band circumscribing the artificial foot, and means responsive to said last mentioned means for varying the vertical position of said instep simulating



the stent and overlying the sheet material immediately adjacent said sewing cushion.

4,364,127

TRILEAFLET TYPE PROSTHETIC HEART VALVE

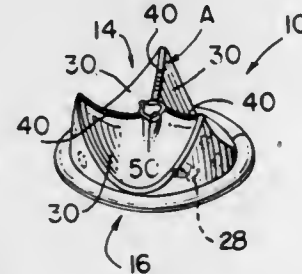
William S. Pierce, Hummelstown; Craig B. Wisman, Harrisburg, and James H. Donachy, Annville, all of Pa., assignors to Research Corporation, New York, N.Y.

Filed Oct. 2, 1981, Ser. No. 308,168

Int. Cl.³ A61F 1/22

U.S. Cl. 3—1.5

6 Claims



1. A prosthetic trileaflet type heart valve comprising:
 1. a frame having a ring shaped base and three upstanding struts;
 - said base further provided with a groove in its external surface to receive a thin fabric or the like suture element;
 2. a one piece membrane formed on said frame to provide three leaflets of the valve;
 - said formed leaflets being heat set in a partially open position to reduce the pressure required to open the leaflets by blood flowing through the prosthetic valve.

4,364,128

ARTIFICIAL FOOT

Thomas A. Mummert, Toledo, Ohio, assignor to Jobst Institute, Inc., Toledo, Ohio

Filed Aug. 31, 1981, Ser. No. 297,996

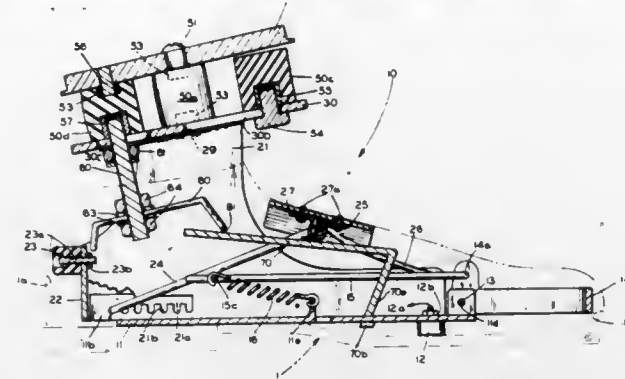
Int. Cl.³ A61F 1/08

U.S. Cl. 3—6.1

13 Claims

10. An artificial foot adapted for insertion in a conventional shoe comprising, in combination: a sole plate insertable in the bottom portions of a shoe, upstanding means secured to said sole plate for simulating the ankle portions of a foot, means for attaching said ankle simulating means to a prosthesis attachable to the leg stump, an instep simulating member, linkage means for positioning said instep simulating member in a plurality of vertical positions relative to said sole plate, means for longitudinally varying the point of securement of said ankle simulating means to said sole plate to change the effective length of

means in direct proportion to the effective length of the artificial foot.



4,364,129

WATER SAVING FLUSH SYSTEM

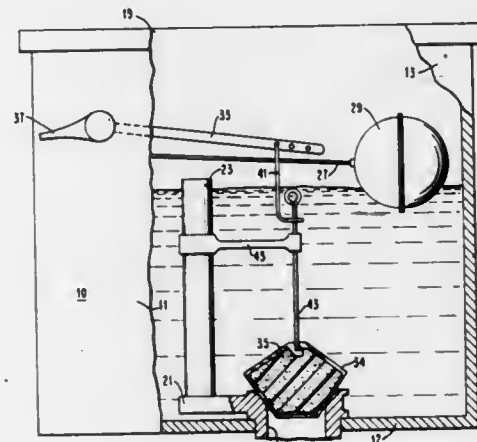
John S. Schonger, R.D. 1 Box 231A, West Hurley, N.Y. 12491

Filed Dec. 12, 1977, Ser. No. 859,677

Int. Cl.³ E03D 1/14

U.S. Cl. 4—324

5 Claims



1. A toilet tank flushing assembly operable to discharge a controlled volume of water from a flush tank into a toilet bowl in accordance with the quantity and nature of the waste material to be flushed from the bowl comprising, in combination:
 - a flush tank,
 - a handle mounted on said flush tank,
 - a valve seat disposed in the exit port of said tank,
 - a flush valve adapted to engage said valve seat and thereby close said tank exit port,
 - said flush valve having a substantially hollow interior portion with an opening in the bottom thereof,
 - said interior portion of said flush valve including a water absorbing material adapted to modify the weight of said valve by controlling the amount of water admitted through said bottom portion of said flush valve, and
 - a manually operated lever assembly connecting said handle to said flush valve,
 - said modified flush valve being adapted to control the buoyancy of said float valve when said float valve is lifted from said valve seat and thereby control the reseating of said flush valve when said handle is released.

4,364,130

CONTAINER FOR DECOMPOSABLE MATERIAL SUCH AS EXCREMENT

Nils C. Persson, Östersund, Sweden, assignor to Inventor Invest AB, Östersund, Sweden

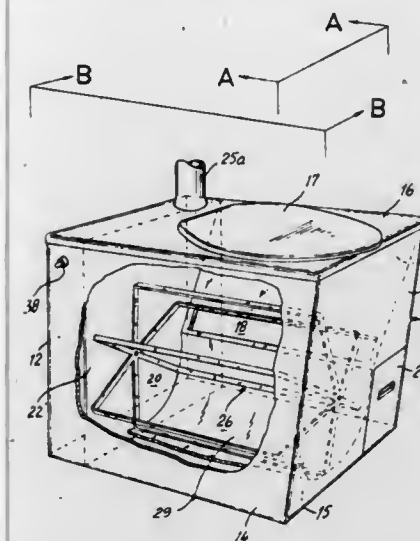
Continuation of Ser. No. 198,018, Jul. 7, 1980, abandoned. This application Jan. 7, 1982, Ser. No. 337,992

Claims priority, application Sweden, Nov. 6, 1978, 7811469; Feb. 1, 1979, 7900891

Int. Cl.³ A47K 11/02

U.S. Cl. 4—449

9 Claims



1. A container for decomposable material such as excrement, comprising a composting chamber (20) with two end walls (11, 12) and a curved bottom (29) the surface of which substantially coincides with a rotational surface, there being a stirring means (26) rotatably mounted and driven by an electric motor (24) and provided with a plurality of stirring members which, during the rotation of the stirring means, move a portion of the composting material (27) along the bottom of the composting chamber, there being an emptying opening (18) in the curved bottom for discharging at least partially decomposed material to a collection container (21), characterized in that the rotational direction of the electric motor (24) and the stirring means (26, 26a), respectively, is reversible by means of switch means (38) so that, in the normal direction of rotation of the stirring means, feeding takes place in a direction from the top of the emptying opening and downwards, while discharge of at least partially decomposed material takes place by reversing the direction of rotation so that material is fed along the bottom (29) of the container and up to the emptying opening (18) and out through the latter to the collection container (21), and that the stirring members include bar-shaped members (13b-13f, 50) extending between the end walls along a rotational surface substantially concentric with the bottom surface (29), said rotational surface lying close to the bottom surface, the cross-section of each bar-shaped member having a width which is substantially greater than the radial thickness of the bar-shaped member.

4,364,131

LIQUID RESERVOIR

Robert C. Clerk, 46, Cullen Dr., Glenrothes, Fife, Scotland (KY6 2JJ)

Filed Aug. 15, 1980, Ser. No. 178,681

Claims priority, application United Kingdom, Aug. 17, 1979, 7928712

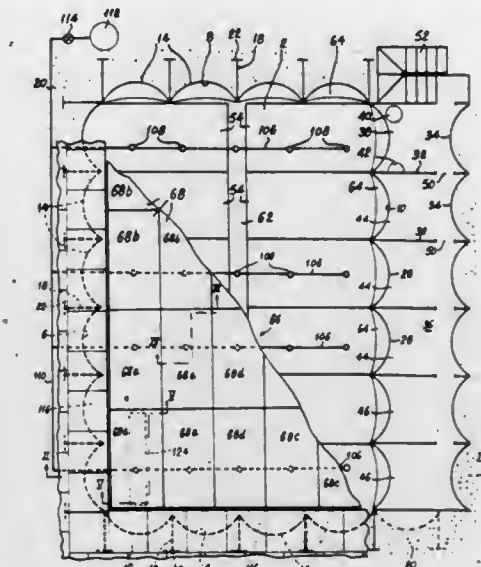
Int. Cl.³ E04H 3/16, 3/18

U.S. Cl. 4—495

15 Claims

1. A liquid reservoir comprising an open-topped container having at least one side wall, a first floor fixed relative to said at least one side wall and a second floor above the first floor which is able to move upwardly and downwardly relative to said at least one side wall,

said wall and floors being of a rigid material which is water impermeable, said second floor comprising a plurality of downwardly-open compartments, means for varying the specific gravity of the second floor between a first value less than and a second value greater than the specific gravity of the liquid in the reservoir, said specific gravity-varying means comprising means for supplying gas under pressure into said downwardly-open compartments, at least one trimming tank mounted on in



- one of said downwardly-open compartments of the second floor and means for introducing liquid from the reservoir into said at least one trimming tank and for displacing liquid from said at least one trimming tank to control the inclination of said second floor, and at least one passageway between first and second spaces in the container situated respectively above and below the second floor enabling liquid to flow from one end of said spaces to the other when the height of said second floor is adjusted relative to the first floor employing said specific gravity-varying means.

4,364,132

AQUARIUM BATH

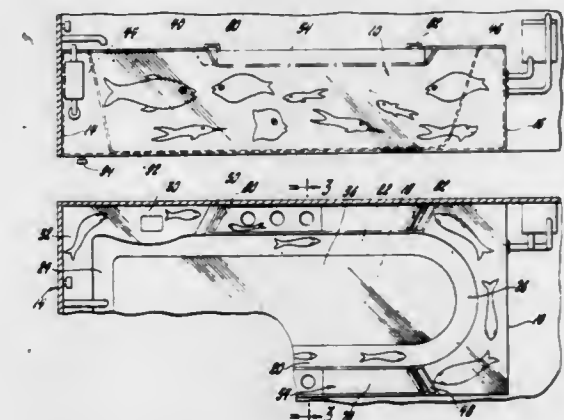
Lawrence D. Robinson, 11077 Minden, Detroit, Mich. 48205

Filed Aug. 29, 1980, Ser. No. 182,818

Int. Cl.³ E03C 1/20; A47K 3/02

U.S. Cl. 4—546

9 Claims



1. An aquarium bath comprising:
 - a tub having inner front, rear, and side walls united to form a bathing compartment;
 - said tub further having outer front, outer rear and outer side walls;
 - a ledge extending along the upper perimeter of at least said inner and said outer front walls and of said side walls;
 - a base extending between and uniting the outer and inner front and side walls and the outer and inner rear walls;

said walls, said base and said ledge being united to form a continuous water tight water chamber between at least said inner front and inner side walls and said outer front and outer side walls; and
an access and aeration means for said water chamber including a cover in said ledge formed between one of said outer walls and said bathing compartment to provide for admission of air to the water in said chamber and for servicing said chamber while water is contained in said chamber.

4,364,133

CAMPER DOOR AND SHOWER SYSTEM

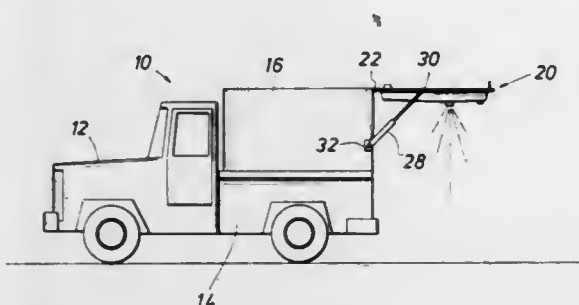
Barbara A. Gunter, 253 E. Sunnyside, Houston, Tex. 77076

Filed Aug. 13, 1981, Ser. No. 292,589

Int. Cl.³ A47K 3/22

U.S. Cl. 4-617

8 Claims



1. In a camper vehicle used for recreational purposes, the improvement comprising:

a water storage tank being pivotally connected to the exterior portion of said camper vehicle and defining a water storage chamber, said water storage tank being positionable to a substantially horizontal position and a substantially vertical position, when in the vertical position said water storage tank defines a door for said camper vehicle, and
shower head means being secured to said water storage tank and being in communication with said water storage chamber, said shower head means being manually controllable to drain water from said water tank means by gravity to enable a person standing beneath said horizontally positioned door to take a shower bath.

4,364,134

BED CONSTRUCTION

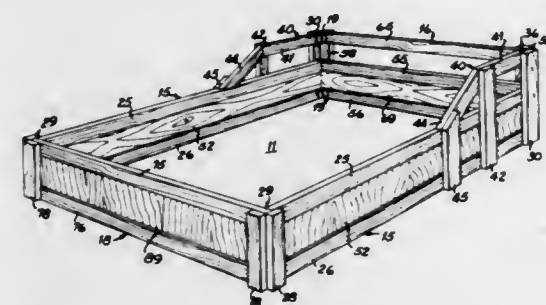
Robert J. Marks, 3450 SW. 126th Ave., C.B. 152, Miramar, Fla. 33027

Filed Sep. 24, 1979, Ser. No. 77,923

Int. Cl.³ A47C 19/12, 27/15

U.S. Cl. 5-201

9 Claims



1. A bed construction adapted to be supported on a generally horizontal floor surface comprising:

a frame assembly defining a generally vertically extending open top mattress receiving opening therethrough having a prescribed opening length and a prescribed opening width so that, when said frame assembly is supported on the floor surface, said mattress receiving opening extends

from the floor surface through said frame assembly to a prescribed opening height at the open top thereof;
a resilient foundation having a size and shape complementary to the size and shape of said mattress receiving opening removably received in said mattress receiving opening in said frame and supported on the floor surface, said frame assembly confining said foundation against movement in all directions parallel to the floor surface to maintain said foundation in position on the floor and said foundation having a foundation height less than said prescribed opening height so that, when said foundation is positioned within said mattress receiving opening and supported on the floor surface, the top of said foundation lies below the open top of said mattress receiving opening; and
a resilient mattress having a size and shape complementary to the size and shape of said mattress receiving opening with a prescribed mattress length greater than said prescribed opening length and a prescribed mattress width greater than said prescribed opening width such that said mattress can be forced into said mattress receiving opening by compressing said mattress so that said mattress is positively restrained against lateral movement by said frame assembly while being removably received in said mattress receiving opening in said frame assembly on top of and supported on said foundation so that a person is resiliently supported on top of said mattress by the combined resiliency of said mattress and said foundation, said frame assembly confining said mattress against movement in all directions parallel to the floor surface to maintain said mattress in position on top of said foundation and said mattress having a mattress height greater than the difference between said foundation height and said opening height so that, when said mattress is positioned on top of said foundation within said mattress receiving opening, said mattress projects above the top of said mattress receiving opening.

4,364,135

ORTHOPEDIC DEVICE TO PREVENT DISTORTION OF INFANT'S FEET

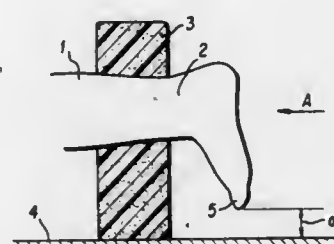
Monika Emmerich nee Giesche, Wildwechsel 4, 3167 Burgdorf-Ehlershausen, Fed. Rep. of Germany

Filed Nov. 28, 1980, Ser. No. 211,178

Int. Cl.³ A61F 5/00; A47G 9/00

U.S. Cl. 5-443

4 Claims



1. An orthopedic device which permits the wearer to retain full range of motion by his ankle when his knee bears against an underlying supporting surface and his feet are pointed naturally downwardly, the device comprising: a body composed of a relatively compressible material and having the configuration of a cylinder which has a greater diameter than its thickness; an opening extending through said thickness of said cylinder, said opening being so dimensioned that the device can be placed over the wearer's foot and worn by him at a location above the foot proximate his ankle in a comfortable manner and cannot be readily dislocated by him when his knee bears against an underlying supporting surface with his leg between the knee and ankle being generally parallel to such supporting surface; the dimension of said body from said opening to said body's periphery being sufficient that said periphery is spaced beyond the wearer's toes when said body is compressed by the wear-

er's weight thereon between said opening and said periphery proximate the wearer's toes which therefore do not touch the underlying supporting surface.

4,364,136

FORMATION OF THREADED ELEMENTS HAVING A SELF-LOCKING ACTION

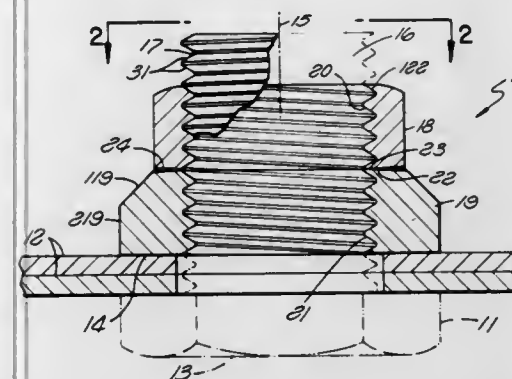
Mark Hattan, Orange, Calif., assignor to William P. Green, Pasadena, Calif., a part interest

Filed Dec. 2, 1980, Ser. No. 212,228

Int. Cl.³ B21D 53/24

U.S. Cl. 10-86 A

9 Claims



1. The method of forming a fastener that comprises: positioning two elements having similar internal threads on an external thread which is dimensioned to fit said internal threads loosely, in a relation allowing each of said elements if engaged individually with the external thread to shift axially relative thereto through a substantial distance without relative rotation or deformation of the engaged threads;

locating said two elements on said external thread in predetermined relative positions in which they are turned so that their internal threads are not true helical continuations of one another, and in which said two elements limit axial and rotary movement of one another and their threads bear in opposite axial directions against the external thread to eliminate looseness between the threads; attaching said two elements together while in said predetermined relative positions on said external thread; and removing the two attached elements from said external thread as a composite integrated unit adapted to have an interfering fit with a threaded part of predetermined size.

4,364,137

RELEASABLE LOCKING DEVICE

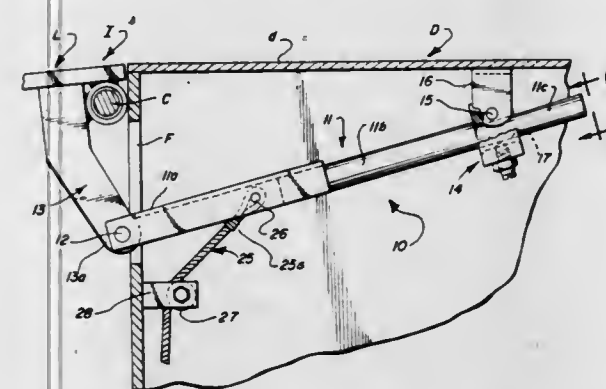
Norbert Hahn, Cudahy, Wis., assignor to Rite-Hite Corporation, Milwaukee, Wis.

Filed Oct. 31, 1980, Ser. No. 203,614

Int. Cl.³ E01D 1/00

U.S. Cl. 14-71.3

9 Claims



1. A device for releasably locking one member of a pair of hingedly connected members in a predetermined extended first

position relative to the second member of the pair, the one member being adapted to normally assume a predetermined second position relative to the second member; said device comprising an elongated rodlike element having one end portion thereof adapted to be pivotally connected to the one member at a location spaced from the hinge connection between the pair of members, said element being provided with an elongated first section disposed adjacent the pivotally connected one end portion and an elongated second section extending longitudinally from said first section, said second section having a smaller circumferential dimension than said first section and corresponding exterior segments of said first and second sections coacting to form a beveled shoulder at least partially encompassing the exterior of said second section; guide means adapted to be adjustably connected to the second member and spaced from the member hinge connection, said guide means being provided with an open-ended passageway through which the sections of the rodlike element slidably extend upon relative movement of the one member, the end of the passageway closest to the pivotally connected end portion of said rodlike element being provided with a beveled surface at least partially delimiting the passageway end, the beveled surface and the beveled shoulder frictionally engaging one another and resisting a predetermined force urging relative movement of the one member from the predetermined first position to the second position; biasing means carried by said guide means and exerting a resilient force on said rodlike element causing the latter to laterally shift relative to the guide means passageway only when the second section of the element is aligned within the passageway; and means engaging said rodlike element for applying a predetermined external force thereto effecting endwise movement of said element relative to said guide means and movement of the one member from the predetermined second position to the predetermined first position.

4,364,138

AUTOMATIC FLOOR CLEANING MACHINE WITH REMOVABLE DRIVE CARRIAGE

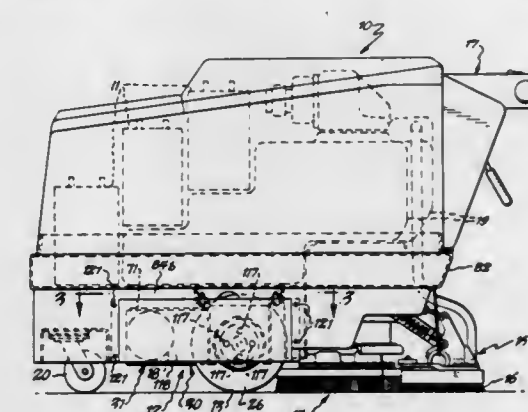
Steven J. A. Waldhauser, and Richard D. Masbruch, both of Lewiston, N.Y., assignors to Wetrol, Inc., Niagara Falls, N.Y.

Filed Nov. 12, 1980, Ser. No. 206,301

Int. Cl.³ A47L 11/18

U.S. Cl. 15-80 R

9 Claims



1. An improved floor cleaning machine of the type having a power source, propulsion means connected to said power source including detachable drive wheels for tracking on the floor surface to be cleaned, scrubber means for wetting and cleaning the floor surface, means including a wiper for drying the cleaned surface, and control means operatively associated with said propulsion means, scrubber means and drying means for controlling actuation of said machine, said machine having a normal operating position, wherein the improvement comprises:

(a) said propulsion means being mounted on a removable carriage which is removably secured to said machine, said

filter compartment having a reduced opening at its lower end, a dust bag removably received in said filter compartment, a removable cover for closing the top end of said main air duct and said filter compartment, means forming an arcuate-shaped air duct within said cover for interconnecting said main air duct with said filter compartment when said cover is in closed position, a lower air duct means supported in said base and connecting said nozzle means with the bottom end of said main air duct, an exhaust air duct connecting the lower end opening in said filter compartment with said suction means, the improvement comprising quick coupling means incorporated in said lower air duct means to remove said lower air duct means for cleaning, a cleanout rod for inserting into said lower air duct means, when dismantled, and said main duct to dislodge clogged debris therein, and wall means forming an open-ended compartment in said upper body for removably receiving said cleanout rod for storage.

4,364,147

APPARATUS FOR REMOVING PARTICLES OF DUST FROM THE SURFACES OF FLAT OBJECTS

Ernst Biedermann, Taufkirchen, and Heinz Rapp, Munich, both of Fed. Rep. of Germany, assignors to Agfa-Gevaert AG, Leverkusen, Fed. Rep. of Germany

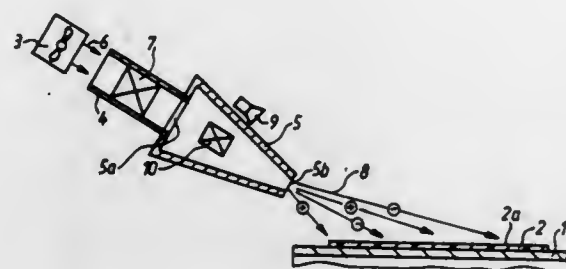
Filed Sep. 19, 1980, Ser. No. 188,678

Claims priority, application Fed. Rep. of Germany, Sep. 26, 1979, 2938863

Int. Cl.³ A47L 5/14

U.S. Cl. 15—404

18 Claims



1. Apparatus for removing particles of dust or similar contaminants from the surface of a substantially flat object, comprising means for generating a pulsating air stream; means for contacting the surface of the object with the pulsating air stream; and a source of ultrasonic radiation arranged to direct such radiation against the surface of the object while the surface is contacted by the pulsating air stream.

4,364,148

COMBINATION CASTOR AND JACK MEANS APPARATUS

Harry J. McVicker, Pottstown, Pa., assignor to Sperry Corporation, New York, N.Y.

Filed Dec. 22, 1980, Ser. No. 219,049

Int. Cl.³ B60B 33/06; F16M 11/24

U.S. Cl. 16—32

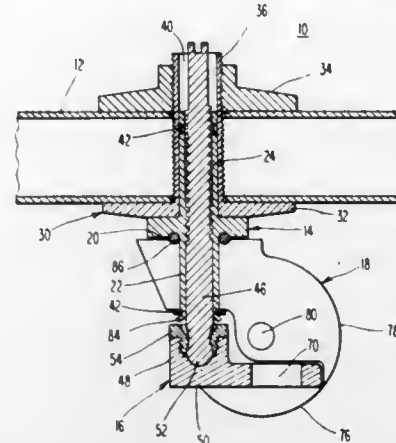
2 Claims

1. A combination castor/jack assembly for supporting a movable frame comprising:

support structure for mounting said assembly to said frame; jack means for fixing the position of said frame in a predetermined position on the floor, said jack means adjustably mounted to said support structure for movement between a remote position and a floor contact position, said jack means comprises a shaft portion and an elongated foot portion movably attached to a first end of said shaft portion for rotation thereabout,

a first end of said shaft portion is ball shaped and said foot portion comprises an opening which is threaded in part and which is formed to receive said ball shaped first end,

said jack means further comprising a threaded tapered nut for holding said ball portion within said opening; and



castor means for enabling rolling movement of said frame when said jack means is in the remote position, said castor means rotatably mounted to said support structure.

4,364,149

VARIABLE-PLAY TAKE-UP JOINT

Alain Debret, Colombes, and Guy Soetaert, Les Clayes sous Bois, both of France, assignors to Regie Nationale des Usines Renault, Boulogne Billancourt, France

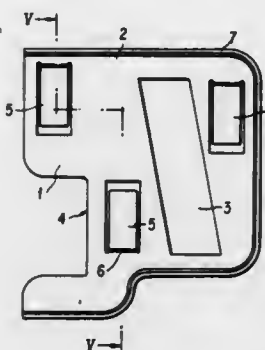
Filed Jan. 21, 1981, Ser. No. 226,849

Claims priority, application France, Feb. 7, 1980, 80 02668

Int. Cl.³ E05D 13/02

U.S. Cl. 16—87 R

4 Claims



1. A variable play take-up joint adapted to be positioned between a support element and a mounted part attached to said support element along a plane different from the plane of said joint, said joint comprising:

a planar member;
a slot in said planar member for the passage of a portion of said mounted part;
at least three elastic play take-up tongues fixed to said planar member for biasing said planar member towards said support element; and
a peripheral rim on said planar member, the height of said rim being greater than the maximum extension of said tongues from said planar member.

4,364,150

HANDLE FOR LUGGAGE AND THE LIKE

Richard C. Remington, Pompton Plains, N.J., assignor to Kidde, Inc. (Presto Lock Company Division), Garfield, N.J.

Filed Aug. 6, 1980, Ser. No. 175,915

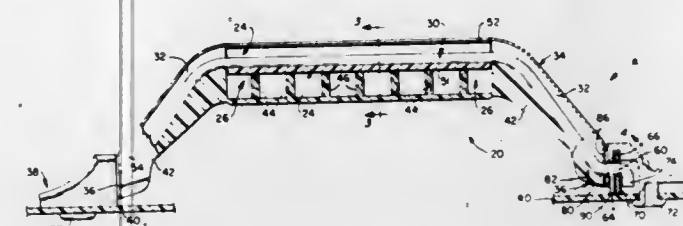
Int. Cl.³ A45C 13/26

U.S. Cl. 16—126

26 Claims

1. A handle for luggage cases and the like comprising a grip formed of resilient material, the grip having a central portion with an interior cavity formed therein and a plurality of resilient members integrally formed on an interior surface of the

grip within the cavity, the members adapted to be deformed when the handle is grasped to allow the central portion to flex to impart a soft feel thereto, and means for mounting the grip on the case and for supporting the weight of the case, the



mounting means comprising a wire form within the grip and the central portion including an insert positioned within the cavity between the resilient members and the wire form, the resilient members being adapted to be deformed by engagement with the insert.

4,364,151

ACCIDENT PREVENTION SYSTEM FOR MACHINES HAVING ONE OR MORE MOVABLE COMPONENTS

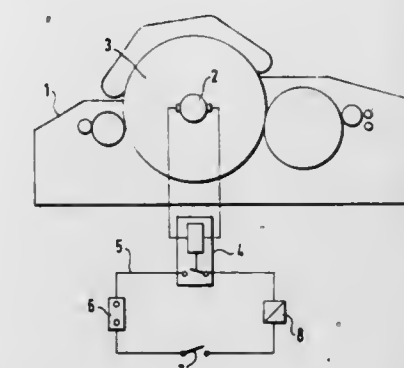
Wolfgang Beneke; Paul Teichmann, both of Monchen-Gladbach, and Wolfgang Schubert, Juchen all of Fed. Rep. of Germany, assignors to Trützschler GmbH & Co. KG, Monchen-Gladbach, Fed. Rep. of Germany

Filed Jul. 22, 1980, Ser. No. 171,821

Int. Cl.³ D01G 31/00

U.S. Cl. 19—0.2

9 Claims



1. In a safety locking system for preventing access to a movable component of a machine during operation thereof, said machine having a cover arranged to assume an open position to permit access to said movable component and a closed position to block access to said movable component; the combination comprising

(a) latching means cooperating with said cover and arranged to assume a latching position preventing said cover from being moved from said closed position to said open position and an unlatching position allowing said cover to be moved from said closed position to said open position;
(b) an electrically energizable actuating element operatively connected with said latching means for setting said latching means from said latching position to said unlatching position upon energization of said actuating element;
(c) an electric energizing circuit connected to said actuating element; said circuit including in series
(1) a voltage source;
(2) a first circuit breaker forming part of a relay and having an open position as long as said relay is energized and a closed position as long as said relay is de-energized;
(3) an arbitrarily operable, normally open second circuit breaker; and
(d) motion detecting means operatively connected with said movable component; said motion detecting means having an output connected to said relay for maintaining said relay energized as long as said movable component is in motion and for maintaining said relay de-energized as long

as said movable component is at a standstill, whereby said latching means is set into said unlatching position solely during standstill of said movable component and a simultaneous closing of said arbitrarily operable, normally open second circuit breaker.

4,364,152

WEB DIVIDING DEVICE

Rudolf Rauschen, and Ludwig Schellen, both of Monchen-Gladbach, Fed. Rep. of Germany, assignors to Trützschler GmbH & Co. KG, Monchen-Gladbach, Fed. Rep. of Germany

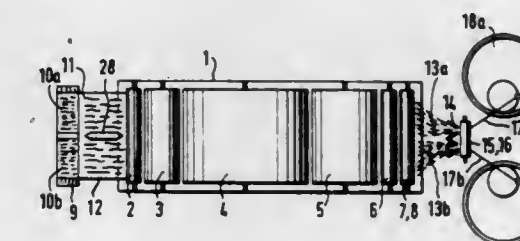
Filed Jun. 23, 1980, Ser. No. 162,390

Claims priority, application Fed. Rep. of Germany, Jun. 23, 1979, 2925397

Int. Cl.³ D01G 15/40, 15/46

U.S. Cl. 19—105

4 Claims



1. In a carding machine including a vertical tuft feed chute, a supply table on which a fiber lap discharged by the feed chute is forwarded in a direction of advance, a carding unit arranged downstream of said supply table as viewed in the direction of advance and receiving said fiber lap from said supply table and discharging a fiber web divided into side-by-side arranged web parts and a plurality of sliver forming trumpets each receiving a separate one of said web parts, the improvement comprising a dividing device having a vertically oriented tuft divider supported in said feed chute, said tuft divider separating said feed chute into vertically extending feed chute parts situated side-by-side as viewed in said direction of advance, whereby said fiber lap discharged by said feed chute is divided into side-by-side positioned fiber lap parts.

4,364,153

APPARATUS FOR REMOVING WASTE FROM A FIBER PROCESSING MACHINE

Wolfgang Beneke; Walter Jäger, and Paul Teichmann, all of Monchen-Gladbach, Fed. Rep. of Germany, assignors to Trützschler GmbH & Co. KG, Monchen-Gladbach, Fed. Rep. of Germany

Filed Sep. 29, 1980, Ser. No. 196,109

Claims priority, application Fed. Rep. of Germany, Dec. 14, 1979, 2950367

Int. Cl.³ D01G 15/82

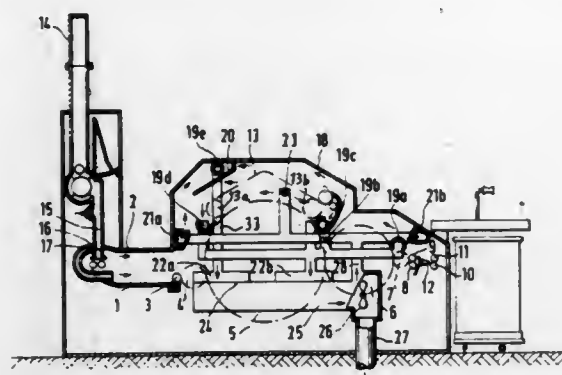
U.S. Cl. 19—107

12 Claims

1. A carding machine having length and width dimensions, comprising in combination:

(a) a plurality of rotary roll and drum components arranged in said length dimension and each having a rotary axis oriented parallel to said width dimension;
(b) a shroud extending along said length dimension and enclosing said components on top and along opposite sides;
(c) a blower head situated in a radial space bounded, at opposite sides of said blower head, by said shroud and a periphery of one of said components; said blower head having a defined blower opening oriented parallel to and extending along substantially the entire width dimension;
(d) air pressurizing means connected to said blower head for introducing pressurized air into said blower head for

discharging said pressurized air through said blower opening;
 (e) a suction head situated in a radial space bounded, at opposite sides of the suction head, by said shroud and a periphery of one of said components; said suction head having a defined suction opening oriented parallel to and



extending along substantially the entire width dimension; said suction head being spaced from said blower head transversely to said width dimension; said blower opening being directed towards said suction head; and
 (f) air withdrawing means connected to said suction head for withdrawing air, flowing in said space from said blower head, through said suction opening.

4,364,154

FALLER BARS

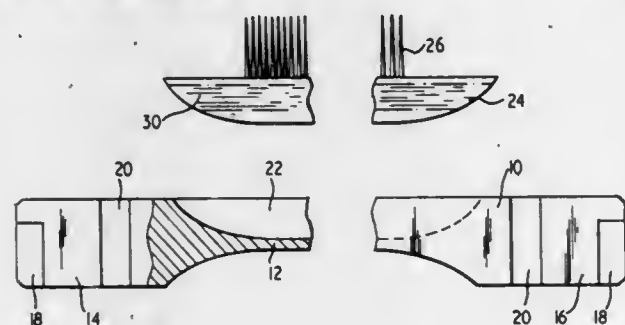
Norman Rushworth, Shipley, England, assignor to Plastex (Bradford) Limited, Bradford, England
 Filed Nov. 6, 1980, Ser. No. 204,468

Claims priority, application United Kingdom, Sep. 26, 1980, 8031073

Int. Cl.³ D01G 5/14

U.S. Cl. 19—129 R

3 Claims



1. A method of manufacturing a pinned strip-type faller bar comprising the steps of:

- applying a hot melt adhesive in molten condition to at least one of the flanks of a pinned plastic strip, the adhesive having a low melting temperature such that in its molten condition the adhesive will not damage the plastic strip;
- allowing the adhesive to solidify on the pinned plastic strip;
- heating the faller bar;
- placing said pinned plastic strip in the groove in said faller bar;
- activating the adhesive by heat derived from said faller bar to cause the strip to adhere thereto.

4,364,155

JEWELRY CLASP

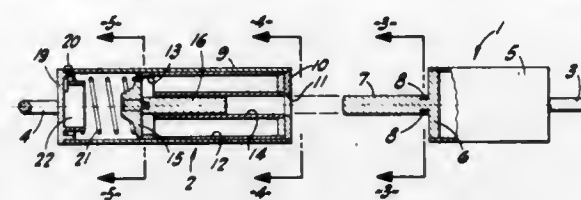
Walter Synowicki, 2016 W. Lodi Ave., Lodi, Calif. 95240

Filed Nov. 3, 1980, Ser. No. 203,272

Int. Cl.³ A44B 19/00

U.S. Cl. 24—217 R

10 Claims



9. A clasp comprising a male unit having a longitudinal body, a female unit having a longitudinal body, the bodies being adapted to be disposed end-to-end, a tongue secured to and projecting from the inner end of the male body, the female body including an inner end wall having a slot configured and adapted for the projection therethrough, in close-fitting but slidable relation, of the tongue when the latter is inserted into the female body upon relative longitudinal movement of the bodies into substantially end abutment, the inner-end portion of the tongue being formed on opposite sides with laterally opening notches, the notches aligning with the inner end wall of the female body when the tongue is inserted thereinto, and mechanism in the female body operative, in response to said insertion of the tongue, to impart limited rotation to the tongue in a direction to seat the adjacent portions of the said inner end wall in the notches whereby to latch the clasp; said mechanism including, within the confines of the female body, spring means operative by torque to impart said limited rotation to the tongue when so inserted.

4,364,156

APPARATUS FOR HEATED PRESSURIZED FLUID STREAM TREATMENT OF SUBSTRATE MATERIAL

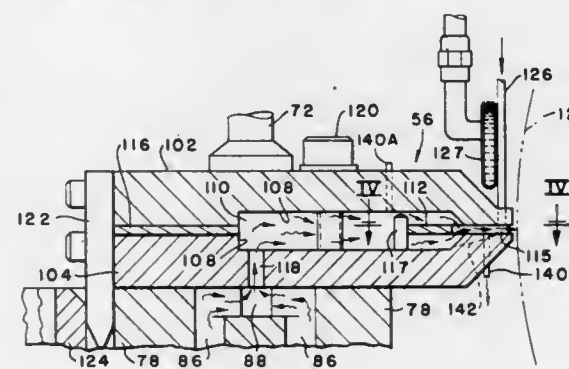
John M. Greenway, Spartanburg, and Jimmy L. Stokes, Moore, both of S.C., assignors to Milliken Research Corporation, Spartanburg, S.C.

Filed Jan. 23, 1981, Ser. No. 227,838

Int. Cl.³ D06C 23/00

U.S. Cl. 26—2 R

5 Claims



1. In apparatus for treating a relatively moving substrate material by application of discrete streams of pressurized heated fluid to selected surface portions of the substrate to impart a visual effect thereto, and including an elongate fluid distributing manifold positioned across the path of relative movement of the substrate, said manifold defining an elongate fluid receiving compartment and a plurality of fluid discharge outlet channels disposed in parallel spaced relation along the compartment to direct discrete streams of pressurized fluid against the surface of the relatively moving substrate, and means for directing pressurized cool fluid into selected of the heated fluid discharge outlet channels to selectively block the passage of heated fluid therethrough; the improvement therewith comprising fluid passage means for directing pressurized heated fluid from said fluid receiving compartment through

wall portions of the manifold adjacent the fluid discharge outlet channels to heat the wall portions adjacent the channels. at one end to the frame and pivotally secured at the other end to a bushing on said roll end, the units being adapted to apply

4,364,157

METHOD FOR APPLYING SIZING TO WARP YARNS

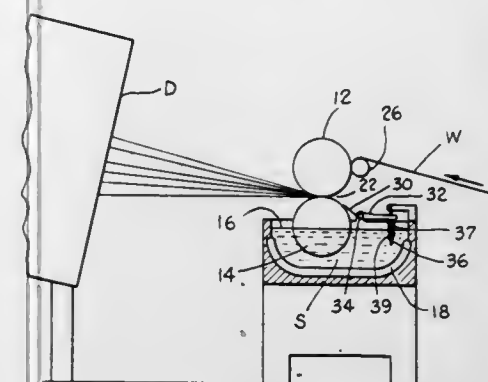
William H. Cutts, Box 748, Clemson, S.C. 29631

Filed Nov. 20, 1980, Ser. No. 208,538

Int. Cl.³ D06B 1/14, 15/00

U.S. Cl. 28—179

10 Claims



1. A method of treating individual textile yarns being supplied from a warp beam which includes the steps of removing the warp yarn ends from the warp beam, subjecting said individual warp yarn ends to a sizing process and drying said warp ends prior to said warp yarns being subjected to a weaving process on a weaving loom, wherein said sizing process comprises:

- providing a sizing material for application to individual warp yarn ends coming from said warp beam;
 - providing a pair of elongated rolls having a nip between which said warp yarn ends are passed;
 - biasing said rolls against one another at said nip;
 - applying said sizing material to the surface of one of said rolls;
 - providing a predetermined metered amount of said sizing material on said one roll at said nip by removing excess sizing material from said one roll prior to reaching said nip and said warp yarn ends; and
 - said predetermined amount of sizing material corresponding to the amount of sizing to be placed on said yarn ends individually generally without any excess;
- delivering said warp yarns coming from said warp beam to said nip of said rolls;
- pressing said predetermined amount of sizing material into said yarns from one side thereof for sizing said individual warp yarn ends without rollback of sizing material on said warp yarn ends,
- whereby said sizing remains substantially on the same side of said warp yarn ends that it was applied and the amount of energy required during subsequent drying of said warp yarn ends is reduced.

4,364,158

ROLL BENDING APPARATUS

Herbert W. Bainton, Woodbridge, Conn., assignor to USM Corporation, Farmington, Conn.

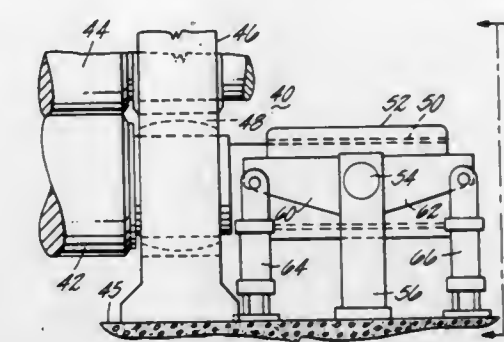
Filed Sep. 2, 1980, Ser. No. 182,875

Int. Cl.³ B21B 13/14

U.S. Cl. 29—116 AD

2 Claims

1. A roll bending apparatus for a calender roll machine comprising: a roll journaled in bearings pivotable in frames to accommodate bending of the roll, means acting on at least one end of the roll for inducing a couple to bend the roll carried by the bearings, the couple inducing means comprising a pair of pressurizable piston and cylinder units each pivotally secured



oppositely directed forces to effect the couple on the roll without adding any appreciable load to said bearings.

4,364,159

METHOD FOR MANUFACTURING A FORGED PISTON WITH REINFORCED RING GROOVE

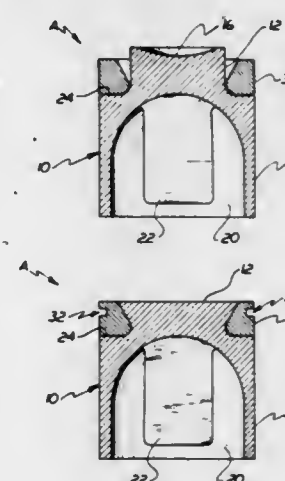
W. Philip Holcombe, Chagrin Falls, Ohio, assignor to TRW Inc., Cleveland, Ohio

Filed Jul. 14, 1980, Ser. No. 167,850

Int. Cl.³ B23P 15/10

U.S. Cl. 29—156.5 R

13 Claims



1. An improved method of producing an aluminum alloy piston having a ferrous ring reinforcement comprising the procedural combination of steps of:

- providing a generally cylindrical aluminum alloy piston slug having an annular shoulder between the head end and the skirt with the smaller diameter of the annular shoulder defining the outer diameter of the head end and the shoulder defining an annular surface transverse to the axis of the piston slug,
- solution heat treating the aluminum alloy piston slug, rapidly cooling the solution heat-treated piston slug to create a super-saturated aluminum alloy solid solution,
- preheating a ferrous ring to a temperature which is higher than the head end temperature during use of the piston in an engine to expand the ring temporarily and to provide an inner ring diameter larger than the outer diameter of the head end,
- preheating the cooled, solution heat-treated piston slug to a working temperature which is lower than the head end temperature during use of the piston in an engine,
- telescoping the preheated and temporarily expanded ferrous ring on the head end of the preheated piston slug against the shoulder and
- forging to cause the super-saturated aluminum alloy solid solution to flow axially and transversely to the axis of the piston slug against the preheated and temporarily expanded ferrous ring.

4,364,160

METHOD OF FABRICATING A HOLLOW ARTICLE

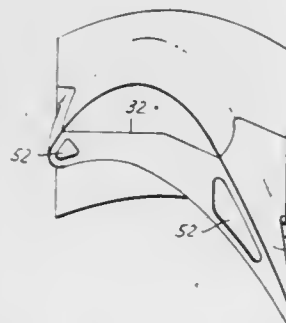
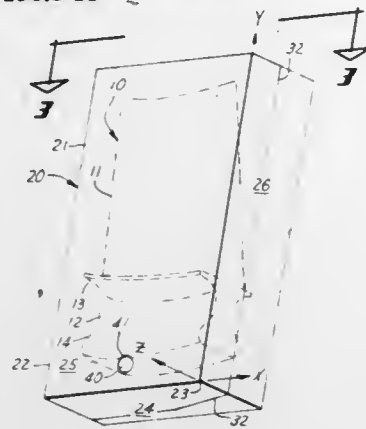
James E. Elsworth; Louis Lievestro, both of West Chester; Richard C. Haubert, and Harvey M. Maclin, both of Cincinnati, all of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Nov. 3, 1980, Ser. No. 203,176

Int. Cl.³ B23P 15/04, 13/00

U.S. Cl. 29—156.8 H

16 Claims



1. A method of fabricating a hollow article having an airfoil portion and a base portion, said airfoil portion including a convex side, a concave side, a leading edge and a trailing edge, comprising the steps of:

- forming a solid piece of material having dimensions greater than or equal to the dimensions of said article and including upper and lower portions corresponding to said airfoil and base portions respectively of said article;
- establishing at least one reference datum on said piece of material;
- cutting said piece of material into two parts, the path of the cut extending through said piece of material from said upper portion to said lower portion and defining complementary adjacent surfaces of the two parts, each of said adjacent surfaces comprising only two planar surfaces which intersect along a generally longitudinally extending axis at an angle to each other for facilitating alignment in step (f);
- establishing aligning means for said adjacent surfaces of said two parts;
- separating said two parts and forming at least one cavity in at least one of said adjacent surfaces for defining a hollow interior of said article;
- aligning said adjacent surfaces of said two parts by means of said aligning means and by abutting said complimentary adjacent surfaces of said two parts;
- fastening said two parts together; and
- forming external surfaces of said upper portion of said article utilizing said reference datum as a positional reference to form said airfoil portion having said convex side, said concave side, said leading edge and said trailing edge so that said path of said cut intersects only said convex side at points spaced from said leading edge and said trailing edge.

4,364,161

METHOD OF FABRICATING A HIGH PRESSURE TANK

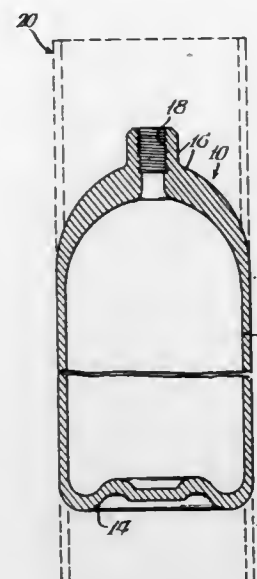
Russell C. Stading, Elgin, Ill., assignor to The Marison Company, South Elgin, Ill.

Filed Dec. 29, 1980, Ser. No. 221,168

Int. Cl.³ B23P 17/00; B23Q 17/00; B23K 31/00

U.S. Cl. 29—407

2 Claims



1. A method of fabricating and testing a tank for storing and transporting high pressure gases comprising the following steps:

- providing a steel strip formed into a substantially closed curve configuration with the longitudinal margins thereof in an aligned and adjacent relationship and effecting an electrical resistance seam weld along said adjacent margins to form a length of seam welded tubing;
- ultrasonically examining the weld region of the tubing for voids and lack of fusion to 5 percent of the tubing thickness;
- effecting a final forming of the tubing to a desired diameter and then subjecting the circumference of the finally formed tubing to a flux leakage test for flaws and critical defects;
- hydrostatically testing said tubing for paste-welding;
- hot spinning the finally formed tubing to form a tank with a cylindrical sidewall, a bottom, and a neck;
- heat treating said tank;
- shot blasting said tank;
- non-destructively testing said tank with ultrasonic and eddy current techniques to verify that the heat treatment is uniform and proper, that the wall thickness is as desired, and that the weld region continues to be acceptable with no critical defects created as a result of said hot spinning and said heat treating;
- spot facing the neck end of the tank, facing the neck to the desired length, turning the diameter for the neck ring when required, predrilling a hole through the neck, core drilling a bore in the neck for subsequent tapping, and tapping the formed bore;
- discharging steam into the tank with the tank in inverted position until the inside of the tank is clean and hot;
- vacuuming the inside of the tank until it is clean and dry;
- pressurizing the tank with air to a predetermined pressure to verify that there is no leakage from the spun closed end of the tank; and
- hydrostatically testing the tank to a predetermined pressure level with water and simultaneously examining the tank weld by means of acoustic emission with the tank stressed in response to the internally applied hydrostatic test pressure to determine if a paste weld condition exists.

4,364,162

PROCESS FOR THE AFTER-TREATMENT OF POWDER-METALLURGICALLY PRODUCED EXTRUDED TUBES

Peter Nilsson, Aby, and Christer Aslund, Torshälla, both of Sweden, assignors to Granges Nyby AB, Nybybruk, Sweden

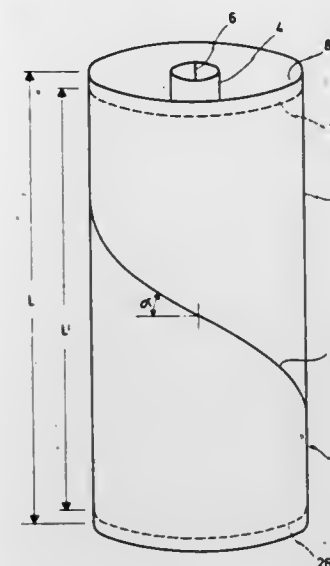
Filed Sep. 6, 1979, Ser. No. 73,070

Claims priority, application Fed. Rep. of Germany, Sep. 6, 1978, 2838850; Oct. 26, 1978, 2846658

Int. Cl.³ B22F 3/24

U.S. Cl. 419—26

14 Claims



1. A process for the after-treatment of encapsulated powder-metallurgically produced extruded tubes of stainless steel or highly alloyed nickel steels produced, from pressings comprising a tubular capsule of thin, preferably 1 to 2 mm thick, low-carbon sheet steel preferably having a carbon content of less than 0.015% containing a powder of metal or metal alloys or mixtures thereof which after the capsule has been closed, has had its density increased to at least about 80% to about 93% of the theoretical density by isostatic cold pressing under a pressure of at least about 4000 bars, and then has been extruded at high temperatures, preferably around 1200° C., using glass as a lubricant, into tubes having a dense structure, comprising the steps of:

- removing glass present on the surface of the encapsulated extended tubes by means of aqueous sulphuric acid;
- subsequently cold-working the encapsulated tubes by one of cold drawing and reciprocating rolling;
- after step (b), annealing the encapsulated tubes in an oxidizing atmosphere in a manner converting the capsule to scale; and
- pickling said tubes in a mild pickling liquid in a manner removing said scale.

4,364,163

METHODS FOR MOUNTING CONNECTION WIRES ON A SOLID ELECTROLYTE CAPACITOR

Hans Schmidt, Barcelona, Spain, assignor to Componentes Electronicas, S.A., Barcelona, Spain

Filed Feb. 15, 1980, Ser. No. 122,056

Claims priority, application France, Feb. 20, 1979, 79 04247

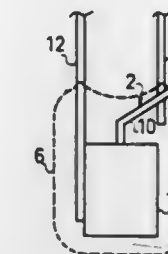
Int. Cl.³ H01G 9/00, 9/24

U.S. Cl. 29—570

4 Claims

1. A method for mounting anode and cathode connection wires on a solid electrolyte capacitor, said capacitor being cylindrical in shape with a roughly axial anode wire and a peripheral cathode surface, including the following steps: folding the anode wire to an angle of more than 45°, arranging connection wires so that they are generally parallel one with the other and with the capacitor axis and that their length differs noticeably from the capacitor height so that the first connection wire contacts the folded part of the anode wire and the second connection wire contacts

the capacitor body along an axial line in a radial zone opposite that to which the anode wire is folded, soldering the connection wires to the anode and capacitor periphery respectively,



coating the capacitor so as to leave only the connection wires visible.

4,364,164

METHOD OF MAKING A SLOPED INSULATOR CHARGE-COUPLED DEVICE

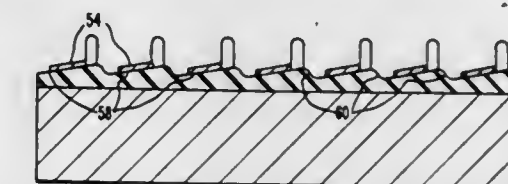
Nathan Bluzer, Silver Spring; Arthur S. Jensen, Baltimore, both of Md.; Dieter K. Schroder, Wilkins Township, Allegheny County, and Paul R. Malmberg, Edgewood, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Division of Ser. No. 966,533, Dec. 4, 1978, which is a continuation of Ser. No. 806,402, Jun. 14, 1977, abandoned. This application May 4, 1981, Ser. No. 260,439

Int. Cl.³ H01L 21/20

U.S. Cl. 29—571

9 Claims



1. A method for making a charge-coupled device that has electrodes deposited on sloped areas of an insulation layer, said method comprising:

- growing an insulation layer on a semiconductor wafer such that the insulation layer and the semiconductor form an insulation-semiconductor interface;
- depositing a first etching material on the surface of the insulation layer that is oppositely disposed from the insulation-semiconductor interface, said first etching material being reactive with etching solutions with which said insulation layer is also reactive, said first etching material having a substantially higher etching rate in said etching solutions than said insulation layer;
- depositing a second etching material on said first etching material, said second etching material being substantially inert with etching solutions with which said insulation layer and said first etching material are reactive;
- forming a bilayer structure on said insulation layer, said bilayer structure including portions of said first and second layers of etching material with channels provided in selected portions of said first and second layers;
- depositing a third layer of etching material over said bilayer structure and over said insulation layer within the channels of said bilayer structure, said third layer of etching material being reactive with etching solutions with which said first etching material and said insulation layer are reactive, said third etching material having a substantially higher etching rate in said etching solutions than said insulation layer;
- forming a channel in the third etching material, said channel being offset with respect to the channel in said bilayer structure such that a portion of said channel in the third

etching material coincides with a portion of the channel of said bilayer structure;
 etching said first and third etching materials and said insulation layer until said first and third etching materials are etched away and areas of said insulation layer that were covered by said first etching material are etched to form sloped areas which are substantially in a plane that intersects the plane of the insulation-semiconductor interface; and
 depositing electrodes on the sloped areas of the insulation layer surface so that the electrodes induce an electric field in said semiconductor wafer in response to clocking signals, said electric field having a substantial lateral component that aids the transfer of charge carriers through the semiconductor wafer.

4,364,165

LATE PROGRAMMING USING A SILICON NITRIDE INTERLAYER

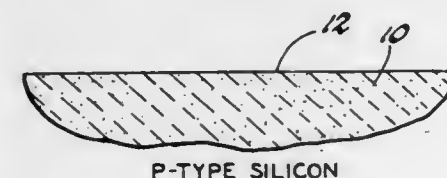
John E. Dickman, Russiaville, and William B. Donley, Kokomo, both of Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed May 28, 1981, Ser. No. 268,088

Int. Cl.³ H01L 21/22

U.S. Cl. 29—571

5 Claims



1. A method of making a high speed, high density read-only memory and encoding it in later steps of the method comprising:

forming on a semiconductor surface, an operative IGFET array having an overlying polycrystalline silicon gate electrode pattern;
 depositing a first blanket insulating layer onto said array;
 forming on said first layer a mask covering array contact areas and channels of predetermined IGFETs desired to be operative to an intended gate electrode operating voltage, said contact areas having openings for etching contact windows;
 etching said array to remove said first layer from all parts of said array not covered by said mask;
 ion implanting said array, to significantly selectively alter threshold voltage of all IGFETs therein not covered by said mask, whereby only said predetermined IGFETs in said array are responsive to said intended gate voltages;
 removing said mask and covering said array with a second blanket insulating layer that is preferentially etchable with respect to said first layer;
 etching contact windows in the second layer without etching windows in it over any IGFET channels or unintentionally exposing gate electrode edges; and
 forming an array output conductor pattern on said second insulating layer, whereby said pattern may cross said gate electrodes over said channels and make contact with said array while maintaining minimal gate-output parasitic capacitance and electrical shorts.

4,364,166 SEMICONDUCTOR INTEGRATED CIRCUIT INTERCONNECTIONS

Billy L. Crowder, Putnam Valley, and Arnold Reisman, Yorktown Heights, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

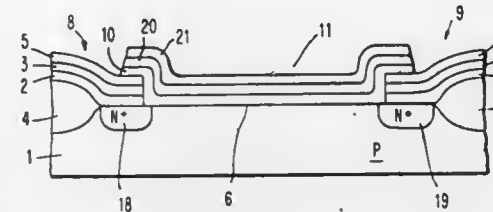
Division of Ser. No. 16,647, Mar. 1, 1979, Pat. No. 4,329,706.

This application Sep. 2, 1981, Ser. No. 298,551

Int. Cl.³ H01L 21/225

U.S. Cl. 29—571

4 Claims



1. In the process of making a semiconductor device wherein a conductor makes contact with a precisely positioned region of a first conductivity type in a substrate of a second conductivity type opposite to said first conductivity type the alignment improving steps of:

positioning in contact with said semiconductor substrate in a precise location a conductor comprising a first layer of polysilicon contiguous with a second layer of a metal silicide, said polysilicon layer containing a diffusible dopant operable on diffusion to convert said substrate to said first conductivity type; and

diffusing said dopant from said conductor into said substrate forming thereby a region of said first conductivity type in said substrate; and

depositing at least one insulated electrode of a layer of polysilicon contiguous with a layer of a metal silicide overlapping said positioned conductor by the separate steps of sequentially depositing a layer of oxide, a layer of polysilicon and a layer of metal silicide.

4,364,167

PROGRAMMING AN IGFET READ-ONLY-MEMORY

William B. Donley, Kokomo, Ind., assignor to General Motors Corporation, Detroit, Mich.

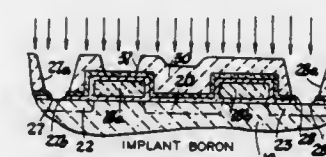
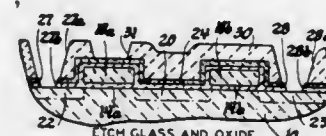
Division of Ser. No. 98,211, Nov. 28, 1979, Pat. No. 4,295,209.

This application Apr. 8, 1981, Ser. No. 252,203

Int. Cl.³ B01J 17/00; G11C 11/40, 17/00; H01L 21/263

U.S. Cl. 29—576 B

3 Claims



1. A method of making a read-only-memory comprising the steps of:

forming an array of IGFETs on a semiconductor surface, each of said IGFETs having an operable channel region underlying a gate dielectric and electrode that is penetrable by an ion beam;
 depositing a blanket layer of a first dielectric material onto said array, which layer is permeable by an ion beam;
 depositing a blanket layer of a second dielectric material onto the first dielectric layer, which second layer is not significantly penetrable by said ion beam and can be preferentially etched;
 etching windows in said second dielectric layer over chan-

nel regions of selected IGFETs in said array with an etchant that does not also attack the first dielectric layer, and thus does not uncover said gate electrodes;
 exposing said windows and second dielectric layer to said ion beam in a dose effective to make said selected IGFETs unaffected by gate operating voltage, and thereby encode said array; and
 electrically contacting all of said IGFETs, even those made inoperative, whereby the first dielectric layer uncovered in said windows provides electrical insulation between at least one drain electrode and a gate electrode.

4,364,168

METHOD OF FABRICATING LIQUID CRYSTAL DISPLAY CELL

Shigeru Matsuyama, and Ken Sasaki, both of Mobara, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

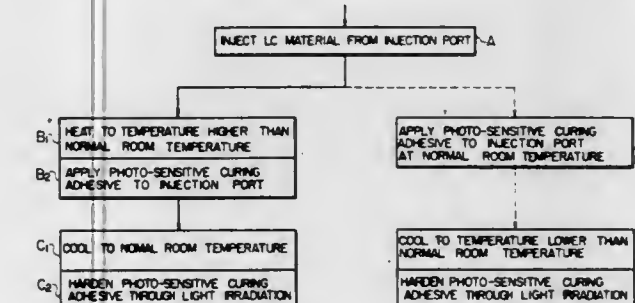
Filed Sep. 22, 1980, Ser. No. 189,715

Claims priority, application Japan, Nov. 26, 1979, 54-152076

Int. Cl.³ G02F 1/13

U.S. Cl. 29—592 R

10 Claims



1. A method of fabricating a liquid crystal display cell, comprising the sequential steps of:

adhering opposite and spaced substrates to each other at their peripheral portions through a sealing material while providing an envelope for receiving a liquid crystal material and a liquid crystal material injection port at a localized part of the peripheral portion sealed by said sealing material;

injecting a liquid crystal material into said envelope from said injection port;

applying a photo-sensitive curing adhesive to said injection port at a first preselected temperature; and

hardening said photo-sensitive curing adhesive at a second preselected temperature lower than said first preselected temperature to hermetically seal said injection port, thereby completing a liquid crystal display cell.

4,364,169

METHOD OF PRODUCING A STATOR IRON CORE

Kenzi Kawano, Okazaki; Koichi Fukaya, Aichi, and Keizou Jyoko, Okazaki, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Apr. 2, 1981, Ser. No. 250,149

Claims priority, application Japan, Oct. 24, 1980, 55-149814

Int. Cl.³ H02K 15/02

U.S. Cl. 29—596

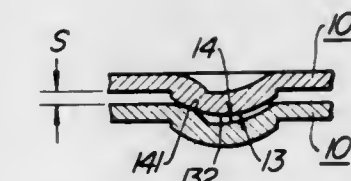
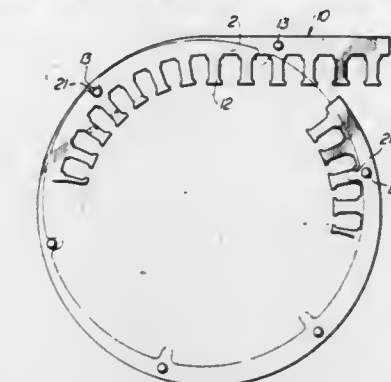
3 Claims

1. A method of production of an iron core for a rotary electric machine comprising the steps of:

forming an iron core blank of the comb shape having a plurality of teeth spaced apart from one another a predetermined distance and extending widthwise at one side of the iron core blank, said iron core blank being formed by blanking from steel strip in such a manner that two iron core blanks can be formed in one operation with the teeth of the two blanks being in staggered relationship;

forming a plurality of projections on said iron core blank, said projections each having a straight portion and being located on one surface of the iron core blank with said straight portion being perpendicular to said one surface,

so that when said blank is spirally wound the projections are disposed equidistantly from one another circumferentially on each of the convolutions of the spirally wound iron core blank, while a plurality of recesses are formed on the other surface of said blank in positions corresponding to the projections on said one surface, said recesses each having a plurality of bulges in positions symmetrical in rotation with respect to the center of the recess;
 winding said iron core blank with said projections and recesses into a spiral form by applying a winding force on said



straight portion of each of said projections while subjecting the blank to plastic deformation, and superposing convolutions of the spirally wound blank one above another by inserting the projections in the recesses of the adjacent convolution while forming a clearance between the adjacent convolutions of the spirally wound iron core blank; and

joining the convolutions of the spirally wound iron core blank together by electric resistance welding at the joints of said projections and said recesses of the adjacent convolutions.

4,364,170

BALL BEARING ASSEMBLY DEVICE

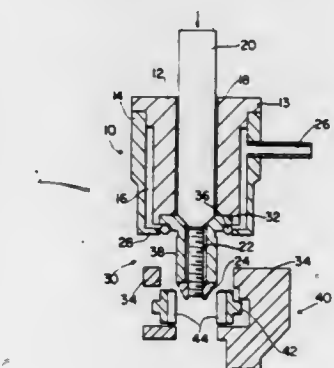
Joseph M. Ratliffe, Fredericksburg, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 13, 1981, Ser. No. 224,775

Int. Cl.³ B23P 19/04

U.S. Cl. 29—724

18 Claims



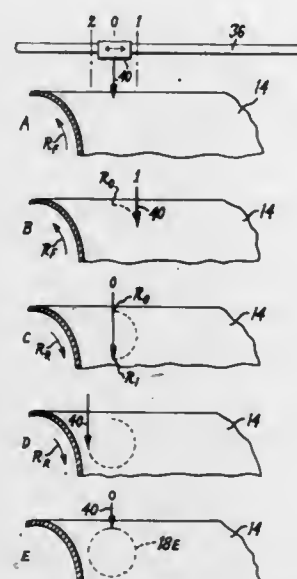
1. A device for assembling an inner bearing ring into an outer bearing ring, comprising:
 means holding the inner bearing ring for assembly into the outer bearing ring;

means attaching the inner bearing ring to said holding means including a threaded portion on said holding means adapted to extend through the inner bearing ring and a fastener associated with said threaded portion for securing the inner bearing ring to said holding means;
means positioning a plurality of ball bearings relative to the inner bearing ring;
means aligning the inner bearing ring with the outer bearing ring for insertion therein; and
vacuum means affixing temporarily the plurality of ball bearings relative to the inner bearing ring.

4,364,171

METHOD FOR FABRICATING ISOLATED PHASE BUS
Roy A. Niemann, Aston, Pa., assignor to Canadian General Electric Company Limited, Toronto, Canada
Division of Ser. No. 7,546, Jan. 30, 1979, Pat. No. 4,288,681.
This application Apr. 20, 1981, Ser. No. 255,955
Int. Cl.³ H01B 13/20

U.S. Cl. 29—828.



1. In a method of fabricating an isolated phase bus system, the isolated phase bus system including a cylindrical bus conductor and a mating enclosure therefor, the mating enclosure having a larger diameter than the cylindrical conductor, comprising the steps of:

- (a) fabricating said cylindrical bus conductor, including the steps of:
 - (1) providing a first plurality of cylindrical workpieces of a first diameter,
 - (2) disposing said first plurality of workpieces in a fixture and aligning said cylindrical workpieces such that the longitudinal axes thereof are substantially coincident,
 - (3) rotating said workpieces together in said fixture about said longitudinal axes,
 - (4) welding said workpieces to one another end-to-end while said workpieces are rotating to form a cylindrical bus conductor of a desired length,
 - (5) cutting a plurality of openings in said bus conductor while it remains in said fixture, for receiving mounting hardware, at least two of said openings being located in spaced relation along the length of said bus conductor, said two openings having a predetermined angular relation therebetween with respect to the longitudinal axis of said bus conductor, the cutting step including precisely locating said openings in a predetermined reproducible manner, and
- (b) fabricating said mating enclosure, including the steps of:
 - (1) providing a second plurality of cylindrical workpieces, said second plurality of cylindrical workpieces having a larger diameter than said first plurality of workpieces,
 - (2) disposing said second plurality of workpieces in a fixture and aligning said second plurality of cylindrical

workpieces such that the longitudinal axes thereof are substantially coincident,

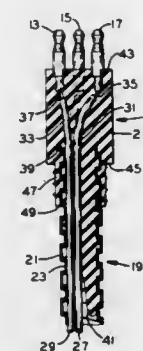
- (3) rotating said second plurality of workpieces together in said fixture about said longitudinal axes,
- (4) welding said second plurality of workpieces to one another end-to-end while said workpieces are rotating to form an enclosure of a desired length,
- (5) cutting a plurality of openings in said enclosure while it remains in said fixture, the cutting step being performed substantially as in step (a) 5, said openings in said enclosure including openings which are precisely located in said predetermined reproducible manner so that said enclosure openings are substantially longitudinally and angularly aligned with said bus conductor openings formed in step (a) 5.

4,364,172

METHOD OF FORMING AN ELECTRICAL CONNECTOR

8 Claims Steven M. Kelly, 600 West at 900 North, Ligonier, Ind. 46767
Filed Jun. 26, 1980, Ser. No. 163,174
Int. Cl.³ H01R 43/00

U.S. Cl. 29—858



7 Claims

1. The method of forming an electrical connector at one end of a conductor disposed in a flexible metal conduit comprising the steps of:

- providing the conductor with a terminal at the one end;
- placing at least a portion of the terminal, a portion of the conductor, and a portion of the flexible metal conduit in a connector forming cavity so that the conduit and terminal extend in opposite directions from opposed sides of the cavity; and
- forming an insulating material about the terminal, conductor, and flexible metal conduit portions in the cavity to conform the insulating material to the exterior of the flexible metal conduit portion in the cavity with insulating material flowing into the interior of the flexible metal conduit and beyond the cavity.

4,364,173

METHOD OF MAKING AN ELECTRICAL CONTACT
Richard C. Broadhurst, Harrow, England, assignor to Johnson, Matthey & Co., Limited, London, England

Continuation of Ser. No. 39,746, May 16, 1979, abandoned. This application Oct. 27, 1980, Ser. No. 201,027

Claims priority, application United Kingdom, May 17, 1978, 20132/78

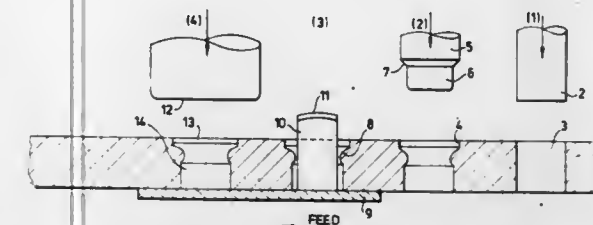
Int. Cl.³ B23P 11/02, 19/02; B21D 39/00; H01R 43/04
U.S. Cl. 29—882 10 Claims

1. A method of making an electrical contact comprising a base and a contact element having a contact surface made from a material comprising a noble metal, the method comprising:

- (a) forming a hole in said base, said hole having a shape and size less than that required to accept the contact surface of the contact element;
- (b) enlarging at least an entrance of the said hole, to an extent to accept the contact surface area of the element, by compression deformation, transversely of the base, of material

around the entrance to the hole so as to cause the compression deformed material to form a protrusion extending inwardly from the wall of the hole and at a position displaced from the entrance of the hole;

- (c) placing the said base on a rigid underlying support;
- (d) inserting into the hole having the previously formed



protrusion therein, a contact element billet made from a metal and having a contact surface comprising a noble metal; and

- (e) deforming the so-inserted billet to substantially fill the hole and encompass the protrusion to retain the billet in the hole and produce a contact surface with respect to the surface of the base.

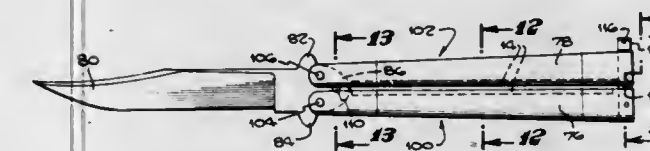
4,364,174

APPARATUS AND IMPROVED METHOD OF MANUFACTURING HANDLES FOR BUTTERFLY DEFENSE KNIFE

Lester De Asis, 3040 Ingledeale Ter., Los Angeles, Calif. 90039
Filed Apr. 27, 1981, Ser. No. 257,911
Int. Cl.³ B26B 3/06

U.S. Cl. 30—153

27 Claims



3. A handle section for use as part of the two section handle of a butterfly knife wherein each section comprises:

- a. a longitudinal upper face;
- b. a longitudinal lower face;
- c. a first end face;
- d. a second end face;
- e. a first lateral face;
- f. a second lateral face;
- g. a central longitudinal slot in said longitudinal lower face extending along the entire length of said longitudinal lower face and extending transversely through most of the depth of said section;
- h. a first transverse slot in the central portion of said first end face wherein the first transverse slot extends inwardly to a selected longitudinal distance along said longitudinal upper face and coincides with said central longitudinal slot;
- i. a second transverse slot in the central portion of said second end face wherein the second transverse slot extends inwardly to a selected longitudinal distance along said longitudinal upper face and coincides with said central longitudinal slot;
- j. said first lateral face containing a first lateral recess therein, wherein the recess extends transversely through the entire height of the first lateral face and extends longitudinally along the central portion of the first lateral face, beginning at a first recess edge and terminating in a second recess edge;
- k. said first recess edge in said first lateral face being dovetailed;
- l. said second recess edge in said first lateral face being dovetailed;
- m. said second lateral face containing a second lateral recess

therein, wherein the recess extends transversely through the entire height of the second lateral face and extends longitudinally along the central portion of the first lateral face, beginning at a first recess edge and terminating in a second recess edge;

- n. said first recess edge in said second lateral face being dovetailed;
- o. said second recess edge in said second lateral face being dovetailed;
- p. said longitudinal lower face being tapered from said second end face to said first end face;
- q. said first and said second lateral faces adjacent said second end face being rounded such that the surfaces of said first and second lateral faces form part of the circumference of a circle which has its central point located at the center of said second end face;
- r. said first and said second lateral faces adjacent said first end face being rounded such that the surfaces of said first and second lateral faces form part of the circumference of a circle which has its central point located at the center of said second end face;
- s. said first end face being rounded;
- t. said upper face containing a depression along each edge of said first transverse slot;
- u. said first and said second lateral faces containing a central hole through their entire thickness adjacent said second end face;
- v. said first and said second lateral faces containing a central hole through their entire thickness near said first end face;
- w. said first lateral recess containing a multiplicity of partial holes, wherein said holes are aligned along the entire length of said first lateral recess and do not penetrate the lateral wall of said recess so as not to come in contact with said central longitudinal slot;
- x. said second lateral recess containing a multiplicity of partial holes, wherein said holes are aligned along the entire length of said second lateral recess and do not penetrate the lateral wall of said recess so as not to come in contact with said central longitudinal slot;
- y. said first lateral recess containing gripping means therein;
- z. said second lateral recess containing gripping means therein; and
- aa. said gripping means having associated therewith adhesive material which rigidly attaches said gripping means into said first and said second lateral recesses, wherein said adhesive material is placed into each of said multiplicity of partial holes and along the interior surface of said gripping means;
- bb. whereby two such sections become handle sections of a knife and are attached through said holes in their lateral faces near said first end to the tang of a knife blade to form the light weight handle of the knife such that the knife blade is completely concealed within said central longitudinal slot of each handle section when the knife is in a closed position and form the handle of the knife by having their upper faces adjacent each other when the knife is in an opened position.

4,364,175

GRADE LINER

Richard N. Levake, 814 Ash St., Spooner, Wis. 54801, and Archibald E. Ferguson, 330 E. Concorda Dr., Tempe, Ariz. 85282

Filed Jul. 22, 1980, Ser. No. 171,249

Int. Cl.³ G01B 11/00

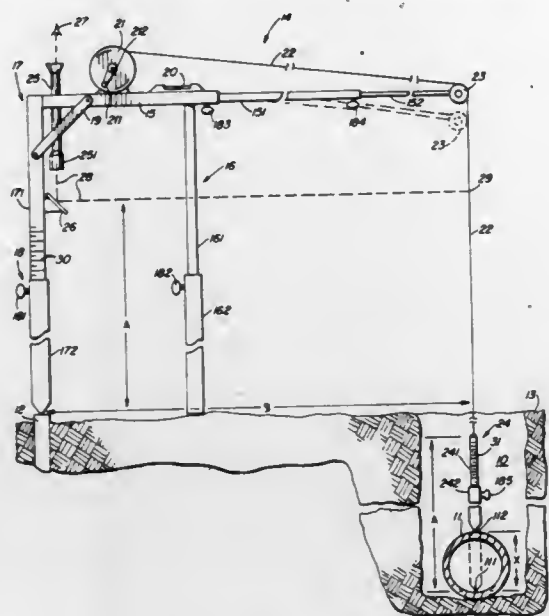
U.S. Cl. 33—1 H

11 Claims

1. A grade liner for use in cooperating with grade stakes in determining grade with a ditch comprising:
means for establishing the horizontal sight line a selected rise distance "A" above a grade stake;
plumb means coupled to said means for establishing a horizontal sight line and intersecting said horizontal sight line comprising a linear scale the intersection of which with

said horizontal sight line is viewable along said sight line the zero calibration of which scale is located a selected distance related to said rise distance "A" from the lower end of said plumb means;

offset means coupled to and above said means for establishing a horizontal sight line for supporting said plumb means a selected offset distance from said grade stake; and



means coupled to said offset means for locating the horizontal sight line established by said means therefore below said offset means so that the intersection of said linear scale with said horizontal line of sight will be unaffected by any sag in said offset means when the scale of reading of said linear scale is taken with respect to the lower end of said plumb means.

4,364,176

DRAWING APPLIANCE

Andre J. Cassagnes, Vitry sur Seine, France, and Irving C. Dudley, Milford, Mass., assignors to Hasbro Industries, Inc., Pawtucket, R.I., a part interest

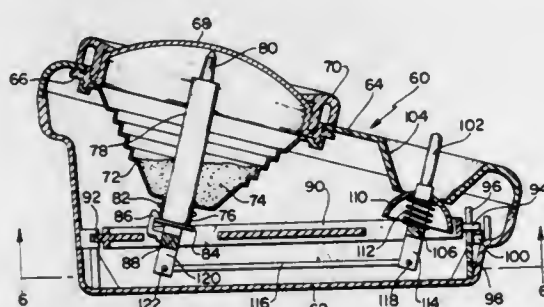
Filed Feb. 10, 1981, Ser. No. 233,201

Claims priority, application France, Feb. 14, 1980, 80 03306

Int. Cl.³ B43L 13/00

U.S. Cl. 33—18 R

2 Claims



1. In a drawing appliance comprising a housing in which a sealed enclosure is located, the outermost portion of said enclosure being defined by a translucent screen, a powdery material located in said enclosure and having adhering characteristics for adherence to said screen when placed into contact therewith, a movable stylus located in said enclosure, a control member, a linkage system interconnecting said control member to said stylus for moving said stylus across said screen to remove the powdery material therefrom and to thereby trace a line thereon, characterized in that said control member is depressible, one end of said linkage system is pivotally mounted on said housing, the other end of said linkage system is connected to said control member and is depressible therewith to pivot said linkage system and thereby remove said stylus from engagement with said screen.

4,364,177 COMPARATOR FOR VERIFYING LINEAR DIMENSIONS OF MECHANICAL PARTS

Mario Possati; Guido Golinelli, both of Bologna, and Narciso Selli, Montevoglio, all of Italy, assignors to Finike Italiana Marpos S.p.A., S. Marino di Bentivoglio, Italy

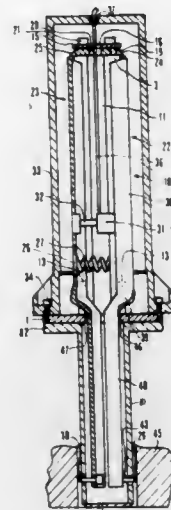
Filed May 22, 1981, Ser. No. 266,331

Claims priority, application Italy, Jun. 2, 1980, 3433 A/80

Int. Cl.³ G01B 7/12

U.S. Cl. 33—147 K

10 Claims



1. A comparator for the checking of linear dimensions of mechanical parts comprising: a first support element defining a perforated plate; a second support element comprising essentially a rigid first member fastened to said perforated plate and located on one side of the plate; a second member fastened to said first member, said second member defining a first rigid portion, second and third rigid portions which define measurement arms and two elastically yieldable sections arranged between the first rigid portion and the second and third rigid portions, for permitting measurement displacements of the arms; two feelers fastened to the measurement arms, respectively, so as to come into contact with the part to be checked, said arms passing through a hole in said plate and bearing said feelers at ends located, with respect to the plate, on a side opposite that on which said rigid first member is located; and means adapted to detect the mutual position of the measurement arms.

4,364,178

NUMERICALLY CONTROLLED MEASURING DEVICE

Alain Huet, Buc, France, assignor to Societe d'Etudes Industrielles de Villejuif, Seiv Automation, Ris-Orangis par Evry, France

Filed Jun. 13, 1980, Ser. No. 159,077

Claims priority, application France, Jun. 13, 1979, 79 15194

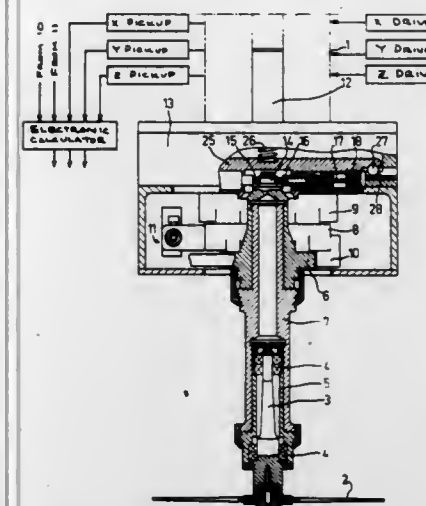
Int. Cl.³ G01B 7/02

U.S. Cl. 33—174 L

11 Claims

1. A numerically controlled coordinate measuring machine, comprising, part-support means for supporting a part to be measured, a probe, a plate supporting said probe, a head supporting said plate, means supporting said head and said part-support means for relative movement along three coordinate axes, drive means for providing relative movement between the part-support means and the head, said probe having an idler roller for contacting a part being measured, said probe being rotatable about a roller axis which is aligned with one of the coordinate axes, said probe being supported for movement relative to said plate in two mutually perpendicular directions which are perpendicular to the roller axis and correspond to two of said coordinate axes, elastic return means supported on the plate for biasing the roller axis toward a given position relative to the plate, two measuring pick-ups for sensing the distance measured along said two directions between the roller axis and said given position, electronic calculator means for

receiving signals from the measuring pick-ups and the coordinates which indicate the location of the head relative to the part-support means and for calculating coordinate locations of points of contact between the roller and the part being mea-



sured, said plate being biased against said head by an axial spring and supported on the head by three balls positioned in three radial grooves, means for detecting any separatory movement between the plate and the head to stop the machine when said separatory movement occurs.

4,364,179

STATICALLY BALANCED INSPECTION PROBE ASSEMBLY

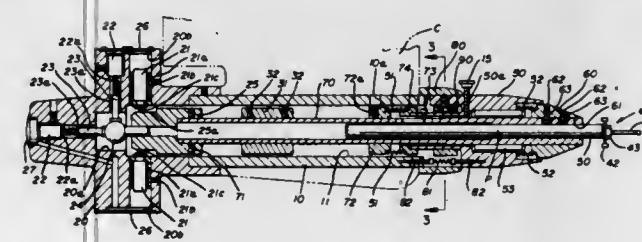
Frederick S. Schiler, Stow, and Gary D. Young, Akron, both of Ohio, assignors to Portage Machine Company, Akron, Ohio

Filed Oct. 31, 1980, Ser. No. 202,756

Int. Cl.³ G01B 7/28

U.S. Cl. 33—174 L

15 Claims



1. A probe assembly for measuring deviation in X, Y and Z axes, comprising:

- (A) a housing;
- (B) an elongate guide received within said housing;
- (C) probe means carried by said guide and projecting from said housing;
- (D) universal joint means interconnecting said probe means to said housing for permitting movement in the X and Y axes;
- (E) means carried by said probe means for statically balancing said probe means in the X and Y axes;
- (F) adjustable counterbalance means carried by said guide; and
- (G) measurement means
 - (1) carried by said housing and
 - (2) in contact with said probe means for measuring movement thereof in the X, Y and Z axes.

1025 O.G.—32

4,364,180

INSTRUMENTATION FOR SENSING THE TEST VALUES AT TEST SAMPLES

Jörg Wilhelm, Nauborn; Hans-Dieter Jacoby, Werdorf; Erich Schuster, Hüttenberg, and Dieter Prinz, Biebertal, all of Fed. Rep. of Germany, assignors to Ernst Leitz Wetzlar GmbH, Wetzlar, Fed. Rep. of Germany

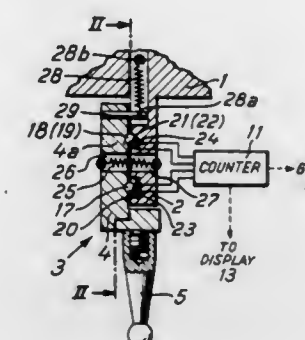
Filed Nov. 7, 1980, Ser. No. 204,842

Claims priority, application Fed. Rep. of Germany, Nov. 24, 1980, 2947394

Int. Cl.³ G01B 7/28

U.S. Cl. 33—174 L

4 Claims



1. In an apparatus for sensing the test values at a test sample comprising a mechanical sensor moving relative to said test sample and consisting of a housing fixed part and of a movable articulating multi ball and socket part connected to said housing fixed part, and at least one test value transmitter connected to a counter, means for generating a trigger signal in said apparatus at the instant of impact between said sensor and said test sample connected to said counter and means for storing a record of a test value present at the time of impact at said test value transmitter connected after said counter, the improvement comprising:

at least one pickup (12,23,24,30) generating an electrical signal upon pressure mounted on said housing fixed part (2) of said sensor (5) delivering said trigger signal; and said pickup prestressed by pressure applied between said fixed part and said articulating part at a predetermined constant pressure, the level of the resulting electrical signal remaining unchanged in the absence of the sensing process and changing upon sensing said test sample.

4,364,181

APPARATUS FOR CHECKING THE CAGE OF A CONSTANT VELOCITY JOINT

Gastone Albertazzi, Bologna, Italy, assignor to Finike Italiana Marpos S.p.A., S. Marino di Bentivoglio (BO), Italy

Continuation-in-part of Ser. No. 74,653, Sep. 12, 1979,

abandoned. This application Mar. 23, 1981, Ser. No. 246,425

Claims priority, application Italy, Sep. 25, 1978, 3539 A/78

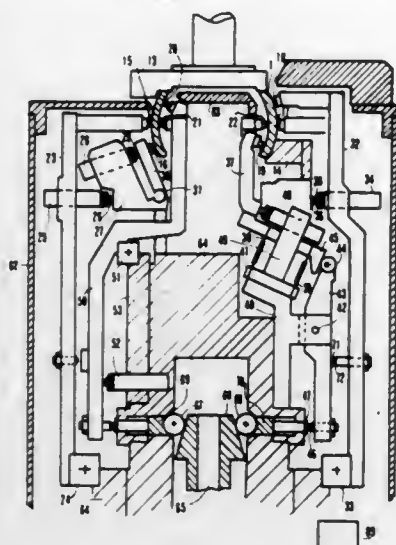
Int. Cl.³ G01B 7/00

U.S. Cl. 33—174 L

25 Claims

15. Apparatus for checking the cage of a constant velocity joint, said joint having an outer wall with openings for housing the joint balls, comprising: first support means for supporting the cage; checking means; second support means, coupled to the first support means, for supporting the checking means; the checking means comprising checking elements cooperating with points of the periphery of the openings, the checking means providing signals indicative of the positions of these points with respect to the second support means; and processing means connected to the checking means, the processing means processing the signals provided by the checking means for providing signals substantially representative of the positions of the central points of the openings and for defining a reference geometric plane relative to the positions of the cen-

tral points, the processing means further providing measurement signals substantially representative of the distances of the



central points from the reference geometric plane for checking the coplanarity of the central points.

4,364,182

LATIN SQUARE THREE DIMENSIONAL GAGE MASTER

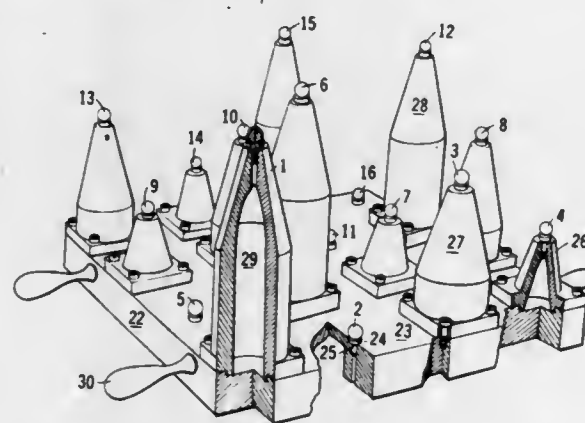
Lynn L. Jones, Lexena, Kans., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed May 12, 1981, Ser. No. 262,846

Int. Cl.³ G01B 7/03; G01C 25/00

U.S. Cl. 33-174 H

8 Claims



1. A gage master for coordinate measuring machines comprising:

- a. n^2 substantially identical object means for defining a point in space, where n is an integer ≥ 3 ;
- b. mounting means for rigidly fastening each object means relative to the other object means to define n^2 points in space, the points being located relative to the coordinate X_0, Y_0, Z_0 at coordinates X_{iA}, Y_{jB}, Z_{kC} where A =unit of distance in the X direction, B =unit of distance in the Y direction, C =unit of distance in the Z direction, $i=(0, 1, 2, \dots, n-1)$, $j=(0, 1, 2, \dots, n-1)$, and for each column X_{iA} and each row Y_{jB} , k equals each number of the set $(0, 1, 2, \dots, n-1)$, forming an $n \times n$ Latin square.

4,364,183

HELIOSTAT-ADJUSTING SOLAR SIGHT

William A. Rhodes, 4421 N. 13th Pl., Phoenix, Ariz. 85014

Filed Jan. 21, 1980, Ser. No. 113,774

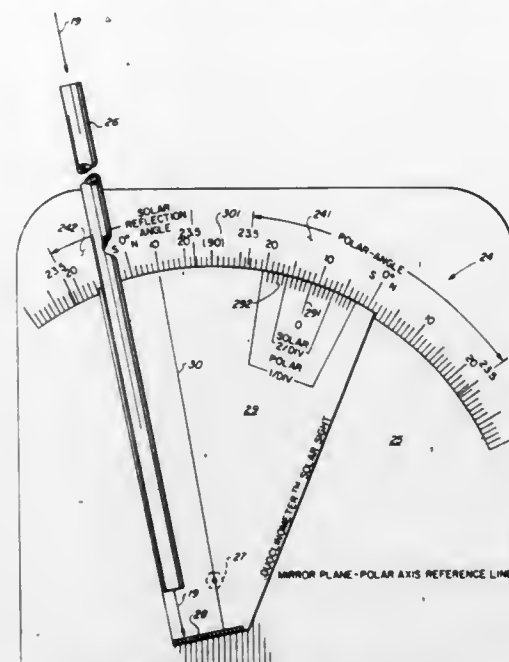
Int. Cl.³ G01C 1/00

U.S. Cl. 33-268

9 Claims

1. An optical device for determining when the device is aligned with a source of visible radiation comprising:
a hollow, empty, cylindrical tube having two open ends and

a longitudinal axis, said tube having a substantially constant length to internal diameter, L/D ratio; and
a substantially opaque viewing surface mounted relative to one end of said tube so that said surface is substantially



perpendicular to the longitudinal axis of the tube, the L/D ratio of the tube being such as to produce a distinct pattern on said viewing surface when the source of radiation substantially lies on the longitudinal axis of the tube.

4,364,184

INDICIA ALIGNMENT DEVICE

Martin E. Dowzall, Wyckoff, N.J., assignor to Letraset Corporation, Paramus, N.J.

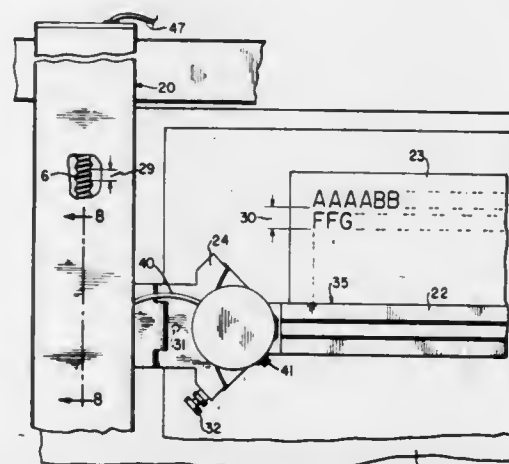
Continuation-in-part of Ser. No. 948,225, Oct. 3, 1978, abandoned. This application Jun. 11, 1980, Ser. No. 158,445

Claims priority, application United Kingdom, Oct. 4, 1977, 41246/77; Japan, Oct. 3, 1978, 53-121255; Netherlands, Oct. 3, 1978, 7809995

Int. Cl.³ B43L 13/24

U.S. Cl. 33-447

1 Claim



1. Apparatus for use in applying dry transfer indicia in precise horizontal alignment to an indicia receiving surface comprising:

- a baseboard on which said receiving surface is positioned,
- a rule member positioned above said receiving surface and movable along a vertical axis substantially parallel to the plane of said receiving surface,
- means for slidably mounting a dry transfer sheet containing a plurality of horizontally arranged rows of said dry transfer indicia printed thereon on the rule member to move back and forth longitudinally along said member,

means for the stepwise vertical movement of the rule for a preset fixed distance along said vertical axis into any of a plurality of spaced apart stops,
means for pivoting said rule member in a generally radial path in the plane of said baseboard and about a pivot pin fixed to a stationary base member to which said rule is connected comprising a threaded screw bearing against a face of said rule member and a spring in said base biasing said rule member against said screw, the rotation of said screw urging said rule member to move in a radial path about said pivot pin and against the urging of said spring, and the vertical distance between the base line of the indicia in vertically adjacent rows being an integral multiple of said preset fixed distance to allow transfer of individual indicia in horizontally aligned relationship from any of the plurality of rows of indicia on the transfer sheet to the receiving surface.

4,364,185

SYSTEM FOR DRYING WET, POROUS WEBS

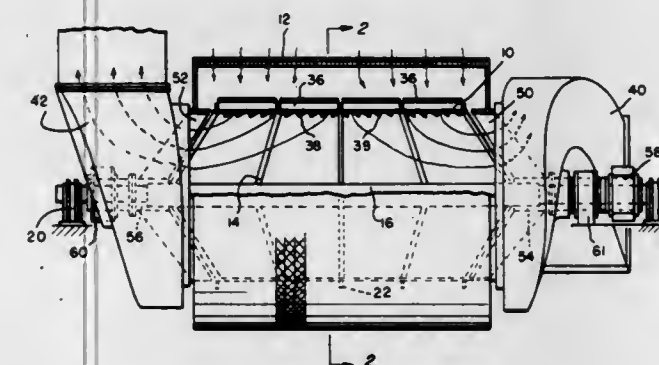
Jules L. Dussourd, Princeton, N.J., and Oscar Luthi, Nashua, N.H., assignors to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Apr. 13, 1981, Ser. No. 253,192

Int. Cl.³ F26B 13/30

U.S. Cl. 34-122

6 Claims



1. In a system for drying a wet, porous web with hot gases by flowing gas through the porous web: a stationary drum; a coaxial rotatable cylinder of larger diameter than the stationary drum mounted for rotational movement about the stationary drum, said rotatable cylinder having many large openings whereby a porous web on the external surface of the cylinder is dried by flowing gas through the web and the cylinder openings and into the cylinder; said stationary drum having a plurality of circumferentially-separated, longitudinally-extending gas baffles on its outside surface, said stationary drum also having a plurality of circumferentially-separated sets of inwardly-extending louvers attached to its inside surface, the gas baffles being positioned to direct gas in a radial direction inwardly through the louvers, the louvers being adapted to direct gas in an axial direction inside the drum; and first sealing members and circumferentially-separated second sealing members, each extending across the annular space between the stationary drum and the rotatable cylinder to divide said annular space into pressure zones of different pressure.

4,364,186

VENTILATED FOOTWEAR

Sadao Fukuoka, Tokushima, Japan, assignor to Fukuoka Kagaku Kogyo Kabushiki Kaisha, Tokushima, Japan

Filed Jan. 29, 1981, Ser. No. 229,643

Claims priority, application Japan, Jun. 19, 1980, 55-84833[U]; Jun. 19, 1980, 55-84834[U]

Int. Cl.³ A43B 7/06, 13/20

U.S. Cl. 36-3 B

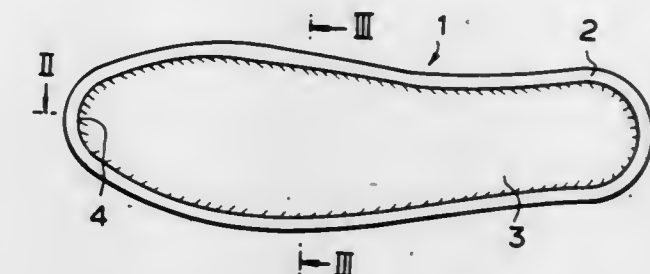
7 Claims

1. A ventilated article of footwear comprising an outer sole of deformable material having a concavity of appreciable depth formed in its upper surface and extending over substantially the entire area of said outer sole, said outer sole also

having an upstanding peripheral portion of selected thickness entirely surrounding the body thereof,

an inner sole mounted above said outer sole and overlying said concavity to form an air chamber of appreciable depth between said soles, with said upstanding peripheral portion bordering and enclosing said air chamber, said inner sole having a plurality of ventilating apertures formed therein and providing communication between said air chamber and the interior of said article of footwear,

and supporting means of deformable material located within said air chamber in abutment with said inner sole and



outer sole and being adapted to compress in response to deformation of the outer sole when the weight of the wearer is applied to the latter,

whereby the upstanding peripheral portion of said deformable outer sole provides a force factor for upward deformation of said outer sole toward said inner sole under applied weight of the wearer, and for restitution of said outer sole to its non-deformed condition when the wearer's weight is released therefrom, the upward deformation of said outer sole reducing the depth of said air chamber sufficiently to compress the air therein, thereby discharging said compressed air through said ventilating apertures into the interior of said article of footwear.

4,364,187

SKATE SANDALS

Ricardo Melendez, P.O. Box 7000-287, Palos Verdes Peninsula, Calif. 90274

Filed Nov. 3, 1980, Ser. No. 203,645

Int. Cl.³ A43B 3/24; A43C 13/00; A43B 3/10

U.S. Cl. 36-15

10 Claims



1. A device to be detachably connected to a roller skate having wheels to facilitate walking with the skate, said device comprising:

- a bottom structure for contacting a floor surface as a person walks therealong with said device attached to a skate; and resilient spring clip means carried by said bottom structure at the upper side thereof to which a skate is connectible by movement of the skate downwardly relative to said de-

vice, and from which the skate is detachable by movement upwardly relative to said device;
said clip means containing and forming at least one upwardly facing and upwardly opening recess into which at least one wheel of the skate is movable downwardly upon said downward attaching movement of a skate relative to said device, with said clip means having a resiliently deflectable portion near the upper end of said recess positioned to be displaced generally horizontally by a skate wheel upon downward movement thereof and after passage of the wheel to resiliently return inwardly to a position yieldingly retaining the wheel in said recess.

4,364,188

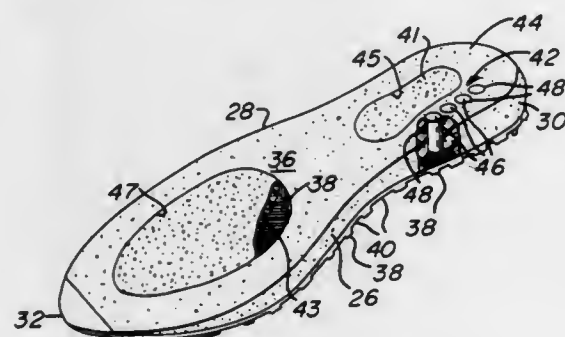
RUNNING SHOE WITH REAR STABILIZATION MEANS
Jerome A. Turner, Baltimore, Md., and George W. Dietel, Hanover, Pa., assignors to Wolverine World Wide, Inc., Rockford, Mich.

Filed Oct. 6, 1980, Ser. No. 194,485

Int. Cl.³ A43B 13/14, 13/12, 13/04, 5/06

U.S. Cl. 36—31

20 Claims



1. A sole component for an athletic shoe comprising a forefoot portion, an arch portion and a heel portion, said heel portion being formed of a first resilient material, and rear foot stabilization means, said stabilization means comprising a mass of a second resilient material located and confined adjacent the medial side of said heel portion, said first resilient material having a first durometer sufficiently low to provide good cushioning and impact absorption, said second resilient material having a second durometer higher than said first durometer to provide resistance to compression at the medial side of said heel portion, thereby lessening the tendency of the shoe to overpronation.

4,364,189

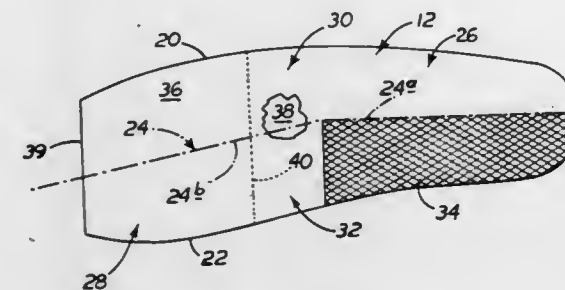
RUNNING SHOE WITH DIFFERENTIAL CUSHIONING
Barry T. Bates, 3809 Monroe St., Eugene, Ore. 97405

Filed Dec. 5, 1980, Ser. No. 213,207

Int. Cl.³ A43B 13/16, 21/32, 5/00

U.S. Cl. 36—31

5 Claims



1. Sole means in a sports shoe for absorbing shock on impact, and for producing lateral foot stability when the shoe is used for running, said means comprising
a heel section formed of a resilient material whose overall firmness on the inner side of a longitudinal heel midline axis is greater than that on the outer side of said midline axis, and
a forefoot section formed of a resilient material whose over-

all firmness on the outer side of a longitudinal forefoot midline axis is substantially the same as that on the outer side of said heel midline axis in said heel section.

4,364,190

OUTER SOLE FOR ATHLETIC SHOE

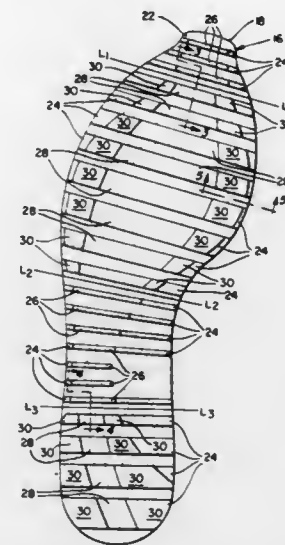
Ronald C. Yonkers, Hampton, N.H., assignor to BRS, Inc., Beaverton, Ore.

Filed Aug. 14, 1980, Ser. No. 178,008

Int. Cl.³ A43B 13/04, 13/22, 5/00

U.S. Cl. 36—32 R

35 Claims



1. An outer sole for an athletic shoe comprising:

a base member formed of resilient material and having a heel section, an arch section, a forefoot section and a toe section, said base member having an upper surface for attachment to a shoe and a lower surface for facing the ground;
a plurality of bars extending downwardly from the lower surface of said base member and transverse to the lengthwise direction thereof, said bars being spaced from one another in the lengthwise direction of said base member, said bars having widths in the lengthwise direction of the outer sole which are varied in proportion to the load exerted at particular locations along the lengthwise direction of said outer sole during running, whereby said bars are wider at areas of greater load and are narrower at areas of less load; and
an intermediate bar extending downward from a plurality of said bars in each of said forefoot and heel sections, the length of said intermediate bars in the transverse direction of the outer sole varying in proportion to the load exerted at particular locations along the lengthwise direction of said outer sole during running, whereby said intermediate bars are longer at areas of greater load and are shorter at areas of less load.

4,364,191
PILING RAKE

Lyle C. Cazes, 81 Hamm Rd., R. R. 1, Abbotsford, British Columbia, Canada (V2S 1M3)

Filed Oct. 21, 1980, Ser. No. 199,336

Claims priority, application Canada, Sep. 29, 1980, 361482

Int. Cl.³ A01B 61/04; E02F 3/76

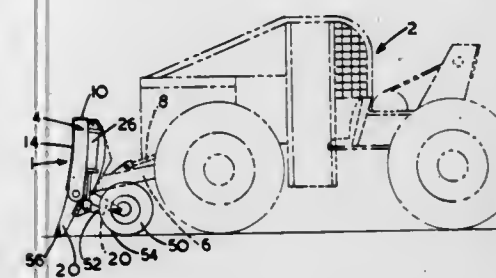
U.S. Cl. 37—2 R

1 Claim

1. A rake for use with tractors, comprising:

a blade connectable to a tractor and having a top, a bottom and front and back sides which are substantially vertical when the blade is connected to the tractor;
a plurality of teeth spaced apart in a row and extending from the bottom of the blade, each said tooth having a lug selectively connected thereto in one of a plurality of positions along said each tooth;
a shaft and journal combination pivotally connecting each of the teeth to the blade and permitting independent pivotal

movement of said each tooth away from objects encountered by said each tooth when the tractor moves;
a plurality of fluid piston and cylinder combinations, each said combination having a cylinder pivotally connected to the back side of the blade near the top of the blade and a piston rod pivotally connected to the lug of one of the teeth so the pivotal movement of the teeth displaces pressurized fluid within the piston and cylinder combinations, the pressurized fluid reversing the pivotal movement when the teeth clear said objects
a fluid accumulator and fluid conduits connecting the piston and cylinder combinations to the accumulator in parallel, the accumulator receiving pressurized fluid displaced from the piston and cylinder combinations when the teeth are pivotally moved by the objects;



a coupler for charging the circuit with pressurized hydraulic fluid from a hydraulic system of the tractor;
means for controlling the rate of the reverse pivotal movement comprising a flow control valve along the fluid conduits between the accumulator and the piston and cylinder combinations to restrict a return flow of fluid from the accumulator to the piston and cylinder combinations when the teeth clear the objects;
the accumulator, the piston and cylinder combinations, the conduits and the flow control valve comprising a closed hydraulic system after being charged with pressurized hydraulic fluid; and a wheel rotatably mounted on the back side of the blade so the bottom of the wheel is generally even with the bottom ends of the teeth.

4,364,192

MINIMAL PARTS, QUICK PICTURE FRAME

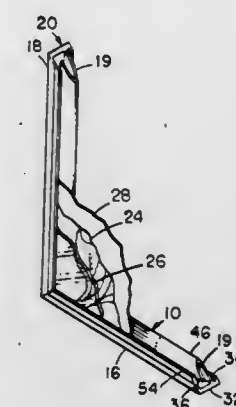
Roland W. Lloyd, 4202 Phinney Ave. N., Seattle, Wash. 98103

Continuation of Ser. No. 60,783, Jul. 25, 1979, abandoned. This application Aug. 28, 1980, Ser. No. 182,008

Int. Cl.³ G09F 1/12

U.S. Cl. 40—155

1 Claim



1. A frame adapted to frame an object which is at least generally planar, wherein said frame comprises a plurality of frame pieces, each frame piece being an elongated extrusion made from plastic which includes:

a. a side wall;
b. a relatively rigid flange having a base integrally formed with said side wall, wherein said relatively rigid flange extends outwardly at generally right angles with respect

to said side wall and terminates in a free end which includes a pair of elongated parallel ribs; and
c. a flexible, resilient, gripping flange having a base integrally formed with said side wall, wherein the bases of said relatively rigid flange and said resilient gripping flange extends outwardly from said side wall for a substantial distance, and then reverses direction and extends back towards said side wall and terminates in a free end which is located generally opposite from the free end of said relatively rigid flange; and
wherein each said frame piece is adapted to be secured to a respective edge of said object by gripping its said respective edge between the free ends of its said relatively rigid flange and resilient gripping flange; and
wherein the pair of elongated parallel ribs of the relatively rigid flange and the free end of said resilient flange are arranged, sized and positioned such that when each said frame piece is secured to its respective edge portion of said object, the area of contact of the free end of said resilient flange with said object lies opposite from and between said ribs on said relatively rigid flange, to enable each said frame piece to better grip its respective edge portion of said object.

4,364,193

PORTABLE BLIND

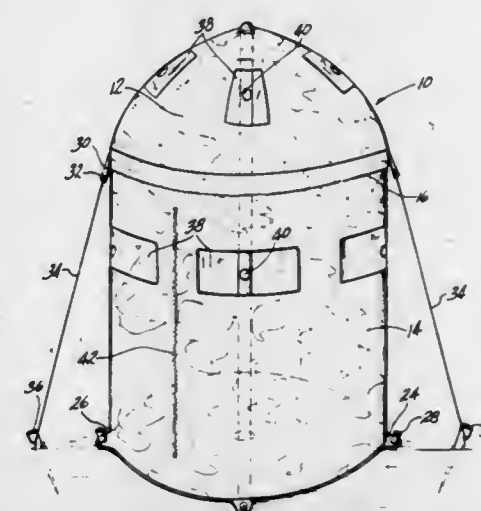
John Visco, 334 Jeffer St., Ridgewood, N.J. 07450

Filed Dec. 31, 1979, Ser. No. 108,475

Int. Cl.³ A01M 31/02

U.S. Cl. 43—1

11 Claims



1. A portable hunting blind for concealing the presence of at least one hunter stalking game comprising an umbrella portion and a skirt portion, said umbrella having a support member and a collapsible member, said collapsible member being provided with first attachment means, said skirt portion having a first end located proximate to the ground and a second end located opposite said first end, said second end being provided with second attachment means for selectively attaching said skirt portion to said first attachment means on said collapsible member so as to form an enclosure wherein at least one of said skirt portion and said collapsible member further includes a plurality of transparent portions for allowing said at least one hunter inside said hunting blind to readily view the surrounding area for said game, at least one of said plurality of transparent portions being provided with at least one gun port for receiving a weapon for directing a volley of fire at said game.

4,364,194

ASSEMBLY FOR POISON BAITING RODENTS

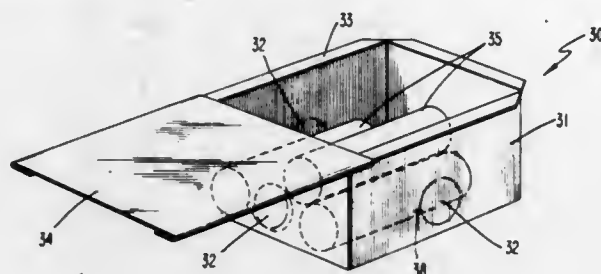
Samuel K. Clark, Sr., Box 31A, Old Stage Rd., Glade Spring, Va. 23430

Continuation-in-part of Ser. No. 952,884, Oct. 18, 1978, abandoned. This application Jul. 24, 1980, Ser. No. 171,918

Int. Cl.³ A01M 25/00, 1/20

U.S. Cl. 43—131

10 Claims



1. In an assembly for poisoning rodents, said assembly including a housing and a plurality of elongated tubular elements having an inlet, and outlet and a bore size sufficient to allow rodents to enter and exit from the inside of the housing and the tubular elements having a sufficient length to prevent animals other than rodents from gaining access to the inside of the housing, the improvement comprising:

- (a) the housing having an outer wall configuration including a plurality of flat planar sections with opening means in each said planar section,
- (b) an elongated tubular element for each of the opening means in said housing,
- (c) said housing defines an inner chamber sufficiently large to contain the total plurality of elongated tubular elements before said tubular elements are attached to said opening means,
- (d) each said tubular element including coupling means at one end thereof for fixedly connecting the tubular element to the opening means to extend outwardly from the opening means in the outer wall configuration,
- (e) said opening means being spaced around the outer periphery of the housing to attach the tubular elements at locations to maintain the device in an upright position without the necessity for a means to fix the elongated elements to the surface on which the assembly is disposed.

4,364,195

DOLL WITH CLOSING EYES

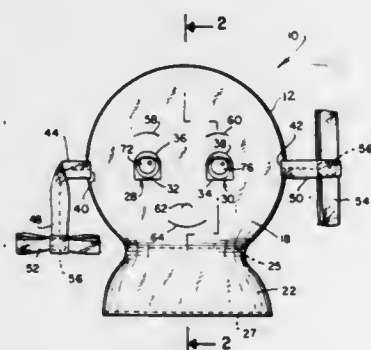
Mary Kleve, New York, N.Y., assignor to Ned Strongin Associates, Inc., New York City, New York

Filed Jun. 25, 1981, Ser. No. 277,133

Int. Cl.³ A63H 11/00

U.S. Cl. 46—135 R

8 Claims



1. A doll with closing eyes comprising a head portion including a base panel and a rear panel, connection means interconnecting marginal edges of said base panel and said rear panel to form an envelope, filler means disposed in said envelope and constituting a stuffing for said head portion, a front panel overlying said base panel in flush abutment

therewith, said front panel having a pair of spaced apart eye apertures simulating eye orbits, an eye panel slidably disposed between said base panel and said front panel, said eye panel being formed with indicia depicting a spaced pair of closed eyes and a spaced pair of open eyes,

an actuation strip mounted on said eye panel and having end portions projecting from said doll head portion and being manually movable relative to said head portion to enable an operator to move said eye panel selectively between a first position in which said open eye indicia are in registry with said eye apertures, and a second position in which said closed eye indicia are in registry with said eye apertures, and

a pair of slots formed in said front panel with a slot disposed on either side of said pair of apertures, said actuation strip comprising a flexible ribbon member having an intermediate portion connected to said eye panel and end portions passing outward of said front panel through said slots.

4,364,196

METHOD OF OPERATING FERROUS TOY

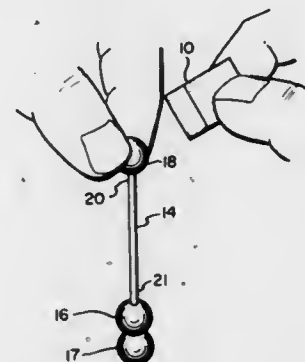
Sheldon R. Shackel, 1446 W. Hutchinson St., Chicago, Ill. 60611

Filed Dec. 8, 1980, Ser. No. 214,274

Int. Cl.³ A63H 33/26; G09B 23/18

U.S. Cl. 46—242

3 Claims



1. The method of operating a magnetic toy, said toy comprising (i) a permanent magnet having magnetic north and south poles defining a magnetic axis therebetween, (ii) a non-magnetic ferrous rod, having a rod top end portion and a rod bottom end portion, and (iii) a plurality of non-magnetic ferrous balls, whereby said method results in said balls being suspended from said rod bottom end portion when said rod is removed from the influence of the magnetic field produced directly by said magnet, said method comprising the steps of:

- touching a first ferrous ball with a magnetic pole of said magnet;
- arranging said rod bottom end portion so that its axis is substantially coaxial with said magnetic axis and in contact with said first ferrous ball;
- moving said ferrous rod and first ball from contact with said magnetic pole, but within the magnetic field of said magnetic pole, whereby said first ball is suspended from said rod above said magnet;
- contacting said first ball with a second ferrous ball whereby said first and second balls are suspended from said rod bottom end portion above said magnet; and
- removing said rod and suspended ferrous balls from the proximity of said magnet and out of the influence of the field produced directly by said magnet.

4,364,197

PRE-GROWN TURF AND MANUFACTURING OF PRE-GROWN TURF

Gerard Baron, Puteaux, France, assignor to Fitexa S.A., Courbevoie, France

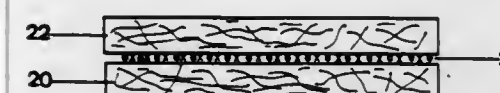
Filed Mar. 2, 1981, Ser. No. 239,665

Claims priority, application France, Mar. 11, 1980, 80 05370

Int. Cl.³ A01G 1/00

U.S. Cl. 47—56

14 Claims



1. A carpet for providing pre-grown turf, comprising: upper and lower layers of non-woven cloth, at least one of the non-woven cloth layers being substantially made of flax; and a layer of grass seeds spread intermediate the upper and lower non-woven cloth layers.

4,364,198

STORM UNIT FOR EXISTING WINDOW

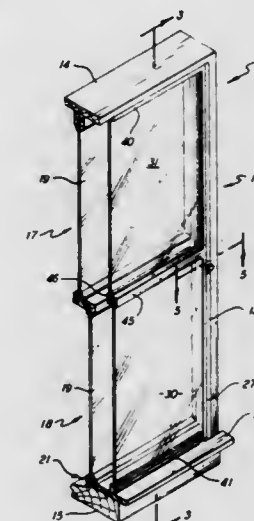
Thomas J. Netti, 3 Wallace Ave., Auburn, N.Y. 13021

Filed Jul. 11, 1980, Ser. No. 167,677

Int. Cl.³ E05B 65/04

U.S. Cl. 49—62

16 Claims



1. The method of assembling a storm unit in an existing window having at least one sash that is arranged to slide in a vertical direction within a frame, including the steps of removing the existing inside stops from the frame, installing vertical side rails in place of the stops against which the window slides, providing a pair of parallel grooves in the opposed end faces of the rails with the grooves extending along the vertical length of each rail to provide an inner set of opposed grooves and an outer set of opposed grooves, providing a pair of deformable flat transparent panels that are capable of being slidably mounted between the rails when seated in a flat posture within a set of said grooves, said panels having a total area which fills the window opening, buckling an upper panel into one of said set of grooves, buckling a lower panel into the other set of grooves, securing upper and lower caps to the upper and lower edges of the two panels, and weatherstripping between the lower cap of the upper panel and the upper cap of the lower panel to provide a seal when both panels are placed in a closed position filling the window opening.

4,364,199

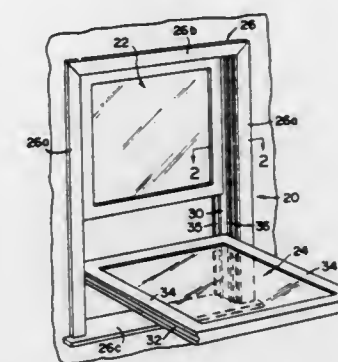
REMOVABLE-TILT-OUT WINDOW CONSTRUCTION

William M. Johnson, and Kelly L. Calhoun, both of Sioux Falls, S. Dak., assignors to The Celotex Corporation, Tampa, Fla.

Filed Jul. 11, 1980, Ser. No. 167,580

Int. Cl.³ E05D 15/22

12 Claims



8. In a tilt-out sash window comprising a frame including side jambs, at least one sash having side stiles, weather stripping secured to each of said side jambs, said weather stripping being shaped to receive said window stiles in slidable engagement, a longitudinal channel in said weather stripping on each side of said sash window, said channel having a back wall, spaced sidewalls and a front wall, at least one track integral with and extending perpendicularly away from said backwall toward said front wall in spaced parallel relationship with one of said sidewalls and a balance spring locking mechanism comprising:

- a slidable block in each of said longitudinal channels, said slidable block having at least one slot extending the length of one side of said slidable block through one face thereof said slidable block being positioned within said channel so that said slot is astride said track,
- said slidable block further having a central opening,
- a locking cam rotatably mounted in said central opening of said slidable block,
- spring means attached to said channel and said slidable block said locking cam being moveable into and out of engagement with said track so as to press said track into locking engagement with one side of said slot whereby said slidable block can be held fixedly in place with respect to said weather strip.

4,364,200

AUTOMATICALLY OPERABLE AUTOMOTIVE VEHICLE GATE APPARATUS PROVIDED WITH SELF PROTECTION AND AUTOMOTIVE PROTECTION

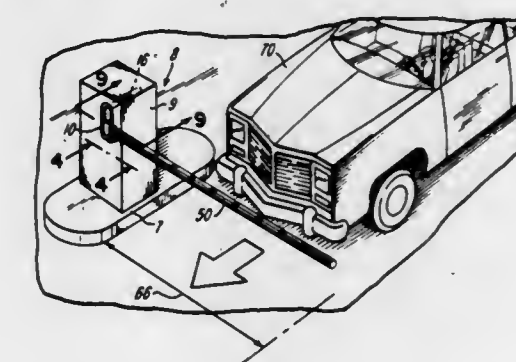
Carl W. E. Cobb, Centerville, Ohio, assignor to Kettering Medical Center, Kettering, Ohio

Filed Dec. 29, 1980, Ser. No. 220,358

Int. Cl.³ E05D 15/52

U.S. Cl. 49—192

8 Claims



1. Automotive vehicle gate apparatus comprising: rotary support means,

a gate having a closed position and an open position, connection means joining the gate to the rotary support means for angular movement of the gate between closed position and open position with rotative movement of the rotary support means, said connection means including means for angular movement of the gate about a plurality of axes with respect to the rotary support means and including means for angular movement of the gate from the closed position thereof to the open position thereof when forces are applied to the gate, the connection means including a bracket, a housing joined to the bracket, the housing including an inclined cam surface, a roller movable upon the cam surface, a stem supported by the roller and movable therewith, and pivotal means joining the stem to the gate.

4,364,201

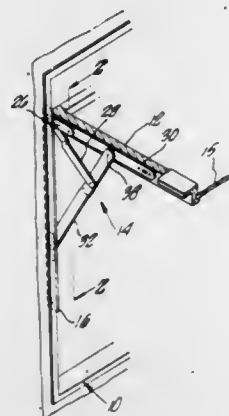
FULL-OPENING WINDOW LINKAGE ASSEMBLY
George A. Taylor, Los Angeles, Calif., assignor to A. W. Anderson Manufacturing Co., Los Angeles, Calif.

Filed Sep. 15, 1980, Ser. No. 186,839

Int. Cl.³ E05D 15/40

U.S. Cl. 49—248

9 Claims



1. An improved linkage supporting and positioning a window sash in relation to a window frame, comprising:
a window frame track member which is affixed to said window frame;
a moveable sash support member upon which the window sash is attached;
an upper linkage means having one end pivotally connected to said frame track member and the other end pivotally connected to said sash support member;
a slide, slidably connected to said frame track member;
a lower linkage means having one end pivotally connected to said slide and the other end pivotally connected to said sash support member at a joint removed from the connection of said support member with the upper linkage means;
a stabilizing linkage pivotally connected on one end to the frame track member and on the other end to the lower linkage means; and
whereby the window sash affixed to said moveable support member is both translated away from the window frame and pivotally rotated to effectuate the opening and closing of said sash in relation to said window frame allowing for both tight sealing upon closing and a maximum escape opening per length of a window frame, upon opening.

4,364,202

VEHICLE WINDOW OPERATING MECHANISM
Robert J. Zavatsky, Torrington, Conn., assignor to Barnes Group Inc., Bristol, Conn.

Filed Jul. 30, 1980, Ser. No. 173,863

Int. Cl.³ E05F 11/48

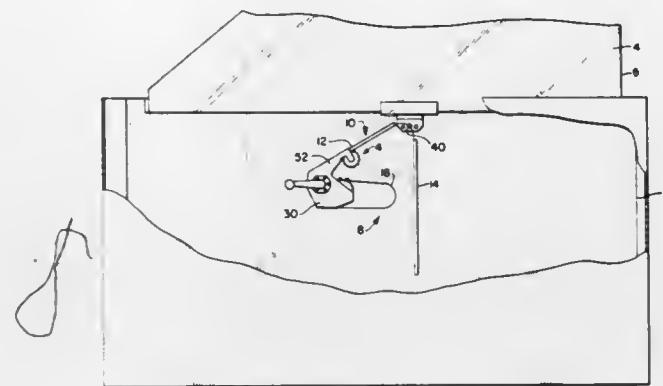
U.S. Cl. 49—352

1 Claim

1. For use with an automobile door having a window open-

ing and a window slidably mounted in the opening, a mechanism for raising and lowering the window comprising:

- a rigid track fixed to the door below the window opening and having a slot opening along its length,
- a flexible non-metallic belt slidably mounted in the track and having a portion thereof connected to the lower part of the window, and having equally spaced perforations formed along its length which are accessible through the slot opening in the track,
- operating means for the window comprising an externally toothed gear rotatably mounted on the door with its teeth meshing with the perforations in the belt, and a



handle connected to the gear for operating the gear to move the belt along the track,

- a fixed shaft mounted on the door adjacent the track,
- a hollow cylindrical externally toothed casing rotatably mounted on the shaft with its teeth in meshed engagement with the perforations in the belt, and
- a backwind spiral spring within the casing having its outer end fixed to the inner peripheral wall of the casing and its inner end fixed to the shaft, the spring being moved from its normal position adjacent the peripheral wall of the casing to its position adjacent the shaft on lowering the window and unwound to its normal position on raising the window.

4,364,203

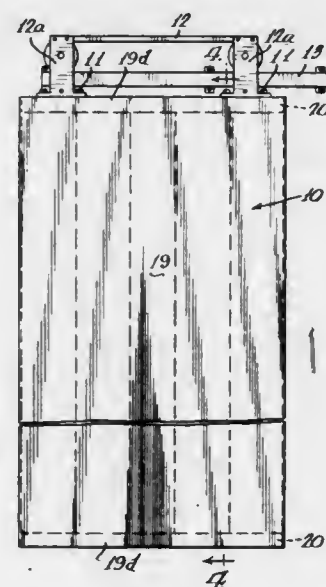
MODULAR SHEET METAL DOOR STRUCTURE
Reuel A. Seaholm, and Stephen W. Smith, both of Arkansas City, Kans., assignors to Montgomery Elevator Company, Moline, Ill.

Filed Nov. 6, 1980, Ser. No. 207,063

Int. Cl.³ E05D 13/02

U.S. Cl. 49—409

26 Claims



1. A modular sheet metal door structure for use in a location where only one surface and the upright door sides must present

a finished appearance, said structure comprising, in combination:

- a plurality of upright sheet metal modules of the same length, each said module having a main web that forms a part of the unfinished surface of the door, and side webs perpendicular to said main web, and said modules having their main webs coplanar and their side webs abutting;
- a one-piece sheet metal sheath having a body which forms the entire finished surface of said door, said sheath having upright marginal portions which closely embrace the modules to provide the finished upright door sides, and the body of said sheath abutting the edges of at least some of the module side webs;
- means fixedly connecting said modules to one another and to said sheath;
- and header means fixedly secured to the upper and lower ends of said modules to provide the ends of the door.

4,364,204

APPARATUS FOR MACHINING A NUMBER OF WORKPIECES WITH ONE TOOL

Franz F. Peiseler, Ronsdorfer Strasse 177, 5630 Remscheid, Fed. Rep. of Germany

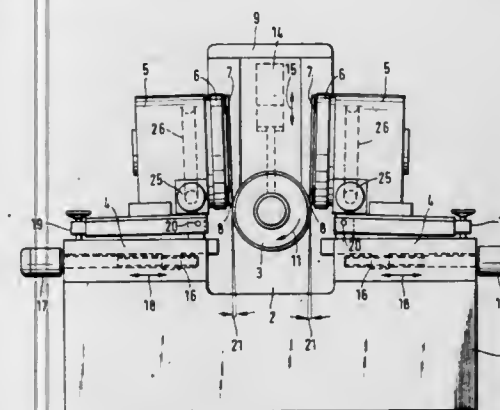
Filed Mar. 27, 1980, Ser. No. 134,436

Claims priority, application Fed. Rep. of Germany, Mar. 30, 1979, 2912721

Int. Cl.³ B23F 1/02, 1/06

U.S. Cl. 51—52 R

3 Claims



1. In apparatus for machining face-type serrations in the planar end faces of a plurality of ring-shaped workpieces, comprising a single tool and power means for driving said tool wherein the improvement comprises that said tool is a grinding wheel having an axis of rotation, a plurality of workpiece holders, each of said holders arranged to hold at least a separate workpiece, means movably mounting said holders for moving said holders at the same time so that each of the workpieces can be moved at the same time in the direction toward and transversely of the axis of rotation of said grinding wheel whereby each of the workpieces moves into engagement with said grinding wheel, said holders are disposed in positions spaced apart around said grinding wheel, said means movably mounting said holders is operable to move said holders stepwise each in a separate plane parallel to the axis of rotation of said grinding wheel, means for mounting said grinding wheel for a feed movement and for moving said grinding wheel through said feed movement with the feed movement being a movement in addition to the machining movement of said grinding tool, said grinding wheel is circular and is rotationally driven for the machining movement, and means supporting said holders for adjusting the grinding angle between the planar end faces of the ring-shaped workpieces to be machined and said grinding wheel.

4,364,205

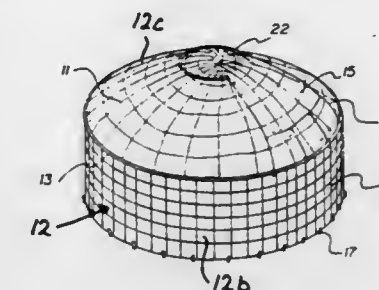
PORTABLE STRUCTURE AND METHOD OF ERECTING SAME

William A. Scott, Winnipeg, Canada, assignor to Don Fell Limited; Gordon Fell Limited and Lawrence Fell Limited, all of Ontario, Canada

Continuation-in-part of Ser. No. 45,975, Jun. 6, 1979, abandoned. This application Dec. 24, 1980, Ser. No. 220,138
Claims priority, application Canada, Jun. 16, 1978, 305673
Int. Cl.³ E04D 1/34

U.S. Cl. 52—4

18 Claims



1. Apparatus for assembling into a structure suitable for storage of material such as grain, comprising a wire mesh strip adapted to form an outer circular support wall, a shaped, single piece flexible plastic liner having a circular floor extending at its periphery into a cylindrical wall with an open top, said cylindrical wall being adapted to provide an inner wall contacting and circumscribed by said outer support wall upon assembly of said structure, said cylindrical wall being further adapted to provide a roof portion upon assembly of said structure, means for bringing together the open top of the cylindrical wall to close the structure after assembly and loading to provide a weather-proof enclosure and a flexible generally conically shaped plastic cover adapted to fit over the roof portion, the outer surface of said cover having a silver coating to render it reflective to sunlight.

4,364,206

PREFABRICATED BUILDING UNITS FOR CONSTRUCTING BUILDING, AND BUILDINGS WHOSE FABRIC COMPRISES ASSEMBLED UNITS OF THIS KIND

Jacques Wybauw, 41 Avenue Brunard, 1180 - Bruxelles, Belgium

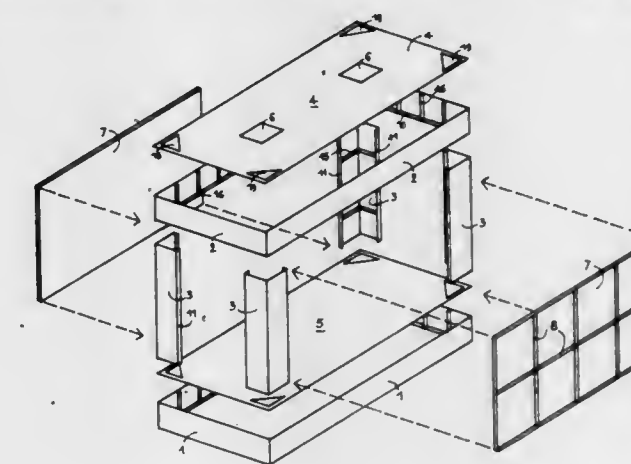
Filed Dec. 5, 1979, Ser. No. 100,374

Claims priority, application France, Dec. 11, 1978, 78 34744; May 2, 1979, 79 11027; Jun. 12, 1979, 79 14983

Int. Cl.³ E04B 1/348

U.S. Cl. 52—79.7

18 Claims



15. A building composed of a plurality of superposed and juxtaposed building units bolted together, each such unit com-

prising a metallic structure having the shape of a right prism, said structure further comprising:

- a lower frame formed of wide, flat bars disposed along the side faces of the prism in such a manner that the bottom edge of such frame forms the sides of the bottom base of the prism;
- an upper frame formed of wide, flat bars disposed along the side faces of the prism in such a manner that top edge of such upper frame forms the sides of the top base of the prism; and
- uprights having a V-shaped section joining together said frames, each upright being disposed in such a manner that its edge forms a vertical edge of the prism and that its flanges, formed of wide, flat bars, are disposed along the side faces of the prism, said units being adapted to be fastened to each other along at least one pair of adjacent surfaces of the prism;
- a bottom horizontal wall attached to its lower frame comprising a metal sheet connected thereto at a predetermined level with respect to the top edge thereof; and,
- a top horizontal wall attached to its upper frame at a predetermined level with respect to the top edge thereof, said horizontal walls being self-supporting, whereby each forms, together with its frame, an empty box open at the bottom.

4,364,207

EXTENDED SPACE ENCLOSING STRUCTURE

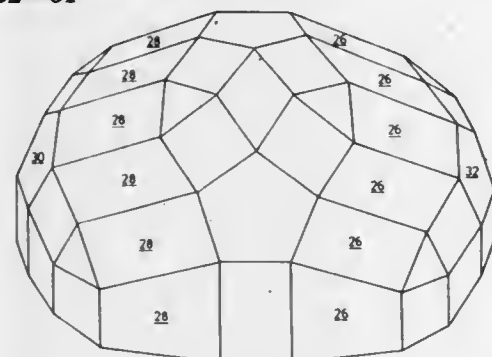
Helmut Bergman, 116 Newport Ave., Scarborough, Ontario, Canada (M1L 1J5)

Continuation-in-part of Ser. No. 64,756, Aug. 8, 1979, Pat. No. 4,258,513. This application Nov. 12, 1980, Ser. No. 206,071

Int. Cl.³ E04B 1/32

U.S. Cl. 52—81

3 Claims



1. A space enclosing structure, having an outer edge, comprising a dome-like portion of an expanded non-regular rhombic triacontahedronal form,

- (a) the non-regular rhombic triacontahedronal form, which is expanded, comprising a deregularized regular rhombic triacontahedronal form of rhombus surfaces, each having acute and obtuse vertices and four outer edges of the said rhombus surfaces defining six sets of equivalent non-coplanar parallel edges, the non-regular rhombic triacontahedronal form having each of at least one the six sets of non-coplanar parallel edges of a length different than the length of each of at least one other of the six sets of non-coplanar parallel edges, to so transform at least some of the rhombus surfaces into rhomboid surfaces;
- (b) the non-regular rhombic triacontahedronal form being expanded into the expanded non-regular rhombic triacontahedronal form by an outward parallel displacement of each of the rhombus and rhomboid surfaces, respectively, to define (i) an equilaterally triangular surface between previously contiguous obtuse vertices, (ii) a regular pentagonal surface between previously contiguous acute vertices, and (iii) a right angled parallelogram surface between the previously colinear outer edges of the rhombus and rhomboid surfaces, the triangular and pentagonal surfaces all being equivalent, respectively;
- (c) the non-regular rhombic triacontahedronal form com-

prising the form defined by the said rhombus, rhomboid, triangular, pentagonal and right angle parallelogram surfaces.

4,364,208

MULTI-WALLED STRUCTURES FOR CONTROLLED ENVIRONMENTAL USE

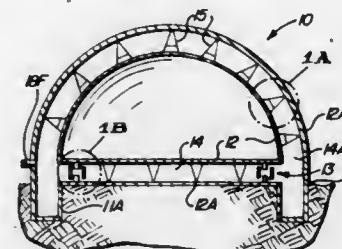
Pryce Wilson, 2510 1/2 N. 7th St., Phoenix, Ariz. 85006

Filed Jan. 16, 1978, Ser. No. 869,832

Int. Cl.³ E04B 7/18; E04D 13/03

U.S. Cl. 52—82

5 Claims



1. A multi-walled object comprising:

- a first wall member defining a domical configuration,
- a second wall member defining a domical configuration positioned adjacent to said first wall member enclosing a space therebetween,

means for enclosing the space between said wall members, V-shaped strut means mounted to extend between said first and second members at spaced positions for supporting the members,

said strut means comprising a pair of axially controlled magnets positioned with like poles juxtaposed to each other and being formed to control the flow of energy between the members and having its base engaging one wall member and its apex engaging the other wall member,

valve means mounted in said first wall member operable for periodically controlling the ambient content of the atmosphere of said space between said first and second wall members, and

portal means for ingress and egress from said object, said first and second wall members defining an enclosing space comprising the walls, floor and roof of the domical structure.

4,364,209

WINDOW GLAZING SYSTEM

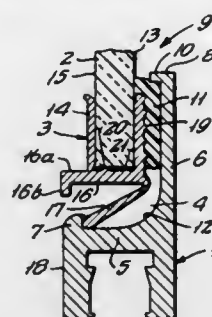
Paul C. Gebhard, 21 S. Brookside Dr., White Meadow Lake, Rockaway, N.J. 07866

Filed Aug. 20, 1980, Ser. No. 179,770

Int. Cl.³ E06B 3/00

U.S. Cl. 52—208

15 Claims



1. An impact resistant window structure or the like, having a quick replaceable glazing assembly which comprises

- (a) a structural frame forming a primary opening,
- (b) said structural frame comprising a channel-forming mem-

ber having a base portion, a front flange extending inward of said opening from said base portion, and a lip-forming flange spaced from said front flange,

- (c) said lip-forming flanges, in the structural frame forming an access opening larger than said primary opening,
- (d) said glazing assembly including a glazing panel of a size and shape corresponding generally to said openings,
- (e) said glazing assembly further including a glazing frame engaging and extending about the periphery of said glazing panel,
- (f) said glazing frame being formed of glazing strips of unitary, monolithic, extruded construction and including at least a base portion, a back flange extending from said base portion and overlying the back peripheral surface areas of said panel, and integral snap-in locking strips,
- (g) the base portions of certain of said glazing strips having front portions and said locking strips being integrally joined with said front portions and running lengthwise of said strips,
- (h) said locking strips extending at an angle rearward and outward with respect to said opening,
- (i) the glazing assembly of said glazing panel and glazing strips being of larger dimensions than said primary opening and, exclusive of said locking strips, smaller than said access opening,
- (j) the peripheral dimensions of said glazing assembly, including said locking strips, being larger than said access opening, and also larger than the opening defined by the base portions of said structural frame,
- (k) said locking strips being flexibly and resiliently related to the base portions of said glazing strips by reason of a reduced thickness, hinge-like connection thereto, whereby said locking strips are resiliently displaceable toward said base portions,
- (l) said lip-forming flanges being recessed for locking engagement with the backwardly extending free end of said locking strips upon insertion of said glazing assembly into said structural frame,
- (m) resilient sealing means interposed between the front flanges of said structural frame and the front peripheral surface portions of said glazing assembly to form a seal,
- (n) said sealing means being disposed about substantially the entire periphery of said structure and being sufficiently compressible to accommodate forward movement of the displaced locking strips past said lip-forming flanges,
- (o) said sealing strips being retained under substantial compression by said glazing assembly when said locking strips are engaged in said recesses.

4,364,210

FIRE BARRIER DEVICE

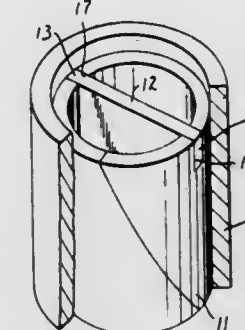
Peter B. Fleming, Woodbury, Minn.; Richard R. Licht, New Richmond, Wis., and Joseph C. Peisert, St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed May 29, 1980, Ser. No. 154,456

Int. Cl.³ E04B 5/48

U.S. Cl. 52—221

24 Claims



1. A fire barrier device for providing fire and smoke stop-

page in penetrations through walls, floors, partitions and ceilings comprising:

- (a) a sleeve of intumescent sheet material lining the interior of said penetration and affixed to the wall of said penetration, said sleeve occupying only a minor portion of said penetration, and said intumescent sheet material operable to expand when said penetration is subjected to elevated temperatures and substantially fill said lined penetration; and
 - (b) at least one end cap positioned at one end of said sleeve, said end cap capable of being penetrated by pipes or cables passing through said lined penetration and conforming around said pipes or cables, and said end cap capable of sealing said penetration against the passage of flames, smoke and gases through said penetration from one end to the other;
- said fire barrier device being capable of allowing any number and most sizes of pipes or cables to be placed, removed, or replaced without disruption of said intumescent sleeve material, and said fire barrier device providing a wide clearance between said pipes or cables and said intumescent sleeve.

4,364,211

POOL PANEL CONNECTOR SYSTEM

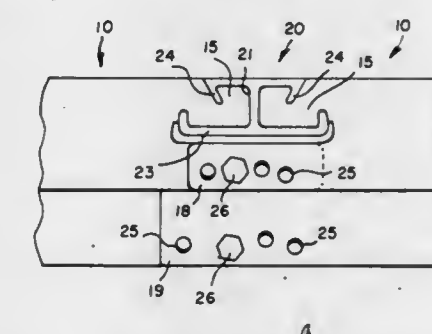
George F. Arp, Fairport, N.Y., and James M. Nichols, Old Saybrook, Conn., assignors to Helder Associates, Inc., Morris Township, Morris County, N.J.

Filed Dec. 8, 1980, Ser. No. 213,934

Int. Cl.³ E04H 3/18

U.S. Cl. 52—245

17 Claims



1. A system of interconnected molded resin panels forming a curved pool wall, each of said panels having a facing wall, base flange, and top flange, and said system comprising:

- a. each end of said facing wall having a vertical margin approximately aligned with said facing wall and juxtaposed between adjacent panels;
- b. each of said margins having an inner groove and an outer groove that extend vertically and are laterally spaced and oblique to each other;
- c. a locking strip arranged vertically to straddle and hold a joint between said adjacent panels positioned in a predetermined orientation to each other;
- d. said locking strip being generally H-shaped in cross section and having a cross web disposed between said juxtaposed margins and inner and outer spans overlapping said juxtaposed margins;
- e. the vertical edges of said inner and outer spans having acutely in-turned ribs engaged in said grooves in said margins;
- f. said bottom and top flanges extending beyond said margins in a region outward from said margins and being arranged to overlap in said predetermined orientation; and
- g. bolts connecting said overlapped flanges.

4,364,212

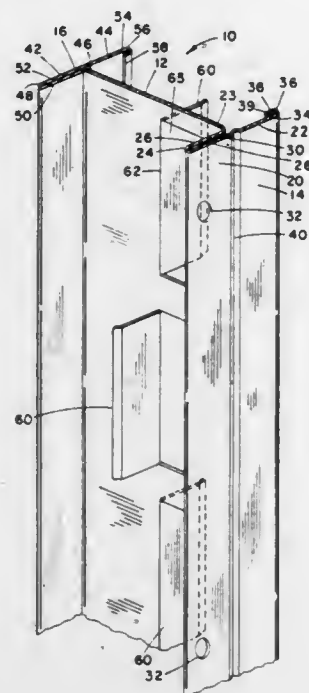
FIRE-RESISTANT METAL STUD

Robert J. Pearson, Tonawanda, and Rodney G. Buerger, Snyder, both of N.Y., assignors to National Gypsum Company, Dallas, Tex.

Division of Ser. No. 730,994, Oct. 8, 1976. This application Oct. 25, 1977, Ser. No. 845,010
Int. Cl.³ E04B 1/00

U.S. Cl. 52—281

14 Claims



1. A fire-resistant metal stud for supporting a vertical wall comprising an elongate formed sheet metal body having an elongate first side and, opposite thereto, an elongate second side, elongate means central thereof adjoining said first side and said second side, means on said second side for affixing wallboard thereto, a pair of flanges on said first side adapted to have the edges of a pair of wallboards affixed against the inner side thereof, whereby said flanges would be disposed on the surface of a wall formed by said wallboards, said pair of flanges including at least one flange which is formed from an inner layer sheet of metal extending from the inner edge of the flange to the outer edge of the flange whereat the metal is reversely folded and extends back to said inner edge forming an outer layer, said inner layer and said outer layer being closely spaced apart and parallel, whereby air that becomes heated will tend to move vertically upward within a gap between said inner layer and said outer layer, said outer layer having a plurality of holes therethrough spaced apart lengthwise therealong.

4,364,213

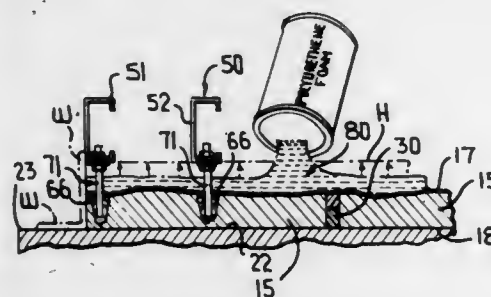
COMPOSITE BUILDING PANEL

Charles W. Biesanz, Sr., Winona, Minn., assignor to Tru-Split Tool Company, Winona, Minn.

Filed Aug. 22, 1980, Ser. No. 180,404
Int. Cl.³ E04C 1/00

U.S. Cl. 52—309.17

25 Claims



1. A composite building panel comprising a plurality of a plurality of spaced, elongated stringers in a suspended ceiling

generally flat exterior elements disposed in generally coplanar relative relationship, said elements each being defined by inner, outer and peripheral surfaces, at least some of said peripheral surfaces of some of said elements being disposed in spaced relationship to define gaps therebetween, adhesive means for at least in part filling said gaps and at least in part covering said inner surfaces, a generally planar sheet of plastic material overlying said plurality of elements and said adhesive means and being bonded to said plurality of elements by said adhesive means, means for defining a support frame, said support frame being in overlying relationship to said sheet of plastic material, and means passing through said sheet of plastic material for connecting at least one of said elements and said plastic sheet to said support frame.

4,364,214

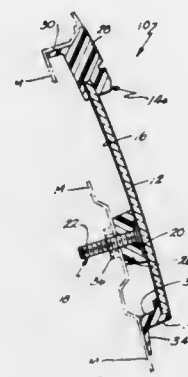
DECORATIVE PANEL ASSEMBLY FOR VEHICLES
Cleon Morgan; Richard Pluta, and John F. Thomas, Jr., all of Holland, Mich., assignors to Donnelly Mirrors, Inc., Holland, Mich.

Filed Oct. 6, 1980, Ser. No. 194,470

Int. Cl.³ B44F 7/00

U.S. Cl. 52—311

25 Claims



1. A decorative panel assembly for vehicles adapted for installation as a unit from the exterior of a vehicle comprising: a sheet-like panel having front, back and peripheral edge surfaces; a frit layer fused to at least one of said surfaces of said panel; attaching means secured to said panel on said frit layer for fastening said panel assembly to an adjacent support.

4,364,215

SUSPENDED CEILING ASSEMBLY AND STABILIZER BAR THEREFOR

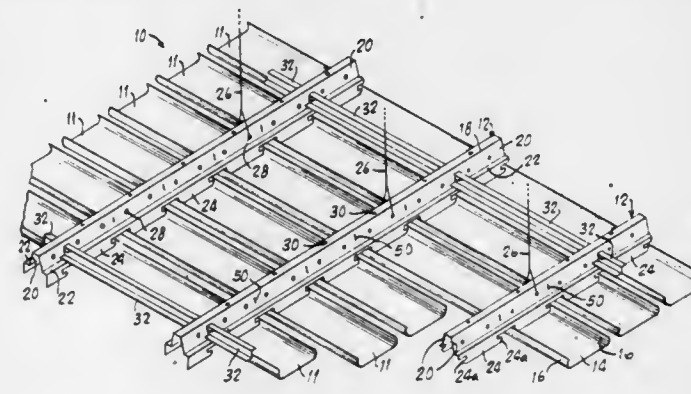
J. Lynn Gailey, Newton Falls, and Carl A. Wollam, Cortland, both of Ohio, assignors to Alcan Aluminum Corporation, Cleveland, Ohio

Filed Jun. 18, 1980, Ser. No. 160,633

Int. Cl.³ E04B 5/52

U.S. Cl. 52—488

13 Claims



1. A stabilizer bar for interconnecting two adjacent ones of a plurality of spaced, elongated stringers in a suspended ceiling

assembly wherein the stringers are individually suspended and cooperatively carry an array of ceiling panels, and wherein each of said two adjacent stringers has a longitudinally extending flat web portion facing the other of said two stringers, said stabilizer bar comprising

- a rigid elongated element having opposed ends and dimensioned to extend between the two stringers such that the stringers are respectively disposed at said ends;
- first and second interlocking means respectively formed at the ends of said element for respectively snap-fittingly engaging the two stringers to hold the element against longitudinal movement relative to the stringers; and
- first and second means respectively formed adjacent the ends of said element for respectively bearing against the two stringers, upon engagement of the interlocking means with the stringers, to prevent relative angular movement of the stringers and the element and thereby, in cooperation with other like stabilizer bars interconnecting stringers of the assembly, to maintain the stringers fixed in orientation relative to each other and to prevent racking of the assembly;
- each of said bearing means comprising a pair of flanges respectively having edges disposed to simultaneously abut a surface of the web portion of one of said two stringers, along extended lines of contact spaced transversely of the length of the stringer, upon snap-fitting engagement of the adjacent one of said interlocking means with said one stringer.

4,364,216

STRUCTURAL UNIT IN THE FORM OF A PROFILED BAR

Ernst Koller, Paradiesstrasse 64, CH-4102 Binningen, Switzerland

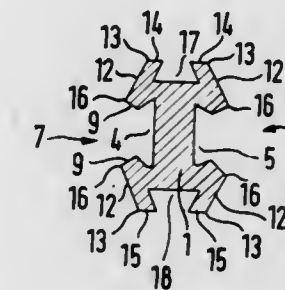
Filed Feb. 25, 1980, Ser. No. 124,458

Claims priority, application Switzerland, Nov. 17, 1979, 10231/79; Fed. Rep. of Germany, Dec. 19, 1979, 2951068

Int. Cl.³ E04C 3/30

U.S. Cl. 52—731

25 Claims



1. A structural element in the form of a shaped bar for attaching building parts and the like, having at least four longitudinal grooves which are arranged 90° apart on its periphery, of which grooves each of two longitudinal grooves arranged opposite each other has an outer section which becomes narrower trapezoidally from the outside to the inside and an inner section adjoining same which becomes wider from the narrowest point of the groove towards the inside, the base surface and the side surfaces of each of said longitudinal grooves being substantially flat and extending parallel to the corresponding surfaces of the other longitudinal groove arranged opposite same; the other two longitudinal grooves having a cross-sectional shape which becomes trapezoidally larger from the outside to the inside, the base surface and side surfaces of each of the said other two longitudinal grooves extending parallel to the corresponding surfaces of the other said longitudinal groove opposite same, said structural element having four flat outer surfaces which lie between the four longitudinal grooves and extend crosswise parallel to each other and four additional surfaces each extending between a boundary of a groove and one of said four flat outer surfaces the distance between diagonally

nally opposite additional surfaces being greater than the distance between the first mentioned flat surfaces.

4,364,217

DEVICE FOR AUTOMATICALLY OPENING AND FILLING BOXES

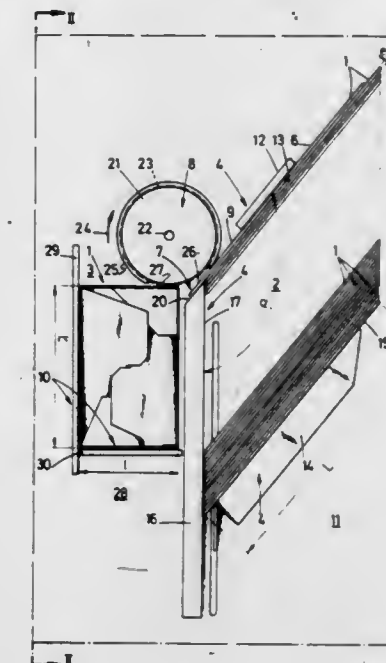
Angel E. Torrenteras, Avenue du Roi Albert, 176, and Antonio E. Torrenteras, Kruiweg, 66, both of Brussels, Belgium

Filed Mar. 14, 1980, Ser. No. 130,354

Claims priority, application Belgium, Mar. 16, 1979, 194070
Int. Cl.³ B65B 43/26, 57/00

U.S. Cl. 53—58

8 Claims



1. Device for conveying one at a time boxes in folded condition, said boxes being of the type having a quadrangular bottom which folds-back between side walls thereof when said side walls are brought together two by two relative to a plane at a right angle to the bottom and passing through a diagonal thereof, said boxes being transferred from a magazine wherein said boxes are stacked in folded condition to a station where said boxes are opened, the boxes being automatically opened during transfer thereof, said device comprising means inside the magazine to retain the boxes aligned in a stack in folded condition, in such a way that the side walls of said boxes bear on one another, means to exert a pressure towards one stack end, and means arranged at said stack end to allow the movement of a box in folded condition and cross-wise to the stack, said device comprising on the one hand, means to convey a box from said magazine to said station, said means bearing on the side walls of that box lying at said stack end and driving said box cross-wise to the stack over a distance at least equal to the box length in folded condition, and on the other hand, in the station where the boxes are opened, means to prevent the box being moved cross-wise to the stack, to insure the automatic opening thereof, said latter means being arranged at a distance, as considered in parallel relationship with the box movement from the magazine, which is at the most slightly larger than the length of a diagonal of the box bottom.

4,364,218

CLOSURE APPARATUS INCORPORATING A MAGNETIC CLUTCH FOR SCREWING-ON A PLASTIC SCREW CLOSURE

Albert Obrist, Kaiseraugst, Switzerland, assignor to Albert Obrist AG, Reinach, Switzerland

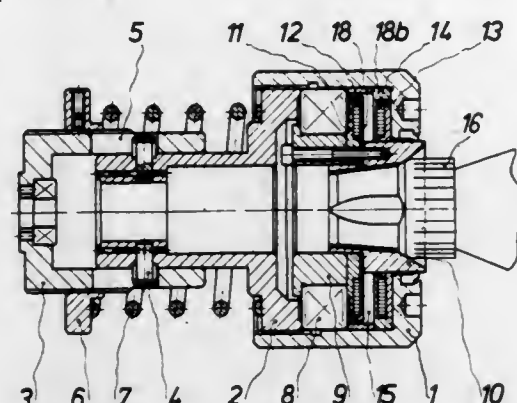
Filed Apr. 25, 1980, Ser. No. 143,751

Claims priority, application Switzerland, Apr. 25, 1979, 3885/79

Int. Cl.³ B65B 3/20

U.S. Cl. 53—331.5

11 Claims



1. A closure apparatus for screwing a plastics screw closure on to a container provided with a screw-thread, comprising drive means, a screw-on head for screwing on the screw closure, and a torque-dependent clutch arranged between the screw-on head and the drive means which interrupts the screwing-on process when a predetermined desired torque is reached, said clutch having a clutch plate on the drive side and a clutch plate on the driven side, spaced from the drive-side clutch plate and connected to the screw-on head, said drive-side and said driven-side clutch plates having permanent magnets on the facing surfaces thereof, said poles of the permanent magnets being so arranged that the two clutch plates attract each other at least in one relative position thereof, said drive means including an outer body having an axial opening at its end toward the screw closure, said opening being defined by an inwardly extending flange-like portion, said drive-side clutch plate being disposed in said outer body on said flange-like portion so as to surround said opening, said screw-on head being disposed partially inside said outer body and having a portion projecting axially through said opening for engaging a screw closure, said driven-side clutch plate being disposed in said outer body and carried by said screw-on head so as to face said drive-side clutch plate, and roller bearing means carried by said outer body and rotatably supporting said screw-on head inside said outer body.

4,364,219

APPARATUS FOR SEALING CONTAINERS

Joe G. Luyett, Defiance, Mo.; Lawrence W. Ulrich, and Connie W. Walker, both of Bolingbrook, Ill., assignors to Durable Packaging Corporation, Chicago, Ill.

Filed Oct. 14, 1980, Ser. No. 196,617

Int. Cl.³ B65B 7/20

U.S. Cl. 53—374

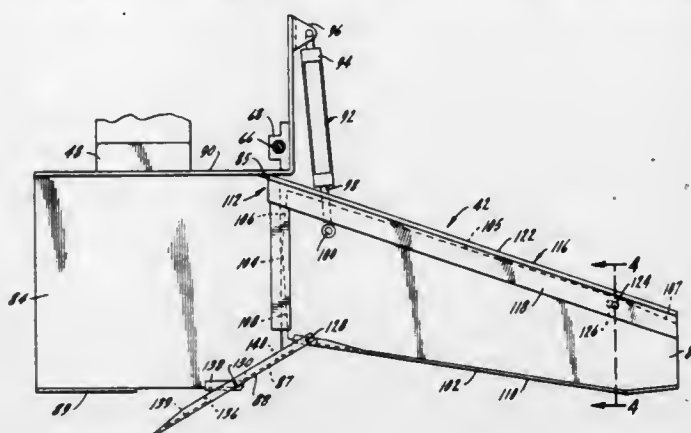
5 Claims

1. In combination with apparatus of the type used for sealing the foldable flaps of cartons, said apparatus including a frame structure and a vertically movable sealing head support assembly means mounted to said frame structure; and an improved plough mechanism secured to said sealing head support assembly means and movable therewith for infolding the leading and trailing top flaps, comprising:

- a plough member rigidly secured to said sealing head support assembly means and movable therewith;
- a longitudinally extending trailing flap folding member pivotally mounted at an outer end thereof to said sealing head support assembly means and slidably and pivotally mounted at an inner end thereof to said plough member;
- a leading flap folding member pivotally secured about a

substantially horizontal axis at an outer portion thereof to said plough member and pivotally secured about a substantially horizontal axis at an inner portion thereof to said inner portion of said trailing flap folding member; and

(d) means for vertically moving, said sealing head support assembly means so that the inner ends of said trailing flap folding member and said leading flap folding member secured thereto are moved between an up position and a down position relative to said plough member such that the included angle between the lower flap contacting surfaces of said leading flap folding member and said trailing flap folding member is obtuse when said leading



flap folding member and said trailing flap folding member are in their up position and the flap contacting surfaces of said leading flap folding member and said trailing flap folding member are in substantially the same horizontal plane when said leading flap folding member and said trailing flap folding member are in their down position;

(e) said flap contacting surfaces of said leading flap folding member and said trailing flap folding member being effective to respectively infold the leading and trailing top flaps as said plough mechanism is lowered into contact therewith and said trailing flap folding member and said leading flap folding member are moved to their down positions.

4,364,220

CONTAINER INTENDED FOR CONTENTS UNDER PRESSURE TOGETHER WITH A METHOD FOR THE MANUFACTURE OF SUCH A CONTAINER

Hans A. Rausing, Lund, Sweden, assignor to Tetra Pak International AB, Sweden

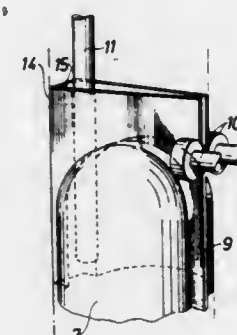
Filed Sep. 8, 1980, Ser. No. 184,885

Claims priority, application Sweden, Sep. 12, 1979, 7907560

Int. Cl.³ B65B 9/06, 47/04, 61/02

U.S. Cl. 53—411

8 Claims



1. A method for the manufacture of a container comprising the steps of providing at least two folding indication lines along a central portion of a web of sheet metal having at least one of its sides covered with a thermoplastic lining, said folding indication lines being parallel with a longitudinal axis of the web and with each other, compression moulding and simultaneously stretching areas of the web on each side of said folding

4,364,222

NUT HARVESTING MACHINE

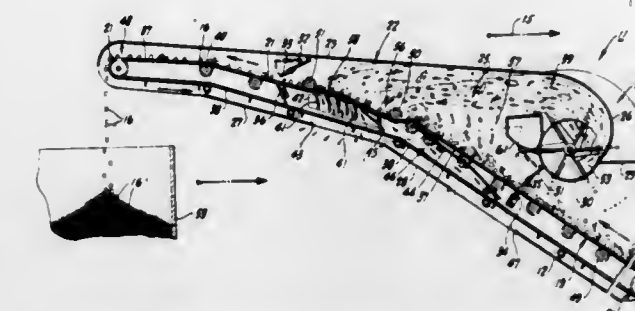
Barry Ramacher, Stockton, Calif., assignor to Ramacher Manufacturing Company, Linden, Calif.

Filed Jul. 27, 1981, Ser. No. 286,923

Int. Cl.³ A01D 51/00, 46/00; B07B 4/00

U.S. Cl. 56—328 R

15 Claims



1. A nut harvesting machine for crop collection and trash separation comprising:

- an elongated fore and aft frame mounted on ground-engaging wheels for advancing along a path defined by a windrowed mixture of nuts and orchard trash;
- a foraminous endless conveyor mounted on said frame in a fore and aft direction, the upper run of said conveyor moving from a forward ingress end to an after egress end;
- means for picking up and depositing the windrowed mixture on said forward end of said upper run;
- a housing substantially enclosing said conveyor, said housing including a first air vent and an air outlet and defining a channel for the flow of air from said first air vent to said outlet;
- a fan having a suction port and a discharge port;
- means for collecting said fan to said housing to induce the flow of air into said first air vent, through said channel and outwardly through said outlet into said fan, said channel directing air through said upper run in a nut and trash separation zone; and,
- an elongated fore and aft plate below said upper run, said plate forming in conjunction with said housing a fore and aft settling zone with substantially horizontal air flow, said settling zone being of sufficient length to allow any entrained nuts to descend onto said upper run while lighter trash continues beyond said settling zone into said fan and outwardly through said discharge port to return to the ground.

4,364,221

LAWN MOWER

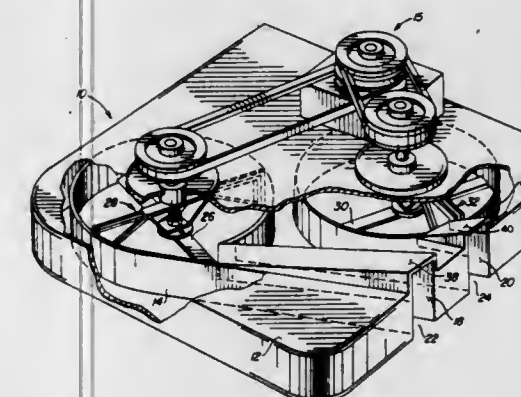
Marvin J. Wixom, 1505 W. Pierce St., Phoenix, Ariz. 85007

Filed Jul. 2, 1981, Ser. No. 279,826

Int. Cl.³ A01D 35/264

U.S. Cl. 56—13.6

3 Claims



1. A lawn mower capable of cutting a wide path through grass, comprising:

- a housing;
- at least two blade housings mounted substantially diagonally opposed to each other on said housing;
- a cutting blade rotatively mounted in each of the said blade housings;
- separate exit shoot means coupled to each one of said blade housings to accommodate the removal of grass clippings from each one of the said two blade housings, each of said two blade housings comprising a separate wall which follows generally the arcuate path of its respective cutting blade except for that portion of the arcuate path corresponding to the entry of its respective exit shoot, each of said separate exit shoots comprising different first and second walls leading from its respective blade housing to an outlet portion on one side of said housing;
- a cleaner blade associated with and mounted at right angles to each cutting blade;
- said cleaner blade comprising a frame portion having slots and a substantially rigid rubber wiper having two L-shaped sections located within said slots along the top-horizontal and side-vertical edges of said frame portion;
- wherein the exterior portion of said rubber wiper is close to the interior of said blade housing.

4,364,223

PROCESS FOR PRODUCING A COMBINATION YARN

Louis Vignon, Geneva, Switzerland, assignor to Heberlein Hispano SA, Geneva, Switzerland

Filed Sep. 5, 1979, Ser. No. 72,593

Claims priority, application Switzerland, Sep. 5, 1978, 9333/78

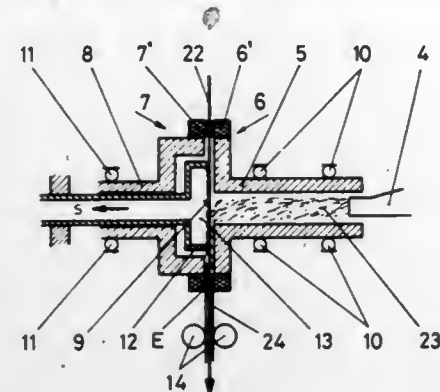
Int. Cl.³ D01H 1/135; D02G 3/36

U.S. Cl. 57—5

7 Claims

1. A process for the production of a combination yarn comprising a core of continuous filament and a sheath of staple fibers, comprising conveying the staple fibers in a current of air to a suction surface comprising a perforated collecting surface exposed to relative suction in a suction zone, the current of air moving at generally right angles to the surfaces of two counterrotating friction discs having narrowly spaced opposing faces defining a gap located relatively radially outwardly of the axis of said current of air, transferring the staple fibers from the suction zone generally at right angles to the axis of said current of air and into said gap so as to impart twist to the

fibers, and uniting a continuous filament with the staple fiber in the suction zone so as to be twisted therewith in said gap to



form a yarn comprising a core of continuous filament and a sheath of staple fibers.

4,364,224

CONTROLLING A YARN PACKAGE AT A WINDING STATION

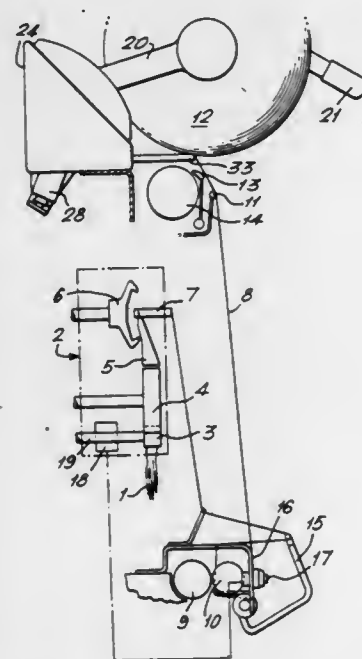
Clifford Dennings, 2d Moss Hall Rd., and Alan Smith, 206 Dill Hall La., both of, Accrington, Lancashire, England
Continuation of Ser. No. 20,571, Mar. 15, 1979, abandoned. This application Dec. 30, 1980, Ser. No. 221,601

Claims priority, application United Kingdom, Mar. 16, 1978, 10414/78

Int. Cl.³ D01H 15/00; B65H 67/08, 49/20

U.S. Cl. 57—263

7 Claims



1. In an apparatus for winding a strand of yarn onto a bobbin tube to form and build a yarn package, said apparatus including a driving roller, package support means for holding said tube and supporting it at a position of contact of said tube and yarn thereon with said driving roller and for moving said tube and yarn thereon to a plurality of positions spaced away from said position of contact whereat said tube and yarn thereon are not driven, restoring force means for applying to said tube and yarn thereon a force which tends to move said tube and yarn thereon toward said position of contact and then for maintaining a substantially constant pressure at said position of contact to enhance uniform driving of said tube and yarn thereon for continued winding of yarn thereabout, and retaining and releasing means for retaining said package of tube and yarn thereon at a one of said plurality of said spaced away positions against the impetus of said restoring force of said restoring force means and for releasing said package from said one of said plurality of said spaced away positions namely said retaining position and for thereby permitting said package to be moved to said contact position under the impetus of said re-

storing force imposed by said means therefor, an improvement comprising

engaging means for engaging said retaining and releasing means with said package such that said retaining means retains said package at said retaining position and spaced away from said driving roller, and for disengaging said retaining means from engagement with said package upon movement of said package by a very small amount to yet another one of said plurality of said spaced away positions for thereby permitting said package to be moved to said contact position under the impetus of said restoring force imposed by said means therefor.

4,364,225

MACHINE FOR PRODUCING SELF-TWISTING YARNS

Jean-Louis Faure, Roanne, France, assignor to ASA S.A., Villeurbanne, France

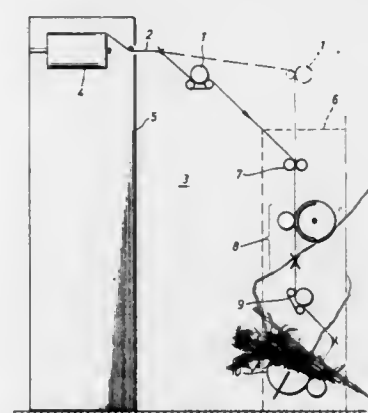
Filed Sep. 5, 1980, Ser. No. 184,277

Claims priority, application France, Sep. 20, 1979, 79 23871

Int. Cl.³ D02G 3/28

U.S. Cl. 57—291

15 Claims



1. A machine for producing self-twisting yarns, the machine comprising a plurality of identical working positions arranged side by side, each said position comprising means for feeding the yarn to be treated, and, separated from said feeding means so as to define an access zone for an operator, yarn-treating means arranged vertically on a common support, said yarn treating means comprising, from top to bottom of the support, (a) a positive yarn delivery device for delivering two yarns in parallel, (b) means to impart an alternate twist to at least one of the two yarns, and for permitting the self-twisting of the two yarns around one another, and (c) means for winding up the self-twisted yarn produced, said means for imparting twist and said means for winding up being separated by a zone in which said self-twisting can occur.

4,364,226

DEVICE FOR INSERTING A SENSOR INTO THE EXHAUST CONDUITS OF AN INTERNAL COMBUSTION ENGINE AND A FUEL-CONTROL SYSTEM USING SUCH A DEVICE

Michel Croset, and Gonzalo Velasco, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Sep. 15, 1980, Ser. No. 186,846

Claims priority, application France, Sep. 14, 1979, 79 22986

Int. Cl.³ F01N 7/18; G01N 27/28; G01K 1/14

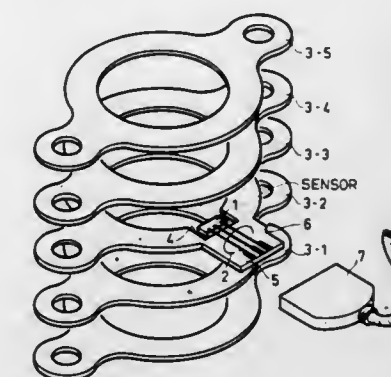
U.S. Cl. 60—276

8 Claims

1. A device for supporting at least one sensor in at least one exhaust conduit of an internal combustion engine having a cylinder head and at least one exhaust port each, said sensor being adapted to measure at least one parameter of the exhaust gasses in said conduit and including output leads conveying electrical signals representative of said parameters, said device comprising:

a flat element formed by at least one sheet of insulating and compressible material resistant to high temperatures;

fixing means for fixing said flat element in a gas tight manner between two pieces of each said exhaust conduit, said first aperture having walls defined by said flat element, said first aperture being coaxial with, and having the same dimensions as, said exhaust conduit, whereby said flat element forms a gasket in said exhaust conduit; at least one first cavity having walls defined by said flat



element and extending to said first aperture, whereby each said first cavity communicates with said exhaust conduit but is out of the flow path of gasses in said exhaust conduit, each said first cavity being adapted to support said sensor; and

means associated with said flat element for rigidly supporting said leads of each said sensor, whereby each said sensor is rigidly held in one said first cavity.

4,364,227

FEEDBACK CONTROL APPARATUS FOR INTERNAL COMBUSTION ENGINE

Seietsu Yoshida; Yukihide Niimi; Massao Ito, all of Kariya; Hiroshi Sawada, and Takayuki Demura, both of Susono, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota and Nippondenso Co., Ltd., Kariya, both of Japan

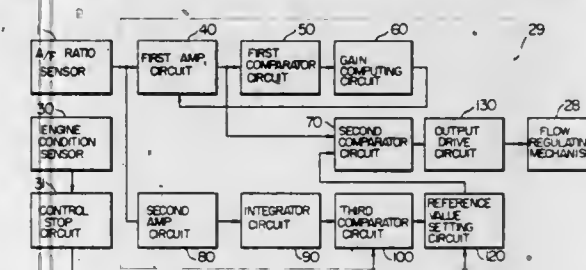
Filed Mar. 27, 1981, Ser. No. 248,282

Claims priority, application Japan, Mar. 28, 1980, 55-39747

Int. Cl.³ F01N 3/22; F02M 7/24

U.S. Cl. 60—276

2 Claims



1. A feedback control apparatus for internal combustion engines comprising:

an exhaust gas sensor for generating a detection signal indicative of the concentration of one component of the exhaust gases from an engine;

an amplifier circuit for amplifying said detection signal, the gain of the amplifier circuit being variable;

a first-comparator circuit for comparing an output of said amplifier circuit with a predetermined first reference value;

a gain computing circuit responsive to the comparison result of said first comparator circuit to vary the gain of said amplifier circuit and thereby to maintain a maximum value of the output of said amplifier circuit substantially constant;

a second comparator circuit for comparing the output of said amplifier circuit with a variable second reference value, the output signal of said second comparator circuit being a pulse signal having a variable time width which feedback controls the air-fuel ratio of said engine;

a third comparator circuit for comparing an integrated value

of the detection signal of said exhaust gas sensor with a third reference value corresponding to a predetermined air-fuel ratio; and
a reference setting circuit responsive to an output of said third comparator circuit to vary said second reference value.

4,364,228

HYDRAULIC TURBINE SYSTEM WITH SIPHON ACTION

J. David Eller, 33 NW. 2nd St., Deerfield Beach, Fla. 33441

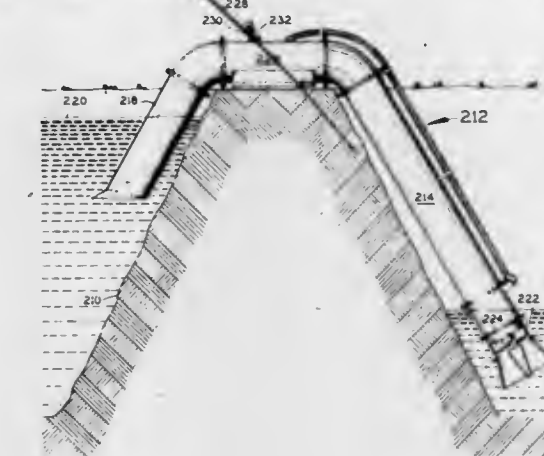
Filed Jul. 25, 1980, Ser. No. 173,194

The portion of the term of this patent subsequent to Feb. 19, 1997, has been disclaimed.

Int. Cl.³ F15B 15/18

U.S. Cl. 60—398

4 Claims



1. In a hydraulic hydroelectric turbine system comprising:
an electric generator;
rotary turbine blades;
hydraulic pump means for operation by rotation of said blades;
hydraulic motor means operatively mechanically coupled to said generator for driving the same and having an inlet and outlet;
a hydraulic fluid reservoir hydraulically coupled to said outlet of said motor means;
connecting means including hydraulic lines connecting said pump means respectively to said inlet of said hydraulic motor means and to said reservoir in a closed hydraulic loop for operating said motor means by hydraulic fluid pumped by said pump means in response to rotation of said turbine blades by water flow;
and a priming unit for priming said turbine system;

the improvement wherein:
said turbine blades, said hydraulic pump means and said priming unit are unified in an axial flow unit which has an annular outer casing that is generally U-shaped and includes two legs and a bight section interconnecting the two legs.

4,364,229

AUTOMOTIVE ENERGY MANAGING TRANSMISSION

Samuel Shiber, Mundelein, Ill., assignor to Timetz, Ltd., Holon, Israel

Filed Feb. 19, 1981, Ser. No. 235,977

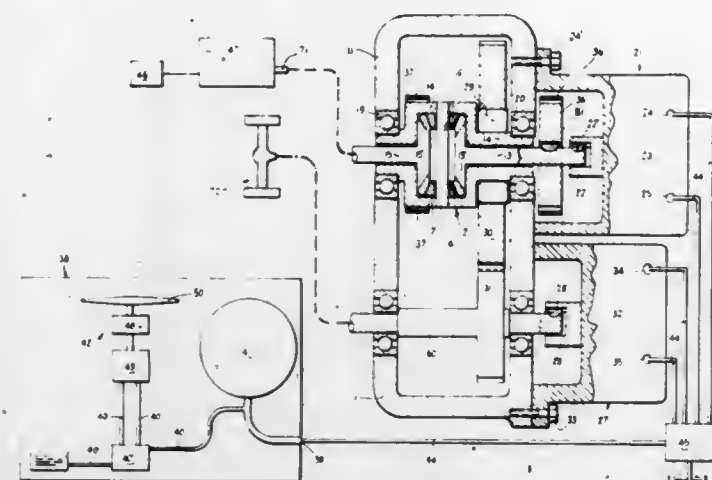
Int. Cl.³ F16D 31/00; F16H 39/08; F15B 1/02

U.S. Cl. 60—414

6 Claims

1. An automotive energy managing transmission comprising in combination:
a housing,
a differential having a first, a second and a third input/output shaft,
a first hydraulic unit having a first input/output member coupled to said first input/output shaft, a first reaction

member attached to said housing, a first inlet port and a first outlet port,
a second hydraulic unit having a second input/output member coupled through a clutch to said second input/output shaft, a second reaction member attached to said housing, a second inlet port and a second outlet port,
a first brake for selectively anchoring said first input/output shaft to said housing,



a second brake for selectively anchoring said second input/output shaft to said housing,
an energy storage means having an inlet/outlet port, first hydraulic conduit and valving means for selectively establishing connections between the said first inlet port, the said first outlet port, said second inlet port, said second outlet port and said inlet/outlet port.

4,364,230

HYDROSTATIC TRANSMISSION OVERSPEED PREVENTION CIRCUIT

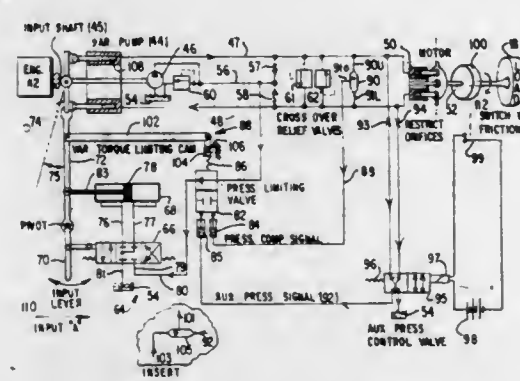
William K. Holmes, Rothschild, Wis., assignor to J. I. Case Company, Racine, Wis.

Filed Oct. 7, 1980, Ser. No. 194,765

Int. Cl.³ F16H 39/46; F04B 49/02

U.S. Cl. 60-444

13 Claims



1. In a material handling machine having: a closed loop hydrostatic power transmission system driven by a prime mover to move a load using a hydraulic motor and a variable displacement hydraulic pump fluidly coupled together by two fluid conduits; a charging system to make up fluid lost by leakage from said transmission; a reservoir to collect leakage and to supply fluid to said charging system; and a servomechanism, powered by fluid supplied from said charging system through a pipe to control the quantity and direction of flow from said pump to said motor by tilting a swash plate in said pump, a hydraulic circuit to prevent overspeeding the prime mover driving said pump, comprising:

- (a) a shut-off valve in said pipe for establishing flow between the charging system and the servomechanism, said valve including a biasing means for normally urging said valve to its open position;
- (b) operating means, linked to said shut-off valve, for closing said shut-off valve to control the operation of said servo-

mechanism in response to the direction of rotation of said motor, and the pressure of the fluid in said conduits, said operating means including:

- first pilot means, opposing said biasing means, for closing said shut-off valve in response to the pressure of the fluid in that one of said two fluid conduits supplying fluid between the hydraulic pump and the hydraulic motor which is at the higher pressure, said biasing means being overcome by said first pilot means in the event that the pressure in said one conduit is due to a heavily loaded pump; and
- second pilot means, opposing said biasing means and in parallel with said first pilot means, for closing said shut-off valve in response to the pressure in that main conduit which for a given direction of rotation of said motor would be pressurized by said motor due to the rotational inertia of said load, said biasing means being overcome by said second pilot means in the event that the pressure in said main conduit is due to reducing the angle of the swash plate in the pump and an inertially powered motor functioning as a pump, whereby the acceleration of the prime mover induced by the rotation of the swash plate by said servomechanism is limited by the torque or pressure loading on said pump and the direction that said motor rotates;

- (c) direction sensing means for sensing the direction of rotation of said motor and controlling said second pilot means; and
- (d) control valve means responsive to said direction sensing means for transmitting pressure from a selected main conduit to said second pilot means.

4,364,231

COMPOUND MASTER BRAKE CYLINDER

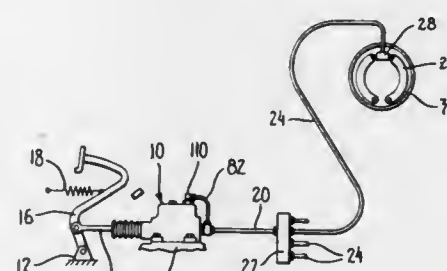
Robert M. Dwyer, Livonia, and Edwin J. Skiba, Sterling Heights, both of Mich., assignors to Massey-Ferguson Inc., Detroit, Mich.

Filed Apr. 23, 1980, Ser. No. 142,944

Int. Cl.³ B60T 11/02

U.S. Cl. 60-577

3 Claims



1. A compound master brake cylinder assembly adapted for use in a hydraulic braking system, said system having braking elements connected by an outlet to said compound master brake cylinder assembly, said assembly comprising:

- a fluid reservoir, a first chamber defining structure adapted to be placed in communication with the reservoir, a first piston slidable relative to said first structure, a second chamber formed within the first piston and adapted to be placed in communication with the outlet, a second piston slidable relative to said second chamber between first and second positions, force applying means capable of initially causing the first piston to move relative to the first chamber defining structure, and to subsequently cause the second piston to move relative to the second chamber, and relief valve means extending between the first chamber and reservoir and responsive to outlet pressure and first chamber pressure and capable of venting fluid from the first chamber to reservoir while progressively reducing first chamber pressure in response to progressive increase in outlet pressure above a predetermined limit whereby the force applied by the force applying means does not substantially vary while the first chamber pressure is being reduced after the outlet pressure exceeds the predeter-

mined limit, the relief valve means including a poppet valve normally spring biased to a closed position, first pilot operated means responsive to outlet pressure, and second pilot operated means responsive to first chamber pressure, said first and second pilot operated means acting against the poppet valve to vent fluid from the first chamber.

4,364,232

FLOWING GEOTHERMAL WELLS AND HEAT RECOVERY SYSTEMS

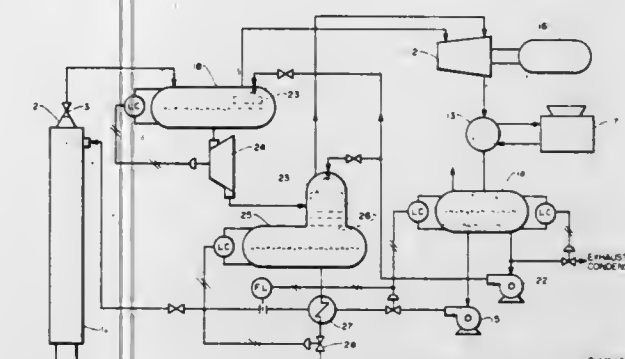
Itzhak Sheinbaum, 2038 E. Altadena Dr., Altadena, Calif. 91107

Filed Dec. 3, 1979, Ser. No. 99,674

Int. Cl.³ F01K 7/00

U.S. Cl. 60-641.2

11 Claims



1. A process causing a geothermal well to flow, comprising: injecting a primary fluid into a geothermal well; controlling the level of injection and the rate of injection of primary fluid by a plurality of control valves in a casing of the geothermal well; flowing the geothermal fluid mixture from said well; separating said geothermal well flow into a geothermal liquid phase and a gaseous phase; said gaseous phase comprising vaporized primary fluid and steam; expanding said gaseous phase through a power extraction gas expansion device; condensing the expanded gaseous phase and separating steam condensate from condensed primary fluid; passing said condensed primary fluid through a heat exchanger to extract heat from said separated geothermal liquid; injecting said primary fluid into the geothermal well casing; extracting additional power from said separated geothermal liquid by passing said geothermal liquid through an expansion turbine at the outlet of said heat exchanger; utilizing steam condensate from said condensed expanded gaseous phase to wash said gaseous phase.

4,364,233

FLUID ENGINE

John H. Stang, Columbus, Ind., assignor to Cummins Engine Company, Inc., Columbus, Ind.

Filed Dec. 31, 1980, Ser. No. 221,798

Int. Cl.³ F02G 1/02

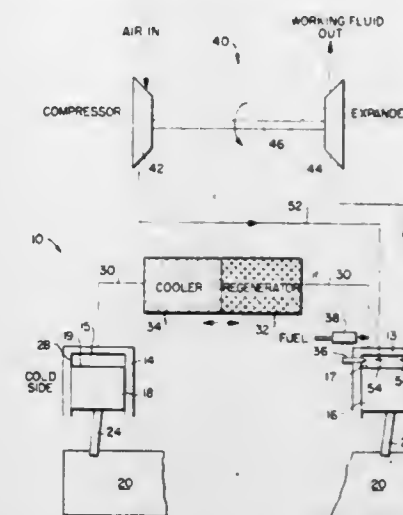
U.S. Cl. 60-712

10 Claims

1. An internal combustion Stirling cycle engine comprising:
 - (a) means defining a hot side chamber and a cold side chamber;
 - (b) means defining a passageway interconnecting said hot and cold side chambers;
 - (c) a hot side piston and a cold side piston respectively reciprocally mounted in said hot and cold side chambers for varying the volume thereof;
 - (d) means for connecting said pistons in a predetermined phased relationship for producing a rotary output in response to reciprocation of said pistons;
 - (e) a regenerator in said passageway between said hot and cold side chambers for removing heat from working fluid directed from said hot to said cold side chamber and

adding heat to working fluid directed from said cold to said hot side chamber;

- (f) a heat exchanger in said passageway between said regenerator and said cold side chamber for removing heat from said working fluid in said passageway whereby the cold side temperature can be maintained within a predetermined range;
- (g) means for injecting fuel into said interconnecting passageway between said regenerator and said hot side chamber.



ber as working fluid is directed from said cold to said hot side chamber, whereby turbulence within said passageway insures complete working fluid-fuel mixing;

- (h) means for initiating combustion within said hot side chamber; and
- (i) means for admitting predetermined quantities of fresh air to and exhausting predetermined quantities of working fluid and combustion products from said hot side chamber.

4,364,234

CONTROL CIRCUITRY FOR THERMOELECTRIC ENVIRONMENTAL CHAMBER

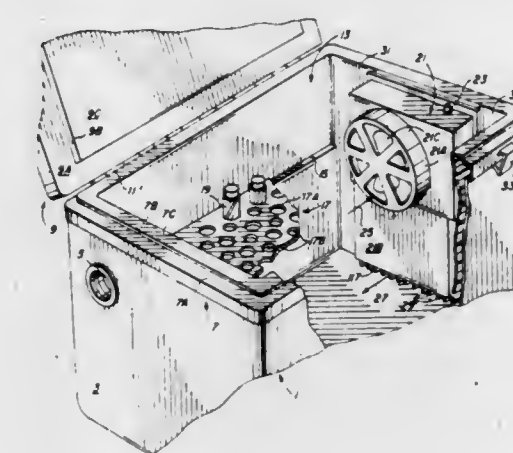
Michael A. Reed, Tucson, Ariz., assignor to Koolatron Industries, Ltd., Ontario, Canada

Filed Mar. 25, 1981, Ser. No. 247,634

Int. Cl.³ F25B 21/02; G01K 13/00

U.S. Cl. 62-3

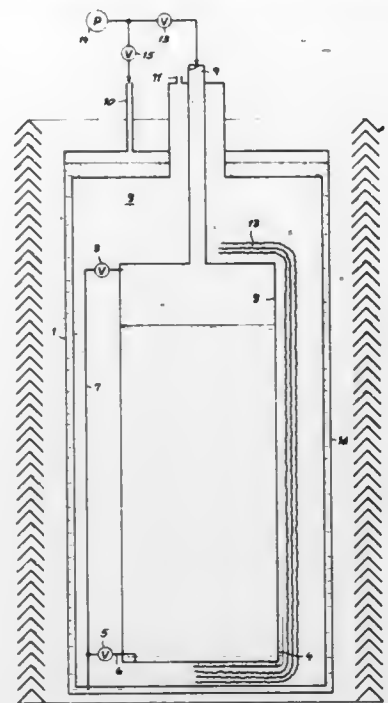
12 Claims



1. Circuitry for controlling a solid state thermoelectric device in a thermoelectric environmental chamber, said solid state thermoelectric device being in thermal communication with an internal heat exchanger disposed inside a thermal compartment of said thermoelectric environmental chamber and an external heat exchanger disposed outside of said thermal compartment, said circuitry comprising in combination:
 - a. temperature selecting means for digital selecting of a temperature that is desired to be maintained in said thermal compartment;

- b. first means responsive to said temperature selecting means for producing a first current representative of said selected temperature;
- c. second means responsive to said first current for producing a first voltage representative of a first upper range limit of said selected temperature;
- d. third means responsive to said first current for producing a second voltage representative of a first lower range limit for said selected temperature;
- e. first temperature sensing means disposed in said compartment for sensing an actual temperature in said thermal compartment and producing a third voltage representative of said actual temperature;
- f. comparison means for comparing said third voltage to said first and second voltages to produce first information indicating whether said actual temperature is above said first upper range limit or below said first lower range limit;
- g. fourth means responsive to said first information for producing a first control signal;
- h. first switching means responsive to said first control signal for
 - i. coupling a first terminal of said solid state thermoelectric device to a first supply voltage conductor and,
 - ii. coupling a second terminal of said solid state thermoelectric device to a second supply voltage conductor,
 if said third voltage is greater than said first voltage;
 - i. second switching means responsive to said first control signal for,
 - i. coupling said second terminal to said first supply voltage conductor and
 - ii. coupling said first terminal to said second supply voltage conductor
 if said third voltage is less than said second voltage; and
 - j. first temperature indicating means responsive to said first temperature sensing means for producing a perceivable indication of said actual temperature.

warmed upon transfer of liquid helium from said compartment through said duct into said reservoir; and



means for thermally insulating the space between said reservoir and said vessel.

4,364,236 REFRIGERANT RECOVERY AND RECHARGING SYSTEM

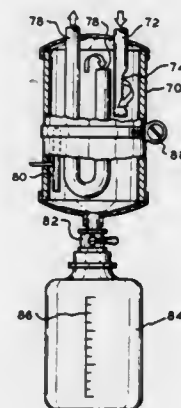
Ralph C. Lower, Bryan, and Roger D. Shirley, West Unity, both of Ohio, assignors to Robinair Manufacturing Corporation, Montpelier, Ohio

Filed Dec. 1, 1980, Ser. No. 211,571

Int. Cl.³ F25B 45/00

U.S. Cl. 62—77

11 Claims



1. The method of servicing a closed refrigeration system having a refrigerant containing an oil lubricant comprising the steps of evacuating the refrigerant from the refrigeration system, separating the oil from the refrigerant, automatically measuring the amount of oil removed from the evacuated refrigerant and automatically recharging the refrigeration system with an amount of oil lubricant substantially equal to the amount of oil separated from the evacuated refrigerant.

4,364,235 HELIUM-COOLED COLD SURFACE, ESPECIALLY FOR A CRYOPUMP

Johann Hemmerich, Jülich, Fed. Rep. of Germany, assignor to Kernforschungsanlage Jülich GmbH, Jülich, Fed. Rep. of Germany

Filed Feb. 27, 1981, Ser. No. 238,770

Claims priority, application Fed. Rep. of Germany, Mar. 4, 1980, 3008128

Int. Cl.³ B04D 8/00

U.S. Cl. 62—55.5

8 Claims

1. A deep-cooled assembly especially adapted to form a cryosurface for a cryopump, comprising:
 - a liquid helium reservoir;
 - a double-wall outer vessel spacedly surrounding said reservoir and formed with at least one deep-cooled surface and at least one compartment formed between walls of said vessel;
 - a duct connecting the bottom of said compartment with the bottom of the interior of said receptacle and provided with a duct whereby said deep-cooled surface is cooled by transfer of liquid helium from said reservoir into said compartment through said duct and said surface is

4,364,237 MICROCOMPUTER CONTROL FOR INVERTER-DRIVEN HEAT PUMP

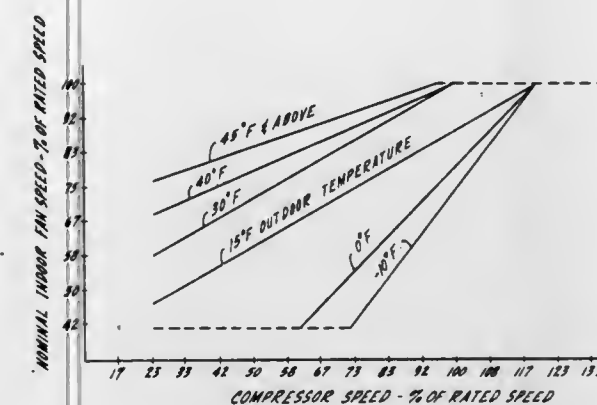
Kenneth W. Cooper, and Jacob E. Shaffer, Jr., both of York, Pa., assignors to Borg-Warner Corporation, Chicago, Ill.

Filed Feb. 2, 1981, Ser. No. 230,486

Int. Cl.³ F25B 13/00; F25D 17/00

U.S. Cl. 62—160

6 Claims



1. A vapor compression cycle heat pump system for conditioning a space and having a closed refrigerant circuit including a compressor, an indoor coil, an expansion device and an outdoor coil connected respectively in series, the system being capable of operation in the heating mode wherein said indoor coil functions as a refrigerant condenser, said system comprising:

- a first sensing means for measuring the actual temperature of a space to be conditioned and generating an electrical signal representative of the measured temperature;
- means for setting a reference temperature of the space to be conditioned and generating a second electrical signal representative of the reference temperature;
- a second sensing means for measuring the temperature of the outdoor atmosphere and generating a third electrical signal representative of the outdoor atmospheric temperature;
- an indoor coil fan to direct air into the conditioned space;
- a variable speed motor driving said indoor coil fan;
- a compressor motor for driving said compressor;
- a first motor speed control means operatively associated with said compressor motor for controlling continuously and discretely the speed thereof between a predetermined minimum speed to a maximum predetermined speed;
- a second motor speed control operatively associated with said indoor coil fan motor for controlling continuously and discretely the speed thereof between a predetermined minimum speed to a maximum predetermined speed;
- programmed control means responsive to said first sensing means, said reference means, and said second sensing means for generating a first digital signal to drive said first motor speed control means, said programmed control means being further responsive to said first digital signal and said second sensing means for generating a second digital signal to drive said second motor speed control means; and
- data processor means having a program coupled to said programmed control means for controlling the operation thereof to effect a predetermined temperature of the conditioned space and relate the speed of said indoor fan motor to the speed of said compressor motor.

4,364,238 VALVE FOR REFRIGERATION PLANT

Zbigniew R. Huelle, Sonderborg; Leif Nielsen, Nordborg, and Jakob S. Jakobsen, Sonderborg, all of Denmark, assignors to Danfoss A/S, Nordborg, Denmark

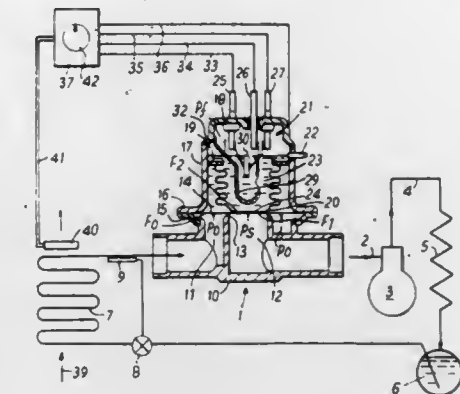
Continuation of Ser. No. 956,572, Nov. 1, 1978, abandoned. This application Sep. 2, 1980, Ser. No. 183,270

Claims priority, application Fed. Rep. of Germany, Nov. 3, 1977, 2749249

Int. Cl.³ F25B 41/04

U.S. Cl. 62—217

1 Claim



1. A refrigeration system comprising, a compressor and an evaporator, a valve unit having an inlet and an outlet with an opening therebetween, said valve unit inlet being connected to the output side of said evaporator and said valve unit outlet being connected to the suction side of said compressor, chamber means for said valve unit, valving means comprising a movable wall for said chamber and closure means for said opening, a filling medium for said chamber having a vapor phase exerting a temperature responsive reference pressure P_r biasing said wall of said valving means in a valve closing direction, passage means for allowing the vapor pressure P_v or refrigerant in said inlet to bias said wall in a valve opening direction to provide a valve opening for said closure means corresponding to the difference between said P_v and P_r pressures, control means for controlling the temperature of said filling medium including heat transfer means and first feedback temperature sensing means in said chamber, said control means further including second feedback temperature sensing means in the air flow stream of said evaporator on the downstream side thereof, said filling medium having characteristics so that its temperature which brings about equilibrium between said biasing of said closure means in opening and closing directions is greater than either said refrigerant in said inlet or the surrounding air or both.

4,364,239 HOT WATER SUPPLY APPARATUS COMPRISING A THERMODYNAMIC CIRCUIT

Jules A. Chapelle, Orsay; Jean-Pierre Levacher; Emile Sanzey, both of La Courneuve, and Pierre Vironneau, Toulouse, all of France, assignors to Electricite de France (Service National), France

Filed Jun. 19, 1981, Ser. No. 275,191

Claims priority, application France, Jun. 20, 1980, 80 13831

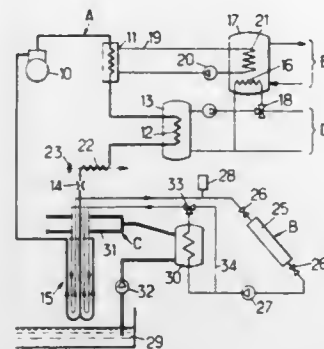
Int. Cl.³ A63C 19/10

U.S. Cl. 62—235.1

13 Claims

1. A hot water supply apparatus comprising:
 - a thermodynamic circuit A containing a thermodynamic fluid in liquid and vapor phases, having compressor means, condenser means for heat exchange between said thermodynamic fluid and a high temperature source including a hot water circuit, expanding valve means and evaporator means arranged for heat exchange with a non-freezable heat carrying liquid,
 - a cold source comprising solar exchanger means, and a circuit for circulation of said heat carrying liquid,
 - a tank for receiving a body of water for heat storage,

heat exchange means arranged in said circuit for circulation of said heat carrying fluid and physically located above said tank,
pumping means for directing a flow of water from said tank to sprinkling means associated with said heat exchange



means, whereby the apparatus operates as a ice-manufacturing device under severe cold conditions and insufficient solar heating,
and defrosting means for melting ice in contact with said heat exchange means with heat taken from the apparatus.

4,364,240

TEMPERATURE-DEPENDENT OUTPUT CONTROL FOR A HEAT PUMP ABSORBER

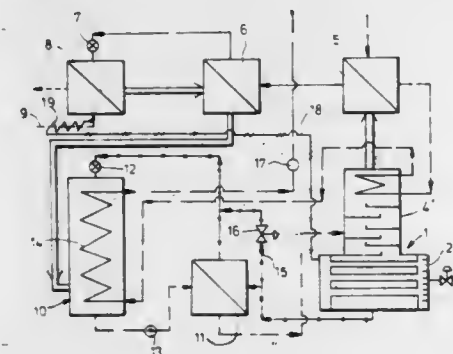
Siegfried Schulz, Dortmund; Karl-Günter Stroppel, Bochum, and Bernd Meckel, Hagen, all of Fed. Rep. of Germany, assignors to Volkswagenwerk AG, Wolfsburg, Fed. Rep. of Germany
Filed May 8, 1981, Ser. No. 261,807

Claims priority, application Fed. Rep. of Germany, May 16, 1980, 3018709

Int. Cl.³ F25B 15/00

U.S. Cl. 62—476

7 Claims



1. In a heat pump for heating a heat carrying medium including an expeller, a condenser connected to said expeller for receiving hot refrigerant vapors from said expeller, an evaporator operatively connected with said condenser for receiving liquid refrigerant from said condenser, a heat exchanger for poor and rich solutions connected to said expeller for receiving poor solution from said expeller; an absorber connected to said heat exchanger for receiving poor solution from said heat exchanger through an expansion valve; said absorber being further connected to said expeller with the intermediary of said heat exchanger for applying rich solution from said absorber to said expeller; and heat exchanging conduit means arranged in said absorber for passing heat carrying medium through said absorber; the improvement comprising a bypass conduit connecting said expeller with said absorber and circumventing said heat exchanger for carrying one of said solutions between said expeller and said absorber with the circumvention of said heat exchanger; a valve contained in said bypass conduit; said valve having an open state in which communication is maintained through said bypass conduit between said expeller and said absorber; said valve having a closed state in which communication is blocked through said bypass conduit between said expeller and said absorber; temperature sensing means for

responding to the flow temperature of the heat carrying medium exiting from said absorber; said temperature sensing means being connected to said valve for setting said valve into said open state when said flow temperature falls below a predetermined value; further wherein said heat exchanging conduit means have, within said absorber, heat exchanging surfaces so dimensioned as to effect thereon consideration of flash gas generated by expansion of the poor solution upon passage through said expansion valve.

4,364,241

DEVICE FOR DRAINING COOLING LIQUID FROM ROTARY ELECTRIC MACHINE WITH LIQUID COOLED ROTOR

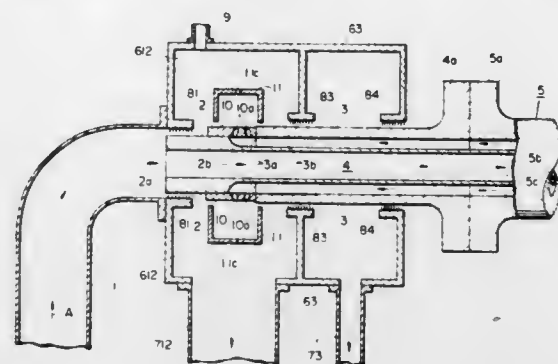
Kouichi Okamoto, Kobe; Masaki Sakuyama, Ashiya, and Kenji Kataoka, Kobe, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 2, 1980, Ser. No. 212,162

Int. Cl.³ F25B 31/00

U.S. Cl. 62—505

15 Claims



1. A device for conducting cooling fluid out of a liquid cooled rotary machine in which a cooling liquid circulating in the rotor of said rotary machine for cooling said machine is discharged through a discharging section of a cooling liquid supplying and draining pipe comprising:

an outlet chamber having an outlet passage;
means for maintaining a pressure in said outlet chamber higher than atmospheric pressure by a shielding gas; and
a cooling liquid containing member surrounding said discharging section, said cooling liquid containing member being arranged between said discharging section and said outlet passage, said cooling liquid containing member being fully filled with said cooling liquid discharged through said discharging section, discharging paths being formed between said cooling liquid containing member and said cooling liquid supplying and draining pipe which communicate with said outlet chamber.

4,364,242

METHOD OF REFRIGERATION AND A REFRIGERATION SYSTEM

Michael V. B. Smith, Sandton, South Africa, assignor to Engineering Management Services Limited, Transvaal Province, South Africa

Filed Jan. 21, 1981, Ser. No. 227,034

Claims priority, application South Africa, Feb. 4, 1980, 80/0637

Int. Cl.³ F25D 17/02

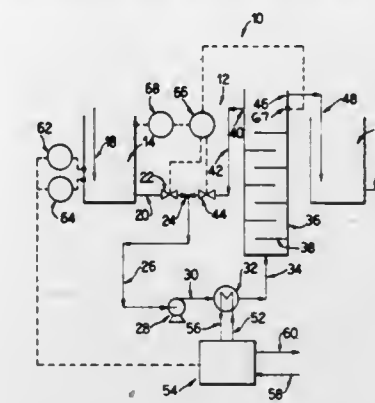
U.S. Cl. 62—99

18 Claims

1. A method of cooling a liquid by circulating successive batches of liquid through a refrigeration circuit, which method comprises:

introducing each batch in turn into the refrigeration circuit; when the batch has been introduced into the circuit, closing the circuit to form a closed series loop around which the batch can circulate;
circulating the batch around the series loop;
when the batch has been cooled to a desired temperature,

opening the circuit to permit said batch to be removed from the circuit and to permit a succeeding batch simultaneously to be introduced into the circuit; and



removing said cooled batch from the circuit while simultaneously introducing the succeeding batch into the circuit, the batches being in contact with each other with as little mixing as practicable therebetween.

4,364,243

CIRCULAR KNITTING MACHINE FOR THE PRODUCTION OF HIGH PILE FABRICS HAVING COMBED-IN FIBERS

Klaus Kunde, Kohlberg, Fed. Rep. of Germany, assignor to Sulzer Morat GmbH, Fed. Rep. of Germany

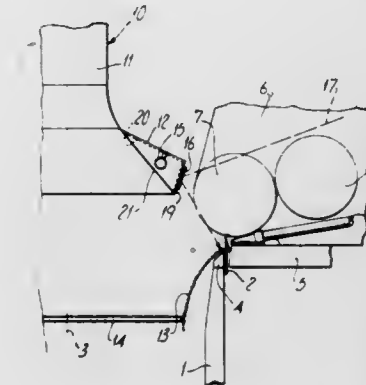
Filed Sep. 16, 1980, Ser. No. 187,637

Claims priority, application Fed. Rep. of Germany, Sep. 27, 1979, 2939082

Int. Cl.³ D04B 9/14, 35/32

U.S. Cl. 66—9 B

9 Claims



1. Circular knitting machine for the production of high pile fabrics having combed-in fibers, having a needle cylinder in which knitting needles are displaceably mounted which define a circular knitting field along the upper edge of the needle cylinder, and having a plurality of carding devices disposed along the knitting field and an exhaust means disposed above the knitting field, characterized by at least one lamp (15) fastened to the exhaust means (10) for the illumination of the knitting field from within and by a mirror (16) fastened to the exhaust means (10) for the section-wise viewing of the inside of the knitting field disposed on an side of the observer.

4,364,244

MEMORY CONTROLLED ELECTROMAGNETIC PASSIVE CONTROLLERS

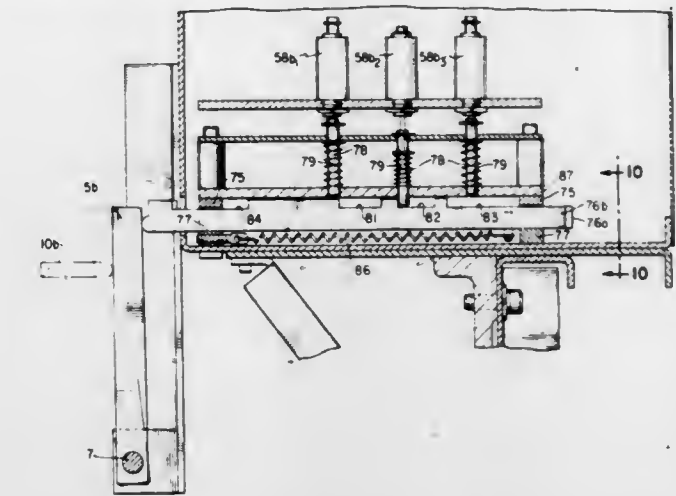
Edmundas Vambutas, 369 Beverly Rd., Douglaston Manor, N.Y. 11363, and John Feltham, 123 Elm Leaf Crt., Port Richey, Fla. 33568

Continuation-in-part of Ser. No. 71,752, Aug. 31, 1979. This application Nov. 7, 1980, Ser. No. 204,844

Int. Cl.³ D04B 7/00, 15/66

U.S. Cl. 66—75.2

19 Claims



1. A controller for a machine having a plurality of movable members each adapted to determine one or more functions of said machine in correspondence with any one of a plurality of positions of said member, said machine being adapted to have a sequence of statuses with each status corresponding to one set of positions of said movable members, said controller comprising

one or more movable stop elements adapted to interact with each of said movable members, each stop element being adapted in one position to determine a respective position for its respective member,
an electromagnetic device adapted to interact with a respective stop element to cause it to assume its one position determining the position of its respective movable member,
a counter actuated by each change of status of said machine for producing a counter signal representative of the number of such changes,
a memory device coupled to said counter and adapted to contain a set of stored data for each value of said number, each stored data set representing a set of actuations of said electromagnetic devices corresponding to a set of desired positions of said machine members,
said memory device also including a circuit responsive to said counter signal for producing signals representing the stored data set corresponding to the number represented by said counter signal, and
a control circuit for actuating said electromagnetic devices in response to said last-named signals.

4,364,245

KNITTING MACHINE

Eberhard Leins, Filderstadt; Manfred Walter, Aichtal, and Willi Gaiser, Gäufelden, all of Fed. Rep. of Germany, assignors to Sulzer Morat GmbH, Fed. Rep. of Germany

Filed Jan. 13, 1981, Ser. No. 224,671

Claims priority, application Fed. Rep. of Germany, Feb. 2, 1980, 3003811

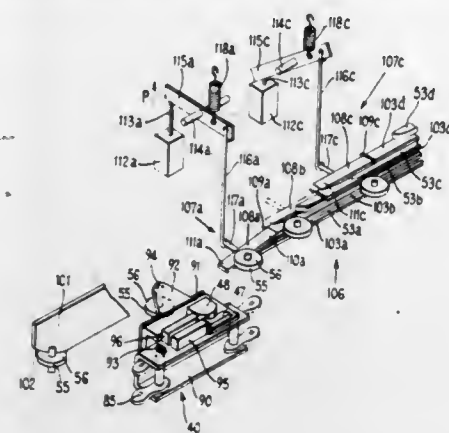
Int. Cl.³ D04B 7/00, 15/36, 35/00

U.S. Cl. 66—78

21 Claims

1. Knitting machine having a needle bed in which knitting tools having projections are mounted for raising and lowering, with a cam unit which can be transported past the projections and which has at least one lowering cam acting on the projections of the knitting tools which is adjustable with regard to its

lowering depth and is joined to a runner, and having a plurality of pathways associated each with a preselected lowering depth of the lowering cam, which interact according to the pattern with the runner during the movement of the cam unit past the projections of the knitting tools, for the setting of the lowering cam to a preselected lowering depth, characterized in that the



runner (55) is movably connected with the lowering cam (48) and that a controller (106) which can be actuated before each passage of the cam unit (40) past the projections (39) of the knitting tools (15) is provided for the shifting of the runner (55) to the position required for interaction with a selected pathway (54).

4,364,246 KNITTING MACHINE

Eberhard Leins, Filderstadt; Manfred Walter, Aichtal, and Willi Gaiser, Gräufelden, all of Fed. Rep. of Germany, assignors to Sulzer Morat GmbH, Fed. Rep. of Germany

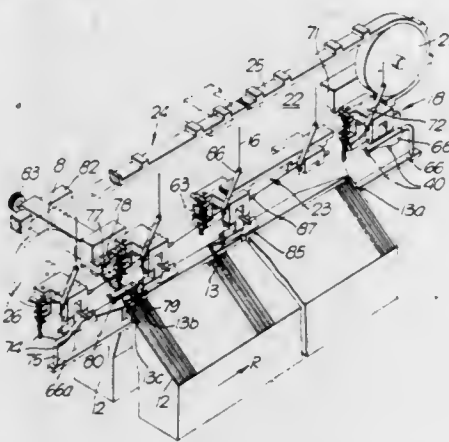
Filed Jan. 13, 1981, Ser. No. 224,691

Claims priority, application Fed. Rep. of Germany, Feb. 1, 1980, 3003570

Int. Cl.³ D04B 35/00

U.S. Cl. 66—145 R

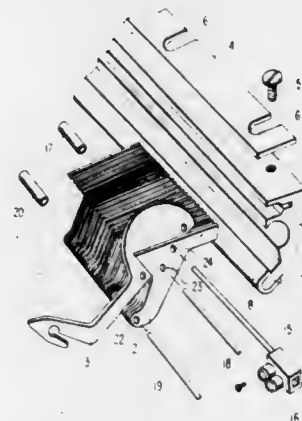
30 Claims



1. Knitting machine for performing knits having a beginning and an end, with at least one needle bed in which knitting needles are mounted for extension and retraction, with a plurality of thread carriers running successively on an endless path, which have at least one thread inserter and one thread clamp each, and are transportable through a work section for the insertion of threads into selected needles and through a return section for the return transport of threads from the end of the knit to the beginning of the knit, also with at least one thread cutting device for the cutting of the threads after their working by the last knitting needle and after they have been gripped in the corresponding thread gripper, and with a control device suitable for changing the knit width for the opening or closing of the thread grippers for the release or gripping of the thread ends obtained by means of the cutting device and carried by the thread carriers in the return transport, characterized in that the inserters (19) and thread grippers (50) which are associated with one another are, at least immediately before

the insertion of the corresponding threads (16) into the first selected needles (13), spaced apart in a direction differing from the transport direction of the thread carriers (18) such that the thread portions disposed between them are each time caught by the first extended needle (13b) in the direction of transport and brought to the position necessary for the needles next selected.

4,364,247
YARN CONDITION SENSING DEVICE
Joaquin Muns-Magem, and Juan Ibanez-Pi, both of Burgos, 3, Rubi, (Barcelona), Spain
Filed Aug. 26, 1980, Ser. No. 181,504
Claims priority, application Spain, Mar. 25, 1980, 249,980
Int. Cl.³ D04B 35/12, 35/14, 35/16
U.S. Cl. 66—163 6 Claims



1. A yarn condition sensing device for a knitting machine comprising an elongated reed having top and bottom edges and a plurality of flat parallel plates protruding from one side thereof, a pair of elongated electrical contacts secured to said top and bottom edges respectively of said reed, at least one flat elongated weft yarn fork having an enlarged portion adjacent one end, a straight central portion and a bent end portion having an open-sided aperture therein for the reception of a yarn, said weft yarn fork having a plurality of aligned holes along one edge of said enlarged portion and each of said plates having a plurality of holes aligned with each other, and shaft means having electrical contact means at one end thereof extending through aligned holes in said plate and a selected one of said holes in said fork for pivotally mounting said fork between a pair of adjacent plates whereby upon normal operation of said yarn said fork will be maintained out of engagement with both of said electrical contacts on said reed and upon abnormal functioning of said yarn said fork will be pivoted into engagement with one of said electrical contacts.

4,364,248
METHOD AND APPARATUS FOR WET-HEAT
TREATING A KNITTED FABRIC
Yoshikazu Sando, and Hiroshi Ishidoshiro, both of Wakayama, Japan, assignors to Sando Iron Works Co., Ltd., Wakayama, Japan

Filed Feb. 19, 1981, Ser. No. 236,014

Claims priority, application Japan, Feb. 20, 1980, 55-19969; Feb. 20, 1980, 55-19970

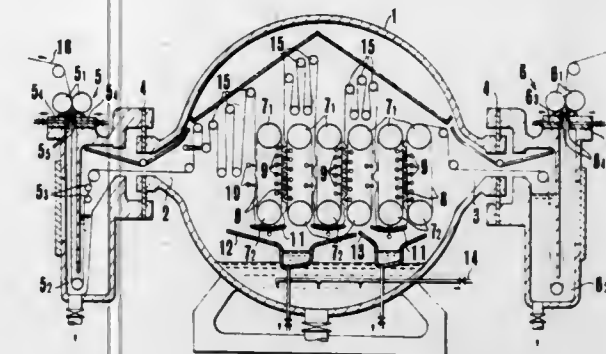
Int. Cl.³ D06B 21/02

U.S. Cl. 68—5 E

3 Claims

1. An apparatus for wet-heat treating a knitted fabric in a high pressure steamer, comprising providing, in a steamer body maintained with a high temperature wet heat, a plurality of endless net conveyers extending vertically in spaced parallel relation and each said conveyor rotatable respectively by means of a pair of driving rolls spaced one above the other with adjacent said conveyers forming a fabric passage therebetween for transporting a knitted fabric in one of the up and

down directions and forming snaky undulations through the fabric passage under no tension, a plurality of liquid jet nozzles for jetting one of a treating solution and washing water through both sides of the net conveyers forming at least one of



the fabric passages, and a number of steam jet nozzles for jetting high temperature steam toward one side of at least one of the net conveyers spaced from the side through which the one of the treating solution and washing water is jetted for steaming the fabric more sufficiently.

4,364,249 CENTRAL DOOR-LOCK SYSTEM FOR MOTOR VEHICLES

Frank Kleefeldt, Heiligenhaus, Fed. Rep. of Germany, assignor to Kiekert GmbH & Co. Kommanditgesellschaft, Heiligenhaus, Fed. Rep. of Germany

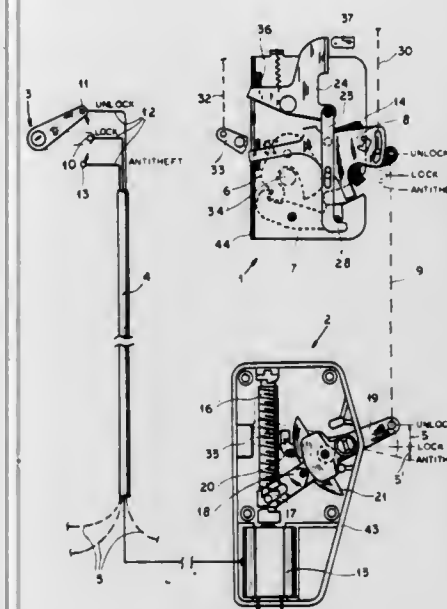
Filed Mar. 24, 1980, Ser. No. 132,978

Claims priority, application Fed. Rep. of Germany, Mar. 24, 1979, 2911680; Mar. 24, 1979, 2911681

Int. Cl.³ E05B 65/36, 47/02

U.S. Cl. 70—264

10 Claims



1. A central door-lock system comprising:
a plurality of door latches each including
a detent displaceable between a closed position securing the respective door to the respective doorpost and an open position permitting the respective door to separate from the respective doorpost,
a manual door-opening handle,
mechanism including a primary latch member connected to said handle and connectable to said detent and movable between a lock position preventing said handle from displacing said detent between said open and closed positions and an unlock position permitting said handle to displace said detent between said open and closed positions,
means including a secondary latch member connected to said primary latch member and displaceable between a lock position urging said primary latch member into the respective lock position, an unlock position permitting

said primary latch member to move freely between the respective lock and unlock positions, and an anti-theft position positively holding said primary latch member in the respective lock position;
respective servoactuators for said latches each including an actuator element connected to the respective secondary latch member and means including a servomotor for displacing the respective secondary latch member via the respective actuator element between the respective lock, unlock, and anti-theft positions; and
means including a central switch connected to said servomotors for operating same jointly and thereby jointly displacing said secondary latch members between the respective positions.

4,364,250 KEY HOLDER

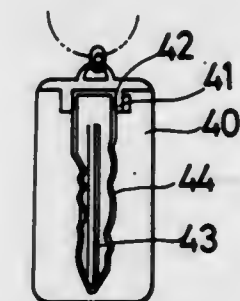
Minoru Toyoda, Nagoya, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Japan
Division of Ser. No. 68,568, Aug. 22, 1979, abandoned. This application Dec. 5, 1980, Ser. No. 213,356

Claims priority, application Japan, Sep. 8, 1978, 53-110845; Feb. 6, 1979, 54-13025; Feb. 6, 1979, 54-13026; Feb. 6, 1979, 54-13027; Feb. 6, 1979, 54-13028; Feb. 6, 1979, 54-13029

Int. Cl.³ A47G 29/10

U.S. Cl. 70—456 R

8 Claims



1. A pendant type key holder comprising:
a body having a predetermined thickness and having a hollowed out portion formed therein, said body further comprising a thick upper portion;
a key pivotably mounted on said body and movable between an operating position in which the key is disposed outside said body and a non-operating position in which the key is housed within said body;
a pin member connected to said thick upper portion of said body for pivotally mounting said key to said thick upper portion of said body; and
means for supporting said body at said upper portion, wherein the key and said body rotate into coincident vertical planes, and wherein said key has an outer edge surface configuration including a serrated portion and wherein the edges of said hollowed out portion of said body closely correspond to said outer edge surface configuration of said key, including said serrated portion.

4,364,251 METHOD AND APPARATUS FOR COLD-WORKING ANNULAR WORKPIECES

Masao Nishihara, Kyoto; Yoshinori Fukui; Yoshio Kitamura, both of Hyogo; Yoshiyuki Kamikawa, and Haruki Azuma, both of Kobe, all of Japan, assignors to Kobe Steel, Limited, Kobe, Japan

Filed Jan. 12, 1981, Ser. No. 224,023

Claims priority, application Japan, Aug. 12, 1980, 55-111195

Int. Cl.³ B21D 22/10

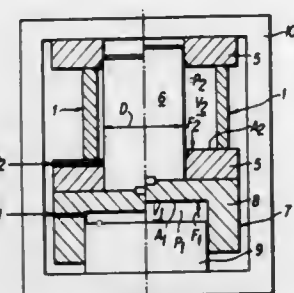
U.S. Cl. 72—58

2 Claims

1. A method for cold working an annular workpiece by applying thereto an internal fluid pressure to cause diametric

enlargement of said workpiece through plastic deformation, said method comprising:

- forming annular grooves around marginal edges of openings at axially opposite ends of said annular workpiece
- fitting a packing of ring form in each one of said annular grooves; and
- covering each of said openings with a presser plate and holding said presser plates in slidably pressed contact with said packings during the process of diametric enlargement of said annular workpiece and said packing by application



of an increasing internal pressure, including the step of maintaining the contacting surface pressure of said packings and pressure plates at a predetermined value by detecting and calculating values indicative of a main pressure internally acting on said annular workpiece an auxiliary pressure pressing said presser plate against said packing and variations in the shape of said annular workpiece resulting from the increase of said main pressure thereby continuously working said annular workpiece by plastic deformation.

4,364,252

METHOD FOR THE MANUFACTURE OF DIAPHRAGM BELLOWS

Chie Koizumi, Kobe, Japan, assignor to Osaka Rasenkan Kogyo Kabushiki Kaisha, Osaka, Japan

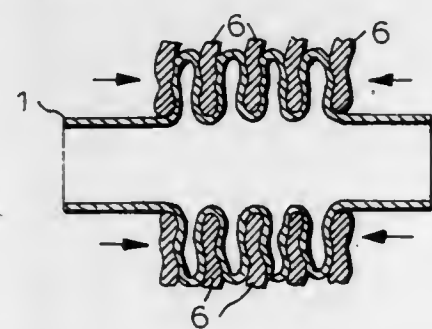
Filed Oct. 29, 1980, Ser. No. 201,964

Claims priority, application Japan, Apr. 12, 1980, 55-48220

Int. Cl.³ B21D 15/06

U.S. Cl. 72-59

5 Claims



1. A method of manufacturing a diaphragm bellows from a metallic pipe comprising the steps of:

- (1) surrounding said pipe with two spaced apart mold members having confronting side surfaces having a space therebetween, said confronting surfaces each having adjacent convex and concave portions, the convex portion of each confronting surface facing the concave confronting surface of the other;
- (2) bulging a portion of said pipe into said space by imparting a pressure to the interior of said pipe;
- (3) bulging a succession of adjacent portions of said pipe to form a succession of bulges in said pipe by performing steps (1) and (2) at said succession of adjacent portions; and
- (4) compressing said opposite sides of said bulges against respective confronting surfaces of said molds to form a longitudinal succession of projections each having gently

curved wavy surfaces having convex and concave portions.

4,364,253

PANEL FORMING APPARATUS

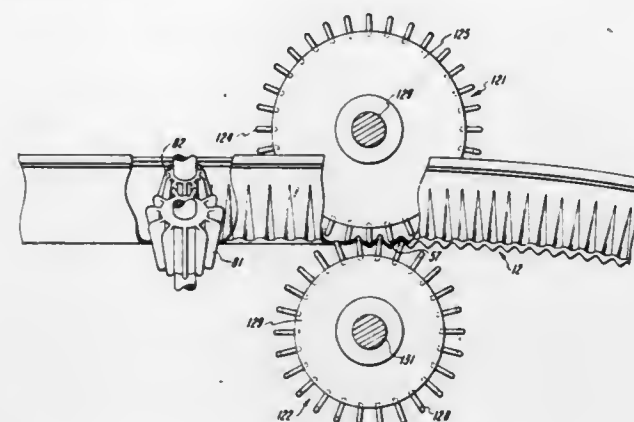
Gary A. Knudson, 17356 W. 57th Ave., Golden, Colo. 80401

Filed Feb. 23, 1981, Ser. No. 236,832

Int. Cl.³ B21D 47/00

U.S. Cl. 72-187

11 Claims



1. In a panel forming apparatus for producing a curved panel from a straight panel having upwardly inclined sidewall portions extending from an intermediate wall portion, the combination comprising:

- first and second pairs of wall-indenting dies spaced from one another to receive therebetween each inclined sidewall portion of a straight panel,
- said pairs of wall-indenting dies being mounted for free rotation about an axis in an idle mode of operation;
- a first drive means to simultaneously rotate said first and second pairs of wall-indenting dies in a power mode of operation;
- a third pair of wall-indenting dies located downstream of and in line with said first and second pairs of wall-indenting dies arranged to receive the intermediate wall portion of the panel between each of said third pairs and engage said intermediate wall portion of the panel after it has passed through said first and second pairs of wall-indenting dies,
- said third pair of wall-indenting dies being mounted for free rotation about an axis in an idle mode of operation;
- a second drive means to simultaneously rotate said third pair of wall-indenting dies; and
- control means for said first and second drive means including an idle setting and a power setting for each of said first and second drive means with a control circuit that alternates the modes for each drive means whereby when the first drive means is idling the second drive means is driving and when the second drive means is idling the first drive means is driving to form said indentations when said panel is passed continuously through said pairs of indenting dies.

4,364,254

COMBINED SHEET BENDING BRAKE, TABLE AND COIL SUPPORT

Arthur B. Chubb, Wyandotte, and James J. Rhoades, Garden City, both of Mich., assignors to Tapco Products Company, Inc., Detroit, Mich.

Filed Sep. 8, 1980, Ser. No. 185,276

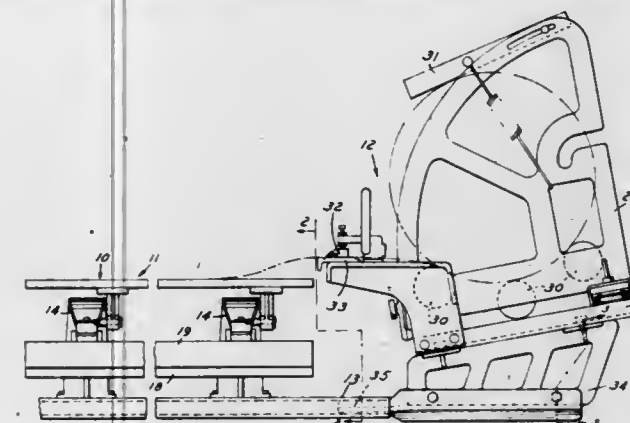
Int. Cl.³ B21D 5/04, 7/06, 43/00

U.S. Cl. 72-319

22 Claims

1. A combined sheet bending brake, table and coil support comprising
- a sheet bending brake including a base,
 - a first bending member having a clamping surface mounted on said base,

a second member having a bending surface, means for hinging said second member to said first member, an anvil member extending longitudinally of said first bending member, and means for clamping a workpiece by applying pressure to said anvil member to clamp a workpiece on the clamping surface of the first member, a table mounted on said sheet bending brake, said table extending horizontally and rearwardly from the anvil along the base, and a coil support comprising a base, a pair of supports carried by the base, said supports including means for supporting a roll of sheet stock, means carried longitudinally of the base of said coil support and transversely of the base of the sheet bending brake for defining a flat clamping surface, and means for clamping the edge of the uncoiled sheet stock against said last-mentioned surface, and means for mounting the base of said coil stand on the base of said sheet metal brake such that the axis of the roll of sheet stock extends transversely of the longitudinal axis of the sheet bending brake, means for mounting said table for movement from a position generally horizontal with respect to said clamping surface to a position rearwardly of said base of said sheet brake, said last mentioned means pivoting said table about an axis generally longitudinally of said brake, said table being positioned with respect to said coil support



so that uncoiled sheet stock can be supported thereon over said sheet bending brake.

19. A combined sheet bending brake and table comprising a sheet bending brake including a base comprising spaced longitudinally extending rails, said sheet bending brake including a plurality of C-shaped members positioned on said rails at longitudinally spaced points, each said C-shaped member comprising a lower arm fixed to said base and an upper arm spaced from and overlying said lower arm, a first bending member having a clamping surface mounted on lower arms, a second member having a bending surface, means for hinging said second member to said first member about a longitudinal axis, an anvil member extending longitudinally of said first bending member, and means for clamping a workpiece by applying pressure to said anvil member to clamp a workpiece on the clamping surface of the first member, and a table mounted on said sheet bending brake, said table overlying said C-shaped members extending horizontally and rearwardly from the anvil and longitudinally along the base, said table having an upper surface substantially planar and uninterrupted, means for mounting said table for movement from an operative position generally horizontal with respect to said

clamping surface for supporting workpieces to an inoperative position rearwardly of said base of said sheet brake.

4,364,255

CONTROLLED ORIENTED DISCHARGE OF CUPS FROM A BLANKING AND FORMING PRESS

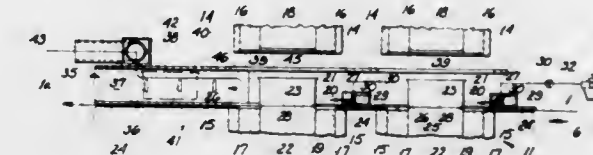
James I. Byrd, Sidney, Ohio, assignor to The Stolle Corporation, Sidney, Ohio

Filed Oct. 20, 1980, Ser. No. 198,298

Int. Cl.³ B21D 45/00

U.S. Cl. 72-345

5 Claims



1. In a press for blanking and drawing flanged cups of the type having cooperating upper and lower blanking punches for cutting a circular blank from a strip of product stock material, upper and lower pressure pads for capturing the blank to prevent wrinkling, a drawing punch cooperating with a drawing die for forming from the blank a cup having a flange around the upper edge, and a lift-out member movable within said drawing die for lifting the bottom of the formed cup to a position slightly higher than the upper surface in the drawing die to locate the formed cup in a discharge position, the improvement in combination therewith comprising a separator plate closely overlying the material strip and having an opening permitting free passage therethrough of said upper blanking punch, said opening being positioned and configured to permit free movement without stumbling of the formed cup onto the plate, means for discharging the blanked and drawn cup from the die area of the press including chute means positioned adjacent said discharge position for accepting and guiding the formed cups in a controlled oriented fashion comprising a conduit-like chute positioned adjacent said discharge position and including a lower surface, spaced parallel vertical sidewalls extending away from said discharge position, and an upper surface spaced from an overlying said plate, said chute being dimensioned to permit free passage of the formed cup therethrough, and conveyor means for moving the formed cups through the chute, said conveyor means including hollow manifolds forming said sidewalls, a plurality of slots in the inner surface of said sidewall spaced along the axis of the chute and angled at acute angles away from said discharge position, and means for supplying a flow of high volume low pressure air to said sidewalls to provide directional air flow from said slots to assist the formed cups in moving through said chute, and means for moving the formed cups from said discharge position into said chute comprising an air exhaust nozzle positioned adjacent said discharge position and means for providing a pressurized air pulse from said air exhaust nozzle to move the formed cups into said chute.

4,364,256

LATCHING DEVICE FOR THE PUNCH-CARRIER PLATE OF A PRESS FOR MOULDING SCREWS, RIVETS AND LIKE ARTICLES

Eufemia Gariacchi, Via Victor Hugo 4, Milan, Italy

Filed Mar. 12, 1981, Ser. No. 242,926

Claims priority, application Italy, Dec. 22, 1980, 23708/80[U]

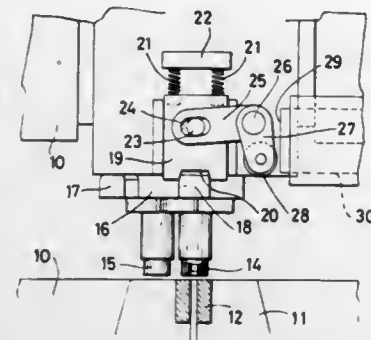
Int. Cl.³ B21D 22/00

U.S. Cl. 72-356

4 Claims

1. A latching device for the punch-carrier plate of a press for moulding screws, rivets and like articles, in which the punch-carrier plate is mounted frontally of a ram having a rectilinear reciprocal motion in a direction parallel to the axis(es) of the press die(s) and is capable of being rotated in either sense through a preselected angle between two working positions

wherein it can be latched by means mounted on the ram, characterized in that it comprises a latching member slidably mounted on the ram and equipped with a frontal hollow space adapted to cooperate alternately with either of two projecting extensions integral with the punch-carrier plate, said latching member being subjected to the action of resilient means capa-



ble of keeping its frontal hollow space in engagement with either of said extensions, means being additionally provided for controllably shifting said latching member against the bias of said resilient means out of engagement with said extensions to permit the oscillation of said punch-carrier plate from either of its working positions to the other and vice versa.

4,364,257

ROTARY TRANSFER PRESS

Takuro Endo, Tokyo; Yukio Tomita, Osaka; Yukio Okamoto, Nara; Hiroshi Imaoka, Nara; and Michio Sakiyama, Nara, all of Japan, assignors to Hitachi Shipbuilding & Engineering Company Limited, Osaka, Japan

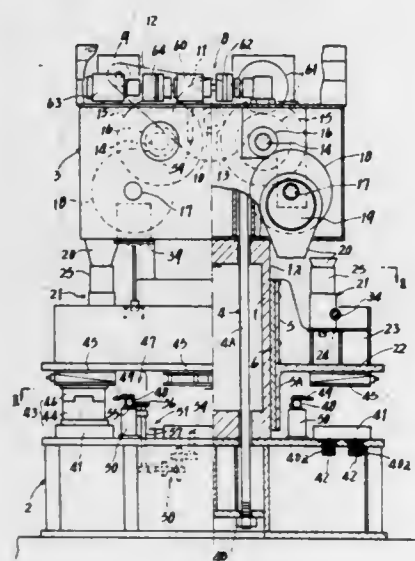
Filed Jul. 10, 1980, Ser. No. 168,288

Claims priority, application Japan, Jul. 2, 1979, 54-84184

Int. Cl.³ B21J 13/08

U.S. Cl. 72-405

7 Claims



1. A rotary transfer press comprising a bed; a post mounted upright on the bed, a slide upwardly and downwardly movable as guided along the post; a vertically driving assembly for moving the slide upward and downward; a plurality of working stations disposed in a circular arrangement and each provided with a pair of press dies; an annular feed bar extending in the vicinity of the working stations, said feed bar being provided with a toothed portion therealong; and a feed bar driving mechanism comprising a feeding drive shaft mechanically connected to and rotated by the vertically driving assembly, cam means actuated by the rotation of the drive shaft, a lever actuated and rocked by the cam means, a rack bar connected to and moved reciprocally linearly by the lever, a gear mounted on a shaft and meshing with the rack bar, and a pinion mounted on the same shaft as said gear and meshing with the toothed portion of the feed bar, whereby the rotation of the feeding

drive shaft is transmitted to the feed bar as an intermittent reciprocal turning motion.

4,364,258

HOLDER FOR HYDRAULIC SWAGING TOOL

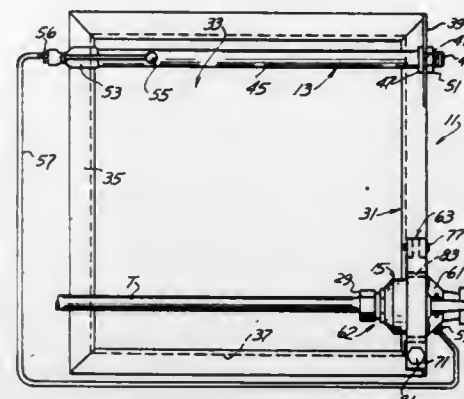
Peter Davidson, 1655 Fair Ct., Grosse Pointe, Mich. 48236

Filed Jun. 29, 1981, Ser. No. 278,187

Int. Cl.³ B21J 9/12

U.S. Cl. 72-453.15

9 Claims



1. A holder for a hydraulic swaging tool comprising a base; an upright anchor bracket upon and at one end of said base on one side thereof, having a mount aperture there-through; a manually actuated hydraulic pump having an elongated cylindrical body, a mount boss projecting axially of one end of said body projected through said anchor bracket and secured thereto; said body overlying said base and at its other end supported upon said base on the opposite side thereof; said pump having a pressure fluid outlet; an upright clamp assembly upon and at the opposite end of said base on said one side thereof; said clamp assembly including a saddle upon and secured to said base having an upwardly opening semi-circular slot; a pressure cap overlying and spaced above said saddle having a downwardly opening semi-circular slot; a resilient sleeve extending through said clamp assembly and nested within said saddle and pressure cap; a swaging tool having a cylindrical body and having a pressure fluid inlet and a swaging head, said tool body axially nested within said sleeve and clamp assembly; means for adjustably securing said pressure cap to said saddle frictionally anchoring said swaging tool body; and a conduit fluidly interconnecting said pump outlet and said swaging tool inlet.

4,364,259

VIBRATION SENSOR FOR AN AUTOMOTIVE VEHICLE ENGINE

Shigeo Muranaka, and Michio Onoda, both of Yokohama, Japan, assignors to Nissan Motor Company, Ltd., Yokohama, Japan

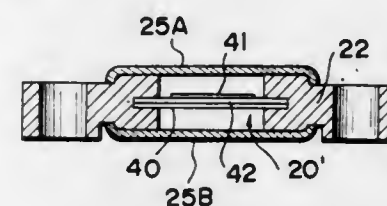
Filed Jul. 8, 1980, Ser. No. 166,946

Claims priority, application Japan, Jul. 13, 1979, 54-88941

Int. Cl.³ G01L 23/22

U.S. Cl. 73-35

5 Claims



1. A vibration sensor for an automotive vehicle engine comprising:

4,364,261

MULTI-MEDIA LEAK TEST APPARATUS

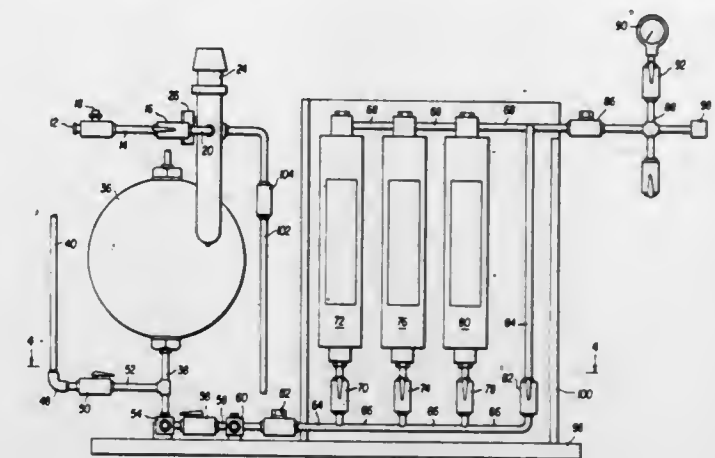
Herbert Askwith, West Palm Beach, and Larry Sage, North Palm Beach, both of Fla., assignors to N.E.R.G. Enterprises, Inc., Riviera Beach, Fla.

Filed Mar. 25, 1981, Ser. No. 247,608

Int. Cl.³ G01M 3/32

U.S. Cl. 73-40

8 Claims



1. Apparatus for detecting and measuring leakage in closed systems, comprising:

pressure regulating means for adjusting a gas input to the apparatus to a predetermined pressure;

means for directing the pressurized gas to one of at least two different test sections of said leakage testing apparatus;

said at least two different test sections including at least a gas test section and a water test section;

said gas test section being comprised of:

a gas section manifold for receiving pressurized gas directed thereto; said gas section manifold having a plurality of channels located therein for the pressurized gas to travel through, and each of said plurality of channels including a control valve and a range flow meter; said plurality of range flow meters providing a plurality of different ranges of flow measurements through said plurality of channels;

an outlet pressure gauge connected to the output from said gas section manifold for monitoring the pressure of the pressurized gas from said gas section manifold; and

means for connecting the output from said gas section manifold to a part of said closed system to be tested for leakage and with the rate of leakage from said closed system being indicated on the one of the flow meters that is able to meter the loss of pressurized gas from said closed system and likewise from said leakage testing apparatus;

said water test section being comprised of:

a water reservoir tank partially filled with water and receiving said pressurized gas as an input;

a water section manifold for receiving water forced from said water reservoir tank by said pressurized gas; said water section manifold having a plurality of channels located therein for the pressurized water to travel through and each of said plurality of channels including a control valve and a range flow meter; said plurality of range flow meters providing a plurality of different ranges of flow measurements through said plurality of channels;

an outlet pressure gauge connected to the output from said water section manifold for monitoring the pressure of the pressurized water from said water section manifold; and

means for connecting the output from said water section manifold to a part of said closed system to be tested for leakage and with the rate of leakage from said closed system being indicated on the one of the flow meters that is able to meter the loss of pressurized water from said closed system and likewise from said leakage testing apparatus.

4,364,260

ENGINE WITH KNOCK SENSING APPARATUS HAVING MULTIPLE FREQUENCY TUNING

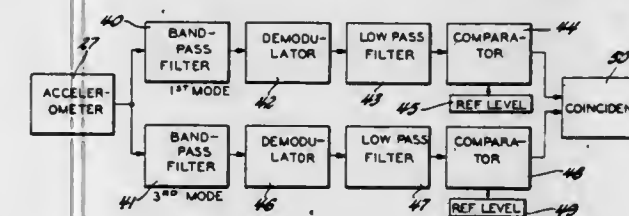
Francis H. Chen, Troy; Douglas A. Feldmaier, Bloomfield Hills, and James A. Hamburg, Southfield, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 16, 1981, Ser. No. 243,882

Int. Cl.³ G01L 23/22

U.S. Cl. 73-35

2 Claims



1. In combination:

a spark ignited internal combustion engine having at least one combustion chamber characterized by a plurality of cavity resonance modes and excitable by knock to vibrate in these resonance modes at resonance frequencies corresponding thereto, the engine being responsive to these knock-induced vibrations to vibrate therewith at the resonance frequencies and further being responsive to other events to vibrate at frequencies which may include one of the resonance frequencies;

vibration sensing means having a tuned response to vibrations at a plurality of the resonance frequencies, said means having a portion fixed to the engine for vibration therewith and having a plurality of output channels, one for each said tuned resonance frequency, on which channel is generated a signal when vibrations are sensed at that frequency;

signal processing apparatus for each output channel operative in response to said signals, respectively; and coincidence sensing means effective to generate a knock signal only when the signal processing apparatus indicates significant vibrations simultaneously on all channels, whereby knock induced vibrations may be more reliably distinguished from other vibrations, even if they share one of the resonance frequencies.

4,364,262

CHARACTERIZATION FACTOR MONITOR

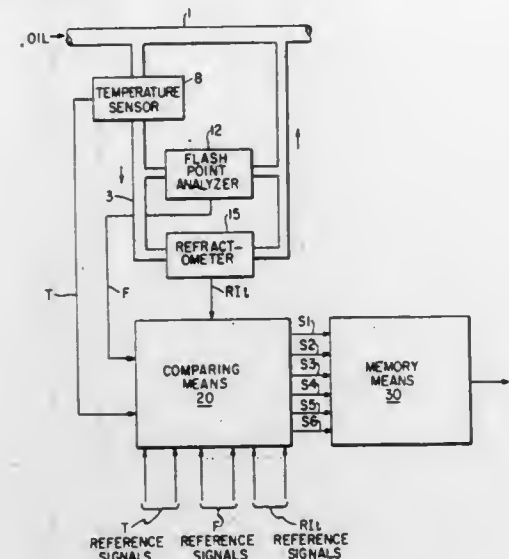
Robert A. Woodle, Nederland, Tex., and Ronald G. Gillespie, Old Tappan, N.J., assignors to Texaco, Inc., White Plains, N.Y.

Filed Mar. 26, 1981, Ser. No. 247,654

Int. Cl.³ G01N 11/00

U.S. Cl. 73—53

8 Claims



1. A monitor which provides a signal K corresponding to the characterization factor of oil, comprises:
means for sampling the oil and providing signals F and R1 corresponding to the flash point temperature in degrees F and the refractive index of the oil, respectively,
means for sensing the temperature of the oil and providing a signal T representative thereof, and
output means connected to the sampling means and to the temperature sensing means for providing signal K in accordance with signals F, R1 and T.

4,364,263

HIGH PRESSURE LIQUID CHROMATOGRAPHIC SYSTEM

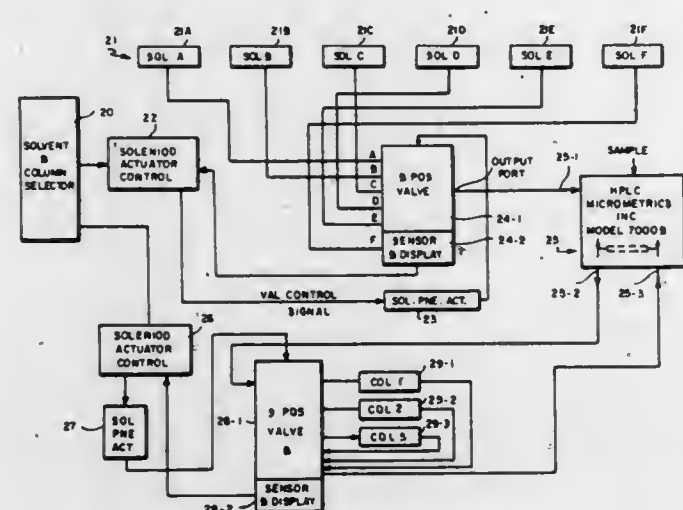
Varghese L. Sankoorikal, and Keith D. Holmes, Jr., both of Greenville, N.C., assignors to Burroughs Wellcome Co., Research Triangle Park, N.C.

Filed Sep. 15, 1980, Ser. No. 187,322

Int. Cl.³ G01N 31/08

U.S. Cl. 73—61.1 C

5 Claims



1. A high pressure liquid chromatographic system comprising a plurality of first means for providing a liquid phase, a plurality of columns, second means for receiving a sample to be analyzed and said liquid phase for transmission therefrom to said columns, first selector means coupled between said first means and said second means, said first selector means comprising means for producing electrical pulse signals, a first solenoid valve means and a first solenoid coupled thereto, said

first solenoid valve means responsive to a signal which signal is selectively applied to said first solenoid valve means as a result of the presence or absence of an electrical pulse signal applied to said first solenoid, a source of air coupled to said first solenoid valve means, a first pneumatic actuator coupled to said first solenoid valve means and a multiple position valve coupled to said first actuator and between said first means and said second means, said pulse signals applied to the aforementioned first solenoid causing at least one of said first means to be selected to provide a liquid phase to said second means, second selector means coupled between said second means to receive the sample and liquid phase therefrom and permit it to be provided to a selected column, said second selector means comprising means for producing electrical pulse signals, second solenoid valve means and a second solenoid coupled thereto, said second solenoid valve means responsive to a signal which is selectively applied to said second solenoid valve means as a result of the presence or absence of an electrical pulse signal applied to said second solenoid, a source of air coupled to said second solenoid valve means, a second pneumatic actuator coupled to said second solenoid valve means and a multiple position valve coupled to said second actuator and between said columns and said first means, said pulse signals applied to the latter mentioned second solenoid selectively causing second means to be coupled to a selected one of said columns.

4,364,264

FEELER DEVICE FOR MEASURING SURFACE ROUGHNESS

Stefano Re Fiorentin, Turin, Italy, assignor to Centro Ricerche Fiat S.p.A., Orbassano, Italy

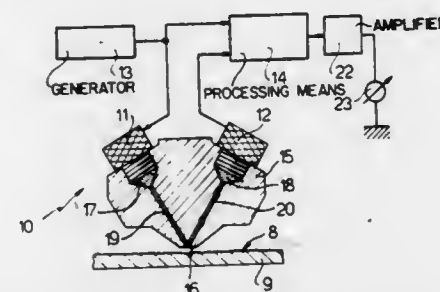
Filed Dec. 31, 1980, Ser. No. 221,616

Claims priority, application Italy, Jan. 8, 1980, 67019 A/80

Int. Cl.³ G01B 17/00

U.S. Cl. 73—105

14 Claims



1. A feeler device for measuring the degree of roughness of an uneven surface 8 being examined, characterized by comprising:

- a transmitting transducer 11 arranged to convert an electric signal of a predetermined frequency into an ultrasonic wave propagated through a liquid coupling medium and having a wavelength of the same order of magnitude as said unevenness;
- a generator 13 arranged to generate said electric signal and feeding said transmitting transducer 11;
- a receiving transducer 12 arranged to receive the ultrasonic wave reflected by said examined surface 8;
- a support head 15 for said transmitting transducer 11 and receiving transducer 12, said head 15 comprising a base surface 16 to be rested on said examined surface 8, and said transducers 11, 12 being housed in such a manner that the respective transmitting and receiving directions define two coplanar lines which converge at said base surface and which form the same angle with this latter;

and processing means 14 connected to said transmitting transducer 11 and to said receiving transducer 12, and providing an indication of the phase difference between the ultrasonic signals respectively transmitted and received by

said transducers when said base surface 16 of said head 15 rests on said examined surface 8.

4,364,265

METHOD AND APPARATUS FOR OBTAINING AN EFFICIENTLY RUNNING INTERNAL COMBUSTION ENGINE

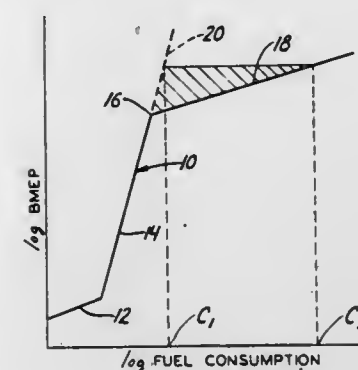
John Dickson, 3855 Valley Hill Rd., Bloomfield Hills, Mich. 48013

Filed Oct. 26, 1981, Ser. No. 314,762

Int. Cl.³ G01M 15/00

U.S. Cl. 73—113

3 Claims



1. A method of characterizing an efficiently running internal combustion engine of the type having fuel input means for supplying various degrees of fuel consumption at various torque loads placed upon the engine and spark-generating means for providing a spark to ignite the fuel at various timing intervals, said method comprising the steps of; operating an engine at a constant rpm while increasing the torque load on the engine, measuring the torque value at predetermined intervals of torque load to obtain a brake mean effective pressure for each of said intervals, measuring the fuel consumption at said predetermined intervals, plotting the common log of the brake mean effective pressure against the common log of the fuel consumption for each interval to obtain a straight line curve (10) which extends linearly with a constant first slope to a D-point coordinate (16) and after which continues at a different second slope, and plotting a straight line extension (20) having the first slope and extending upwardly from the D-point coordinate (16).

4,364,266

ENGINE ANALYZER APPARATUS

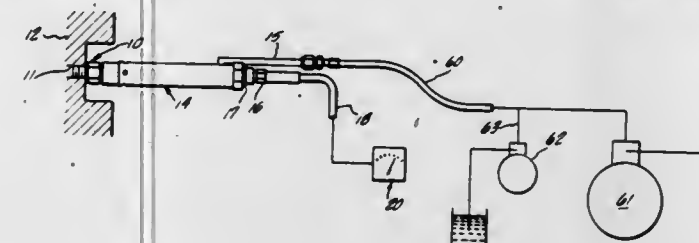
James F. Williams, 25217 Rye Canyon Rd., Valencia, Calif. 91355

Filed Nov. 13, 1980, Ser. No. 206,536

Int. Cl.³ G01M 15/00

U.S. Cl. 73—115

20 Claims



1. An apparatus for use with an engine analyzer system employing a transducer responsive to the characteristic being analyzed, the combination of:

- an adapter means including means for releasable connection between the engine and the transducer and physically separating the transducer from the engine;
- said adapter having a first fluid passage means therethrough communicating the engine with the transducer and a second fluid passage means therethrough in heat exchange relationship with and separate from said first fluid passage

means, said second fluid passage means having an inlet located near said transducer and an outlet located adjacent said means for releasable connection; and means for supplying a fluid through said second fluid passage means from said inlet to said outlet for cooling the adapter and the gas in communication with the transducer to provide maximum cooling at the transducer to prevent damage to the transducer.

4,364,267

METHOD AND APPARATUS FOR CORRELATING TIRE INFLATION PRESSURE AND LOAD

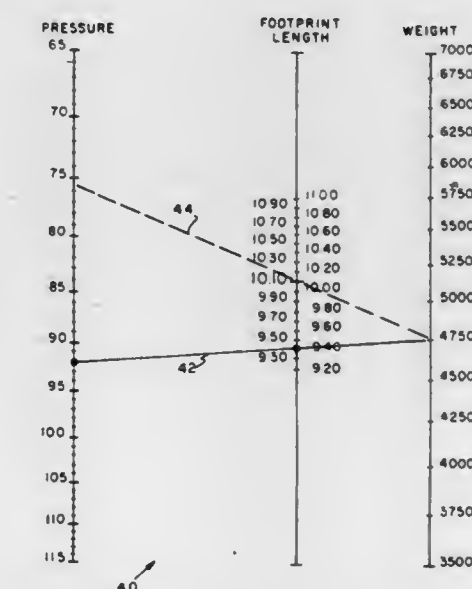
Robert R. Love, Jr., and Elbert W. Leatherman, both of Cumberland, Md., assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Aug. 20, 1980, Ser. No. 179,630

Int. Cl.³ G01L 17/00, 1/00

U.S. Cl. 73—146

13 Claims



1. A method of correlating tire pressure and loading comprising the steps of:

- gauging the tire inflation pressure;
- providing footprint determining means on a hard, non-deflecting smooth backing;
- placing the tire, inflated and loaded, on the footprint determining means which is supported to give proper tire loading under full load of the tire to obtain an actual footprint;
- removing the tire and its load from the footprint determining means;
- comparing the actual footprint formed on the footprint determining means to means for determining footprint length to obtain an actual footprint length; and
- using the footprint length and tire pressure to determine the actual load on the tire.

4,364,268

REDUNDANT VACUUM SYSTEM FOR AIRCRAFT INSTRUMENTS

Thomas Zompolas, Milwaukee, Wis., assignor to PAMCO Industries Corp., Milwaukee, Wis.

Continuation-in-part of Ser. No. 202,940, Nov. 3, 1980, abandoned. This application May 4, 1981, Ser. No. 260,290

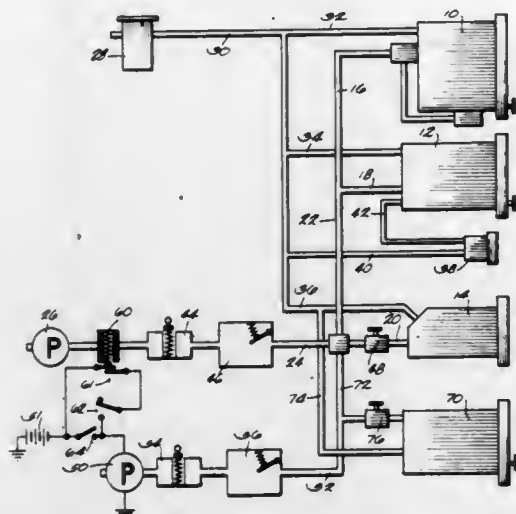
Int. Cl.³ G01C 21/00

U.S. Cl. 73—178 R

24 Claims

1. A redundant vacuum system for use in a vacuum operated instrument system of an aircraft, the aircraft including an engine and an electrical power source, the vacuum operated instrument system including a first vacuum pump operably connected to the aircraft engine so as to be driven by the aircraft engine, at least one vacuum operated instrument, and means for operably connecting the vacuum operated instru-

ment to the first vacuum pump, the redundant vacuum system including a second vacuum pump, means for operably connecting the second vacuum pump to the electrical power source of the aircraft, said means for operably connecting the second vacuum pump including a vacuum responsive switch means connected to said means for operably connecting the vacuum



operated instrument to the first vacuum pump and providing electrical connection between said second vacuum pump and said electrical power source in response to a decrease in vacuum in said means for operably connecting said vacuum operated vacuum instrument to the first vacuum pump, and means for operably connecting said second vacuum pump to said instrument.

4,364,269

FLOWMETER FOR DETERMINING AVERAGE RATE OF FLOW OF LIQUID IN A CONDUIT

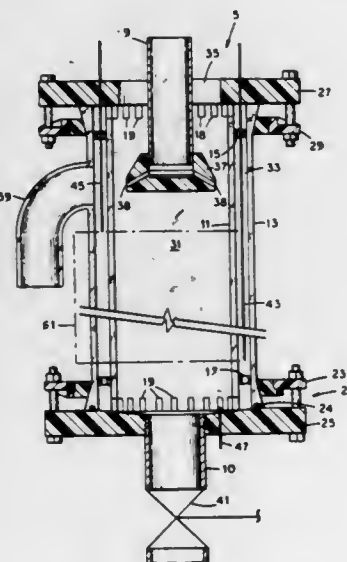
John M. Kennerly, Knoxville; Gordon M. Lindner, and John C. Rowe, both of Oak Ridge, all of Tenn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Apr. 30, 1981, Ser. No. 258,971

Int. Cl.³ G01F 3/38

U.S. Cl. 73—223

10 Claims



1. Apparatus for use in determining the average rate of flow of a liquid through a conduit, comprising:

a vessel partitioned by a generally vertically extending baffle into first and second liquid-storage chambers, each provided with means for venting gas from the upper portion thereof, the first chamber arranged to receive said liquid from said conduit as a downflowing stream and having a cross-sectional area exceeding that of the received stream of liquid, the first chamber having a lower zone thereof in fluid communication with a lower zone of the second

chamber to permit liquid so received to establish liquid levels in both of said chambers, a lower probe and an upper probe in the second chamber for respectively sensing the liquid level therein at points above said lower zone thereof, and means connected to the probes for generating an output indicative of the time required for the liquid level in the second chamber to successively contact said lower probe and said upper probe.

4,364,270

DEVICE FOR PNEUMATICALLY SCANNING THE LEVEL OF LIQUID IN A CONTAINER

Alfred Heinzl, and Heinz Stadler, both of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

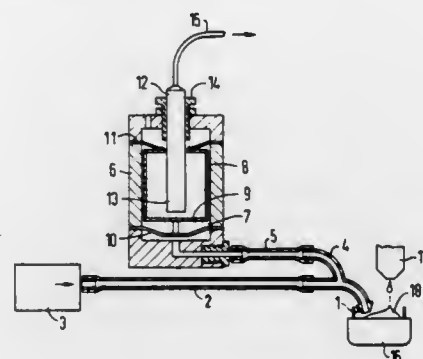
Filed Oct. 6, 1980, Ser. No. 194,570

Claims priority, application Fed. Rep. of Germany, Nov. 9, 1979, 2945341

Int. Cl.³ G01B 13/14

U.S. Cl. 73—298

7 Claims



1. A device for scanning the level of liquid in a container comprising:

a scanning nozzle connected to a compressed air supply, said nozzle disposed above said container for directing air at a surface of said liquid in said container; a housing having an interior chamber; a piston contained in said chamber in contact-free fashion; a means for supporting said piston in said chamber and for permitting displacement of said piston in said chamber; a proximity switch disposed in said chamber a distance from a portion of said piston for emitting a signal when said distance is reduced by a pre-determined amount by displacement of said piston toward said switch; and a pressure tube interconnected between said chamber of said housing and said nozzle for directing back pressure to said chamber when said liquid in said container reaches a pre-determined level, whereby said back pressure displaces said piston into contact with said proximity switch for actuation thereof.

4,364,271

OPTICAL REFRACTOMETER

Keith D. Froome, Hampton, England, assignor to National Research Development Corporation, London, England

Filed May 13, 1980, Ser. No. 149,558

Claims priority, application United Kingdom, May 31, 1979, 7918959

Int. Cl.³ G01W 1/02; G01N 9/00

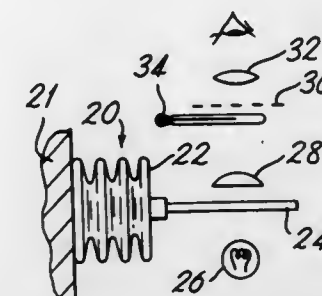
U.S. Cl. 73—432 R

10 Claims

1. A terrestrial refractometer comprising:

a gastight enclosure of substantially invariant transverse section and having a linearly movable endwall which varies in position in accordance with ambient temperature and pressure, the enclosure containing a fixed mass of a gas which at least approximates to an ideal gas; and sensing and compensating means comprising a non-linear scale fixed to the movable endwall so as to respond to

linear movement of the endwall, and an adjacent simple thermometer said thermometer being positioned with respect to said non-linear scale so that a level in said thermometer can act as a reference mark for reading said



non-linear scale, whereby a compensating factor is derived which is proportional to the linear movement of the endwall from its position under conditions of standard temperature and pressure so that any resistance of the enclosure to movement of the endwall is compensated.

4,364,272

MULTI-POSITION ADJUSTABLE TEST FIXTURE

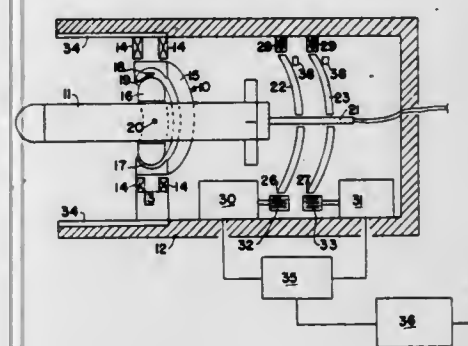
James A. Daniel, and George T. Pinson, both of Huntsville, Ala., assignors to The Boeing Company, Seattle, Wash.

Filed Oct. 1, 1980, Ser. No. 192,685

Int. Cl.³ G01M 19/00

U.S. Cl. 73—432 R

8 Claims



1. A test fixture for selectively positioning a test article in space comprising:

a support for said article which permits limited angular movement of said article about a selected fixed point within said article, said support comprising a rotatable outer ring and a cooperating inner ring through which said article extends, the inner and outer rings having cooperating spherical surfaces which permit universal movement of the article about said fixed point; a pair of spaced-apart positioning plates each rotatably mounted about a common axis; at least one cam slot through each of said positioning plates; positioning means for establishing instantaneous axial position of either of said positioning plates; and a drive stylus secured to said test article and extending through the cam slot of each of said positioning plates, whereby the disposition of said stylus and said article is established by the relative angular relation of the two positioning plates.

4,364,273

APPARATUS FOR LOCATING INTERFACES IN MEDIA

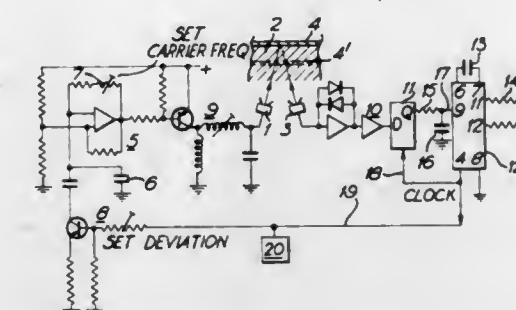
Robert J. Redding, September House, Cox Green La., Maldenhead, Berkshire, England (SL6 3EL)

Filed Oct. 9, 1980; Ser. No. 195,404

Claims priority, application United Kingdom, Feb. 15, 1980, 8005149

Int. Cl.³ G01N 29/04, 9/24; G01F 23/00; G01S 15/32

U.S. Cl. 73—614 9 Claims



1. Apparatus to detect the presence of a sound-reflective inhomogeneity in a selected region of a medium, the apparatus comprising means to generate a frequency-modulated electrical signal; a first ultrasonic transducer; means to feed said electrical signal to said first transducer to cause said first transducer to transmit frequency-modulated ultrasonic energy into the medium along a direction which crosses near and far limits of said region; a second ultrasonic transducer to receive ultrasonic energy reflected from within said medium; means to monitor the phase of the modulation of said transmitted ultrasonic energy and the phase of the modulation of said received ultrasonic energy; means to adjust the modulation frequency of said ultrasonic energy to obtain a required relationship between said transmitted and received modulation phases, said modulation frequency lying between first and second limiting frequencies which correspond, respectively, to the positions of said near and far limits of said region relative to said transducers, whereby said required phase relationship is obtainable only for reflections from within said selected region; and means responsive to said modulation frequency to display information relating to the presence of said inhomogeneity.

4,364,274

ULTRASONIC INSPECTION WITH BACK ECHO MONITORING

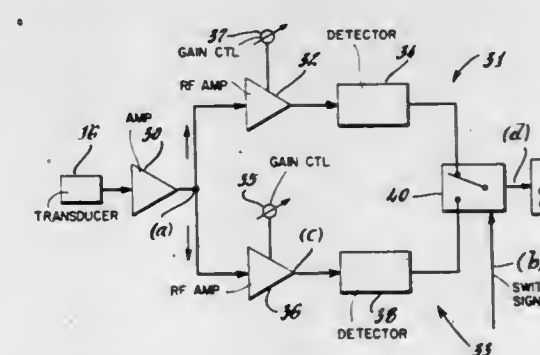
Donald E. Sharpe, Woodbury, Conn., assignor to Automation Industries, Inc., Greenwich, Conn.

Filed Oct. 20, 1980, Ser. No. 198,764

Int. Cl.³ G01N 29/04

U.S. Cl. 73—615

6 Claims



1. In the method of examining a test object for internal flaws wherein ultrasonic pulses are transmitted into an entry surface of said object and echoes of said pulses from flaws and from a back surface of said object are detected, converted into corresponding electrical signals, and displayed, the improvement which comprises:

establishing a main branch circuit including a first level of

amplification for echo signals originating from flaws intermediate said entry and back surfaces; establishing a back echo branch circuit including a second, lower, non-saturating level of amplification for echo signals originating from said back surface; and selectively switching said electrical signals alternately through said main branch circuit and said back echo branch circuit to achieve useful amplification of flaw signals while avoiding amplifier saturation by back echo signals.

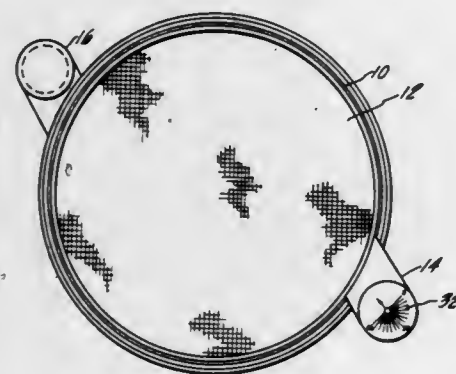
4,364,275

METHOD AND APPARATUS FOR MEASURING PHASE ANGLES OF OSCILLATORY MOTION OF VIBRATORY MACHINERY

Stephen R. LaMar, Santa Clara, Calif., assignor to Sweco, Incorporated, Los Angeles, Calif.

Filed Jan. 26, 1981, Ser. No. 228,210

Int. Cl.³ G01N 29/00; G01H 11/00; G01M 13/00; B01F 15/00
U.S. Cl. 73—649 1 Claim



1. A method for the measurement of the phase angle of vibratory motion of a mechanism having spaced eccentric weights on a vertical shaft while the mechanism is running, comprising the steps of
viewing line segments arranged in selected angles on a surface of the vibratory mechanism perpendicular to the vertical shaft from substantially an end-on position;
selecting the line segment the end of which appears to define a straight line from the substantially end-on position;
viewing the line segments from an upper side view aligned with the line defined by the selected line segment;
selecting the line segment appearing as having the thinnest cross-section as viewed from the upper side view.

4,364,276

DIFFERENTIAL PRESSURE MEASURING TRANSDUCER ASSEMBLY

Michitaka Shimazoe; Yoshitaka Matsuoka, both of Mito; Ryozi Akahane, Katsuta; Yasushi Shimizu, Katsuta; Hideyuki Nemoto, Katsuta, and Masanori Tanabe, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 16, 1980, Ser. No. 217,023

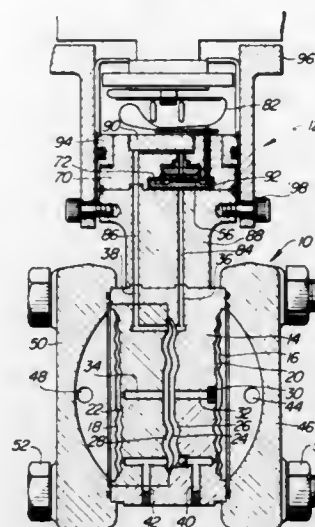
Claims priority, application Japan, Dec. 19, 1979, 54-164128
Int. Cl.³ G01L 9/06

U.S. Cl. 73—721

11 Claims

1. A differential pressure measuring transducer assembly comprising:
a differential pressure measuring body having introduced therein two fluids differing from each other in pressure;
a measuring diaphragm formed of semiconductor material including a center boss area of large thickness, a peripheral support flange of large thickness and an annular strain producing portion of small thickness defined between the center boss area and the peripheral support flange and having gauge resistance elements arranged thereon;
a glass support member attached to the peripheral support flange of the measuring diaphragm;
a metallic support member mounted between the glass sup-

port member and the differential pressure measuring body;
pressure conducting passage means communicating with the glass support member and the metallic support member; and



means for applying the two fluids introduced into the differential pressure measuring body differentially to different side surfaces of the measuring diaphragm.

4,364,277

SENSITIVE HEAVY DUTY DYNAMIC TORQUE MEASUREMENT COUPLING UNIT AND METER

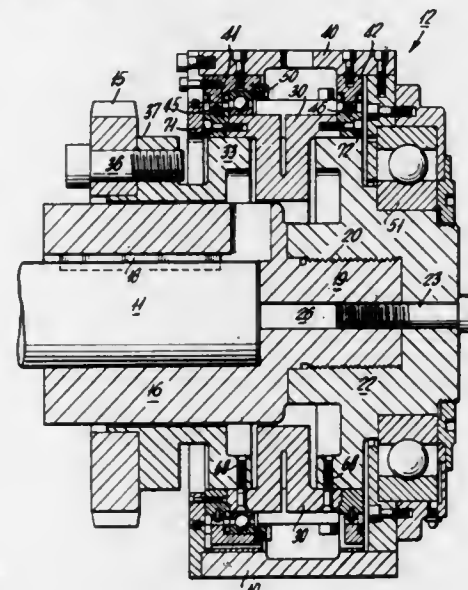
Herbert A. Rundell, Houston, Tex., assignor to Texaco Inc., White Plains, N.Y.

Filed Nov. 21, 1980, Ser. No. 209,163

Int. Cl.³ G01L 3/14

U.S. Cl. 73—862.34

8 Claims



1. A sensitive heavy duty dynamic torque measuring coupling unit for use in oil well drilling and the like, comprising an annular torque transmitting unit,
said torque transmitting unit comprising (1) a pair of annular driving and driven torque transmitting means, and (2) a plurality of deflection elements for permitting relative angular displacement of said driving and driven torque transmitting means under load,
said deflection elements each comprising (a) a pair of radial parallel legs having rectangular cross-sectional shapes for bending under said load, (b) an axial integral connecting member forming a U-shaped structure and having rectangular cross-sectional shape for twisting under said load, and (c) circular segments integrally attached to the free ends of said U-shaped structure for attaching said deflec-

tion elements to said driving and driven torque transmitting means.

4,364,278

ASSEMBLY FOR MONITORING TORSIONAL LOADING OF A DRIVE SHAFT

Hans-Dieter Horter, Friedrichshafen; Wolfgang Maier, Markdorf, and Herbert Seibold, Mariabrunn, all of Fed. Rep. of Germany, assignors to Zahnradfabrik Friedrichshafen Aktiengesellschaft, Friedrichshafen, Fed. Rep. of Germany

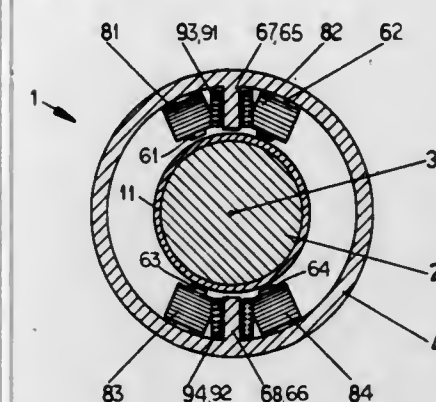
Filed Sep. 26, 1980, Ser. No. 191,022

Claims priority, application Fed. Rep. of Germany, Sep. 29, 1979, 2939566

Int. Cl.³ G01L 3/10

U.S. Cl. 73—862.36

14 Claims



1. An assembly for monitoring torsional loading of a drive shaft, said assembly comprising:
a cylindrical body of magnetostrictive material having a high magnetic permeability in an unstressed state of said body, said body being rigid with and substantially surrounding said shaft;
induction means juxtaposed at least in part with an outer surface of said body for generating a magnetic field therein;
insulating means for inhibiting the penetration of magnetic flux lines into said shaft from said body;
pick-up means including an electromagnetic sensor juxtaposed with said body for detecting distortions in said magnetic field due to torsional loading of said shaft and for generating an output signal containing information on the magnitude and direction of torsional loading of said shaft, said output signal including a high-frequency carrier waveform and a low-frequency modulating waveform having a polarity determined by the direction of loading of said shaft; and
a demodulator operatively connected to said pick-up means for extracting said modulating waveform from said carrier waveform, said body being formed with a slot, whereby said modulating waveform includes a pulsatile component whose frequency is equal to the rotation rate of said shaft.

4,364,279

SHEAR BEAM LOAD CELL SYSTEM

Harry Stern, and Charles Airesman, both of Cumberland, Md., assignors to Allegany Technology, Inc., Cumberland, Md.

Filed Dec. 31, 1980, Ser. No. 221,560

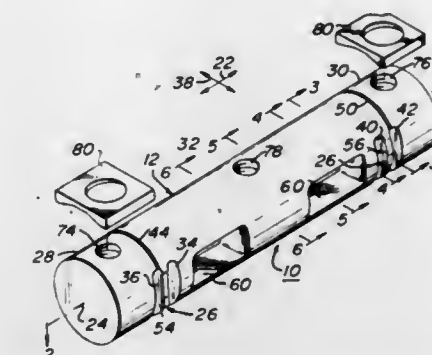
Int. Cl.³ G01L 1/22

U.S. Cl. 73—862.66

13 Claims

1. A shear beam load cell system comprising:
(a) a longitudinally extended beam member having a central axis;
(b) flexure isolation means formed on opposing longitudinal end sections of said beam member for minimizing stress changes in a central section of said beam member responsive to non-measurement loads applied to said beam member, said flexure isolation means including at least a pair of through passages formed through each of said opposing longitudinal sections of said beam member, said through

passages extending in a transverse direction with respect to said beam longitudinal extension and at least a pair of slots passing through said beam member in a substantially vertical direction from an external surface of said beam member to a respective through passage;
(c) a plurality of strain gauge members fixedly secured to said central section of said beam member; and
(d) web flexure means formed within said central section of said beam member for mounting said strain gauge mem-



bers to said beam member, said web flexure means including a plurality of recesses extending transverse said longitudinal extension from opposing transverse surfaces of said beam member, said recesses defining at least a pair of wells substantially aligned in said transverse direction forming a longitudinally extending web member substantially coincident said central axis, said wells having a transversely directed center line vertically displaced from said beam central axis.

4,364,280

DOUBLE SHEAR BEAM STRAIN GAGE LOAD CELL

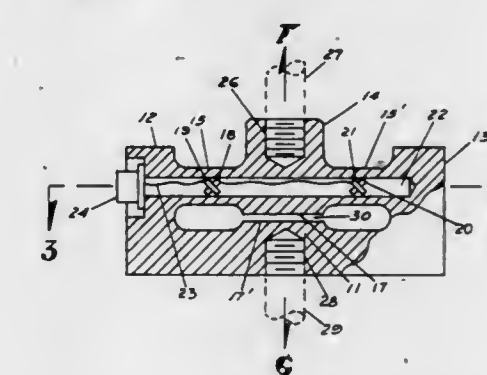
All U. Kutsay, 112 Union Hill Rd., West Conshohocken, Pa. 19428

Continuation of Ser. No. 37,231, May 8, 1979, Pat. No. 4,283,941. This application Jan. 9, 1981, Ser. No. 223,865

The portion of the term of this patent subsequent to Aug. 18, 1998, has been disclaimed.
Int. Cl.³ G01L 1/22

U.S. Cl. 73—862.66

1 Claim



1. A strain gage load cell of unitary construction for the measurement of axial loads and capable of substantially resisting lateral loads which adversely affect the measurement of axial loads comprising a relatively thick rectangular block of material, said block having a pair of recesses in one edge thereof, each of said recesses extending from a point spaced from one edge to a point spaced from the center and forming a central element of substantial area, said block further including a pair of elongated slots extending through said block at points spaced from the first said recesses and substantially parallel therewith and a narrow elongated slot connecting said pair of slots, the last said slots forming a discrete central element supported by substantially uniform elongated rectangular shear beams formed by said recesses and said pair of slots, said block further including a central opening extending through each of said shear beams, pairs of strain gages mounted within

said opening in each shear beam and positioned centrally thereof, the gages of each pair being disposed at 90° one relative to the other and at 45° relative to the axis of the associated shear beam and means for applying an axial load to be measured between said central element and the opposing surface of said block.

4,364,281

DRIVING MECHANISM FOR TOOL SLIDES OF PUNCHING AND BENDING MACHINES

Adolf Wunsch, Haus Nr. 210, D-8959 Seeg-Ried, Fed. Rep. of Germany

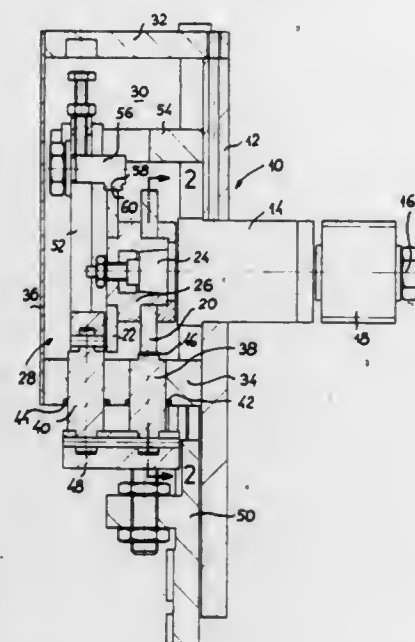
Filed Jul. 30, 1980, Ser. No. 173,849

Claims priority, application Fed. Rep. of Germany, Aug. 1, 1979, 2931195

Int. Cl.³ F16H 25/14, 53/06

U.S. Cl. 74—55

4 Claims



1. An improved driving mechanism for reciprocating tool slides of automatic punching and bending machines comprising:

- a hermetically sealed, oil-filled housing, fastened on a frame;
- a driving shaft sealingly extending through and journaled in a wall of the housing;
- a pair of cam plates fixed on the driving shaft within the housing, the cams thereof being in 180° offset position with respect to one another;
- a push rod sealingly extending through a bore provided in a second wall of the housing;
- a tie rod arrangement arranged in parallel relationship with the push rod within the housing and comprising a slide member and a tie rod connected therewith, the slide member sealingly extending through a second bore provided in said second wall of the housing;
- the push rod and the slide member being fastened to a tool slide slidably guided on the frame outside of the housing;
- the tie rod extending beyond the axis of the driving shaft;
- a cam follower adjustably fastened at the tie rod;
- the inner end of the push rod provided with a convex end face; and
- each of the cam follower of the tie rod arrangement and the push rod being held in contact with different cam plates.

4,364,282

SCREW AND NUT MECHANISM

Sven W. Nilsson, Partille, Sweden, assignor to SKF Nova AB, Goteberg, Sweden

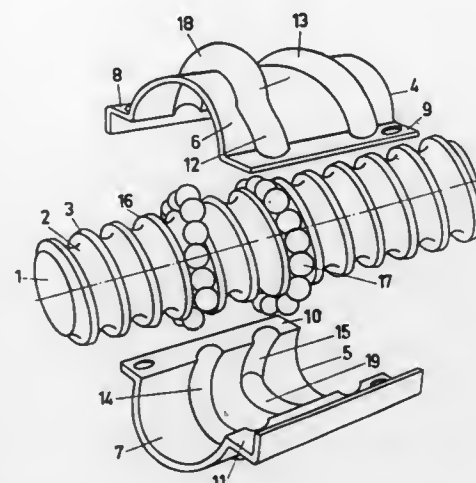
Filed Aug. 26, 1980, Ser. No. 181,462

Claims priority, application Sweden, Sep. 13, 1979, 7607609

Int. Cl.³ F16N 11/18

U.S. Cl. 74—424.8 A

5 Claims



2. A mechanism comprising a screw (1) and a nut enclosing the screw, each having complementary helical grooves (2, 12, 13, 14, 15, 18, 19) constituting raceways for a number of rolling bodies (16, 17) circulating in a closed loop, the nut being made from two sheet metal halves, each half having a cylindrical portion (6, 7) provided with grooves and enclosing about 180° of the screw and surrounded by portions (8, 9, 10, 11) by which the halves are connected to each other, characterized by a portion of the groove in at least one cylindrical portion integrally contained therein (18, 19) being an enlarged recess proximate the main portion of the screw and adjacent said grooves of the screw and of a pitch opposite to that of the rest of the groove, said rolling bodies being unloaded in said enlarged recess to permit return over a ridge (3) between two adjacent turns of the groove in the screw whereby the closed loop of the rolling bodies define one turn around the screw.

4,364,283

THROTTLE CONTROL

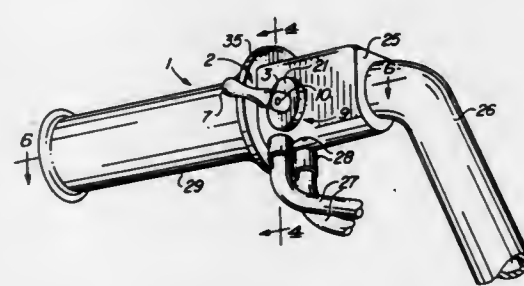
George L. Ricardo, 3319 Clarke Blvd., Shreveport, La. 71109

Filed Nov. 3, 1980, Ser. No. 203,051

Int. Cl.³ G05G 1/08, 5/16

U.S. Cl. 74—489

10 Claims



1. A throttle control for motorcycles and similar vehicles having a cable drum comprising:

- a generally cylindrically-shaped cam lever body, an aperture and a counter-bore extending through the longitudinal center of said cam lever body, and a slot in one end of said cam lever body, said slot defining a pair of oppositely disposed flanges;
- bias means fitted in said counter-bore of said cam lever body and plunger means cooperating with said bias means and extending through said aperture and said counter-bore

of said cam lever body, with one end of said plunger means projecting from said aperture through said counter-bore into said slot and the opposite end of said plunger means projecting from said cam lever body into selective contact with the cable drum; and

- a cam lever having a cam lever base, said cam lever base in registration with said slot and pivotally carried by said flanges of said cam lever body for selectively effecting contact between said cam lever base and the end of said plunger means projecting into said slot, and displacing said plunger means in said aperture in said cam lever body and selectively against the cable drum responsive to manipulation of said cam lever from a position substantially transverse to said cam lever body to a position in alignment with said cam lever body.

4,364,284

PARKING BRAKE RELEASING SYSTEM WITH CABLE ATTACHING BUSH

Akira Tani, Okazaki, and Takeo Yamazaki, Anjo, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha and Aisin Seiki Kabushiki Kaisha, both of, Japan

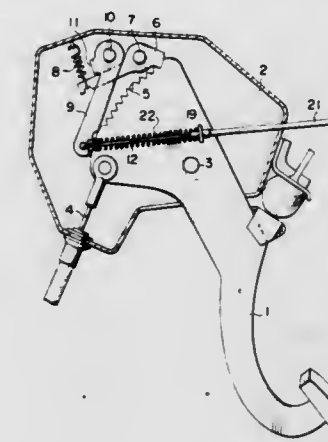
Filed Jul. 8, 1980, Ser. No. 166,905

Claims priority, application Japan, Sep. 17, 1979, 54-129094[U]

Int. Cl.³ G05G 5/06; F16C 1/10

U.S. Cl. 74—540

4 Claims



1. In a foot operated parking brake, comprising:

- a pivoted brake pedal formed with a ratchet plate portion and biased in a rotational direction to release braking action;
- a pivoted pawl, rotatably biased in a direction to engage with the ratchet plate portion so as to prevent the brake pedal from moving in said brake releasing direction;
- and a pivoted release lever assembly formed with an engaging projection, rotational movement of said release lever assembly in a release direction bringing the engaging projection to bear against the pawl so as to impel it in a rotational direction opposite to said direction to engage the ratchet plate portion said release lever assembly having a slot located at a position remote from the pivoted thereof;
- a releasing system, comprising:
 - a synthetic resin bush having a constriction in its outer surface and mounted to said slotted part of the release lever assembly with said constriction engaged in said slot, said bush also having a through hole whose middle portion is narrower than its opened outwardly facing end portions with tapered trumpet shaped walls;
 - a release cable, one end of which passes through said through hole in said bush;
 - and a stop member coupled to the end of said release cable which is substantially ball shaped on its side facing one end of said through hole in said bush, and which is larger than said through hole in said bush thus preventing the end of the release cable from coming out of said through hole;

the arrangement being such that pulling of the release cable

engages said ball shaped part of said stop member with said bush so as to impel said release lever assembly in said release direction.

4,364,285

AUTOMATIC TRANSMISSION

Kunio Morisawa, and Tatsuo Kyushima, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Japan

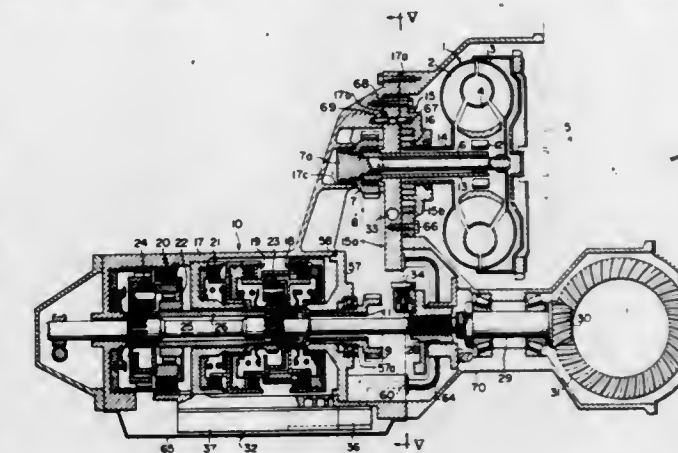
Filed Jun. 11, 1980, Ser. No. 158,518

Claims priority, application Japan, Jun. 25, 1979, 54-79822

Int. Cl.³ F16H 57/02, 37/08

U.S. Cl. 74—606 R

4 Claims



1. An automatic transmission for an automobile with an engine, comprising:

- a transmission casing;
- a transaxle casing;
- the transmission casing and the transaxle casing being formed with connecting flanges with matching faces which abut together, and being joined together by means of these connecting flanges;
- a fluid torque converter, mounted in the transaxle casing, comprising a power input shaft on its one side and a power output shaft on its other side, the input shaft being adapted for connection to the engine;
- a hydraulic fluid pressure supply pump, comprising a hollow power input shaft which is directly connected to the power input shaft of the fluid torque converter and which extends coaxially with the power output shaft of the fluid torque converter which passes through its central hole, the pump being mounted to the transmission casing and being opposed to the transaxle casing;
- a differential gear mechanism comprising a power input shaft extending with its axis generally parallel to the axis of the fluid torque converter, the differential mechanism being located in the transaxle housing generally in parallel with the fluid torque converter;
- a gear transmission mechanism, mounted in the transmission casing, comprising coaxially arranged power input and power output shafts, and a plurality of hydraulic pressure operated servo devices, the gear transmission mechanism being shiftable between various speed stages according to selective supply of control hydraulic fluid pressure to the hydraulic fluid pressure operated servo devices, the power output shaft of the gear transmission mechanism being drivingly connected to and coaxial with the power input shaft of the differential gear mechanism;
- an endless chain power transmission mechanism which drivingly connects the power input shaft of the gear transmission mechanism to the power output shaft of the fluid torque converter;
- and a hydraulic fluid pressure control device, mounted in the transmission casing, which controls supply of control hydraulic fluid pressure to the hydraulic fluid pressure operated servo devices;

a governor hydraulic fluid pressure regulating valve rotatably mounted to the transaxle casing, a first hydraulic fluid port formed in the mating surface of the connecting flange of the transmission casing, the first hydraulic fluid port communicating with the hydraulic fluid pressure control device, and a second hydraulic fluid port formed in the mating surface of the connecting flange of the transaxle casing, the second hydraulic fluid port being connected to the governor hydraulic fluid pressure regulating valve;

the first and second hydraulic fluid ports corresponding to one another, when the transmission casing and the transaxle casing are joined together by their connecting flanges, and providing a hydraulic fluid passage between the hydraulic fluid pressure control device and the governor hydraulic fluid pressure regulating valve.

4,364,286

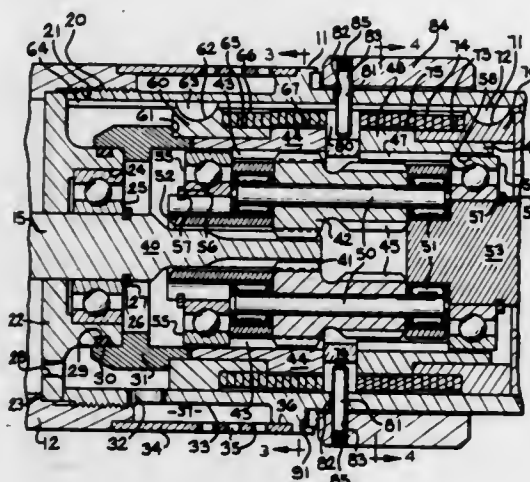
BI-DIRECTIONAL SPEED REDUCING MECHANISM
Donald A. Ciolli, University Heights, Ohio, assignor to The Rotor Tool Company, Cleveland, Ohio

Filed Feb. 15, 1980, Ser. No. 122,080

Int. Cl.³ F16H 5/10, 57/10

U.S. Cl. 74-768

5 Claims



1. A bi-directional speed reducing mechanism comprising a housing having a first and second fixed supports therein, a rotatable input shaft, a rotatable output member, a first epicyclic gear train contained in said housing selectively operative to transmit the rotation of the input shaft to the output member in the same rotational direction at reduced speed and increased torque, a second epicyclic gear train contained in said housing selectively operative to transmit the rotation of the input shaft to the output member in an opposite rotational direction at reduced speed and increased torque, and means selectively operative to engage either the first or second epicyclic gear train for operating the output member in the selected directional mode, said means to engage including first and second wrap springs of same hand each having a first portion of a first inner diameter and a second portion of a second larger inner diameter, with the diameter transition between the first and second portions being effected in less than one spring wrap, said first spring portion of each said first and second wrap spring being respectively secured to said first and second fixed supports in said housing, and an actuator alternately to effect a diametrical decrease in one of said second spring portions for engagement while effecting a diametrical increase in the other second spring portion to release engagement.

4,364,287

METHOD FOR MAKING A KEY FOR DRIVING TAMPER-PROOF BOLT

John R. Heckrotte, Sr., Phoenix, Ariz., assignor to Cactus Technology Corp., Phoenix, Ariz.

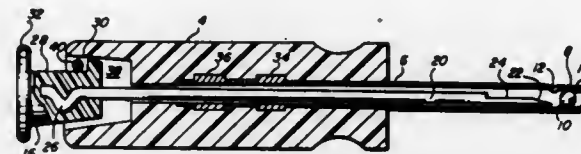
Division of Ser. No. 101,821, Dec. 10, 1979, Pat. No. 4,291,599.

This application Apr. 13, 1981, Ser. No. 253,696

Int. Cl.³ B21K 5/00

U.S. Cl. 76-101 D

4 Claims



1. A method of constructing a key for driving tamper-proof bolts, the key including a tubular sleeve having a transverse aperture at a first end thereof and an outer surface, a plunger rod axially slidable within said tubular sleeve, said plunger rod having a camming surface at a first end thereof and having a longitudinal axis, and ball means captively held by said tubular sleeve adjacent the transverse aperture, said ball means being cammed into the aperture in said tubular sleeve by the camming surface upon axial movement of said plunger rod, said method comprising the steps of:

- molding a plunger handle onto a second end of said plunger rod opposite the first end, said plunger handle molding step including the steps of providing a flattened surface parallel to the longitudinal axis of said plunger rod and providing a flange adjacent an edge of the flattened surface nearest the first end of said plunger rod, the flange projecting away from said plunger rod beyond the flattened surface;
- molding a key handle onto a second end of said tubular sleeve opposite the first end, said key handle molding step including the step of forming a chamber within said key handle for providing access to the second end of said tubular sleeve;
- inserting the first end of said plunger rod through the chamber of said key handle and into the second end of said tubular sleeve until the flattened surface of said plunger handle has entered the chamber in said key handle; and
- inserting a pin transversely through the chamber of said key handle parallel with and adjacent to the flattened surface of said plunger handle for preventing said plunger handle from rotating within the chamber of said key handle and for retaining the flange of said plunger handle within the chamber of said key handle.

4,364,288

CAMBER ADJUSTMENT ADAPTER

John H. Castoe, 10234 McVine St., Sunland, Calif. 91040

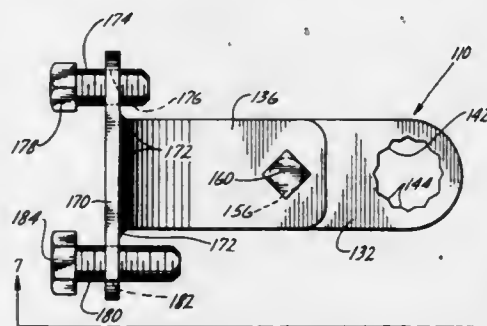
Continuation-in-part of Ser. No. 99,920, Dec. 3, 1979,

abandoned. This application Jan. 9, 1981, Ser. No. 223,716

Int. Cl.³ B25B 23/02

U.S. Cl. 81-3 R

17 Claims



1. An adapter for use in torquing a camber bolt installed in a housing of a strut assembly in a vehicle suspension system, the housing having a pair of opposed first and second faces in

which the camber bolt has a head adjacent the first face of the housing and torque nut is secured to an end of the camber bolt adjacent the second face of the housing, so the torque nut can be tightened to torque the camber bolt, the adapter comprising a generally U-shaped bracket having opposed first and second legs and a bight portion for extending around a side of the housing so the first and second legs can overlie the first and second faces of the housing; a bore extending through the first leg of the bracket, the bore having an interior surface for being releasably secured to the head of the camber bolt; a fastener on the second leg for being rotated relative to the second leg for tightening the fastener against the second face of the housing to hold the first leg in a fixed position with the bore being locked around the head of the camber bolt to prevent rotation of the camber bolt while the torque nut is tightened to torque the camber bolt, the second leg being shorter than the first leg so the axis of the fastener is spaced inwardly closer to the bight portion of the bracket than the axis of the bore in the first leg for providing access to the torque nut adjacent the end of the second leg of the bracket; and at least one adjustable stabilizing fastener on the bight portion of the U-shaped bracket for being moved toward the U formed by the bracket for tightening the bracket around the housing.

4,364,289

WIRE STRIPPER APPARATUS

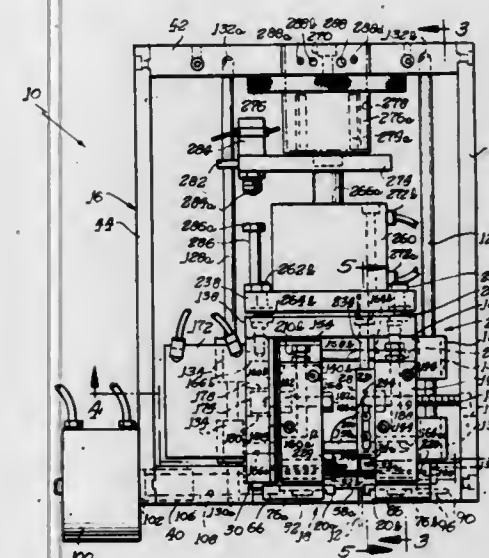
Ronald J. Sorensen, Richmond, Ind., assignor to Belden Corporation, Geneva, Ill.

Filed Mar. 20, 1980, Ser. No. 131,919

Int. Cl.³ H02G 1/12

U.S. Cl. 81-9.51

20 Claims



1. Apparatus for stripping a coaxial outer layer of insulation or jacket material from an electrical conductor wire or cable comprising, in combination:

- a base defining a longitudinal axis,
- clamping means including a pair of clamping jaws supported by said base and operable between relative open positions enabling positioning of a conductor wire therebetween and closed positions clamping said conductor wire therebetween,
- carriage means supported by said base for movement along a predetermined path of travel,
- stripper means carried by said carriage means and including a pair of mutually cooperable stripping blades, blade holder means supporting said stripper blades for movement between relative open positions adapted to receive said conductor wire therebetween and closed positions adapted to sever the coaxial layer a predetermined radial depth,
- actuator means supported by said base and cooperative with said carriage means to effect selective movement of said stripping blades when in their said closed positions to sever the insulation layer of the conductor wire disposed

therebetween and move said severed insulation layer longitudinally of said conductor wire, and stop means carried by said actuator means and defining a reference surface against which an end of the conductor wire may be placed preparatory to trimming and stripping thereof,

said actuator means including means adapted to effect pre-travel of said stop means prior to movement of said carriage means in a direction to move said severed insulation layer so as to effect release of any severed insulation slugs lodged between said stripper blades and said stop means.

4,364,290

ADJUSTABLE TOOL HOLDER

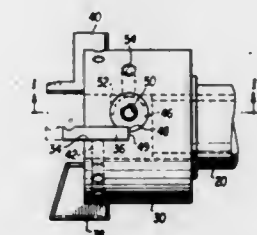
William H. Astle, 2380 LaLoma Dr., Rancho Cordova, Calif. 95670

Filed Dec. 5, 1980, Ser. No. 213,685

Int. Cl.³ B23B 27/00, 5/16

U.S. Cl. 82-36 R

4 Claims



1. In a rotary cutting tool holder including a tool support rotatable about an axis and having axially separated proximal and distal ends, at least one axial opening for receiving a cutting tool bit that extends from the distal end of the support when received in said opening, a releasable lock for securing a tool bit to the holder in the opening, and a rotatable cam element mounted on the tool support for adjustably axially positioning the tool on the tool support with the cam rotational axis oriented generally radially of the tool support, the improvement comprising, said cam having only a single peripheral edge feature extending laterally into the axial opening adjacent its proximal end to form an abutment that is substantially axially movable within the axial opening by rotation of the cam, and means for securing the cam against rotation.

4,364,291

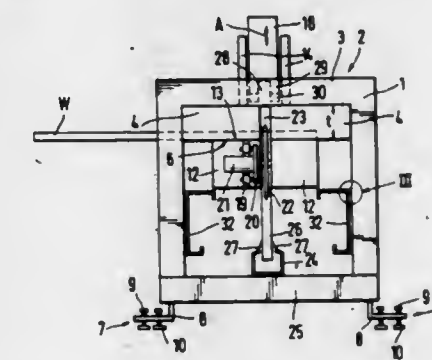
FRAME FOR A RECIPROCABLE CIRCULAR SAW
Erwin Jenkner, Lindenstrasse 13, D-7261 Gechingen, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 62,406, Jul. 31, 1979, abandoned. This application May 13, 1981, Ser. No. 263,118
Claims priority, application Switzerland, Jul. 31, 1978, 8178/78

Int. Cl.³ B23D 47/02

U.S. Cl. 83-100

10 Claims



1. In a reciprocable circular saw for treating at least one workpiece, a frame comprising a plurality of spaced-apart legs

including upper portions having flat coplanar surfaces on the undersides thereof and vertically extending side portions connected to and supporting said upper portions, elongated carrier means extending longitudinally between and secured to said legs, said carrier means having at least one upper finished surface which abuts against said flat coplanar surfaces and constitutes the surface of a table for positioning said workpiece, and a saw, a portion of which is mounted in said carrier means for longitudinal movement along said carrier means to treat said workpiece.

8. A frame according to claim 1, further comprising a suction channel for shavings, said channel being mounted on said legs.

4,364,292

FLOOR OR BENCH MOUNTED CONDUIT CUTTING DEVICE

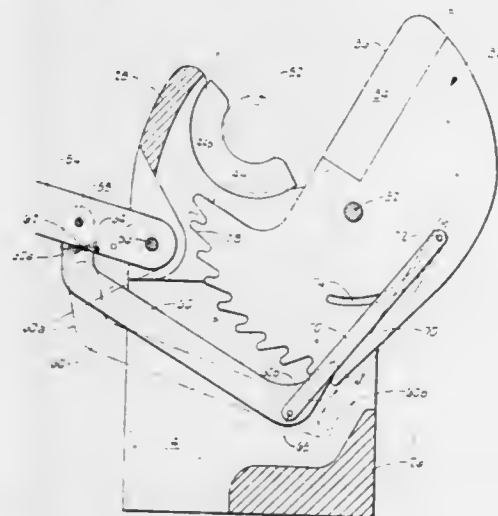
Glenn A. Wozniak, Chagrin Falls; Robert R. Rady, Strongsville, and Harold T. Pate, Solon, all of Ohio, assignors to Indian Head Inc., New York, N.Y.

Division of Ser. No. 16,507, Mar. 1, 1979, Pat. No. 4,300,425. This application Jan. 5, 1981, Ser. No. 222,294

Int. Cl.³ B23D 17/08; 21/06

U.S. Cl. 83—605

3 Claims



1. Apparatus for transversely shearing cylindrical plastic tubing comprising:

a blade element having a cutting edge and pivotally mounted for partial rotation about a pivotal axis and in a plane extending normal to the longitudinal axis of the tubing, said blade element having a plurality of adjacent teeth secured to an edge thereof other than said cutting edge;

a base;

means pivotally supporting the blade element on the base; tubing holding means detachably mounted on said blade element supporting means and including arcuate surfaces for directly engaging and supporting at contact areas spaced axially from each other along the tubing, a tubing to be cut over substantially 180° of the outer surface of the tubing;

an operating handle movably supported over said base and pivotally connected thereto; and

means interconnecting the operating handle and the blade element for incrementally pivoting the blade element when said operating handle is pivoted through a predetermined path relative to said base, said interconnecting means comprising:

an elongated pawl lever having a first end connected to the operating handle and a second end adapted for engagement with said teeth by entry into the space between adjacent pairs of teeth on said blade; and

indexing means connected between the pawl lever and the blade element for guiding the second end of the pawl lever to positions of engagement with consecutive teeth upon each repetition of the movement of said operating handle through said predetermined path, and for retracting said

blade element after a conduit has been cut through by the blade element and thereby restore the blade element to its original operative position.

4,364,293

ROTARY KNIFE HOLDER WITH MEANS FOR DAMPING ITS NATURAL FREQUENCY OSCILLATIONS

Gerhard Hirsch, Aachen, Fed. Rep. of Germany, assignor to E. C. H. Will (GmbH & Co.), Hamburg, Fed. Rep. of Germany

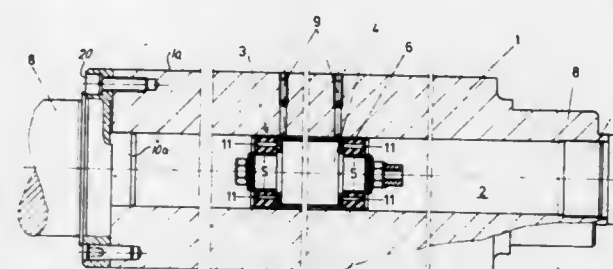
Filed May 22, 1980, Ser. No. 152,185

Claims priority, application Fed. Rep. of Germany, Jun. 9, 1979, 2923516

Int. Cl.³ B26D 1/56

U.S. Cl. 83—674

6 Claims



1. A knife holder, particularly for use in apparatus for subdividing a running web of paper or the like into discrete sheets, comprising a hollow rotary carrier which tends to oscillate at a given natural frequency, said carrier having an axial passage, at least one peripheral recess extending in substantial parallelism with the axis thereof, and at least one knife, a portion of which extends into and is retained within said at least one peripheral recess; means for damping the oscillations of said carrier, including a dynamic damping unit disposed in the passage of said carrier and having a natural frequency which is attuned to said given frequency, said unit comprising a mass and means for coupling said mass to said carrier so that the mass is free to oscillate relative to said carrier, said mass comprising a cylinder and said coupling means comprising a plurality of elastic elements interposed between said cylinder and said carrier, said coupling means further comprising a sleeve coaxial with and installed in the interior of said carrier, said cylinder being installed in, being normally coaxial with and being freely oscillatable relative to said sleeve and said elastic elements being interposed between said sleeve and said cylinder.

4,364,294

HORIZONTAL POWER BAND SAW

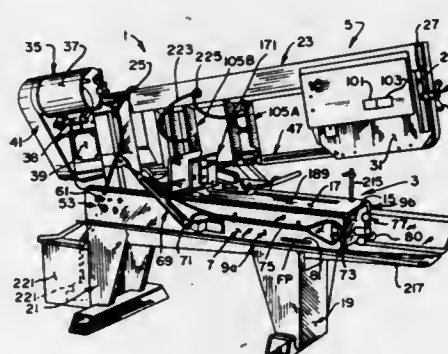
Curtis J. Eccardt, St. Charles, Mo., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Aug. 4, 1980, Ser. No. 175,253

Int. Cl.³ B23D 53/04, 55/04, 55/10, 55/08; B27B 13/10

U.S. Cl. 83—796

24 Claims



1. In a horizontal power band saw for cutting metal or the

like comprising a frame including a bed, legs supporting said bed, and a head assembly pivotally carried by said bed at one end thereof for swinging in a generally vertical direction between a raised position and a lowered position, said head including a pair of spaced blade wheels rotatably mounted thereon, an endless blade entrained around said blade wheels, said blade having a cutting surface thereon, and means for driving said blade around said blade wheels, wherein the improvement comprises: said bed being a bed weldment constituted by a pair of elongate, generally parallel-spaced, horizontal bed members extending the length of said bed, each of said bed members being a channel member having a generally vertical web and a horizontal flange at the top and bottom of said web, said head comprising a head weldment having a head post and a head beam generally perpendicular to the head post, said head beam carrying said blade wheels, said head post extending down between said spaced bed members, said bed members being spaced apart a distance sufficient to receive the lower end of said head post therebetween, and means for pivotally mounting said head post relative to said bed members for rotation of the head about a horizontal axis between its raised and lowered positions, said means for mounting said head post relative to said bed members comprising a pair of horizontal, coaxial trunnions projecting outwardly from the head post on opposite sides thereof, the axis of said trunnions constituting a horizontal pivot axis for the head, and a pair of bearing housings, one for each trunnion, adjustably securable to the inner face of the web of said bed members for journalling said trunnions therein, each said bearing housing being adjustably movable within a limited range relative to its respective said bed member for adjusting said axis of said trunnions thereby to properly orient said head relative to said bed.

4,364,295

MUSICAL INSTRUMENT SOUND PICKUP AND METHOD OF ASSEMBLY THEREOF

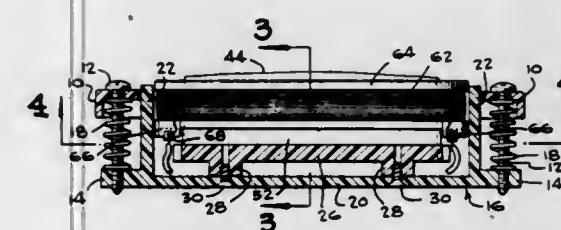
Willi L. Stich, c/o Lawrence Sound Research #1 Industrial Dr., Mt. Juliet, Tenn. 37122

Filed Mar. 2, 1981, Ser. No. 239,242

Int. Cl.³ G10H 3/18

U.S. Cl. 84—1.15

19 Claims



1. A sound pickup for a stringed musical instrument comprising:

a hollow housing having a top opening and a bottom bed plate;

a base plate positioned in said hollow housing on said bed plate and including first and second parallel elongated apertures;

first and second elongated coil core blades respectively having one edge matingly and snugly fitted into said first and second parallel elongated apertures for retention therein and having a second opposite edge positioned outwardly of said top opening of said hollow housing;

elongated magnet means positioned on said base plate between said first and second elongated coil core blades; first and second elongated coil assemblies respectively matingly fitted over said first and second elongated coil core blades with each coil assembly partially overlying said elongated magnet means;

holding means for retaining said base plate in fixed position in said hollow housing; and

conductor means extending from said elongated coil assemblies through said housing.

4,364,296

ELECTRICAL MUSICAL INSTRUMENT

Reinhard Franz, Tulpenstrasse 15, D-5401 Emmelshausen, Fed. Rep. of Germany, and Wilfried Dittmar, Halsenbach, Fed. Rep. of Germany, assignors to Reinhard Franz, Emmelshausen, Fed. Rep. of Germany

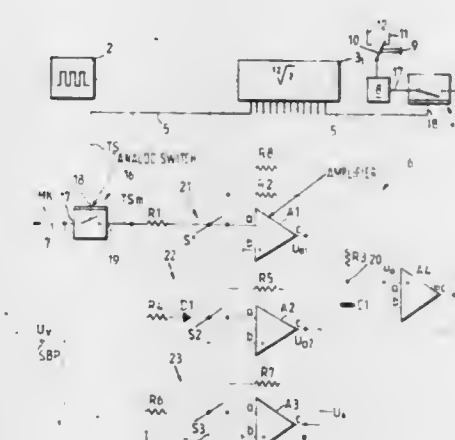
Filed Feb. 20, 1981, Ser. No. 236,236

Claims priority, application Fed. Rep. of Germany, Feb. 21, 1980, 3006453

Int. Cl.³ G10H 1/02

U.S. Cl. 84—1.26

19 Claims



1. In an electronic musical instrument, the combination of first generator means for supplying tone signals; key means actuable to generate additional signals of variable duration; second generator means for supplying envelope control signals whose intensity is a function of the duration of the additional signals; and control means for modulating the amplitude of the tone signals as a function of the characteristics of the envelope control signals, said control means including terminal means, and analog switch means having a first input for the envelope control signals, a second input for the tone signals and an output for modulated tone signals connected with said terminal means, said control means further including a bypass branch between said second generator means and said terminal means bypassing said analog switch means, and said bypass branch comprising means for superimposing upon the modulated tone signals further signals whose magnitude is half that of the modulated tone signals, said superimposing means including an amplifier which constitutes an inverter and is operative to reduce the magnitudes of signals supplied thereto.

3. In an electronic musical instrument, the combination of first generator means for supplying tone signals; key means actuable to generate additional signals of variable duration; second generator means for supplying envelope control signals whose intensity is a function of the duration of the additional signals; and control means for modulating the amplitude of the tone signals as a function of the characteristics of the envelope control signals, said control means including analog switch means having a first input for the envelope control signals, a second input for the tone signals and an output for modulated tone signals, and said control means further including a terminal, and a first main branch connecting said output with said terminal to transmit modulated tone signals to said terminal, said control means also including a second main branch connecting said output with said terminal, and said second main branch comprising means for transmitting modulated signals from said output to said terminal when the amplitude of the modulated tone signals exceeds a predetermined value, said transmitting means including a high-pass filter.

4,364,297

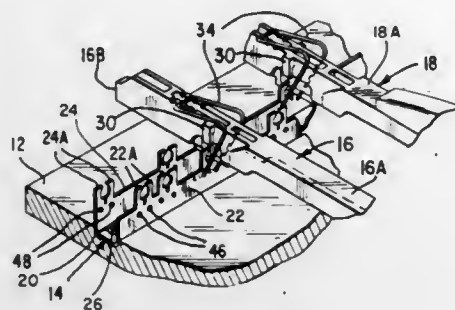
KEYBOARD SPRING RETURN MECHANISM

James Meier, Des Plaines, Ill., assignor to Norlin Industries, Inc., White Plains, N.Y.

Filed Mar. 24, 1980, Ser. No. 133,562
Int. Cl.³ G10C 3/12

U.S. Cl. 84-440

14 Claims



1. A keyboard mechanism comprising: a plurality of elongated keys each having opposite ends; a frame; fulcrum means on said frame mounting each said key at a pivot location intermediate the ends of said key for pivotal motion about a transverse axis; a separate return spring means for each key, each spring means having an anchored end and a biasing end and having at least one flexure spring arm bent to form an elbow at a location intermediate said ends, said elbow normally having a predetermined angle; anchoring means on said frame restraining an anchored end of each said spring means at an anchoring location intermediate the ends of the corresponding key; trapping means on each said key engaging the biasing end of the corresponding spring means at a biasing location intermediate the ends of said key; said biasing location and said pivot location being offset from each other longitudinally of said key; and each said spring means being stressed between said anchoring location and said biasing location, forcing said elbow to form an angle greater than said predetermined angle, when the corresponding key is pivoted in one direction about said fulcrum means, so as to exert a biasing torque upon said key tending to return it to its initial position.

4,364,298

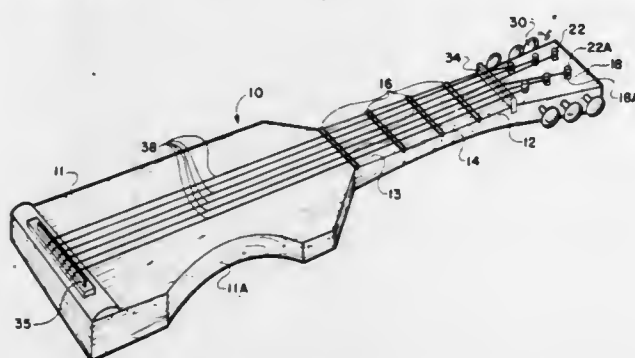
STRINGED SIMULATOR

Gary L. Piazza, 2156 Medfield Trail, NE., Atlanta, Ga. 30345

Filed Aug. 24, 1981, Ser. No. 295,832
Int. Cl.³ G09B 15/06

U.S. Cl. 84-465

10 Claims



1. A stringed simulator which is portable, compact and produces low sound levels for enabling a player to practice both right hand plucking and left hand fingering which closely simulates practice on a corresponding full-size stringed instrument, said stringed simulator comprising:

(a) a non-acoustic body having peripheral dimensions substantially smaller than a corresponding full-size instrument;

(b) an elongate neck carried by and projecting laterally outwardly from one side of said body said neck having a flat top surface and being substantially shorter in length than, but

having the same width, thickness and contour as the neck of a corresponding full-size instrument;

(c) means positioned adjacent the free end of said neck and adjacent the periphery of said body remote from said neck for tensioning a plurality of strings therebetween; and

(d) a plurality of frets corresponding to a portion of the fret-board of said full size instrument, said frets being positioned on and spaced along the top surface of said neck at intervals from each other corresponding to the fret intervals of said portion.

4,364,299

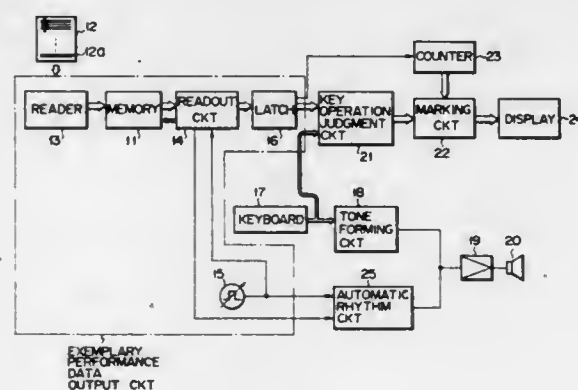
ELECTRONIC MUSICAL INSTRUMENT HAVING SYSTEM FOR JUDGING PLAYER'S PERFORMANCE

Akira Nakada; Eisaku Okamoto, and Kiyoshi Yoshida, all of Hamamatsu, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Shizuoka, Japan

Filed Dec. 18, 1980, Ser. No. 217,896
Claims priority, application Japan, Dec. 27, 1979, 54/171404
Int. Cl.³ G09B 15/02, 15/04

U.S. Cl. 84-478

11 Claims



1. An electronic musical instrument comprising:

memory means for storing exemplary performance data representative of progression of notes of a musical piece and corresponding to key operations to be effected on a keyboard to play the musical piece, said performance data including pitch data and duration data of respective notes of the music;

readout control means coupled to said memory means for reading said performance data sequentially out of said memory means in accordance with the progression of the musical piece;

keyboard means responsive to key operations to produce musical performance signals corresponding to musical notes; and

key operation judging circuit means coupled to said keyboard means for comparing said musical performance signals produced by said keyboard means with said performance data read out of said memory means to detect whether or not each of said key operations is correctly effected on said keyboard means in accordance with the respective performance data read out of said memory means;

said readout control means including means for reading performance data corresponding to a note out of said memory means after the elapse of a period of time corresponding to the duration data of a preceding note from the readout of performance data of said preceding note; and

said key operation judging circuit means including means for effecting a comparison between a time interval corresponding to the duration data of a given note and a time interval beginning from the time of a key depression operation corresponding to said given note to a succeeding key releases operation on said keyboard means.

4,364,300

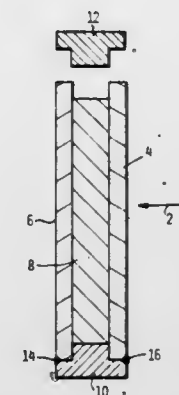
COMPOSITE CORED COMBAT VEHICLE ARMOR

Victor H. Pagano, Rochester, and John M. Hennessey, Warren, both of Mich., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Continuation-in-part of Ser. No. 918,988, Jun. 26, 1978, abandoned. This application Mar. 31, 1980, Ser. No. 136,124
Int. Cl.³ F41H 5/04

U.S. Cl. 89-36 A

1 Claim



1. A composite cored armor plate for military combat vehicles to resist penetration by high velocity armor piercing projectiles, said armor comprising:

(a) a composite of a first, second and third laminations of different densities, of which at least the first and second laminations are of at least equal masses, said first lamination having a surface directly exposed to potential armor piercing projectile attack;

(b) said first lamination consisting of a relatively thin quenched and tempered alloy steel plate having a relatively high density and BHN hardness to confront said armor piercing projectile with a high density bulk for a relatively short travel path so as to induce projectile cracking and impair projectile integrity; the BHN hardness being in the 500-600 range;

(c) the second lamination being immediately adjacent said first lamination; and being of a relatively low density high strength nonferrous metallic material; its density being of from one-sixth to two-thirds that of the first lamination;

(d) said second lamination being selected from the group including graphite-fiber-reinforced aluminum material and a titanium material; and while having at least the same mass as said first lamination has a much greater thickness than the first lamination, thereby forcing the projectile to do more work to traverse and to potentially penetrate its much greater bulk while simultaneously reducing projectile energy;

(e) the third lamination being spaced apart from said first lamination but immediately adjacent the second lamination; said third lamination having lesser BHN hardness than the first lamination and substantially greater hardness than the second lamination; and

(f) said third lamination consisting of a relatively thin, high toughness, quenched and tempered alloy steel plate having a BHN hardness of approximately 300 so as to substantially arrest such velocity as the projectile and fragments might still possess.

4,364,301

VACUUM ACTUATOR

Yasuhiro Kawabata, Anjo, and Kongo Aoki, Kariya, both of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Japan

Filed Sep. 11, 1980, Ser. No. 186,160
Claims priority, application Japan, Sep. 21, 1979, 54-122360
Int. Cl.³ F15B 15/22

U.S. Cl. 91-20

6 Claims

1. A vacuum actuator for connection to a vacuum source, said actuator comprising:

a housing;

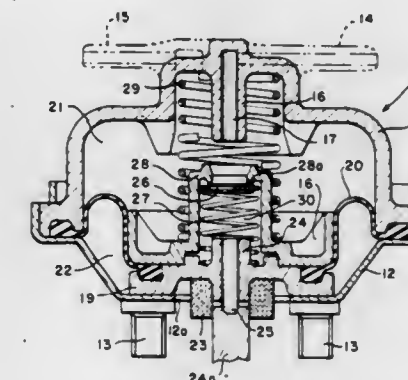
annular diaphragm means dividing the interior of the hous-

ing into first and second fluid chambers, said diaphragm means being biased into a first stable position wherein a portion of the diaphragm means abuts the housing;

first and second inlet ports formed in said first chamber for individual communication either with the vacuum source or with atmospheric pressure;

passage means independent of said first and second ports for continuously communicating atmospheric pressure to said second fluid chamber;

poppet valve means for terminating communication between said first inlet port and said first fluid chamber in response to upward movement of said diaphragm means and for controlling communication of atmospheric pressure to said first fluid chamber from said second fluid chamber; said diaphragm means being stabilized in said first position when both inlet ports communicate with atmospheric



pressure, in a second position when said first inlet port communicates with said vacuum source, said second inlet port is disconnected from fluid communication with said first fluid chamber and said poppet valve closes fluid communication between said first inlet port and said first fluid chamber, and in a third position when fluid communication between said first inlet port and said first fluid chamber continues to be terminated, vacuum is applied to said second inlet port, and said poppet valve means closes off communication of atmospheric pressure between said second fluid chamber and said first fluid chamber in response to maximum upward movement of said diaphragm means, said poppet valve means admitting atmospheric pressure to said first fluid chamber from said second fluid chamber between said second and third stable positions of said diaphragm means.

4,364,302

HYDRAULIC CONTROL APPARATUS FOR A SERVO-MOTOR, PARTICULARLY FOR VEHICLE STEERING

Svend E. Thomsen, and Thorkild Christensen, both of Nordborg, Denmark, assignors to Danfoss A/S, Nordborg, Denmark

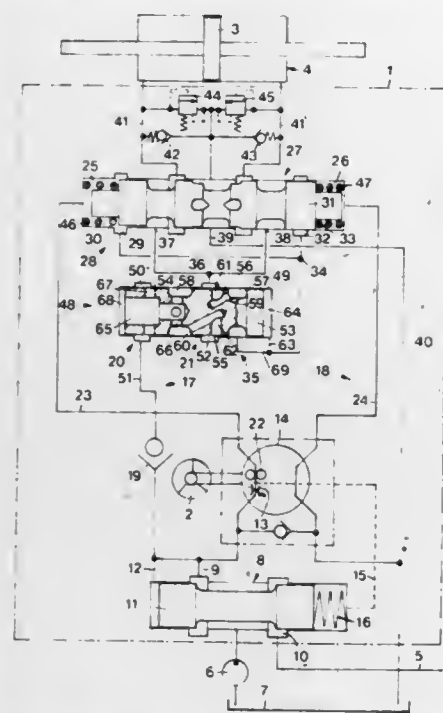
Filed Aug. 14, 1980, Ser. No. 178,146
Claims priority, application Denmark, Aug. 14, 1979, 2932847
Int. Cl.³ F15B 13/042

U.S. Cl. 91-29

1 Claim

1. A hydraulic steering control assembly, comprising, a bidirectional servomotor having two operating ports on opposite sides thereof, a pump and a tank, operable steering control means, a metering control controlled by said steering control means having input and output ports and left and right control ports to which pressurized fluid may be selectively directed from said input port and returned from the other said control ports to said output port, bidirectional valve means having inlet port means and directional power control ports connected to said servomotor ports for selectively supplying and exhausting pressurized fluid therefrom, said bidirectional valve means having left turn inlet and outlet control ports and right turn inlet and outlet control ports a two sided control circuit connected to said metering unit control ports and to said bidi-

rectional valve means right and left turn inlet control ports, utility valve means having pressure regulating and control and power valve capabilities, said utility valve means having a single slidable spool disposed in a valve housing having first and second input passage means and output passage means, said spool and said housing forming first and second chambers at opposite ends thereof, a power circuit connected to said pump and to said utility valve means first input passage means, said spool having a first internal passage means having fluid communication with said first chamber and being in an adjustable throttling relationship with said first housing input passage means to regulate the pressure of fluid at said first housing



input passage means, said bidirectional valve means left and right turn outlet control ports being selectively connected via said metering control unit to said second utility valve means chamber and to said valve housing second input passage means, said spool having second internal passage means in constant fluid communication with said first internal passage means thereof and said housing second input passage means and said valve housing output passage means to combine pressure fluids from said control and power circuits, said valve output passage means being connected to said bidirectional valve means inlet port means to provide a common path for pressurized fluids from said power and control circuits.

4,364,303

AIR OPERATED RECIPROCATING TOOL

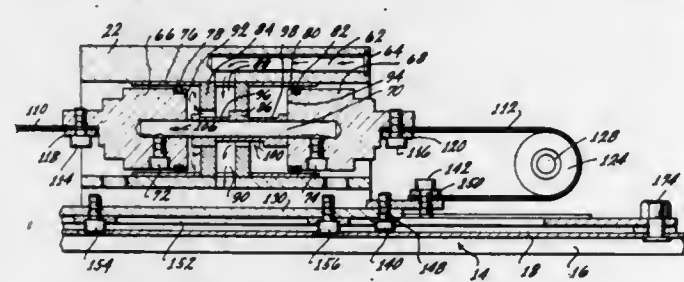
Kunio A. Sumida, 1114 N. Kenter Ave., Los Angeles, Calif. 90049

Filed Sep. 8, 1980, Ser. No. 184,928

Int. Cl.³ F01L 23/00; F01B 9/00

U.S. Cl. 91—329

21 Claims



1. An air operated reciprocating tool, including, an air operated double ended piston positioned within a cylinder for automatic continuous reciprocation within the cylinder,
- a valve assembly operatively actuated by the piston and in communication with a source of air for automatically alternating the control of the application of the source of

air to opposite portions of the piston for producing automatic continuous reciprocation of the piston, a shoe member for supporting a tool and with the shoe member mounted for sliding motion, and belt means forming a loop for interconnecting the ends of the double ended piston and the shoe member and with the belt means supported by pulley members located adjacent the ends of the double ended piston and with the automatic continuous reciprocating motion of the double ended piston transmitted to automatic continuous reciprocating motion of the shoe member.

4,364,304

ARRANGEMENT FOR INFLUENCING THE OPERATING QUANTITY OF A SERVOMOTOR

Hans S. Andersen, Augustenborg, and Preben Christiansen, Nordborg, both of Denmark, assignors to Danfoss A/S, Nordborg, Denmark

Continuation of Ser. No. 63,517, Aug. 3, 1979, abandoned, which is a continuation of Ser. No. 883,288, Mar. 3, 1978, abandoned, which is a division of Ser. No. 758,613, Jan. 12, 1977, abandoned.

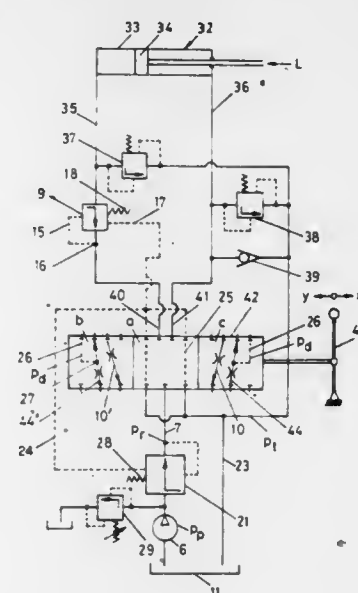
This application Oct. 26, 1981, Ser. No. 314,763

Claims priority, application Fed. Rep. of Germany, Jan. 21, 1976, 2601999

Int. Cl.³ F15B 13/04

U.S. Cl. 91—420

1 Claim



1. A servomotor system, comprising, pump means and tank means, a servomotor having cylinder and piston means and first and second ports at opposite ends of said cylinder means, switching valve means having supply and return passages connected respectively to said first and second cylinder ports for one setting thereof, first and second throttle means respectively in said return and supply passages, reducing valve means having first and second flow-through ports with said first flow-through port being connected to said servomotor second port, said reducing valve means having valve opening spring biasing means, said reducing valve means having a valve opening port connected to the downstream side of said second throttle means in said switching valve supply passage, said reducing valve means having a valve closing port connected to said second flow-through port thereof, pressure regulating means having inlet and outlet ports connected respectively to said pump means and said switching valve supply means, said pressure regulating means having valve opening and closing ports connected respectively to the downstream and upstream sides of said valve means supply passage, said reducing valve means and said first and second throttle means of said switching valve means being cooperable to maintain a substantially constant fluid flow through said switching valve means return passage despite an increasing pressure at said servomotor second port due to a negative load applied to said servomotor in

the direction opposite to the normal loading of said servomotor.

4,364,305

BRAKE CYLINDER DEVICE COMBINING A PNEUMATICALLY-APPLIED SERVICE BRAKE AND A SPRING-APPLIED PARKING BRAKE

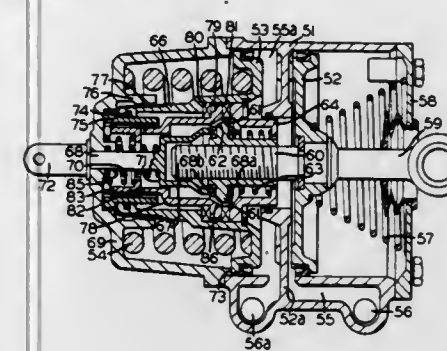
Georges Dalibout, Gagny, and Michel Grenier, Dampmart, both of France, assignors to WABCO Westinghouse, S.A., Freinville-Sevrin, France

Filed Jun. 9, 1980, Ser. No. 157,691

Int. Cl.³ F01B 7/00

U.S. Cl. 92—63

6 Claims



1. A brake cylinder device comprising:
 - (a) an auxiliary brake piston subject on one side to the force of fluid pressure urging movement of said auxiliary brake piston in a brake release direction;
 - (b) a parking brake spring acting on the side of said auxiliary brake piston opposite said one side to urge movement of said auxiliary brake piston in a brake application direction;
 - (c) a service brake piston subject on one side thereof to the force of fluid pressure urging movement of said service brake piston in said brake application direction;
 - (d) a screw-threaded shaft projecting from said service piston in the direction of said auxiliary piston;
 - (e) a nut rotatably disposed on said shaft and having a force receiving surface; and
 - (f) a sleeve member comprising:
 - (i) a collar at one end supported between a pair of bearing members of said auxiliary piston, whereby said sleeve member is rotatable relative to said auxiliary piston;
 - (ii) a force transmitting surface normally spaced a predetermined distance apart from said force receiving surface and engageable therewith upon axial movement of said auxiliary brake piston in said brake application direction by said predetermined distance relative to said service brake piston to lock said nut against rotation, whereby the force of said parking brake spring is transmitted to said service brake piston; and
 - (iii) clutch teeth arranged about one end of said sleeve member;
 - (g) an annular ring member secured to the end body of said brake cylinder device, said annular ring member having axially arranged splines along the internal surface thereof;
 - (h) a gear member having an annular external surface arranged with axial splines for engagement with the splines of said annular ring member so as to provide axial relative movement thereto, said gear member having an end face formed with clutch teeth adjacent said clutch teeth at said one end of said sleeve member;
 - (i) a spring acting against said gear member to effect engagement between said clutch teeth of said gear member and said sleeve member to thereby prevent rotation of said sleeve member and accordingly cause said locking of said nut against rotation during said engagement of said force transmitting and receiving surfaces; and
 - (j) means for establishing and maintaining said force transmitting and receiving surfaces apart by said predetermined distance during displacement of said service brake piston prior to said movement of said auxiliary brake piston,

whereby the degree of expansion of said parking brake spring during movement of said auxiliary brake piston said predetermined distance relative to said service brake piston is constant, thus rendering the force characteristic of said parking brake spring constant irrespective of the stroke of said service brake piston.

4,364,306

SWASH PLATE TYPE COMPRESSOR

Mitsuhiko Hattori, Tomoo Fujii, and Hiroya Kono, all of Ka-riya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Aichi, Japan

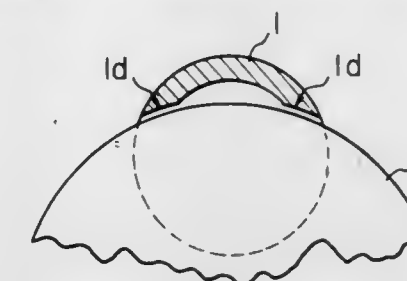
Filed Dec. 12, 1979, Ser. No. 102,997

Claims priority, application Japan, Dec. 30, 1978, 53-179244[U]

Int. Cl.³ F04B 1/16; F01B 3/02

U.S. Cl. 92—71

6 Claims



1. In a swash plate type compressor comprising a pair of axially connected cylinder blocks having therein a plurality of axially extending cylinder bores, a plurality of double headed compressor pistons slidably fitted in said cylinder bores, a drive shaft axially extending through said cylinder blocks and having thereon a swash plate capable of rotating with said drive shaft for causing a reciprocatory compression of each of said double headed compressor pistons between two compression dead centers, each said double headed piston being formed, between two piston heads thereof, with an axially central recess in which a generally outer part of said swash plate is arranged so as to establish an operative connection between each said piston and said swash plate,

the improvement comprising: said axially central recess of each said piston having a bottom surface, a part of which protrudes toward an outer surface of said swash plate, said protruding part being provided as an abutment capable of immediately contacting said outer surface of said swash plate as soon as only a given amount of rotation of each said double headed compressor piston about its own axis occurs during the running of the compressor, said protruding part having its axial length determined so that when each said double headed compressor piston approaches one of said compression dead centers, an outer edge of said generally outer part of said swash plate which also approaches one of said compression dead centers comes away from said protruding part and an inner edge of the generally outer part of the swash plate stays at a position adjacent to the protruding part.

4,364,307

LUBRICATION SYSTEM

Daniel Paro, Kvevlax, Finland, assignor to Oy Wartsila AB, Helsinki, Finland

Filed Feb. 13, 1980, Ser. No. 121,286

Claims priority, application Finland, Feb. 16, 1979, 790511

Int. Cl.³ F01B 31/10

U.S. Cl. 92—157

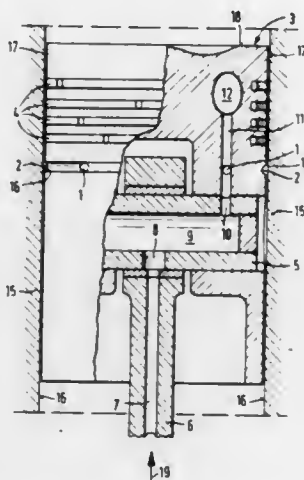
7 Claims

1. A cylinder lubrication system for a combustion engine having a combustion chamber, in which lubricating oil is directed to a cylinder wall of a cylinder through a piston moving

in said cylinder, said piston comprising an outer mantle surface, a top surface at one end of said mantle surface, a piston pin below said top surface and, sealing said combustion chamber, a plurality of piston rings in said mantle surface between said top surface and said piston pin;

said lubrication system including:

a lubrication groove in said outer mantle surface of said piston between said piston pin and at least a majority of said piston rings, said lubrication groove being open in a direction outwardly from said piston; and



a feed system for feeding an accurately controllable amount of lubricating oil to said lubrication groove; said feed system including:

lubricant feed ducts in said piston;

means for continuously supplying the lubricating oil under pressure to said feed ducts;

said feed ducts providing continuous pressurized feeding of said lubricating oil to said lubrication groove in a direction from the interior of said piston outwardly to said groove; and

regulating means for providing an accurately controllable continuous flow of lubricating oil to said groove.

4,364,308

APPARATUS FOR PREPARING FOOD

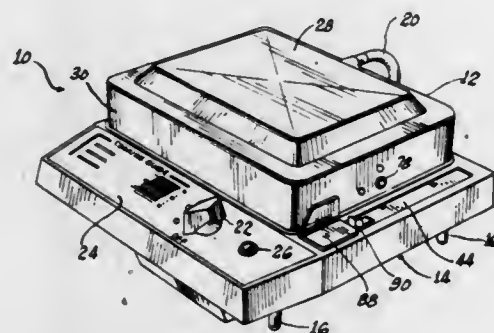
Raymond John, Carpentersville; Jerome G. Apfelbaum, Arlington Heights, and Robert L. Moore, LaGrange, all of Ill., assignors to Engineering Inventions, Inc. and Multisensors Inc., a part interest

Division of Ser. No. 693,548, Jun. 7, 1976, Pat. No. 4,241,650, which is a continuation of Ser. No. 460,798, Apr. 15, 1979, abandoned, which is a continuation-in-part of Ser. No. 292,479, Sep. 27, 1972, abandoned. This application Sep. 18, 1980, Ser. No. 188,318

Int. Cl.³ A47J 37/06

U.S. Cl. 99—351

16 Claims



1. In a heating apparatus for food comprising a support for the food, an upper housing and a lower housing, said support being positioned within the confines of said housings, heating elements associated with at least one of said housings, means for separating the housings to provide access to the housings

for placement of food on the support and for removal of the food, and means for bringing the housings together for confining the food within an enclosed space, said upper housing defining a horizontally disposed top wall and downwardly extending side walls, and said lower housing defining a horizontally extending bottom wall and downwardly extending side walls, the improvement wherein the downwardly extending side walls of said upper housing define a lower edge extending a substantial distance away from the upper housing top wall whereby the upper housing side walls telescope around the lower housing when the housings are brought together for heating food, the space between the housings being thereby substantially closed by said upper housing side walls during use of the apparatus, said lower edge being at all times maintained out of engagement with said lower housing, and means for variably controlling the distance between said top wall and said bottom wall when the housings are brought together to provide for adjustment of the size of said enclosed space, said side walls of the upper housing remaining in said telescoped position in all positions of adjustment whereby the space for the heating elements to heat can be minimized and the efficiency of heating thereby increased.

4,364,309

SAUSAGE PRODUCTION LINE

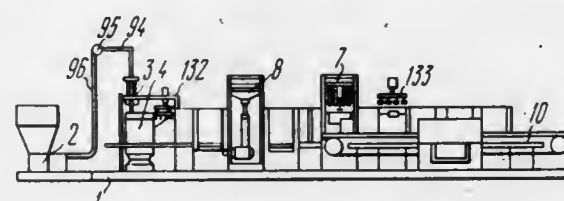
Vasily M. Gorbato, prospekt Mira, 74, kv. 70; Evgeny T. Spirin, ulitsa Usacheva 29, korpus 3, kv. 203; Vladimir V. Shakhov, ulitsa Yablochkova 31, kv. 73; Viktor V. Vagin, 9 Sokolnicheskaya ulitsa, 1, korpus 2, kv. 78; Vyacheslav I. Khromov, Volgogradsky prospekt, 71 korpus 2, kv. 200; Zimel A. Bogushev, Universitetsky prospekt 6, kv. 125; Viktor I. Eremin, ulitsa Bratskaya, 27 korpus 3, kv. 75; Kaletta M. Vainzof, ulitsa Potesnaya, 2, kv. 34, and Evgeny R. Podkhvatilin, Stavropolskaya ulitsa, 7b, kv. 16, all of, Moscow, U.S.S.R.

Filed Jul. 30, 1979, Ser. No. 62,122

Int. Cl.³ A22C 7/00

U.S. Cl. 99—352

14 Claims



1. A sausage production line comprising a sausage meat feeder, sausage meat filling and batching means mounted on a frame which includes horizontally extending guides located on a top base of said frame, said guides accommodating a plate carrying vertically extending spindles which shift on a row-by-row basis, and a hydraulic cylinder with a rod coupled kinematically to the spindles to lower said spindles during the course of filling and batching a plurality of block molds with sausage meat, wherein the block mold includes a housing accommodating vertical rows of molds, said housing containing upper lids mounted for movement in horizontal and vertical planes, and lower lids mounted for movement in a horizontal plane, said block mold further including means attached to the housing adapted to press the lower lids against said housing, means for row-by-row shifting of the spindles, chambers for heat and cold treatment of the finished product, means for discharging the finished product from said molds and means for washing the block molds, all arranged in a closed loop in the direction of production flow, the closed loop being formed by step-type conveyors arranged in two parallel rows located in a single plane, the pitch of each of said conveyors being limited by the dimensions of a single block mold, said conveyors serving to move the block molds from said means for filling and batching the sausage meat into the block molds to said chambers for heat and cold treatment of the finished product, to means for discharging the finished product, to means for

washing the discharged block molds, and back to said sausage meat filling and batching means.

4,364,310

MOBILE BARBECUE APPARATUS

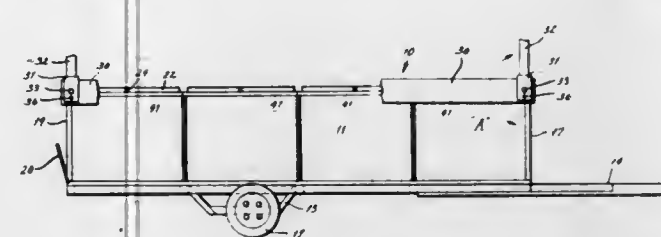
Bernard O. Rufkahr, St. Charles, Mo., assignor to Ben R. Rufkahr, St. Charles, Mo.

Filed Nov. 28, 1980, Ser. No. 211,192

Int. Cl.³ A47J 37/04

U.S. Cl. 99—357

9 Claims



1. A portable barbecue apparatus comprising a firebox having a bottom and upstanding sides, wheels connected to said firebox for moving said barbecue apparatus, opposed bracket means on side top edges, a rotatable food holding receptacle having means for engaging said brackets, and means for releasably positioning said receptacle means in cooking position over said firebox, said receptacle means being adjustable in width to accommodate items of different widths within said receptacle means, said receptacle comprising opposed walls having a plurality of openings therein, adjustable hinge means connecting the opposed walls adjacent to one common edge thereof, and adjustable lock means for locking together the side edges of the walls which are opposite of the hinged edges, the adjustable hinge means comprising bushings positioned on one wall and spaced openings in the side frame of a second wall and connecting means which when positioned through the bushings and one of the side frame openings defines a chamber between the two walls, and when positioned through the bushings and another of the side frame openings defines a chamber of different width between the two walls, and the lock means comprises spaced openings in a wall of one member alignable with an opening in a wall of the other member, and spring loaded lock means engagable with the said openings in each wall.

4,364,311

PRECISION TRIMMING AND PRECISION CROSS-CUTTING APPARATUS AND METHOD FOR BULK MATERIAL

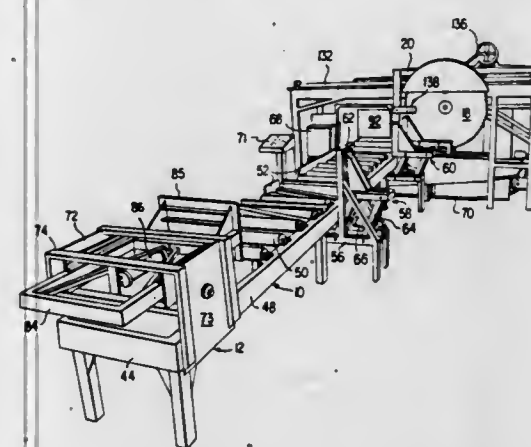
James B. Platt, III, 12826 Dover Rd., Reisterstown, Md. 21136

Filed Sep. 5, 1980, Ser. No. 184,330

Int. Cl.³ B65B 27/10

U.S. Cl. 100—6

15 Claims



1. In an apparatus for precision trimming and/or precision cutting bulk elongated material into desired lengths comprising:

(a) an elongated infeed conveyor table for supporting the

material to be trimmed and cut and for conveying such material along a path extending longitudinally of same;

(b) an elongated cutting table disposed adjacent one end of said conveyor table for receiving and supporting material being conveyed along said path;

(c) power cutting means located adjacent said cutting table, said cutting means including a circular saw mounted for rotation about a substantially horizontal axis on a moveable saw carrier, said saw carriage being operable to move said circular saw across said path to cut the material on said cutting table;

(d) a first substantially horizontal carriage mounted on said conveyor table for controlled reversible movement along said path, said carriage having a first material engaging surface extending across and substantially normal to said path for engaging one end of the material to push same along said conveyor toward said cutting table; and

(e) a second substantially horizontal carriage mounted on said cutting table for controlled reversible movement along said path on the downstream side of said circular saw, said second carriage having a further material engaging surface extending across and substantially normal to said path for engaging the opposite end of said material to act as a stop for material moving along said path to permit cutting of the material at a desired point; the improvement wherein:

the elongated material is a strapped bundle of lumber which is to be precision trimmed and cut into a plurality of bundles of shorter length; and

said first carriage includes means for substantially aligning the ends of a bundle of lumber on said conveyor, said aligning means including means for mounting said first material engaging surface on said first carriage so that it is moveable, relative to said first carriage, along said path in a reversible manner, and a controllable piston connected between said first material engaging surface and the front of said first carriage for selectively and controllably exerting pressure on said first material engaging surface to move same relative to said first carriage and under pressure against the adjacent end of a bundle of lumber.

4,364,312

BAR CODE PRINTING DEVICE

Yo Sato, Tokyo, Japan, assignor to Kabushiki Kaisha Sato, Japan

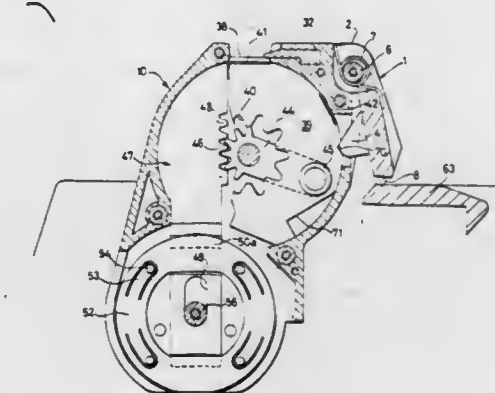
Filed Sep. 15, 1980, Ser. No. 186,916

Claims priority, application Japan, Oct. 8, 1979, 54-138350

Int. Cl.³ B41K 1/12

U.S. Cl. 101—110

9 Claims



1. A printing device comprising: a machine frame; a printing head supported by said frame and movable with respect to said frame from a rest position to a printing head printing position for printing a set of selected symbols on a label; said printing head further comprising: a plurality of type rings for printing said selected symbols;

each said type ring being generally circular in shape and having a plurality of type heads formed thereon corresponding to respective ones of predetermined said symbols; said type rings having a selecting position in which they are spaced relatively far apart and can be rotated independently of each other for selecting said selected symbols; said type rings having a type ring printing position in which they are disposed relatively close together for printing;

a stopper member supported on said printing head and having a protruding position in which it engages said machine frame to prevent said printing head from being moved to said printing head printing position; said stopper member having a retracted position in which it does not engage said machine frame and does not prevent said printing head from being moved into said printing head printing position; said stopper member having a projecting cam follower formed thereon;

a cam member having a cam surface against which said projecting cam follower is biased, said cam member being generally circular in shape and having a diameter approximately equal to or less than the diameter of said type rings and being coaxial with said type rings; said cam member being rotatable between first and second cam positions, wherein said first cam position corresponds to said selecting position of said type ring and to said protruding position of said stopper means, and said second cam position corresponds to said type ring printing position and to said retracted position of said stopper means;

said cam member having a first groove formed in said cam surface which receives said cam follower when said cam member is in said second cam position, said stopper member being in said retracted position when said cam follower is received in said first groove; said cam member also having a second groove formed in said cam surface which is shallower than said first groove and which receives said cam follower when said cam member is in said first cam position, said stopper member being in said protruding position when said cam follower is received in said second groove;

moving means for moving said type rings between said selecting position and said type ring printing position; said cam member cooperating with said moving means to move said stopper member from said protruding position to said retracted position when said moving means moves said type rings to said type ring printing position.

4,364,313

IMPRESSION ROLLER WITH ADJUSTABLE ELECTRICAL CHARACTERISTICS AND METHOD OF MAKING THE SAME

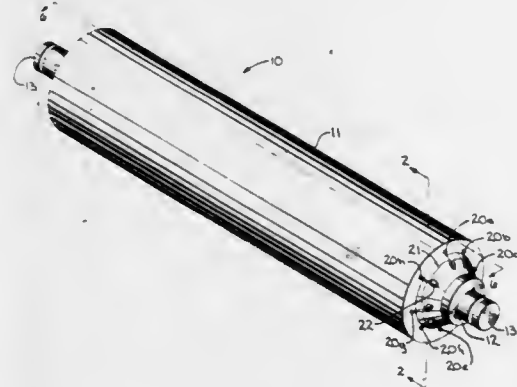
Bruce E. Hyllberg, Gurnee, Ill., assignor to American Roller Company, Union Grove, Wis.

Filed Aug. 25, 1981, Ser. No. 296,218

Int. Cl.³ B41C 1/04; B41F 9/06

U.S. Cl. 101-401.1

9 Claims



8. A method of making a roller for controlling the amount of current that is conducted from a first region of relatively higher electrical potential to a second region of relatively

lower electrical potential that is displaced around a portion of the circumference of the roller from the first region, the method comprising the steps of:

positioning a set of conductive elements around the insulated core to cover the conductive elements excepting the termination portions, wherein the layer of semiconductive material is distributed between the first and second regions and wherein each conductive element has an electrical resistance of at least two orders of magnitude less than the electrical resistance through twice the thickness of the layer of semiconductive material; and

connecting the termination portions of selected conductive elements to determine a portion of the current that bypasses portions of the layer of semiconductive material as current is conducted from the first region to the second region, whereby the roller is adjustable to control current between the first and second regions.

4,364,314

SINGLE ROPE CABLEWAY WITH DETACHABLE HEAD CARRIAGES

Henri Gaudet, Bourg La Reine, France, assignor to Compagnie Minière de l'Ogooue COMILOG, Neuilly, France

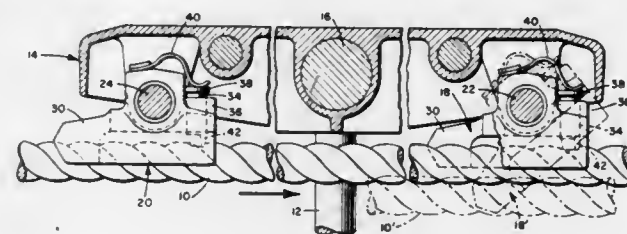
Filed Aug. 11, 1980, Ser. No. 176,801

Claims priority, application France, Aug. 27, 1979, 79 21623

Int. Cl.³ B61B 12/12

U.S. Cl. 104-225

3 Claims



1. A single rope aerial cableway with a load support and haulage rope comprising;

a load carrying head carriage;

a pair of transverse axes spaced apart in lengthwise direction of the rope on said head carriage;

a pair of clips for securing the head carriage to the rope, each of said clips having a solid form of inverted-V for gripping the rope, said clips being rotatably mounted on one of the transverse axes;

a fork means on said clips containing a pair of prongs, adapted to extend in a parallel inoperative position relative to the rope in a gripping position of the clip, and to move in a vertical downward direction relative to the head carriage upon upward movement of the clip relative to the rope, the movement in a vertical downward direction causing the rope to become engaged and guided within the fork;

two pairs of opposite inclined wedge members adapted to grip the rope, one of said pairs of inclined wedge members being affixed to each of said clips, one of the said prongs being secured on the rear side of each wedge member so as to extend rearward substantially parallel to the rope in the gripping position of the clip; and

a pair of fingers, each finger being slidably mounted on one of said clips, said fingers adapted to project between the wedge members and to engage the rope gripped between the wedge members, each finger being capable of disengaging and then reengaging the rope during movement of the rope.

4,364,315

CONVERTIBLE RAIL-HIGHWAY VEHICLE SUPPORT SYSTEM

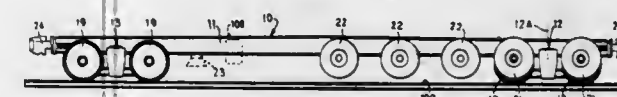
William T. Beatty, Scotts, Mich., assignor to Rail-Or-Trail Corp., Kalamazoo, Mich.

Filed Aug. 29, 1980, Ser. No. 182,349

Int. Cl.³ B60F 1/00; B61D 15/00; B61F 13/00; B62D 61/12

U.S. Cl. 105-215 C

10 Claims



1. A convertible rail-highway vehicle, comprising: a semi-trailer including an elongated beam extending centrally, longitudinally of said trailer;

first truck means adjacent the rear of said trailer pivotally connected to said beam for movement about a first vertical axis, said truck means including

(a) at least a pair of spaced and parallel axle means for carrying at opposite ends of each thereof a pair of flanged wheel means and a pair of highway wheel means, the axes of rotation of said highway wheel means being radially offset from the axes of rotation of said flanged wheel means;

(b) a laterally extending support member pivotally connected to said elongated beam, said support member having a pivot means thereon; and

(c) a pair of elongated and parallel bar means supported on said laterally extending support member and on opposite lateral sides of said beam, said pivot means pivotally supporting each of said bar means on said laterally extending support member for movement about an axis extending transversely of the longitudinal axis of said trailer and universal joint coupling means on each of said bar means coupled to each of said axle means for (1) maintaining the parallel spacing between said axle means, (2) facilitating the movement of said bar means about said pivot means and for (3) supporting each of said axle means for rotation about the longitudinal axis thereof;

releaseable connecting means connecting said trailer selectively to a highway tractor and to a second truck means adjacent the front end of said trailer for pivotal movement also about a second vertical axis; and

drive means on said first truck means operatively connected to each of said axle means for effecting a rotary drive of said axle means and a movement of said flanged wheels and said highway wheel means on each of said axle means to an exchanged relation relative to the ground.

4,364,316

APPARATUS FOR PLANTING SEEDLINGS

Anthony Paladino, Woodstock, Canada, assignor to Timberland Equipment Limited, Ontario, Canada

Filed Jun. 1, 1981, Ser. No. 269,506

Claims priority, application Canada, Feb. 20, 1981, 371394

Int. Cl.³ A01C 11/00

U.S. Cl. 111-3

17 Claims

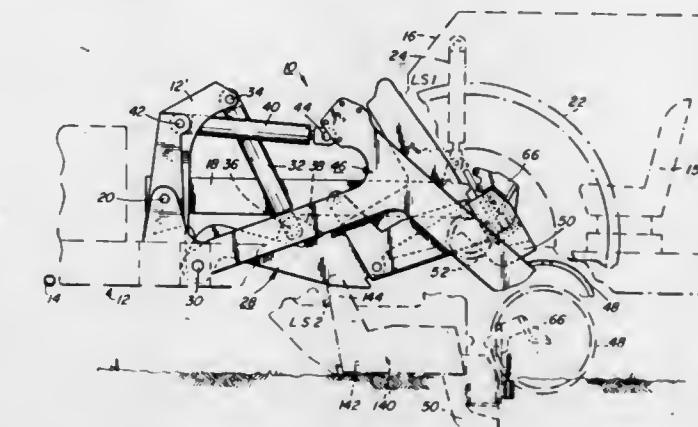
1. Plant apparatus comprising:

a mobile frame suitable for forward travel over the ground; a planting arm movably mounted to the frame and extending from a mounting location;

the planting arm including a dibble remote from the mounting location and adapted to cut into the ground when the dibble moves toward it during forward travel of the frame;

planter means carried by the planting arm and adapted to support a seedling for planting in the cut made by the dibble, the planter means including: upright spaced side walls at the rear of the dibble and a ledge which together form a pair of side walls and the bottom of a pocket for receiving and containing a seedling prior to planting, an

elongated ejector tongue extending downwardly into said pocket to a point adjacent the ledge and forming a frontal wall for the pocket in its forward position, and an ejector mechanism operatively connected to said ejector tongue for moving same rearwardly of the pocket to eject a seedling therefrom into the cut formed by the dibble, and wherein the planter means further includes



a cover means mounted for movement between a closed position where it forms the rear wall of said pocket and an open position permitting escape of the seedling from the pocket;

and mechanism connected to said cover means for moving same to the open position upon rearward movement of the ejector tongue.

4,364,317

MACHINE FOR SEWING TOGETHER WORKPIECE PARTS HAVING EDGES OF EQUAL OR UNEQUAL LENGTH BY MEANS OF A BEAD SEAM

Gerhard Schneider, Rolf Ludwig, and Jochen Fischer, all of Bielefeld, Fed. Rep. of Germany, assignors to Kochs Adler AG, Bielefeld, Fed. Rep. of Germany

Division of Ser. No. 875,417, Feb. 6, 1978, Pat. No. 4,274,345.

This application Jun. 23, 1980, Ser. No. 161,905

Int. Cl.³ D05B 35/08

U.S. Cl. 112-132

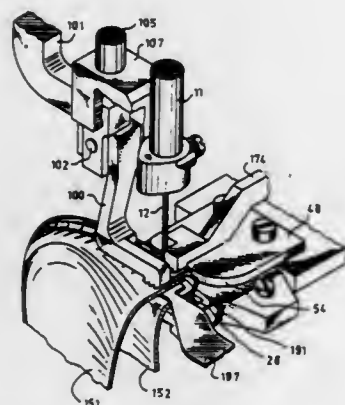
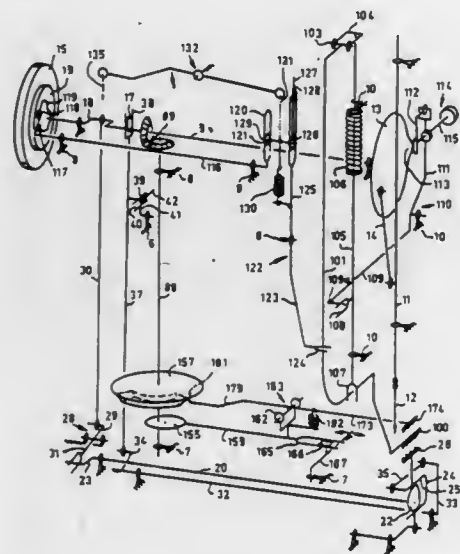
14 Claims

1. A sewing machine for sewing a workpiece consisting of a first layer having a relative long edge and a second layer having a relative short protruding edge, comprising: stitch forming means including a needle and a looptaker mechanism; feeding means for said second layer; feeding means for imparting longitudinal work compressing motions to said first layer; an intermediate member arranged in front of said needle and between said first layer and said second layer for preventing a ruffling of said second layer by said feeding means for said first layer; an edge guide for said layers; and means for forming said protruding edge of said second layer to a bead seam and comprising a forming edge at said edge guide for prefolding said protruding edge of said second layer, and a driven auxiliary ruffling means arranged in front of said needle for folding said prefolded protruding edge of said second layer about the edge of said first layer and imparting longitudinal work compressing motions to said folded protruding edge of said second layer.

3. In a machine for sewing together a vamp and a plug having a protruding edge provided for forming a bead seam on a moccasin-type shoe comprising: stitch forming means including a needle and a looptaker mechanism, an edge guide for guiding said vamp and said plug and prefolding said protruding edge of said plug, feeding means for said plug, adjusting means for said feeding means for said plug for determining stitch length, feeding means for imparting longitudinal work compressing motions to said vamp, means for adjusting longitudinal motions of said feeding means for said vamp, and an intermediate member between said feeding means for said plug and said feeding means for said vamp for preventing ruffling of said plug by said feeding means for said vamp; a driven auxiliary ruffling means arranged in front of said needle for folding said

prefolded protruding edge of said plug about the edge of said vamp and imparting longitudinal work compressing motions to said folded edge of said plug.

12. In a machine for sewing together a vamp and a plug of true moccasin footwear, comprising: a work supporting arm; a bracket arm; stitch forming means including a needle, an arm shaft pivoted in said bracket arm for driving said needle, and a looptaker; a throat plate; a lower feed dog; a feed dog carrier for receiving and moving said feed dog in a four motion path within a recess of said throat plate; an upper feed dog operating in a four motion path adjacent and opposite to said needle and having a toothed base for imparting longitudinal work compressing motions to said vamp; and an intermediate member arranged between said plug and said vamp and in front of the path of motion of said needle for preventing a ruffling of said plug by said upper feed dog; means for forming a bead seam by



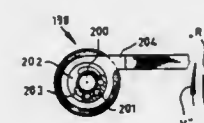
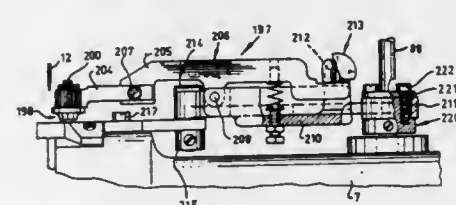
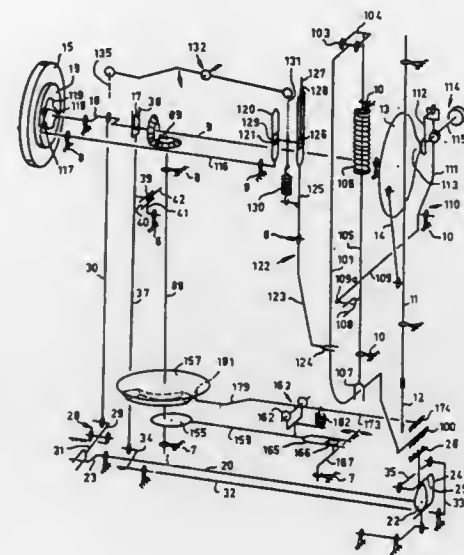
said plug having a foldable margin protruding over the edge of said vamp and including: an edge guiding member secured to said upper feed dog and having a forming wall for prefolding said margin of said plug and surmounting said throat plate and a recess in said forming wall; a second intermediate member attached to said upper feed dog and having a sliding surface and being toothed at the base like said upper feed dog, and located between said vamp and said folded margin of said plug and in front of said needle; a folding and ruffling finger for folding said prefolded margin of said plug about the edge of said vamp and said second intermediate member, and slideably received in said recess of said forming wall; first driving means for said folding and ruffling finger for imparting movements in feed direction; and second driving means imparting movements perpendicular to the feed direction to said finger for finally folding said prefolded protruding edge of said plug.

4,364,318 MACHINE FOR SEWING TOGETHER WORKPIECE PARTS HAVING EDGES OF EQUAL OR UNEQUAL LENGTH BY MEANS OF A BEAD SEAM

Gerhard Schneider, Rolf Ludwig, and Jochen Fischer, all of Bielefeld, Fed. Rep. of Germany, assignors to Kochs Adler AG, Bielefeld, Fed. Rep. of Germany
Division of Ser. No. 161,905, Jun. 23, 1980, which is a division of Ser. No. 875,417, Feb. 6, 1978, Pat. No. 4,274,345. This application Sep. 17, 1981, Ser. No. 303,194
Int. Cl.³ D05B 35/08, 35/04

U.S. Cl. 112-147

1 Claim



1. In a machine for sewing together true moccasin shoe parts including a vamp and a plug, means for forming a bead seam with a plug having a foldable margin protruding over the edge of said vamp and comprising: an intermediate member arranged between said vamp and said margin of said plug to be folded; a roller having a knurled profile for folding said protruding margin about the edge of said vamp and said intermediate member prior to sewing, and overrunning means for allowing rotation to said roller only in one direction; a rocking lever pivotally mounted and carrying said roller; and driving means for moving said rocking arm carrying said roller in synchronism with the stitch forming means of said sewing machine for imparting work compressing motions to said margin of said plug by said roller when said overrunning means is blocked, and to prefold said margin when said roller is unblocked.

4,364,319 CONTROLLED THREAD CLAMP DEVICE FOR NEEDLE THREADS

Hermann Niehaus, Steinhagen; Günter Droste, Leopoldshöhe, and Wilhelm Stapel, Bünde, all of Fed. Rep. of Germany, assignors to Dürkoppwerke GmbH, Bielefeld, Fed. Rep. of Germany

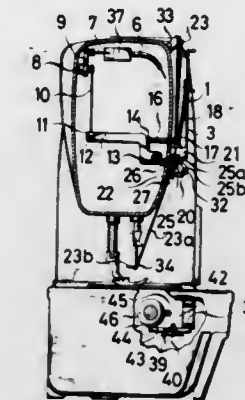
Filed Apr. 6, 1979, Ser. No. 27,855

Claims priority, application Fed. Rep. of Germany, Apr. 8, 1978, 2815297

Int. Cl.³ D05B 29/00

U.S. Cl. 112-238

13 Claims



1. In a sewing machine having a thread lever, a needle bar carrying a needle having a needle eye, and a thread-tensioning device releasably controlled by a lower shaft of the machine, a controlled thread-clamping device comprising:

a thread clamp disposed in a region between said thread lever and said needle eye, the thread clamp being coupled with said thread-tensioning device for alternating control of a needle thread passing between said lever and said eye; and

control means for timed engagement of the thread clamp within a working cycle of the sewing machine to clamp a leading thread section shortly before the reaching of upper dead point by the thread lever thereby presenting a respective desired length of the starting thread, and to release the thread-tensioning device, said control means including a release ring mounted on said shaft, an entrainer cyclically displaceable by said ring, and coupling means connecting intermittently said entrainer with said clamp.

4,364,320
GARMENT TOE CLOSING SYSTEM
George D. Nakhle; Cecil R. Bell, both of Pinnacle; Arthur R. Edwards, Winston-Salem; Willie M. Lathery, Germanton, and Navin D. Patel, Winston-Salem, all of N.C., assignors to Consolidated Foods Corporation, Winston-Salem, N.C.

Filed Feb. 23, 1981, Ser. No. 236,884

Int. Cl.³ D05B 19/00, 21/00

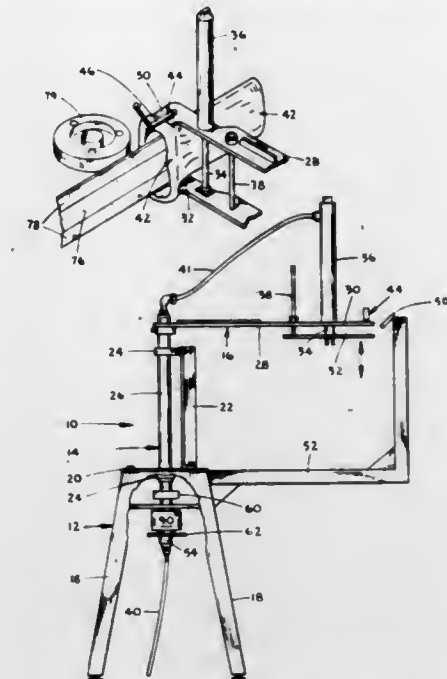
U.S. Cl. 112-262.2

12 Claims

1. A method of closing an open portion of a tubular hosiery blank having a welt end and a toe end comprising the steps of: transferring a hosiery blank from a supply station to a hosiery blank loading station, supporting the welt end portion of the hosiery blank in a prescribed manner, spreading open the welt end portion of the blank, transferring the blank from the loading station to a suction tube of a hosiery blank holding unit, positioning the hosiery blank upon the suction tube, presenting the toe portion of the hosiery blank to sewing instrumentalities, and sewing closed the blank toe end.

11. In an automatic apparatus for seaming of tubular hosiery blanks having a welt portion at one end and a toe portion at the opposite end comprising a support assembly, a hub assembly rotatable upon said support assembly, hosiery blank support means secured to said hub assembly for rotary displacement, said support means including at least one arm means extending generally radially from said hub assembly, said arm means including vertically spaced, aligned, first and second fingers

and means for retaining a hosiery blank welt portion upon said fingers, said support means further including means for expanding or collapsing said fingers, means for displacing said fingers in an expanded condition and having a hosiery blank thereon in a arcuate path, a displaceable tube for receiving the



hosiery blank on the outer peripheral portions thereof, means for facilitating removal of the blank from said fingers, means for presenting the toe portions of the blanks supported upon said displaceable tube to sewing instrumentalities for sewing closed the toe portion.

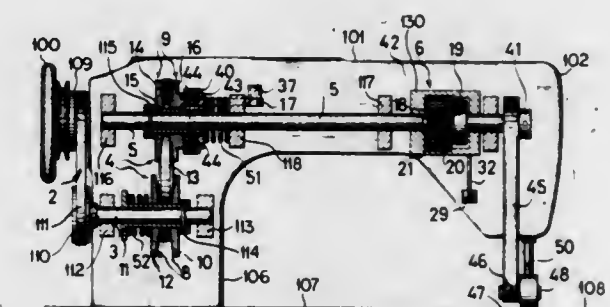
4,364,321
FABRIC TOP FEEDER FOR A SEWING MACHINE
Hubertus Bochert, Steinhagen, Fed. Rep. of Germany, assignor to Dürkoppwerke GmbH, Bielefeld, Fed. Rep. of Germany
Filed Sep. 18, 1981, Ser. No. 303,598

Claims priority, application Fed. Rep. of Germany, Sep. 20, 1980, 3035540

Int. Cl.³ D05B 27/06

U.S. Cl. 112-311

9 Claims



1. In a sewing machine having an arm shaft driving a needle bar to reciprocate a needle through a fabric workpiece at a stitching location and connected to a mechanism engageable with an underside of said workpiece for advancing same past said location, and a fabric feeder engageable with said workpiece from above to advance said workpiece, said feeder being provided with a mechanism connected to said shaft for imparting intermittent angular displacement thereto, the improvement wherein said mechanism comprises:

a steplessly variable transmission connected to said shaft; a planetary gear transmission having three mutually interengaged elements including a first input element, a second input element and an output element; means connecting said first input element to said steplessly variable transmission;

a crank drive connected to said second element for angularly oscillating same; and means connecting said output element to said fabric feeder, the adjustability of said steplessly variable transmission varying a stepping angle of said feeder and the throw of said crank drive controlling a dwell of said feeder.

4,364,322

LIFTABLE STEERING HOUSE OR CONTROL CABIN

Johannes van Roon, A 74, 2975 BC Ottoland, Netherlands

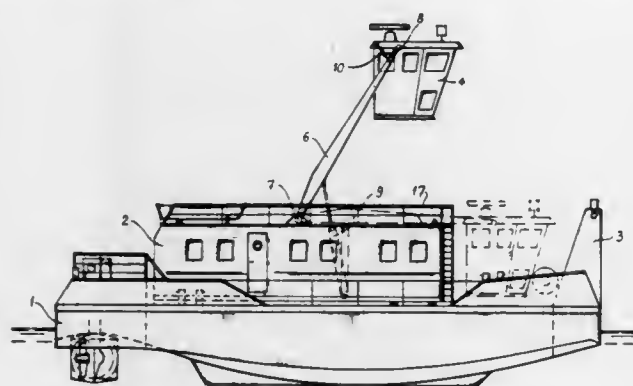
Filed Mar. 24, 1980, Ser. No. 133,396

Claims priority, application Netherlands, Mar. 23, 1979, 7902315; Apr. 12, 1979, 7902933

Int. Cl.³ B63B 29/02, 29/22

U.S. Cl. 114—71

6 Claims



1. A liftable and lowerable control cabin especially intended for a sailing or floating vessel such as a pushing tug, in which said cabin is moved off a deck of the vessel from a forward or rearward section thereof, wherein there is provided a lifting mechanism for changing position and direction of movement of said cabin during lifting and lowering and as it moves parallel to itself, said lifting mechanism being defined by only a pair of carrying arms having at least two parts, each of said arms being pivotally connected at a first end to said deck and at a second end to said cabin at above the cabin center of gravity and each arm having a hydraulic ram connected between the deck and near the lower end of said arm whereby vertical movement of the entire of said cabin from said deck occurs by the parts being pivoted in synchronism, all positions of said cabin being working positions with the cabin continuously being carried by said lifting mechanism from an uppermost position above the deck to a low position below the deck so as to provide an unobstructed space below said cabin when lifted.

4,364,323

VERTICAL STRESSED MOORING TETHER IN A FLOATING OIL PLATFORM

William D. Stevenson, Edinburgh, Scotland, assignor to Vickers Limited, London, England

Filed Jan. 21, 1981, Ser. No. 226,758

Claims priority, application United Kingdom, Jan. 26, 1980, 8002685

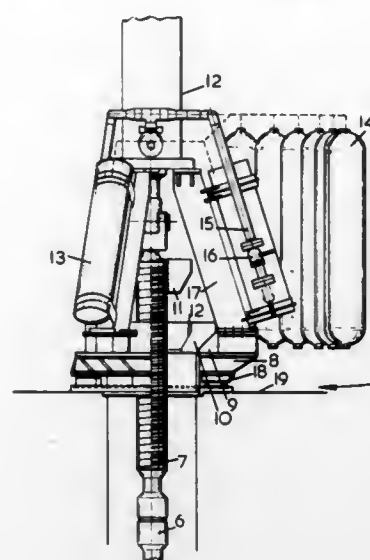
Int. Cl.³ B63B 21/52

U.S. Cl. 114—265

6 Claims

1. A mooring tether arranged to be connected between a floating oil platform and an anchorage on the sea bed incorporating a tether member, a connector fitted to one end of the tether member and arranged to be connected to an anchorage on the sea bed, a screw-threaded section attached to the other end of the tether member, an adjustor nut movable along the screw-threaded section, an adjustor nut adaptor penetrated by the screw-threaded section and supported on the platform, and

a gas-operated tension spring device coupled to the upper end of the screw-threaded section and arranged to apply an elastic



tensile force between the upper end of the tether and the platform.

4,364,324

STRUT RELEASE MECHANISM FOR HYDROFOIL CRAFT

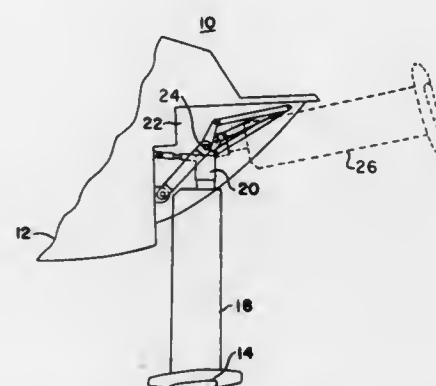
Gary J. Warner, Issaquah, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Apr. 29, 1981, Ser. No. 258,877

Int. Cl.³ B63B 1/28

U.S. Cl. 114—280

13 Claims



1. In a hydrofoil craft having a forward, depending pivotal strut and a foil secured to the strut adjacent to the bottom of the strut, a king post connected to the frame of the hydrofoil craft, connection means securing said king post to said strut adjacent to the top of the strut;

the improvement in said connection means comprising a pivot member separably disposed between said king post and said strut to define a pivot axis;

frangible connector elements between said king post and said strut for normally retaining said king post and said strut in a rigid, fixed relationship with said pivot member therebetween;

said frangible connector elements being adapted to rupture when said strut experiences an impact load exceeding a predetermined value;

said pivot member being separably disposed between the said king post and the said strut such that the strut will pivot about the said pivot member upon rupture of said frangible connection means and the said strut will separate from the said king post downwardly, away from the hull of said hydrofoil craft.

4,364,325

PASSIVE CONTROLLED BUOYANCY APPARATUS

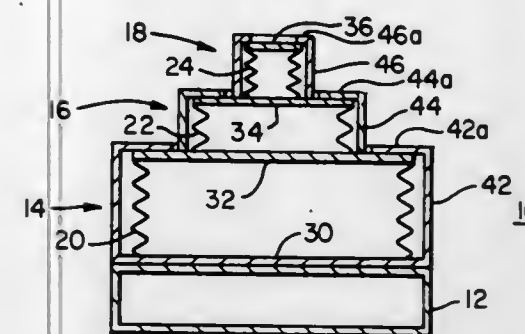
Philip N. Bowditch, Cohasset, Mass., assignor to The Charles Stark Draper Laboratory, Inc., Cambridge, Mass.

Filed Nov. 24, 1980, Ser. No. 209,834

Int. Cl.³ B63B 39/04, 43/06

U.S. Cl. 114—331

9 Claims



1. A passive near-neutral buoyancy platform adapted for submersion in a liquid medium having a compressibility coefficient α_L , comprising:

a substantially incompressible base structure and n coupled, variable volume hollow cells coupled thereto, where n is an integer, each cell having a predetermined internal charge pressure and including means responsive to the pressure in said liquid exterior to said cell to monotonically vary the volume of said cell between a predetermined minimum and maximum values, wherein the compressibility of said platform is α_s , where α_s is less than α_L , wherein the internal charge pressure for the i^{th} cell is P_{Ci} and where the charge pressures for said cells are successively increasing whereby:

$$P_{C1} < P_{C2} < \dots < P_{Cn}$$

wherein the maximum volume for the i^{th} cell is V_{Ci} , and the maximum volume for said platform (V_0) equals the sum of the volume of said base structure and

$$\sum_i V_{Ci}$$

and

wherein V_{Ci} is predetermined so that the density difference between said platform and said liquid equals predetermined negative maximum values when the pressure in said liquid external to said platform equals P_{Ci} and P_{Ci+1} , and that pressure equals a predetermined positive value where the rates of change of density of said platform and said liquid with pressure are equal at a pressure between P_{Ci} and P_{Ci+1} .

4,364,326

DEVICES TO CONTROL BOATS AND OTHER OBJECTS ON MOVING SHIPS

Roderick D. Pike, 8 Lower St., Stroud GL5 2HT, Gloucestershire, England

Filed Jul. 28, 1980, Ser. No. 172,867

Claims priority, application United Kingdom, Aug. 29, 1979, 7929873; Nov. 27, 1979, 7940881

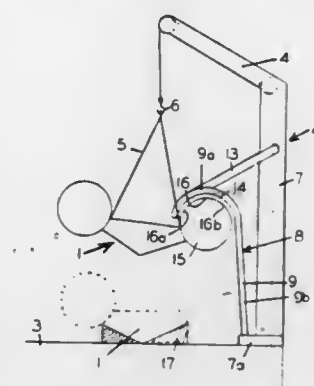
Int. Cl.³ B63B 23/02

U.S. Cl. 114—369

5 Claims

1. In a device characterized as a fixed jib rotating crane, which can be mounted on the deck of a ship, which includes a hoist having a vertical section rotatable about a base, jib projected above said vertical section and base, pulleys and hoist wire, a crane hook attached to the end of said hoist wire from which a bridle can be suspended for attachment to a boat or other object so that the boat or other object

can be raised from the deck of the ship, suspended, and lowered, the improvement comprising a rigid restraining structure, in combination with said hoist, located adjacent the vertical section of said hoist, which is constituted of a lower generally straight segment the terminal end of which is attached directly to said base of said hoist, and an upper part-circular shaped section the open, concave side of which presents laterally opposed locating surface portions, the lower straight segment and said concave side of said rigid restraining structure forming a surface against which the boat or other object is



rested to avoid physical contact of the boat or other object with said hoist, the concave side of which can engage the side edge portion of the boat or other object to maintain horizontal location for the engaged boat or other object and keep it away from the hoist from which the boat or other object is suspended, the rigid restraining structure rotating in unison with said hoist about the rotational axis thereof to retain its engagement with said boat or other object to thereby suppress the lateral swinging movement of said boat or other object with respect to the hoist as when the ship is moving in a seaway, or the hoist rotated for lowering the boat.

4,364,327

STRIPPING EXCESS COATING LIQUID FROM MOVING STRIP MATERIALS

Richard C. Barrett, Mount Ousley, Australia, assignor to John Lysaght (Australia) Limited, Sydney, Australia

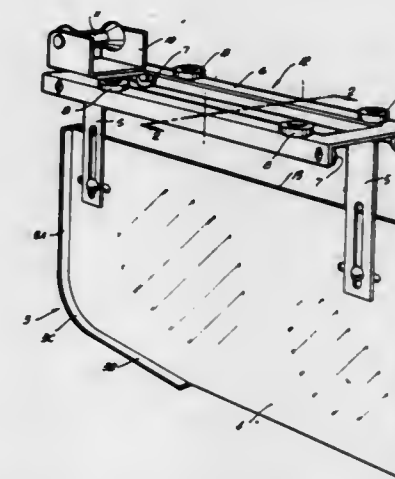
Filed Jun. 24, 1981, Ser. No. 276,999

Claims priority, application Australia, Jan. 21, 1981, 66384/81

Int. Cl.³ B05C 11/02

U.S. Cl. 118—102

4 Claims



1. Apparatus for use in stripping excess coating liquid from a strip moving upwardly in the direction of its length, and of the kind comprising: a baffle plate having a top portion whereof the length extends parallel to an edge of said strip and

the width extends on either side of the plane of said strip, and a bottom portion which extends from the bottom of said top portion and is trended away from said strip edge, a carrier plate disposed substantially co-planar with the strip and having said baffle plate mounted on that edge of said carrier plate nearest to said strip, a truck movable towards and away from said strip edge and having said carrier plate suspended from it, means urging said truck to approach said strip edge, and means to maintain a minimum spacing between said strip edge and said top portion;

characterised in that said carrier plate extends further away from said strip than does said bottom portion, and the length of said carrier plate in the direction normal to said strip edge is from ten to twenty times the width of said top portion.

4,364,328

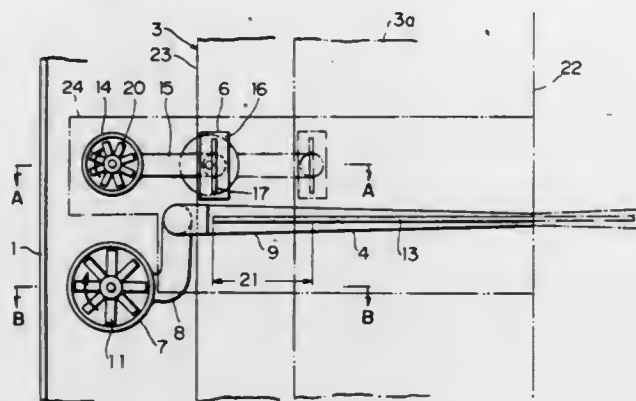
APPARATUS FOR CONTINUOUS DIP-PLATING ON ONE-SIDE OF STEEL STRIP

Shuzo Fukuda, and Yutaka Ohkubo, both of Yokohama, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan Division of Ser. No. 158,630, Jun. 11, 1980, Pat. No. 4,323,604.

This application, Oct. 21, 1980, Ser. No. 199,355

Int. Cl.³ B05C 3/18; B05D 1/26; B23K 1/08; C25D 17/00

U.S. Cl. 118—411 22 Claims



1. In an apparatus for dip plating one side of a steel strip, comprising a bath for holding plating material with a surface, said steel strip being horizontally movable over said surface of said bath, the improvement wherein said bath has a substantially still surface and wherein comprising a plurality of jetting nozzles disposed with their ends above said still surface and with a space between said ends of said nozzles and said one side of said strip, and pump means for pumping plating material through said nozzle ends onto said one side of said strip; and wherein said jetting nozzles comprise a center nozzle disposed in the width dimension of said strip, and at least one edge nozzle disposed in the length dimension of said strip, and wherein said center nozzle and said at least one edge nozzle are integral and in a T shape.

4,364,329

ELECTROPHOTOGRAPHIC DEVICE

Keiichi Murai, Toride; Naoto Tanaka, Tokyo, and Hideyo Kondo, Toride, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 945,115, Sep. 25, 1978, abandoned. This application Sep. 26, 1980, Ser. No. 191,026

Claims priority, application Japan, Sep. 30, 1977, 52-118212

Int. Cl.³ G03G 15/06

U.S. Cl. 118—652

9 Claims

1. An electrophotographic device comprising: an image-holding member for forming an electrostatic image thereon; means for forming a toner image on said image-holding member; means for transferring the toner image from said image-holding member to a recording material; means for cleaning the surface of said image-holding mem-

ber to remove the remaining toner thereon after the transfer of the toner image; and means for abrading the surface of said image-holding member to prevent the buildup of excess toner thereon after the cleaning of the image-holding member, said means including an abrasive member comprising a support and a layer overlying the support, said layer being formed of a resin having a linear structure and abrasive particles dispersed therein.

4,364,330

CUTTING APPARATUS WITH CONSUMABLE MARKER

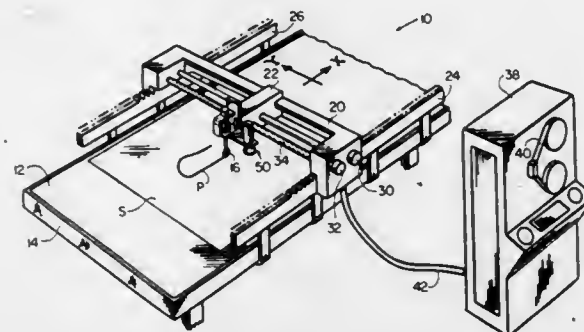
David R. Pearl, West Hartford, Conn., assignor to Gerber Garment Technology, Inc., South Windsor, Conn.

Filed Jun. 12, 1981, Ser. No. 272,961

Int. Cl.³ B05C 9/02

U.S. Cl. 118—697

6 Claims



1. In combination in an apparatus for cutting limp sheet material positioned on a support surface and including an automatically controlled cutting tool for cutting the sheet material and carriage means for controllably moving the cutting tool and the material on the support surface relative to one another along a desired cutting path, the improvement comprising: a rotatable marking tool suspended from the carriage means for movement with the cutting tool over the support surface and the sheet material on the surface, the marking tool including a consumable shaft of marking matter having a depending end located adjacent the sheet material, drive motor means connected in driving relationship with the marking tool for rotating the consumable shaft about the axis of the shaft and marking the exposed surface of the sheet material while the depending end is engaged with the limp sheet material, and actuating means connected with the tool for moving the depending end of the consumable shaft into engagement with the sheet material on the support surface whereby motor driven rotation of the shaft about the shaft axis abrasively deposits some of the marking matter on the material.

4,364,331

FLOOR COVERING FOR STABLING

Pierre Foenard, Paris, France, assignor to Societe a Responsabilite Limitee: Societe de Developpement pour l'Agriculture Sodelvage, Sainte Gauburge, France

Continuation of Ser. No. 166,651, Jul. 7, 1981, Pat. No. 4,338,369. This application Aug. 18, 1981, Ser. No. 293,845

Claims priority, application France, May 30, 1980, 80 12061

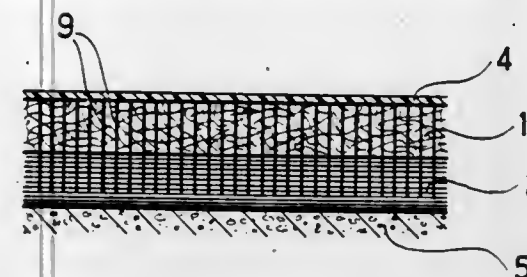
Int. Cl.³ A01K 1/015; B32B 5/06

U.S. Cl. 119—28

14 Claims

1. A floor covering for stables, said covering comprising at least two layers of textile material tufted together, said layers defined as a top layer and a bottom layer, a highly abrasion resistant material impregnated into the outer surface portion of said top layer, said impregnation material being sufficiently permeable to allow fluid evaporation therethrough, said impregnation material comprising a composition selected from the group consisting of an acrylic resin, a cross-linked copolymer of an acrylic resin and styrene, a cross-linked copolymer

of an acrylic resin and styrenebutadiene, and polyvinyl chloride, said impregnation material being applied to said top layer



in an amount of from about 500 to about 2,000 grams per square meter of top layer surface area.

4,364,332

INTEGRALLY CONSTRUCTED POULTRY NESTING HOUSING FOR AUTOMATICALLY COLLECTING EGGS

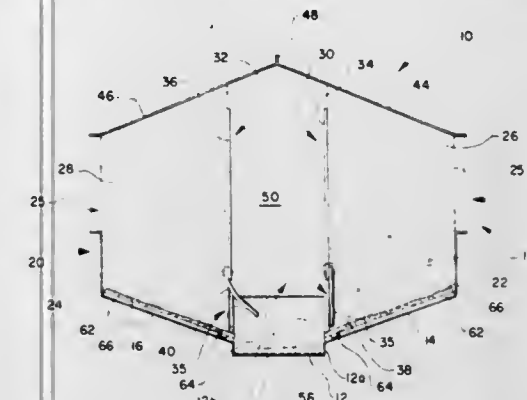
William V. Smith, Rte. 2, Liberty, N.C. 27298

Continuation-in-part of Ser. No. 192,340, Sep. 29, 1980, abandoned, which is a continuation of Ser. No. 29,775, Apr. 13, 1979, abandoned. This application Sep. 29, 1981, Ser. No. 306,693

Int. Cl.³ A01K 31/16

U.S. Cl. 119—48

10 Claims



1. An automatic egg collecting system comprising an elongated unitized single story housing structure including two spaced apart nest rows, each nest row having a series of longitudinally aligned nest disposed in side-by-side relationship, each nest row including an outer side, an inner side, a plurality of longitudinally spaced nest partitions extending between said outer and inner sides and an incline bottom inclined generally downwardly from the outer side towards the inner side, and wherein said inner sides of said nest rows are laterally spaced apart so as to define an alley extending therebetween; said outer sides including longitudinally extending sheet metal walls extending along the lower portion of said outer side, and wherein said outer sheet metal wall terminates intermediately between the upper and lower extremities of the outer sides so as to define said access opening to the respective nest; said inner side of each nest row including a retaining wall and an egg outlet opening means formed about an area adjacent the bottom of said nest; baffle means disposed within said egg outlet means for directing eggs from the bottom of each nest through said outlet opening means in a gentle fashion; said laterally spaced nest rows forming a part of said integrally constructed single story housing structure by the provision of roof means that extends over the top of said nest rows and on over said alley to enclose the top of said single story housing structure and to form the entire top thereof; end walls secured across each end of said unitized single story housing structure; conveyor support means extending between the inner sides of said nest rows adjacent the egg outlet opening means for supporting conveyor means thereon, said conveyor support means extending between the inner terminal edge of the bottom of said nest and integrally constructed therewith to form a part of

4,364,333

CATTLE FEEDER

Bernard Touchette, Ste-Therese, Canada, assignor to B. R. Choiniere Ltee, Boisbriand, Canada

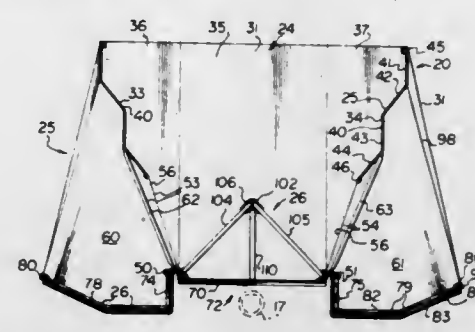
Filed Jun. 11, 1980, Ser. No. 158,403

Claims priority, application Canada, Mar. 5, 1980, 347051

Int. Cl.³ A01K 5/00

U.S. Cl. 119—52 R

12 Claims



1. A cattle feeding box adapted to be removably mounted to a four wheel farm wagon of the type having a narrow reach between the steerable fore carriage and the rear axle, said cattle feeding box comprising an elongate open top rectangular receptacle having a bottom, front and rear end walls extending upwardly and essentially vertically from said bottom at each opposite end thereof, and two lateral walls extending between said end walls, each lateral wall comprising a lateral panel which extends downwardly from the upper edge of the corresponding lateral wall and terminates well above said bottom, and a plurality of feeding stations below said lateral panel whereby cattle may have access to feed on said bottom comprising a generally narrow central raised portion extending longitudinally of said cattle feeding box and providing vertical support for the feed thereabove, the underside of said central raised portion defining a unobstructed longitudinal space for the reach of said farm wagon, said bottom also having a substantially vertical trough wall on each side of said central raised portion between the front and rear wheels of said farm wagon, a feed trough bottom surface extending outwardly from the lower edge of each trough wall and rising slightly at its free edge in order to define with said trough wall a relatively low and deep feed receiving pocket at each feeding station between the front and rear wheels of said farm wagon, and a pair of parallel beams disposed at each upper corner of said raised central portion, said beams extending between said front and rear walls and resting upon the front axle of said fore carriage and upon said rear axle, said cattle feeding box also having two downwardly and inwardly directed racks, each of which comprises a plurality of upright bars which are rigidly secured to and extend between the lower region of said lateral panel of each of said lateral walls and the adjacent one of said beams and of a plurality of vertical, outwardly projecting partitions extending between said feed receiving pockets and the outer surfaces of said lateral panels and laterally delimiting said feeding stations, and wherein each of said partitions is essentially of triangular configuration and has its lower edges bent at a right angle, thus forming integral flanges extending

along said trough wall and along said trough bottom surface, each feeding station between said front and rear wheels comprising individual trough panels forming said trough wall and said trough bottom surface, said individual trough panels being supported by said integral flanges.

4,364,334

LOW PROFILE MULTI-TIER, AUTOMATED, POULTRY CAGE FEEDER SYSTEM

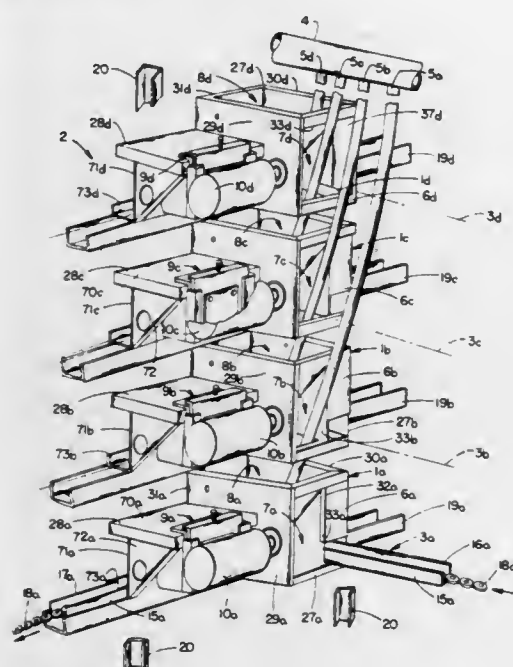
William R. Williams, Roswell, Ga., assignor to U.S. Industries, Inc., New York, N.Y.

Filed Jan. 19, 1981, Ser. No. 226,352

Int. Cl.³ A01K 39/01

U.S. Cl. 119—52 AF

9 Claims



1. In a multi-tier poultry feed system comprising a plurality of stacked conveyor mechanisms to which feed is supplied from a remotely disposed source by feed supply conduits, said mechanisms including a hopper, a feed trough and means for conveying feed from said hopper throughout said feed trough, and wherein said feed supply conduits supply feed to each of said hoppers, the improvement comprising:

said hoppers being vertically stacked closely together one above the other for space saving and efficiency;
said hoppers each including a housing formed by a plurality of walls that define an area for containing feed;
said housing having an upwardly facing open top end for receiving feed;
said housing walls being so arranged to provide a cavity below a portion of the hopper and a side opening leading into said cavity thereby providing communication with said cavity from outside of said hopper; and
said cavity and side opening, when one of said hoppers is located directly above another of said underlying hoppers, forming a passageway disposed immediately above the upwardly facing open end of said underlying feed hopper and extending outside the confines of the walls of said housing, whereby said passageway can receive one of said feed supply conduits, so as to permit transport of feed through said conduit from said remotely disposed source into the underlying feed hopper.

4,364,335

ANIMAL FEEDER

Allan Livingston, Kenmare, N. Dak.

Filed Apr. 21, 1981, Ser. No. 256,076

Int. Cl.³ A01K 5/00

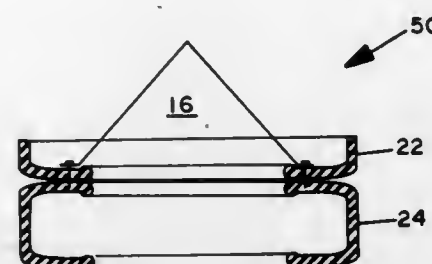
U.S. Cl. 119—61

5 Claims

1. In combination, cone and tire feeder for feeding of grain

to livestock in an agricultural environment, said feeder combination comprising:

- means including a cone-shaped geometrical member for equally distributing grain about a point;
- means for circularly holding said distributed grain for consumption by livestock, said holding means including at least two circular base tire members including an upwardly extending lip representing a substantially vertical section of a top farm tractor tire, a plurality of rain drain holes spaced about said circular base member and means



securing said tires on top of each other for a bottom tire and top tire relationship where the bottom tire supports the top tire and distributing means secured thereto; and,
c. plurality of screws securing said distributing means to said holding means whereby said screws secure said holding means to said distributing means and thereby animal feed when dumped into said feeder is distributed equally by said distributing means into said holding means for equal feed about said circular holding means for animal consumption.

4,364,336

SELF STARTING OF INTERNAL COMBUSTION ENGINES BASED ON REACTOR

Stephen F. Skala, 3839 S. Wenonah Ave., Berwyn, Ill. 60402

Continuation-in-part of Ser. No. 950,845, Oct. 12, 1978,

abandoned, which is a continuation-in-part of Ser. No. 781,747,

Mar. 28, 1979, abandoned, which is a continuation-in-part of Ser. No. 578,527, May 19, 1975, Pat. No. 4,020,798, which is a

continuation-in-part of Ser. No. 464,454, Apr. 26, 1974,

abandoned, which is a continuation-in-part of Ser. No. 457,207,

Apr. 2, 1974, Pat. No. 3,911,284, which is a continuation-in-part

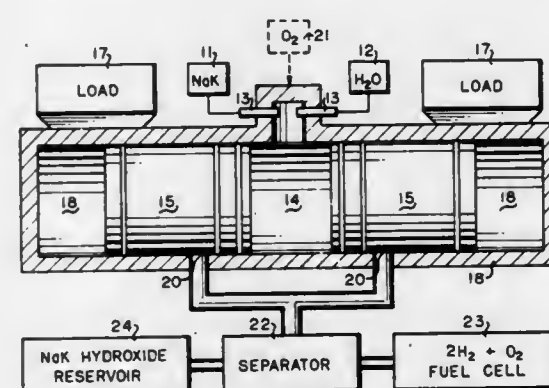
of Ser. No. 301,285, Oct. 27, 1972, abandoned. This application

Jul. 31, 1980, Ser. No. 174,247

Int. Cl.³ F02B 75/12

U.S. Cl. 123—1 A

13 Claims



1. A system for starting an internal combustion engine, comprising:

- an internal combustion engine having at least one combustion chamber which communicates with a movable member,
- means for attaining an expansion phase of at least one of the movable members,
- means for retaining the expansion phase until the engine is to

be started whereby the combustion chamber pressure and temperature may approach ambient levels,
a first reactant and reservoir therefor and a second reactant and reservoir therefor, said reservoirs communicating with the combustion chamber, said first and second reactants reacting with negligible activation energy and evolving a gas whereby the gas is evolved and heated upon contact of the first and second reactants, and
means for injecting the first and second reactants in a contacting relationship into the combustion chamber which communicates with said movable member in an expansion phase whereby the gas is evolved and heated to expand against the movable member to provide energy for advancing and starting the engine.

4,364,337

AUTOMOTIVE ONBOARD FUEL PRODUCTION SYSTEM

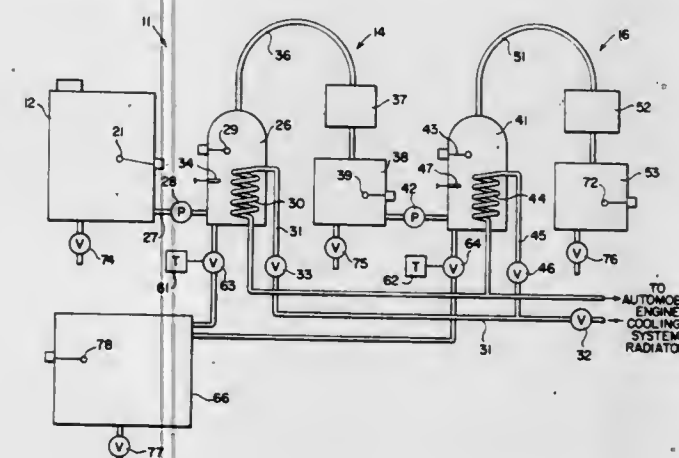
Frederick McCann, 9848 Ridgewood Dr., Twinsburg, Ohio 44087

Filed Aug. 4, 1980, Ser. No. 175,138

Int. Cl.³ F02B 75/12, 43/08

U.S. Cl. 123—3

7 Claims



1. In a motor vehicle having an internal combustion engine, the improvement comprising an onboard distillation system producing fuel for said internal combustion engine; said distillation system comprising a mash storage tank, a distillation vessel having a drain valve and a thermostat means sensing the temperature in said distillation vessel, a heat exchanger contained within said distillation vessel and receiving coolant from said internal combustion engine at an elevated temperature, said distillation vessel having a fuel vapor output port through which fuel vapor is delivered to a condenser means liquefying said fuel vapor, said condenser cooled by moving air, the liquid fuel output of said condenser being delivered to a fuel storage tank. Said drain valve being controlled by a cycle timer having a preselected cycle period, said timer being enabled whenever said thermostat means indicates the temperature in said distillation vessel exceeds a first preselected threshold, said cycle timer actuating said valve to empty said distillation vessel at the end of each cycle and resetting, allowing said vessel to be refilled and said cycle period to restart.

4,364,338

CIRCUIT OF THE COOLANT IN INTERNAL COMBUSTION ENGINES FOR IMPROVING ENGINE OPERATION AFTER COLD STARTING

Giampaolo Garcea, Milan, Italy, assignor to Alfa Romeo S.p.A., Milan, Italy

Filed Oct. 22, 1979, Ser. No. 87,383

Claims priority, application Italy, Oct. 31, 1978, 29341 A/78

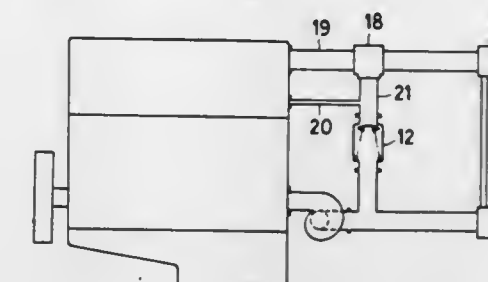
Int. Cl.³ F01P 7/16

U.S. Cl. 123—41.10

3 Claims

1. A circuit of the coolant of an internal combustion engine, specially for a motor vehicle, said circuit comprising cavities in the interior of said engine to be filled and wiped with said

coolant, a radiator for the cooling of said coolant, a circulating pump of the centrifugal type for said coolant, said circulating pump being driven by a main shaft of said engine and having a delivery duct connected with an inlet hole of said engine cavities, a first conduit connected at one end with an outlet hole of said engine cavities and at its other end with said radiator, a thermostatic three-way valve inserted in said first conduit, a second conduit connected at one end with said thermostatic three-way valve, a third conduit between said radiator and said



circulating pump, said second conduit being connected at its other end with said third conduit, a second valve having means for closing said second valve automatically in response to limited power engagements of the engine, a fourth conduit of smaller cross-section connected at one end with said engine cavities and at its other end with said second conduit in its portion upstream of said second valve, said fourth conduit providing means for a circulation of said coolant through said thermostatic valve while said engine is still cold.

4,364,339

INTERNAL COMBUSTION ENGINE WITH COOLING SYSTEM

Ludwig Fricker, Stuttgart, and Jörg Abthoff, Plüderhausen, both of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

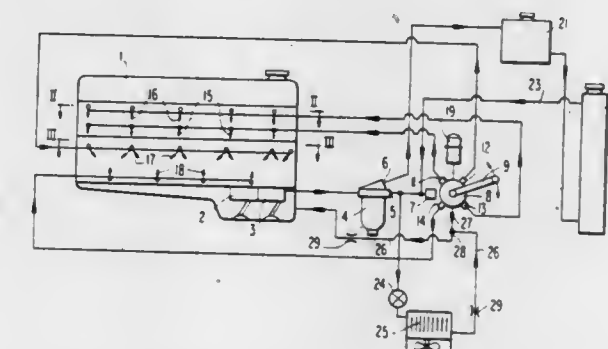
Filed Oct. 29, 1979, Ser. No. 89,094

Claims priority, application Fed. Rep. of Germany, Oct. 28, 1978, 2847057

Int. Cl.³ F01P 3/02

U.S. Cl. 123—41.42

4 Claims



1. A piston internal combustion engine with at least one cylinder means, a combustion chamber, a cooling system which operates with a cooling medium, the cooling system being coordinated to the cylinder means, and a continuously operating lubricating oil circulation system, characterized in that the cooling system includes an oil spray cooling means, means are provided for disconnecting a portion of the oil spray cooling means during a partial load operation of the engine so as to reduce the cooling output of the cooling system and thereby increase the heat content in the combustion chamber so that specific fuel consumption is rendered and a warm-up period of the engine after a start of the engine is reduced, the spray oil cooling means are operable to be selectively disconnected and reconnected, a portion of the oil spray cooling means operable to be disconnected is operatively connected in

parallel with the continuously operating lubricating oil circulatory system, and in that the means for disconnecting the oil spray cooling means is a valve means actuable by engine suction pressure as a function of a load of the engine.

4,364,340

VEHICULAR ENGINE

Hiroshi Kimura, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

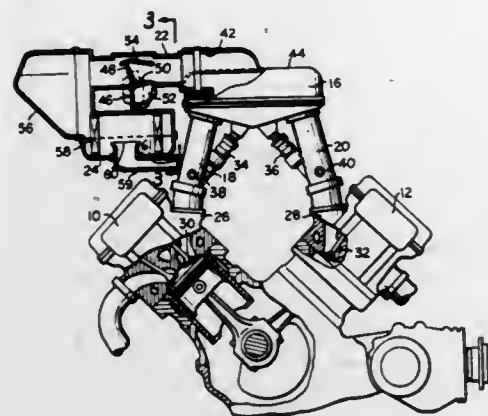
Filed Jan. 23, 1981, Ser. No. 227,660

Claims priority, application Japan, Feb. 8, 1980, 55-15096

Int. Cl.³ F02B 75/22

U.S. Cl. 123—55 R

5 Claims



1. In combination with a motorcycle having a frame, a fuel tank at an upper elevation on said frame, and a V-type fuel injection type engine mounted to said frame beneath said fuel tank, said engine having a pair of cylinders forming a V, with intake ports inside said V, an induction system comprising: a pair of mixing bodies, each rising from a respective one of said intake ports; a surging tank above and discharging into said mixing bodies, said surging tank being disposed beneath said fuel tank and above said engine; an air intake passage disposed at the side of said surging tank; and an air flow meter in said air intake passage.

4,364,341

VALVE CONTROL DEVICE FOR AN INTERNAL COMBUSTION ENGINE

Teodoro Holtmann, Elfriedenstr. 27, 4300 Essen 1, Fed. Rep. of Germany

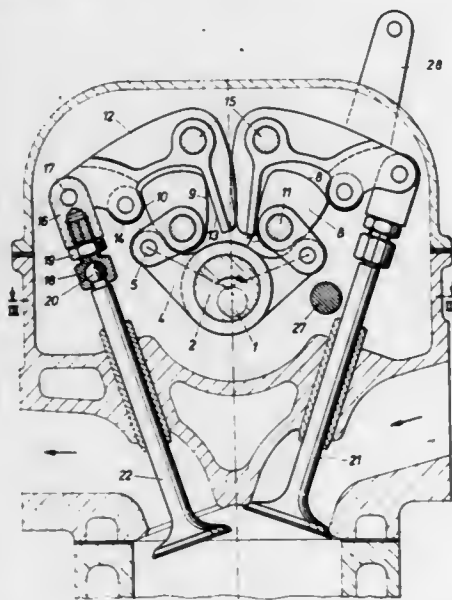
Filed Jun. 8, 1981, Ser. No. 270,956

Claims priority, application Fed. Rep. of Germany, Jun. 13, 1980, 3022188

Int. Cl.³ F01L 1/34

U.S. Cl. 123—90.17

8 Claims



1. In a valve control system in cylinders of an internal com-

bustion engine, particularly for high-speed automotive engines, for the continuous adjustment of valve control times and valve strokes in accordance with the speed of rotation and/or load of the engine, having an eccentric shaft arranged in a cylinder head of the engine common to intake and exhaust valves, to which shaft there are pivoted connected rods which point in opposite directions transverse to the longitudinal axis of the eccentric shaft and which operatively drive valve rockers acting on the intake and exhaust valves, the improvement comprising

a pair of said intake and exhaust valves per cylinder, said eccentric shaft has only one eccentric thereon per cylinder, two of said connecting rods for operatively driving said intake valve and the exhaust valve of said cylinder respectively are jointly mounted on said one eccentric, a double-acting swing cam means is operatively pivotally coupled to each said connecting rod, respectively, each said swing cam means being for positive control of the valve associated therewith in both directions of swing thereof via respective of the valve rockers, each of the valve rockers being formed with a fork-shaped section in form-locked engagement with an associated of said swing cam means, each said valve rockers being operatively pivoted to the associated valve, respectively, said two connecting rods form an angle of less than 180 degrees between longitudinal axes respectively thereof extending through a center point of said eccentric and an operative pivot point of said connecting rods to said swing cam means, respectively, means for displacing the eccentric shaft transversely to the longitudinal axis of said eccentric shaft in such a manner that the distances between said eccentric shaft and pivot axes of said two swing cams are simultaneously changed upon a change in the position of the eccentric shaft.

4,364,342

IGNITION SYSTEM EMPLOYING PLASMA SPRAY

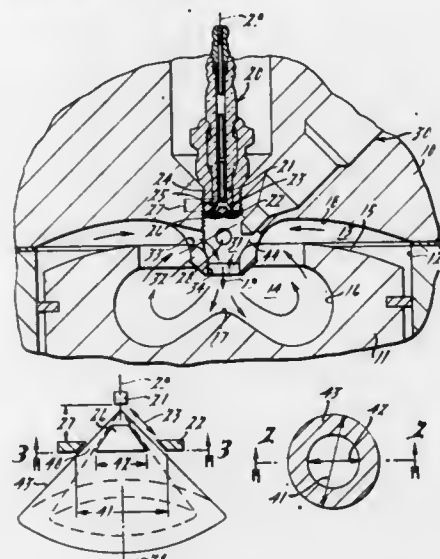
Joseph R. Asik, Bloomfield Hills, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Oct. 1, 1980, Ser. No. 192,666

Int. Cl.³ F02B 17/00, 19/08

U.S. Cl. 123—143 B

12 Claims



1. An ignition system for a stratified charge internal combustion engine, said engine having at least one combustion chamber and fuel injection means effective to inject fuel in a conical spray pattern into a predetermined zone of said combustion chamber for establishing a stratified charge, the system comprising:

- (a) walls defining an air filled plasma ionizing chamber having an outlet orifice;
- (b) electrical discharge means having only two electrodes and being effective to apply a high energy electrical dis-

charge of at least 200 millijoules for at least two seconds across the plasma ionizing chamber causing the contents thereof to be shock heated to an ionized condition and released through said outlet orifice as a jet; and
(c) means interrupting said outlet orifice to form said plasma jet into a hollow cone and to direct said hollow conical jet into said zone of said injected fuel.

4,364,343

AUTOMATIC ENGINE SHUTDOWN AND RESTART SYSTEM

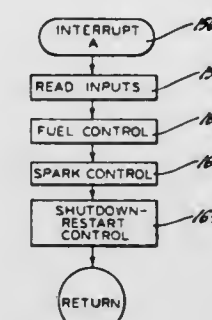
Marvin J. Malik, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed May 8, 1981, Ser. No. 261,704

Int. Cl.³ F02N 17/00

U.S. Cl. 123—179 B

3 Claims



1. An automatic shutdown and restart system for a vehicle internal combustion engine having an intake space from which fuel and air are drawn into a combustion space to undergo combustion, a manually operable engine control member for providing operator control of engine speed, and a starter motor, the system comprising:

- means effective to supply fuel to the intake space;
- means effective to ignite the fuel and air mixture drawn into the combustion space;
- means effective to sense engine rotational speed;
- shutdown means responsive to one characteristic of the engine control member, the shutdown means being effective to (a) disable the fuel supply means from supplying fuel to the intake space to effect engine shutdown and to (b) re-enable the fuel supply means and disable the ignition means when the engine rotational speed decreases to a predetermined value to charge the intake space with a combustible mixture; and

restart means responsive to a second characteristic of the engine control member effective to (a) energize the starter motor to effect restart of the internal combustion engine and (b) deenergize the starter motor when the engine rotational speed represents the engine has started, whereby the charging of the intake space with a combustible mixture during engine shutdown is effective to provide a combustible mixture that is drawn into the combustion space when restart is initiated to effect immediate restart of the internal combustion engine.

4,364,344

INTERNAL COMBUSTION ENGINE WITH INITIAL IGNITION SUPPRESSION DURING CRANKING

Earl H. Buetemeister, Alexandria, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed May 11, 1981, Ser. No. 262,314

Int. Cl.³ F02N 17/00; F02P 5/04

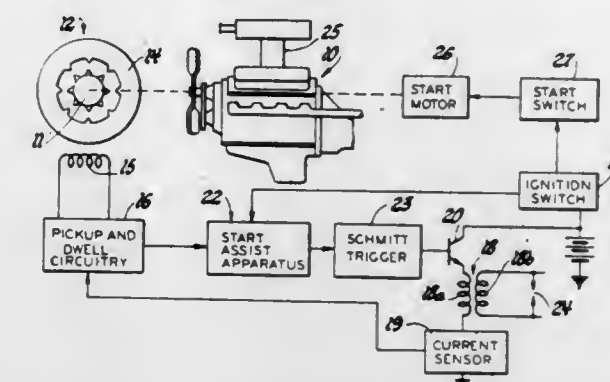
U.S. Cl. 123—179 BG

3 Claims

1. In a multi-cylinder internal combustion engine having a rotating crankshaft, a piston in each of the cylinders coupled to the crankshaft in rotational driving relationship, means effective to deliver fuel charges to the respective cylinders at predetermined times, means effective to normally ignite the fuel charges in the respective cylinders in response to ignition

signals at predetermined times in advance of top dead center in the respective cylinders and means effective to start the engine by independent rotation of the crankshaft, the improvement comprising:

- counting means effective during initial actuation of the engine start means to count a predetermined number of said ignition signals;
- means effective, while the counting means is counting, to prevent ignition in the respective cylinders, whereby



crankshaft rotational speed is allowed to increase without reverse torque due to ignition cylinder pressure buildup before top dead center; and
means responsive to the counting means reaching the predetermined count to restore ignition in the respective cylinders, whereby the pistons are enabled to drive the crankshaft after crankshaft rotational speed is sufficient to maintain engine operation with ignition events before top dead center.

4,364,345

SPLIT TYPE INTERNAL COMBUSTION ENGINE

Saburo Tsutsumi, Yokohama, and Yasuhiko Nakagawa, Kamakura, both of Japan, assignors to Nissan Motor Company, Limited, Kanagawa, Japan

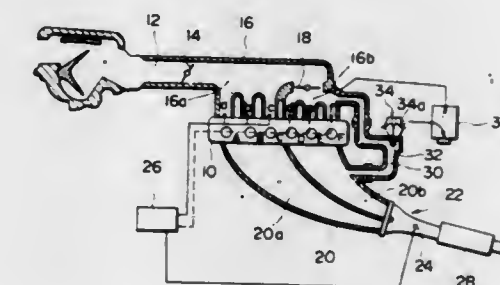
Filed Dec. 10, 1980, Ser. No. 215,081

Claims priority, application Japan, Dec. 12, 1979, 54-161085

Int. Cl.³ F02D 17/02

U.S. Cl. 123—198 F

3 Claims



1. An internal combustion engine including first and second cylinder units each having at least one cylinder, first intake and exhaust valve means associated with said first cylinder unit, second intake and exhaust valve means associated with said second cylinder unit, and means for disabling said second cylinder unit when the engine load is below a predetermined value, said engine comprising:

- (a) first valve operating means for operating said first intake and exhaust valve means with a first amount of valve overlap; and
- (b) second valve operating means for operating said second intake and exhaust valve means with a second amount of valve overlap relatively larger than said first valve overlap amount.

4,364,346

EXHAUST TIMING CONTROL DEVICE FOR A TWO-CYCLE ENGINE

Masakazu Shiohara, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

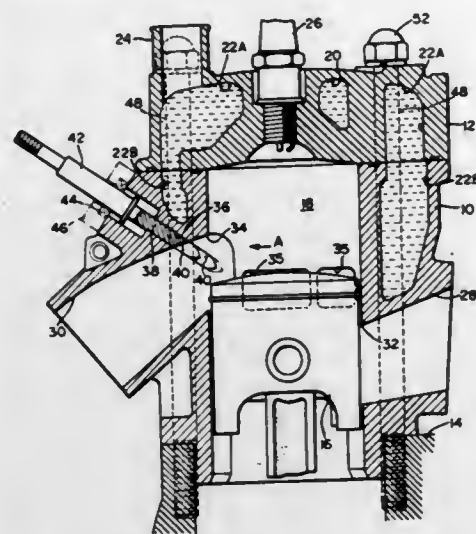
Filed Dec. 22, 1980, Ser. No. 219,328

Claims priority, application Japan, Dec. 27, 1979, 54-170869

Int. Cl.³ F02B 75/02, 25/06

U.S. Cl. 123—323

3 Claims



1. In an internal combustion engine having a cylinder with a cylindrical inner wall, a cylinder axis, a cylinder head, and a piston slidably fitted in said cylinder, thereby to form a combustion chamber, said inner wall having an exhaust port opening into said chamber, an exhaust passage departing laterally from said exhaust port, said passage having a passage wall, exhaust timing means comprising: said wall of said exhaust port having a valve hole formed at an oblique angle to said cylinder axis and opening into said exhaust passage adjacent to said exhaust port, a valve member slidably fitted in said valve hole for movement therein at said angle so as to be withdrawable toward the wall of said exhaust passage, and to be extendible to approach said exhaust port at an elevation lower than the upper edge of said exhaust port.

4,364,347

METHOD OF ADJUSTING IDLE SPEED OF AN INTERNAL COMBUSTION ENGINE

Hideo Miyagi, Okazaki, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

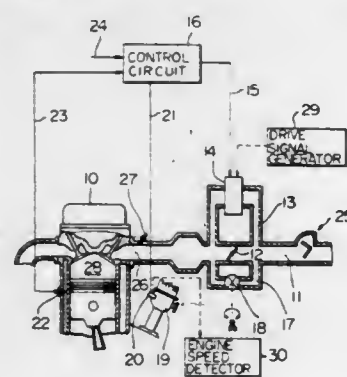
Filed Sep. 17, 1980, Ser. No. 188,213

Claims priority, application Japan, Sep. 20, 1979, 54-120026

Int. Cl.³ F02M 23/06

U.S. Cl. 123—339

5 Claims



1. A method of adjusting the idle speed of an internal combustion engine having an intake passage, a throttle valve in the intake passage, main and second bypass passages, each of which separately communicates with the intake passage so as to bypass the throttle valve, flow rate adjustment means in said second bypass passage, and flow rate control means in said main bypass passage, the opening degree of said flow rate

control means being controlled in accordance with the rotational speed of the engine, said method comprising the steps of: applying a drive signal having a predetermined fixed value independent of the actual rotational speed of the engine to the flow rate control means so as to operate the engine at a speed above its lowest operating speed; and while the flow rate control means is energized by said drive signal, adjusting the flow rate adjustment means so that the actual rotational speed of the engine becomes equal to a desired idling speed.

4,364,348

METHOD AND APPARATUS FOR CONTROLLING THE IDLING SPEED OF AN ENGINE

Hiroshi Itoh, Nagoya, and Nobuyuki Kobayashi, Toyota, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

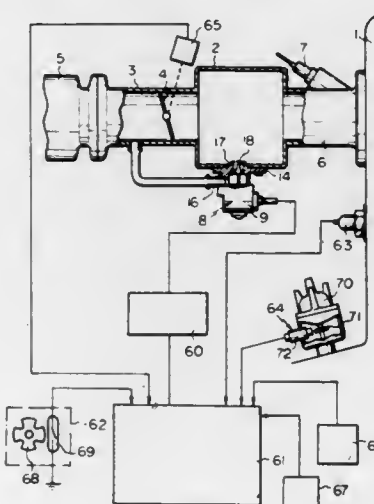
Filed Jul. 1, 1981, Ser. No. 279,515

Claims priority, application Japan, Jan. 23, 1981, 56-8147

Int. Cl.³ F02N 17/00

U.S. Cl. 123—339

21 Claims



1. A method of controlling the idling speed of an engine comprising a main intake passage, a throttle valve arranged in the main intake passage, a bypass passage branched off from the main intake passage upstream of the throttle valve and connected to the main intake passage downstream of the throttle valve, a control valve arranged in the bypass passage, and a stepper motor actuating the control valve for controlling the amount of air flowing within the bypass passage, wherein said method comprises:

determining a first stepper motor position related to the temperature of a coolant of the engine; determining the speed of the engine; rotating the stepper motor at a first speed from an initial position wherein the control valve is opened to said first position for reducing a flow area of the bypass passage when the engine is started and the speed of the engine exceeds a predetermined speed; and increasing said predetermined speed as the temperature of the coolant of the engine is reduced.

4,364,349

METHOD FOR CONTROLLING THE OPERATION OF THE FUEL INJECTOR IN A FUEL INJECTION TYPE INTERNAL COMBUSTION ENGINE DURING A DECELERATION CONDITION OF THE ENGINE

Hideo Miyagi, Okazaki, and Toshio Suematsu, Toyota, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Jul. 24, 1981, Ser. No. 286,665

Claims priority, application Japan, Sep. 17, 1980, 55-127876

Int. Cl.³ F02D 11/10, 31/00

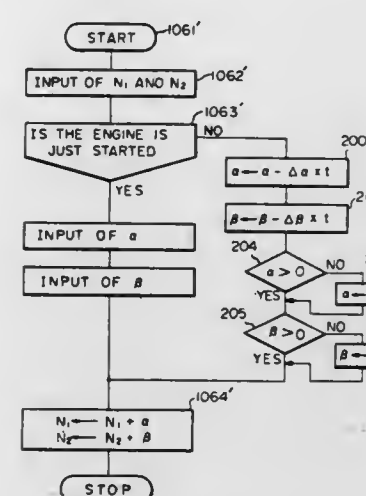
U.S. Cl. 123—339

7 Claims

1. Method for operating a fuel injector device in a computer

controlled fuel injection type internal combustion engine during a fully closed position of throttle valve of the engine in which idling engine speed is controlled so that it is maintained to N_F , said method comprising the steps of:

- (a) storing, in a memory unit of the electrical computer, a value corresponding to a first rotational speed N_1 ;
- (b) storing, in the memory unit, a value corresponding to a second rotational speed N_2 which is smaller than N_1 and is larger than the idling rotational speed N_F ;
- (c) storing, in the memory unit, a value corresponding to an increase α in the first rotational speed N_1 ;
- (d) storing, in the memory unit, data corresponding to an increase β in the second rotational speed of the engine N_2 ;
- (e) detecting whether a predetermined period has lapsed or not from the start of the engine;



- (f) producing an electrical signal for stopping the operation of the fuel injector device when said period has not lapsed and when the rotational speed of the engine N is larger than N_1 plus α ;
- (g) producing an electrical signal for operating the fuel injector device when said period has not lapsed and when the rotational speed of the engine N is smaller than N_2 plus β ;
- (h) producing the electrical signal for stopping the operation of the fuel injector when the period has lapsed and when the rotational speed of the engine N is larger than N_1 ;
- (i) producing the electrical signal for operating the fuel injector when the period has lapsed and when the rotational speed of the engine N is smaller than N_2 ;
- (j) repeating the above mentioned steps during fully closed position of the throttle valve of the engine.

4,364,350

METHOD OF CONTROLLING THE IDLING SPEED OF AN ENGINE

Nobuyuki Kobayashi, Toyota, and Hiroshi Itoh, Nagoya, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Aug. 13, 1981, Ser. No. 292,534

Claims priority, application Japan, Jan. 23, 1981, 56-8142; Jan. 23, 1981, 56-8143; Jan. 26, 1981, 56-8937

Int. Cl.³ F02D 11/10

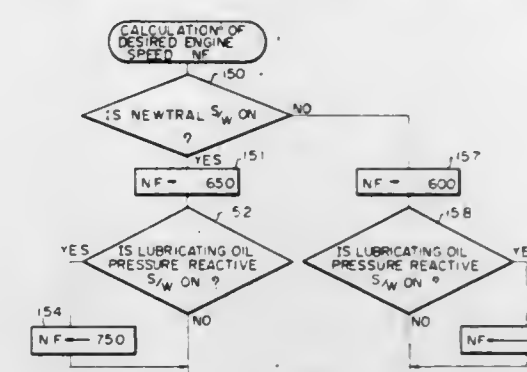
U.S. Cl. 123—339

12 Claims

1. A method of controlling the idling speed of an engine comprising a main intake passage, a throttle valve arranged in the main intake passage, a bypass passage branched off from the main intake passage upstream of the throttle valve and connected to the main intake passage downstream of the throttle valve, a control valve arranged in the bypass passage, and a step motor actuating the control valve for controlling the amount of air flowing within the bypass passage, wherein said method comprises:

- detecting the idling speed of the engine;
- detecting the pressure of a lubricating oil of the engine;

detecting the temperature of a coolant of the engine; controlling the rotating motion of the step motor so that the idling speed of the engine becomes equal to a predetermined base speed when said lubricating oil pressure is higher than a predetermined pressure and when said coolant temperature is lower than a first predetermined temperature; rotating the step motor in a rotating direction wherein the control valve increases a flow area of the bypass passage



so that the idling speed of the engine becomes equal to a predetermined pressure control speed which is higher than said predetermined base speed when said lubricating oil pressure becomes lower than said predetermined pressure, and; rotating the step motor so that the idling speed of the engine becomes equal to a predetermined temperature control speed when said coolant temperature becomes higher than said first predetermined temperature.

4,364,351

DIESEL ENGINE FUEL LIMITING SYSTEM

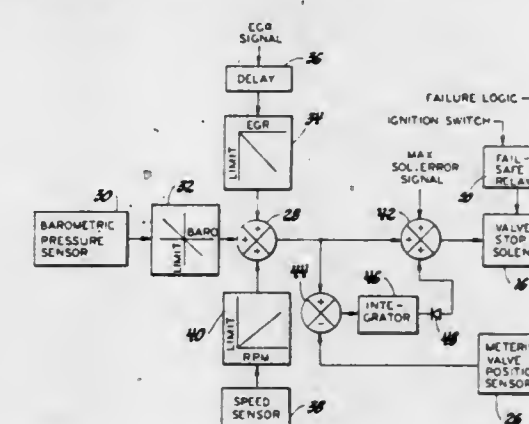
Edward R. Romblom, DeWitt, and Arthur R. Sundeen, Lansing, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed May 18, 1981, Ser. No. 264,690

Int. Cl.³ F02M 59/20

U.S. Cl. 123—357

3 Claims



1. A system for limiting the maximum fuel quantity admitted to a diesel engine comprising, in combination:
 - a variable position fuel metering element for controlling the fuel quantity admitted to the engine;
 - means effective to position the fuel metering element in accord with predetermined engine operating parameters;
 - a variable position stop effective to limit the position of the fuel control metering element in the fuel increasing direction;
 - means effective to generate a fuel limit signal representing a maximum allowable position of the fuel control metering element corresponding to a maximum allowable fuel quantity to be admitted to the engine;
 - means effective to generate a position signal representing the

position of the fuel control metering element and therefore the actual fuel quantity admitted to the engine; and control means effective to position the stop in accord with the difference between the maximum allowable position of the fuel control metering element represented by the fuel limit signal and the actual position of the fuel control metering element represented by the position signal, whereby when the fuel metering element is moved to the maximum allowable position, the stop is moved by the control means to a position to limit the position of the fuel metering element at the maximum allowable position independent of differing relationships between stop positions and the corresponding limited positions of the fuel metering element.

4,364,352

CARBURETOR CONTROL ARRANGEMENT FOR INTERNAL COMBUSTION ENGINE

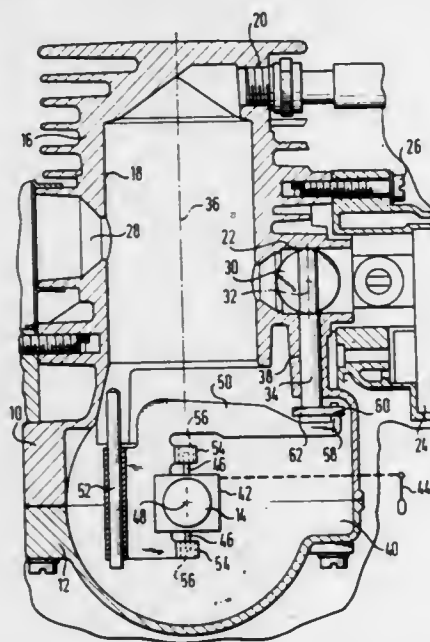
Kurt Dluhosch, Schweinfurt, Fed. Rep. of Germany, assignor to Fichtel & Sachs AG, Schweinfurt, Fed. Rep. of Germany
Filed Dec. 3, 1980, Ser. No. 212,575

Claims priority, application Fed. Rep. of Germany, Dec. 12, 1979, 7934941[U]

Int. Cl.³ F02D 31/00, 9/08

U.S. Cl. 123—376

3 Claims



1. In an internal combustion engine including cylinder block means defining integrally therewith intake port means, crankcase means defining a cavity receiving a crankshaft, a carburetor mechanism attached to said cylinder block means in flow communication with said intake port means, throttle valve means within said intake port means, control means for controlling said throttle valve means, and mechanical transmission means connecting said control means and said throttle valve means, the improvement comprising that said control means are housed completely within said cavity of said crankcase means and are responsive to the number of revolutions of said crankshaft, said transmission means being arranged through a passage within said cylinder block means toward said cavity such that all of the parts of said transmission means and said control means are located completely within the interior of said cylinder block means and said cavity.

4,364,353 ANTI-KNOCKING APPARATUS FOR AN INTERNAL COMBUSTION ENGINE

Ernst Fiala, Wolfsburg, Fed. Rep. of Germany, assignor to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Fed. Rep. of Germany

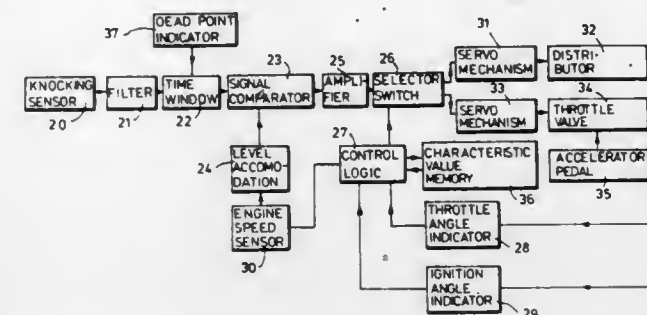
Filed Dec. 22, 1980, Ser. No. 219,352

Claims priority, application Fed. Rep. of Germany, Dec. 20, 1979, 2951321

Int. Cl.³ F02P 5/14; F02D 9/00

U.S. Cl. 123—425

1 Claim



1. In an internal combustion engine, including means defining a combustion chamber, an intake for introducing a combustible mixture into the combustion chamber, a throttle valve controlling the flow of the mixture in the intake; ignition means for externally igniting the mixture in the combustion chamber and an apparatus for reducing engine knocking; the improvement in said apparatus comprising:

- a knocking sensor operatively coupled to said combustion chamber for responding to knocking therein and for emitting signals representing the knocking;
- an ignition shifting device connected to said ignition means for shifting the moment of ignition in a delaying sense;
- a valve moving device connected to said throttle valve for moving said throttle valve in a closing sense; and
- control means connected to said knocking sensor, said ignition shifting device and said valve moving device for effecting actuation solely of said ignition shifting device up to a maximum predetermined delay in ignition when signals from said knocking sensor are received and for effecting actuation solely of said valve moving device after said maximum predetermined delay has been reached and upon continued receipt of signals from said knocking sensor.

4,364,354

AIR-FUEL RATIO CONTROLLER FOR CARBURETOR

Tokuo Kosuge, Takeshi Atago, and Kimiji Karino, all of Katsuta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 12, 1980, Ser. No. 215,847

Claims priority, application Japan, Dec. 28, 1979, 54-170863

Int. Cl.³ F02B 33/00; G05B 15/02; F02M 7/06

U.S. Cl. 123—437

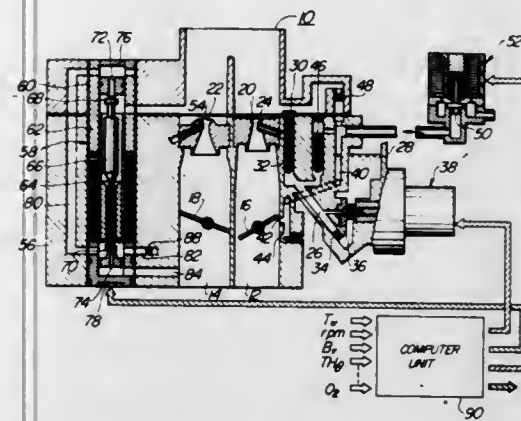
10 Claims

1. In a carburetor of the type having a primary intake passage which operates during normal running of said engine and a secondary intake passage which operates at high-speed operation of said engine, having a main fuel system for supplying a fuel from a float chamber into a venturi formed upstream of a throttle valve rotatably disposed in the primary intake passage, a main fuel control valve disposed in said main fuel system for controlling the flow rate of fuel flowing through said main fuel system so as to converge to a target air-fuel ratio based on a normal running parameter representing a normal running condition of an internal combustion engine, a slow fuel system for supplying the fuel from said float chamber into a portion of the primary intake passage adjacent to said throttle valve, and a slow fuel control valve disposed in said slow fuel system for controlling the flow rate of fuel flowing through said slow fuel system so as to converge to said target air-fuel ratio based on

said normal running parameter, an air-fuel mixture being formed by the fuel from both of said main and slow fuel systems and air flowing through said intake passage;

an air-fuel ratio controller comprising:

- an auxiliary fuel passage communicating said float chamber and a portion of said secondary intake passage downstream of said throttle valve with each other;
- an auxiliary air passage supplying air into said auxiliary fuel passage;
- an auxiliary fuel control valve for controlling the flow rate of fuel flowing through said auxiliary fuel passage;
- an auxiliary air control valve for controlling the flow rate of air passing through said auxiliary air passage; and
- an electromagnetic actuator operated by duty-controlled



ON-OFF pulses based on at least one of a starting-up/warming-up parameter representing a starting-up/warming-up running condition of the internal combustion engine and a deceleration parameter representing a decelerating running condition of the engine, for controlling said auxiliary fuel control valve and said auxiliary air control valve so as to gradually decrease the flow rate of fuel flowing through said auxiliary fuel passage and gradually increase the flow rate of air flowing through said auxiliary air passage as said at least one running condition proceeds, and to deactivate said actuator for halting or suspending the supply of the fuel and the air from said auxiliary fuel passage and said auxiliary air passage when said at least one parameter indicates that said running condition is completed.

4,364,355

ELECTRONICALLY CONTROLLED FUEL SUPPLY APPARATUS FOR INTERNAL COMBUSTION ENGINE

Kimiji Karino, Katsuta, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 11, 1980, Ser. No. 168,780

Claims priority, application Japan, Jul. 18, 1979, 54-90383

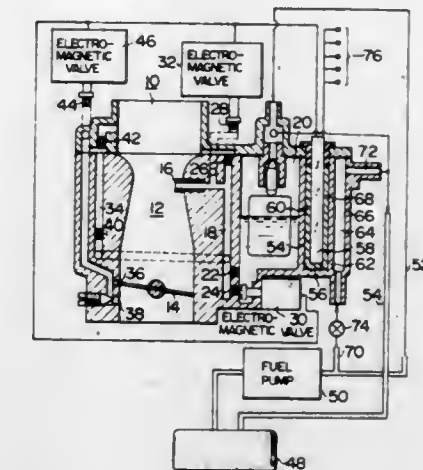
Int. Cl.³ F02B 33/00

U.S. Cl. 123—438

9 Claims

1. An electronically controlled fuel supply apparatus for an internal combustion engine, comprising: sensors for deriving operation parameters of said engine in the form of electric signals; electronic control means for deriving a quantity of fuel to be supplied to said engine on the basis of the input signals produced from said sensors; fuel supply means for controlling accurately the fuel quantity in dependence on a signal produced from said electronic control means and representing the fuel quantity to be supplied to the engine, the fuel supply means including fuel injection means; a fuel tank from which the fuel is supplied to said fuel supply means; a container for accommodating therein said electronic control means; a fuel circulating chamber formed integrally with said container; first and second pipes for communicating said fuel circulating chambers and said fuel tank to each other; a fuel pump disposed in said first pipe at an intermediate portion thereof; and a temperature

responsive valve disposed in either said first or second pipe, said temperature responsive valve being adapted to be closed



when temperature of said electronic control means is not higher than a predetermined temperature value.

4,364,356

EXHAUST EMISSIONS CONTROL SYSTEM

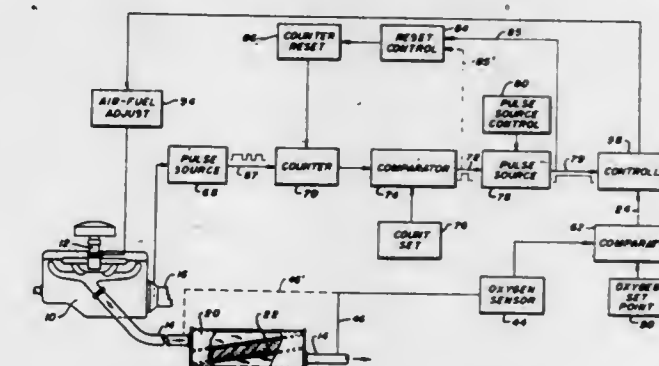
Clarence G. Gerhold, Palatine, Ill., assignor to UOP Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 286,650, Sep. 5, 1972, Pat. No. 3,797,301. This application Jan. 25, 1974, Ser. No. 436,559

Int. Cl.³ F02P 3/00

U.S. Cl. 123—440

4 Claims



4,364,357

AIR-FUEL RATIO CONTROL SYSTEM

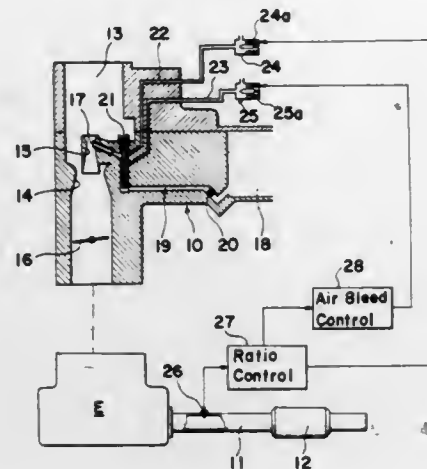
Tsutomu Matsuoka, Hiroshima, Japan, assignor to Toyo Kogyo Co., Ltd., Hiroshima, Japan

Filed Oct. 20, 1980, Ser. No. 199,041

Claims priority, application Japan, Oct. 20, 1979, 54-135768
Int. Cl.³ F02M 23/04

U.S. Cl. 123-440

10 Claims



1. An air-fuel ratio control system for providing a required amount of air to a carburetor of an internal combustion engine, the carburetor having fuel passage means, including a fuel passage and means for receiving air from the atmosphere into the fuel passage, mixing fuel from the fuel passage with the air for forming a combustible air-fuel mixture, which air-fuel ratio control system comprises:

a catalytic converter installed on an exhaust passageway leading from the engine to the atmosphere;

means, including a composition sensor provided on the exhaust passageway at a location between the engine and the catalytic converter, for sensing, and producing a first output signal proportional to, the concentration of a component contained in exhaust gases emitted from the engine, which concentration is a function of the air-fuel mixing ratio of the combustible mixture combusted in the engine;

first air passage means, communicating with the fuel passage, for feeding air from the atmosphere to the fuel passage;

first actuator means for controlling the flow of air fed into the fuel passage through said first air passage means;

means, responsive to said first output signal, for producing a second output signal representative of an amount of air required in said fuel passage to obtain a desired air-fuel ratio of said air-fuel mixture;

duty ratio control means, responsive to said second output signal, for controlling the duty ratio of said first actuator means;

second air passage means, communicating with the atmosphere, for feeding additional air from the atmosphere to the fuel passage;

second actuator means for opening and closing said second air passage means for controlling the flow of additional air fed into the fuel passage by said second air passage means; and

air bleed control means, responsive to said second output signal, for controlling said second actuator means to open said second air passage means to permit the flow of air to the fuel passage through said second air passage means together with the air flowing through said first air passage means when said second signal reaches a level indicating that the required amount of air exceeds a predetermined value.

4,364,358

AIR-FUEL RATIO CONTROL SYSTEM

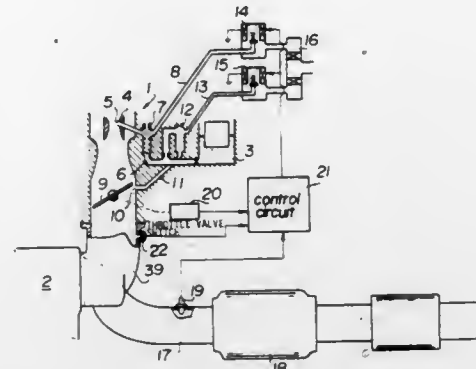
Makoto Shikata, Musashimurayama, and Fujio Matsui, Musashino, both of Japan, assignors to Fuji Jukogyo Kabushiki Kaisha, Tokyo and Nissan Motor Co., Ltd., Yokohama, both of Japan

Filed Jan. 9, 1981, Ser. No. 223,678

Claims priority, application Japan, Jan. 10, 1980, 55-1557
Int. Cl.³ F02B 3/00

U.S. Cl. 123-440

8 Claims



1. In a system for controlling the air-fuel ratio for an internal combustion engine having an induction passage leading to the engine, an exhaust passage from the engine, a throttle valve in the induction passage, detecting means for detecting the concentration of a constituent of exhaust gases passing through said exhaust passage, air-fuel mixture supply means for supplying air-fuel mixture to the induction passage, electromagnetic valve means for correcting the air-fuel ratio of the air-fuel mixture supplied by said air-fuel mixture supply means, comparator means for comparing the output signal of said detecting means with a predetermined value, integrating circuit means having an integrating circuit for integrating the output of said comparator means, and driving circuit means for driving said electromagnetic valve means in dependency upon the output signal of said integrating circuit means, the improvement comprising

a throttle valve switch,

a first means operatively connecting said throttle valve switch to said throttle valve for actuating said throttle valve switch in dependency on the position of said throttle valve,

a vacuum switch,

a second means communicating with said induction passage so as to be operated by the vacuum pressure in said induction passage for actuating said vacuum switch when said throttle valve is opened to a predetermined degree,

switching circuit means for changing the circuit constant of said integrating circuit, and

decision circuit means responsive to operations of said throttle valve switch and said vacuum switch for actuating said switching circuit means, so that said circuit constant is changed in a steady state of the engine compared with idling operation.

4,364,359

CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINES, HAVING FUNCTION OF DETECTING ABNORMALITIES IN ENGINE SPEED SIGNAL DETECTING SYSTEM

Kazuo Otsuka, Higashikurume; Shin Narasaka, Yono, and Shumpei Hasegawa, Niiza, all of Japan, assignors to Honda Motor Co., Ltd., Tokyo, Japan

Filed Aug. 7, 1981, Ser. No. 290,847

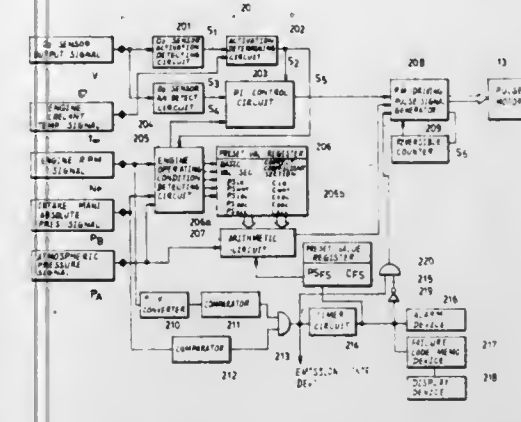
Claims priority, application Japan, Aug. 14, 1980, 55-112522
Int. Cl.³ F02G 3/00; F02M 7/00

U.S. Cl. 123-440

6 Claims

1. A control system for controlling an internal combustion engine having an intake pipe, which comprises: a first sensor

for detecting pressure in said intake pipe of said engine to produce an output indicative of said pressure; a second sensor for detecting the rotational speed of said engine to produce an output indicative of said rotational speed; a first circuit responsive to said output of said first sensor for producing a first signal when the value of said output of said first sensor is smaller than a first predetermined value; a second circuit responsive to said output of said second sensor for producing a



second signal when the value of said output of said second sensor is smaller than a second predetermined value; and a timer associated with said first circuit and said second circuit, for producing a third signal when there is concurrence of said first signal and said second signal lasting for a predetermined period of time; wherein said first predetermined value and said second predetermined value are set such that they are incompatible with each other when said engine is in a normal operating state.

4,364,360

FUEL INJECTION SYSTEM FUNCTIONING WITH PUMP/NOZZLES

Franz Eheim, Stuttgart, and Gerald Höfer, Weissach-Flacht, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

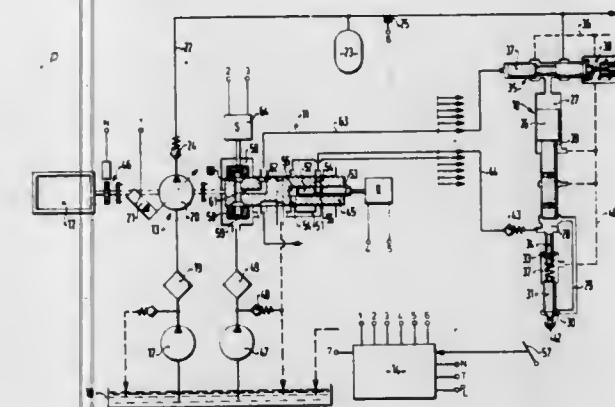
Filed Jan. 15, 1981, Ser. No. 225,165

Claims priority, application Fed. Rep. of Germany, Jan. 15, 1980, 3001154

Int. Cl.³ F02M 41/00

U.S. Cl. 123-450

10 Claims



1. A fuel injection system for internal combustion engines comprising a plurality of pump/nozzles a high pressure servo fluid source,

(a) each said pump/nozzle including a servo piston, said servo piston including a large diameter portion and a small diameter portion, a pump work chamber below said small diameter portion and a servo pressure chamber above said large diameter portion, said servo pressure chamber receiving via a servo pressure line servo fluid from said high pressure servo fluid source for driving said servo piston;

(b) a control fluid source, a control apparatus for injection onset which controls the servo fluid from said servo fluid source to said servo pressure chamber for driving said

servo piston in proportion to the stroke of the engine; said control apparatus including a hydraulically driven switch-over valve, said switchover valve being driven by means of a control fluid delivered via a control line from said control fluid source, said switchover valve being arranged in one switching position to direct said servo fluid from said high pressure servo fluid source to said servo pressure chamber above said servo piston and in another switching position is arranged to direct the servo fluid from said servo pressure chamber to a relief line, the instant of opening the servo pressure line leading from the high pressure servo fluid source to said servo pressure chamber of said pump nozzle is variable from a variation of the injection instant by said control apparatus;

(c) a distributor device serving to control said control fluid and having a rotating distributor provided with a jacket face and distributor grooves disposed in said jacket face by means of which said source of control fluid is connected and thereafter disconnected during one rotation in sequence with and from said control lines leading to said switch over valves of said pump/nozzle; a fuel metering apparatus arranged to determine the fuel quantity of the fuel to be injected and storing up said fuel into said pump work chamber below said pump piston, characterized in that the flow of said control fluid to said switchover valve is controlled by means of said distributor device via control locations disposed between said distributor and a rotatable annular slide which surrounds said distributor, whereby injection onset is varied by rotation of said annular slide by means of a servomotor, and wherein said fuel metering apparatus includes a supply volume controllable positive-displacement piston pump.

4,364,361

FUEL INJECTION SYSTEM

Konrad Eckert, Stuttgart, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

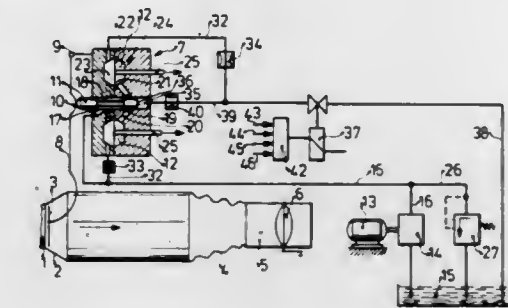
Filed Feb. 4, 1980, Ser. No. 118,016

Claims priority, application Fed. Rep. of Germany, Feb. 21, 1979, 2906597

Int. Cl.³ F02M 69/00

U.S. Cl. 123-453

8 Claims



1. A fuel injection system for internal combustion engines comprising a suction tube in which a metering member and an arbitrarily actuable throttle valve are disposed in series with one another and wherein said metering member is displaced by flowing air depending on the air flow rate in opposition to a resetting force a fuel supply line, a metering valve disposed in said fuel supply line said metering valve including a movable valve member, an actuating element connected to said metering member for displacing said movable valve member for the purpose of metering out a fuel quantity in proportion to the air quantity, said metering valve including a pressure chamber into which projects an effective face of said movable valve member of said metering valve, means for supplying fuel to said pressure chamber in said metering valve for producing a resetting force on said effective face of said movable valve member whereby a metering operation is carried out under a constant pressure difference which can be varied as a function of the operating parameters of the internal combustion engine,

a regulatory valve means, said regulatory valve means including movable valve elements, having first and second sides arranged to adjust a pressure difference at the metering valve such that the first side is biased by fuel pressure downstream of the metering valve and the second side is biased by pressure in a control pressure line wherein said control pressure line is connected to the regulating valve and said pressure chamber in said metering valve into which projects the effective face of the movable valve member and wherein the pressure in said control pressure line may be varied by varying the pressure difference of at least a first throttle by means of an electromagnetic valve which is disposed in said control pressure line and which is controllable as a function of a plurality of operating parameters and wherein the electromagnetic valve is connected to simultaneously vary the pressure difference at the metering valve and alter the resetting force to the movable member.

4,364,362

METERING AND DISTRIBUTION VALVE ASSEMBLY
Michael Wissmann, Gerlingen, and Peter Stiefel, Ditzingen, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

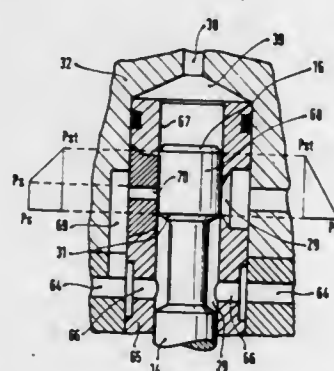
Filed Jan. 23, 1981, Ser. No. 227,867

Claims priority, application Fed. Rep. of Germany, Jan. 24, 1980, 3002458

Int. Cl.³ F02M 39/00

U.S. Cl. 123-454

6 Claims



1. A metering and distribution valve assembly for a fuel injection system of an internal combustion engine having a housing; a slotted sleeve in said housing; a control slide with a control edge axially movable in said slotted sleeve; said slotted sleeve including at least two control slits embodied therein which upon relative movement between the control slide and the slotted sleeve said control slits are opened to a greater or lesser degree by the control edge of said control slide; a system pressure valve for regulating a system pressure of fuel engaging the control edge of said control sleeve; said control slide including an end face adjacent said control edge which is exposed to fuel having a control pressure which is lower than the system pressure; at least one control pressure valve for controlling the control pressure; the said control slide including a cylindrical control slide head formed between the control edge and the end face whereby the pressure drops at the circumference of said control slide head is capable of being influenced in such a manner that said control slide head rests on one side against the slotted sleeve at least during a portion of the displacement movement.

4,364,363

ELECTRONICALLY CONTROLLING, FUEL INJECTION METHOD FOR INTERNAL COMBUSTION ENGINE

Hideo Miyagi, and Jiro Nakano, both of Okazaki, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

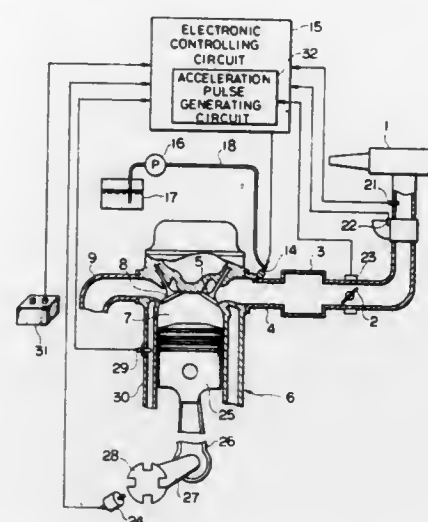
Filed May 16, 1980, Ser. No. 150,353

Claims priority, application Japan, Jan. 18, 1980, 55-3674

Int. Cl.³ F02D 5/00

U.S. Cl. 123-492

18 Claims



1. An electrically controlled, fuel injection method for an internal combustion engine, comprising the steps of: generating an electric fuel signal related to a desired opening-duration of a fuel injection valve during a running mode of said engine; transmitting said fuel signal to said valve, thereby controlling an amount of fuel being supplied into combustion chambers; generating, on the basis of one of a throttle valve opening speed and a speed of increasing flow rate of air, at least one acceleration indication each time a commanded degree of acceleration exceeds a predetermined value independent of the position of a throttle valve in an intake system of said engine prior to a generation of said acceleration indication; increasing a fuel amount increase value R by an incremental amount r in response to each acceleration indication independent of the previous fuel amount increase value R and independent of the rotational position of said engine; decreasing said fuel amount increase value R with lapse of time; changing said incremental amount r as a function of engine temperature; and increasing an amount of fuel being supplied during acceleration in the acceleration mode of the engine by altering said fuel signal by said fuel amount increase value R.

4,364,364

AIR-FUEL RATIO CONTROLLER

Anand Subramaniam, Springfield, Ohio, assignor to Cooper Industries, Inc., Houston, Tex.

Filed Jul. 23, 1981, Ser. No. 286,268

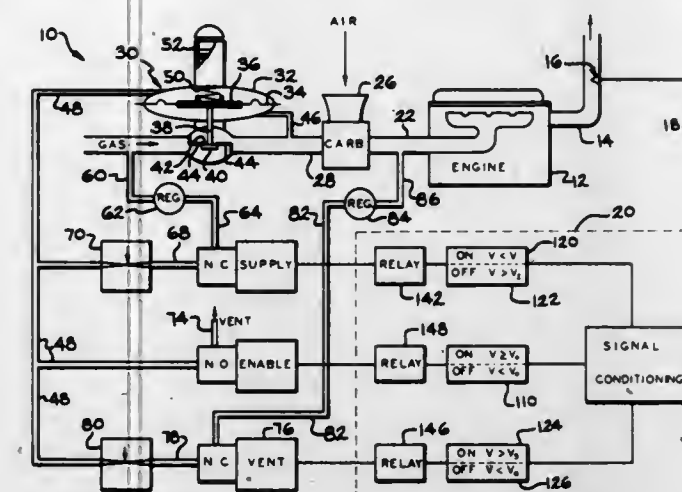
Int. Cl.³ F02M 51/02

U.S. Cl. 123-527

17 Claims

1. An air-fuel control system for a gaseous fuel internal combustion engine having a carburetor and an exhaust manifold comprising, in combination, means for sensing the oxygen content in the gases in said exhaust manifold, means for providing a temperature compensated electrical signal representative of said sensed oxygen content, a pressure regulator means for controlling the pressure of such gaseous fuel supplied to such carburetor, said regulator means including a housing, a diaphragm disposed within said housing and defining an upper and a lower chamber above and below said diaphragm, respec-

tively, said lower chamber communicating with such gaseous fuel supplied to such carburetor, a first control valve communicating between such gaseous fuel supplied to said pressure regulator and said upper chamber of said regulator means, means for opening said first valve in response to an increase in the oxygen content of such gases in such exhaust manifold, and



a second control valve communicating between said upper chamber of said regulator means and a source of pressure below the pressure of such gas supplied to said pressure regulator and means for opening said second valve in response to a decrease in the oxygen content of such gases in such exhaust manifold.

4,364,365

FUEL VAPORIZER FOR INTERNAL COMBUSTION ENGINE

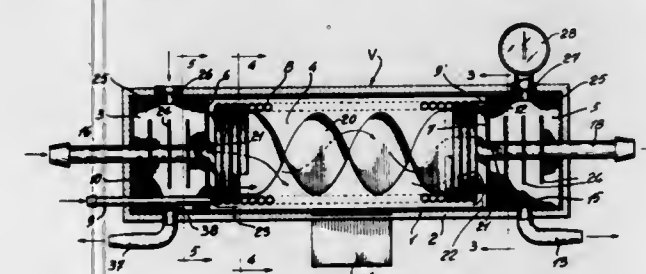
Rejean Gendron, 169 chemin Baie Carriere, Val d'Or, Abitibi, Canada (J9P 4M5)

Filed Jun. 2, 1980, Ser. No. 155,360

Int. Cl.³ F02M 31/02

U.S. Cl. 123-557

10 Claims



1. In combination, a fluid vaporizer device and an internal combustion engine having an engine coolant circuit, a fuel pump, a carburetor, an air intake for said carburetor located upstream of the latter, and an intake manifold located downstream from said carburetor, said device comprising first, second and third separate chambers, means for circulating heated engine coolant through said three chambers, means for bleeding a portion of the air from said air intake, for circulating said air portion through said first chamber while in heat-exchange relationship with the heated engine coolant circulating through said first chamber and for delivering the heated air to said intake manifold, means for circulating fuel through said second chamber and subsequently delivering said fuel into said third chamber while in heat-exchange relationship with the heated engine coolant circulating through said second and third chambers, granular material filling said second and third chambers, the fuel circulating through said second and third chambers being progressively heated and vaporized so that the fuel attains a gaseous state while in said third chamber, the heated granular material in said third chamber completing conversion of said fuel from liquid to gaseous state, and means for delivering said gaseous fuel from said third chamber to said carburetor.

4,364,366

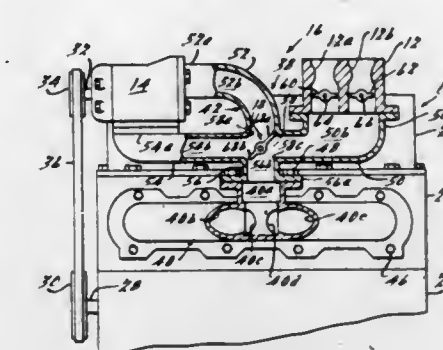
INDUCTION SYSTEM FOR SUPERCHARGED ENGINE
Gerald L. Terwilliger, Wixom, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Dec. 8, 1980, Ser. No. 214,301

Int. Cl.³ F02B 33/44

U.S. Cl. 123-564

13 Claims



1. An induction system adapted to supply air for combustion to an inlet of an expansible combustion chamber of an engine having a supercharger for boosting the pressure of the air, the system comprising:

a manifold assembly including first, second, third, and fourth air flow ducts converging into a central area, said first duct adapted to deliver aspirated air to said central area, said second duct adapted to deliver aspirated air from said central area to the supercharger, said third duct adapted to deliver boosted air from the supercharger to said central area, and said fourth duct adapted to deliver air from said central area to the inlet; and

valve means including a valving member disposed in said central area and moveable between first and second positions, said valving member operative in said first position to divide said central area into first and second passages substantially blocked from intercommunication by said valving member, said first and second passages respectively communicating said first duct with said fourth duct and said third duct with said second duct, said valving member operative in said second position to divide said central area into third and fourth passages blocked from intercommunication by said valving member, and said third and fourth passages respectively communicating said first duct with said second duct and said third duct with said fourth duct.

4,364,367

LINKAGE MECHANISM FOR SUPERCHARGER SYSTEM

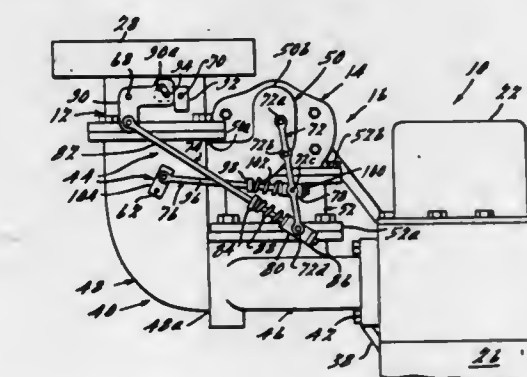
Gerald L. Terwilliger, Wixom, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Dec. 8, 1980, Ser. No. 214,358

Int. Cl.³ F02B 33/44

U.S. Cl. 123-564

6 Claims



1. In an engine of the type including an expansible combustion chamber, the system comprising:

tion chamber; an induction manifold having an inlet and an outlet for respectively receiving air via a throttle means and delivering the air to the chamber, and first and second air flow paths connected in parallel between the inlet and outlet; a supercharger interposed in the second path; and valve means including a valving member and means responsive to differential air pressure between the inlet and outlet, said valving member moveable between first and second positions to control air flow in said first path for regulating said differential air pressure between a minimum and a maximum air pressure, and said pressure responsive means operative to move said valving member toward said first position to decrease said differential pressure in response to said differential pressure exceeding said maximum pressure; the improvement comprising:

power control means including means selectively moveable between minimum and maximum engine power positions and first and second linkage assemblies connected in parallel at one end to said selectively moveable means and respectively connected at the other end to said valving member and said throttle means.

4,364,368

EXHAUST GAS RECIRCULATION CONTROL ASSEMBLY

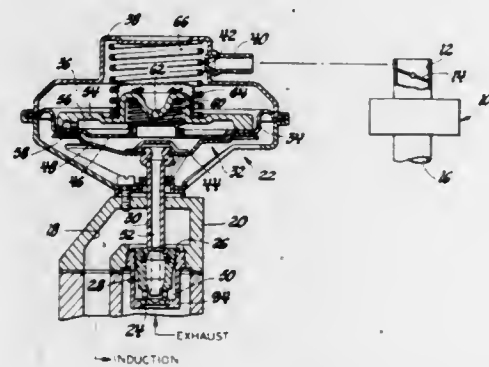
Jon A. Blanchette, Fairport, N.Y., assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 23, 1981, Ser. No. 236,828

Int. Cl.³ F02M 25/06

U.S. Cl. 123—568

2 Claims



1. An assembly for controlling flow of exhaust gases through an exhaust gas recirculation passage, said assembly comprising a valve pintle adapted for disposition in said passage, said pintle having an axially extending recess terminating at a transversely extending end wall and defining an internal chamber adjacent said end wall, said pintle further having one or more lateral openings for allowing entry of exhaust gases from said passage to said chamber, said assembly further comprising a valve stem having a portion received in said recess, said valve stem being of hollow tubular form to define a conduit for conducting exhaust gases from said chamber to a pressure responsive member, wherein said recess has a ledge facing away from said end wall, wherein said valve stem portion has a tip received by said ledge, wherein said valve stem portion has a tapered outer surface the diameter of which decreases with distance from said end wall, wherein said recess has a shoulder facing toward said end wall and extending radially inwardly toward said tapered surface, and wherein a retaining ring embraces said tapered surface and abuts said shoulder to hold said tip firmly in engagement with said ledge and thereby retain said valve stem portion within said recess, said retaining ring being radially elastic to allow withdrawal of said pintle from said stem whereby exhaust gas deposits may be removed from said chamber and said conduit.

4,364,369 METHOD AND APPARATUS FOR RECIRCULATING EXHAUST GASES IN DIESEL ENGINE

Etsuji Nomura, Anjo; Hideaki Sasaya, and Toshikuni Miyazaki, both of Okazaki, all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan

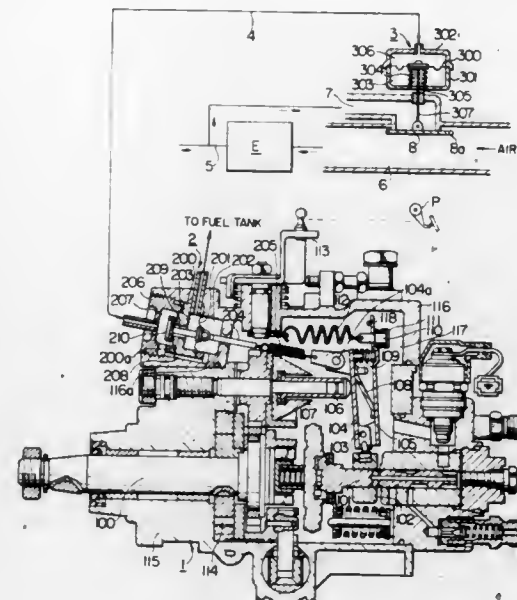
Filed Aug. 20, 1980, Ser. No. 179,785

Claims priority, application Japan, Oct. 17, 1979, 54-134409

Int. Cl.³ F02M 25/06

U.S. Cl. 123—569

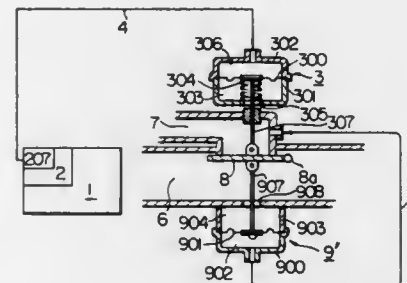
5 Claims



1. An exhaust gas recirculation apparatus for a diesel engine having a fuel injection pump, comprising:

an exhaust gas recirculation passage for recirculating exhaust gases from an exhaust pipe to an intake pipe;
a valve body for controlling the cross-sectional area of said exhaust gas recirculation passage;
a fuel pressure regulator for detecting an amount of fuel injected by the fuel pump and for transmitting a fuel pressure signal; and
means for driving said valve body including diaphragm means adapted to be actuated in response to said fuel pressure signal whereby, in response to an increase of fuel injection, the cross-sectional area of said exhaust gas recirculation passage is decreased;

said fuel pressure regulator including a diaphragm defining a first chamber on one side thereof and a second chamber on the other side thereof, a first rod securely attached at its one end to said diaphragm, a cover defining therein a third chamber adapted to be communicated through a passage with said second chamber and a second rod securely attached at its one end to said diaphragm and having said valve body mounted at its other end, said second chamber being in communication with a low pressure in the suction port of the fuel injection pump, said valve body serving to selectively establish communication between said second and third chambers.



4,364,370 METHOD AND APPARATUS FOR SUPPLYING FLUID TO AN INTERNAL COMBUSTION ENGINE

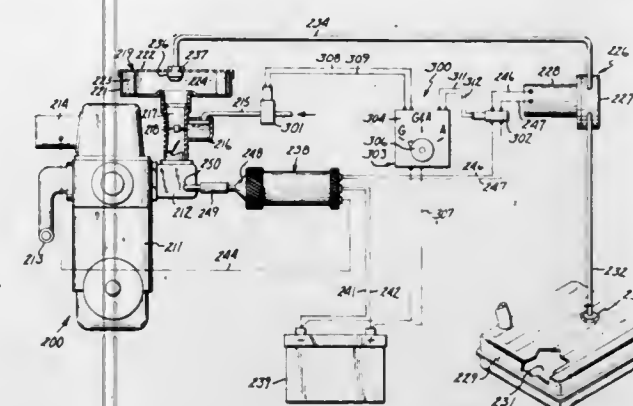
Byron D. Smith, 7019 McCauley Trail, Edina, Minn. 55435, and Terrence J. Erickson, 8186 Hames Rd. S., Cottage Grove, Minn. 55016

Filed Aug. 27, 1980, Ser. No. 181,849

Int. Cl.³ F02B 47/00; F02M 43/00; F02D 19/00

U.S. Cl. 123—575

46 Claims



1. An apparatus for supplying a second fluid fuel intake air used by an internal combustion engine having an intake manifold accommodating a first fluid fuel and ignition means producing electrical energy pulses in timed relation to the speed of the engine comprising: container means for storing a second fluid fuel, nozzle means for discharging the second fluid fuel to provide an air and first and second fluid fuel mixture in the intake manifold, pump means operable to pump the second fluid fuel under pressure from the container means to said nozzle means, an electric motor operable to drive the pump means, means to sense the vacuum pressure of gas in the intake manifold, and control means operably associated to the means to sense the vacuum pressure in the intake manifold and produce an electrical signal in proportion to the vacuum pressure of the gas in said intake manifold, said control means having means operable to provide output electric energy to operate the electric motor as a function of the product of said electric energy pulses of the ignition means and the electric signal that is proportional to said vacuum pressure in the intake manifold, whereby said electric motor operates to drive the pump means so as to maintain a substantially constant ratio of the first and second fluid fuels relative to each other and to air in the intake manifold over the operating rpm of the engine.

4,364,371

HAND HELD BALL THROWING IMPLEMENT

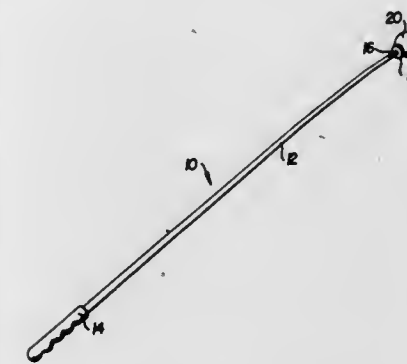
Joseph H. Woolard, 1040 Charity Dr., Virginia Beach, Va. 23455

Filed Jan. 5, 1981, Ser. No. 222,474

Int. Cl.³ F41B 3/00

U.S. Cl. 124—5

4 Claims



1. An improved ball throwing implement, comprising: an elongated, flexible shaft having a grip end; radially extending resilient means positioned near the opposite end of said shaft for frictionally engaging the wall of

a diametral bore provided in a game element to be thrown by said implement; and axially adjustable stop means positioned adjacent said resilient means for adjusting the extent of engagement of a diametral bore in a game element with said resilient means, whereby the force required to throw a game element from the implement can be selectively varied.

4,364,372

TRIPOD TORCH HANDLE

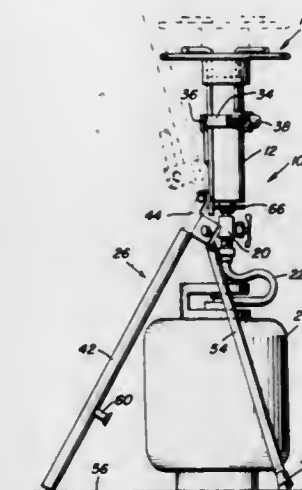
Joseph N. Johnson, 2795 N. Ludlow, Urbana, Ohio 43078

Filed Aug. 19, 1980, Ser. No. 179,934

Int. Cl.³ F24C 3/00

U.S. Cl. 126—39 R

16 Claims



1. For use with a heating device including a burner unit, an elongated torch tube secured to and enclosing the burner unit, said tube having opposite axial ends from which the burner unit projects and from which heat is emitted, respectively, and a fuel supply valve connected to the burner unit adjacent one of said axial ends of the tube from which the burner unit projects, the improvement residing in a handle assembly, means pivotally connecting the handle assembly to the tube about a single pivot axis adjacent said one of the axial ends, a support grid, and elongated slide means engageable with the tube for adjustably mounting the grid on the tube adjacent to said other of the axial ends from which heat is emitted.

4,364,373

SOLAR COLLECTOR SYSTEM

Hirosato Takeuchi; Fumito Degawa, and Toshio Mikiya, all of Tokyo, Japan, assignors to Nitto Kohki Co., Japan

Filed May 13, 1981, Ser. No. 263,210

Claims priority, application Japan, Oct. 24, 1980, 55-149168;

Nov. 29, 1980, 55-168467

Int. Cl.³ F24J 3/02; F24F 9/00

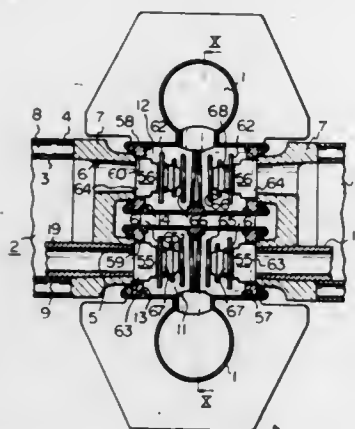
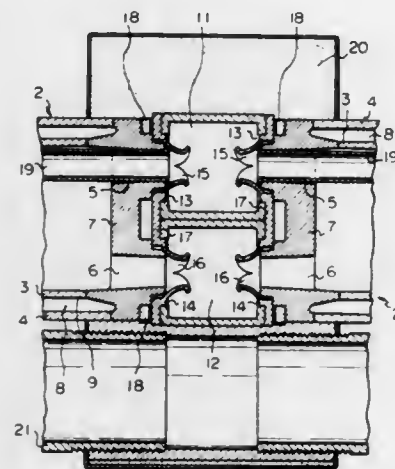
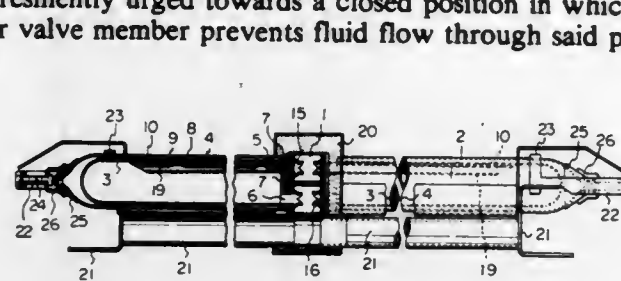
U.S. Cl. 126—418

17 Claims

1. A solar collector system comprising a conduit having a pair of adjacent channels, each channel having a port; a solar collector tube extending generally laterally from said conduit, said solar collector tube including an outer tube having an open end and a closed end, an inner tube having an open end and a closed end, said inner tube being arranged coaxially within said outer tube so as to form a space between said inner and outer tubes, and a cap positioned in said open ends of said inner and outer tubes, said cap including a first passageway extending between said inner tube and said port of one of said channels and a second passageway extending between said inner tube and said port of the other of said channels, whereby fluid in said conduit may be supplied to said inner tube through said first passageway and then returned to said conduit through said second passageway; controlling means for controlling the flow of fluid through said first and second passageways, said

controlling means including a pair of valves, one of which is continuously and resiliently urged towards a closed position in which said one valve member prevents fluid flow through said port of said one channel and the other of which is continuously and resiliently urged towards a closed position in which said other valve member prevents fluid flow through said port of

air contained in said protuberance so as to transport heat toward said raised collector portion (4), said protuberance (9)



said other channel; and moving means for moving each of said valve members into an open position from its closed position, said moving means being disabled upon the breakage of said solar collector tube, whereby said valve members automatically assume their closed positions to inhibit the leakage of fluid from said conduit in the event that said solar collector tube breaks.

4,364,374

HEAT-ABSORBENT PANEL FOR SOLAR ENERGY AND SLOPING ROOF COMPOSED OF SUCH PANELS

Luigi Brazzola, Castel San Pietro, Switzerland, assignor to Elioform AG, Triesen, Liechtenstein

Filed Jan. 30, 1980, Ser. No. 116,811

Claims priority, application Switzerland, Jan. 31, 1979, 911/79; Jan. 4, 1980, 22/80

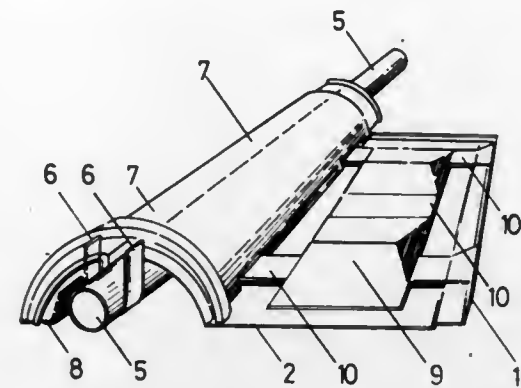
Int. Cl.³ F24J 3/02

U.S. Cl. 126-442

4 Claims

1. Solar energy absorptive panel for covering roofs, comprising a tile (2) having at least one downwardly opening raised portion (4) which collects heat, a transparent cap (7) that covers, insulates and protects the raised portion, the tile having at least one protuberance (9) defining a downwardly-opening cavity, said protuberances and raised portion being interconnected by at least one conduit (10) permitting circulation of the

air contained in said protuberance so as to transport heat toward said raised collector portion (4), said protuberance (9) being so shaped as to reflect the sunrays toward the raised collector portion.



being so shaped as to reflect the sunrays toward the raised collector portion.

4,364,375

THERMAL SOLAR ENERGY COLLECTOR

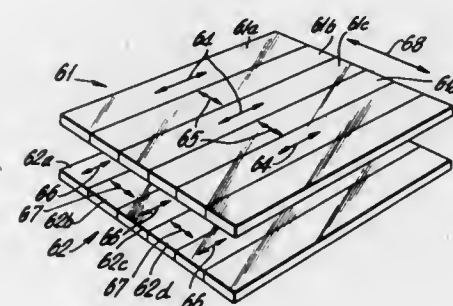
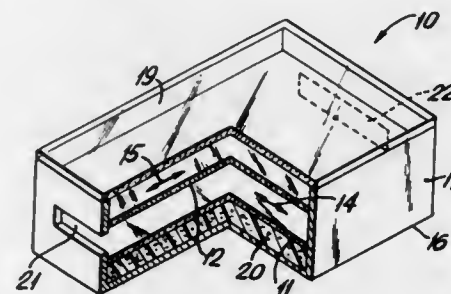
Lawrence B. Younghouse, Boonton, N.J., assignor to Exxon Research and Engineering Co., Florham Park, N.J.

Filed Aug. 4, 1980, Ser. No. 175,335

Int. Cl.³ F24J 3/02

U.S. Cl. 126-444

10 Claims



4,364,376

METHOD AND DEVICE FOR INJECTING A BOLUS OF MATERIAL INTO A BODY

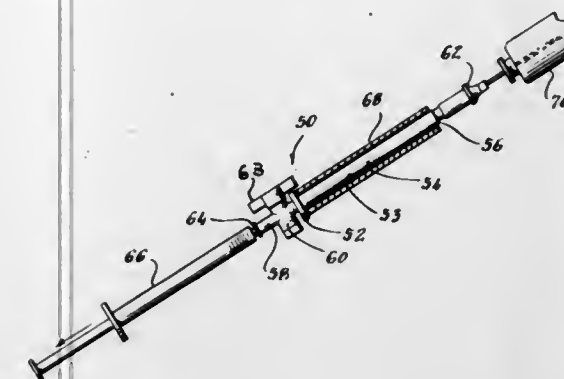
Keith E. Bigham, 178 Triangle St., Danbury, Conn. 06810

Filed Dec. 26, 1979, Ser. No. 94,355

Int. Cl.³ A61N 5/12

U.S. Cl. 128-1.1

3 Claims



1. A device for use in the injection of a bolus of radioactive material in a blood vessel comprising:
a longitudinal bolus retainer having a bolus chamber extending between front and rear ends of the bolus retainer, a manually controlled valve located near the rear end of the bolus retainer to open and close said chamber near said rear end, the portion of the bolus chamber between the valve and the front end being capable of retaining a desired volume of said bolus material;
said bolus retainer being shaped to fit within a radioactive shield for radiation shielding thereby;
wherein said front end of the bolus retainer has an opening in unrestricted fluid communication with the bolus chamber to receive therein and discharge therefrom a bolus of said radioactive materials, said front end of the bolus retainer further being shaped to receive and retain a hypodermic needle assembly; and
wherein said rear end of the bolus retainer is shaped to operatively releasably receive a syringe.

4,364,377

MAGNETIC FIELD HEMOSTASIS

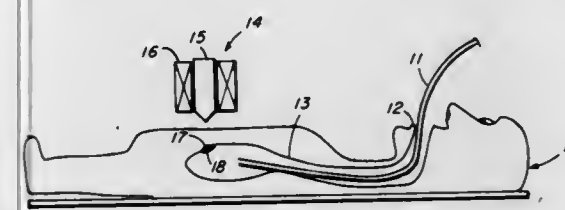
Frederic W. Smith, Portland, Oreg., assignor to Walker Scientific, Inc., Worcester, Mass.

Continuation of Ser. No. 9,227, Feb. 2, 1979, abandoned. This application Feb. 2, 1981, Ser. No. 230,621

Int. Cl.³ A61B 17/12

U.S. Cl. 128-1.5

18 Claims



1. Process for staunching bleeding at a lesion located in a comparatively large body cavity such as the gastrointestinal tract comprising the steps of:

- (1) providing a liquid tamponading mass of a large volume that covers said lesion, said liquid mass being formed of ferromagnetic particles suspended in said large volume of a viscous liquid;
- (2) introducing said mass into the gastrointestinal tract; and
- (3) biasing said mass to cover and to press upon a bleeding lesion within said gastrointestinal tract by externally generated magnetic field means that acts upon said ferromagnetic particles, said biasing acting to hold said liquid mass in position over said lesion and to staunch the bleeding at said lesion.

4,364,378

MASSAGE APPARATUS WITH ELECTROSTATIC FIELD

Willy Seuss, deceased, late of München, Fed. Rep. of Germany, and by Fride Seuss nee Falter, executrix, Rembrandtstr. 5, 8000 München, Fed. Rep. of Germany

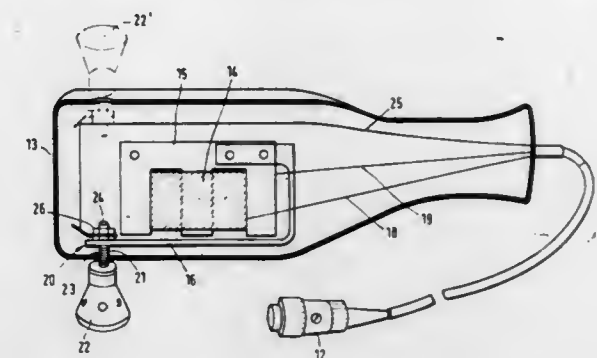
Continuation-in-part of Ser. No. 844,186, Oct. 21, 1977, abandoned. This application Jun. 16, 1980, Ser. No. 159,838

Claims priority, application Fed. Rep. of Germany, Oct. 22, 1976, 2647947

Int. Cl.³ A61H 21/00

U.S. Cl. 128-24.5

6 Claims



1. A massage apparatus for massaging the skin of a person to be treated which apparatus comprises
(a) an electrical switching circuit adapted to be connected to a source of alternating electric current and comprising a rectifying unit and a current supply means for generating a first, periodically interrupted D.C. voltage between a first plus pole and a first minus pole, linear voltage regulator means for generating a second D.C. voltage between a second plus pole and a second minus pole, and comprising posts for the connection of lines for each of said poles and frequency control means adapted for infinitely varying the periodic interruptions of said first D.C. voltage, applied to said first minus pole and said first plus pole, in the range of from 5 to 50 cycles,
(b) a first massaging unit comprising a housing, electromagnetic oscillator means adapted for producing mechanical oscillation and comprising electromagnetic coil means and armature means, said armature means having a free oscillatable armature end, and
a vibrator head of electrically conductive material and having a flat part and an electrically insulating coating covering said flat part, said vibrator head being destined to be placed with the electrically insulating coating of said flat part on a first region of the skin of a person to be treated, and said vibrator head having an electrically conductive neck portion, facing away from said flat part and being mounted on said free oscillatable armature end in such a position that at least said flat vibrator head part is outside said housing, and the oscillations of said vibrator head occur along an axis extending substantially vertically to the skin portion contacted by said flat part,
(c) coil-energizing current supply circuit comprising said rectifier means for producing a D.C. supply voltage and having output posts, said electromagnetic coil means being connected across said output posts,
(d) electric lines connected to the posts of said first plus pole and to said first minus pole, on the one hand, and to said current supply circuit on the other hand, whereby said electromagnetic coil means are energized interruptedly in harmony with said first, periodically interrupted D.C. voltage,
(e) an electric line connected to one of the posts of said second plus pole and said second minus pole, on the one hand, and to said electrically conductive neck portion, to apply the respective pole of said second D.C. voltage to said flat part of said vibrator head, whereby said flat part constitutes a first electrode,
(f) a second electrode unit of electrically conductive material and having a flat part adapted for being placed on a

second region of the skin of the same person to be treated, on the opposite side of the body portion from where said vibrator head flat part defined under (b) is placed on the skin, that body portion constituting a dielectric layer between said first and second electrodes,

(g) a separate electric line connected to the other one of the posts of said second plus pole and said second minus pole, on the one hand, and to said second electrode unit, thereby establishing an electrostatic field of said second D.C. voltage, between said flat part of said vibrator head and said flat part of said second electrode unit, as capacitor plates, and through the body of the person to be treated, acting as the dielectric therebetween, and wherein said linear voltage regulator means for generating said second D.C. voltage comprise potentiometer means for adjusting the strength and polarity of said electrostatic field.

4,364,379

PENILE ERECTILE SYSTEM

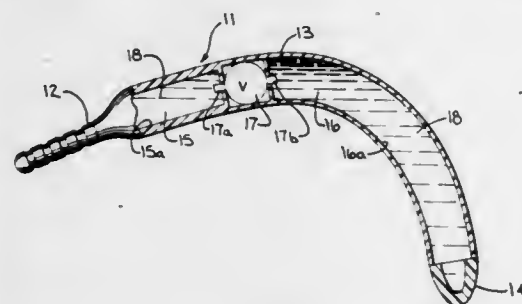
Roy P. Finney, 92 Adriatic Ave., Tampa, Fla. 33606

Continuation-in-part of Ser. No. 150,231, May 15, 1980, Pat. No. 4,318,396, and a continuation-in-part of Ser. No. 244,335, Mar. 17, 1981. This application Nov. 5, 1981, Ser. No. 318,583

Int. Cl.³ A61F 5/00

U.S. Cl. 128—79

4 Claims



1. A penile erectile system comprising an elongated penile implant having a stem at one end, a tip at the other end, a first and second chamber axially positioned between the stem and tip, said first chamber having a resilient, non-collapsible wall and the second chamber having a flexible, non-distensible wall, both of said chambers being substantially filled with fluid, a passage providing communication between the first and second chambers and valve means in said passage for controlling the flow of fluid between the chambers, said valve means serving as a check valve which normally permits flow only from said first to second chamber and a relief valve which permits flow from the second chamber to the first chamber when the pressure in the second chamber exceeds a predetermined pressure.

4,364,380

DEVICE FOR USE IN INTERDENTAL ARCH WIRING
Michael Lewis, 10067-98 St., Grande Prairie, Alberta, Canada (T8V 2E7)

Filed Jul. 31, 1981, Ser. No. 288,715

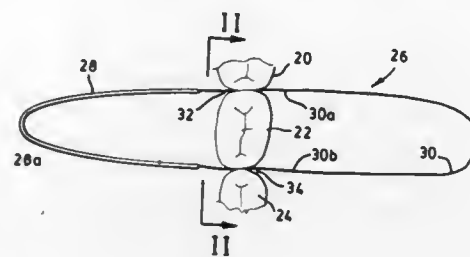
Int. Cl.³ A61F 5/04

U.S. Cl. 128—89 A

7 Claims

1. A device for use in interdental arch wiring, comprising: a length of thin and malleable wire suitable for wiring a fractured jaw, and having respectively opposite end portions, and an elongate filament having ends secured to respective ones of said wire end portions so as to effectively form continuations of said portions, said filament being sufficiently thin and flexible to permit insertion thereof into an interdental space between two adjacent teeth by tensioning the filament across the interdental contact point between the teeth with the filament extending generally normal to a

line joining the teeth, and drawing the tensioned filament downwardly through the interdental contact point,



whereby the filament can then be used to lead the wire into the interdental space.

4,364,381

SURGICAL CLAMP AND DRILL-GUIDING INSTRUMENT

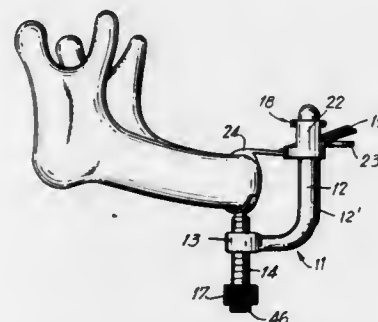
Jay H. Sher, 19 Vermeer Dr., Apt. 8, South Amboy, N.J. 08879, and A. Norman Cranin, 209 Cedar Ave., Hewlett, N.Y. 11557

Filed Jan. 31, 1980, Ser. No. 117,183

Int. Cl.³ A61F 5/04

U.S. Cl. 128—92 E

11 Claims



1. A surgical clamping and drill-guiding instrument for gripping a bone exposed during surgery and providing an accurate drill guide comprising:

an L-shaped member having an elongated keyed post and a leg extending from the post, the leg having a screw receiving portion for positioning on one side of the bone to be gripped;

an elongated clamping screw having a longitudinal opening means therethrough for receiving a removable drill guide of a chosen size for guiding a drill of said chosen size for drilling into the bone, and a clamping member rotatably mounted about said opening means at the engagement end of said screw facing the bone, said clamping screw being engageably disposed in said screw receiving portion; and a central body portion with an opening for receipt of said post and being displaceable along said post; an arm extending from said body portion generally parallel to said leg, said arm including fingers for engaging the outer side of the bone and having an opening between said fingers for cooperating with the opening means in said screw and locking means for locking the body portion at a preselected position on said post; said post, when received within and being in movable keyed engagement with said body portion, provides an alignment means which facilitates the cooperation of the opening means in said screw with the opening between said fingers;

said screw and clamping member displaceable through said screw receiving portion on said leg towards the bone so as to fixedly locate said drill guide with respect to the bone disposed between said clamping member and said fingers on the arm for providing a vise-like grip about the bone.

4,364,382

INTERNAL FIXATION DEVICE FOR BONE FRACTURES
Ulrich Mennen, 49 Hill Ter., Riviera, Pretoria, Transvaal, South Africa

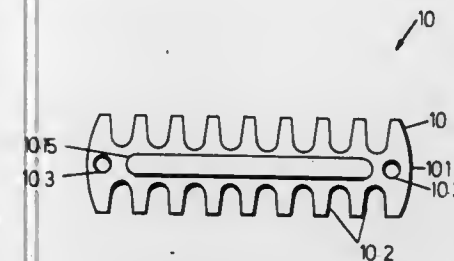
Filed Aug. 19, 1980, Ser. No. 179,521

Claims priority, application South Africa, Aug. 23, 1979, 79/0862; Jan. 21, 1980, 80/0327

Int. Cl.³ A61F 5/04

U.S. Cl. 128—92 D

3 Claims



1. An internal fixation device for bone fractures comprising a unitary metallic member including:

an elongated central portion having upper and lower surfaces which are respectively convex and concave; a plurality of arcuate finger portions extending integrally from the opposite sides of said central portion and extending generally downwardly and outwardly from said central portion in an opposed relation to define a generally channel shaped structure; wherein said finger portions are generally arranged transverse to the longitude of said elongated central portion;

each finger portion terminating in an inwardly extending fastening means having a sharpened edge constructed and arranged for penetration into said bone; said central portion having an elongated stiffening corrugation extending longitudinally for a majority of its length and being elevated from said upper surface, said central portion and said stiffening corrugation being constructed and arranged so that said device flexes at said stiffening formation; whereby, when said member is deformed by forcing said finger portions toward each other inwardly for penetration of said fastening means into said bone, the central portion and said stiffening portion will arch away from said bone to minimize damage thereto.

4,364,383

I.V. FLASHBACK INDICATION

John L. Vcelka, 905 Wilson Ct., Zion, Ill. 60099

Filed Aug. 25, 1980, Ser. No. 181,299

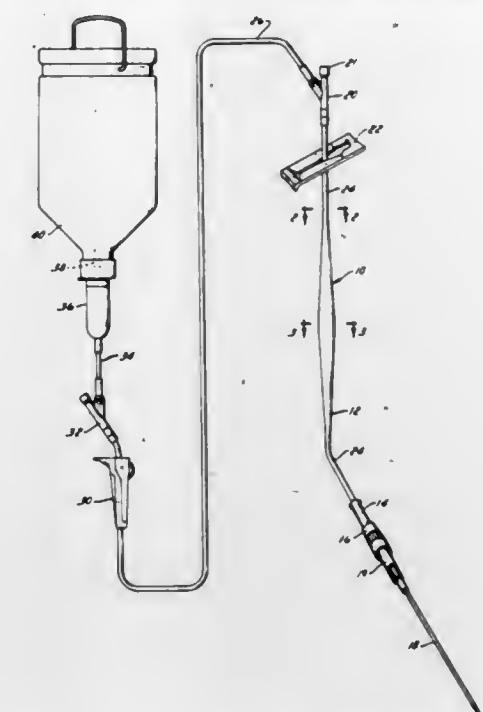
Int. Cl.³ A61M 5/14

U.S. Cl. 128—214 R

9 Claims

1. In an I.V. administration set including first and second component members of the type normally utilized in a parenteral solution administration set with flexible tubing secured to said components and one of said components including means for attachment to a hypodermic needle, said flexible tubing composed of a resinous plastic material compatible with parenteral solutions and secured to said first and second components in a manner such that the component members will remain integrally attached to said tubing even when said tubing is subjected to internal pressures normally associated with hypodermic syringes, the improvement comprising a flashback indicator of one-piece

construction defined by an enlarged portion in the passageway of the tubing with said tubing having a wall thickness in



said enlarged portion greater than the wall thickness of the tubing immediately adjacent said enlarged portion.

4,364,384

EXCESS PRESSURE RESPIRATOR WITH PRESSURIZED BREATHING GAS SHUTOFF

Ernst Warncke, Lübeck, and Adalbert Pasternack, Bad Schwartau, both of Fed. Rep. of Germany, assignors to Drägerwerk Aktiengesellschaft, Fed. Rep. of Germany

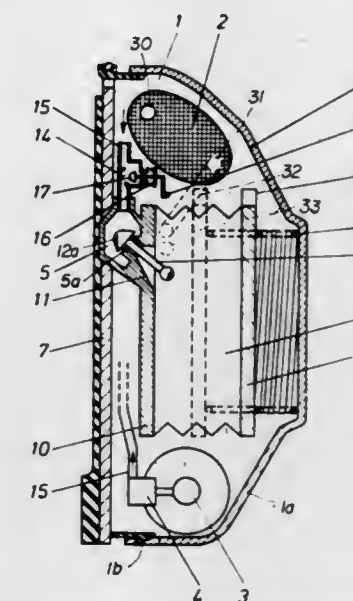
Filed Mar. 30, 1981, Ser. No. 249,085

Claims priority, application Fed. Rep. of Germany, Apr. 24, 1980, 3015759

Int. Cl.³ A62B 7/04

U.S. Cl. 128—204.28

7 Claims



1. An excess pressure respirator comprising:

a housing; a breathing bag mounted to said housing and having at least one movable plate member which moves with change of volume in said bag; biasing means engaged with said plate member for biasing said plate member in a direction to deflate said bag; at least one respiration line connected to said bag for inhalation and exhalation cycles from and to said bag; a pressurized breathing gas source mounted to said housing; connecting means between said source and said bag for supplying breathing gas to said bag from said source;

a dosing valve in said connecting means for passing breathing gas to said bag in an open position and for blocking such in a closed position, said dosing valve having an actuator and being mounted in said housing such that said actuator is in the path of said movable plate member and said plate member engages the actuator of said dosing valve to open said dosing valve when said bag is deflated during an inhalation cycle; and a shutoff valve in said connecting means for passing breathing gas therethrough in an open position and for blocking breathing gas therethrough in a closed position, said shutoff valve having an actuator and being mounted in said housing such that said actuator is in the path of said movable plate member and said plate member engages the actuator of said shutoff valve for closing said shutoff valve when said bag is further deflated during a reduction of pressure in said bag below that of an inhalation cycle.

4,364,385

INSULIN DELIVERY DEVICE

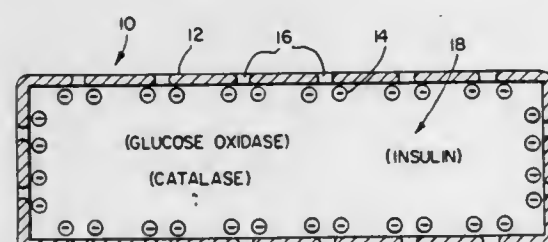
Steven V. Lossef, 125-15 Cronston Ave., Belle Harbor, N.Y. 11694

Filed Mar. 13, 1981, Ser. No. 243,494

Int. Cl.³ A61J 7/00

U.S. Cl. 128-213 R

6 Claims



5. A method for providing a controlled release of insulin comprising the steps of:

providing a compartment limited by a semipermeable membrane having a negative surface charge and containing enzymes and insulin therein, said semipermeable membrane having pores which are smaller than the molecular size of the enzymes and are slightly larger than the molecular size of the insulin;

placing said compartment in contact with circulating body fluid containing a varying concentration of glucose, said glucose capable of diffusing through the pores of said semipermeable membrane; and

reacting the glucose with said enzymes to liberate positive hydrogen ions, the concentration of said hydrogen ions being a function of the concentration of the glucose; whereby as the concentration of positive hydrogen ions increases with an increase of glucose concentration, the net negative charge of the semipermeable membrane is reduced providing an increase in the rate of diffusion of the insulin through the pores as a function of the glucose concentration in the circulating body fluids.

4,364,386

APPARATUS FOR CONVERTING A PUMP TO A CONTROLLER

Jon A. Jenkins, Rancho Santa Fe, and Herbert A. Schwan, Encinitas, both of Calif., assignors to Imed Corporation, San Diego, Calif.

Filed Dec. 8, 1980, Ser. No. 213,863

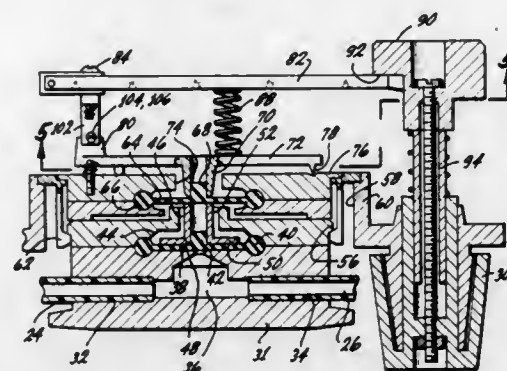
Int. Cl.³ A61M 5/00

U.S. Cl. 128-214 E

31 Claims

1. In combination for converting a pump into a controller for controlling within particular limits the pressure of fluid introduced from a source to a patient, a housing having an inlet and an outlet for the flow of fluid

and having a chamber in communication with the inlet and the outlet, a resilient diaphragm disposed in the chamber and constrainable in accordance with the pressure of the fluid in the chamber, a member having an adjustable fulcrum and pivotable from the adjustable fulcrum, the member being operatively coupled to the diaphragm for variable positioning pivotably in accordance with the constraint of the diaphragm and the position of the fulcrum, means adjustably positioned for providing an adjustment in the position of the fulcrum on the member,



a light source, a photocell, means for providing for a variation in the amount of the light passing from the light source to the photocell in accordance with the variations in the positioning of the resilient member, and means responsive to a particular change in the passage of the light from the source to the photocell for indicating that the pressure of the fluid within the housing has exceeded the particular limits.

4,364,387

CONNECTING DEVICE FOR MEDICAL LIQUID CONTAINERS

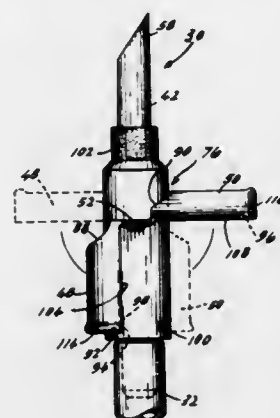
Mark E. Larkin, Lindenhurst, Ill., assignor to Abbott Laboratories, North Chicago, Ill.

Filed Dec. 18, 1980, Ser. No. 217,870

Int. Cl.³ A61M 5/14

U.S. Cl. 128-214 C

17 Claims



1. An improved connector device for liquid containers having a tubular port extending therefrom comprising: an elongated tubular member having means constructed and arranged for telescopic connection to said tubular port; at least one longitudinal fluid passage extending through said tubular member for the passage of liquid, the improvement comprising: pivotable finger tabs means hingedly attached to and extending from said elongated tubular member for the digital engagement and manipulation of said connector, said pivotable finger tab means having means constructed and

arranged for selective coaxial alignment against said elongated member in a first position and for arcuate extension into locking fixation in a substantially normal configuration in a second position, thereby facilitating storage in said first position and digital engagement and manipulation of said connector in said second position.

4,364,388

SYRINGE DISPENSING APPARATUS

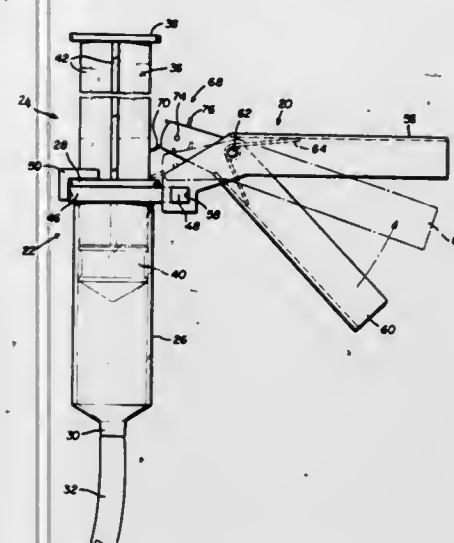
Jerry E. Cech, 4383 E. Mt. Morris Rd., Mt. Morris, Mich. 48458

Filed Apr. 20, 1981, Ser. No. 255,197

Int. Cl.³ A61M 1/00

U.S. Cl. 128-234

9 Claims



1. A metering dispensing apparatus for a conventional plastic syringe, said syringe having a tubular cylindrical fluid reservoir having an open end and termination in a restricted dispensing outlet, said syringe having a reciprocal plunger including a resilient cylindrical piston telescopically received in said reservoir through said open end for dispensing fluids through said restricted reservoir outlet, said plunger having an elongated radially projecting portion, said dispensing apparatus comprising a retainer collar having an elongated flexible strap portion receivable around said syringe reservoir adjacent said open end and a hand operated ratchet mechanism attachable to said collar, said hand ratchet mechanism including a fixed handle releasably attached to said collar strap portion, a spring biased movable handle pivotally attached to said fixed handle intermediate its ends and a spring biased ratchet means including a detent having a sharp edge pivotally supported on the free end of said movable handle adjacent said syringe plunger, and an alignment means on said strap portion aligning said radially projecting portion of said plunger with said detent, said ratchet means detent adapted to releasably grip said plunger radially projecting portion upon pivotal movement of said movable handle telescoping said plunger into said reservoir and dispensing fluids through said restricted reservoir opening.

4,364,389

INSTRUMENT FOR HOLDING AND INSERTING THE TIBIA PLATE FOR AN ENDO-KNEE PROSTHESIS HAVING SLIDING SURFACES

Arnold Keller, Kayhude, Fed. Rep. of Germany, assignor to Waldemar Link GmbH & Co., Hamburg, Fed. Rep. of Germany

Filed Mar. 17, 1981, Ser. No. 244,627

Claims priority, application Fed. Rep. of Germany, Mar. 19, 1980, 3010421

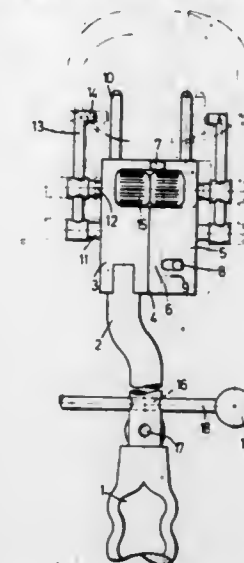
Int. Cl.³ A61B 17/00

U.S. Cl. 128-303 R

13 Claims

1. A prosthesis instrument for holding and inserting a pair of tibia plate members for an endo-knee prosthesis having sliding surfaces, comprising an instrument support handle, a pair of

tibia plate support means on the support handle for rigidly supporting a pair of tibia plate members respectively in predetermined lateral relationship for holding and inserting them for said prosthesis, the pair of tibia plate support means being



relatively laterally adjustable for adjusting the said predetermined lateral relationship of the said tibia plate members, and reference edges disposed at fixed angles to the pair of tibia plate support means in the direction in which they are relatively laterally adjusted.

4,364,390

SURGICAL INSTRUMENT HAVING SELF-REGULATING DIELECTRIC HEATING OF ITS CUTTING EDGE AND METHOD OF USING THE SAME

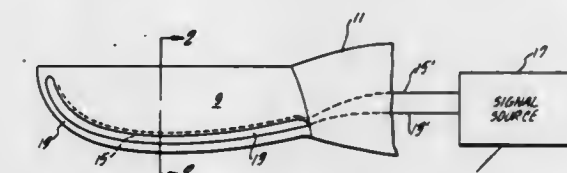
Robert F. Shaw, 50 St. Germain, San Francisco, Calif. 94114
Continuation of Ser. No. 558,333, Mar. 14, 1975, Pat. No. 4,207,896, which is a continuation-in-part of Ser. No. 534,756, Dec. 2, 1974, Pat. No. 4,089,336, which is a continuation of Ser. No. 63,645, Aug. 13, 1970, abandoned, which is a continuation of Ser. No. 681,737, Nov. 19, 1967, abandoned. This application

Sep. 5, 1979, Ser. No. 72,359

Int. Cl.³ A61B 17/32; A61N 3/00

U.S. Cl. 128-303.1

16 Claims



1. A blade comprising:

a cutting means including a cutting edge and a dielectric means disposed in the region along said cutting edge for dissipating power in inverse relation to temperature over a portion of a temperature range, said power so dissipated being generated in response to an alternating electric field applied to said dielectric means; and electrode means disposed adjacent said dielectric means for applying said alternating electric field to said dielectric means.

4,364,391

TRACHEOSTOMY APPARATUS AND METHOD

Frederic J. Toye, 275 Old Ranch Rd., Seal Beach, Calif. 90730
Filed Nov. 14, 1980, Ser. No. 206,709

Int. Cl.³ A61F 17/32

U.S. Cl. 128-305.3

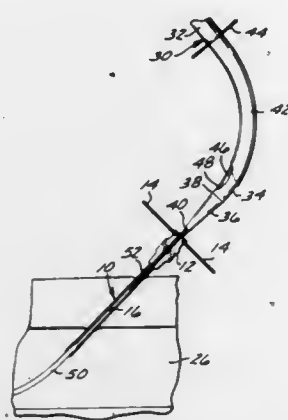
11 Claims

1. Tracheostomy apparatus comprising:

a hollow outer needle having a central bore and a longitudinal slot opening into said bore; a hollow inner needle for attachment to a syringe and for

coaxial slidable receipt within said bore for insertion of both said outer and inner needles into the tracheal lumen, said syringe being operable to withdraw air from said lumen thereby to confirm location of said needles in said lumen;

a trachea tube; and
an elongated dilator coaxially slidably fitted through said trachea tube, and including a handle portion extending out of the proximal end of said trachea tube, and an introducer portion extending out of the distal end of said trachea tube and tapering distally from a larger diameter to a smaller



diameter, said dilator further including an elongated, flexible leader non-separably carried by said introducer portion and adapted for insertion through said bore of said outer needle and into said tracheal lumen subsequent withdrawal of said inner needle whereby said outer needle is removable from said tracheal lumen by passage of said leader laterally out of said slot, the proximal end of said introducer portion including a recessed cutting edge for cutting tissue stretched across it upon forcible insertion of said introducer portion and said trachea tube into said lumen along the path defined by said leader.

4,364,392

DETACHABLE BALLOON CATHETER

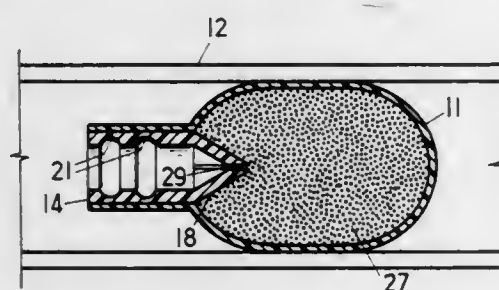
Charles M. Strother, Madison, and Balakrishna V. Kudva, Monona, both of Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Dec. 4, 1980, Ser. No. 212,759

Int. Cl.³ A61M 25/00

U.S. Cl. 128—325

42 Claims



1. Balloon catheter apparatus comprising:

- (a) an inflatable balloon of biocompatible elastic material;
- (b) a neck portion attached to the balloon and having an interior bore opening into the interior of the balloon;
- (c) small, flowable solid filler particles in a carrier liquid filling the interior of the balloon, the filler particles packed to maintain the balloon in substantially inflated shape;
- (d) valve means in the neck portion for opening to allow passage of a suspension of the solid filler particles in a carrier liquid into the interior of the balloon and closing to prevent the discharge of the particles out of the interior of the balloon;
- (e) a catheter tube adapted to fit into the bore of the neck

portion and having an interior bore through which a suspension of the solid particles in a carrier liquid can be pumped through the valve means and into the interior of the balloon; and

(f) means for releasably securing the catheter tube to the neck portion so that the catheter tube will be released when a pulling force is applied to the catheter tube which is greater than a selected minimum force.

4,364,393

ABSORBABLE SURGICAL SUTURE MATERIAL BASED ON MONOCARBOXYCELLULOSE AND METHOD FOR PRODUCING THE SAME

Boris G. Yasnitsky, pereulok Rogatinsky, 56, kv. 1; Galina M. Tsukanova, prospekt Moskovsky, 198/2, kv. 66; Valentin A. Oridoroga, ulitsa Sotsialisticheskaya, 15, all of Kharkov; Alexandr A. Shalimov, ulitsa Kirova, 34"A", kv. 59, Kiev; Jury A. Furmanov, prospekt Nauki, 142, korpus 12, kv. 4, Kiev; Valery P. Silchenko, ulitsa Krasnoarmeiskaya, 101, kv. 20, Kiev; Sergei A. Shalimov, ulitsa Plekhanova, 4"A", kv. 93, Kiev; Yaroslav I. Khadzha, prospekt Lenina, 48"A", kv. 36, Kharkov; Galina V. Obolentseva, ulitsa Prodolnaya, 3"B", kv. 28, Kharkov, and Nikolai E. Vorobiev, ulitsa Prodolnaya, 3"B", kv. 65, Kharkov, all of U.S.S.R.

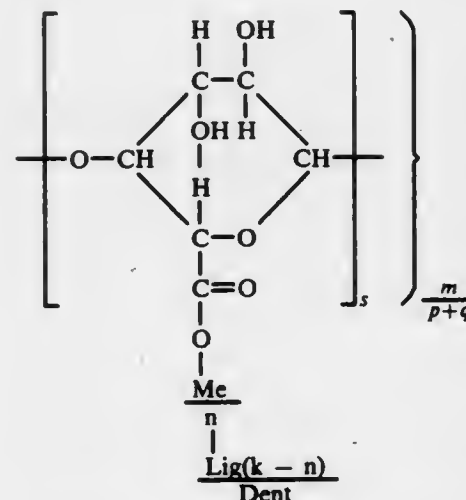
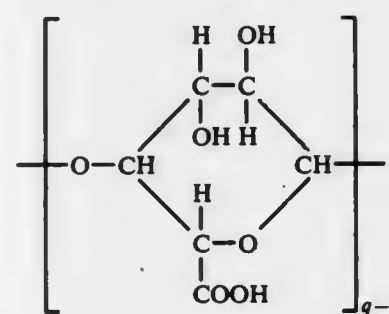
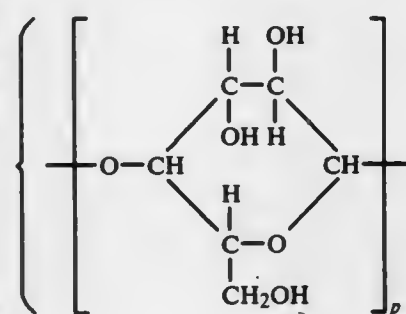
Filed Apr. 29, 1981, Ser. No. 258,832

Int. Cl.³ A61L 17/00

U.S. Cl. 128—335.5

2 Claims

1. An absorbable suture material based on monocarboxylcellulose having the general formula:



where m is a degree of polymerization of the initial cellulose from 250 to 3,300;

p is a molar fraction of D-glucopyranose cycles in one polymer period from 0.88 to 0.60;
q is a molar fraction of cycles of D-anhydroglucuronic acid from 0.12 to 0.40;
s is a molar fraction of the complex fragment of D-anhydroglucuronic acid, metal and ligand, from 0.04 to 0.24;
Me is a transition metal selected from the group consisting of Fe, Ni, Co, Bi, Mn and a combination thereof;
n is a valency of the transition metal;
K is a coordination number of the transition metal
Lig is polydentate ligands selected from the group consisting of tannin, gallic acid, ethylene diamine tetraacetic acid, 8-oxyquinoline and quinosol; and
Dent is a dentation of the ligands.

4,364,394

COMBINED SUMP DRAINAGE AND IRRIGATION DEVICE

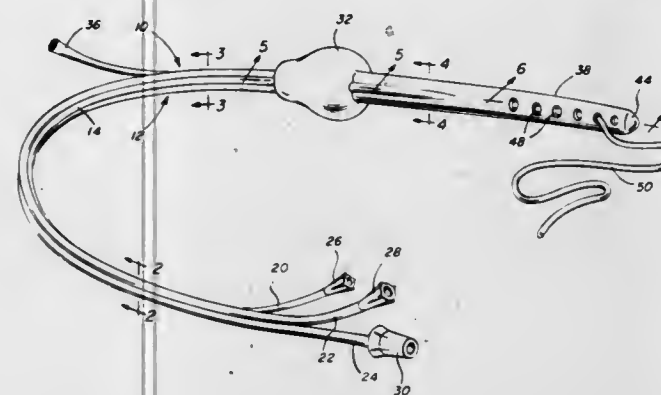
Lawrence H. Wilkinson, 718 Encino Pl., NE., Albuquerque, N. Mex. 87102

Filed Nov. 24, 1980, Ser. No. 210,052

Int. Cl.³ A61M 25/00

U.S. Cl. 604—96

4 Claims



1. A combined sump drainage and irrigation device including an elongated flexible tube structure defining a pair of side-by-side large diameter individual suction and vent passages and pair of small diameter individual inflation and injection passages disposed on remote sides of adjacent portions of said large diameter passages, an inflatable elongated balloon bladder surrounding said tube structure centrally intermediate its opposite ends, extending longitudinally thereof and sealed at its opposite ends to longitudinally spaced portions of said tube structure, one set of ends of said large diameter passages and one of said small diameter passages opening separately outwardly of one end portion of said tube structure, the other end of one of said small diameter passages opening outwardly into the interior of said bladder, said tube structure including a tubular jacket enclosing the other end portion of said tube structure and having a first end adjacent said bladder sealed relative to the outer surfaces of said tube structure and an end wall closing the second end of said jacket remote from said bladder, the other end of said suction passage terminating a spaced distance from said end wall and opening into the interior of said jacket, said other end of said suction passage opening into one end of a tube section disposed in and extending centrally longitudinally of said jacket and having its other end anchored to and closed by said end wall, said jacket including longitudinally spaced lateral air vent openings formed therein intermediate said end wall and said first end of said jacket, said tube section other end including lateral openings formed therein spaced from but adjacent said end wall, the other end of said injection passage opening into one end portion of a second flexible tube section loosely received in and extending longitudinally of said jacket and having its other end portion directed outwardly through one of said air vent openings and extending outwardly beyond said one air vent opening.

4,364,395

LOW PROFILE SHUNT SYSTEM

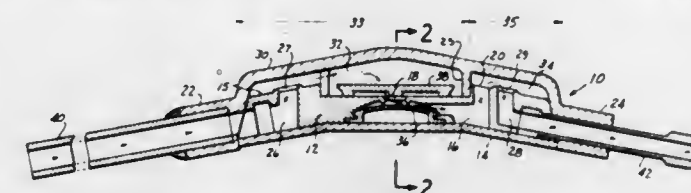
Russell J. Redmond, Santa Barbara, and Donald L. Hannula, Goleta, both of Calif., assignors to American Heyer-Schulte Corporation, Goleta, Calif.

Filed Jun. 30, 1981, Ser. No. 279,107

Int. Cl.³ A61M 27/00

U.S. Cl. 604—10

17 Claims



1. A shunt system for implantation in the body, comprising: a body having an upper and lower surface and a distal and proximal end, the body including a central cavity opening through the upper surface at a first and second port, a proximal fluid flow channel extending through the proximal end of the body and opening at a third port on the upper surface, and a distal fluid flow channel extending through the distal end of the body opening at a fourth port on the upper surface;
- a resilient dome attached to and extending over the upper surface of the body, a first portion of the resilient dome extending over the first and third ports on the upper surface defining a first chamber wherein the first portion of the resilient dome upon flexing cooperates with the third port to occlude the third port and wherein a second portion of the resilient dome extends over the second and fourth ports on the upper surface defining a second chamber wherein the second portion of the resilient dome cooperates upon flexing with the fourth port to occlude the fourth port; and
- a diaphragm valve means positioned within the central cavity for cooperating with the first port to open or close the first port to fluid flow between the central cavity and first chamber.

4,364,396

CIRCUIT AND METHOD FOR MEASURING PSA OUTPUT AND ENERGY

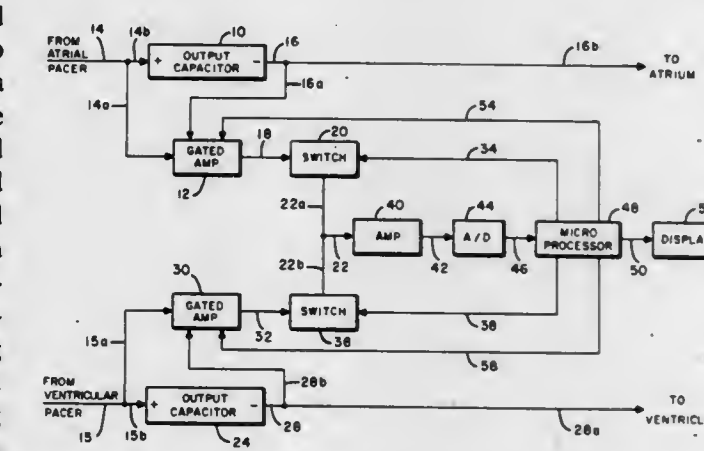
Thomas C. Barthel, Becker, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.

Filed Jun. 15, 1981, Ser. No. 273,698

Int. Cl.³ A61N 1/36

U.S. Cl. 128—419 PT

6 Claims



1. An apparatus for indicating an energy content of a body stimulating electrical pulse produced by a discharge of a capacitor having a given capacitance comprising: means responsively coupled to said capacitor for measuring a first voltage drop across said capacitor prior to said discharge and a second voltage drop subsequent to said discharge;

means responsively coupled to said measuring means for computing said energy content from said first voltage drop, said second voltage drop, and said given capacitance; and
means responsively coupled to said computing means for displaying said energy content.

4,364,397

APPARATUS FOR MONITORING THE RHYTHM OF A PATIENT'S HEARTBEAT

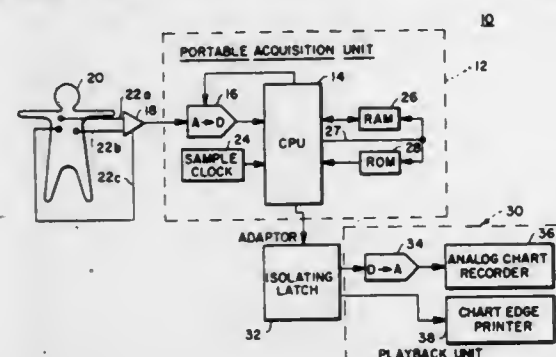
Paul Citron, New Brighton; Dennis G. Hepp, Coon Rapids, and Thomas L. Jirak, Plymouth, all of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Jan. 23, 1980, Ser. No. 114,664

Int. Cl.³ A61N 5/04

U.S. Cl. 128—710

22 Claims



1. Apparatus for monitoring and storing electrical signals indicative of heart activity of a patient, said apparatus comprising:

- memory means including at least first and second areas;
- means coupled to receive analog heart signals from the patient for sampling and digitizing said analog signals to provide digital heart signal samples;
- first means for temporarily storing the digital heart signal samples in said first area, the earliest heart signal samples stored being cleared as the most recent heart signal samples are stored;
- signal samples processing means including:
 - first means for evaluating the digital heart signal samples stored in said first area to determine the existence of unique heart signal features corresponding to a heart-beat; and
 - means for determining the interval between adjacent valid heartbeats and for providing a series of discrete signals indicative of the interval therebetween;
- second means for receiving the discrete interval signals and for storing a continuously updated set of the discrete interval signals in said second area, the earliest determined interval being cleared as the most recent interval is being stored; and
- second means for evaluating at least one of said set of discrete interval signals with respect to another interval signal of said set to determine whether a defined relationship therebetween exists indicative of a regular heart rhythm and if so, for providing a first manifestation indicative of heart activity with a regular rhythm.

4,364,398

INDIVIDUAL GAUGE FOR THE MICROCLIMATE INDEX

Carlo Sassi, Segrate, and Antonio Vicini, Milan, both of Italy, assignors to Industrie Pirelli S.p.A., Milan, Italy

Filed Jun. 27, 1980, Ser. No. 163,511

Claims priority, application Italy, Jul. 6, 1979, 24141 A/79

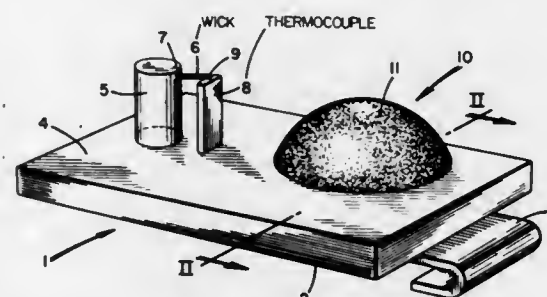
Int. Cl.³ A61B 5/05; G01J 5/00

U.S. Cl. 128—736

5 Claims

1. An individual device for determining the microclimate index of a person independently of that of other persons within the overall surroundings which comprises a base, means on the

base for attaching the device to a person's clothes, a closed container for storage of water mounted on the base, a wick having one of its ends submerged in the water and projecting outwardly from the container, a first means connected to said wick for thermoelectric sensing of the temperature of the wick wet with water and for emitting a signal having an intensity dependent upon the sensed temperature, a black-surfaced outwardly convex semispherical hollow metallic member supported with its open side facing said base and its black convex surface facing the surrounding atmosphere, a second thermoelectric sensing means for sensing the temperature existing in correspondence of the focus of the concave surface of said black surfaced member and for emitting a signal having an



intensity dependent upon the sensed temperature, means for connecting said sensing means comprising adding the integrating means for conducting said emitted signals to an electromagnetic memory in said base for recording the emitted signals, and providing values for the equation:

$$0.3 \lg + 0.7 tu = T$$

wherein

tg is the signal from the first thermoelectric sensing means; tu is the signal from the second thermoelectric sensing means; and

T is the microclimate index, from which said index is calculated, each of said components having a size which adapts the device to be supported on a person.

4,364,399

DIAGNOSTIC INSTRUMENT

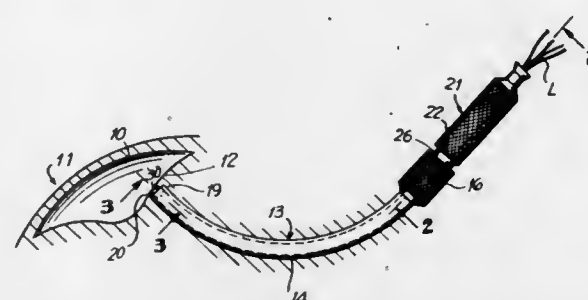
Joseph H. Dashefsky, 100 Manetto Hill Rd., Plainview, N.Y. 11803

Filed Feb. 23, 1981, Ser. No. 236,902

Int. Cl.³ A61B 5/10

U.S. Cl. 128—774

9 Claims



1. An instrument for measurement of the deformation resistance of cartilaginous tissue, such as the articular surface of the cartilage of the patella comprising, in combination, a cannula having a bore, said cannula having a first end portion defining a blunt stop surface, a carrier member movably mounted in said bore and including a sensing end portion and a manipulation end portion, complementary limit stop means formed on said cannula and carrier member positioned to engage at a limiting inserted position of said sensing end portion of said carrier member into said cannula and to block further relative movements of said parts in the direction of insertion of said carrier member, a pressure sensing transducer mounted in said

carrier member adjacent said sensing end portion, said transducer including a pressure sensing surface at a lead portion thereof, said pressure sensing surface, at said limiting inserted position of said carrier member being disposed within said cannula in proximate spaced relation to said stop surface, and a resilient, compressible pressure transmission member mounted on said pressure sensing surface of said transducer, said transmission member, in said limiting inserted position, projecting a predetermined distance beyond said stop surface.

4,364,400

HETEROCYCLIC DERIVATIVES AS FLAVORING AGENTS

Max Winter, deceased, late of Vandoeuvres, Switzerland, and by Pierre Mottu, executor, Geneva, Switzerland, assignors to Firmenich SA, Geneva, Switzerland

Division of Ser. No. 907,828, May 19, 1978, Pat. No. 4,262,030, which is a division of Ser. No. 805,338, Jun. 10, 1977, Pat. No. 4,220,561, which is a continuation-in-part of Ser. No. 600,275, Jul. 31, 1975, abandoned. This application Jul. 29, 1980, Ser. No. 173,290

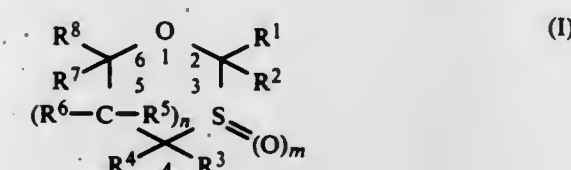
Claims priority, application Switzerland, Aug. 2, 1974, 10619/74; Jan. 16, 1975, 520/75

Int. Cl.³ A24B 15/40

U.S. Cl. 131—277

4 Claims

1. A composition comprising a compound of formula (I):



in which:

- m and n stand for zero or 1, and each of symbols R¹ to R⁸ represents a hydrogen atom or a saturated or unsaturated, linear or branched alkyl radical containing from 1 to 11 carbon atoms, or
- n stands for 1 and m represents zero or 1, each of symbols R¹, R², R³ and R⁴ have the above described meaning, R⁵ and R⁷ each represents hydrogen and R⁶ together with R⁸ and the carbon atoms carrying them, in positions 5 and 6 respectively, form a substituted or unsubstituted cyclopentane or cyclohexane ring, or
- n stands for 1 and m represents zero or 1, each of symbols R¹, R³, R⁵, R⁶ and R⁷ represents hydrogen, R² represents a lower alkyl radical or hydrogen atom, R⁴ represents a para-substituted or unsubstituted phenyl or a substituted or unsubstituted cyclohexenyl radical, and R⁸ stands for a lower alkyl, or
- n stands for 1 and m represents zero or 1, each of symbols R¹, R³, R⁵, R⁶ and R⁷ represents hydrogen, R² a p-substituted or unsubstituted phenyl or a substituted or unsubstituted cyclohexenyl radical, R⁴ represents a lower alkyl radical or a hydrogen atom, and R⁸ stands for a lower alkyl or a hydrogen; and a tobacco product.

4,364,401

METHOD FOR SELECTIVE DENITRATION OF TOBACCO

Gus D. Keritsis, Richmond, Va., assignor to Philip Morris Incorporated, New York, N.Y.

Continuation-in-part of Ser. No. 127,386, Mar. 5, 1980, Pat. No. 4,301,817. This application Mar. 5, 1981, Ser. No. 240,981

Int. Cl.³ A24B 3/18, 15/18, 15/22, 15/24

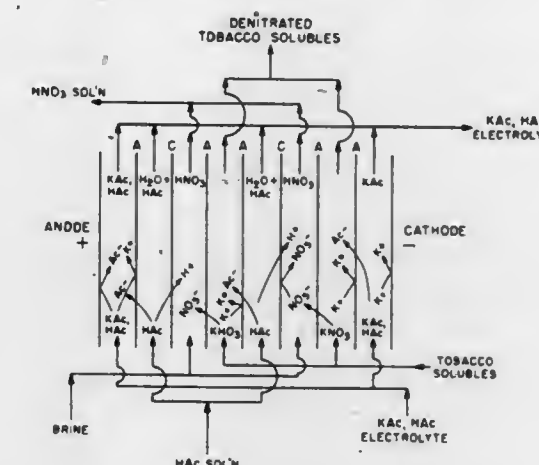
U.S. Cl. 131—297

4 Claims

1. A method of selectively removing nitrate ions from tobacco without substantially reducing the potassium ion level comprising:

- contacting a tobacco material with an aqueous solution to form an aqueous extract having a solids content of about

- 5-50% and a resistivity of 8-50 ohm-cm and an insoluble tobacco residue;
- separating the aqueous extract from the insoluble tobacco residue;
- selectively denitrating the separated aqueous extract by circulation through cells of an electro dialysis unit having anion permeable membranes toward both the anode and the cathode said extract cells being paired with cells



through which brine is circulated, said brine cells being adjacent the extract cells on the anode side and having a cation permeable membrane toward the anode, and said cell pairs being separated by cells through which an acid solution is circulated, said acid having an anion which forms soluble salts with polyvalent cations; and
(d) combining the denitrated aqueous extract obtained from step (c) with the insoluble tobacco residue which was removed from the aqueous extract in step (b).

4,364,402

APPARATUS FOR AUTOMATIC COMPENSATION OF WEAR UPON ORBITING KNIVES IN TOBACCO CUTTING MACHINES OR THE LIKE

Werner Komossa, Börsen, and Uwe Elsner, Dassendorf, both of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. KG, Hamburg, Fed. Rep. of Germany

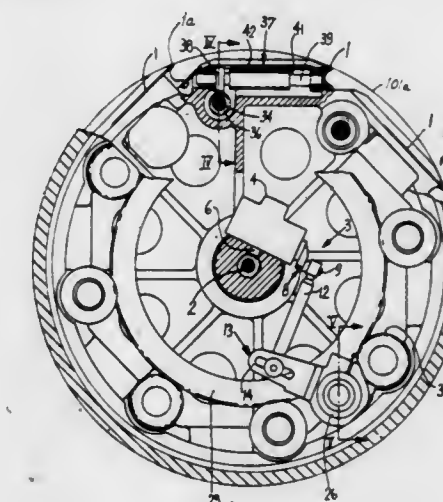
Filed May 15, 1980, Ser. No. 149,975

Claims priority, application Fed. Rep. of Germany, May 29, 1979, 2921665

Int. Cl.³ A24C 7/04, 3/07, 7/12, 7/14

U.S. Cl. 131—311

12 Claims



1. Rotary cutting apparatus for use in a tobacco cutting machine adapted to compensate for knife wear, comprising at least one knife which is mounted on and is movable with respect to a rotary holder, a transmission mounted on said holder and having input means comprising a rotary crankshaft, means for rotating said crankshaft to response to rotation of said

holder, output means including a rotary element, and motion transmitting means for intermittently moving said output means in response to movement of said input means, said motion transmitting means including a pivotable member, means for pivoting said member in first and second directions in response to rotation of said crankshaft and means for driving said rotary element in response to the pivoting of said member in said first direction; and displacing means for moving said knife in response to intermittent movements of said output means.

4,364,403

SMOKE FILTRATION

Henry G. Horsewell, Totton, and John A. Luke, Romsey, both of England, assignors to British-American Tobacco Company Limited, London, England

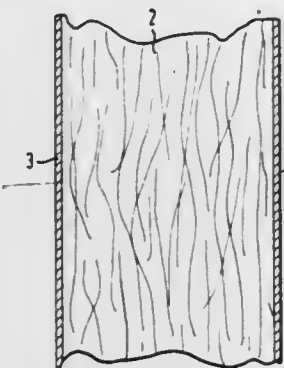
Filed Aug. 18, 1980, Ser. No. 178,882

Claims priority, application United Kingdom, Aug. 28, 1979, 7929768

Int. Cl.³ A24D 3/02, 3/06, 3/18

U.S. Cl. 131—332

10 Claims



1. Smoke filter rod which comprises a rod-form body comprising smoke-filtration material which has been enwrapped in a fibrous or filamentary paper-type plugwrap separate from and non-integral with the body of smoke-filtration material and comprising at least 50% by weight of fibres or filaments of thermoplastics material.

4,364,404

INVENTORY DEVICE IN AUTOMATIC VENDING MACHINE

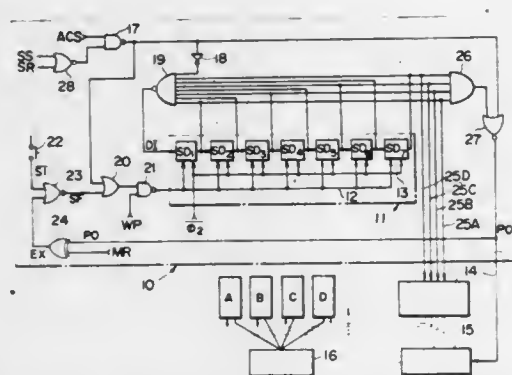
Yukichi Hayashi; Masauuki Tamura; Osamu Sugimoto, all of Sakado; Masayoshi Takizawa, Kitamoto; Tatsujiro Nishioka, Yokohama; Masaki Akagawa, Sakado, and Yutaka Yokohda, Niiza, all of Japan, assignors to Kabushiki Kaisha Nippon Coicno, Tokyo, Japan

Filed Oct. 15, 1980, Ser. No. 197,212

Int. Cl.³ G07D 1/00

U.S. Cl. 133—4 A

4 Claims



1. An inventory device in an automatic vending machine which comprises:
a shift register in which a single signal "1" is shifted successively in response to the operation of one inventory switch; and
coin delivering means for controlling, in response to a bit

output of said shift register, the coin dispensation of a corresponding coin containing cylinder, whereby coins contained in a plurality of coin containing cylinders are dispensed by the operation of said one inventory switch.

4,364,405

CRUTCH CONTAINING A RETRACTABLE METAL POINT

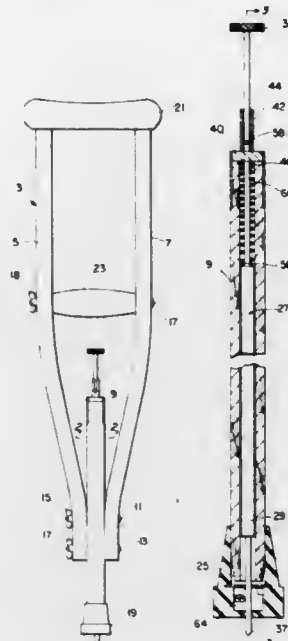
Robert F. Norwood, 474 Main St., and Robert S. Harper, 36 Highland Ave., both of Greenfield, Mass. 01301

Filed Oct. 16, 1980, Ser. No. 197,690

Int. Cl.³ A61H 3/02

U.S. Cl. 135—70

5 Claims



1. In an adjustable crutch comprising an arm rest, longitudinal support members, a handle between said longitudinal support members, a lower central member adjustably positioned between said longitudinal support members and means for securing said central member between said longitudinal members, the improvement wherein said lower central member comprises:

- an elongated element having a longitudinal bore,
- a metal cap at the upper end of said elongated element, said metal cap having an aperture in axial alignment with said longitudinal bore,
- means for securing said metal cap to said elongated element,
- an open-ended hollow cylindrical hub connected to said metal cap, the openings in said hub being in axial alignment with the aperture in said metal cap, said hub having at least one longitudinal slot,
- a first retractable elongated metal rod provided at one end with a point, said first retractable elongated metal rod being positioned in said longitudinal bore so that said pointed end projects below the bottom end of said element,
- a second retractable elongated metal rod of reduced diameter relative to the diameter of said first elongated metal rod connected at one end to the other end of said first elongated metal rod and being in longitudinal alignment therewith, said second elongated metal rod extending through the aperture in said metal cap and hub,
- spring means circumscribing said elongated metal rod and extending between said metal cap and said first elongated metal rod for applying spring loading to said first elongated metal rod when in projected position,
- a pin connected to said second elongated metal rod, said pin projecting radially, outwardly through the slot of said hub,
- locking means for said pin located at the top of said hub,
- means connected to the other end of said second elongated

metal rod for manually pulling said second elongated metal rod to simultaneously retract said first elongated metal rod, compress said spring means and bring said pin into locking position,
a resilient end cap having an axial bore frictionally positioned over the end of said elongated element, said resilient cap including a centrally apertured metal plate disposed in the lower portion thereof transversely to the axis of said bore, said central aperture being of reduced diameter so as to closely receive the pointed end of said first elongated metal rod.

4,364,406

METHOD AND DEVICE FOR ESTABLISHING A FLOW CONNECTION WITH A PIPE

Jan O. Bohlin, Hamnviksvägen 55, Nynäshamn, Sweden (S-149 00)

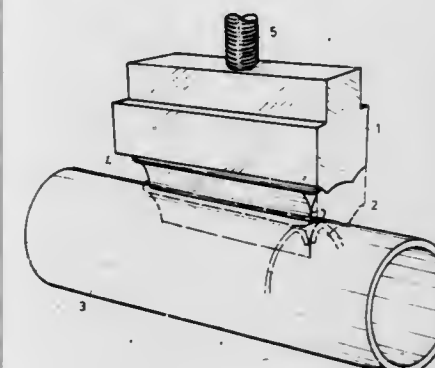
Filed May 20, 1980, Ser. No. 151,725

Claims priority, application Sweden, May 22, 1979, 7904505

Int. Cl.³ F16L 55/07; F16K 43/00; B23P 15/00

U.S. Cl. 137—15

12 Claims



1. A method of establishing fluid communication between a fluid carrying member and at least one conduit comprising the steps of:

- (a) sealingly enclosing a section of said fluid carrying member within a housing comprised of at least two members sealingly secured to one another, one of said at least two housing members having a channel therein extending to an outer surface of said fluid carrying member and disposed perpendicular to the axis of said fluid carrying member, said channel being further provided with a means for communicating with said conduit in the vicinity of said fluid carrying member;
 - (b) placing a piston within said channel, said piston having a lower portion which forms a longitudinally extending means for piercing a fluid carrying member arranged parallel to and disposed toward the axis of said fluid carrying member and providing said piston with a shoulder at its lower portion above said piercing means, said shoulder being configurationally commensurate with the surface of said fluid carrying member;
 - (c) generating a means to rapidly propel said piston toward said fluid carrying member to cause said piercing means to penetrate said fluid carrying member and form an elongated slot with a pair of opposed parallel edge portions bent inwardly with said portions directed toward the center of said fluid carrying member and restricting further penetration of said fluid carrying member by contacting said shoulder against said fluid carrying member; and
 - (d) arranging said piston in said slot to alter the rate of flow of fluid from said fluid carrying member into said conduit, providing said piston with a means to seal the elongated slot when said piston is arranged in the elongated slot so as to suspend fluid flow, which seal means is located adjacent said shoulder.
5. A device to establish fluid communication between a fluid carrying member and at least one conduit comprising:
- a housing comprised of at least two members sealingly joined to each other, said housing having a longitudinal aperture to sealingly receive and secure a section of fluid

carrying member, said housing also having a channel disposed perpendicular to and communicating with said longitudinal aperture and at least one conduit communicating with said channel;

means for sealingly joining each of said at least two housing members to each other;

a piston movably positioned within said channel, said piston having at its lower end a longitudinally extending means for piercing a fluid carrying member arranged parallel to and disposed toward the longitudinal axis of said aperture, said piercing means comprising a chisel shaped blade having a straight cutting edge extending along a line parallel to the longitudinal aperture such that said piercing means is arranged to form an elongated slot and a pair of opposed parallel edge portions in said fluid carrying member bent inwardly with said portions directed toward the center of said fluid carrying member, said piston also provided with a shoulder configurationally commensurate with the surface of said fluid carrying member, which shoulder prevents further penetration of said fluid carrying member by said piercing means;

a means adapted to form a seal between said piercing means and said fluid carrying member after it has been pierced, located adjacent said shoulder; and

a means for adjusting the position of said piston within said channel.

4,364,407

MUD SAVER VALVE

David R. Hilliard, P.O. Box 15036, Baton Rouge, La. 70895

Filed Feb. 23, 1981, Ser. No. 237,248

Int. Cl.³ E21B 7/00

U.S. Cl. 137—71

10 Claims



1. A mud saver valve, which comprises:

- a tubular body connectable between the kelly and the drill string;
- an annular seat ring mounted within said body, said seat ring having a central opening;
- a piston axially movably disposed within said body for engagement with said seat ring, said piston having a bore substantially coaxially aligned with said central opening and a flange extending radially outwardly from said piston to slidably engage the interior of said body, said piston having a port above said flange communicating the exterior of said piston with said bore;
- a plug removably mounted in said piston above said port to normally close said bore, said plug including a shear ring removably inserted in said bore with a shear pin shear-

ingly connecting said shear ring with said piston, and a spear axially movably mounted in said shear ring for movement between a first position wherein said spear sealingly engages said shear ring and a second position to allow fluid to flow upwardly between said spear and said shear ring; and means for urging said piston into engagement with said seat ring.

4,364,408

BACKFLOW PREVENTION APPARATUS

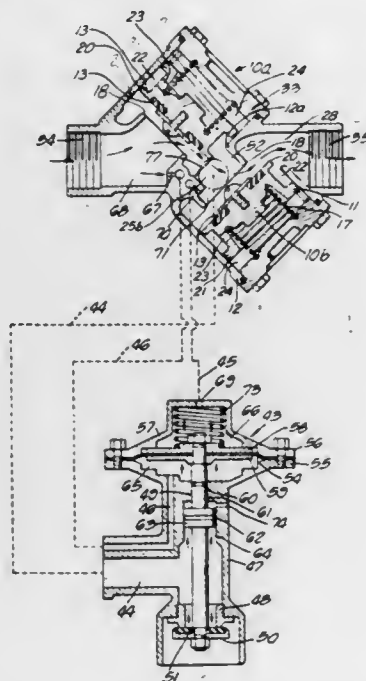
David E. Griswold, Corona Del Mar, and Richard E. Veit, Arcadia, both of Calif., assignors to Griswold Controls, Irvine, Calif.

Division of Ser. No. 10,934, Feb. 9, 1979, Pat. No. 4,244,392, which is a division of Ser. No. 410,173, Oct. 26, 1973, abandoned. This application Sep. 2, 1980, Ser. No. 183,584

Int. Cl.³ E03C 1/10

U.S. Cl. 137—107

5 Claims



1. For use with two check valve assemblies connected in series and defining a zone between them, a differential control valve having a housing provided with a valve seat, a stem mounted to move axially in the housing and having a valve head movable to close against said seat, a cover, a flexible diaphragm having its periphery clamped between the cover and the housing and acting to define a chamber in the housing and a chamber in the cover, means connecting the central portion of the diaphragm to the stem, a spring in the cover chamber acting to move the stem in a direction to open the valve, a discharge port in the zone connected to said housing, a pressure sensing line connecting the housing chamber to the upstream side of the upstream check valve assembly, means connecting the cover chamber to reflect the pressure in said zone, and a balance piston fixed on the stem slidably mounted within the housing to balance the fluid pressure force from the zone tending to move the valve head away from the valve seat.

4,364,409

FLUID FLOW CONTROL DEVICE

James S. Jones, 45 Crown Pl., Richardson, Tex. 75080

Filed Aug. 18, 1980, Ser. No. 178,767

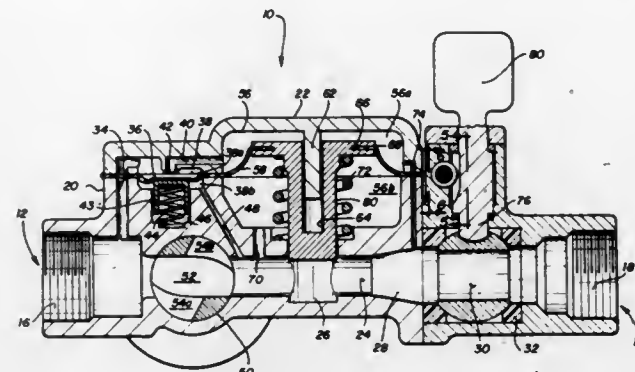
Int. Cl.³ G05D 7/01

U.S. Cl. 137—486

9 Claims

1. A device for controlling the flow of a fluid delivered from a pressurized source comprising:
a housing having a straight bore extending therethrough;
a manually settable metering valve disposed in said bore, to select a flow rate;

a piston movable into and out of said bore downstream of said metering valve; and
first control means disposed in said housing in fluid communication with said bore upstream and downstream of said metering valve and second control means disposed in said



housing in fluid communication with said bore upstream of said metering valve by way of said first control means and in direct communication with said bore downstream of said metering valve for driving said piston to maintain the pressure drop across said metering valve at a predetermined value.

4,364,410

BI-DIRECTIONAL FLOW CONTROL SYSTEM

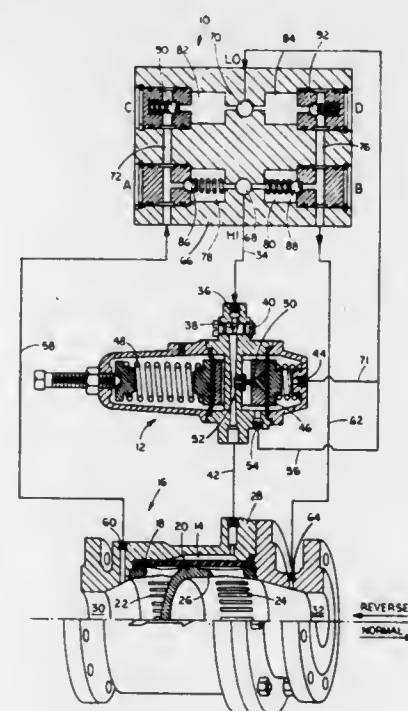
Peter C. M. Chow, Newark, Calif., assignor to Grove Valve and Regulator Company, Calif.

Filed Aug. 21, 1980, Ser. No. 180,229

Int. Cl.³ G05D 16/00

U.S. Cl. 137—489

4 Claims



1. A bi-directional pipeline pressure control system comprising:

- a main control valve adapted for connection into a pipeline and having flow passages at opposite ends thereof and a pressure control chamber;
- a pilot valve for said control chamber including an inlet port connected to a high pressure line, a load port connected to said pressure control chamber; and a dumping port connected to a low pressure line;
- a first pair of branch lines connected between one of said main valve flow passages and said high and low pressure lines;
- a second pair of branch lines connected between the other of

said main valve flow passages and said high and low pressure lines; and
first and second pairs of one-way check valves in said first and second pairs of branch lines, one check valve of each pair thereof being conditioned to enable flow only from one of said main valve flow passages to said high pressure line and the other of said pair being conditioned to enable flow only from said low pressure line to said one main valve flow passage.

4,364,411

LIQUID LINE THERMAL BARRIER

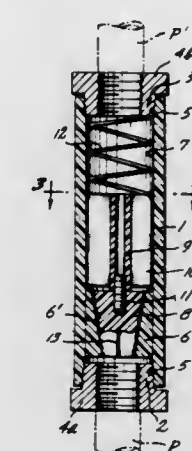
Kenneth J. Payton, 9251 NE. 178th, and Jay O. Payton, 21909-49th Ave. SE., both of, Bothell, Wash. 98011

Filed Jul. 21, 1980, Ser. No. 170,792

Int. Cl.³ F16K 49/00

U.S. Cl. 137—513.5

3 Claims



1. A thermal barrier comprising a hollow body forming a liquid duct having a liquid inlet and a liquid outlet and having a seat between said liquid inlet and said liquid outlet; a stop engageable with said seat to obstruct said duct, said stop being of substantial extent lengthwise of said duct and engageable with said seat over a considerable area and said body and said stop being constructed of thermal insulating plastic material having such a low thermal conductivity that when said stop is in engagement with said seat a substantial extent of such material is interposed between said liquid inlet and said liquid outlet so that said liquid inlet is thereby substantially thermally isolated from said liquid outlet; and small elongated duct means having a length a multiplicity of times its width bypassing said stop so that liquid within said elongated duct means can conduct a limited amount of heat across said stop when said stop is in engagement with said seat, said stop being biased into engagement with said seat and responsive to pressure on the inlet side thereof to open it, said stop including a frustoconical surface, said seat including a frustoconical surface tapered lengthwise of said duct and complementary to said frustoconical surface of said stop which surfaces abut when said stop is in engagement with said seat.

4,364,412

PULL TYPE RELAY VALVE WITH AUTOMATIC LOCKOUT

Clifford M. Peters, Longview, Tex., assignor to W-K-M, Well-head Systems, Inc., Shreveport, La.

Filed Nov. 10, 1980, Ser. No. 205,846

The portion of the term of this patent subsequent to Dec. 16, 1997, has been disclaimed.

Int. Cl.³ F15B 13/042

U.S. Cl. 137—557

7 Claims

1. A valve for controlling the flow of a first fluid to a fluid controlled device in response to pressure changes in a second fluid, said valve comprises:

an elongate valve body presenting a longitudinal bore therein, said bore having an enlarged diameter inner end portion defining a piston chamber in said valve body and a reduced

diameter ore portion joined with said piston chamber by an annular shoulder;

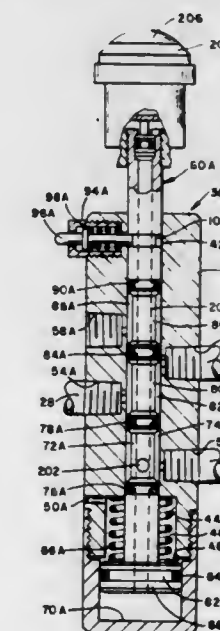
a second fluid port in a side portion of said valve body adjacent said piston chamber for sensing the pressure of said second fluid, said second fluid port directly communicating with said reduced diameter bore portion;

a supply port in said valve body axially outward of said second fluid port for directing the incoming first fluid to said bore; an outlet port in said valve body axially outward of said supply port for receiving the first fluid from said bore for application to the fluid controlled device;

a bleed port in said valve body axially outward of said outlet port for exhausting the first fluid from said bore;

a slide valve mounted in said bore for longitudinal movement between an open position for directing the first fluid to the fluid controlled device and a closed position for bleeding the first fluid from the fluid controlled device, said slide valve having an outer end extending outwardly of said valve body having a knob thereon for manually pulling said slide valve outwardly from the closed position to the open position for manual setting of said slide valve;

said slide valve having a trio of reduced diameter positions, an inner reduced diameter valve portion providing an inner annular space in continuous communication with said second fluid port, a mediate reduced diameter valve portion positioned axially outward of said inner reduced diameter



valve portion providing a mediate annular space in fluid communication with said supply port and said outlet port in the open position of said slide valve, and an outer reduced diameter valve portion positioned axially outward of said mediate reduced diameter valve portion providing an outer annular space in fluid communication with said bleed port and said outlet port in the closed position of said slide valve; biasing means, contained within said piston chamber, for biasing said slide valve inward towards the closed position; a piston carried in said piston chamber on an inner end portion of said slide valve, said piston presenting an inwardly facing pressure face for receiving the second fluid to hold said slide valve in the open position against the force of said biasing means; and

a fluid passage in said slide valve for directing the second fluid to said piston chamber for application to said pressure face, said passage extending to said pressure face and having an inlet port formed in a side portion of said slide valve at a location in fluid communication with said second fluid port when said slide valve is in the open position, whereby the second fluid pressure is applied from said second fluid port through said inlet port and said fluid passage to said piston chamber and against said pressure face of said piston to hold said slide valve in the open position when the second fluid

pressure is sufficient to overcome the force of said biasing means.

4,364,413

MOLAR GAS-FLOW CONTROLLER

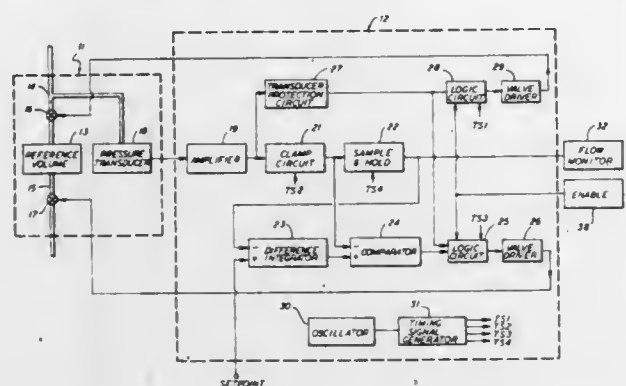
Richard L. Bersin, and William H. Clouser, both of Norwalk, Conn., assignors to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Jan. 7, 1981, Ser. No. 223,197

Int. Cl.³ G01F 1/34

U.S. Cl. 137—624.2

9 Claims



1. An apparatus for controlling gas flow, comprising in combination,
 - a reference volume having an input conduit and an output conduit,
 - a source of gas connected to said input conduit,
 - first and second normally closed valves disposed in said input and output conduits, respectively,
 - control means for opening and closing said first and second valves to cause the difference between high and low pressures in said reference volume to equal a predetermined value,
 - said control means comprising,
 - transducer means connected to said reference volume and a reference pressure providing an output voltage representative of the pressure in said reference volume,
 - generator means cyclically providing first, second, third and fourth pulses,
 - first means responsive to said first pulse for opening said first valve for the duration of said first pulse, once each cycle,
 - second means responsive to said third pulse for opening said second valve for the duration of said third pulse once each cycle,
 - third means for closing said second valve when said output voltage equals a predetermined value.

4,364,414

PNEUMATIC PHASE MODULE LOCKING DEVICE

Daniel Bouteille, Ville D'Avray; Hugues Marguet, Paris, and Eric Petrimaux, Evreux, all of France, assignors to La Telemecanique Electrique, France

Filed Jul. 28, 1980, Ser. No. 172,810

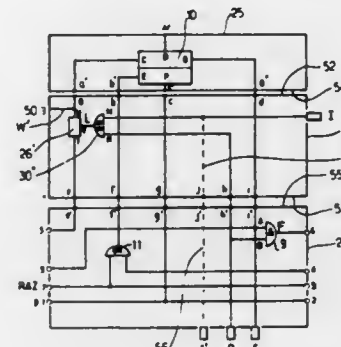
Int. Cl.³ G05D 16/04

U.S. Cl. 137—624.14

6 Claims

1. In a pneumatic circuit for the automatic control of a sequence of programmed operations, said pneumatic circuit comprising a plurality of cascade-mounted phase modules, each of said modules controlling a programmed operation of the sequence and comprising: a bistable pneumatic memory contained in a removable housing having a bearing face provided with first fluid communication orifices; a base having a fixing surface provided with second communication orifices which are adapted to cooperate with the first communication orifices when the said bearing face is applied on said fixing surface, the respective bases of the said cascade-mounted modules being mounted adjacent to each other, said memory having a control input for putting it in logic state "1", a cancelling input for putting it in a logic state "0" and an output for feeding

a signal which controls a programmed operation, said base comprising first channels capable of cooperating with the corresponding first channels of adjacent bases of said cascade-mounted phase modules to convey a feed pressure to the phase modules, second channels for transmitting control signals to the adjacent base of the following phase module of the pneumatic circuit, fluid channels for sending a cancelling signal to the adjacent base of the preceding phase module of the pneumatic circuit, fourth channels for transmitting general re-set to zero signals to the phase module; each phase module further comprising: an AND gate having first and second inputs and an output, the first input of the AND gate being fed by cancelling signals resulting from the performance of the programmed operation controlled by the said phase module and the second input of the AND gate being fed by the output of the said memory, the output of the AND gate transmitting a control



signal to the control input of the memory of the following module; a locking device associated with each of said phase modules and comprising:

- (i) a pneumatic selector member having an output and first and second inputs and
- (ii) a pneumatic inhibitor member having a locking input fed by the output of the pneumatic selector member, and a transfer channel connecting the output of the preceding phase module to the control the input of the said memory, closure means cooperating with said transfer channel and control means, actuated by the fluid pressure, for controlling the said closure means to interrupt the circulation of fluid in the transfer channel at the said locking input, the first input of the pneumatic selector member being fed from the said cancelling signals and the second input being adapted to receive auxiliary cancelling signals.

4,364,415

METHOD FOR ATTENUATING A MEDIUM FLOW PASSING THROUGH A VALVE AND A VALVE FOR APPLYING THE METHOD

Juhani Polon, Helsinki, Finland, assignor to Neles Oy, Helsinki, Finland

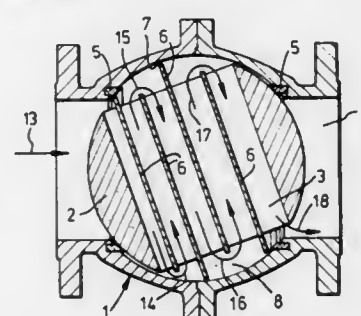
Filed Aug. 19, 1980, Ser. No. 179,567

Claims priority, application Finland, Jun. 27, 1980, 802046

Int. Cl.³ F16K 5/06, 5/10

U.S. Cl. 137—625.32

6 Claims



1. An attenuating valve assembly comprising: a valve body

having a flow passage formed therethrough; a closure member, having means defining a through-extending bore therein; means for mounting said closure member in said valve body for rotation about an axis with respect to said valve body between a completely open position wherein said closure member allows passage of fluid therepast through said flow passage, and a completely closed position wherein said closure member blocks all flow through said flow passage; sealing means provided in said valve body flow passage for operatively engaging said closure member for preventing fluid flow through said flow passage past said closure member once the closure member is in said closed position; means for attenuating fluid flowing through said flow passage past said closure member, without significantly restricting flow once said closure member is in said completely open position, said attenuating means comprising a plurality of solid attenuator parallel plates; and means for mounting said attenuator plates with respect to said closure member so that as said closure member is being closed, the closer it comes to being closed the longer the flow path of fluid through the closure member becomes, and the more the closure is opened the shorter the flow path through the flow member becomes, said mounting means mounting said plates within said bore through said closure member so that each plate extends outwardly from said bore at one end thereof.

4,364,416

LOW COST ACCUMULATOR DEVICE

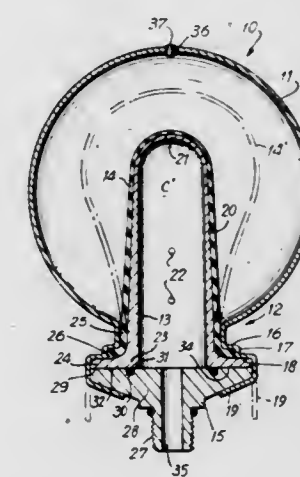
A. A. Jacobellis, Woodland Hills, and Abdur Zahid, Los Angeles, both of Calif., assignors to VSI Corporation, Pasadena, Calif.

Filed Sep. 25, 1981, Ser. No. 305,522

Int. Cl.³ F16L 55/04

U.S. Cl. 138—30

4 Claims



1. As a new article of manufacture a low cost light weight hydraulic accumulator device comprising a unitary metallic shell defining a pressure vessel, said shell including a spherical reservoir, a generally cylindrical neck portion extending from said reservoir, said neck portion including a radially outwardly extending flange, a rim extending downwardly from said flange in the direction of the axis of said neck portion, a stop shoulder extending radially from said rim portion, a rigid hollow generally cylindrical casing extending into said reservoir, said casing including throughgoing perforations, a radially directed flange on said casing having an upper surface engaging said stop shoulder and a lower surface, a mounting fixture including an oil port supported in said neck portion, said fixture having a downwardly facing base portion and an upper surface portion engaging said lower surface of said flange of said casing, intumed portions of said neck portion underlapping said base portion of said fixture to clampingly support said fixture and the flange of said casing between said stop shoulder and intumed portions, and a resilient distensible generally cylindrical elastomeric bladder member disposed over said casing and dividing said reservoir into two chambers, said bladder member having a thickened rim portion defining a mouth, said bladder including portions disposed in an annular

space defined between said neck and said casing, said thickened rim portion being clamped in an axially compressed condition between said flange of said neck and said upper surface of said flange of said casing to thereby define a seal between said casing and said vessel at said neck portion.

4,364,417

PIPE RUPTURE RESTRAINT AND JET SHIELD DIFFUSER ASSEMBLY

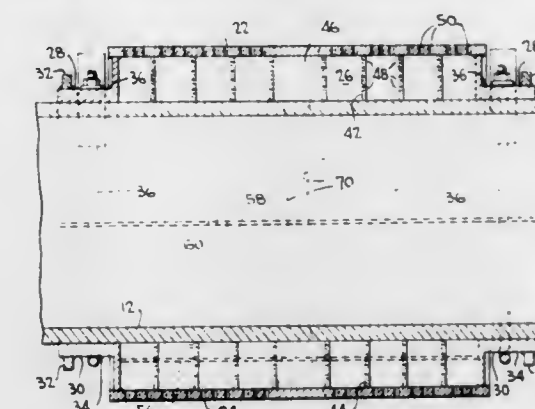
Jan D. Lefter, Bayside, N.Y., assignor to NPS Technologies, Inc., Secaucus, N.J.

Filed Aug. 19, 1980, Ser. No. 179,441

Int. Cl.³ F16L 57/00

U.S. Cl. 138—42

16 Claims



1. A pipe rupture restraint and jet shield diffuser assembly for installation on a pipe at a location where the pipe is subject to rupture comprising
 - a cylindrical casing surrounding the pipe to define an annular space therebetween, said casing having holes there-through extending substantially transverse to the longitudinal axis of said casing; and
 - a plurality of diffuser rings disposed in longitudinally spaced relation in said annular space to form flow obstructions along said annular space whereby upon rupture of the pipe jet flow is diffused by flow past said diffuser rings and through said holes in said casing.

4,364,418

FLEXIBLE TUBULAR CONDUIT

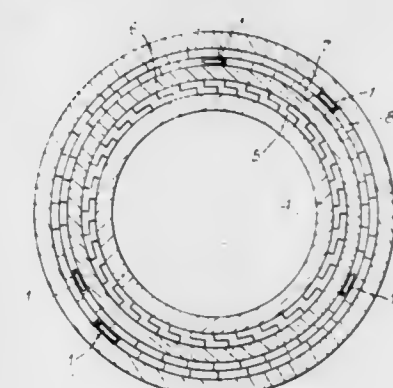
Maurice Genini, Creteil; Christian Athe, Le Mee, and Jean-Paul Aubert, Puteaux, all of France, assignors to Coflexip, Rueil Malmaison, France

Filed Apr. 6, 1979, Ser. No. 27,719

Claims priority, application France, Apr. 17, 1978, 78 11230
Int. Cl.³ F16L 11/08

U.S. Cl. 138—103

10 Claims



1. A flexible tubular conduit comprising a side wall, and means in said side wall for containing therein a control line, said means comprising at least one hollow wire comprising a metal strip bent into the form of a quadrangular casing with

one side thereof having overlapping unjoined extremities, said wire extending a substantial distance along the length of said conduit for receiving the control line.

4,364,419

HEAT-RECOVERABLE WRAPAROUND CLOSURE
Jean-Marie E. Nolf, Hamme-mille, Belgium, assignor to Raychem Corporation, Menlo Park, Calif.

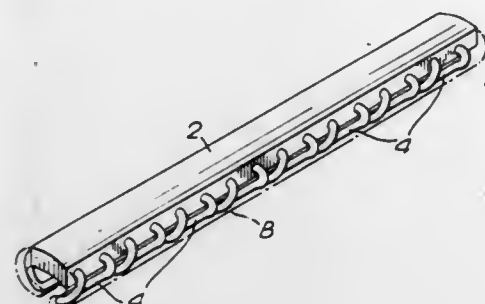
Filed Mar. 4, 1981, Ser. No. 240,528

Claims priority, application United Kingdom, Mar. 14, 1980, 8008703

Int. Cl.³ A44B 21/00

U.S. Cl. 138—167

21 Claims



1. Fastening means for holding together opposite edge regions of a heat-recoverable wraparound sleeve, the fastening means comprising:

- an elongate member which comprises a material that is substantially rigid at ambient temperature and that is flexible at the recovery temperature of the sleeve; and
- a plurality of discrete clamping elements each having a pair of opposing generally U-shaped sections integrally interconnected, each of said U-shaped sections extending transversely from the elongate member and converging to engage said opposite edge regions of the wrap-around sleeve to hold said opposite edge regions together, said clamping elements being substantially rigid at the recovery temperature of the sleeve.

4,364,420

FOLDABLE NOSE GUIDE DEVICE FOR A HEDDLE FRAME

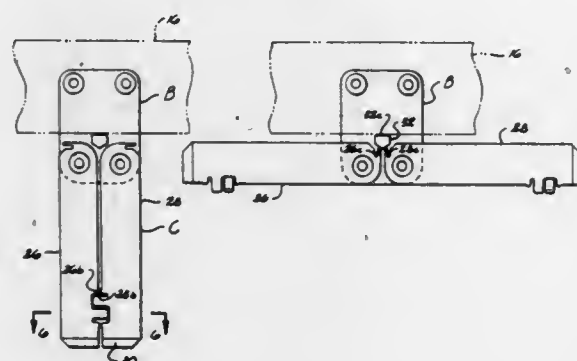
Charles F. Kramer, Greenville, S.C., assignor to Steel Heddle Manufacturing Company, Greenville, S.C.

Filed Mar. 23, 1981, Ser. No. 246,376

Int. Cl.³ D03C 9/06

U.S. Cl. 139—91

8 Claims



1. A guide device for spacing and aligning adjacent heddle frames of a weaving loom during shedding wherein said heddle frames are of the type including top and bottom frame slats, said guide device comprising:
- side plate means including attachment means for affixing said plate means to a heddle frame slat;
 - a pair of guide legs pivotally carried by said plate means terminating in free ends;
 - said guide legs being pivotable from a generally fixed guide

position in which the legs depend downwardly to a generally fixed folded position;

first means for fixing said legs in said guide position;

second means for maintaining said legs in said folded position; and

said free ends of said guide legs having a lesser relative vertical distance from said frame slat in said folded position than when in said guide position;

whereby said heddle frame may be placed on an automatic warp threading machine by manually positioning said guide legs in said folded position and thereafter said guide legs may be manually positioned in said guide position for utilization on said weaving loom machine without the need for removing said guide device from the slat when transferring said heddle frame between said machines.

4,364,421

WOVEN TEXTILE DRYER FABRIC AND SEAM AND WEAVING METHOD

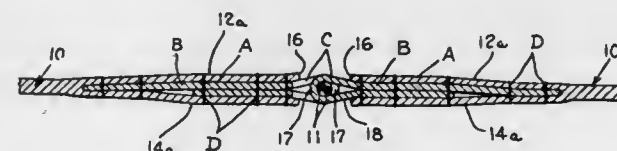
William R. Martin, Greenville, S.C., assignor to Wangner Systems Corporation, Greenville, S.C.

Continuation-in-part of Ser. No. 829,057, Aug. 30, 1977, abandoned. This application May 18, 1979, Ser. No. 40,104

Int. Cl.³ D03D 23/00

U.S. Cl. 139—383 A

22 Claims



1. A woven multiply dryer fabric and pintle hinge seam for joining the opposing ends of a woven dryer fabric and the like, comprising:
- a pair of separated superposed continuously woven ply extensions formed at each end of said fabric opening at a free outer edge thereof;
 - a seam webbing member inserted between each pair of said woven ply extensions at each end of said fabric;
 - a row of spaced aligned loops carried by each said seam webbing member and extending outwardly of a free edge thereof;
 - means securing said woven ply extensions at each end of said fabric to said seam webbing member inserted therebetween; and
 - said woven ply extensions at each end of said felt fabric tapering outwardly toward said spaced aligned loops, and having outer ends lying substantially flush with said aligned loops providing minimum interruption in the surface of the joint between said opposing ends of said fabric.

4,364,422

METHOD OF PRODUCING A NICKEL ELECTRODE
David J. Brown, and Michael Reid, both of West Midlands, England, assignors to Lucas Industries Limited, Birmingham, England

Filed Sep. 29, 1980, Ser. No. 191,757

Claims priority, application United Kingdom, Oct. 3, 1979, 7934242

Int. Cl.³ H01M 4/29, 4/30, 4/32

U.S. Cl. 141—1.1

13 Claims

1. A method of producing a pressed nickel electrode comprising the sequential steps of:
- (a) contacting nickel hydroxide powder with a solution containing cobalt ions and precipitating a cobalt compound from said solution onto the nickel hydroxide powder;
 - (b) mixing the nickel hydroxide powder containing said precipitated cobalt compound with a powdered conduc-

tive diluent and a powdered binder to form a resultant mixture, and

(c) pressing the resultant mixture into physical and electrical contact with a current collector.

4,364,423

ROTATING DISC SPLITTER

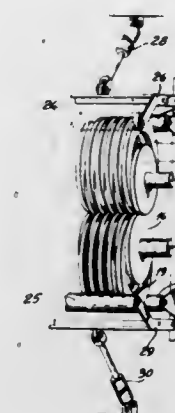
Walter W. Schilling, Delta, Canada, assignor to MacMillan Bloedel Limited, Vancouver, Canada

Filed Oct. 21, 1980, Ser. No. 199,182

Int. Cl.³ B27L 7/00

U.S. Cl. 144—366

8 Claims



1. An apparatus for splitting a slab of wood into strands with longitudinal-grain extending along their length, comprising,
- a first rotary shaft and a second rotary shaft whose axes are parallel,
 - a first series of spaced-apart circular discs centered on and secured to the first shaft,
 - a second series of spaced-apart circular discs centered on and secured to the second shaft, positioned so that the second series discs interfit in slightly overlapping relationship with the first series discs,
 - means for rotating the first shaft and the second shaft in counter rotating directions adapted to pull a slab of wood between the first and second series discs and split the slab into strands,
 - a first series of floating spacer rings on the first shaft interspaced between the first series discs, positioned to rest adjacent the second series discs when no slab passes therethrough,
 - a second series of floating spacer rings on the second shaft interspaced between the second series discs, positioned to rest adjacent the first series discs when no slab passes therethrough,
 - fixed roller means positioned upstream of the first and second shafts to prevent the first and second series spacer rings from moving upstream of the first and second series discs, and
 - pressure movable roller means positioned on the downstream side of the first and second shafts, adapted to permit the first and second series spacer rings to move away from the second and first series discs respectively when a slab is being split therebetween, said upstream and downstream roller means adapted to provide a point of contact between the floating rings and the wood strands which is downstream of the axes of said first and second shafts.

4,364,424

END WALL CLOSURE FOR BULK MATERIAL TRANSPORT BAG

Peter J. Nattrass, Fox River Grove, Ill., assignor to Bulk Lift International, Inc., Carpentersville, Ill.

Filed Jun. 29, 1981, Ser. No. 278,195

Int. Cl.³ B65D 29/02

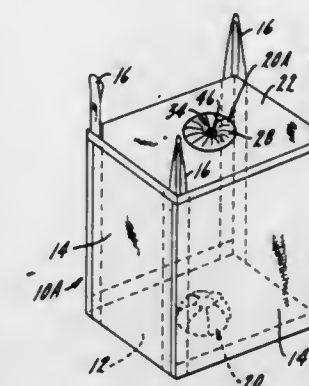
U.S. Cl. 150—1

5 Claims

1. In a bag for transporting bulk materials, of the kind comprising an end wall joined to a plurality of side walls, all

formed of strong, flexible material, and having a plurality of lifting loops mounted on the upper edges of the sidewalls, an improved reusable fill/discharge closure comprising:

- an opening of diameter D in the end wall;
- a fill/discharge tube of strong, flexible material having a diameter at least slightly larger than D and having a length L₁;
- a closure tube of strong, flexible material having a diameter at least slightly larger than D and having a length L₂ no greater than D/2, with L₁ > L₂;
- the fill/discharge tube and the closure tube each having one



- end secured to the periphery of the outlet opening in the end wall of the bag with the fill/discharge tube disposed inwardly of the closure tube and both projecting outwardly of the end wall of the bag;
- a drawstring disposed in a peripheral pocket in the outer end of the closure tube;
- and tie means for releasably closing the outer end of the fill/discharge tube;
- whereby the closed fill/discharge tube can be stuffed into the interior of the bag through the end wall opening and the drawstring tightened to form a flat openable closure for the end wall opening.

4,364,425

TOBACCO STORAGE BAG

Jacques Mainville, Kirkland, Canada, assignor to Benson & Hedges (Canada) Inc., Montreal, Canada

Filed Nov. 13, 1980, Ser. No. 206,657

Claims priority, application Canada, Nov. 15, 1979, 339960

Int. Cl.³ B65D 33/14

U.S. Cl. 150—51

13 Claims



1. An apparatus for the storage of cut tobacco comprising a bag hung from a mobile supporting structure, the bag material comprising a mesh overlaid with a plastic finish, said bag having openings at the top and bottom for loading and unloading, at least the bottom opening being closeable, said bag being made of a material inert to tobacco, flexible and moisture retaining, said material having surface frictional characteristics and said bag having cross sectional dimensions such that a

bridging effect is created within the stored tobacco between opposing inner surfaces of the bag along its length thereby reducing pressure in the tobacco near the bottom of the bag.

4,364,426

MOTORCYCLE TIRE TREAD

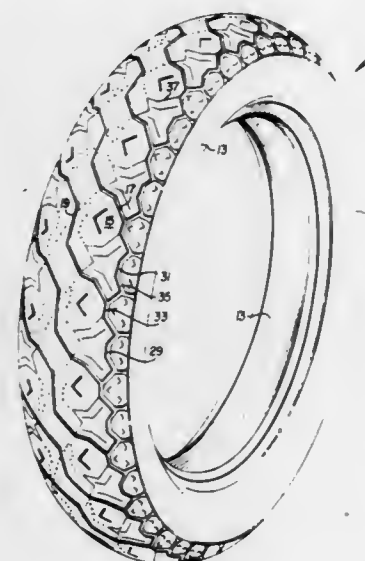
Anthony M. Mills, Williamsville, and Daniel C. Egan, Akron, both of N.Y., assignors to Dunlop Tire & Rubber Corporation, Buffalo, N.Y.

Filed Mar. 26, 1981, Ser. No. 247,873

Int. Cl.³ B60C 11/08

U.S. Cl. 152—209 R

14 Claims



1. A road use motorcycle tire comprising a rounded tread portion and sidewalls depending from said tread portion, said tread portion comprising a plurality of spaced diagonally extending tread blocks defined by a plurality of first grooves spaced circumferentially of said tire and extending generally diagonally across said tread portion and a pair of second grooves provided adjacent opposite width-wise sides of said tread portion and extending circumferentially of said tire, said first grooves channeling water from said tread portion toward said sidewalls and extending continuously from one side of said tread portion to the other, each said first groove comprising an intermediate portion at the width-wise center of the tread portion which extends substantially circumferentially of said tire and a pair of diagonally extending portions respectively connecting opposite ends of said intermediate portion to respective second grooves, the intermediate portions of two adjacent first grooves being spaced by a said tread block defined by said adjacent first grooves and said second grooves, said tread blocks being uninterrupted by any circumferentially extending groove.

4,364,427

TIRE VALVES FOR TUBELESS AND TUBE TIRES

Jean Lefrancois, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France

Continuation of Ser. No. 101,632, Dec. 10, 1979, abandoned, which is a continuation of Ser. No. 891,467, Mar. 29, 1978, abandoned. This application May 20, 1981, Ser. No. 265,394

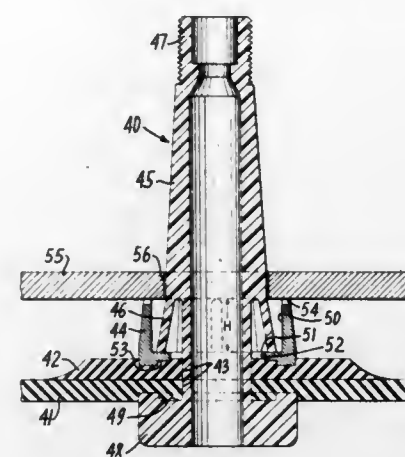
Claims priority, application France, Mar. 30, 1977, 77 09859; Oct. 18, 1977, 77 31544

Int. Cl.³ B60C 29/00, 5/00

U.S. Cl. 152—349

3 Claims

1. A tire valve for tubeless tires having a valve body and a valve base, characterized by the fact that the valve body has a plurality of tongues integral with the valve body, the tongues being arranged as a conical surface around the periphery of the valve body for engagement with the outside of a wheel rim, the conical surface being open towards the valve base, the tongues being elastic in transverse direction and rigid in longitudinal direction, and free ends of the tongues being capable of moving



the valve base and a valve hole in the wheel rim; said valve body, including its tongues, and valve base being formed of an integrally molded plastic material.

4,364,428

AUTOMATIC AIR-CONDITIONING APPARATUS

Eiichi Ohtsu, Katsuta, and Takanori Shibata, Hitachi, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

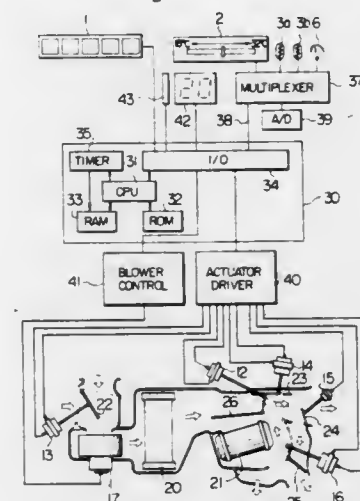
Filed Nov. 6, 1980, Ser. No. 204,519

Claims priority, application Japan, Nov. 9, 1979, 54-144452; Mar. 19, 1980, 55-34074

Int. Cl.³ F25B 49/00; G05D 23/00

U.S. Cl. 165—11 R

10 Claims



1. An automatic air-conditioning apparatus comprising: at least one temperature sensor; a temperature setting unit for setting a desired temperature; a temperature display element for selectively displaying the temperature sensed by said temperature sensor and the temperature setting set by said temperature setting unit; and a microcomputer carrying out necessary calculations for the purpose of temperature control and temperature display on the basis of the output signals from said temperature sensor and said temperature setting unit, said microcomputer including first means for displaying the temperature setting for a predetermined period of time on said temperature display element when said temperature setting unit is manipulated and second means for inhibiting said first means from displaying the temperature setting on said temperature display element until the difference between a temperature setting data resulting from manipulation of said temperature setting unit and the presently established temperature setting data established already as operation data exceeds a predetermined value.

4,364,429

AUTOMATIC TEMPERATURE CONTROL SYSTEM FOR VEHICLE AIR CONDITIONERS

Yukinobu Nakamura, Asaka; Tsuneo Nakajima, Kawagoe; Toru Atsumi, Kamifukuoka, and Kunitaka Sakai, Asaka, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

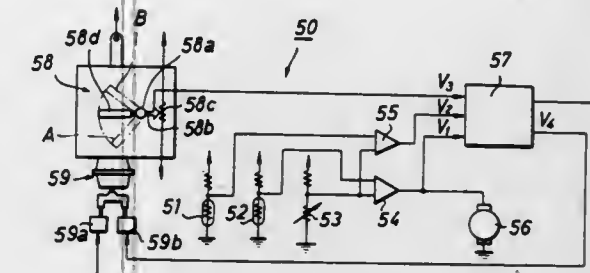
Filed Apr. 21, 1981, Ser. No. 256,116

Claims priority, application Japan, Apr. 21, 1980, 55-54325[U]

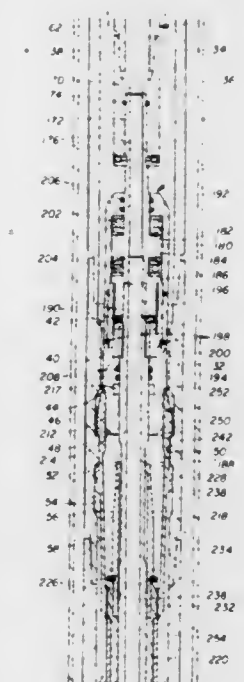
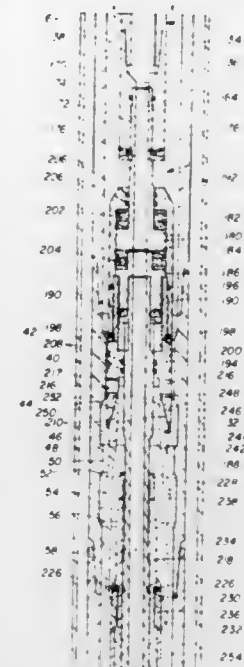
Int. Cl.³ F25B 29/00; F25D 17/00

U.S. Cl. 165—28

10 Claims



1. An automatic temperature control system for a vehicle air conditioner including a cool air supply mechanism having air flow control means; air flow dividing means for dividing a cool air flow supplied from said cool air supply mechanism into a primary flow and a secondary flow; a heat source for heating said primary flow; and a mixing mechanism for mixing said primary flow as warmed past said heat source and said secondary flow with each other; comprising a first circuit for sensing and outputting as a first signal an air temperature inside a vehicle interior; a second circuit for sensing and outputting as a second signal an air temperature outside said vehicle interior; a third circuit for providing a third signal corresponding to a preset temperature; a fourth circuit interlocked with said air flow dividing means for outputting as a fourth signal the flow-dividing ratio thereof; a fifth circuit for comparing said first signal with said third signal and providing a fifth signal; a sixth circuit for comparing said second signal with said third signal and providing a sixth signal; a seventh circuit for comparing said fourth, fifth and sixth signals with one another and providing a seventh signal to determine the mixing ratio of said primary flow and said secondary flow; said air flow control means being controlled by said fifth signal; and said air flow dividing means being controlled by said seventh signal.



axial groove means in response to reciprocation of said tool string.

4,364,431

METHOD FOR RECOVERING OIL FROM AN UNDERGROUND FORMATION

Ali M. Saidi, Paris, France, and Frans T. Hesselink, Rijswijk, Netherlands, assignors to National Iranian Oil Company, Tehran, Iran and Shell Internationale Research Maatschappij B.V., The Hague, Netherlands

Filed Dec. 17, 1980, Ser. No. 217,445

Int. Cl.³ E21B 43/22

U.S. Cl. 166—275

4 Claims

1. A method for recovering oil from an underground formation consisting in part of oil-wet permeable blocks having a pore space with capillary channels at least partially containing oil, said permeable blocks being surrounded by a fluid filled fracture network, said method comprising the steps of:

- compounding an aqueous solution of a surfactant having the ability to decrease the surface tension between water and the oil present in the blocks;
- supplying said solution through at least one injection well to the fracture network in order to displace the fluids in

4,364,430

ANCHOR POSITIONER ASSEMBLY

David D. Szarka, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed Nov. 24, 1980, Ser. No. 209,620

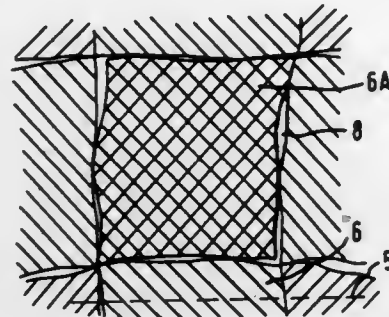
Int. Cl.³ E21B 23/02

U.S. Cl. 166—214

22 Claims

15. An anchor positioner suitable for attachment to a tool string disposed in a well bore, comprising: spring arm means; and indexing head means having inclined face means radially spaced with axial groove means, said spring arm means

the fracture network above the level of the aqueous solution in a substantially vertical direction, thereby raising the hydrostatic head in the fractures surrounding the individual blocks which are being submerged in the aqueous solution while simultaneously decreasing the surface tension of the oil and water interfaces in the capillary channels of said blocks, driving oil from the capillary channels into the fractures surrounding said blocks:



- (c) allowing the oil that is driven from the blocks to collect in the fractures on top of the rising level of aqueous solution; and
- (d) recovering oil through at least one production well penetrating the formation and communicating with the fracture network at the level where oil is collecting on top of the aqueous solution.

4,364,432

SEAL ASSEMBLY

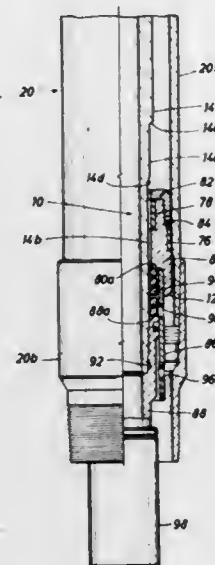
C. Joe Bass, Harris County, Tex., and Elmer R. Peterson, Anaheim, Calif., assignors to Hughes Tool Company, Houston, Tex.

Filed Sep. 15, 1980, Ser. No. 187,383

Int. Cl.³ E21B 23/04, 33/14

U.S. Cl. 166—290

22 Claims



18. A method of cementing liners in wells comprising the following steps:

- (a) positioning a liner in a well bore connected to a setting tool suspended from a pipe string and extending into the liner and sealed thereto by a seal assembly mounted on the setting tool;
- (b) anchoring the liner in the well bore and releasing the setting tool from the liner;
- (c) circulating fluid into the well bore through the liner to cement the liner to the well bore;
- (d) providing said seal assembly with releasable lock means for maintaining said seal assembly fixed relative to at least one of said setting tool and liner, said lock means releasing said seal assembly for axial movement relative to said setting tool and liner in a first sense in response to fluid pressure differential acting on said seal assembly in said

- first axial direction sense to communicate fluid along the region between the liner and the setting tool, and
- (e) removing the setting tool and the seal assembly.

4,364,433

REMOTE CONNECTION APPARATUS

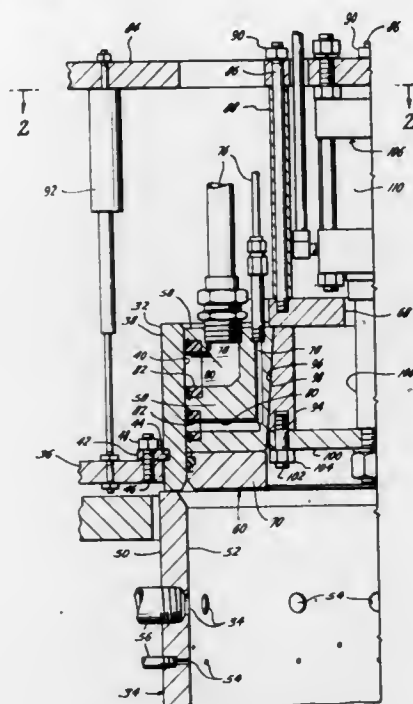
Edmund A. Fisher, Houston, and John S. Platou, Crosby, both of Tex., assignors to Cameron Iron Works, Inc., Houston, Tex.

Filed Oct. 15, 1980, Ser. No. 197,114

Int. Cl.³ E21B 43/01; F16L 19/06

U.S. Cl. 166—339

7 Claims



1. A remote connection apparatus comprising a plurality of segments each having a sealing surface with ports therein and a tapered surface opposite said sealing surface, a segment support in which said segments are positioned and movable in a radial direction, cam means coacting with the tapered surface of said segments to move said segments toward a sealing position, means supported between said segments and said segment support to urge said segments in a direction away from sealing position, a test ring having a sealing surface, means for moving said segments, said segment support and said cam means vertically to bring said segments to a first position radially spaced from said test ring sealing surface and to a second position radially spaced from the preselected mating surface of a remote member.

4,364,434

GROUND-RAKING, ROCK-GATHERING ATTACHMENTS FOR TRACTORS

Gary W. Erholm, 2309 "A" S. Tacoma Way, Tacoma, Wash. 98409

Filed Aug. 31, 1981, Ser. No. 297,717

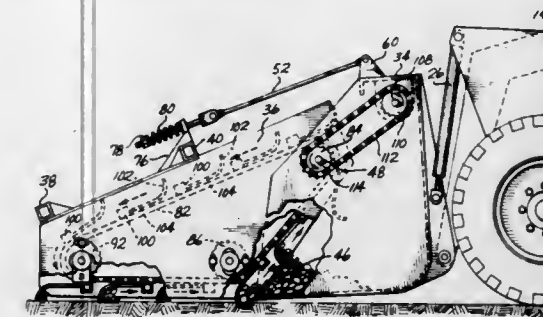
Int. Cl.³ A01B 43/00

U.S. Cl. 171—63

11 Claims

1. A ground-raking and rock-gathering attachment for a tractor bucket of a type which is rotatable forwardly from the tractor about a first axis, for unloading material from said bucket, said attachment comprising: a frame; means for mounting said frame onto the bucket for pivotal movement relative to said bucket about a second axis which extends parallel to the first axis; power driven rake means on said frame, adapted to rake rocks into the bucket when the frame means is lowered and the tractor is backing up;

- a first passive tension member interconnected between an upper portion of said frame and an upper portion of the tractor bucket, to provide a resilient interconnection between the frame and the bucket, serving to limit the extent of pivotal movement of the frame in a downward direction about said second axis, but being collapsible to allow pivotal movement of the frame about the second axis in the upward direction and;



- a second passive tension member which is interconnected between the upper portion of said frame and an upper frame portion of the tractor, said second passive tension member being slack when the attachment is being used for ground-raking and rock-gathering but being in tension when the bucket and attachment are raised off the ground, and that time serving to the attachment while the bucket is being rotated relative to the attachment, for dumping debris.

4,364,435

LAWN EDGER

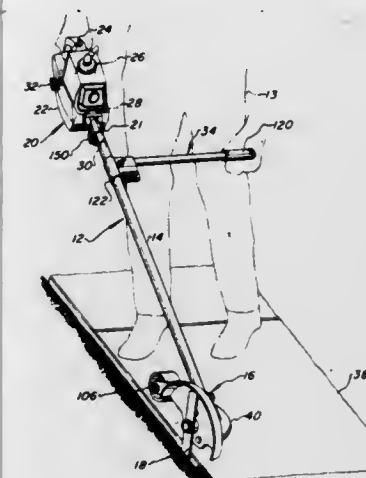
Lloyd H. Tuggle, Shreveport; Ronald C. Loyd, Keithville, and Lee R. Walker, Shreveport, all of La., assignors to Emerson Electric Co., St. Louis, Mo.

Filed Dec. 22, 1980, Ser. No. 218,560

Int. Cl.³ A01D 33/18

U.S. Cl. 172—15

15 Claims



1. A power operated lawn edger comprising: an elongated support; a power unit including a prime mover mounted on one end of said support; a cutter head including drive mechanism disposed at the opposite end of said support and drivably connected to rotary cutting blade means adapted for rotation in a substantially vertical cutting plane; means drivably interconnecting said power unit and said cutting blade means; a first handle portion disposed on said power unit and extending along the top of said power unit generally longitudinally with respect to the longitudinal axis of said support; an elongated tubular handlebar mounted on said support between said ends of said support and projecting generally

horizontally from said support, said first handle portion and said handlebar being adapted to be grasped, respectively by an operator's hands for guiding said edger in the operation thereof; and

- a single gauge roller mounted at said opposite end of said support and adapted to partially support said edger to control the cutting depth of said cutting blade means in edging turf along a substantially predetermined cutting path.

4,364,436

PLOUGHS

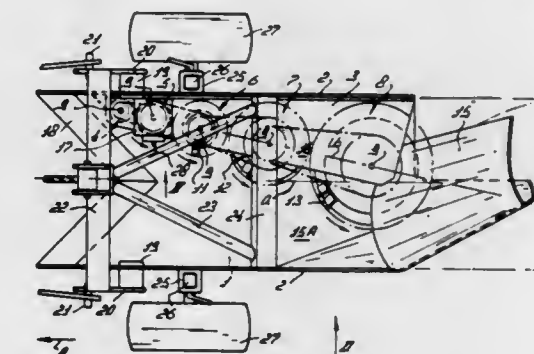
Cornelis van der Lely, 7 Brüschenrain, Zug, Switzerland
Filed Dec. 18, 1980, Ser. No. 217,674

Claims priority, application Netherlands, Dec. 21, 1979, 7909235

Int. Cl.³ A01B 9/00

U.S. Cl. 172—33

13 Claims



1. A plow comprising a mobile frame and a plow member supported on said frame, said member including a channel shaped trough and a soil cutting means at the front thereof, at least one movable soil displacing guide within said trough positioned to engage and laterally move a furrow slice of earth cut by said cutting means during operation, said member also comprising guide means having an upwardly curved surface located adjacent said guide, to the rear of said cutting means, said guide including a row of displacing guide rollers that are rotatable about upwardly extending axes and said row extending in the general direction of plow travel, said rollers progressively increasing in diameter from front to rear and driving means connected to rotate said guide rollers, said guide means being positioned to engage the furrow slice as the latter is moved from front to the rear of said rollers and invert the slice whereby the inverted slice is deposited to the rear in the furrow being formed.

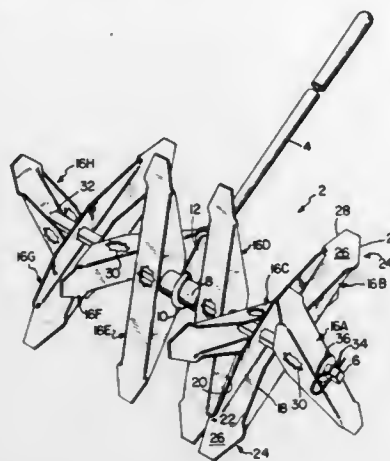
4,364,437

CULTIVATING TOOL

Ray Haapala, Rte. 3, Box 76, Dassel, Minn. 55325
Filed Dec. 31, 1981, Ser. No. 336,414
Int. Cl.³ A01B 1/10

U.S. Cl. 172—349

5 Claims



1. A cultivating tool comprising, an elongate handle, an elongate axle on the handle with its longitudinal axis transverse to the length of the handle, a series of sheet metal tines, each of the tines being channel-shaped, having flange portions connected by a web portion, the web portion at each end of the tine extending beyond the channel portion and having a flat surface lengthwise between relatively thin side edges, and means for mounting the tines at their mid portions on the axle in two different modes comprising apertures through the tine web portion and apertures through the flange portions, said apertures of said tine web portions and of said flange portions being sized to be engageable over said axle whereby, when the apertures through the web portion of one of the tines are engaged over the axle and the tool propelled along the ground, the thin edges of the tine web portion ends are presented knife-like to the ground, and when the apertures through the flange portions of the tines are engaged over the axle, the flat ends of the tine web portions are presented hoe-like to the ground.

4,364,438

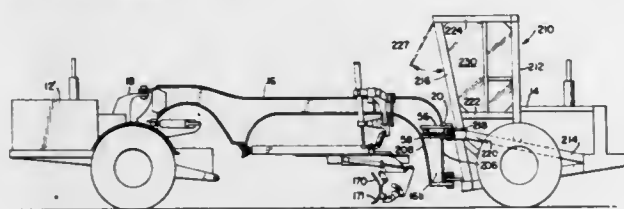
DUAL TRACTOR ROAD GRADER WITH DOUBLE ARCHED CENTER FRAME

Donald L. Pyle, Rte. 2, Box 3180, Miles City, Mont. 59301
Continuation-in-part of Ser. No. 25,155, Mar. 21, 1979, Pat. No. 4,279,312. This application Apr. 16, 1981, Ser. No. 254,716
The portion of the term of this patent subsequent to Jul. 21, 1998, has been disclaimed.

Int. Cl.³ E02F 3/76

U.S. Cl. 172—789

1 Claim



1. An earth working apparatus comprising: a single axle engine means, a single axle tractor means, a double arched center frame articulated at one end thereof to said engine means and at the other end thereof to said tractor means, a draw bar and yoke assembly including a subframe mounted to said center frame, said subframe supporting a rotatable

subframe ring for rotation about an axis intersecting the plane of said draw bar and yoke assembly, a mold board assembly including a mold board and blade carried by said rotatable ring and means for adjusting the angle of attack of said blade, the angle of inclination of the longitudinal axis of said mold board, the vertical lift position of the mold board and blade, and lateral position of the mold board and blade, and lateral position of the rotatable subframe ring relative to the arched center frame,

the improvement wherein:

said double arched center frame comprising a first arcuate underportion, a second arcuate underportion spaced longitudinally from said first arcuate underportion, said first arcuate underportion including a first depending leg and a second depending leg, said second arcuate underportion including a third depending leg and a fourth depending leg, said second depending leg and said third depending leg defining therebetween a depending center common leg of said double arched center frame,

a ball and socket mount connecting the leading end of said draw bar and the yoke assembly to said depending center common leg of said double arched center frame,

a pair of longitudinally spaced yoke plates affixed to said center frame intermediate of said center common leg and said other end of said arched center frame,

bell cranks pivotally mounted to said spaced yoke plates on respective lateral sides of said center frame and each including a first arm doubly pivotally coupled to one end of a corresponding hydraulic lift cylinder for pivotal movement about intersecting horizontal axes, each lift cylinder disposed on a respective side of said center frame and a second arm at an angle to said first arm and pivotally coupled to a link member common to said bell cranks, means for pivotally connecting the other end of said lift cylinders to said rotatable subframe ring on opposite sides of said center frame,

means for pivotally connecting one end of a side shift hydraulic cylinder to said subframe at one side of said center frame and at the other end to said link member intermediate of its pivot connections to the second arms of said bell crank members, such that extension and retraction action of said hydraulic lift cylinders causes said subframe, said rotatable ring and said mold board assembly to be vertically raised or lowered, extending or retracting one of said hydraulic lift cylinders with respect to the other, causes said mold board assembly to be tilted in the plane of the longitudinal axis of the mold board and extension or retraction action of said side shift hydraulic cylinder causes said subframe and said mold board assembly to be shifted laterally with respect to the longitudinal center line of said center frame,

a first pair of hydraulic crab steering cylinders are respectively pivotally connected to the single axle engine means and to the arched end of said center frame,

a second pair of hydraulic crab steering cylinders are respectively pivotally connected at respective ends to said center frame arched end adjacent the inner end thereof and to the tractor means toward the center thereof such that extension and retraction action of said hydraulic crab steering cylinders effects angular orientation of said engine and said tractor means with respect to said center frame at respective ends thereof to cause said engine means and said tractor means to move into laterally offset position with respect to each other and into crab steering position, and

a cab supported on inclined beams on said tractor means whereby an operator may control the operation of the apparatus and view the mold board and blade when they are angled backward in the extreme position.

4,364,439

IMPLEMENT ASSEMBLY WITH PIVOT CONNECTION

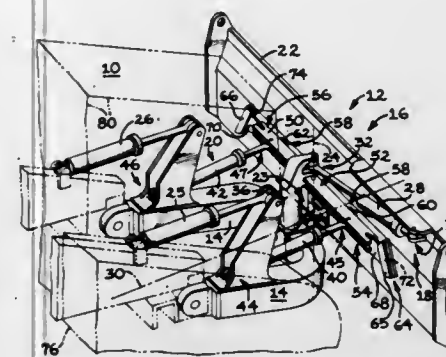
Jerrold R. Asal, Channahon, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
PCT No. PCT/US81/00551, § 371 Date Apr. 27, 1981, § 102(e)
Date Apr. 27, 1981, PCT Pub. No. WO82/03882, PCT Pub. Date Nov. 11, 1982

PCT Filed Apr. 27, 1982, Ser. No. 280,382

Int. Cl.³ E02F 3/76

U.S. Cl. 172—821

10 Claims



1. In an implement assembly (12) having a frame (14) having a longitudinal axis (30), an implement (16), a pivot connection (23) defining a substantially vertical axis (24), a subframe (50) pivotally connected to said frame (14) and positioned adjacent and in contactable relationship with said implement, first means (18) for controllably pivotally moving said implement (16) about the longitudinal axis (30) relative to said frame (14) and second means (20) for controllably pivotally moving said implement (16) about said substantially vertical axis (24), said implement (16) being directly pivotally connected to said frame (14) by said pivot connection (23), the improvement comprising:

said pivot connection (23) having first, second, and third pivot axis (127,129,131) intersecting at a common point (133), said pivot connection (23) including a bracket (81) having upper and lower flanges (93,97), a pivot block (83) having a bore (91) and being secured between said flanges (93,97), a pin (38) having a first flange (107) having a bore (111) and a second flange (109) having a bore (113), said bores (91,111,113) forming an aligned passageway, and a pivot shaft (85) fitted within said passageway and securing said pin (38) to said block (83).

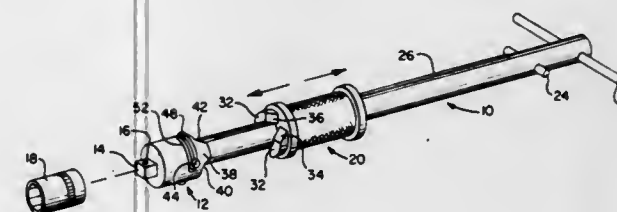
4,364,440

HAND HELD ROTARY IMPACT TOOL

Milton Clar, 9408 Linden Ave., Bethesda, Md. 20014
Filed May 8, 1980, Ser. No. 148,051
Int. Cl.³ B25D 15/00

U.S. Cl. 173—93,7

14 Claims



1. A rotary impact tool comprising a shaft, an anvil member on said shaft for providing rotary motion to a tool body, a striker nonrotatably and axially slidably mounted on said shaft for applying impact forces to said anvil member by axial movement of said striker on said shaft, complementary inclined striking surfaces on said anvil member and said striker, respectively, and means permitting selective rotational movement of said anvil member relative to said shaft to and from a terminal position in which the respective striking surfaces of said anvil member and said striker are mutually orientated so that an axial

impact of said striker against said anvil member applies a rotational force to said anvil member.

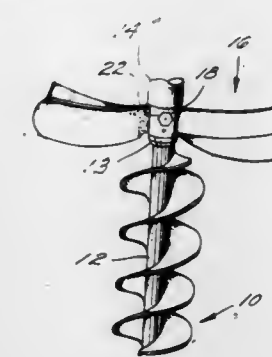
4,364,441

HOLE CLEANING DEVICE FOR AUGERS

Marvin D. Geeting, Fort Wayne, Ind., assignor to States Engineering Corporation, Fort Wayne, Ind.
Filed Nov. 12, 1980, Ser. No. 206,070
Int. Cl.³ C21B 10/44

U.S. Cl. 175—84

7 Claims



1. A cleaning device for a hole-digging auger comprising a supporting carrier adapted to be mounted for rotation about a given axis, a generally planar blade secured to and radially extending from said carrier for rotation therewith, said blade generally lying in a first plane inclined to said axis and having a leading edge which extends radially outwardly from said axis, and an upstanding deflecting surface on said blade which extends radially outwardly from said carrier and is angularly spaced from said leading edge, whereby rotation of said carrier causes said blade to elevate loose soil from a plane including said leading edge and said deflecting surface to deflect the elevated soil radially outwardly, said blade being a segment of a screw flight and said deflecting surface being carried by an elongated metal strip secured along one edge to said blade, said elongated metal strip being arcuately shaped with the convex surface thereof being toward said leading edge.

4,364,442

DIGITAL SCALE

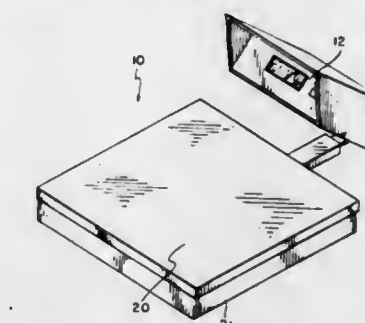
Jon M. Flickinger, Salina, Kans., assignor to L. & D. Sales Corporation, Salina, Kans.

Filed Feb. 20, 1981, Ser. No. 236,262

Int. Cl.³ G01G 3/142

U.S. Cl. 177—177

6 Claims



1. A digital scale having a digital screen for displaying digits comprising,

- a power supply means;
- a bridge supply means;
- a control logic means, said bridge supply means and control logic means being electrically engaged by said power supply means;
- strain gauge bridge means including at least two strain gauges and electrically engaged by said bridge supply means in two places;
- an amplifier means electrically engaging said strain gauge bridge means in two places;

- f. an A-D converter means electrically connected to said amplifier means and to said control logic means;
- g. a logic means electrically attached to said A-D converter means and to said control logic means; and
- h. a display driver means electrically connected to said logic means to said control logic means, and to said digital screen for displaying digits thereon;
- i. a base; a support means attached to said base; at least one beam attached to said support means, said beam having one of said two strain gauges attached on the top thereof and the other strain gauge connected on the bottom thereof; at least one U-shaped mounting member mounted on each beam; and a weigh plate means resting upon said U-shaped mounting member;

said bridge supply means includes a bridge supply circuitry including a first conductor, a first operational amplifier means connected to said first conductor, a first transistor means electrically connected to said first operational amplifier means, a second conductor electrically connected to said operational amplifier means, and to the collector electrode of said transistor means, a third conductor connected to the emitter electrode of said first transistor means and to a second operational amplifier means; said third conductor having a first resistor means; a first capacitor means and a second circuit common connection means, in series and in order stated, electrically connecting from said first conductor; a second resistor means, a third resistor means, and a first circuit common connection means, in series and in order stated, electrically connecting from said third conductor between said first transistor means and said first resistor means, said third resistor being variable and electrically connecting to said first operational amplifier means; a third circuit common connection means electrically connected to said second operational amplifier means, a fourth conductor connecting from said third conductor, at a point between said second operational amplifier means and said first resistor means, to said second operational means, said fourth conductor including a fourth resistor means, and a second transistor means, in series and in order stated, from said third conductor; and a fifth conductor connecting from said second transistor means to said second operational amplifier means;

said driver display means includes each of said display digits of said digital screen having a circuitry comprising a third transistor means having an emitter electrode electrically connected to a 7-segment decoder/driver means, a fifth resistor means electrically connected to said third transistor means, said display digits being electrically connected in series with each other and further in series with said 7-segment decoder/driver means;

said logic means comprises a six decade counter means electrically connected in series with said 7-segment decoder/driver means, said fifth resistor means being electrically connected in series to said decade counter means;

said control logic means comprises at least one monostable multivibrator means directly electrically connected to said six decade counter means, a first flip-flop means directly electrically attached to said 7-segment decoder/driver means, a second flip-flop means directly electrically engaging said flip-flop means, and at least one R-S flip-flop nor gate means electrically engaging said at least one monostable multivibrator means.

4,364,443 SUSPENSION APPARATUS FOR TRACK-TYPE VEHICLES

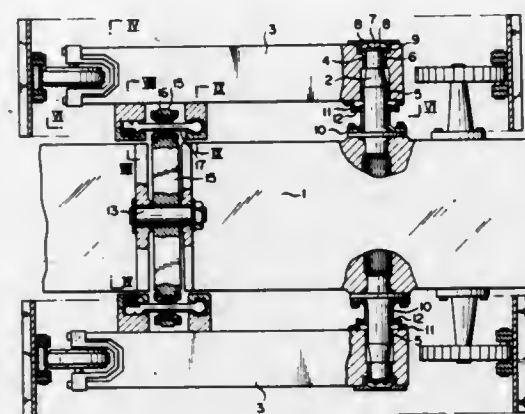
Yoshito Sato, Hirakata, and Minoru Matsumoto, Katano, both of Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

Filed Dec. 16, 1980, Ser. No. 216,785

Claims priority, application Japan, Dec. 18, 1979, 54-163501 Int. Cl.³ B62D 55/00.

U.S. Cl. 180—9.5

7 Claims



1. A suspension apparatus for a track-type vehicle comprising a main frame, pivot shaft means fixedly secured to and transversely outwardly extending from said main frame, a pair of laterally spaced track frame means pivotally connected through said pivot shaft means to either side of said main frame, respectively, an equalizer bar pivotally connected to said main frame and extending transversely between said pair of track frame means, characterized in that said apparatus is provided between said track frame means and said equalizer bar with a pair of stress-relieved mounting means, each comprising forward and rearward mountings fixedly secured to the inner vertical surface of said track frame means; a shaft having at the rearward end thereof a spherical part pivotally accommodated through a spherical bush within said rearward mounting and having at the forward end thereof a block part loosely housed within said forward mounting; a resilient pad member interposed between said block part of the shaft and the inside of said forward mounting; and spherical bushing means pivotally connected to each end of said equalizer bar and slidably mounted on a substantially intermediate portion of said shaft.

4,364,444 TEMPERATURE REGULATION SYSTEM FOR ELECTRIC VEHICLES

Guido A. Donato, Wayne; Edwin E. Hammond, Norristown, and Robert A. Mullowney, Willow Grove, all of Pa., assignors to Drexel Industries, Inc., Horsham, Pa.

Filed Jan. 16, 1981, Ser. No. 225,715

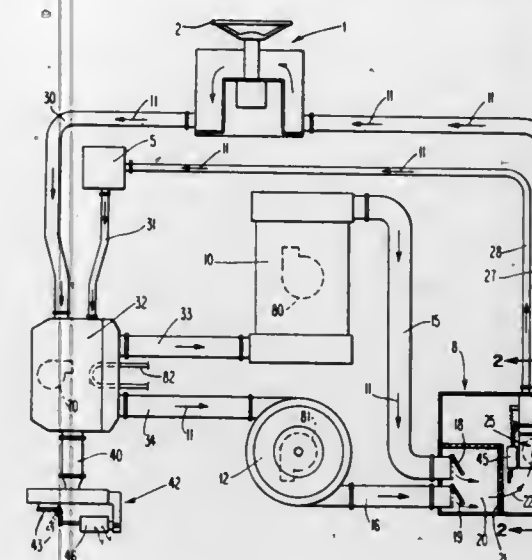
Int. Cl.³ B60H 1/16

U.S. Cl. 180—65 R

17 Claims

1. A temperature regulation system, for use in an electric vehicle, operable in both cold and warm environments, the vehicle having at least one electric motor and at least one control component, comprising first duct means for directing air from the motor to the control component, second duct means for returning air from the control component to the motor, means for forcing air through the first and second duct means, temperature sensing means disposed within the control component, and

valve means, operatively connected to and actuated in response to signals from, the temperature sensing means, the



valve means comprising means for exposing the control component to outside air.

4,364,445 TRANSMISSION DEVICE FOR A VEHICLE

Yoshitoku Iizuka, Urawa, and Kiyokazu Ohkubo, Wako, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

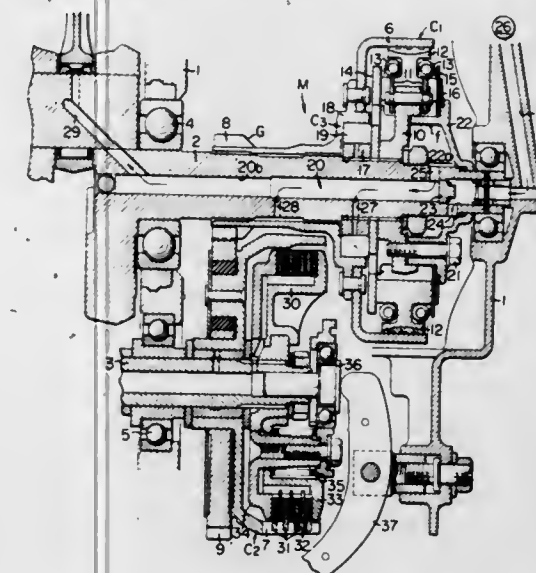
Filed Aug. 15, 1980, Ser. No. 178,941

Claims priority, application Japan, Aug. 29, 1979, 54-118655[U]

Int. Cl.³ B60K 41/000; F16D 47/002; F16H 45/000

U.S. Cl. 180—70 R

8 Claims



1. A transmission device in a vehicle comprising: a casing; a centrifugal clutch in said casing and mounted on a crank shaft of the engine; a multiple plate type speed change clutch in said casing and mounted on a speed change input shaft; said centrifugal clutch having an output member; said speed change clutch having an input member; said output member being operatively connected to said input member through a reduction gear train; said speed change clutch being interposed between said centrifugal clutch and said reduction gear train; said centrifugal clutch being partly immersed into lubricating oil within said casing, said speed change clutch being totally positioned above the surface of said lubricating oil.

4,364,446 GENERATING PULSES

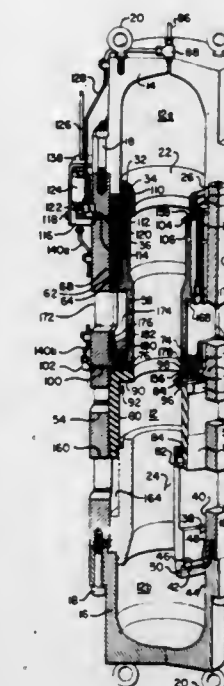
David L. Thomas, Columbus; William S. Pope, Reynoldsburg, both of Ohio, and William B. Huckabay, Dallas, Tex., assignors to Battelle Memorial Institute, Columbus, Ohio

Filed May 23, 1980, Ser. No. 152,859

Int. Cl.³ G01V 1/137, 1/38

U.S. Cl. 181—120

12 Claims



1. The method of generating an acoustic pulse in a water or land medium utilizing a sleeve valve member that is axially movable between a base position closing the passage and a displaced position clearing the passage comprising the steps of confining compressed gas at high pressure in a valve chamber within the medium by holding the sleeve member in the base position, generating an initiating signal, responding to the signal by sleeve valve member towards the displaced position to open the passage for the compressed gas from the chamber into the medium so as to initiate the rise of a pressure pulse therein, generating externally of the valve chamber a second signal during the initial rise of the pressure pulse, responding to the second signal by closing the passage in a manner such that the initial rise of the pressure pulse is limited by the closure of the passage arresting the motion of the sleeve valve member at the displaced position by substantially instantaneously transferring most of its momentum to a momentum exchange sleeve, and gradually decelerating the momentum exchange sleeve.

4,364,447 STEERING SYSTEM FOR SNOWMOBILE STEERABLE SKIS

Keisuke Yoshida, 6555 Katella Ave., Cypress, Calif. 90630, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Continuation of Ser. No. 75,138, Sep. 12, 1979, abandoned. This application Sep. 11, 1981, Ser. No. 301,215

Claims priority, application Japan, Sep. 29, 1978, 53-120620; Nov. 30, 1978, 53-148508

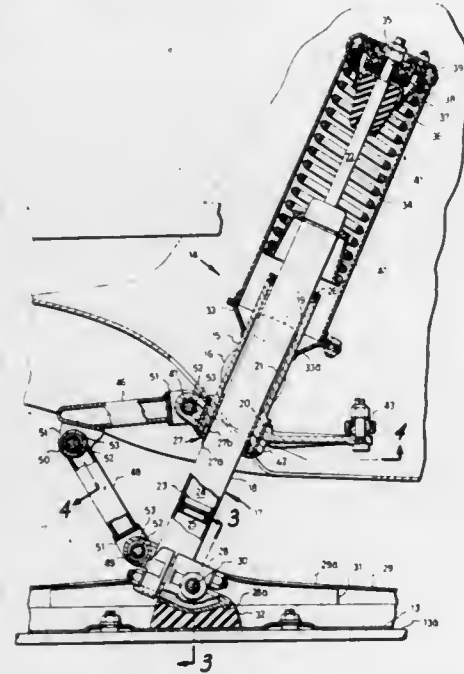
Int. Cl.³ B62B 17/04; B62M 27/02

U.S. Cl. 180—182

5 Claims

1. A steering system for the steering of a vehicle to be operated on a snowy surface, said vehicle having a body shell, said system comprising: a fixed tube mountable to the chassis of such a vehicle and having a central steering axis which extends downwardly from and forwardly relative to the vehicle so as to form an angle with level ground which is other than a right angle; a movable plunger having an axis, said plunger being

coaxially mounted to said fixed tube for axial and rotational movement relative thereto; bias means biasing the plunger toward its lower end; a ski pivotally connected to said lower end for tiltable rotation only around a single tilt axis perpendicular to said steering axis so the ski and the plunger turn together around said steering axis; a steering arm rotatably mounted to the outer circumference of said fixed tube for rotation around said steering axis; a first steering arm portion extending rearwardly into the inside of said body shell; a second steering arm portion extending forwardly and projecting outside of said body shell; a scissors type two link linkage disposed outside of said body shell, the links of said linkage



rotating relative to each other, only in a single plane which includes the steering axis, a pivot pin pivotally joining said links to one another at one of their ends, another pivot pin pivotally joining one of said links at its other end to said second steering arm portion outside of said body shell, and yet another pivot pin pivotally joining the other link to structure which causes said ski and said plunger to rotate around said steering axis, all of said pivot pins being parallel to one another, whereby turning said steering arm will turn said structure and said plunger; and steering means including a tie rod inside said body shell connected to said first steering arm portion to turn the same.

4,364,448

SPEED CONTROL FOR WHEELED VEHICLES

Katsumi Ikuma, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

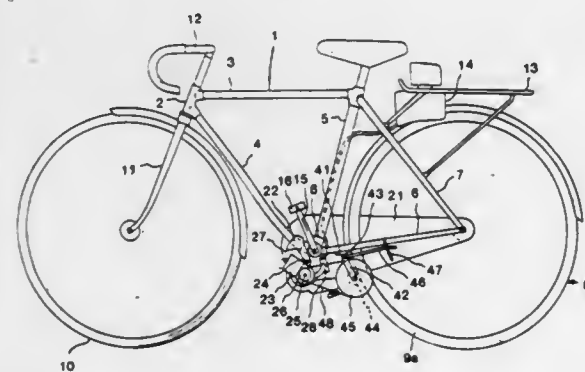
Continuation of Ser. No. 57,347, Jul. 13, 1979, abandoned. This application Jun. 4, 1981, Ser. No. 270,652

Claims priority, application Japan, Jul. 20, 1978, 53-89225; Oct. 23, 1978, 53-130719

Int. Cl.³ B62M 7/00

U.S. Cl. 180-206

36 Claims



1. A vehicle speed control for a wheeled vehicle of the type

that has a brake, and drive means which includes a pedal-driven crank drive system including a crank which is drivingly couplable to a wheel of said vehicle, the rotational velocity of said crank when drivingly coupled to one of said wheels being directly proportional to the linear velocity of the vehicle, and which vehicle is propellable by power motive means, said motive means when driving said vehicle has a speed that is directly proportional to the vehicle speed, said power motive means including a power output control, said control being selectively adjustable to vary the power output of said power motive means, said vehicle speed control comprising:

actuator means for adjusting said power output control; first signal generator means driven by said crank drive system for generating a first signal proportional to a desired vehicle speed;

second signal generator means for generating a second signal proportional to the actual vehicle speed;

comparator means for comparing said first and second signals and, as a consequence of an observed difference between them, causing said actuator means to adjust said power output control, whereby to adjust the power output of said power motive means to a level which tends to eliminate said difference in speeds and causes the vehicle to approach said desired vehicle speed;

brake operation detecting means for generating a signal as a consequence of actuating said brake; and

storage means in said comparator means for containing the actual linear velocity of the vehicle, said comparator means, upon the cessation of a first signal from said first signal generator means and in the absence of a signal from said brake operation detecting means, controlling said actuator to maintain said actual velocity at the value it had at the time when said first signal generator means ceased supplying said first signal.

4,364,449

INDUSTRIAL TRUCK

William Knight, Coventry, and David G. Marriott, Nuneaton, both of England, assignors to Coventry Climax Limited, England

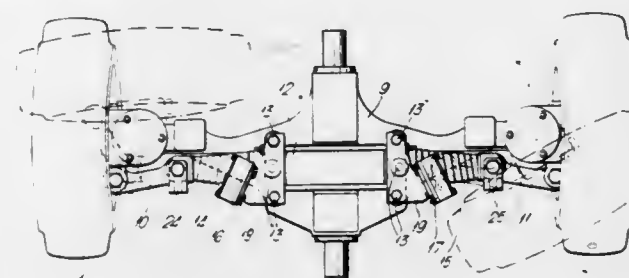
Filed Jun. 11, 1980, Ser. No. 158,601

Claims priority, application United Kingdom, Jun. 29, 1979, 7922780

Int. Cl.³ B60K 31/00

U.S. Cl. 180-271

9 Claims



1. An industrial truck which includes steering wheels and driving wheels, an electric traction motor operative to drive both said driving wheels, at least one traction motor control switch, said at least one switch reducing the electrical energy fed to the traction motor when the switch is actuated, the switch being actuable when the angle turned through, from the straight ahead position by the inner one of said steering wheels reaches a value which is a predetermined angle, whereby the maximum speed attainable by said driving wheels is reduced when said at least one switch is actuated, wherein current to the electric traction motor is supplied in pulses, the ratio of pulse duration to pulse separation being variable by means of an accelerator to vary the speed of the driving wheels, and wherein actuation of said at least one switch reduces the maximum ratio attainable of pulse duration to pulse separation.

4,364,450

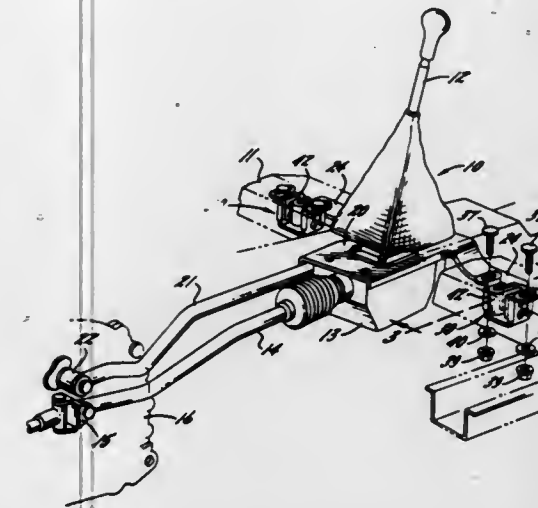
APPARATUS FOR MOUNTING A TRANSMISSION SELECTOR

James M. Kemp, Beloit, Wis., and Robert N. Phillips, Rockford, Ill., assignors to Atwood Vacuum Machine Company, Rockford, Ill.

Filed Jan. 6, 1981, Ser. No. 222,898

Int. Cl.³ B60K 20/04; F16F 1/36; F16M 13/00; G05G 7/16
U.S. Cl. 180-336

10 Claims



1. Apparatus for mounting a transmission selector on the floor of a vehicle, said selector having first and second mounting arms extending transversely in opposite directions and adapted to underlie the floor, and first and second upright tongues projecting longitudinally from said first and second arms, respectively, said apparatus comprising first and second brackets associated with said first and second tongues, respectively, and each having transversely spaced inner and outer upright legs disposed in straddling relation with the respective tongue, means for attaching each bracket to the underside of the floor, and a generally S-shaped strap for securing each tongue to its respective bracket, said strap being made of elastomeric material and having one end portion lying alongside and secured to said inner leg, having an intermediate portion lying alongside and secured to said tongue and having an opposite end portion lying alongside and secured to said outer leg.

6. Apparatus for attaching a tongue-like member to a plate-like member, said apparatus comprising a pair of legs adapted to straddle and extend substantially parallel to said tongue-like member, means for securing said legs to said plate-like member, and a generally S-shaped strap made of resiliently yieldable material, first means for securing one end portion of said strap to one side of one of said legs, second means for securing an intermediate portion of said strap to one side of said tongue-like member, and third means for securing the opposite end portion of said strap to one side of the other of said legs.

4,364,451

LADDER LOCK

Allen C. Wright, Moraga, Calif., assignor to Utility Products, Inc., Oakland, Calif.

Filed Dec. 16, 1977, Ser. No. 861,220

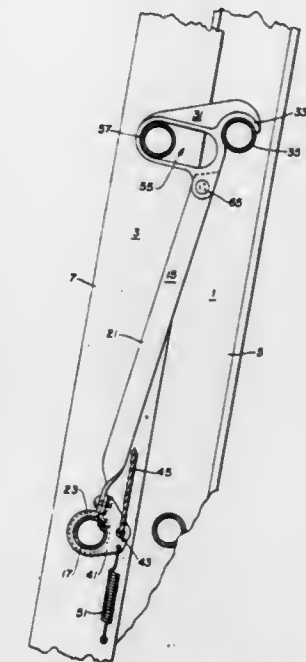
Int. Cl.³ E06C 7/06, 1/08

U.S. Cl. 182-213

5 Claims

1. An extension ladder assembly comprising a base ladder section having side rails, a fly ladder section having side rails slidably mounted on said base ladder section, locking means comprising a shank having a head section and a foot section, said foot section rotatably secured to said fly ladder with said head section including a slotted opening of sufficient size to freely permit passage therethrough of a proximate rung of said fly ladder section for limiting rotation and maintaining said locking means in proximate functional position and with a hook for releasably engaging said base ladder section, secondary means responding to normal ladder use for positively

securing said locking means in said engaged position against disengagement from said base ladder section, means directly removing said locking means from locking engagement with said base ladder section to a position spaced from said base ladder section and simultaneously initiating movement of said fly ladder section with respect to said base ladder section while retaining said locking means in said position spaced from said



base ladder section, whereby, during movement of said fly ladder section relative to said base ladder section, said locking means will not bounce and bang or otherwise contact against said base ladder section, and when in normal use, application of force on said fly ladder section in a direction of such normal use, strengthens locking engagement between said ladder sections.

4,364,452

PULSE LIQUID FEEDER SYSTEM OF THE TYPE USED IN LUBRICATIONS SYSTEMS AND THE LIKE HAVING BROKEN LINE AND FLOW RATE DETECTION

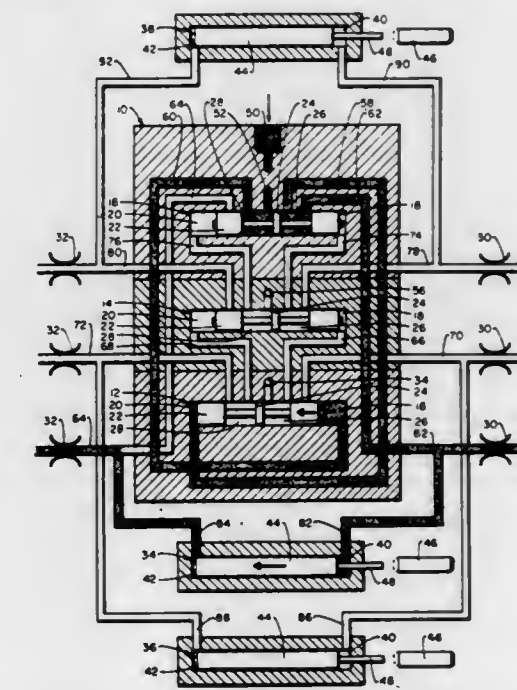
Terril M. Crago, Seal Beach, Calif., assignor to Standun, Inc., Compton, Calif.

Filed Oct. 14, 1980, Ser. No. 196,651

Int. Cl.³ F01M 1/06

U.S. Cl. 184-7 E

37 Claims



19. In a method of pulse feeding a liquid, the steps of: alternately feeding liquid to opposite first and second feeder cham-

bers separated by a reciprocal feeder divider alternately movable into each while moving from the other; by said feeder divider movement, alternately feeding liquid from said second feeder chamber during said feeding into said first feeder chamber and from said first feeder chamber during said feeding into said second feeder chamber; during said liquid feeding from said second feeder chamber, feeding said liquid simultaneously to a first flow restriction and to a first monitoring chamber separated from a second monitoring chamber by a reciprocal monitoring divider alternately movable into each while moving from the other, said feeding of said liquid into said first monitoring chamber moving said monitoring divider into said second monitoring chamber feeding liquid therefrom to a second flow restriction; during said liquid feeding from said first feeder chamber, feeding said liquid simultaneously to said second flow restriction and to said second monitoring chamber to move said monitoring divider onto said first monitoring chamber to feed liquid from said first monitoring chamber to said first flow restriction; detecting reciprocal movements of said monitoring divider.

4,364,453

SAFETY INSTALLATION FOR ELEVATORS

Antoine Serina, 47 Av-Jeanne d'Arc, 95600 Eaubonne, France

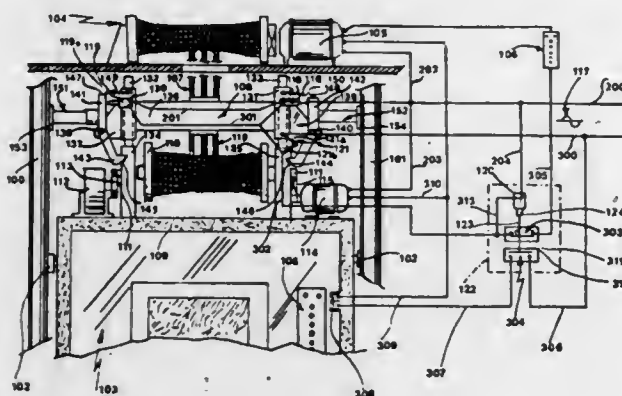
Filed Nov. 26, 1980, Ser. No. 210,793

Claims priority, application France, Dec. 7, 1979, 79 30068

Int. Cl.³ B66B 13/24

U.S. Cl. 187—29 R

16 Claims



1. Elevator safety installation of the type comprising a moving contact (108) fastened to the lower ends of carrying cables (107) wound on an electric winch (105) and a car (103) mobile along stationary guides (100-101) located under the moving contact (108) and connected to it, on the one hand, by means of direct mechanical coupling organs (141-144) which are mounted mobile between an active position in which they make the car (103) rigidly solid with the moving contact (108) and a retracted position in which they are inactive and, on the other hand, by means of a connecting cable (116) wound on a rotary drum (110) placed on the car (103), which is suspended from moving contact (108) by said cable (116) when the coupling organs (141-144) are in retracted position, characterized in that it is provided with means for automatic decoupling of the moving contact (108) and car (103), means comprising an electric circuit which is connected to the same source (117) as that supplying the circuit of winch (105) and which comprises, on the one hand, at least an electromagnet (118-119) associated with the coupling organs (141-144) and mounted so that it has to keep said organs (141-144) in active position as long as it is excited by the electric current flowing normally, while it has to release them as soon as the current is no longer supplied and therefore the current no longer flows and, on the other hand, a switch (121) inserted between the source (117) and the winch (105) and mounted so that it automatically stops in closed position as long as the coupling organs (141-144) are in active position and it is automatically placed in open position as soon as said organs (141-144) are in retracted position, these coupling organs (141-144) being associated with mechanical means (149-150) opposing the electromagnet (118-119) but

with less force and which constantly pull these organs (141-144) toward their retracted position.

4,364,454

VEHICLE DOOR LOCK FOR LIMITING DOOR OPENING TO SPECIFIED VEHICLE POSITIONS

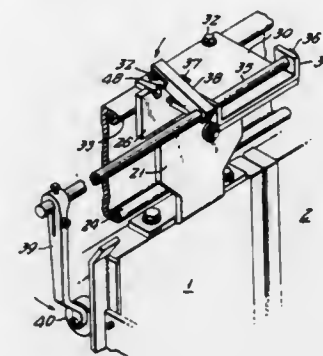
Walter Glaser, Montvale, and Herbert P. Glaser, Demarest, both of N.J., assignors to G.A.L. Manufacturing Corporation, Bronx, N.Y.

Filed Oct. 27, 1980, Ser. No. 201,307

Int. Cl.³ B66B 13/00

U.S. Cl. 187—57

26 Claims



1. In a passenger transportation system in which a passenger carrying vehicle moves along a selected path and stops at predetermined points to permit passengers to exit from said vehicle, said vehicle having a door thereon which travels therewith and which opens to permit the exiting of passengers from the vehicle, the combination therewith of:

latching means carried by said vehicle and acting between the door and another portion of the vehicle for permitting opening of said door by a predetermined amount less than the amount required for a passenger to exit from the vehicle and for preventing opening of said door by more than said predetermined amount; and

control means which is responsive to the position of said vehicle, which is connected to said latching means and which disables said latching means when said vehicle is within a predetermined distance from a said point and thereby permits said vehicle door to open more than said predetermined amount when said vehicle is within a predetermined distance from a said point, said distance being small relative to the distances between said points.

4,364,455

RETRACTION SPRING FOR DISC BRAKE PADS

Harumi Oshima, Kawasaki, Japan, assignor to Tokico Ltd., Kawasaki, Japan

Continuation of Ser. No. 158,386, Jun. 11, 1980, abandoned.

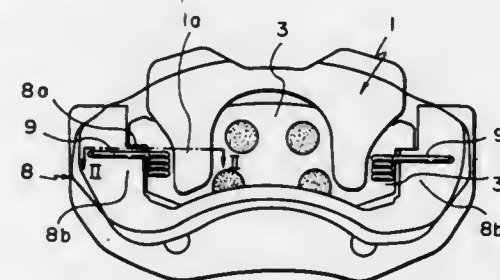
This application Jan. 26, 1982, Ser. No. 342,919

Claims priority, application Japan, Jun. 20, 1979, 54-84689; Jun. 20, 1979, 54-84691

Int. Cl.³ F16D 55/224

U.S. Cl. 188—1.11

2 Claims



1. A disc brake comprising: a pair of friction pads on opposite sides of a rotatable disc and each having a backing plate and a pad of friction material on said backing plate and facing

the disc; a stationary member supporting the backing plates thereon for displacement toward and away from the disc, said stationary member being adapted to be secured to a nonrotatable part of a vehicle on one side of the disc and having limb portions straddling the disc and extending the other side of the disc, said limb portions respectively having surfaces facing away from the rotatable disc and generally parallel with the surface of the disc; a caliper floatingly mounted on the stationary member and incorporating therein means for pressing one backing plate toward the disc for pressing the friction pad thereon directly against one side of the disc, said caliper having a limb portion straddling the circumference of the disc and engaged with the backing plate for the other friction pad for pressing the other friction pad against the other side of the disc; and a pair of springs secured to the backing plate of the other friction pad and abutting said surfaces on said limb portions of said stationary member, respectively, for urging said backing plate of the other friction pad and the caliper away from the disc, each of said springs having generally straight end portions extending from a resilient central loop portion, one end portion extending in the direction of the axis of the disc and being secured to the backing plate of said other friction pad for securing the corresponding spring to the backing plate, and the other end portion extending angularly with respect to the axis of the disc and circumferentially of the disc from said loop portion to said surface on the corresponding limb portion of the stationary member.

4,364,456

DRUM BRAKE HAVING DUO MODE

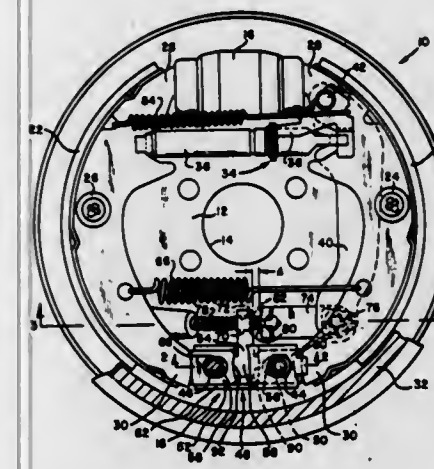
James J. Colpaert, Granger, Ind., assignor to The Bendix Corporation, Southfield, Mich.

Filed Apr. 13, 1981, Ser. No. 253,983

Int. Cl.³ F16D 51/48, 65/22

U.S. Cl. 188—106 A

7 Claims



1. A drum brake assembly of the type comprising a pair of arcuate brake shoes movably carried upon a backing plate, said pair of brake shoes defining pairs of confronting brake shoe ends, a hydraulic actuator received between one pair of said confronting brake shoe ends to move said brake shoes into engagement with a rotatable brake drum to effect a service brake application, a strut extending between said brake shoes adjacent said hydraulic actuator, and a parking arm pivotally engaging one of said brake shoes and said strut to move said pair of brake shoes into engagement with said brake drum to effect a parking brake application in response to pivotal movement of said parking arm, a support assembly secured to said backing plate between the other pair of confronting brake shoe ends to transfer braking torque from said brake shoes to said backing plate, said support assembly including a lever cam received between said other pair of confronting brake shoe ends to move said other pair of confronting brake shoes ends apart in response to pivotal movement of said lever cam, and interconnecting means for pivoting said lever cam to move said other pair of brake shoe ends apart in response to pivotal movement of said parking arm effecting a parking brake appli-

cation, the improvement wherein said interconnecting means includes said parking arm cooperating with said lever cam to define a lost motion connection therebetween to enable said parking arm to effect a substantially full parking brake application prior to said lever cam being pivoted by movement of said parking arm.

4,364,457

PISTON-CYLINDER UNIT PARTICULARLY FOR SHOCK ABSORBER OR COMPRESSION STRUT

Felix Wössner, Schweinfurt, and Günther Handke, Euerbach, both of Fed. Rep. of Germany, assignors to Fichtel & Sachs A.G., Schweinfurt, Fed. Rep. of Germany

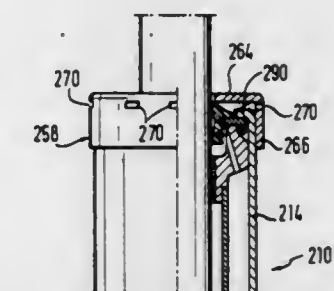
Filed Nov. 20, 1979, Ser. No. 96,014

Claims priority, application Fed. Rep. of Germany, Nov. 24, 1978, 7834927[U]

Int. Cl.³ F16F 9/36

U.S. Cl. 188—322.17

11 Claims



1. A piston-cylinder unit, particularly adapted for use as a shock absorber or compression strut comprising:

a cylinder assembly having an axis, two axial ends and an outer circumferential surface;

at least one hollow space defined within said cylinder assembly;

a guide and seal assembly on one end of said cylinder assembly;

a piston assembly which is axially moveable between an inner and an outer end position relative to said cylinder assembly, said piston assembly including a piston rod having an inner portion projecting into said hollow space through said guide and seal assembly and an outer portion arranged outside of said cylinder assembly;

a cap assembly including a cap comprising an annular bottom which is essentially normal to said axis and a jacket, with said piston rod extending through said annular bottom and with said annular bottom being located adjacent that side of said guide and seal assembly which is remote from said hollow space, said jacket bearing against said outer circumferential surface of said cylinder assembly;

a tubular body arranged on said outer portion of said piston rod, said tubular body being elastically compressible in the axial direction and being fastened in the axial direction on a fastening point of said piston rod with a part which faces away from said cap assembly, said tubular body together with said piston rod defining in the axial section between said fastening point and its end facing toward said guide and seal assembly an annular chamber which is open toward said cap assembly;

closing means on said cap assembly for closing the annular chamber when said piston rod approaches said inner end position; and

passage means on said cap assembly connecting said annular chamber to the atmosphere when an end of said tubular body facing toward said cap assembly bears against said closing means;

said cylinder assembly including a tube forming the outer circumferential surface of said cylinder assembly and bent radially inwardly at its end facing toward said cap assembly in partial regions of its circumference, with axial projections of said cylinder being formed on said tube be-

tween said bent circumferential regions, said axial projections supporting said annular bottom of said cap assembly in the axial direction, said guide and seal assembly comprising a sealing member, said sealing member being axially coextensive with at least part of the axial length of said axial projections.

4,364,458

BRAKE RELEASE AUTOMOTIVE FUEL CONTROL ASSEMBLY

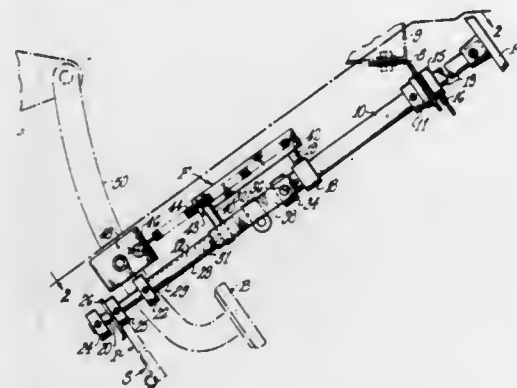
John J. Frueh, 806 W. 167th St., Gardena, Calif. 90247

Filed Oct. 19, 1981, Ser. No. 312,833

Int. Cl.³ B60K 41/20

U.S. Cl. 192-3 T

5 Claims



1. A fuel control assembly comprising in combination: an elongated guide channel having a proximate end and a distant end, and means for mounting said channel in the operator's compartment of a motor vehicle between a distant fuel control element and a proximate hand-reach position for a vehicle operator, an operating shaft movable lengthwise along said guide channel, having proximate and distant lengths extending beyond the respective ends of the guide channel, said shaft being at least partially rotatable axially along the channel and bearing a longitudinal series of engagement means located laterally-adjacent a smooth length of said shaft, unidirectional latch means carried by the guide channel and positionable by such rotation of the shaft to engage a selected unit of said engagement means and thereby restrain lengthwise movement of the shaft toward its proximate end only, and alternately by counterrotation of the shaft to slidingly overlie said smooth length of the shaft and thereby permit lengthwise shaft movement in either direction, unrestrained by the latch means, means for coupling the distant length of said shaft with said fuel control element to maintain a set level of fuel flow responsive to the amount of distant extension of the shaft from the guide channel, and means for releasably setting the distant end of said shaft at a selected amount of extension from said guide channel, thereby holding the coupled fuel supply element in position to effect corresponding fuel flow.

4,364,459

ELECTROMECHANICAL COUPLING SYSTEM FOR PREVENTING A MECHANICAL DEVICE FROM OPERATING BEYOND PRESELECTED OPERATING PARAMETERS OR CONTROL PARAMETERS

Rashid Futehally, Bombay, India, assignor to Dynacraft Machine Company Limited, Bombay, India

Filed Feb. 11, 1980, Ser. No. 120,614

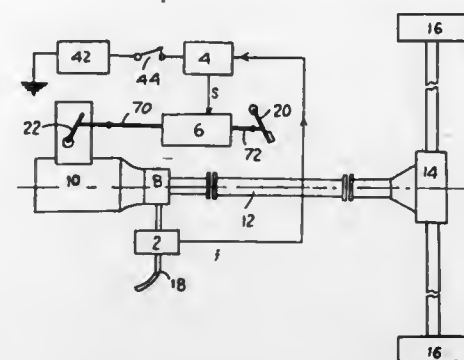
Int. Cl.³ B60K 41/02; F16D 43/284

U.S. Cl. 192-0.033

13 Claims

1. An electromechanical coupling system for operating a mechanical device within a preselected operating parameter or control parameter, comprising: sensor means operatively adapted to be connected to said mechanical device for sensing changes in a control param-

eter or an operating parameter thereof and generating control pulses proportional to the parameter sensed; an electronic control unit comprising a control pulse monitor unit having its input connected to the output of the sensor means and a bistable logic unit connected to the output of the monitor unit for producing enabling pulses or signals corresponding to the control pulses received thereat when the mechanical device operates within said



preselected operating parameter or control parameter and for suppressing said enabling pulses when the mechanical device operates at or beyond said operating parameter or control parameter; and, coupler means operatively connected between a drive unit and a driven unit of said mechanical device and responsive to said enabling pulses so as to coupled or uncouple said drive unit from said driven unit depending upon whether the enabling pulses are present or suppressed.

4,364,460

ELECTROMAGNETIC HELICAL SPRING CLUTCH

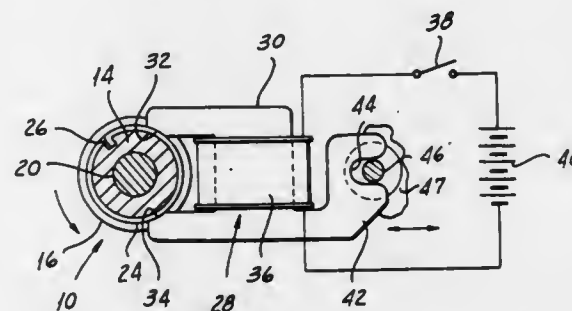
Benzion Landa, Alberta, Canada, assignor to Savin Corporation, Valhalla, N.Y.

Filed Jul. 11, 1980, Ser. No. 167,461

Int. Cl.³ F16D 27/10

U.S. Cl. 192-35

9 Claims



1. A magnetically actuated clutch assembly including in combination a first clutch member, a second clutch member, said first and second clutch members being supported for rotary movement around a common axis, a helical spring, means for securing one end of said spring to said first clutch member for rotation therewith around said axis, a portion of said spring having a free end surrounding said second clutch member, the arrangement being such that said spring portion rotates relative to said second clutch member in the absence of a restraint against the movement of said free end, one of said spring and said second member being formed of magnetic material, an electromagnet comprising a pair of pole pieces of opposite polarity, means mounting said electromagnet for movement toward said second clutch member with said pole pieces adjacent said surrounding spring portion, a coil carried by said electromagnet, and means for energizing said coil to cause said pole pieces to move toward said second clutch member to exert a retarding force on said free end.

4,364,461

PARKING INDICATOR TOKEN STRIP

George Tauber, Kandlgasse 37, Vienna, Austria (A-1071)

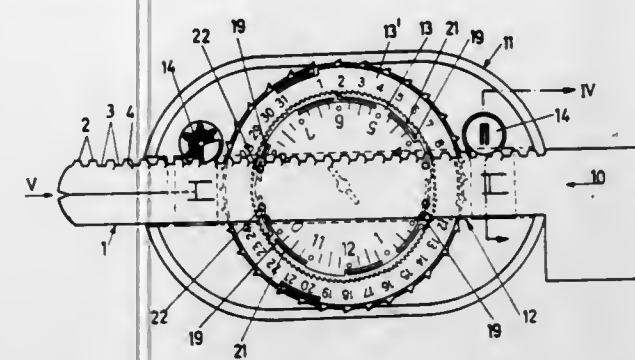
Filed Oct. 1, 1980, Ser. No. 192,840

Claims priority, application Switzerland, Mar. 21, 1980, 2248/80

Int. Cl.³ G07F 7/02

U.S. Cl. 194-4 D

24 Claims



1. A value strip for use in a parking indicator of the type including a casing, means for indicating the time of commencement of parking and operably connected to and movable with respect to the casing, a channel through the casing for insertion therethrough of the value strip to prevent adjustment of the time indicating means, and locking means for retaining the value strip in the channel, said value strip comprising:

an elongated flat member having formed along one longitudinal edge tooth means for meshing engagement with the locking means of a parking indicator, said member having a weakening means for causing visible destruction of said member to occur when removal of said member from the channel in the parking indicator, in the direction of insertion into the channel or in a direction opposite to the direction of insertion is attempted.

4,364,462

APPARATUS FOR TRANSPORT AND TEMPORARY STORAGE OF CIGARETTES OR THE LIKE BETWEEN PRODUCING AND PROCESSING MACHINES

Gerhard Tolasch, and Hans J. Grasse, both of Wentorf, Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. K.G., Hamburg, Fed. Rep. of Germany

Continuation of Ser. No. 878,615, Feb. 16, 1978, abandoned.

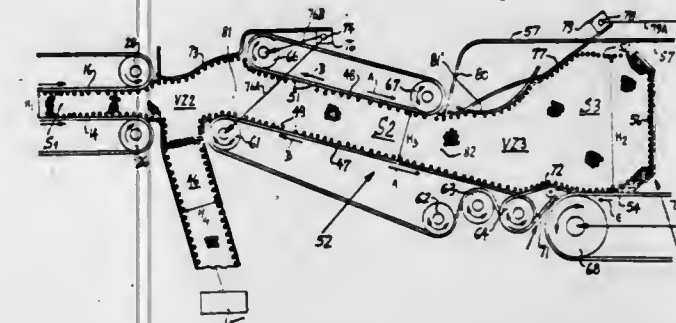
This application Oct. 6, 1980, Ser. No. 194,600

Claims priority, application Fed. Rep. of Germany, Dec. 30, 1977, 2758863

Int. Cl.³ B65G 1/00

U.S. Cl. 198-347

7 Claims



1. Apparatus for transporting cigarettes or analogous rod-shaped articles which constitute or form part of smokers' products from at least one variable-capacity producing machine to at least one variable-capacity consuming machine, comprising means for transporting a multi-layer stream of articles from the producing machine along a first path having a discharge end; a conveying device including a channel having a receiving end at said discharge end and defining a second path for delivery of articles of said multi-layer stream to the

consuming machine, the cross-sectional area of said channel being such that the articles therein form a multi-layer stream; at least one variable-volume surge bin having a first inlet-outlet opening for admission of articles into or for evacuation of articles from its interior, said surge bin comprising a reciprocable bottom wall and an end wall extending upwardly from and movable with said bottom wall toward and away from said first opening to thereby respectively reduce and increase the volume of said surge bin; means for monitoring the upper level of the article layer in the region of said first opening, said monitoring means being installed at a predetermined distance from said bottom wall; means for moving said end wall away from and toward said first opening when the monitored level respectively rises and falls; sensor means adjacent to said discharge end and movable between a plurality of positions each indicative of a different ratio of the rate of transport of articles along said first path to the rate of delivery of articles along said second path; an intermediate reservoir communicating with said first opening and having a second inlet-outlet opening adjacent to said first path, said reservoir including means for conveying articles from said surge bin to said first path for introduction into said receiving end when the requirements of the consuming machine exceed the output of the producing machine and for conveying articles from said first path into said surge bin when the output of the producing machine exceeds the requirements of the consuming machine, said second opening being in communication with said discharge end and with said receiving end to admit articles from said discharge end into said reservoir when the output of the producing machine exceeds the requirements of the consuming machine and to admit articles into said receiving end when the requirements of the consuming machine exceed the output of the producing machine; and drive means for operating said conveying means in dependency on the position of said sensor means so as to advance articles from said surge bin to said first path when said ratio decreases and to advance articles from said first path into said surge bin when said ratio increases.

4,364,463

TURNOVER CONVEYOR

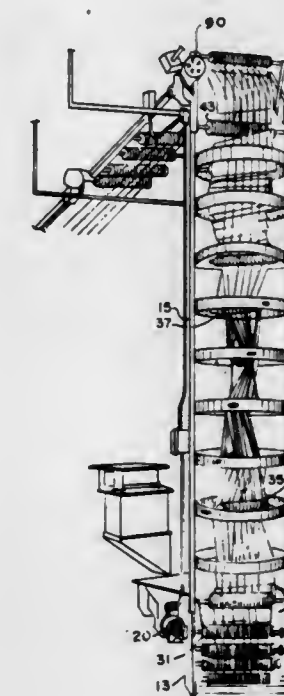
Arthur V. Faltus, 1643 LaSalle St., Belleville, Ill. 62221

Filed Nov. 12, 1980, Ser. No. 206,094

Int. Cl.³ B65G 47/24

U.S. Cl. 198-405

9 Claims



1. In a double wire belt conveyor for conveying newspapers along a line of travel the improvement comprising a series of wire belt-carrying rolls spaced along the line of travel, each rotatably mounted on an axis in a plane substantially perpendicular to the line of travel, successive of said rolls being

skewed angularly, in the same direction, from the previous roll, a multiplicity of endless wire belts in sets, the belts in each set extending around two, alternate, rolls in a reach that spans across one intermediate roll, and means for driving the rolls at one end of said series of rolls connected to drive a roll connected by said wire belts to alternate rolls of the series, and at the other end of the series of rolls, connected to drive the other alternate rolls of the series, whereby the skew of any set of wire belts does not exceed the sum of the skews of two successive rolls within the reach of said set of belts.

4,364,464

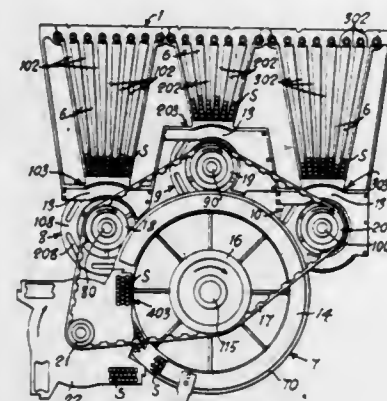
APPARATUS FOR THE FORMATION OF CIGARETTE GROUPS

Renato Manservigi, and Antonio Zullo, both of Bologna, Italy, assignors to Cir S.p.A. Divisione Sasib, Bologna, Italy
Filed Apr. 23, 1980, Ser. No. 142,997

Claims priority, application Italy, Apr. 27, 1979, 12563 A/79
Int. Cl.³ B65B 19/10

U.S. Cl. 198—419

3 Claims



1. Apparatus for the formation of cigarette groups each consisting of at least two parallel superposed rows of cigarettes, said apparatus including a feed hopper; a plurality of passageways for each of said rows of cigarettes, said passageways receiving cigarettes from said feed hopper; a row-forming station, open at both ends, terminating each of said pluralities of passageways; and a rotatable receiving drum having a plurality of angularly equispaced groups of receiving pockets, wherein the improvement comprises:

an intermediate transfer drum for each of said row-forming stations positioned between an associated row-forming station and said receiving drum, each of said intermediate transfer drums having a plurality of angularly equispaced transfer pockets open at both ends and adapted to receive a cigarette row, said intermediate transfer drums being rotated in synchronism with said receiving drum so that each transfer pocket of each intermediate transfer drum is brought successively into alignment, at different angular positions, with a corresponding row-forming station and with a receiving pocket of said receiving drum;
first pusher means for pushing cigarette rows from said row-forming stations into the transfer pockets of said intermediate transfer drums; and
second pusher means for pushing cigarette rows from the transfer pockets of said intermediate transfer drums into the receiving pockets of said receiving drum;
wherein each of said plurality of passageways is defined by partition walls extending downward from said hopper; and
wherein each of said row-forming stations is positioned in a horizontal plane and comprises a horizontal abutment plate spaced from the lower end of said partition walls to form an open ended collecting space in which a single row of cigarettes is formed in a horizontal plane, and a jogger at each end of said collecting space movable in synchronism with the movement of said first pusher means.

4,364,465

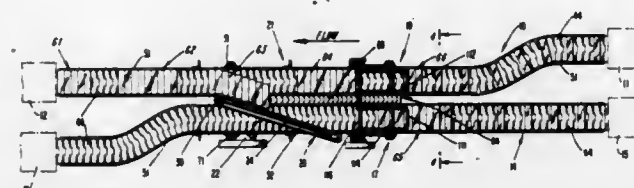
COLLATING CONVEYOR SYSTEM

George R. Kraft, Clifton, N.J.; Albert V. Cole, Houston, Tex., and Henry E. Kimbrel, Fayetteville, Ga., assignors to Nabisco, Inc., East Hanover, N.J.

Filed Sep. 19, 1980, Ser. No. 188,715
Int. Cl.³ B65G 47/10

U.S. Cl. 198—452

7 Claims



1. A collating conveyor arrangement comprising in combination first and second conveyors having parallel sections separated by a space, a third conveyor above said parallel sections of said first and second conveyors and positioned on-edge to direct articles obliquely from one of said parallel conveyor sections to the other, first and second dam mechanisms upstream of said on-edge conveyor for respectively controlling the flow of articles along said first and second conveyors, and means for operating said dam mechanisms to feed groups of articles alternately down said first and second conveyors toward said on-edge conveyor, said on-edge conveyor having a first end positioned above said space between said first and second conveyors, and said on-edge conveyor being pivoted about a vertical axis extending into said space for movement of the conveyor between a first position extending diagonally across first conveyor and a second position extending diagonally across said second conveyor, wherein said dam mechanisms include first and second pivoted arm assemblies mounted respectively above said first and second conveyors, said arm assemblies each including a roller mounted at the free end thereof, said arm assemblies being moveable between a lower position and an upper position, in said lower position said roller being positioned to engage the leading edge of and article on the conveyor associated with that arm and thus form a group of articles having a continuous top surface, in said upper position said roller is moved out of engagement with the leading edge of the engaged article to allow the group to move down the conveyor, and wherein said dam operating means includes first and second cam means for periodically raising said first and second arm assemblies respectively to said upper position briefly to release the group of articles and then lower the assembly to place the roller onto the continuous top surface of the group, whereby the assembly drops to the lower position when the last article in the group formed moves past the roller.

4,364,466

CAN END SEPARATOR-CONVEYOR

Wallace W. Mojden, Hinsdale, Ill., assignor to Fleetwood Systems, Inc., Countryside, Ill.

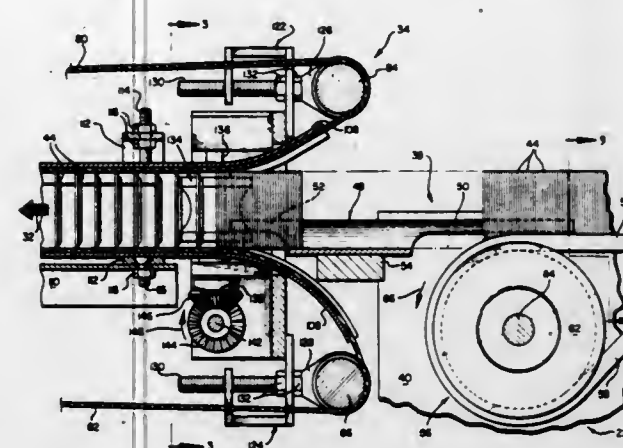
Filed Nov. 13, 1980, Ser. No. 206,456
Int. Cl.³ B65G 47/31, 47/26; B65H 5/02

U.S. Cl. 198—459

7 Claims

1. A conveyor system for handling a stack of can ends in face-wise engagement with the axes of the individual ends making up said stack being disposed generally longitudinally to a given path of movement for said ends, and for separating individual can ends from the stack and conveying said ends along said path while maintaining separation of the individual can ends and the generally longitudinal disposition of the can end axes, said conveyor system comprising: receiving means for receiving a stack of can ends in face-wise engagement; a pair of confronting conveyor members positioned substantially parallel to each other and disposed along and defining said path of movement for the can ends, said conveyor members being spaced apart to engage the edges of the can ends at diametrically opposed locations; drive means for imparting linear

movement to each said conveyor member and the can ends gripped thereby; and retarding means disposed intermediate said receiving means and said conveyor members for friction-taneously from the batch when said transfer unit is in the discharge position to allow the batch to fall onto the infeed conveyor.



ally engaging the can ends to impart spacing between the individual can ends as they are engaged by said confronting conveyor members for movement along said path.

4,364,467

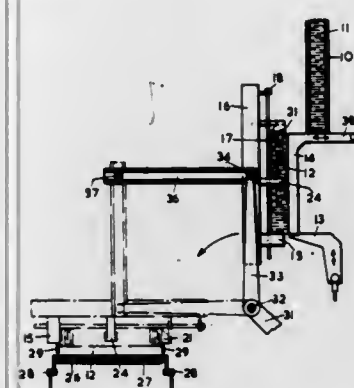
APPARATUS FOR HANDLING BISCUITS

Wallace J. Blakelock, Leeds, England, assignor to Baker Perkins Holdings Limited, Peterborough, England

Filed Dec. 29, 1980, Ser. No. 220,278
Int. Cl.³ B65G 25/00, 47/24

U.S. Cl. 198—486

4 Claims



1. The combination of an infeed conveyor of a biscuit wrapping machine for conveying successive batches of biscuits along a horizontal path to said machine, a magazine disposed above said conveyor and adapted to contain a vertical column of superposed biscuits, said magazine including a vertically reciprocable bottom support for the biscuits in said column and a horizontally reciprocable pusher operative in timed relationship with the movement of said bottom support to deliver successive batches of biscuits from the magazine, a transfer unit for transferring said delivered batches of biscuits from the magazine to the infeed conveyor, said transfer unit being movable from a loading position adjacent to the magazine to a discharge position above the infeed conveyor and including a frame constituted by a platform which extends horizontally in the loading position to support the bottom of each batch of biscuits delivered from the magazine, a support which extends upwardly from the platform in said loading position to engage the edges of the biscuits in each delivered batch and extends horizontally above the biscuits in said discharge position, a jaw movable into engagement with the top of the batch at the loading position to apply resilient pressure thereto and grippers movable to engage opposite sides of the batch in the central region thereof, means for moving the transfer unit from the loading position to the discharge position in timed relationship with the movements of said bottom support and said pusher, and means for engaging said jaw and said grippers with each batch of biscuits when said transfer unit is in said loading position and for withdrawing said jaw and said grippers simul-

4,364,468

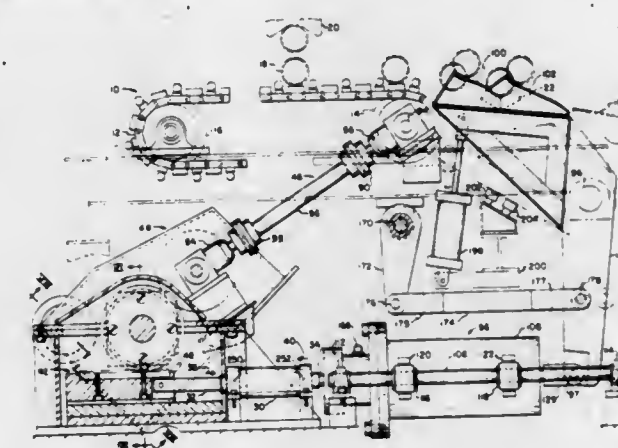
APPARATUS FOR CO-ORDINATING INDEXING MOVEMENT OF A CONVEYOR WITH PIVOTING OF A KICKOUT ARM ADJACENT THE DELIVERY END THEREOF

Andrew A. Hetra, Jr., Pittsburgh, and Charles W. Jacob, Crafton, both of Pa., assignors to United States Steel Corporation, Pittsburgh, Pa.

Filed Mar. 6, 1981, Ser. No. 241,190
Int. Cl.³ B65G 25/00

U.S. Cl. 198—489

7 Claims



1. Apparatus for driving an endless loop conveyor in indexing fashion and coordinating movement of a kickout arm therewith, said kickout arm being mounted adjacent a delivery end of said conveyor for removing workpieces therefrom, said apparatus comprising:

a double acting fluid powered cylinder means having first and second simultaneously reciprocable piston rods extending from opposite of the ends of said cylinder, said rods each having the axis thereof lying in the plane of said loop
means connected to the first of said rods for driving said loop upon movement of said rod in one of the directions of reciprocating movement thereof,
said kickout arm having an extension for rotating said arm about the pivot axis thereof from a lowered workpiece receiving position adjacent the end of said conveyor to a raised position for removal of said workpiece from the conveyor, and
means for operatively connecting and disconnecting said kickout arm from the second of said cylinder rods so that reciprocation of said rod will pivot said arm only while the conveyor loop is at rest between the intermittent movements thereof.

4,364,469

BOTTOM SUSPENSION ARRANGEMENT FOR A LIQUID SCREW CONVEYOR ASSEMBLY

Siegfried Rudolph, Hanover, Fed. Rep. of Germany, assignor to Schreiber-Klaranlagen Dr. Ing. Aug. Schreiber GmbH & Co. KG, Langenhagen, Fed. Rep. of Germany

Filed Feb. 18, 1981, Ser. No. 235,628

Claims priority, application Fed. Rep. of Germany, Feb. 18, 1980, 3006057

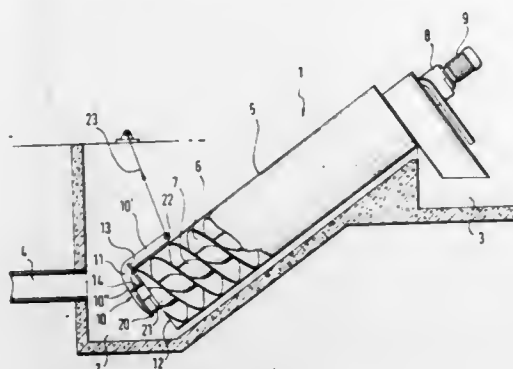
Int. Cl.³ B65G 65/34, 33/32

U.S. Cl. 198—616

3 Claims

1. A bottom suspension arrangement for a screw conveyor assembly, especially for the pumping of waste water, the assembly comprising a stationary cylindrical jacket having an open bottom end, a screw conveyor mounted within said jacket for rotation about a central axis thereof, said screw

conveyor including a central elongated tube and a spiral blade supported thereon, an anti-friction bearing extending outwardly of said bottom end of said jacket and supporting a bottom end of said core, the arrangement being attached to the screw conveyor assembly for suspending the bottom end thereof within a tank containing waste water to be pumped, said arrangement comprising a rigid, substantially L-shaped lever having one leg mounted at its terminal end on said bear-



ing so as to provide a first attachment point, the other leg of said lever being spaced from and extending along an upper side of said jacket, said other leg having a suspension point at its terminal end for the attachment of a suspension device, said one leg overlapping radially with said open bottom end, and brace plates interconnecting said lever and said jacket, said plates being mounted along a portion of the inner periphery of said jacket at said open bottom end so as to provide a second attachment point.

4,364,470

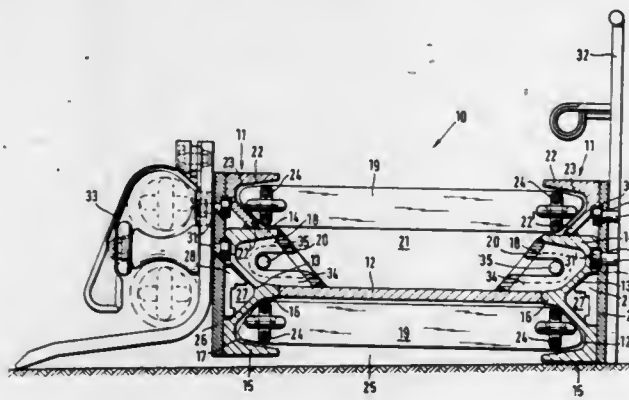
SCRAPER-CHAIN CONVEYOR

Helmut Temme, Waltróp, Fed. Rep. of Germany, assignor to Gewerkschaft Eisenhütte Westfalen, Fed. Rep. of Germany
Filed May 23, 1980, Ser. No. 155,996
Claims priority, application Fed. Rep. of Germany, May 26, 1979, 2921460

Int. Cl.³ B65G 19/28

U.S. Cl. 198—735

12 Claims



1. A scraper-chain conveyor comprising:
 - (a) plurality of channel sections directly joined together end-to-end,
 - (b) each channel section having a pair of side walls interconnected by a floor plate,
 - (c) a scraper assembly comprising a plurality of scrapers connected to a drive chain,
 - (d) the side walls of the channel sections being shaped to define, together with the floor plates, three vertically-spaced ducts,
 - (e) the scrapers being guided in the uppermost and lowermost ducts,
 - (f) coupling means operatively associated with the middle ducts for connecting the channel sections together,
 - (g) said coupling means includes a toggle bolt having a shank provided at each end with an enlarged head,
 - (h) each toggle bolt mating with complementary recesses

formed in a pair of inserts located at the adjacent ends of the middle ducts of the corresponding side walls of a pair of adjacent channel sections,
(i) the inserts of each pair including complementary projecting and recessed portions which mate with one another so that free play is provided between the channel sections when they are directly coupled together.

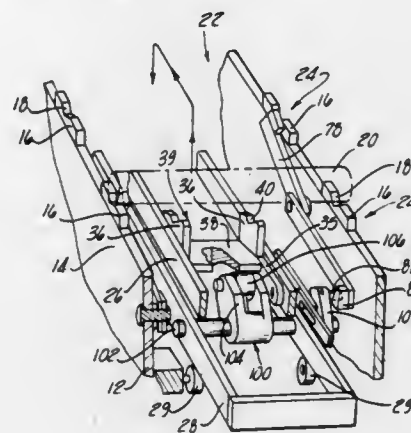
4,364,471

AUTOMATIC ACCUMULATING LIFT AND CARRY TRANSFER MECHANISM

James L. Furllette, 984 Bal Isle Dr., Fort Myers, Fla. 33907, and Donald A. Stadler, 10400 Hartland, Fenton, Mich. 48430
Filed May 8, 1980, Ser. No. 147,736
Int. Cl.³ B65G 25/00

U.S. Cl. 198—751

11 Claims



1. A mechanical automatic accumulating transfer mechanism comprising:
 - an elongated frame, said frame comprising a plurality of work support members secured to and spaced longitudinally along said frame and on each lateral side thereof, said support members on opposite lateral sides of the frame being in alignment with each other and forming a work station along the frame adapted to receive and support a workpiece;
 - a main carriage assembly and means for longitudinally slidably mounting said main carriage assembly to said frame between a forward and a retracted position;
 - means for longitudinally reciprocally moving said main carriage assembly between said forward and said retracted position;
 - a plurality of lifting members pivotally secured to said main carriage assembly at longitudinally spaced intervals therealong so that at least one lifting member is associated with each work station, said lifting members being pivotal between an upper position and a lower position wherein in said upper position said lifting members engage and elevate a workpiece at their associated work station up from the work support members at said work station and wherein in said lower position said lifting members are positioned below a workpiece supported by the work support members at said work station;
 - means for moving said lifting members between their upper and lower position when said main carriage assembly is in its forward or retracted position, and wherein said means for moving said lifting members between said upper and said lower position comprises:
 - an actuating carriage assembly and means for longitudinally slidably mounting said actuating carriage assembly to said main carriage assembly so that said actuating carriage assembly is movable between an actuating position and a nonactuating position with respect to said main carriage assembly;
 - means for longitudinally moving said actuating carriage assembly to its actuating position when said main carriage assembly is in its retracted position and for moving said

actuating carriage assembly to its nonactuating position when said main carriage assembly is in its forward position;
means secured to said actuating carriage assembly for pivoting said lifting members to their upper position as said actuating carriage assembly is longitudinally moved to its actuating position and for releasing said lifting members to their lower position when said actuating carriage assembly is longitudinally moved to its nonactuating position; and
wherein as said lifting members pivot from said lower position to said upper position, said workpiece is engaged and lifted exclusively by the pivoting of said lifting members.

4,364,472

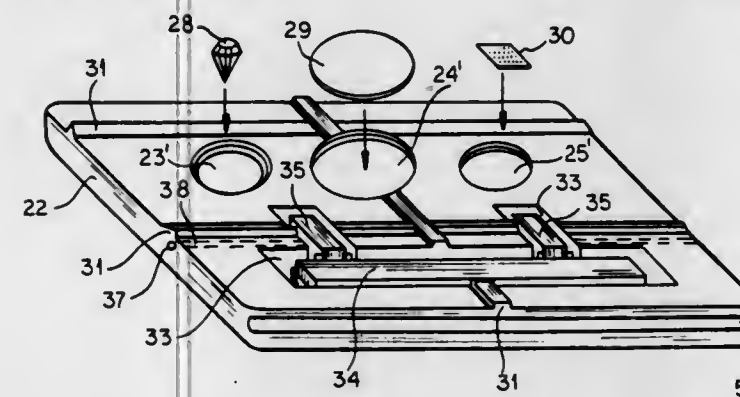
PACKAGE FOR DIAMONDS AND OTHER PRECIOUS STONES

Othmar E. Waldmeier, Basel, Switzerland, assignor to Elas Trust Reg., Mauren, Switzerland
Continuation-in-part of Ser. No. 63,167, Aug. 2, 1979, Pat. No. 4,275,810. This application Apr. 24, 1981, Ser. No. 257,164
Claims priority, application Switzerland, Jun. 1, 1979, 5153/79

Int. Cl.³ B65D 25/54, 61/00; A45C 11/16

U.S. Cl. 206—45.34

28 Claims



1. A secure package for a precious stone comprising:
 - two substantially coextensive rigid members secured together and formed with respective throughgoing bores defining a compartment for a precious stone and secured together so as to prevent opening of the package without noticeable damage thereto;
 - respective rigid windows fixed in said members and enabling viewing of said stone within said compartment; and
 - at least one data carrier received in said package and provided with externally monitorable coded information relating to the stone in said compartment.

4,364,473

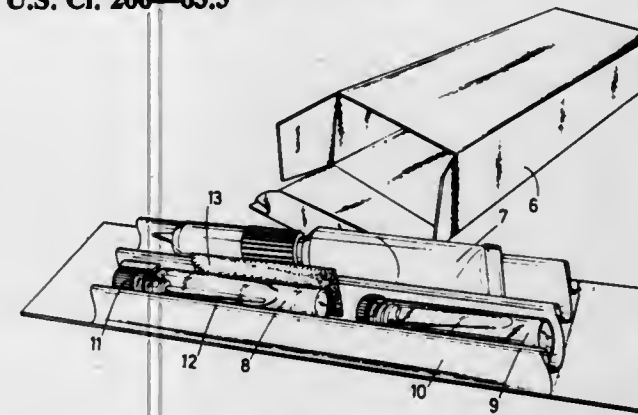
OUTFIT FOR REPAIR OF SPLIT DENTAL PROSTHESIS

Jean-Pierre Bogaert, Brussels, Belgium, assignor to Bonyf AG, Schaan, Liechtenstein
Division of Ser. No. 82,897, Oct. 3, 1979, Pat. No. 4,270,904.
This application Jan. 5, 1981, Ser. No. 222,745

Int. Cl.³ B65D 85/32

U.S. Cl. 206—63.5

4 Claims



1. An outfit for repairing a split or broken dental prosthesis

comprising: a package; a tube of non toxic fast-setting adhesive having an affinity for the material the prosthesis is made of; container means for separately containing a monomer and polymer which when mixed together form a resin; and a support which is contained by said package said support including means for receiving and separately supporting said container, means and said tube of adhesive.

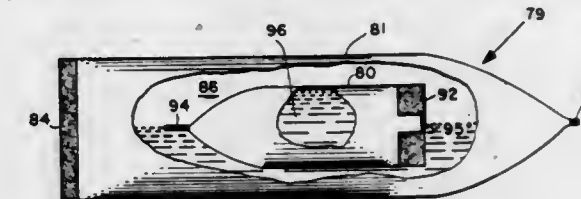
4,364,474

PACKAGES

Edward F. Hollander, Jr., Broomall, Pa., assignor to John P. Glass, d.b.a. Cava Industries, Essington, Pa.
Continuation of Ser. No. 720,084, Sep. 2, 1976, abandoned. This application Oct. 10, 1978, Ser. No. 950,174
Int. Cl.³ B65D 77/04, 77/12, 77/38

U.S. Cl. 206—219

4 Claims



1. A package comprising an inner cylindrical tube of flexible material,
 - a first end of said tube being closed by a first ultrasonic seal extending transversely across the tube,
 - a second end of said tube being closed by a second rupturable ultrasonic seal extending transversely across the tube, said tube providing an internal chamber between said seals for containing a fluid,
 - an outer cylindrical tube having a diameter larger than said inner tube,
 - said outer tube containing a fluid and said inner tube being contained within said outer tube separate from the sealed ends of the outer tube,
 - a first end of said outer tube being closed by a permanent ultrasonic seal extending transversely across the tube,
 - a second end of the outer tube being closed by a rupturable ultrasonic seal,
 - the rupturable seal of the inner tube being weaker than the rupturable seal of the outer tube,
 - whereby the contents of the inner tube may be discharged into the interior of the outer tube for mixture with the contents of the outer tube by squeezing the outer tube with sufficient force to rupture the rupturable seal of the inner tube but not the rupturable seal of the outer tube, and
 - whereby the mixture may be dispensed by squeezing the outer tube with sufficient force to rupture the rupturable seal of the outer tube.

4,364,475

MICROFICHE TRAY

Ronald D'Elia, Greenwich, Conn., assignor to Delco Associates, Inc., Greenwich, Conn.

Filed Feb. 2, 1981, Ser. No. 230,437

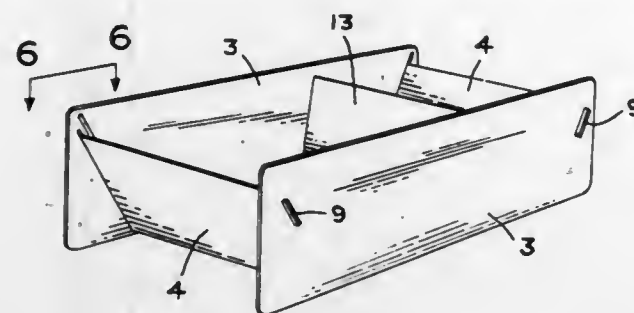
Int. Cl.³ B65D 5/30, 5/48, 85/00

U.S. Cl. 206—425

11 Claims

1. A tray for supporting juxtaposed articles comprising a base, a pair of opposite side parts and a pair of opposite end parts, said base said parts and end parts being made from a relatively thin, one-piece body, said side parts and end parts being upfolded from said base and interlocking means on said side parts and said end parts to lock said side parts and end parts in upfolded position, the articles being supportable in juxtaposed relation on the base, said interlocking means comprising tabs and slots, said tabs being on one of said pair of parts and said slots being provided in the other of said pair of parts, said tabs being engageable in said slots, said tabs and slots being

arranged to hold said side parts and end parts in secured, stable relation in upfolded position on said base, said one pair of parts having opposite edges at which said tabs project, said other pair of parts including ribs on opposite sides of said slots



extending parallel therewith and projecting from said other pair of parts for releasably holding said edges of said first pair of parts with said tabs engaged in said slots and blocking relative pivotal movement of said parts.

4,364,476

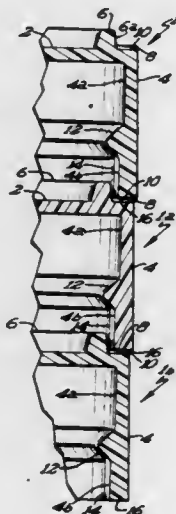
PLASTIC LID WITH STACKING SEPARATION MEANS
Kenneth G. Weller, Golden Valley, and James V. Ostrum, St. Paul, both of Minn., assignors to Shamrock Industries, Inc., New Hope, Minn.

Filed Jan. 5, 1982, Ser. No. 337,164

Int. Cl.³ B65D 21/02, 43/10

U.S. Cl. 206—508

7 Claims



1. An improved, stackable lid for containers comprising:
 - a substantially planar top wall, and a side wall formed integrally with said top wall from flexible material and depending from the periphery thereof as a skirt to form a container closure lid;
 - a raised stacking ring on the upper surface of said top wall extending around the periphery thereof at a location spaced radially inwardly from said side wall, thereby forming a stacking shoulder on said top wall between said ring and said side wall; and
 - a plurality of protrusion segments spaced apart around the inside surface of said side wall and projecting inwardly therefrom, said protrusion segments being sized and located to contact the outer surface of a stacking ring on an adjacent one of said lids with which said lid may be vertically stacked, whereby the spaces between said protrusions around the inside surface of said side wall comprise vent openings between the stacking rings and side walls of adjacent ones of said lids when a plurality of said lids are stacked together with the bottom of the side wall of each lid resting on the said stacking shoulder of an adjacent lid.

4,364,477

PLASTICS FISH BOX

Per S. Stromberg, Raelingen N-2000, Lillestrom, Norway

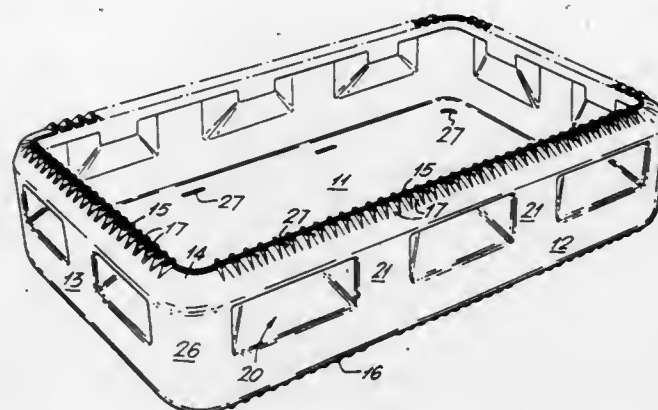
Filed Jun. 16, 1978, Ser. No. 916,428

Claims priority, application Denmark, Jun. 17, 1977, 2689/77; United Kingdom, May 31, 1978, 24878/78

Int. Cl.³ B65D 21/02

U.S. Cl. 206—511

4 Claims



1. A fish box for use on board fishing boats at sea, the fish box being formed of plastics material, and having:
 - (a) a bottom;
 - (b) side and end walls upstanding from the bottom and defining an upper edge to the box;
 - (c) a rim which extends around the said upper edge and in which the side and end walls terminate;
 - (d) the side and end walls being formed with a wave-shaped contour region, the wave-shaped contour region and the rim together serving to define a plurality of hand-grip recesses;
 - (e) the side and end walls, including edge regions thereof serving to define corner edge regions of the box, being of substantially the same thickness throughout and being formed with a substantially uniform thickness of material;
 - (f) the wave-shaped contour region being confined to respective upper portions of the side and end walls which are adjacent the rim; and
 - (g) the remaining lower portions of the side and end walls being smoothly formed without contour.

4,364,478

MANUFACTURE OF EASILY OPENABLE FOIL BAG
Heinz-Joseph Tüms, Dachsen, Switzerland, assignor to SIG-Schweizerische Industrie-Gesellschaft, Neuhausen am Rheinfall, Switzerland

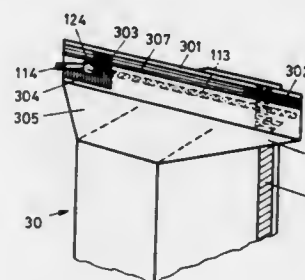
Filed Mar. 6, 1981, Ser. No. 241,066

Claims priority, application Switzerland, Mar. 14, 1980, 2055/80

Int. Cl.³ B65D 3/26

U.S. Cl. 206—605

10 Claims



1. In a foil bag composed of a foil piece and tearing means, the bag having a flattened head portion having two walls, a longitudinal seam extending across one of said walls of the head portion, and a transverse seam which secures the two walls of said head portion to each other, said transverse seam

being transverse to, and crossing, the longitudinal seam in the head portion and sealing the bag, the tearing means being spaced from the transverse seam in the direction toward the interior of the bag, and serving to aid opening by permitting a wall of the head portion which is not traversed by the longitudinal seam and which extends approximately across the width of the head portion to be torn open, and the tearing means being in the form of a strip provided with a gripping part projecting from the bag, the improvement wherein: said bag is provided with a U-shaped passage opening composed of two cuts parallel to, and one cut perpendicular to, said transverse seam in the head portion; said gripping part extends through said opening from the interior of said bag to the exterior of said bag; and said bag is further provided with a seam parallel to said transverse seam and at the opposite side of said opening from said transverse seam, and a sealing seam intersecting said transverse seam and said seam parallel to said transverse seam to form therewith a gastight seal around said passage opening.

4,364,479

AUTOMATIC MACHINE FOR SORTING OUT ROUND, OVAL OR FLAT FRUIT IN ACCORDANCE WITH THEIR DIAMETER

Alberto Sardo, Le Chesnay, France, assignor to Xeda International S.A., Le Chesnay, France

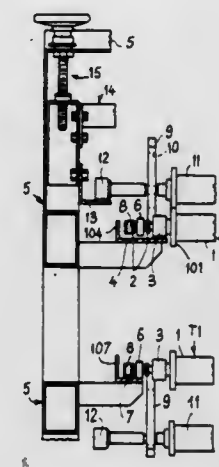
Filed Nov. 10, 1980, Ser. No. 205,615

Claims priority, application Italy, Dec. 21, 1979, 12871 A/79

Int. Cl.³ B07B 13/075

U.S. Cl. 209—668

2 Claims



1. A machine for sorting out in particular fruit in accordance with their size, said machine comprising a frame, an endless conveyor which has an upper reach and a lower reach, the upper reach of the conveyor being movable from one end to an opposite end of the conveyor relative to the frame and the lower reach of the conveyor being movable from said opposite end to said one end of the conveyor relative to the frame, the conveyor comprising flexible means and first rollers which are rotatively mounted on the flexible means, are equally spaced apart, are parallel to each other, define gaps between the first rollers, second rollers, means for mounting the second rollers on the flexible means so that the second rollers are rotatable, are respectively located in planes between adjacent first rollers, and movable upwardly and downwardly relative to the frame and cooperative with the second rollers of the upper reach of the conveyor for displacing the second rollers of the upper reach of the conveyor progressively away from the first rollers of the upper reach of the conveyor as the upper reach of the conveyor moves toward said opposite end relative to the frame, and means for rotating the first rollers and second rollers of the upper reach of the conveyor in the same direction at a required speed, whereby the fruit, disposed in spaces existing between the first and second rollers in the upper reach of the conveyor, is driven in rotation as the upper reach of the conveyor moves toward said opposite end and drops from said

spaces when the second rollers move progressively away from the first rollers and the spacing between the first and second rollers is equal to or greater than the equatorial dimension of the fruit, second guide means for guiding the lower reach of the conveyor as the lower reach of the conveyor moves from said opposite end to said one end of the conveyor, the first rollers and second rollers of the lower reach of the conveyor being devoid of means for driving them in rotation and said second guide means being inoperative to drive the first rollers and second rollers of the lower reach of the conveyor in rotation, and means provided below the conveyor for receiving the fruit thus sorted out into different sizes.

4,364,480

GLASS STAND

Mutsuyuki Ohno, Nagoya, Japan, assignor to Cho-Jirushi Plastics Industry Co., Ltd., Aichi, Japan

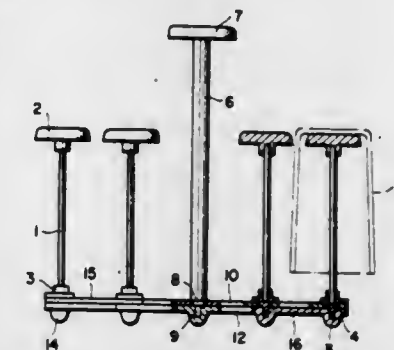
Filed Apr. 4, 1980, Ser. No. 137,155

Claims priority, application Japan, Apr. 10, 1979, 54-47360[U]

Int. Cl.³ A47G 29/00

U.S. Cl. 211—85

2 Claims



1. A glass stand for supporting a plurality of glasses with bottoms upward, said stand comprising,
 - a plurality of upper members,
 - a plurality of lower members,
 - a plurality of pivot means,
 - said members being arranged in the form of a pantagraph and having apertures located at cross points of said pantagraph for receiving said pivot means, said members being pivoted about said plurality of pivot means for expansion and contraction of said pantagraph,
 - each of said lower members having legs extending therefrom at respective sites of the apertures in said lower members and being mounted to respective ones of said pivot means received by said apertures, said pivot means extending from said lower members in a direction opposite from said legs,
 - said pivot means passing through the apertures of said upper members for pivotal connection therewith,
 - means extending upwardly from individual ones of said pivot means for engagement with said glasses, wherein the pivot means has a larger diameter shaft portion complementarily disposed in a corresponding of said apertures of said upper members and a smaller diameter shaft portion coaxial to said larger diameter shaft portion complementarily disposed in a corresponding of said apertures of said lower members.

4,364,481

SHELF ORGANIZER

Albert A. Ricci, Yonkers, N.Y., assignor to Bristol-Myers Company, New York, N.Y.

Filed Oct. 20, 1980, Ser. No. 198,571

Int. Cl.³ B01B 23/00

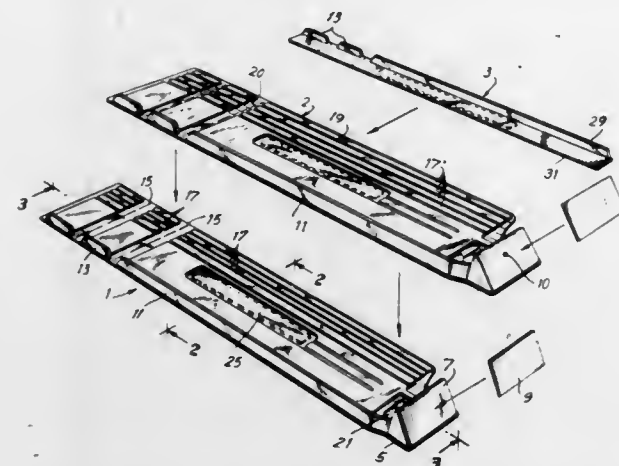
U.S. Cl. 211—184

6 Claims

1. A variable shelf organizer adapted to being assembled to

give shelf organizers of different overall horizontal dimensions as well as product troughs of various sizes comprising:

- (a) at least one regular organizer unit, at least one longitudinally perforated organizer unit and at least one end strip;
- (b) said regular organizer unit comprising a longitudinally extending product supporting member provided with a first barrier member extending upward from said supporting member adjacent a lateral margin of said supporting member, said product supporting member also being provided with a plurality of longitudinal grooves adapted to engage a barrier member from an adjacent organizer unit;
- (c) said longitudinally perforated organizer unit also comprising a second longitudinally extending product supporting



means and second barrier member having inner and outer legs extending upwardly from said product supporting member adjacent a lateral margin of said second product supporting member; said second product supporting member also being provided with a plurality of second longitudinal grooves having weakened lines formed at the bottom thereof whereby portions of said second product supporting member may be broken away to adjust the width of said shelf organizer; and

- (d) said end strip being provided with a horizontal member adapted to engage an adjacent organizer unit and an upwardly extending member adapted to serve as the guard rail marking lateral termination of the shelf organizer.

4,364,482

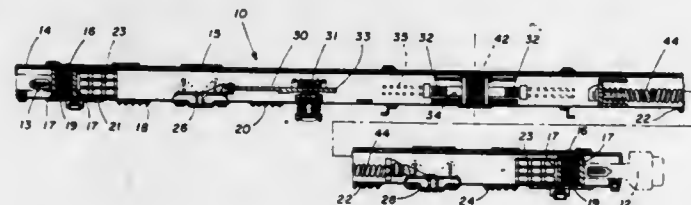
APPARATUS FOR CUSHIONING SHOCK FORCES ACTING ON THE UNDERFRAME OF A RAILWAY CAR
Walter C. Dilg, Elma, N.Y., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Jul. 7, 1980, Ser. No. 166,012

Int. Cl.³ B61B 9/12

U.S. Cl. 213-8

2 Claims



1. A cushion underframe for railway cars comprising: a pair of spaced bolsters extending laterally of the car and having aligned openings; a fixed sill extending lengthwise of the car through said aligned bolster openings; a movable sill disposed within said fixed sill and extending lengthwise of the car through said aligned bolster openings, said movable sill being movable relative to said fixed sill lengthwise of said car; cushion means disposed substantially adjacent each end of said sill for absorbing shocks generated during buff operating condition; low reaction cushion element affixed to said movable sill and

operable during initial increments of the sill's movement to cushion longitudinal shock forces applied to said sill; stop means including a first plate attached to said movable sill on one side of a bolster and a second plate attached to the sill on the other side of the bolster equidistant from the first plate for limiting maximum lengthwise travel of said sill relative to said bolster;

additional cushion means attached to said movable sill and located at approximately the longitudinal center thereof; means defining a pair of elongated slots formed in the movable sill on either side of said additional cushion means; and

first and second follower members affixed to said fixed sill, with a first follower member extending within one of said slots and a second follower member extending within the other of said slots, the distance between said follower members and said cushion element being less than the distance between the stop means plates and bolster, with engagement between one of said follower members and said additional cushion means cushioning the impact force between said stop means and said bolster.

4,364,483

CHILD PROOF SCREW CAP

Erich Golde, Auf der Landwehr 4, 3280 Bad Pyrmont, Fed. Rep. of Germany

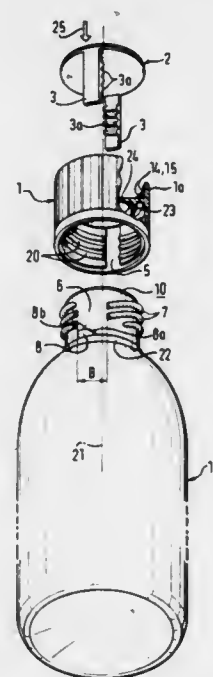
Filed Jul. 10, 1981, Ser. No. 282,235

Claims priority, application Fed. Rep. of Germany, Feb. 2, 1981, 3103414; Mar. 16, 1981, 3110152; May 11, 1981, 3118592

Int. Cl.³ B65D 55/02

U.S. Cl. 215-218

21 Claims



1. A child-proof screw-cap for such containers as bottles, pill boxes and the like, consisting of a closure cap with an inside thread screwing on an outer thread of the container neck and which can be opened only by exerting an axial pressure on, in addition to the rotational motion of the closure cap, characterized in that the inside wall of the closure cap (1) is provided with a plurality of stakes (3) distributed over its circumference and extending parallel to the closure axis (21) and joined by a common cover plate (2) which can be actuated from the upper side of the closure cap (1), said stakes (3) being displaceably guided in grooves (5) in the inside wall of the closure cap (1) and being provided on their inside with threads meshing with the inside thread (20) of the closure cap (1), the outside thread (7) at the container neck (10) being provided with clearances (6) extending parallel to the closure axis (21) and of which the given width (B) exceeds the width of the stakes (3) and of which the angular spacing corresponds to that of the stakes (3), where furthermore two indexing positions are provided for the

component consisting of the stakes (3) and the cover plate (2), in the first of which the threads (3a) in the stakes (3) mesh with the threads of the inside thread (20) in the closure cap (1) while in the second indexing position they are relatively offset by about half a pitch and where the first indexing position can be brought about by axial pressure on the cover plate (2) in the direction of the container (11) and the second indexing position can be brought about by stop means (8) which at the end of the closing motion of the closure cap (1) act on the stakes (3) and/or the cover plate (2).

4,364,484

CHILD RESISTANT CLOSURE

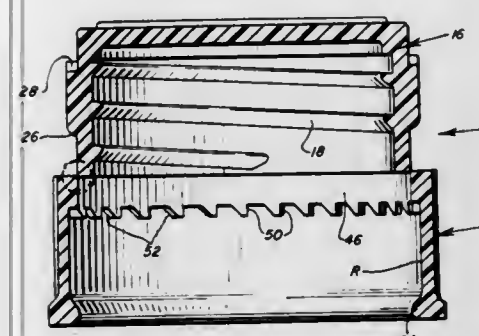
John P. Kinsley, Crystal Lake, Ill., assignor to Seaquist Valve Company, division of Pittway Corporation, Cary, Ill.

Filed Jul. 29, 1981, Ser. No. 288,148

Int. Cl.³ B65D 55/02, 85/56; A61J 1/00

U.S. Cl. 215-220

14 Claims



9. A molded unitary assembly adapted to be formed into a child resistant closure assembly for the threaded neck of a container comprising:

an internally threaded closure portion defining an internal thread and an internal upper sealing surface, said closure portion defining a sidewall providing a radially outwardly extending clutch ring, said clutch ring defining a multiplicity of upwardly facing closure teeth spaced about the periphery of the clutch ring, each said tooth providing a generally vertical leading edge and a substantially inclined trailing edge,

an open-topped collar portion, said collar portion comprising an outer gripping surface and an inner recess for receiving said clutch ring, and means defining said recess comprising a lower inwardly projecting retention bead and an upper collar clutch portion each of a diameter less than a diameter of said clutch ring, the lower surface of said clutch portion comprising a multiplicity of downwardly facing collar teeth, each said collar tooth defining a generally vertical leading edge and a substantially angled trailing edge,

a frangible web means connecting said collar portion and said closure portion with said clutch ring spaced vertically away from and out of said recess, whereby when said closure and collar are forced towards each other, said frangible web is adapted to be broken and said clutch ring is adapted to be forced past a collar portion of lesser diameter than that of said clutch ring into said recess.

4,364,485

INJECTABLE FLUID CONTAINER AND METHOD

Julius Z. Knapp, Somerset, N.J., assignor to Schering Corporation, Kenilworth, N.J.

Filed May 15, 1981, Ser. No. 263,816

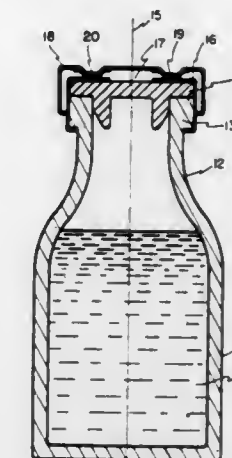
Int. Cl.³ B65D 41/14, 41/20, 41/30

U.S. Cl. 215-232

16 Claims

1. A pilfer-proof container for injectable fluid comprising: (a) a bottle having a neck, (b) an elastomeric stopper sealing said neck, (c) an inner seal fixedly secured to said neck to hold said

stopper, said inner seal having an opening to allow penetration of said stopper, and



- (d) an outer seal covering said opening removably attached to said inner seal with adhesive adapted to seal around said opening, said adhesive being non-flaking and non-rebondable upon removal of said outer seal.

4,364,486

PLUG-TYPE BOTTLE CLOSURE (PLASTIC CORK)

Rolf D. Korte, Domäne Dommelhof, 3543 Diemelsee-Ottlar, and Wilfried Rohlje, Sassmickerhammer 41, 5690 Olpe, both of Fed. Rep. of Germany

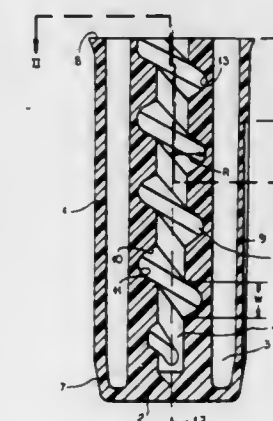
Filed Jul. 10, 1981, Ser. No. 282,160

Claims priority, application Fed. Rep. of Germany, Jul. 24, 1980, 3027995

Int. Cl.³ B65D 39/04, 39/16

U.S. Cl. 215-296

5 Claims



1. A plastic bottle cork comprising a unitary elongated body of synthetic-resin material formed with a hollow cylindrical outer member, a closed bottom, an axially extending core member connected to said bottom, and a plurality of angularly spaced radial walls bridging said members, said core member being formed with an elongated cavity closed in the region of said bottom and opened at the opposite end of said body, said cavity being formed with a passage conically tapering from said end toward said bottom, and a helical groove formed in the wall of said passage and having outwardly convergent flanks, the radius of said groove and the groove opening progressively diminishing from said end toward said bottom.

4,364,487

SAFETY DEVICE AGAINST OVERPRESSURES

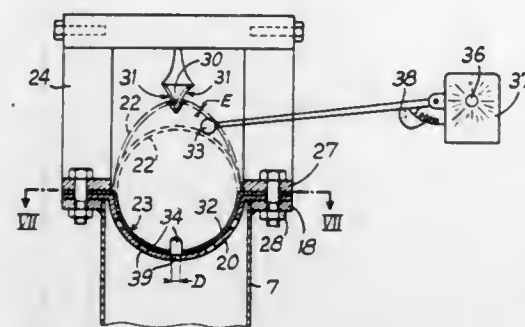
Huguette Drumare, 28, rue du Commandant Vesco, Sainte Adresse, France (76310)

Filed Dec. 3, 1980, Ser. No. 212,427

Int. Cl.³ B65D 25/00

U.S. Cl. 220—89 A

2 Claims



1. An overpressure relief device comprising fluid flow means providing a tubular passageway having an input end for connection to an enclosure with fluid under pressure and an output end for exhausting said fluid to the atmosphere, an imperforate, flexible membrane blocking said passageway and connected at its edge in fluid-tight relation to said means so as to prevent the flow of fluid from said input end to said output end, said membrane having insufficient strength by itself to prevent rupturing deformation thereof when the pressure at said output end exceeds the pressure at said input end by a predetermined amount, a perforate membrane holder mounted in said passageway between said membrane and said input end for engaging said membrane when it moves toward said input end, said holder having sufficient strength to prevent rupturing deformation of said membrane when the pressure at said output end exceeds the pressure at said input end by said predetermined amount, membrane perforating means mounted on said fluid flow means adjacent said membrane at the side thereof opposite from the side thereof at which said membrane holder is disposed for puncturing said membrane when it moves toward said output end under fluid pressure and by a predetermined distance away from said holder and detector means for indicating fluid pressure in said passageway less than the pressure required to cause said membrane to engage said membrane perforating means, said detector means having control means mounted in the path of movement of said membrane and engageable by said membrane prior to the time that said membrane engages said membrane perforating means.

4,364,488

CHILD-PROOF CONTAINER

Gunnar Anjou, Saltholmsgatan 43, Västra Frölunda, Sweden (421 76)

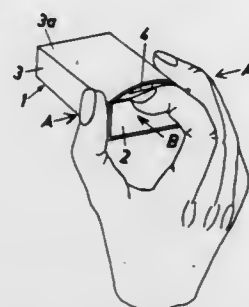
Filed Oct. 6, 1980, Ser. No. 194,346

Claims priority, application Sweden, Oct. 19, 1979, 7908671

Int. Cl.³ A45C 13/10

U.S. Cl. 220—281

9 Claims



1. In a child-proof container of the type comprising a drawer which is slidably displaceable in a casing having at least one of its flat side walls made from a material which is flexible in the latitudinal direction and on the inside of said one flat side wall is provided with catch means extending therefrom towards the interior of the casing, the improvement wherein the casing

comprises a tubular member which has a rectangular cross-section and is open at both ends, the catch means comprises at least two, spaced apart cam members located one near each one of the open ends of the casing and extending towards the interior thereof a distance exceeding the normal play between the casing and drawer, said cam members each having a substantially flat outer face inclined from said one flat side wall of said casing toward the adjacent open end and a substantially flat end face extending from and substantially perpendicular to said one flat side wall a distance sufficient to extend inside the edge of the adjacent end wall of the drawer when in the closed position thereby preventing unintentional opening of the container, and to release said edge to allow the drawer to be slidably displaced to the open position by outward bending of said one flat side wall of the casing caused by forces acting toward said casing and substantially perpendicularly to the displacement direction of the drawer, the flat outer inclined face of the other cam member engaging said released edge to resist complete removal of said drawer from said casing.

4,364,489

CONTAINER LID

Victor Alexeeff, Weston, Canada, assignor to Nestier Canada Inc., Ontario, Canada

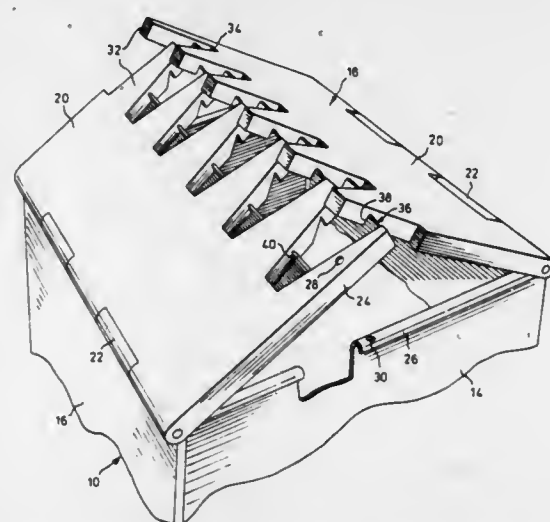
Continuation of Ser. No. 144,401, Apr. 28, 1980, abandoned.

This application Aug. 10, 1981, Ser. No. 292,879

Int. Cl.³ B65D 43/14, 51/04

U.S. Cl. 220—334

16 Claims



1. A stacking container having a bottom and two pairs of opposed side walls, a cover comprising two portions hinged to one pair of opposed side walls, the opposed lateral edges of each cover portion having means to engage the upper edges of the other pair of opposed side walls of the container when in closed position, the outer free edges of the cover portions meeting, when the cover is in closed position, to present a flat upper surface of the cover, said free edges each being crenelated, with a plurality of spaced teeth having recesses therebetween, to interfit one with the other when closed, means on the underside of each of at least a plurality of teeth and means located in each corresponding recess interengaging when the cover portions are closed to inhibit lateral separation of the cover portions one from the other, each cover portion being sealable one on each of the other pair of opposed side walls, said interengaging means comprising a notch on the underside of each of at least a plurality of said teeth and a substantially vertically disposed flange transversely bridging each of at least a plurality of said recesses, each of said notches having a substantially vertical face on that side of the notch towards the free end of the tooth, and each flange being positioned to lie in the notch of an interfitting tooth adjacent the vertical face thereof when the cover portions are closed.

4,364,490

REFUSE RECEPTACLE WITH BAG LINERS SUPPLIED THROUGH THE BOTTOM FROM REPLACEABLE LINER SUPPLY PACKAGES

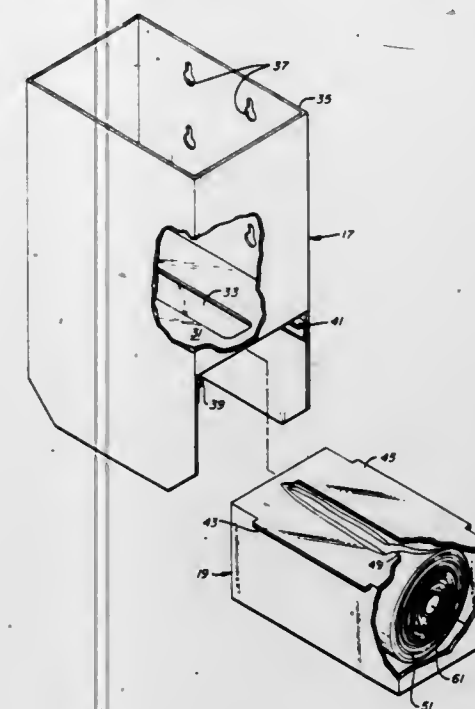
John Lang, Pinole, and R. Scott Hunter, San Rafael, both of Calif., assignors to Eric Reiner, Hollywood, Calif.

Filed Jun. 2, 1980, Ser. No. 155,669

Int. Cl.³ B65B 67/04

U.S. Cl. 220—407

20 Claims



7. For a disposable material receptacle adapted to be lined by disposable bags that are fed one at a time into the receptacle from its bottom, a package of such disposable bags, comprising: a container having top and side surfaces, said top surface being flat and rectilinearly shaped with an elongated slot therein opening into the interior of said container, said top surface extending beyond side surfaces on opposite sides of said slot to form outwardly extending flanges parallel to the length of said elongated slot, said flanges being stiff enough to support the weight of said package beneath said receptacle; and a plurality of bags carried within said container in a manner to continuously feed said bags of said slot one at a time in response to a bag being pulled out of said container through said slot.

4,364,491

HORIZONTAL ICE CREAM CONE DISPENSER

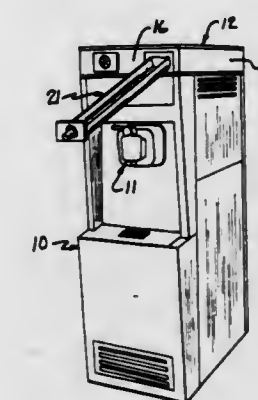
Lee E. Adamson, Roscoe, Ill., assignor to Beatrice Foods Co., Chicago, Ill.

Filed Jan. 2, 1981, Ser. No. 222,124

Int. Cl.³ B65G 59/10

U.S. Cl. 221—267

8 Claims



1. A horizontal cone dispenser adapted for dispensing fragile edible-type cones comprising, a generally horizontal stack tray

for guiding a nested stack of the cones for movement along a generally horizontal path lengthwise of the stack, means defining a dispensing outlet at one end of the stack tray having resilient cone retaining fingers around the dispensing outlet for engaging the outer wall of the end cone at one end of the stack and releasably retaining that end cone so that the end cone can be manually grasped and withdrawn through the dispensing outlet, means for advancing a stack of cones toward the dispensing outlet with a substantially constant force, said stack advancing means including a follower mounted for movement along the generally horizontal stack tray for engaging the other end of the stack, a coiled band constant-force type spring means operative when the coiled band is extended to provide a substantially constant linear resisting force tending to recoil the band, means connecting the coiled portion of the constant-force type spring means to one of the items comprising the follower and tray and the outer end of the band to the other of said items such that the band is extended when the follower is moved away from the dispensing outlet with the extended portion of the band generally paralleling the path of movement of the stack of cones along the stack tray, the constant-force type spring means being selected to provide a substantially constant force which is sufficient to advance a stack of cones to the dispensing outlet, the resilient cone engaging means being arranged to retain the end cone with a cone retaining force sufficient to prevent ejection of the end cone through the dispensing outlet when the stack is advanced by said constant-force type spring means, the stack tray including first and second spaced side walls and first and second trackways extending lengthwise of the respective first and second side walls, the follower including first and second pairs of rollers engaging the respective first and second trackways at locations spaced apart longitudinally thereof.

4,364,492

EASY-DISPENSING SAFETY CAP

Cheung T. Kong, 192H Casuda Canyon, Monterey Park, Calif. 91754

Continuation-in-part of Ser. No. 136,430, Apr. 2, 1980, abandoned. This application Feb. 23, 1981, Ser. No. 236,661

Int. Cl.³ B67D 5/06

U.S. Cl. 222—205

9 Claims



1. An easy-dispensing safety cap for selectively providing difficulty or ease in dispensing a liquid from a container comprising:

(a) an inner measuring means for measuring liquid to be dispensed from a container, the inner measuring means comprising a generally cylindrical configuration with one open end, an outer annular wall and an inner annular wall spaced from the outer annular wall and joined to the other annular wall by a bottom to define an upwardly opening measuring chamber within the outer annular wall, a planar surface extending across the inner annular wall to form a downwardly opening cavity within the inner annular wall

which downwardly opening cavity provides means for engaging a container from which liquid is dispensed, a conduit extending through the planar surface for permitting fluid flow between the downwardly opening cavity and measuring chamber, means within the conduit for selectively permitting or preventing fluid flow therethrough and an outwardly extending lip on the outer annular wall having a notch therein; and

(b) an outer cap comprising a generally cylindrical configuration formed by a sidewall with at least one opening extending through the sidewall, a top extending between the sidewall forming a downwardly opening cavity for receiving the inner measuring means such that the inner measuring means can slide within the cavity, stopping means positioned along the sidewall for engaging the lip on the outer annular wall of the inner measuring means and for preventing the inner measuring means from sliding out of the downwardly opening cavity, the inner measuring means being freely slidable between the stopping means and top, and a projection having a channel for fluid flow therealong extending downwardly from the top such that the projection engages the means within the conduit for permitting or preventing fluid flow through the conduit effectively closing or opening the conduit to fluid flow when the outer cap is rotated about the inner measuring means.

4,364,493

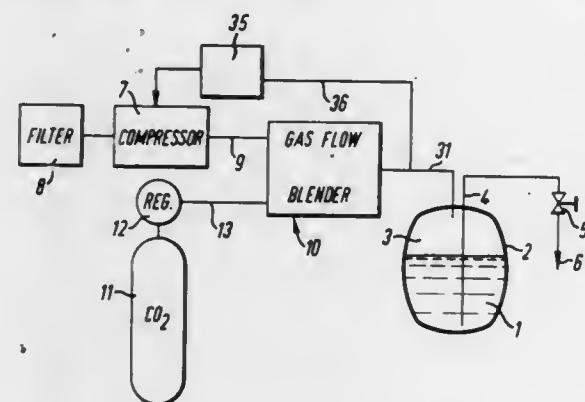
BEVERAGE DISPENSING SYSTEM

Stephen H. Raynes, Aylesbury, and David H. Miller, Higher Denham, both of England, assignors to Arthur Guinness Son and Company (Park Royal) Limited, London, England
Continuation-in-part of Ser. No. 66,611, Aug. 15, 1979, abandoned. This application Feb. 29, 1980, Ser. No. 125,909

Int. Cl.³ B65D 83/14

U.S. Cl. 222-399

25 Claims



1. A beverage dispensing system comprising a container from which the beverage is to be dispensed by pressure of a gaseous mixture of carbon dioxide and a second gas comprising nitrogen; a source of said second gas which is to communicate under pressure and on demand with the container; a source of carbon dioxide under pressure which is capable of communication with the container by way of valve means, said valve means being responsive to gaseous pressure in the system whereby upon the gaseous mixture being demanded for dispensing, pressure means by which the second gas under pressure is supplied on demand causes the valve means to be actuated to open communication between the source of carbon dioxide and the container and upon the demand for the gaseous mixture ceasing the valve means closes communication between the source of carbon dioxide and the container, and wherein the development of pressure of said second gas in the system by said pressure means causes the valve means to be actuated.

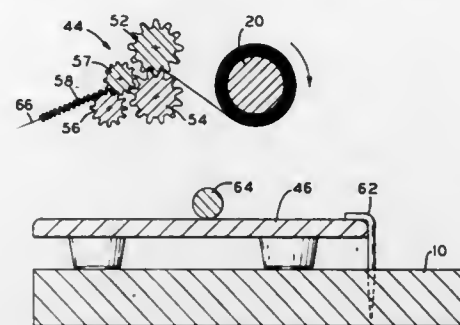
4,364,494
SMOCK GATHERING APPARATUS
Stewart S. Shive, Jr., New Haven, Ind., assignor to Janice R. Filbert, New Haven, Ind.

Filed Nov. 19, 1980, Ser. No. 208,196

Int. Cl.³ A44C 5/00; B62J 7/00

U.S. Cl. 223-28

11 Claims



1. Apparatus of the character described comprising a base board, two spaced apart bearing blocks carried by said board, a shaft adapted to support a roll of cloth material to be gathered mounted for rotation in bearing apertures in said bearing blocks, first means for adjustably securing said blocks in position on said base board, second means on said base board for removably securing a smock gathering machine thereto between said bearing blocks and in operative relation to said shaft, said first securing means including a mounting rod secured to said base board in substantially parallel relation thereto and received by clearance openings in said bearing blocks whereby said bearing blocks may be adjusted toward and away from each other in parallelism with said shaft.

4,364,495

GARMENT STRETCHER

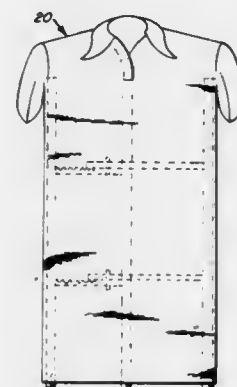
Alice R. Walker, Rte. 1, Box 279 B, Ocean City, Md. 21842

Filed Jun. 5, 1980, Ser. No. 156,844

Int. Cl.³ A41H 5/00

U.S. Cl. 223-61

7 Claims



1. An improved garment stretcher comprising three straight longitudinal bars, the first two being held in fixed spatial relationship by means of two straight cross bars permanently secured at each end to the first two longitudinal bars, these cross bars having a series of stepped adjustment means on their upper surface, the second or intermediate longitudinal bar having two openings therethrough, and a third longitudinal bar having two additional straight cross bars secured to it at one end of each, the free ends of these additional two cross bars extending through the said two openings in the second longitudinal bar to overlap the first-mentioned secured cross bars, the free end of each of the second said two cross bars having a depending cooperating means to interengage with the said series of stepped adjustment means on the secured two straight cross bars to provide lateral adjustment of the stretcher, means being provided for positively locking the cooperating interengaging means on the overlapping cross bars, said series of stepped adjustment means on the two secured cross bars com-

prising a series of spaced indentations, and the said depending cooperating means on the free end of each of the two overlapping cross bars comprises a detent member.

4,364,496

COAT HANGER

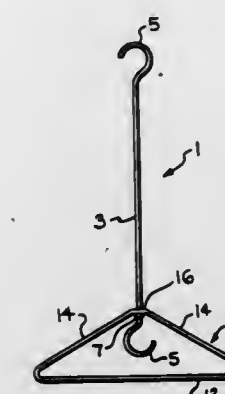
Bruce B. Bridgeman, 8404 N. Shore Blvd., Marblehead, Ohio 43440

Filed Sep. 8, 1980, Ser. No. 185,242

Int. Cl.³ A47J 51/08

U.S. Cl. 223-88

8 Claims



1. A hanger for hanging on a support surface comprising: an elongated shaft having a first hook located on one end of said shaft and a second hook located on the other end of said shaft, said first and second hooks constructed for selectively engaging said support surface; a single flange positioned on said shaft and extending radially outward from said shaft, said flange being positioned substantially adjacent one end of said shaft and adjacent said first hook; keying means positioned on said shaft adjacent to said flange, said keying means including a first keying means positioned adjacent said side of said flange that faces said first hook and a second keying means that is positioned adjacent said side of said flange that faces said second hook; and a garment supporting portion removably positioned on said shaft, said portion defining an aperture for receiving said shaft, said aperture having a configuration that mates with said keying means on said shaft, said aperture mating with said first keying means when said first hook is used to support said hanger on said support member and said aperture mating with said second keying means when said second hook is used to support said hanger on said support member, said flange retaining said portion in alignment with said keying means on said shaft whereby said aperture of said garment supporting portion can be positioned in engagement with said first keying means to position said garment supporting portion adjacent said first hook and whereby said aperture of said garment supporting portion can be positioned in engagement with said second keying means to position said garment supporting portion in spaced apart relationship with said second hook, whereby the position of said garment supporting portion with respect to said support surface can be varied.

4,364,497

DEVICE FOR SUPPORTING PARCELS ON A PARCEL RACK OF A TWO-WHEELED VEHICLE

Paul Zimmerli, CH-4467 Rothenfluh, Switzerland

Filed Feb. 12, 1981, Ser. No. 233,729

Claims priority, application Switzerland, Feb. 18, 1980, 1304/80

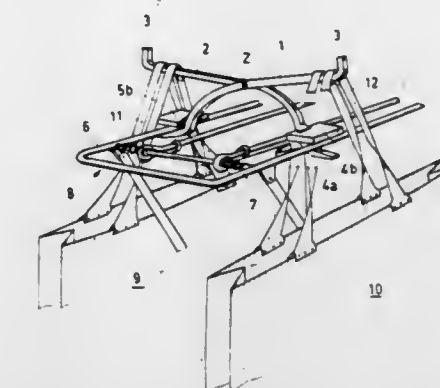
Int. Cl.³ B62J 9/00

U.S. Cl. 224-40

6 Claims

1. A device for supporting parcels on a parcel rack of a two-wheeled vehicle, comprising means for detachably suspending parcels in a freely suspended position laterally from

the rear wheel of the vehicle, said means consisting of two elongated levers which are pivotably connected to one another at a common pivot axis and cross one another in a scissorslike manner, the upper end of each lever being constructed as a receiver for the parcel, and the lower end of each lever being



provided with a mounting member mountable from the inside on a longitudinal beam of the parcel rack in such a way that, when the parcel rack is subjected to the load of one or more suspended parcels, both mounting members are pressed against the longitudinal beams of the parcel rack.

4,364,498

FASTENING DEVICE FOR ROOF CARRIER OF A MOTOR VEHICLE

Olaf Kuus, and Jakob Relovsky, both of Sindelfingen, Fed. Rep. of Germany, assignors to Daimler-Benz A.G., Stuttgart, Fed. Rep. of Germany

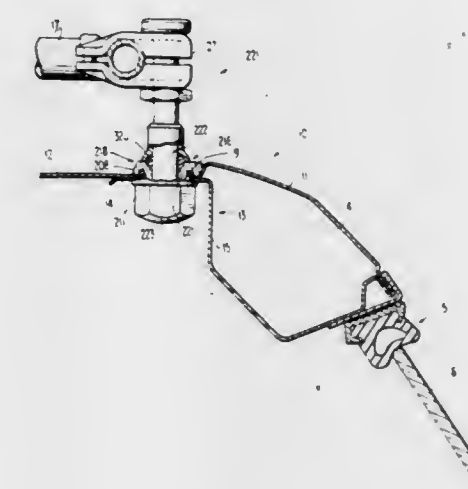
Filed Mar. 6, 1980, Ser. No. 127,636

Claims priority, application Fed. Rep. of Germany, Jun. 3, 1979, 2908682; Jul. 2, 1980, 3004447

Int. Cl.³ B60R 9/04

U.S. Cl. 224-42.45 R

6 Claims



1. A fastening arrangement for fastening a carrier to a roof of a motor vehicle, the motor vehicle including a support member extending in a longitudinal direction of the vehicle and disposed at respective side edges of the vehicle, characterized in that the fastening arrangement includes a carrier bracket adapted to be mounted near a side edge of the motor vehicle, a threaded bore means is provided in the carrier bracket for accommodating a threaded portion of the carrier holder means, and in that a cover means is detachably insertable into the threaded bore means so as to seal the bore means when the carrier holder means is not accommodated in the bore means, wherein the roof is provided with an opening in an area in which the carrier bracket is to be mounted, characterized in that the carrier bracket includes a first portion disposed below a surface of the roof and a second portion which extends through the opening in the roof and terminates

above an upper surface of the roof, the carrier bracket includes a peripheral flange on the second portion thereof, the peripheral flange has a lower portion adapted to bear against the upper surface of the roof with a predetermined pretensioning,

the first and second portion of the carrier bracket are integrally formed, and the carrier bracket is fixed at the roof by a swaging of the first portion of the carrier bracket, a seal means is interposed between the peripheral flange and the upper surface of the roof, and further characterized in that

two mutually opposed members extending in a longitudinal direction of the vehicle are provided at the flange, said two members being adapted to receive decorative strips that join flush with one another.

4,364,499

GUN RACK FOR POLICE CAR

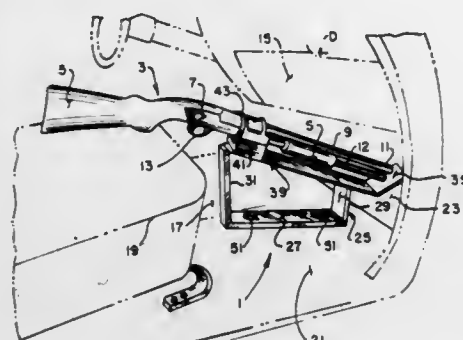
Maurice H. McCue, 10625 St. Henry, St. Ann, Mo. 63074

Filed Apr. 22, 1981, Ser. No. 256,004

Int. Cl.³ B60R 7/04

U.S. Cl. 224—42.45 R

10 Claims



1. A holder for securely mounting a weapon in a vehicle in such a position that the barrel of the weapon extends along an axis other than a vertical axis, said holder comprising a frame including a generally horizontal base and a top member positioned above said base, a muzzle member secured to the forward end of said top member, a gun lock secured to the top member rearwardly of said muzzle member, and a muzzle plug secured to said muzzle member and extending toward said lock, said gun lock being selectively operable between an open and a closed position, with said gun lock in its open position said weapon being insertable into said rack with a portion of said weapon received in said gun lock and with the muzzle of said weapon receiving said muzzle plug so that with said gun lock in its locked position, said gun lock substantially prevents axial, sidewise and vertical movement of the weapon relative to said gun lock and so that said muzzle plug prevents substantial sidewise and vertical movement of the muzzle of the weapon relative to said frame.

4,364,500

VEHICLE LUGGAGE CARRIER

John A. Bott, 931 Lakeshore Dr., Grosse Pointe Shores, Mich. 48236

Continuation of Ser. No. 57,346, Jul. 13, 1979, abandoned, and a continuation of Ser. No. 952,393, Oct. 18, 1978, abandoned, which is a continuation-in-part of Ser. No. 798,576, May 19, 1977, abandoned, which is a continuation-in-part of Ser. No. 725,500, Sep. 22, 1976, Pat. No. 4,156,497. This application Feb. 27, 1981, Ser. No. 239,128

Int. Cl.³ B60R 9/00

U.S. Cl. 224—325

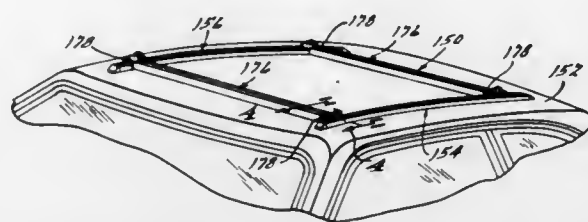
18 Claims

1. An article carrier for use on a generally horizontally disposed surface of an automotive vehicle, said carrier comprising:

a first pair of spaced parallel slat elements fixedly secured to the vehicle surface, said slat elements having upper article supporting surfaces located between said generally hori-

zontally disposed surface and the lower side of articles on said carrier, each of said slats having major and minor transverse cross-sectional dimensions with said major dimensions being parallel to said generally horizontally disposed surface;

a second pair of spaced parallel slat elements arranged at generally right angles to said first mentioned pair thereof, said second pair of slat elements having upper article supporting surfaces located between said generally horizontally disposed surface and the lower side of articles on said carrier, each of said second pair of slats having major



and minor transverse dimensions with said major dimensions being parallel to said generally horizontally disposed surface and said supporting surface;

said first and second pairs of slat elements lying directly adjacent the surface of the vehicle and adapted to have articles bear thereupon; and

manually engageable means for adjustably and removably securing said second pair of slat elements to said first pair of slat elements wherein said second pair of slat elements is adjustably movable longitudinally along said first mentioned pair of slat elements and is completely removable from said first pair thereof.

4,364,501

DISPENSER FOR ROLL OF TICKETS IN STRIP FORM

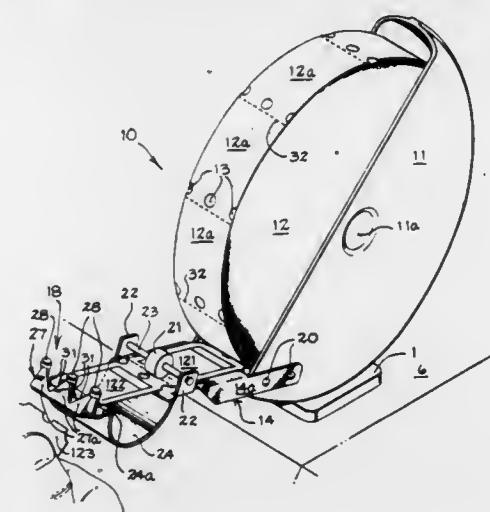
John S. Curtiss, Jr., Belmont, Calif., assignor to Instrumental Products, Redwood City, Calif.

Filed Dec. 15, 1980, Ser. No. 216,195

Int. Cl.³ B26D 1/02

U.S. Cl. 225—13

4 Claims



1. A ticket dispenser assembly for delivering tickets in strip form from a roll thereof, the tickets being of a type having openings therethrough disposed between successive tickets, said dispenser comprising means for supporting a roll of such tickets to rotate in response to withdrawal of each ticket therefrom, means forming a ticket guiding and dispensing unit defining a path for delivery of tickets including means forming a cutting assembly at the dispensing end of said path, said cutting assembly including a plurality of pegs for penetrating the openings between successive tickets, means supporting said pegs, a cutting blade carried by the last named means and formed to include a plurality of teeth corresponding in number substantially to the number of said pegs, said teeth pointing

rearwardly of the direction of movement of the tickets, to restrain the strip of tickets as the leading ticket is drawn against said blade to separate said leading ticket from a waiting ticket therebehind, means forming a first station for retaining a ticket against the surface of the path, means forming a second station supporting a waiting ticket between said penetrating means and said first station, the last named means serving to dispose said waiting ticket substantially unobstructed from both above and below to readily permit the ticket to be engaged between a person's thumb and index finger when lifting and advancing the waiting ticket along said path to dispose openings between a pair of successive tickets onto said pegs.

4,364,502

LINE SENSOR ARRANGEMENT

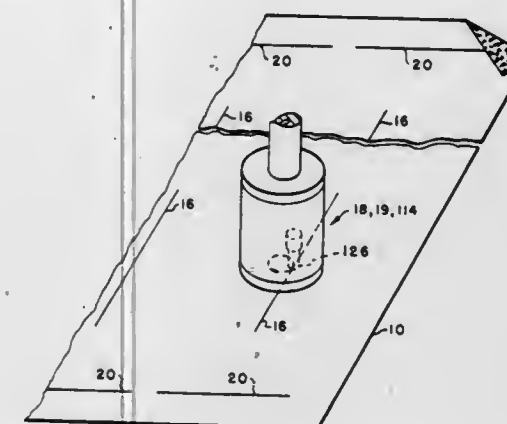
Zane Frentress, Stone Mountain, Ga., assignor to Milliken Research Corporation, Spartanburg, S.C.

Filed Jun. 23, 1980, Ser. No. 161,929

Int. Cl.³ B65H 25/02, 25/26

U.S. Cl. 226—45

1 Claim



1. A magnetic sensor to detect a ferrous mark on a moving web of material comprising: a substantially cylindrical housing having a central axis, a sensor mounted in said housing, said sensor having a permanent magnet mounted therein, a pole piece mounted in said sensor adjacent said permanent magnet having its centerline offset from the centerline of said cylindrical housing, a coil in said pole piece adjacent one end of said housing and a plurality of wires connected to and projecting from said sensor to provide a connection means to transmit a voltage generated when said sensor is rotated around a ferrous material.

4,364,503

WEB FEEDING METHOD AND APPARATUS FOR A PRINTER

David J. Ivary, Costa Mesa, Calif., and Raymond L. Kirby, Jr., Vandalia, Ohio, assignors to Monarch Marking Systems, Inc., Dayton, Ohio

Division of Ser. No. 152,057, May 20, 1980, Pat. No. 4,331,302. This application Sep. 21, 1981, Ser. No. 304,213

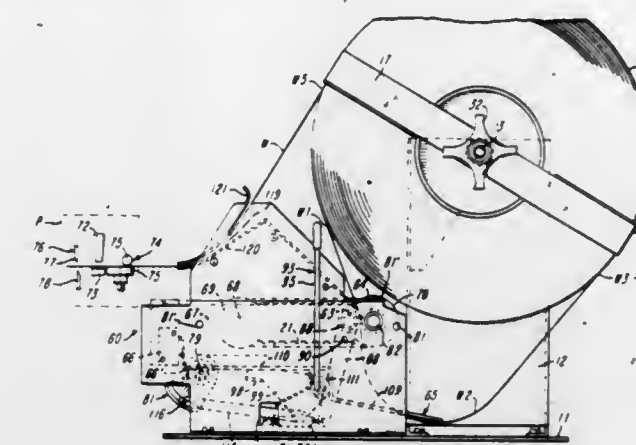
Int. Cl.³ B65H 25/02, 25/24

U.S. Cl. 226—45

5 Claims

1. Web feeding apparatus, comprising: means for holding a roll of web material, a first web feeding device for drawing the web from the roll, a second web feeding device, a utilization device, the web being drawn through a path from the roll by the first web feeding device and from the first web feeding device into a U-shaped buffer loop and from there over the roll and over to the second feeding device to the utilization device, means for sensing the extent of the buffer loop, and means

responsive to the sensing means for engaging the first feeding means when the buffer loop shortens to a certain extent and for



disengaging the first feeding means when the buffer loop lengthens to a certain extent.

4,364,504

FEEDING DEVICE

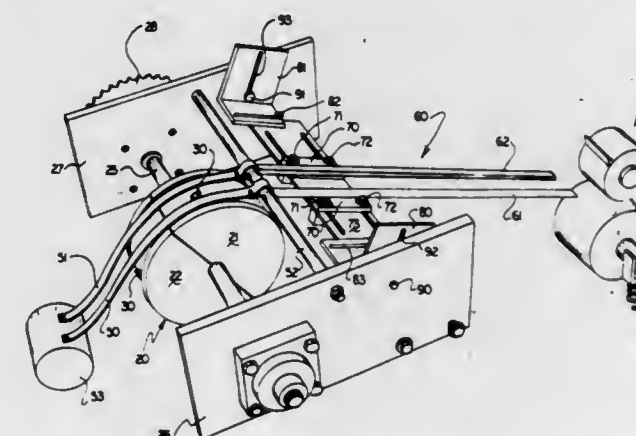
George Meyers, Ashland, Ohio, assignor to The Garber Company, Ashland, Ohio

Filed Oct. 3, 1980, Ser. No. 193,539

Int. Cl.³ B65H 17/38

U.S. Cl. 226—76

3 Claims



1. Apparatus for handling web material having individual images successively formed thereon and successive cut lines therein which cut lines are curved transverse to the direction of movement of the web material, said apparatus advancing and registering web material relative to a cutting mechanism which cuts the web material transverse to the advancing direction, said apparatus comprising a guide for guiding said web material to said cutting mechanism, a rotating drum spaced from said cutting mechanism and adjacent said guide, projecting elements on said rotating drum and spaced circumferentially on said rotating drum a distance substantially equal to the distance between said cut lines, said projecting elements having a surface portion extending chordally relative to said drum and beyond the periphery of said drum for engaging at least a portion of said web material adjacent said cut line and forcing at least a portion of said web material out of the plane of said web material and for projecting through said plane of said web material, said projecting elements having a further curved surface portion extending transverse to the direction of movement of the web material for engaging the edge of said web material at said cut line and advancing the web material through said guide and to said cutting apparatus, said drum being formed of plural arcuate segments having a predetermined circumference, a drive shaft on which said segments are mounted, means for securing said segments together and for removably clamping said segments on said drive shaft for rotation therewith and for removal therefrom for replacement by other segments of a different circumference when the dis-

tance between the cut lines in the web material changes, said guide for guiding the web material to the cutting mechanism comprises a pair of U-shaped lateral guide members, and means for supporting the guide members for adjustment relative to the periphery of said rotating drum to adjust the tangential relationship between the guide members and said drum when there is a change in the segments forming said drum.

4,364,505

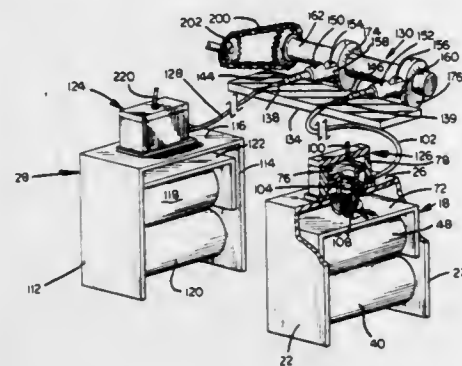
DOUBLE FEED ROLL LIFT MECHANISM
Robert L. Schockman, St. Henry, Ohio, assignor to The Minster Machine Company, Minster, Ohio

Filed Jan. 30, 1981, Ser. No. 230,020

Int. Cl.³ B65H 17/22

U.S. Cl. 226—154

17 Claims



1. In a feed apparatus for feeding strip stock into a machine including first and second pairs of feed rolls adapted to be positioned, respectively, at the infeed and outfeed sides of the machine, the improvement being a roll lift system for independently lifting a roll of each pair comprising:

first means for urging one of the rolls of said first pair in a first direction either toward or away from the other roll of said first pair,

a first expansible chamber means connected to said one roll for urging said one roll in a second direction opposite said first direction toward or away from the other roll of said first pair when the expansible chamber means is pressurized,

second means for urging one of the rolls of said second pair in a third direction either toward or away from the other roll of said second pair,

a second expansible chamber means connected to said one roll of the second pair for urging said one roll of the second pair in a fourth direction opposite said third direction toward or away from the other roll of said second pair when the expansible chamber means is pressurized,

first and second positive displacement hydraulic actuator means connected to said first and second expansible chamber means, respectively, and each comprising a plunger, said actuator means pressurizing the respective expansible chamber means when the plunger thereof is actuated,

a shaft rotatable about the axis and having a pair of cam elements mounted thereon, said shaft being mounted in close proximity to said plungers whereby said plungers are actuated by the cam elements as the shaft rotates, and means for adjusting the angular positions of said cam elements on said shaft independently of each other.

4,364,506 FASTENER DRIVING TOOL WITH CARTRIDGE EJECTOR

Fritz Schneider, Burgbernheim, Fed. Rep. of Germany, assignor to Impex-Essen, Vertrieb von Werkzeugen GmbH, Ansbach, Fed. Rep. of Germany

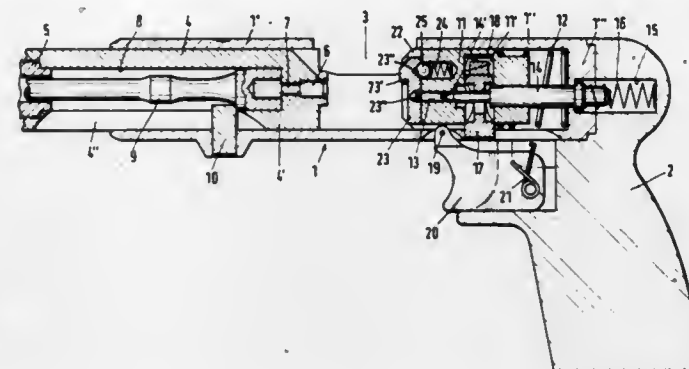
Filed Jan. 26, 1981, Ser. No. 228,378

Claims priority, application Fed. Rep. of Germany, Jan. 30, 1980, 3003223

Int. Cl.³ B25C 1/14

U.S. Cl. 227—10

5 Claims



1. A fastener driving tool comprising a housing, a barrel mounted to be axially displaceable in the front portion of the housing, a cartridge chamber at the rearward end of the barrel, a breech member positioned within the rear portion of the tool housing, a cartridge ejector carried by the breech member, an ejector catch on the ejector arranged to engage the rear of the cartridge in the rearwardly displaced ready-to-fire position of the barrel, and a firing pin mounted to be displaceable within an axial bore through the breech member and arranged to be thrust forward by spring action, means mounting the cartridge ejector for limited displacement transversely to the longitudinal axis of the cartridge chamber but whereby the cartridge in its cartridge-gripping position is prevented from moving relative to the breech member by the firing pin.

4,364,507

VARIABLE CLOSURE SURGICAL STAPLING APPARATUS WITH RETRACTABLE ANVIL

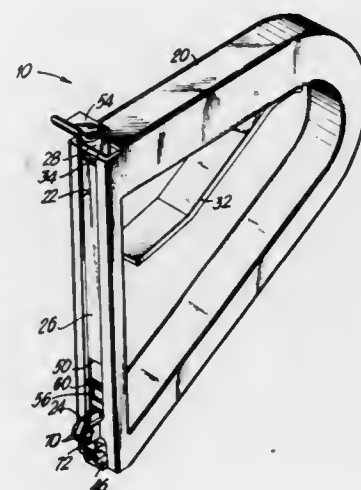
Dominick J. Savino, 65 Buttonwood Rd., Staten Island, N.Y. 10304

Filed Mar. 23, 1981, Ser. No. 246,145

Int. Cl.³ B25C 5/04; A61B 17/04

U.S. Cl. 227—83

11 Claims



1. A surgical apparatus for suturing skin with deformable staples comprising:

a housing having an elongated drive track with one end thereof adapted to be placed against the skin; means for feeding staples to said drive track at a point adjacent said one end;

anvil means of generally crescent-shaped configuration having opposed ends, with one end thereof including a forming member and with the remaining end thereof including a locking projection, said anvil means being pivotally mounted to said housing, adjacent said one end of said drive track with said forming member extending into said drive track;

an elongated anvil release element mounted for reciprocal movement in said drive track above said anvil means, and with the lower end thereof including an aperture disposed adjacent to and above said locking projection of said anvil means; and

an elongated driver element mounted for reciprocal movement in said drive track and disposed over said staple and in coplanar relationship with said anvil release element, said driver element being interposed between said anvil means and said anvil release element, said driver element including an aperture disposed above said locking member of said anvil means and with the lower end of said driver element including a configuration to aid in deforming said staple such that upon downward actuation of said driver element, the latter bears upon the staple such that it is deformed about said forming member in said drive track and wherein said staple is released from said apparatus by the downward actuation of said anvil release element in a manner such that said apertures in said elements are in register, adjacent said locking projection of said anvil means, thereby enabling said anvil means to pivot, with said locking member being received in said aligned apertures such that said forming member is retracted from said drive track permitting the release of said deformed staple.

4,364,508

METHOD OF FABRICATING A SOLAR CELL ARRAY

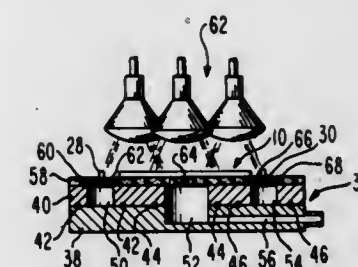
Angelo G. Lazzery, Oaklyn; Marvin S. Crouthamel, Pennsauken, and Peter J. Coyle, Oaklyn, all of N.J., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Oct. 14, 1980, Ser. No. 196,205

Int. Cl.³ H01L 21/98, 21/70

U.S. Cl. 228—106

8 Claims



1. A method of fabricating a solar cell array in which each cell is pretabbed comprising:

assembling the tabbed cells in a predetermined array with at least part of each tab facing upward, each tab being fixed to a bonding pad on one cell and abutting a bonding pad on an adjacent cell;

holding the cells in place with a first vacuum support means; inverting the array onto a second vacuum support means which holds the tabs firmly against the pads they abut; and applying heat to the array for bonding the tab portions not already fixed to bonding pads to these pads.

4,364,509

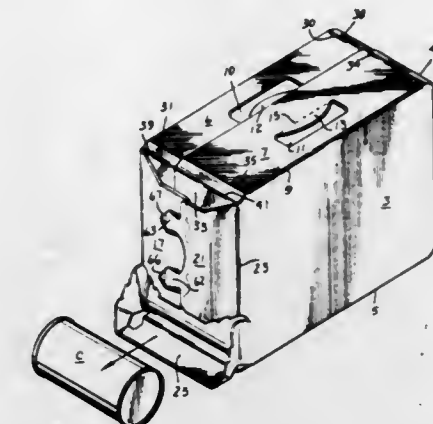
ARTICLE CARRIER WITH DISPENSING FEATURE
John M. Holley, Jr., Clarkston, and James R. Oliff, Austell, both of Ga., assignors to The Mead Corporation, Dayton, Ohio

Filed Jun. 25, 1981, Ser. No. 277,096

Int. Cl.³ B65D 5/70, 5/72

U.S. Cl. 229—17 B

4 Claims



1. An article carrier comprising a bottom wall, a pair of side walls joined respectively to the side edges of said bottom wall and extending upwardly therefrom, a top wall joined along the side edges thereof respectively to the upper edges of said side walls, a pair of end flaps foldably joined respectively to the ends of said side walls at one end of the carrier, another end flap foldably joined to the end of said bottom wall at said one end of the carrier, a web panel interconnecting each end of said another end flap and the adjacent one of said pair of end flaps, a pair of tear lines formed respectively in said pair of end flaps and extending respectively from the junctions between said pair of end flaps and the associated side wall and terminating respectively along the edges of said pair of end flaps substantially adjacent said web panels, and a pair of expansion slits formed respectively in said side walls and comprising extensions of said tear lines, said expansion slits terminating respectively interiorly of said side walls.

4,364,510

FILLING VALVE FOR A BAG OR OTHER CONTAINER
Archibald Buchanan, Ellon, Scotland, assignor to B.P.B. Industries Limited, London, England

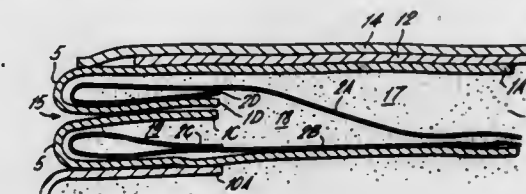
Filed Jul. 18, 1980, Ser. No. 170,159

Claims priority, application United Kingdom, May 2, 1980, 8014577

Int. Cl.³ B65D 30/24

U.S. Cl. 229—62.5

10 Claims



1. A container for particulate material comprising a body portion for containing the particulate material and two flexible superposed sheets of different materials fixed to the body portion, one sheet being more flexible than the other; the superposed sheets being folded to form a tubular structure which defines an access channel for the introduction of the particulate material into the body portion; the respective sheets defining between them, at an inner end of the tubular structure, a first pocket in which the particulate material from the body portion may accumulate, thereby constricting an inner end of the channel and preventing reverse flow of the particulate material from the body portion to the inside of the channel; and an outer end of the tubular structure being inwardly turned so that the

respective sheets define between them a second pocket in which particulate material from within the channel may accumulate, thereby constricting an outer end of the channel and preventing reverse flow of the particulate material from the channel to outside the container.

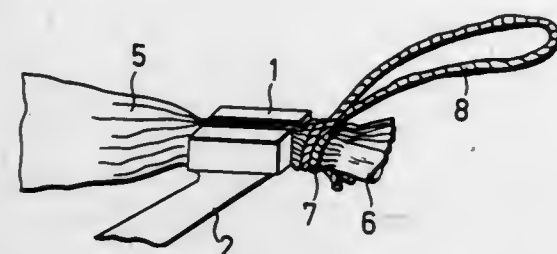
4,364,511

CLOSURE TIE FOR TUBES OF FILM MATERIAL FOR ENCLOSING FOOD, A METHOD OF FORMING THE TIE AND APPARATUS FOR CARRYING OUT THIS METHOD
Hans-Dieter Wittern, and Fred Geyer, both of Weinheim, Fed. Rep. of Germany, assignors to Naturin-Werk Becker & Co., Fed. Rep. of Germany

Continuation of Ser. No. 7,295, Jan. 29, 1979, abandoned. This application Sep. 5, 1980, Ser. No. 184,650
Int. Cl.³ B65D 33/28

U.S. Cl. 229—63

12 Claims



1. A tube of film material having a closed end for enclosing food and having a closure tie at said closed end, said tie being situated in a permanently, thermoplastically deformed groove-like recess in said film material, which tube is made of a thermoplastic or thermoplastic-like material, wherein:

- (1) the closed end is formed by gathering the tube in a region to be closed by said closure tie;
- (2) the gathered thermoplastic material is softened in the region where said closure tie is to be applied;
- (3) the gathered plastic is permanently deformed by pressure while in the softened condition to form said groove-like recess, and thereafter allowed to harden; and
- (4) said closure tie is firmly engaged within the said groove-like recess, formed in the gathered plastic by softening, deforming, and allowing to harden, whereby said closure tie will not slip from the gathered plastic under tension.

4,364,512

ZONE HEAT CONTROL

Thomas R. Morrison, 123 Overlook St., Mount Vernon, N.Y. 10052

Filed Dec. 11, 1980, Ser. No. 215,270

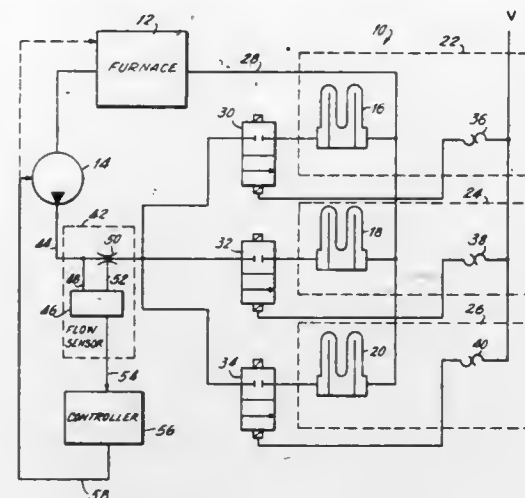
Int. Cl.³ F22B 35/00; F24D 3/00; F04B 49/00

U.S. Cl. 236—9 A

8 Claims

1. A heating control system for a structure having at least first and second heated areas comprising:
a first heat delivering device in said first heated area;
a second heat delivering device in said second heated area;
a furnace;
means for delivering heated fluid from said furnace to said first and second heat delivering devices;
first means for controlling delivery of said heated fluid to said first heat delivering device in response to a first temperature in said first heated area, said first means for controlling delivery having an open, condition in response to said first temperature being below a first predetermined value and a closed condition in response to said first temperature being above said first predetermined value;
second means for controlling delivery of said heated fluid to said second heat delivering device in response to a second temperature in said second heated area, said second means for controlling delivery having an open condition in response to said second temperature being below a second predetermined value and a closed condition in response to

said second temperature being above said second predetermined value;
means for periodically attempting to flow a fluid through said first and second means for controlling delivery;
means for sensing flow of said fluid to said first and second means for controlling delivery; and



means for energizing said means for delivering and said furnace as long as a predetermined flow of said heated fluid, indicative of at least one of said first and second means for controlling delivery being in its open condition, is sensed by said means for sensing flow.

4,364,513

AIR-CONDITIONING CONTROL APPARATUS FOR AUTOMOTIVE VEHICLES

Yoshihiko Tsuzuki, Anjo; Yuzi Hirabayashi, Aichi; Shinji Shirasaki; Masahiro Matsuyama, both of Kariya, and Hiroshi Okazaki, Okazaki, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

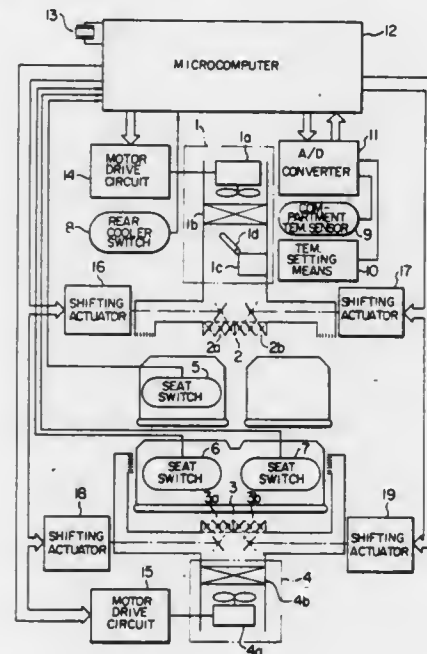
Filed Dec. 3, 1980, Ser. No. 212,747

Claims priority, application Japan, Dec. 12, 1979, 54-162099

Int. Cl.³ F24F 7/00; B60H 1/00

U.S. Cl. 236—49

4 Claims



1. In an automobile air-conditioning control apparatus including compartment temperature sensor means for sensing the temperature of a vehicle compartment of an automobile, means for supplying temperature-adjusted air into said vehicle compartment to adjust said compartment temperature sensed by said temperature sensor means to a desired temperature for compartment air-conditioning, and shifting means for changing the direction of flow of said temperature-adjusted air

blown into said vehicle compartment thereby controlling the air-conditioning of said vehicle compartment, the improvement comprising:

actuating means for actuating said shifting means to effect change-over from a partial blowing operation for blowing said temperature-adjusted air toward at least one selected occupant to an overall blowing operation for blowing said temperature-adjusted air into the entire interior of said vehicle compartment, and vice versa; and
control means for controlling said actuating means to change the blowing of said temperature-adjusted air to said partial blowing operation when said compartment temperature sensed by said temperature sensor means is out of a range of stable air-conditioning temperatures.

4,364,514

HEAT-RECOVERING APPARATUS FOR FURNACES

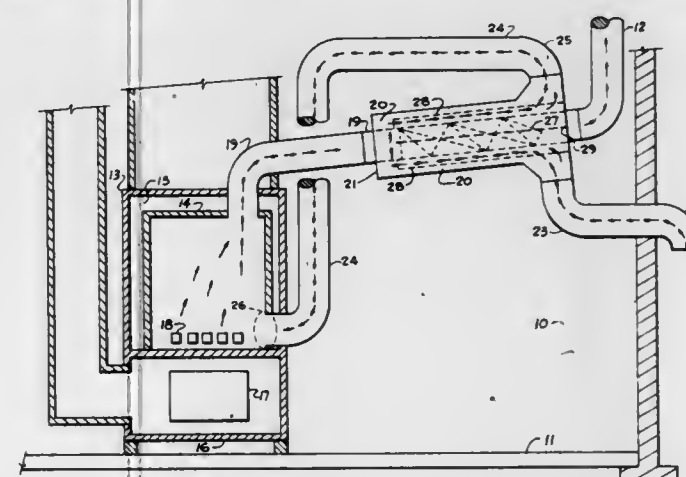
John R. Toporek, 13160 Rhode St., Cedar Lake, Ind. 46303

Continuation-in-part of Ser. No. 954,551, Oct. 25, 1978, abandoned. This application Jul. 1, 1980, Ser. No. 153,160

Int. Cl.³ F24B 7/00

U.S. Cl. 237—55

1 Claim



1. In a hot air furnace for a dwelling unit a flue gas heat exchange device located within an exhaust gas discharge flue wherein said heat exchange device preheats combustion air that is directed to the combustion chamber of the hot air furnace wherein the improvement comprises:

a flue gas heat exchanger that comprises an extended inner duct that conveys the exhaust flue gases in heat exchange relationship with a jacketing chamber surrounding the inner duct, said inner duct having a one piece angular bent deflector strip that extends the length of the inner duct to retard the flow of exhaust flue gases and to enhance the heat exchange between the flue gases within the inner duct and the jacketing chamber, said jacketing chamber defined by a wall extending around the inner duct and having an air inlet and air outlet at a common end of the jacketing chamber, said air inlet is in communication with exterior air through a connecting duct that terminates on the under side of the jacketing chamber, said air discharge is in communication with the hot air furnace combustion chamber through a connecting duct that terminates on the top of the jacketing chamber above said jacketing chamber air inlet, within said jacketing chamber extending from the inner duct are pairs of radially mounted fins that extend longitudinally from the common end of the jacketing chamber but not touching the opposite end of the jacketing chamber, said jacketing chamber further containing two splitter fins that extend between the outer wall of the inner duct and the inner wall of the wall spaced from the outer wall of the inner duct to define an upper and lower jacketing chambers at the common end of the jacketed chamber, said splitter fins extending longitudinally within the jacketing chamber of the same length as said pairs of fins, said splitter fins defining an air flow path within the jacketing chamber where inlet air is directed to the lower jacketing chamber inlet, longitudinally down the lower

jacketing chamber, up to the upper jacketing chamber longitudinally down the upper jacketing chamber and out the jacketing chamber air outlet.

4,364,515

NON-PRESSURIZED DISPENSING SYSTEM AND COMPOSITION

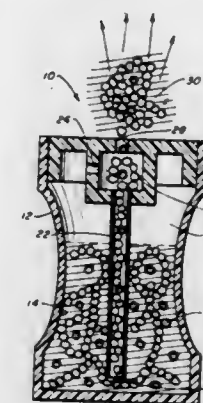
Samuel B. Prussin, Big Sur, Calif., assignor to AE Development Corporation, Minneapolis, Minn.

Continuation-in-part of Ser. No. 29,630, Apr. 13, 1979, Pat. No. 4,278,206. This application Jun. 18, 1980, Ser. No. 160,673

Int. Cl.³ B05B 11/04

U.S. Cl. 239—8

32 Claims



1. A method of dispensing a material onto a surface comprising the steps of: dispensing onto said surface a water-in-air suspension containing said material, said suspension comprising a liquid phase of small droplets of aqueous liquid stabilized with an interfacial barrier of very fine, hydrophobic metal oxide particles, said particles being suspended in an external air phase; imparting shear to said droplets whereby the barrier is at least partially destabilized and at least a portion of the droplets coalesce to form larger particles.

4,364,516

INJECTOR

Edward J. Rhoades, Troy; Edwin C. Rosenberger, Piqua, and Jerome A. Waker, Casstown, all of Ohio, assignors to Chem-Lawn Corporation, Columbus, Ohio

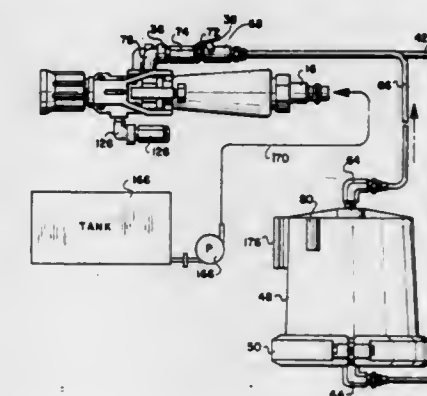
Continuation-in-part of Ser. No. 112,883, Jan. 17, 1980, Pat. No. 4,315,600. This application Jul. 7, 1980, Ser. No. 166,513

The portion of the term of this patent subsequent to Feb. 16, 1999, has been disclaimed.

Int. Cl.³ B05B 7/28

U.S. Cl. 239—74

20 Claims



1. In combination with a spray gun including a handle and a muzzle and means for controlling the flow of a liquid through said muzzle, an injector comprising:

a main body portion,
a flow passage formed through said main body portion for accommodating the flow under pressure of a first liquid through said passage,

means mounting said main body portion on said gun with said passage communicating with said muzzle whereby said flow of said first liquid through said passage is controlled by said spray gun flow controlling means, means for injecting a second liquid into said passage, means for transmitting said pressure of said first liquid to said second liquid to pressurize said second liquid for injection into said passage, valve means controlling injection of said second liquid into said passage, valve actuating means for selectively actuating said valve means, said spray gun flow controlling means and said valve actuating means being located adjacent each other and said handle and thereby simultaneously actuatable by a hand gripping said handle.

4,364,517

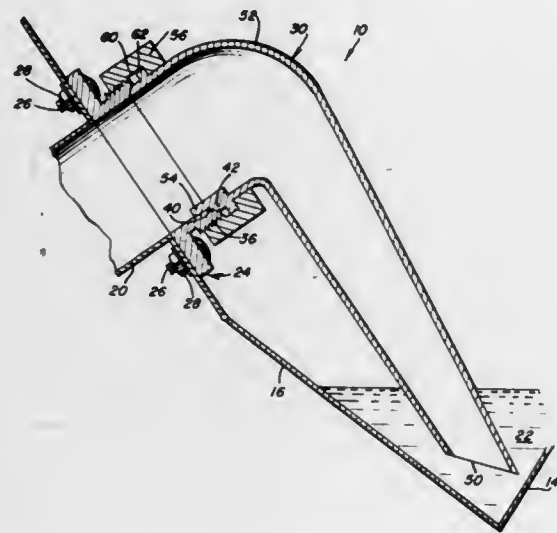
HOPPER CLEANER ATTACHMENT

Robert E. Etheridge, P.O. Box 5421, Greenville, Miss. 38701, and Philip L. Lewis, Rte. 1, Box 71-A, Glen Allan, Miss. 38744

Filed Jul. 11, 1980, Ser. No. 167,525

Int. Cl.³ B64D 1/18

U.S. Cl. 239—171



1. An aircraft crop spraying apparatus comprising a hopper having a bottom, an outlet opening formed in said hopper, an outlet tube connected to said outlet opening, said outlet opening being spaced above the bottom of said hopper, an adaptor fixedly mounted to said hopper over said outlet opening; a suction tube removably attached to said adaptor, said suction tube extending from said adaptor to a position adjacent to but slightly spaced from the bottom of said hopper, said adaptor including a connector having external threads formed thereon and further including a nut having internal threads, said nut being engaged with said suction tube for removably mounting said suction tube to said adaptor, one of said connector and suction tube having an inwardly bevelled free edge and the other of said connector and said suction tube having an outwardly bevelled free edge for cooperation with said inwardly bevelled free edge when said suction tube is mounted to said adaptor, said suction tube further including an external annular flange, said nut including an internal groove surrounding said flange for causing communication between said nut and said suction tube, said connector including an axially extending groove means, said suction tube including an axially extending key means fixed to such suction tube for insertion in said groove means to retain an inlet on the suction tube adjacent the bottom of the hopper to enable removal of material from that portion of the hopper below the outlet.

4,364,518

SELF-PROPELLED IRRIGATOR

Sven Gronlykke, Logismose Gods, 5683 Harby, Funen, Denmark

PCT No. PCT/DK79/00010, § 371 Date Nov. 22, 1979, § 102(e) Date Sep. 20, 1979, PCT Pub. No. WO79/00810, PCT Pub. Date Oct. 18, 1979

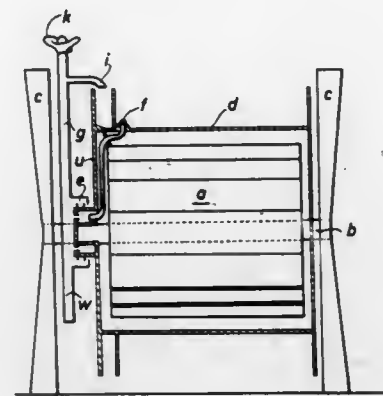
PCT Filed Mar. 21, 1979, Ser. No. 190,325

Claims priority, application Denmark, Mar. 22, 1978, 1321/78; Jun. 6, 1978, 2509/78

Int. Cl.³ B05B 3/18

U.S. Cl. 239—191

8 Claims



9 Claims

1. A self-propelled irrigator for the irrigation of crop rows, lawns and like areas, comprising a vertical rotational ring of containers comprising chambers separated by partitions, said containers being adapted to be supplied with water from a water-outlet of the irrigator provided above the containers for filling each container when it is in its uppermost position, the water being released during the movement of the filled containers past their lowest position, the ring of containers being provided on a ground wheel of a self-driving reel on which is wound a hose for supplying the water outlet with water from a stationary tap, said reel unwinding the hose when the irrigator moves forward, said wheel forming part of the reel and having a width corresponding substantially to the width of the reel and the reel comprising closed end bottoms provided with edge portions projecting radially outwards from a reel cylinder and forming wheels, at least one of said edge portions together with an additional radial flange defining a groove located under the water outlet, said groove communicating freely with the chambers of the wheel, the partitions of said chambers forming paddle blades extending from end bottom to end bottom in the reel.

4,364,519

NOZZLE ASSEMBLY FOR LOW PRESSURE IMPACT SPRINKLER

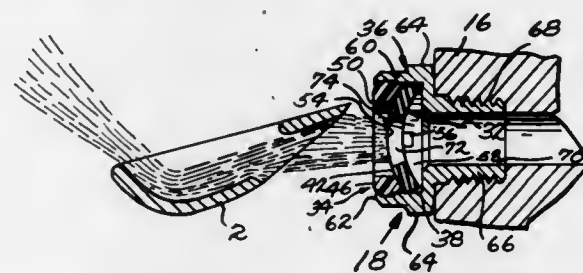
Jeffrey P. Kreitzberg, Walla Walla, Wash., assignor to Nelson Irrigation Corporation, Walla Walla, Wash.

Filed Jul. 14, 1981, Ser. No. 283,193

Int. Cl.³ B05B 3/16

U.S. Cl. 239—230

12 Claims



1. A nozzle assembly for a water sprinkler comprising a generally flat member of wear resistant thermoset elastomeric material having an aperture in the central portion thereof constituting the stream defining orifice of the nozzle and

means for mounting said elastomeric member in a sprinkler in flow transmitting relation to a source of water under pressure communicated therewith including a rigid backing member having a central opening through which the stream defined by the nozzle orifice passes, said backing member having surface means surrounding said opening and facing in a direction opposed to the direction of stream movement operable to engage and support said elastomeric member in a deformed operative condition in which first portions of said flat member defining diametrically opposed portions of the periphery of the aperture thereof are disposed in downstream spaced relation with respect to second portions thereof defining diametrically opposed portions of the periphery of the aperture thereof displaced 90° from said first portions so that the stream as it issues from the aperture of the flat member in said deformed condition tends to remain flattened in the direction of spacing of said first portions and to fan out in a desirable droplet size in the direction of spacing of said second portions.

4,364,520

PISTON PUMP ACTUATED DIAPHRAGM PUMP FOR SPRAYING LIQUIDS

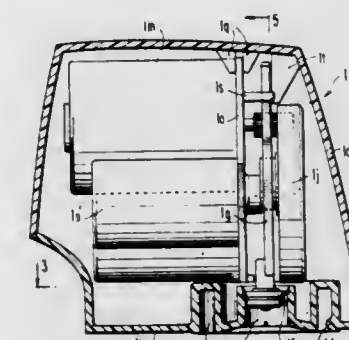
Edwin J. Weber, Sr., 1903 Curie Dr., Severn, Md. 21144

Filed Aug. 26, 1970, Ser. No. 181,346

Int. Cl.³ B05B 9/04

U.S. Cl. 239—330

8 Claims



1. A piston pump actuated diaphragm pump for spraying liquids comprising, a container containing fluid to be dispensed, a closure mounted on said container, a neck portion provided on said closure, a diaphragm-pump spray nozzle assembly mounted within said closure neck portion and communicating with the fluid in the container to be dispensed, said diaphragm-pump spray nozzle assembly including a cylindrical housing having side and top walls, the upper surface of the top wall of said housing being concave, a diaphragm secured to the upper surface of the top wall to thereby form a chamber between the lower surface of the diaphragm and the concave surface of the housing top wall; and a motor actuated piston pump assembly detachably connected to said closure neck portion and separate from said diaphragm pump spray nozzle assembly, said piston pump assembly including a housing having a bottom wall, an annular recess formed in the bottom wall of said piston pump housing for receiving the neck portion of said closure, a bore provided in said bottom wall of said piston pump housing concentric with respect to said annular recess, a piston slidably mounted in said bore, the portion of the bottom wall of said piston pump housing within the neck portion of the closure being superimposed on said diaphragm, whereby upon actuation of the piston pump assembly the diaphragm-pump spray nozzle assembly dispenses fluid from the container while preventing the piston pump assembly from becoming contaminated by the fluid being dispensed; the motor actuated piston pump assembly being detachably connectable to other containers having similarly mounted diaphragm-pump spray nozzle assemblies, whereby various types of fluids, such as paint, air freshener, water, hair spray and the like can be successively dispensed.

4,364,521

TEXTURE APPLICATOR

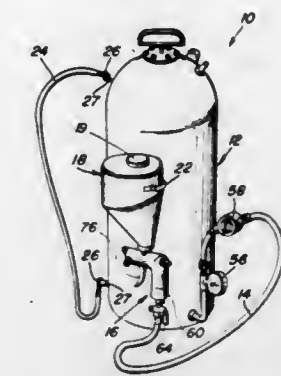
James L. Stankowitz, 6946 Exline Rd., Jacksonville, Fla. 32222

Filed Aug. 1, 1980, Ser. No. 174,591

Int. Cl.³ B05B 9/02

U.S. Cl. 239—346

10 Claims



1. An apparatus for the application of a fluent material to a surface, said apparatus comprising, in combination: an air pressure tank, inlet means on said pressure tank for filling said pressure tank from an external source of pressurized air, an outlet on said pressure tank for allowing pressurized air to be released therefrom; a removable manually actuatable pump means disposed within said pressure tank for manually filling said pressure tank; a supply tube attached to said outlet, said supply tube including a pressure regulator attached thereto for regulating the output pressure from the said pressure tank; and an applicator gun having an inlet containing an on-off valve attached to said supply tube, a discharge tube extending longitudinally of said gun and having at an end a depending portion including an abutment surface, the depending portion connected by a flexible tube to said inlet, said discharge tube having at another end a free distal end with a nozzle connected thereto, means for displacing said supply tube longitudinally of said gun, a removable tip received in a recess disposed in said gun and being maintained therein by spring clip means attached to said gun and for pressing against said tip, said tip having a discharge orifice removably and engagably attached to said gun, said nozzle having a frusto-conical outer surface and said orifice of the removable tip having a complementary frusto-conical inner surface for receiving said frusto-conical outer surface of said nozzle, fluent material discharge chamber surrounding a portion of said free end of said discharge tube and having an open top communicating with a covered hopper, and a threaded stop means threaded engaging and extending through a rear wall of the gun for stopping rearward displacement of said discharge tube by contact against said abutment surface at a predetermined location thereof and at its closed location providing an interlock against said abutment surface.

4,364,522

HIGH INTENSITY AIR BLAST FUEL NOZZLE

Samuel B. Reider, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Jul. 21, 1980, Ser. No. 170,682

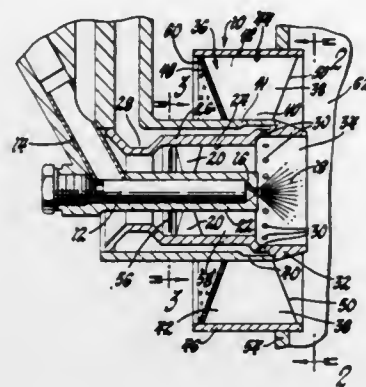
Int. Cl.³ B05B 7/00

U.S. Cl. 239—399

5 Claims

1. In an air blast fuel nozzle including a cascade of swirler vanes defining a plurality of combustion air passages for directing a swirling flow of air to a combustion chamber and means in said fuel nozzle defining at least one fuel port for supplying an unburned source of fuel to said swirling flow of air, the improvement comprising, turbulence generator means located within the air flow through said combustion air passages and operative to produce an intensification of turbulence in said swirling flow of air immediately prior to mixing of said swirl-

ing flow of air with said unburned fuel source and to maintain said increased turbulence intensity without attenuation of the energy level in said swirling flow of air prior to mixing with said unburned fuel source thereby to cause reduction in fuel



droplet size prior to burning of the fuel/air mixture so as to improve combustion efficiency by evaporation rate control attributable to the decreased fuel droplet size as produced by the turbulence intensification.

4,364,523

FLOW CONTROL TECHNIQUE

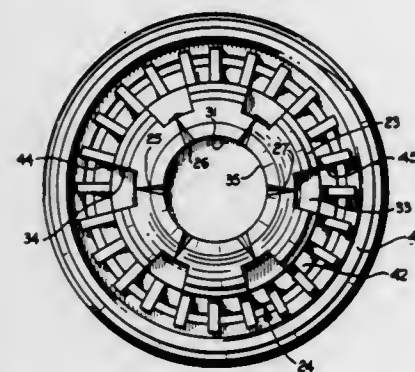
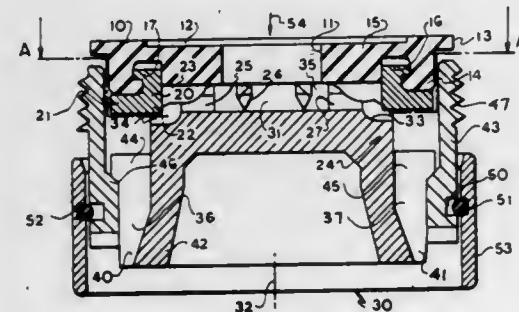
Richard G. Parkison, and Edward G. Hofstetter, Jr., both of Louisville, Ky., assignors to American Standard Inc., New York, N.Y.

Filed Mar. 17, 1980, Ser. No. 130,886

Int. Cl.³ B05B 1/30

U.S. Cl. 239—533.14

3 Claims



1. A flow control device for a nozzle comprising, a generally annular flexible control washer for insertion within the nozzle, said washer having a centrally disposed aperture, a washer retainer secured to said control washer, a spray body for at least partial insertion within the nozzle spaced from said flexible washer by means of said washer retainer, said spray body having a plurality of radially oriented channels formed in the surface thereof that is adjacent to said spray control washer, said channels each having spaced, parallel sides terminating in respective Vee-shape cross-sections, the widest portion of said Vee-shaped channels being oriented toward said control washer, said spray body having at least one recess formed in the periphery thereof in fluid communication with said channels in order to establish at least one axially directed conduit, said flexible washer being spaced from said channels by said

washer retainer a distance that enables said washer to respond to said flow by pressing against and restricting the transverse area of said channels.

4,364,524

IRRIGATION CONTROL SYSTEM

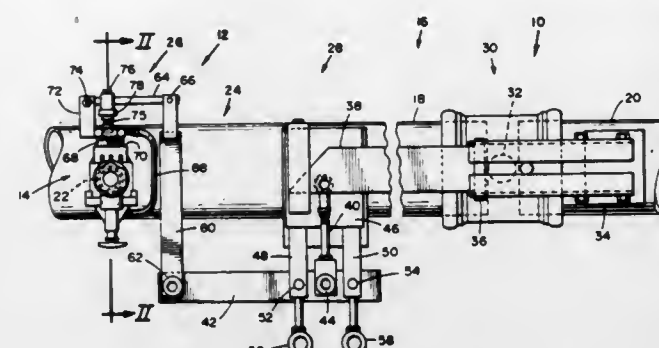
Gail Cornelius, Portland, and Lloyd C. Olson, Beaverton, both of Oreg., assignors to R. M. Wade & Co., Portland, Oreg.

Filed Sep. 18, 1980, Ser. No. 188,588

Int. Cl.³ A01G 25/09

U.S. Cl. 239—720

11 Claims



1. A control system for a fluid motor of an irrigation system comprising:

valve means for supplying fluid pressure to and blocking fluid pressure to the fluid motor;
means for actuating the valve means to provide an open valve means state and a closed valve means state;
said actuating means including a pilot valve including an aperture and a plug and means for selectively moving said plug to a position obstructing said aperture and for selectively moving said plug to a position removed from said aperture to drain liquid from said pilot valve and said valve means;
wherein said pilot valve includes an orifice located between said aperture and the valve means; and
wherein said valve means includes a continuous diaphragm and a control pressure chamber adjacent thereto and wherein said orifice and said control pressure chamber are placed in communication by a conduit which is external to said valve means.

4,364,525

BLADE ATTACHMENT FOR FOOD PROCESSOR

John W. McClean, 5 Beverly Crescent, Lakemba, New South Wales, Australia

Filed Jun. 6, 1980, Ser. No. 157,065

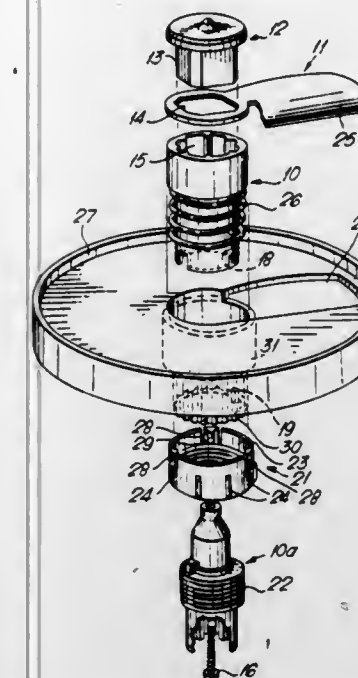
Int. Cl.³ B02C 23/00

U.S. Cl. 241—92

4 Claims

1. A cutting blade assembly for a food processor comprising:
a tubular body;
a blade nonrotatably and axially fixed to said tubular body;
an annular flange keyed to but axially shiftable relative to said body and adapted to fit closely within a food processor container;
a spring seated against said body and said flange for urging said flange and said blade away from one another, said flange having an opening through which comminuted foodstuffs can pass to a portion of said container below said flange, said flange further being formed with a tubular boss;
a threaded ring engaging said boss and supporting said flange against the force of said spring;
a threaded sleeve engaging said ring connected to said body, said sleeve being provided with formations for mounting said assembly on a drive shaft of the food processor; and
detent means between said ring and said boss for enabling forced rotation of said ring relative to said boss and said sleeve, thereby permitting adjustment of the relative axial positions of said blade and said flange to permit continuous

adjustment of the thickness of slices produced by said assembly but preventing relative rotation of said ring and said



sleeve during rotation of said assembly in food comminuting operation of said assembly.

4,364,526

TUB CHOPPER

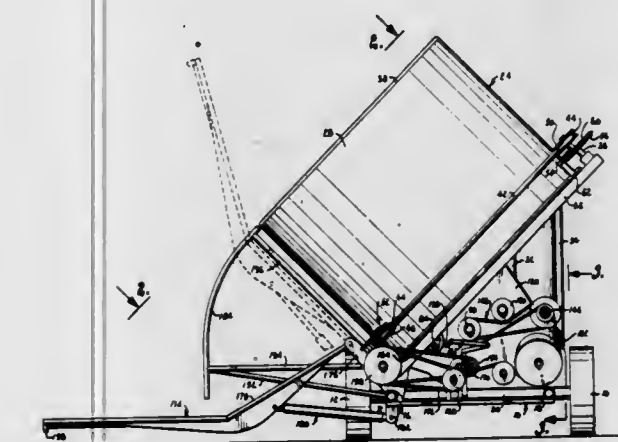
Allen A. White, Rte. 2, Box 9, Peabody, Kans. 66866

Filed Jan. 29, 1981, Ser. No. 229,347

Int. Cl.³ B02C 13/286

U.S. Cl. 241—186.4

29 Claims



1. An improved tub chopper for comminuting material in the tub, the improvement comprising:

an open tub including a stationary, generally planar floor and an annular sidewall projecting upwardly from the floor to define a material receiving cavity over the floor and within the sidewall;
material chopping means within the cavity proximal the upper surface of the floor for comminuting material in the tub and supported on the floor;
means mounting the floor at an angle of inclination with respect to horizontal; and
means mounting the sidewall over the floor for rotation about an axis substantially normal to said inclined floor.

4,364,527

TENSION TAKE-UP AND SPEED CONTROL

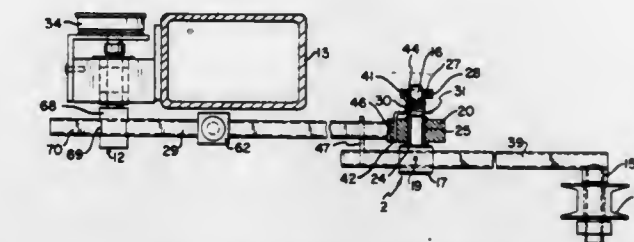
Gerald R. Bruno, Paterson, N.J., assignor to Progressive Machine Company, Inc., Paterson, N.J.

Filed May 13, 1981, Ser. No. 264,001

Int. Cl.³ B65H 17/02, 25/02

U.S. Cl. 242—75.51

23 Claims



1. Apparatus for controlling the tension and predetermined rate of movement of a continuous strip of elongated material being fed to or withdrawn from a processing station for processing at a predetermined processing rate, said apparatus comprising a first pivotable control arm having a first end and a second end, said first end of said first pivotable control arm being pivotable about a fixed pivot point, a second pivotable control arm having a first end and a second end, said first end of said second pivotable control arm being pivotably connected to said second end of said first pivotable control arm, and said second end of said second pivotable control arm being movable in response to variations in the difference between said predetermined processing rate and said predetermined rate of movement of said strip, biasing means interposed between said first and second pivotable control arms whereby upon pivoting of said second pivotable control arm about said second end of said first pivotable control arm said biasing means transmits only a portion of the movement of said second pivotable control arm to said first pivotable control arm, and speed control means for controlling said predetermined rate of movement of said strip in response to movement of said first pivotable control arm.

4,364,528

RETRACTOR FOR SEAT BELT PROVIDED WITH BUFFER MEANS AGAINST WEBBING TAKING UP FORCE

Hideo Yanagihara, Fujisawa, Japan, assignor to NSK-Warner K.K., Tokyo, Japan

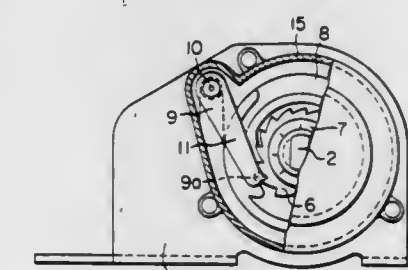
Filed Dec. 8, 1980, Ser. No. 214,094

Claims priority, application Japan, Dec. 13, 1979, 54/171623[U]; Jan. 30, 1980, 55/10088[U]; Mar. 21, 1980, 55/35771[U]

Int. Cl.³ A62B 35/00; B65H 75/48

U.S. Cl. 242—107.7

8 Claims



1. A retractor for seat belt provided with buffer means against webbing taking-up force comprising:
a webbing take-up shaft rotatably supported on a base member and biased in the webbing taking up direction;
a ratchet wheel mounted on said take-up shaft for rotation therewith and having engagement surfaces oriented in the webbing taking up direction;
a ratchet engageable with said ratchet wheel to prevent said take-up shaft from rotating in the webbing taking up direc-

tion and biased toward a position engaged with said ratchet wheel; and
 a cam plate rotatable together with said take-up shaft and said ratchet wheel through frictional engagement therewith; and
 said cam plate comprising a first guide portion generally extending in the circumferential direction through an angle of more than 360 degrees and so formed as to guide said ratchet from the engaged position with said ratchet wheel to a position out of engagement with said ratchet wheel with the movement of the webbing being pulled out; a second guide portion generally extending in the circumferential direction a small distance beyond the beginning of said first guide portion and so formed as to guide said ratchet to a disengaged position immediately before the engaged position while keeping said ratchet out of engagement with said ratchet wheel with the movement of the webbing being taken up and then hold said ratchet in said disengaged position; and a third guide portion extending from the end of said second guide portion to the beginning of said first guide portion and so formed as to guide said ratchet from said held position to said engaged position with the movement of the webbing being pulled out.

4,364,529

LEADER PIN

Robert M. Barto, Jr., Wyckoff, N.J.; Ira Lopata, New York, N.Y., and Bernard V. Emden, West Milford, N.J., assignors to Ragen Precision Industries, Inc., North Arlington, N.J.
 Filed Feb. 12, 1981, Ser. No. 233,966
 Int. Cl.³ G03B 1/04; G11B 15/32

U.S. Cl. 242-195

4 Claims



1. A leader pin comprising,
 - a. an elongated body having an external surface and an internal wall spaced from said external surface to define an axially extending passage means in the body, and an opening at one end of the body in communication with the axially extending passage means
 - b. said body having at least one axial slot extending from the end of the body having the opening and communicating between the external surface and the axially extending passage means to permit a loop of film to be inserted into the leader pin,
 - c. said axial passage means shaped and sized to define spaced shoulders in the medial section of said elongated body, at least one of said shoulders being tapered,
 - d. keeper means including, an elongated rod like section, and a knob assembly at one end of the rod like section,
 - e. said rod like section shaped to be slidably insertable into the axial passage in the leader pin for operative association with said spaced shoulders and sized so that in assembled position the axial passage means and the keeper means will hold and center the loop of film between said spaced shoulders in assembled position,
 - f. an annular locking channel formed on the body about the external surface thereof adjacent the open end,
 - g. said knob assembly having a resilient deflectable latch engageable and disengageable with the annular locking channel on the body for affirmatively locking the body and the keeper means in assembled position.

4,364,530

PROPULSION/CONTROL MODULAR BOOSTER

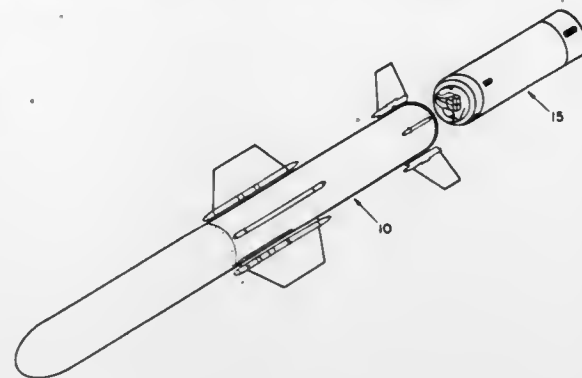
Michael J. Ripley-Lotze, China Lake; Robert B. Dillinger, and Keith E. Clark, both of Ridgecrest, all of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sep. 8, 1980, Ser. No. 184,823

Int. Cl.³ F42B 15/02, 15/12; F02K 1/20

U.S. Cl. 244-3.22

1 Claim



1. An apparatus for apogee-controlled launch of a guided missile comprising:
 - boost means for variably controlling said guided missile at launch having fore and aft ends with a thrust termination port in the aft end of said boost means;
 - clamping means for removably attaching said boost means' fore end to the aft end of said guided missile, said clamping means sequentially connected to said thrust termination port such that after said clamping means releases said thrust termination port is activated;
 - a rocket motor and propellant fixedly housed inside said boost means for providing thrust to said guided missile;
 - a pneumatically actuated jet vane thrust vector control unit made of copper-infiltrated tungsten positioned aft of said rocket motor and propellant and inside the aft end of said boost means for variably directing the rocket motor exhaust gases; and
 - a boost guidance unit mounted within said boost means for guiding said missile and comprises:
 - a sensor package with at least three rate gyroscopes for sensing any pitch, yaw, and/or roll;
 - a central processing unit inputting said sensor information for computing in-flight control parameters; and
 - an autopilot connected to said central processing unit's output for executing said in-flight control parameters.

4,364,531

ATTACHABLE AIRFOIL WITH MOVABLE CONTROL SURFACE

Jerry L. Knoski, 9001 E. Calle Bogota, Tucson, Ariz. 85715
 Filed Oct. 9, 1980, Ser. No. 195,695

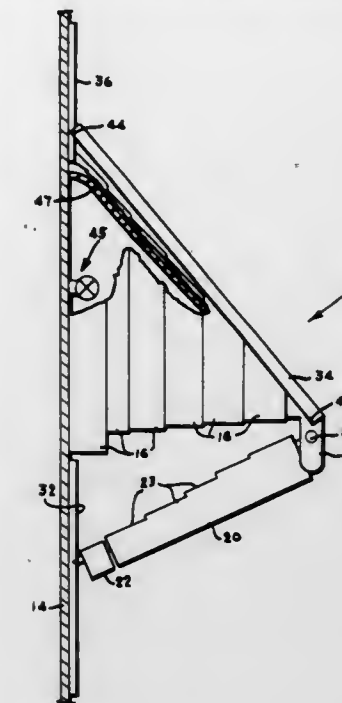
Int. Cl.³ F42B 13/32

U.S. Cl. 244-3.27

7 Claims

1. An attachable, self contained, expandable air foil for use with an airborne body comprising:
 - a longitudinally extending mount, said mount being capable of removable attachment to the outer surface of said airborne body;
 - means connected at one end thereof to said mount for expanding into an airfoil configuration, said airfoil configured means including a plurality of telescopic sections, each of said telescopic sections being of decreasing size in a transverse direction away from said longitudinally extending mount and capable of being nested within one another in a retracted position adjacent said mount and expandable from said mount to a fully extended position in said direction transverse to said longitudinally extending mount;
 - means operably connected between the other end of said airfoil configured means and said mount for providing a

movable control surface for said airfoil configured means in order to control the flight of said airborne vehicle; means operably connected between said expandable airfoil configured means and said mount for extending said airfoil configured means from said retracted position adjacent said mount to said fully extended position; and



means operably connected to said movable control surface means for providing controlled movement of said control surface means relative to said airfoil configured means only when said airfoil configured means is in its fully extended position.

4,364,532

APPARATUS FOR COLLECTING SOLAR ENERGY AT HIGH ALTITUDES AND ON FLOATING STRUCTURES

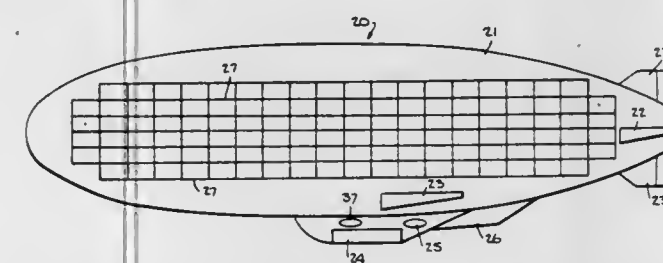
Virgil Stark, New York, N.Y., assignor to North American Construction Utility Corp., New York, N.Y.

Filed Nov. 29, 1979, Ser. No. 98,517

Int. Cl.³ B64B 1/00

U.S. Cl. 244-30

34 Claims



1. An apparatus for collecting solar energy comprising a collector means including a plurality of photovoltaic cells; at least one concentrator having a plurality of lenses disposed in spaced relation to said collector means; means for positioning said collector means and said concentrator at high altitudes above the earth; and means for moving at least said lenses along a sinuous curved path independently of said photovoltaic cells and of said positioning means to track the sun.

4,364,533

SIDEWALL PANEL WINDOW ASSEMBLY AND METHOD OF INSTALLING

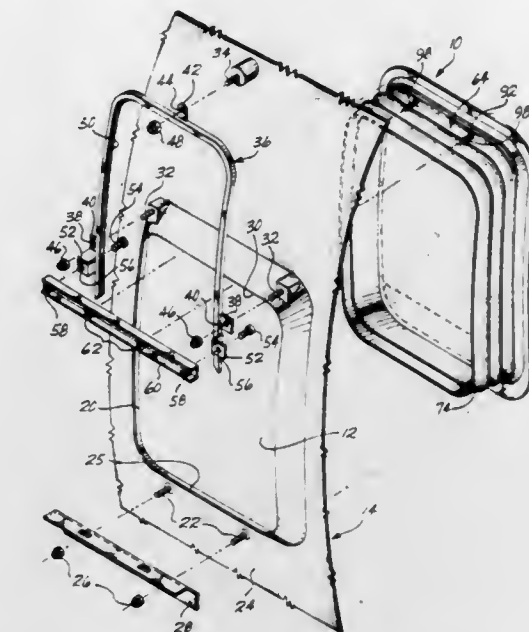
Arturo Pompei, Turin, Italy; John M. Raymond, Edmonds, and George D. Sherotsky, Redmond, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Nov. 13, 1980, Ser. No. 206,591

Int. Cl.³ B64C 1/14

U.S. Cl. 244-129.3

7 Claims



1. An aircraft window access assembly and mounting for rapid installation in and removal from an opening in an aircraft sidewall panel for providing viewing through and access to an aircraft window, with the assembly and mounting comprising: a window access assembly having a surface sized to make mating contact along the inside surface of a sidewall panel adjacent the perimeter of an opening in the sidewall panel, a reduced cross section of the assembly to extend outward and contact an aircraft window, a slideably mounted window shade to control viewing out the window, a dust stop located outboard from the shade, a pair of projections to extend outside the cross section of the assembly, a support member mounted to the outside surface of the sidewall panel and located to be contacted by the projections to pivot the assembly into and fill the opening in the sidewall panel, means for securing the positioned assembly to the sidewall panel, and means for supporting the window shade when it is in the opened position.

4,364,534

PLASTIC BAG STAND

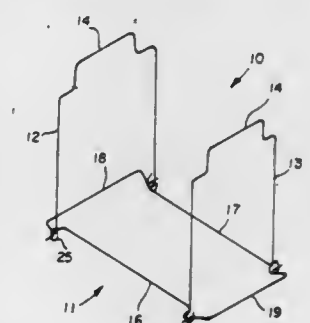
Thomas M. Valesko, 3012 Orleans Rd., Seneca Castle, N.Y. 14547

Filed May 4, 1981, Ser. No. 259,992

Int. Cl.³ A63B 55/04

U.S. Cl. 248-97

7 Claims



1. A plastic bag stand formed of wire to include a base and generally U-shaped sides pivotally mounted on said base to fold flat under said base for packaging and to open upright

above said base for supporting a plastic bag, said stand comprising:

- a. a pair of opposed longitudinal wires having central spans spaced apart by less than the width of said sides;
- b. a pair of opposed lateral wires having mid-regions arranged approximately in the plane of said central spans of said longitudinal wires;
- c. end portions of said longitudinal wires being bent outward and downward to join said lateral wires;
- d. end regions of said lateral wires being parallel with and offset from said mid-regions;
- e. S-curves in said lateral wires between said mid-regions and said end regions;
- f. bonds joining said end regions of said lateral wires and said end portions of said longitudinal wires at the lower ends of said downward bends in said longitudinal wires; and
- g. said sides being pivotally mounted on said end regions of said lateral wires between and adjacent said S-curves and said bonds so that upper regions of said sides detent against inside surfaces of said S-curves when folded and lower regions of said sides detent against outside surfaces of said S-curves when opened upright.

4,364,535

COUNTERBALANCE MECHANISM FOR LASER KNIFE DEVICE

Kiyoshi Itoh, Kamifukuoka; Tetuo Kamoshita, Toda; Teruo Sakai, Warabi, and Harumi Kawasaki, Oyaguchi kami, all of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

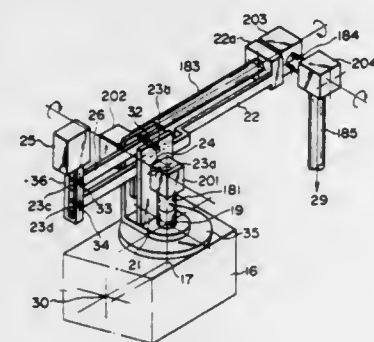
Filed Jul. 14, 1980, Ser. No. 167,959

Claims priority, application Japan, Jul. 18, 1979, 54/91437

Int. Cl.³ F16L 3/00; A47G 29/00

U.S. Cl. 248—123.1

6 Claims



1. A counterbalance mechanism for a laser knife device including a manipulator having first, second and third arms, comprising:

- a base support arm which is rotatable around said first arm of said manipulator, said second arm of said manipulator extending through said base support arm and being supported thereby to be smoothly rotatable, said third arm extending outward from one side of an axis of said second arm and being substantially perpendicular to said axis;
- a parallelogram link having four vertices, a first vertex being a point on the axis of said second arm, a second vertex being a link point on a vertical line passing through said first point, said link point acting as a pivotal coupling point to said support arm, and a third and fourth vertex being additional link points and being on an opposite side of said axis, said parallelogram link being deformable in a vertical plane;
- a weight coupled to said parallelogram link so that a center of gravity of said weight is at a point on an extended line connecting said first point with a center of gravity of the overall manipulator, said weight having a mass to balance a rotational moment of said manipulator; and
- a second support arm supporting a third articulation of said manipulator, said second support arm being integral with

said parallelogram link to cancel the rotational moment of said manipulator when said manipulator is operated.

4,364,536

DEVICE FOR ADJUSTING A VEHICLE SEAT

Bernd Klütting, Radevormwald, Fed. Rep. of Germany, assignor to Keiper Automobiltechnik GmbH & Co. KG, Fed. Rep. of Germany

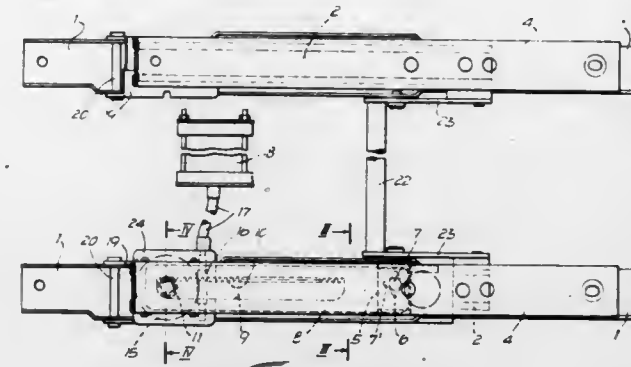
Filed Oct. 11, 1979, Ser. No. 83,795

Claims priority, application Fed. Rep. of Germany, Oct. 13, 1978, 2844647

Int. Cl.³ B60N 1/08

U.S. Cl. 248—429

12 Claims



1. A device for adjusting a vehicle seat, particularly a motor vehicle seat, supported by at least two slide tracks which extend along the length of the seat, and which are placed through guide tracks each spaced away from the vehicle floor by means of console elements, comprising:

- at least one rack situated beneath one of said guide tracks and extending along the length of said guide tracks;
- said rack being separate and distinct from said guide tracks and having one end connected by means of a connecting body with said slide track lying above it;
- said rack having a long slot having a first long edge comprised of teeth forming said rack at at least some portion along its length and having a second long edge opposite said first long edge spaced away from said teeth;
- a drive mechanism; and
- a pinion connected between said drive mechanism and said long slot, wherein said pinion engages said teeth of said rack and is kept in engagement therewith by the spacing of said first and second long edges of said long slot.

4,364,537

ADJUSTABLE PLATE HOLDER

James A. Helzer, Cheyenne, Wyo., assignor to Unicon Corporation, Cheyenne, Wyo.

Filed Sep. 11, 1980, Ser. No. 186,320

Int. Cl.³ A47B 97/04

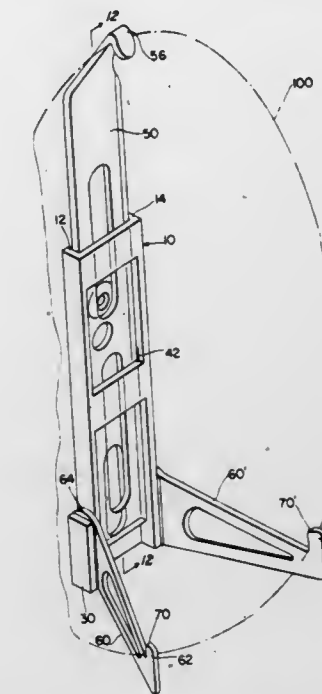
U.S. Cl. 248—448

3 Claims

1. An adjustable holder for supporting three side surfaces of a planar object, such as the top edge portion and two lower edge portions of a plate, comprising:

- a rigid supporting base having two parallel longitudinal sides, at least one front panel, and at least one back panel, said front panel being attached at the forward edges of said two sides and said back panel being attached at the rearward edges of said two sides so that a substantially quadrilateral channel is provided along the longitudinal length of said base between said two sides, said front panel and said rear panel;
- an elongate arm having a substantially quadrilateral cross-section so as to be frictionally received in the channel of said base, the upper portion of said arm being provided with a downwardly and forwardly projected hooked end;
- a pair of feet extending forwardly and sidewardly of said base on either side of said base, each said foot having an upstanding toe at the outwardly extending end;

means to removably attach said pair of feet to the lower end of said base including a mounting bracket on each of said sides of said base, said mounting bracket having a key which is attached along a portion of a respective side which spaces a flange parallel to said sides; and each said foot including a slot near the end opposite said toe, said slot being substantially the same size as said key and



adapted to be received by said key, and a protrusion located above said slot on said foot, said protrusion fitting between said respective side and flange to reduce the play between said foot and said mounting bracket and such that a plate resting against said toes is locked in place by lowering said arm in the channel until said hooked end of said arm engages the top of the plate and said arm is then frictionally held in place.

4,364,538

ADJUSTABLE CABLE PICTURE-HANGING SYSTEM

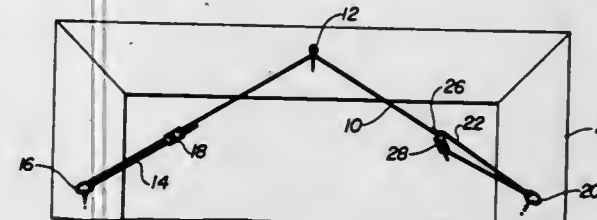
James N. Tomlinson, 1114 Kathryn St., Boalsburg, Pa. 16827

Filed Jun. 19, 1980, Ser. No. 161,018

Int. Cl.³ A47G 1/24

U.S. Cl. 248—495

10 Claims



1. An adjustable picture-hanging system comprising a length of metal picture-hanging wire cable having one end portion formed into a first loop connectable to a mounting member on a picture frame and the opposite end of said cable being provided with a small locking aperture having a cross-sectional dimension only slightly greater than that of said cable and through which an intermediate portion of said cable extends and substantially fills said aperture to form an adjustable second loop for connection to another mounting member on a picture frame, the effective length of said cable between said mounting members being adjustable by moving said intermediate portion of said cable through said small locking aperture and then tensioning said cable between said mounting members, whereby said small locking aperture engages the cable portion passing therethrough and bends it a limited extent into an offset locking crimp in said cable operable to prevent slip-

page of said cable relative to said locking aperture in a direction to lengthen the same between said mounting members.

4,364,539

DIAMOND DRILL SKID PAD

Alcide Drysdale, Bathurst, Canada, assignor to Brunswick Mining and Smelting Corporation Limited, Bathurst, Canada

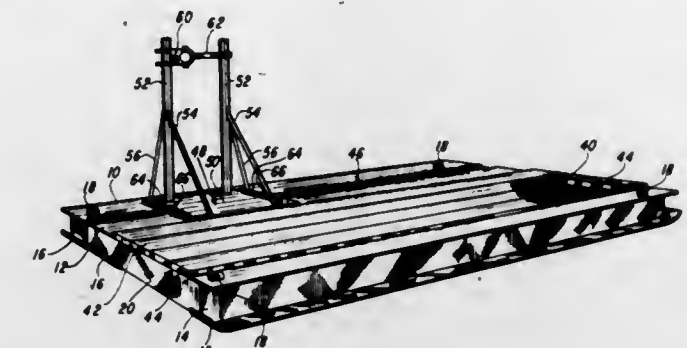
Filed Nov. 2, 1979, Ser. No. 90,753

Claims priority, application Canada, Nov. 23, 1978, 316788

Int. Cl.³ F16M 13/00

U.S. Cl. 248—647

5 Claims



1. A diamond drill skid pad comprising:

- (a) at least two elongated skid members having relatively large ground engaging surfaces;
- (b) structural cross members for joining said skid members in spaced parallel relation and also forming a storage space for drill rods between said skid members; and
- (c) an additional elongated skid member positioned in close relation to one of said elongated members so as to form a trackway for a drill stand on the upper surface of said skid pad.

4,364,540

SUPPORT-ARM ASSEMBLY FOR A DRILL OR BORER, PARTICULARLY FOR SUBTERRANEAN APPLICATIONS

Roger Montabert, Bron, France, assignor to Etablissements Montabert S.A., Saint-Priest, France

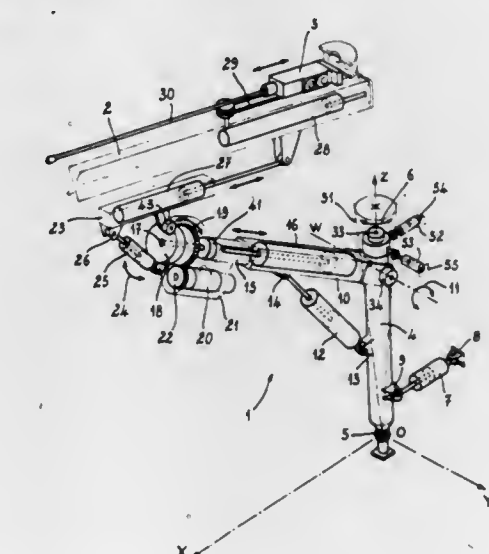
Filed Mar. 25, 1980, Ser. No. 133,829

Claims priority, application France, Mar. 26, 1979, 79 08169

Int. Cl.³ F16M 1/00

U.S. Cl. 248—654

10 Claims



1. A drilling machine comprising:

- a column mounted for rotation about a substantially upright first axis;
- first motor means connected to said column for angularly displacing same about said first axis with an angular displacement represented by the parameter $\alpha 1$;

an arm pivotally connected to said column at a second axis substantially perpendicular to said first axis;
 second motor means connected between said column and said arm for angularly displacing said arm about said second axis, the angular displacement of said arm about said second axis being represented as a parameter α_2 ;
 an intermediate support body carried by said arm;
 third motor means connected between said support body and said arm for rotating said support body about a third axis generally perpendicular to said second axis with the angular displacement of said support body being represented by a parameter α_3 ;
 a rail support pivotally mounted on said support body and carrying a rail for a drilling head;
 fourth motor means connected between said support body and said rail support for pivotally displacing said rail support relative to said support body through an angle represented by the parameter α_4 ; and
 control means for said motor means including at least one manual control element operatively connected to said first and second motor means for actuating same, respective displacement detectors responsive to displacements produced by said first and second motor means for generating signals representing the parameters α_1 and α_2 , and
 follower means connected to said displacement detectors and responsive to the parameters α_1 and α_2 for establishing continuously the values of the parameters α_3 and α_4 defining the orientation of said rail to maintain the same parallel to itself, and automatically controlling said third and fourth motor means in response to the parameters α_3 and α_4 calculated in the follower means.

4,364,541

ISOLATING DEVICE FOR CALIBRATED SAFETY VALVE

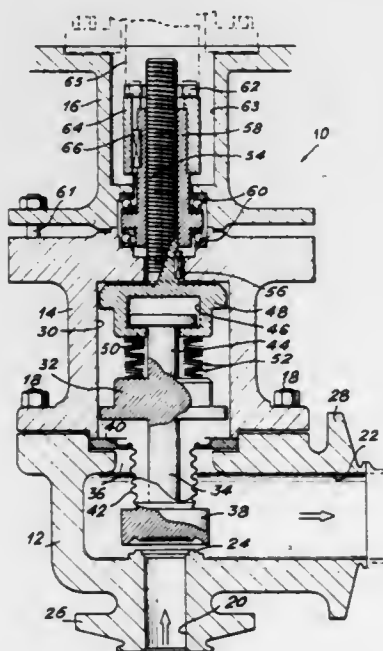
Jean Chabat-Courrede, 31 Rue du Docteur Emile Bergeron, 77250 - Moret-sur-Loing, and Francois Gemignani, 14 Lotissement du Pati, 13500 - Martigues, both of France

Filed Jul. 1, 1980, Ser. No. 164,908

Claims priority, application France, Apr. 2, 1980, 80 07459
 Int. Cl.³ F16K 31/48

U.S. Cl. 251—83

3 Claims



1. An isolating device for positioning in a circuit upstream of a safety valve, comprising a valve member which can sealingly bear on a valve seat formed in said circuit, neutralization means which normally maintain the valve member remote from its seat, said means being actuable to bring the valve member in sealing engagement with its seat when it is necessary to isolate the safety valve and calibration means acting on the valve member when it is sealingly engaged with its seat to enable it

to move away from the latter when the pressure upstream of the isolating device exceeds a predetermined value, said neutralization means comprising a mechanical system controlled by a motor, said mechanical system comprising a first member integral with the valve member and a second member which moves in accordance with the displacement direction of the valve member under the action of said motor, a connection with clearance being provided between said members in order to normally permit the second member to act on the first member so as to keep the valve member remote from its seat and to permit the first member to move with respect to the second member when the valve member moves away from its seat counter to the calibration means, when the pressure upstream of the isolating device exceeds the predetermined value after starting up the motor, each of said members comprising a part in the form of a piston sealingly received in a bore so as to define a first tight chamber filled with hydraulic fluid which communicates with a second tight chamber into which is introduced a given volume of compressed gas defining the calibration means.

4,364,542

PACKING GLAND ASSEMBLY

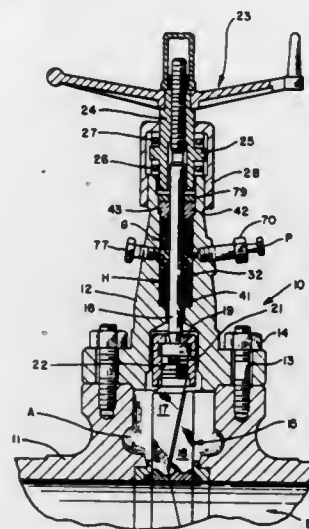
Danny S. Meyer, Richmond, Tex., assignor to ACF Industries, Incorporated, New York, N.Y.

Filed Jun. 18, 1981, Ser. No. 274,918

Int. Cl.³ F16K 41/02; F16J 15/40

U.S. Cl. 251—214

8 Claims



1. A valve having a valve body with a fluid passage there-through for receiving a pressurized working fluid and having a packing assembly for a valve stem or shaft extending through a packing chamber having packing stops at the end thereof, said packing assembly comprising:

- a first lower set of packing rings, each of said packing rings being of a polymeric composition and of the V-type configuration in radial cross-section and having a convex surface and a concave surface, said packing rings being arranged in an interested relationship in a stack about the valve stem in contacting relationship with the stem and bonnet;
- a second upper set of packing rings, each of said packing rings in said upper set being of a polymeric composition and of the V-type configuration having a convex and a concave surface, said upper set of packing rings being arranged in an interested stacked relationship about the valve stem in contacting relationship with the stem and bonnet, said upper and lower sets of packing rings being disposed in said packing chamber with all their concave surfaces of the upper set of packing rings facing in the direction of fluid pressure from said flow passage;
- a pair of anti-extrusion rings arranged about the valve stem at opposite ends of the stack of the lower set of packing rings to sandwich the packing rings of said lower set between said pair of anti-extrusion rings;

a third anti-extrusion ring arranged about the valve stem and disposed atop the stack of the upper set of packing rings; a soft, plastic sealing material interjected under pressure into the packing chamber between said upper and lower sets of packing rings to pressurize and axially compress said packing assembly and thereby inducing a radial expansion of the packing rings to effect a tight, sealing relationship between the packing rings and said valve stem and bonnet, said anti-extrusion rings contacting the stem and bonnet with substantially zero clearance therewith and being formed of a non-metallic harder, more rigid substance than said packing rings and having a yield strength which exceeds the expected working pressure for the valve in the range of 25% to 50% and corresponds to the test pressure for the valve to permanently deform said anti-extrusion rings to impede extrusion of the packing rings along the stem and bonnet when said packing rings are subjected to axial compression and to provide for stem centralization.

4,364,543

VALVE DEVICE

Masahiro Soya, Kawasaki; Isao Sato, Fujisawa, and Seiji Kurose, Yokohama, all of Japan, assignors to Tokico Ltd., Kanagawa, Japan

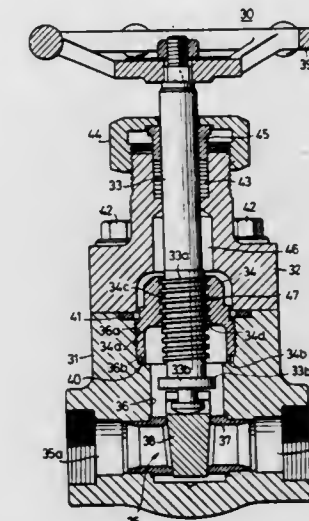
Filed Mar. 16, 1981, Ser. No. 244,393

Claims priority, application Japan, Mar. 19, 1980, 55-36875[U]

Int. Cl.³ F16K 31/50

U.S. Cl. 251—221

6 Claims



1. A valve device comprising:

- a valve body having an inflow passage and an outflow passage;
- a valve seat fixed to the valve body at a position between said passages;
- a valve element adapted to seat against and be separable from the valve seat;
- a valve stem movable together with the valve element toward and away from the valve seat;
- a stem holding member of a unitary construction secured at a portion thereof to the valve body in the body interior and holding the valve stem at a screw engagement part therewith, a surface at an extremity of said portion of the stem holding member being in abutting contact with a surface of the valve body thereby to form a first metal-contact seal;
- a bonnet detachably fixed to the valve body and covering the remainder portion of the stem holding member, said valve stem being rotatable within said bonnet, a first sealing member interposed between said bonnet and said valve body, a second sealing member interposed between said bonnet and said valve stem; and
- means for forming a second metal-contact seal between the stem and the stem holding member when the valve is in the fully opened state thereof.

1025 O.G.—36

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VALVE SEAT WITH SEDIMENT GUARD

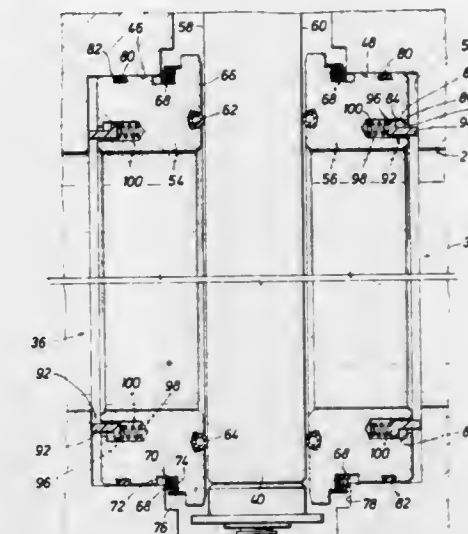
Kee W. Kim, Houston, Tex., assignor to Daniel Industries, Inc., Houston, Tex.

Filed May 18, 1981, Ser. No. 264,275

Int. Cl.³ F16K 3/00

U.S. Cl. 251—328

7 Claims



1. A valve mechanism for controlling the flow of fluid, said valve mechanism comprising:

- (a) a valve body structure defining a valve chamber and inlet and outlet flow passages intersecting said valve chamber, said valve body further defining annular seat recess means about said flow passages, said seat recess means defining radial surface means;
- (b) a gate member being movably positioned within said valve chamber and being movable between open and closed positions to control the flow of fluid through said flow passages;
- (c) means for imparting controlling movement to said gate member;
- (d) annular seat means being movably retained within said seat recess means and having a sealing portion establishing sealing engagement with said gate member and a rear face portion opposing said radial surface means, said rear face portion being formed to define receptacle means;
- (e) sediment guard means being movably positioned within said receptacle means; and
- (f) urging means continuously maintaining said sediment guard means in contact with said radial surface means.

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WELL SERVICING APPARATUS

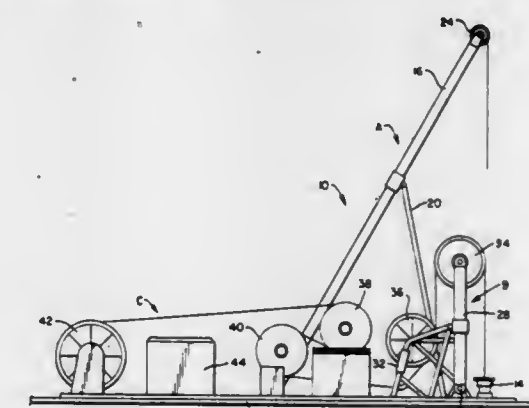
Lee S. Kobylinski, Bartlesville, Okla., assignor to TRW Inc., Cleveland, Ohio

Filed Jul. 2, 1980, Ser. No. 164,519

Int. Cl.³ B66D 1/36

U.S. Cl. 254—284

1 Claim



1. In combination with a well, a system for running well

hardware into the well by cable or the like and pulling the hardware from the well, the system comprising a suspension structure including a base means, suspension mast means mounted on said base means, said mast means including means for suspending the hardware from a first location having a height above said base means which is greater than the height of the hardware, means for suspending the hardware from a second location above said base means and below said first location, said second location having a height above the base means which is substantially less than the height of the hardware, said first and second locations being substantially vertically aligned, means for running the hardware toward the well from said first and second locations, means for applying a pulling force on the hardware when suspended in a well for pulling the hardware therefrom, and said mast means having a construction providing sufficient strength to withstand the maximum pulling force when said force is applied from said second location and insufficient strength to withstand the maximum pulling force if said force is applied from said first location, wherein said suspension mast means includes first and second masts defining said first and second locations, respectively, said first mast having a height sufficient to suspend said hardware above said base means and a strength insufficient to withstand said maximum pulling force, said second mast having a height insufficient to suspend said hardware above said base means and a strength sufficient to withstand said maximum pulling force.

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MODULAR FENCING ASSEMBLY

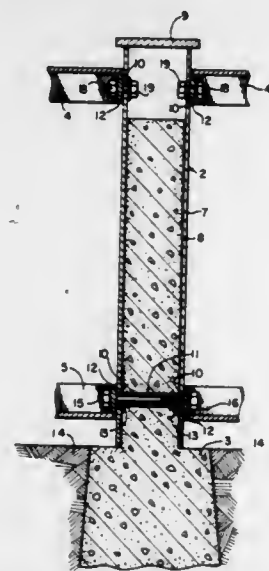
Oscar Lyman, 1290 San Tomas Aquino Rd., San Jose, Calif. 95117, and Ralph Tiegel, 1986 Eaton Ave., San Carlos, Calif. 94070

Filed May 2, 1980, Ser. No. 146,065

Int. Cl.³ E04M 17/16

U.S. Cl. 256—24

7 Claims



1. A modular fencing assembly comprising:

- a plurality of hollow post members positioned at spaced intervals and retained in place by a foundation;
- a lower channel having a U-shaped cross-section over its length, removably but securely attached to, and extending between an adjacent pair of post members by first attaching means, and adapted to engage a fencing panel therein;
- an upper channel having a U-shaped cross-section over its length, removably but securely attached to, and extending between said adjacent pair of post members, and adapted to engage a fencing panel therein;
- second attaching means for said channel being accessible from within said hollow post member;
- at least one fencing panel extending between and retained in position by the upper and the lower channels wherein said first attaching means is accessed by removing said panel from said lower channel.

(f) cap means located upon the top of said hollow post member.

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SEAT BASE ASSEMBLY

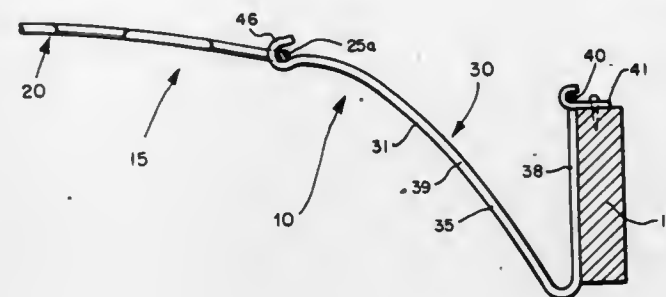
Lawton H. Crosby, Lake Bluff, Ill., assignor to Morley Furniture Spring Corporation, Lake Bluff, Ill.

Continuation-in-part of Ser. No. 45,625, Jun. 5, 1979, abandoned, which is a division of Ser. No. 865,966, Dec. 30, 1977, Pat. No. 4,157,173. This application Oct. 7, 1980, Ser. No. 194,900

Int. Cl.³ F16F 3/02

U.S. Cl. 267—110

8 Claims



1. In a seat base assembly including a frame having a front rail and a back rail and a seat base support means disposed between said rails, the improvement in a seat base support assembly, comprising:

- a seat base member connected to the front rail and extending into close proximity with the back rail;
- a rail connector connecting said member to the back rail;
- said rail connector having non-coil spring means for storing energy and having a rail attachment leg at one end thereof and a spring attachment leg at the other end thereof;
- said spring means being effective to resiliently oppose downward movement of said spring attachment leg relative to said rail attachment leg;
- said spring attachment leg being connected to said member;
- said rail attachment leg including a generally vertically arranged portion engaging one of the inside or outside surfaces of said back rail relative to said seat frame;
- said spring attachment leg extending upwardly from said rail attachment leg so as to connect to said member at a point substantially above said rail attachment leg.

4,364,548

PORTABLE WORKBENCH

Curtis J. Eccardt, St. Charles, Mo., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Oct. 6, 1980, Ser. No. 194,611

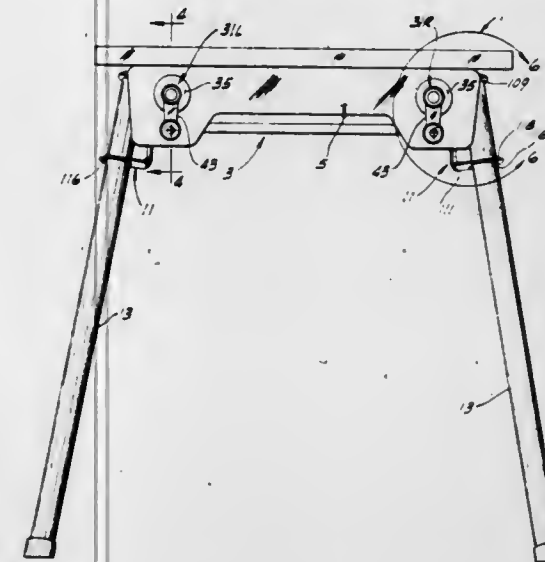
Int. Cl.³ B25B 1/22

U.S. Cl. 269—139

18 Claims

1. In a portable workbench comprising a frame, a plurality of legs supporting the frame, a pair of work holding table members carried by said frame, one of said table members being fixed relative to said frame and the other of the table members being movable toward and away from said fixed member, and a pair of vise screws carried by said frame and operatively coupled to said movable table member, said vise screws being operable independently of one another thereby to selectively move said movable table member toward and away from said fixed table member and, upon rotating of one of the vise screws an amount different from the other of the vise screws, to angularly move said movable table member relative to said fixed table member, wherein the improvement comprises: said frame including a front frame member, a back frame member, and a pair of hollow end frame members extending between said front and back frame members, each of said end frame mem-

bers having a longitudinal slot in the upper face thereof, each of said vise screws being disposed within a respective end frame member and being journaled relative to said front frame member, each of said end frame members having a guide movable axially therewithin, each said guide being threadably coupled with a respective vise screw so as to effect axial sliding movement of the guide within said end frame member upon rotation of said vise screw, a pair of support fittings engagable with the lower face of said movable table member, each of said support fittings being positioned to bear against the upper surface of a respective said end frame member, a pair of elongate slots in said movable table member, each said elongate slot extending in generally lateral direction with respect to said movable table member and being disposed proximate a respective end frame member, means extending through said slot in the upper face of said end frame members interconnecting said support fitting and said guide for the transfer of force from said vise screw to said movable table member, and a pin carried by



each said support fitting received in a respective said elongate slot in said movable table member for transmitting loads substantially in the direction of the longitudinal axes of said vise screws between said support fittings and said movable table member and for permitting said movable table member to move angularly with respect to said fixed table member upon rotating said vise screws different amounts, and means secured to said movable table member extending through said slots in the upper faces of said end frame members engagable with said end frame members for holding said movable table in a desired horizontal position, each said end frame member having inner and outer walls and guide surfaces spaced above and below said guide, said guide being an elongate member sized to be slidably received between said sidewalls of its respective end frame member and between said guide surfaces above and below said guide so as to be freely slidably movable substantially without lateral or vertical movement with respect to its end frame member.

4,364,549

APPARATUS FOR FEEDING CARDBOARD BLANKS OR THE LIKE TO A MAGAZINE

Werner Komossa, Börnsen, and Nils von Wichert, Glinde, both of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. KG, Hamburg, Fed. Rep. of Germany

Filed Jan. 19, 1981, Ser. No. 226,503

Claims priority, application Fed. Rep. of Germany, Jan. 18, 1980, 3001733

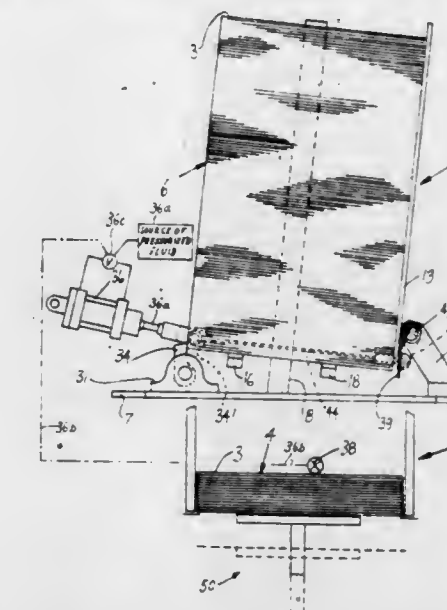
Int. Cl.³ B65H 3/24, 3/30, 1/30

U.S. Cl. 271—1

12 Claims

1. Apparatus for supplying blanks of the type having marginal flaps alternating with recesses into the main magazine of a packing machine or the like, comprising an auxiliary magazine located above the main magazine and arranged to store a substantially upright pile of overlapping blanks each having oppositely opposed first and second sides; a plurality of sup-

ports located below the lowermost blank of the pile in said auxiliary magazine and normally disposed below the marginal flaps of such lowermost blank to thereby hold the pile against gravitational descent into the main magazine therebelow; displacing means operable to effect a relative movement between the pile in said auxiliary magazine and said supports so as to place the supports into register with the recesses of the pile whereby at least some blanks of the pile are free to descend into the main magazine by gravity, said displacing means including pusher means adjacent to one of the sides of said blanks, said pusher means arranged to move at least some blanks at the lower end of the pile in said auxiliary magazine between a first position in which the lowermost blank of the



pile rests on said supports and a second position in which said supports register with the recesses of said some blanks; intercepting means adjacent to the other side of the pile in said auxiliary magazine and arranged to prevent movement of those blanks of the pile not displaced by said pusher means; and means for coupling said intercepting means for movement with said pusher means so as to enable said intercepting means to move away from said other side of the pile when said pusher means shifts a number of blanks to move the recesses of such blanks into register with said supports and to move toward said other side of the pile when said pusher means thereupon re-assumes a predetermined starting position in which it allows the lowermost blank of the remainder of the pile in said auxiliary magazine to rest its flaps on said supports.

4,364,550

CORRUGATION VENTURI PAPER FEEDER

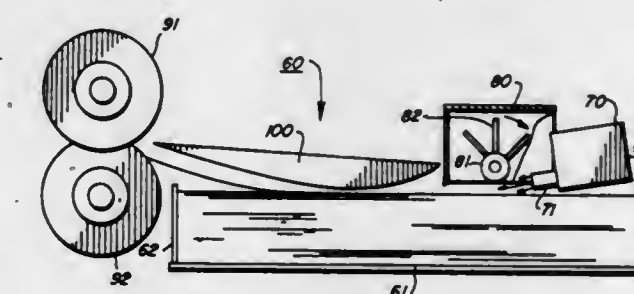
Frank R. Hynes, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 3, 1980, Ser. No. 193,557

Int. Cl.³ B65H 3/14, 3/06

U.S. Cl. 271—11

1 Claim



1. A substrate feeder comprising in combination: support means for supporting a stack of substrates, said support means having front and rear ends;

restraining means connected to the front end of said support means such that movement of the substrates is inhibited; air foil means having a flat top surface and a curvilinear bottom surface located adjacent said restraining means and above the front edge of the stack of substrates; air nozzle means located adjacent the rear end of said support means for applying air pressure to said air foil means such that the leading edge of the top substrate in the stack is lifted above said restraining means and away from the stack and caused to conform to the shape of the air foil means without making positive contact along said curvilinear bottom surface of said air foil; forwarding means for moving substrates away from the stack is located between said air foil means and said air nozzle means and includes a segmented paddle wheel having three blades positioned in reference to a circle at 315°, 0°, and 45° when in a non-feeding position, said paddle wheel is adapted to feed the top substrate from the stack of substrates every complete revolution and to not come in contact with the rest of the stack during the feeding of the top sheet; and decurling means located downstream from said restraining means and adapted through a series of corrugation rollers to remove any inherent or mechanically induced curl in the substrates that are forwarded.

4,364,551

TRANSPORTATION DEVICE FOR SHEET-LIKE RECORDING CARRIERS

Thomas Rutishauser, Uerikon, Switzerland, assignor to Rutishauser Data AG, Stafa, Switzerland

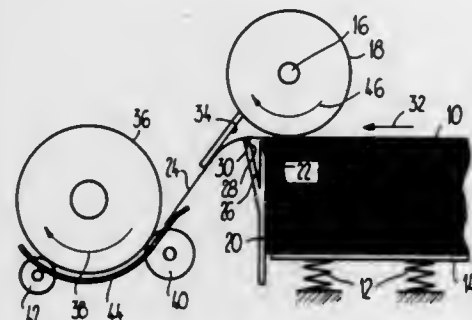
Filed Feb. 12, 1981, Ser. No. 234,105

Claims priority, application Fed. Rep. of Germany, Jun. 26, 1980, 3024036

Int. Cl.³ B65H 3/52

U.S. Cl. 271—121

9 Claims



1. An apparatus having means for successively removing sheet-like recording carriers from a supply stack and for conveying the carriers into a predetermined path, means for biasing the stack so that the carrier at one end of the stack is urged into engagement with the removing and conveying means and stop means engageable with the forward edge of the supply stack relative to the path, the combination of means for assuring successive conveyance of the carriers one-by-one in the predetermined path, comprising:

a first element disposed along the path beyond the stop means on the opposite side of the path from the removing and conveying means, said element having an edge engageable and transversable by a carrier traveling along the path and having a surface facing the stack and extending from said element edge away from the path at an inclination toward the stack; and

a second element disposed along the path and on the same side thereof as the removing and conveying means, said second element having a surface disposed along the path beyond said first element, said surface being engageable by a carrier and inclined in the direction of movement thereof to deflect the carrier and hold it against said edge of said first element; whereby if two carriers are removed at once from the stack and traverse the stop means, the forward edge of the second carrier will abut said surface

of said first element and be prevented from passing over said edge thereof by the first carrier until the latter becomes free from engagement with the removing and conveying means.

4,364,552

METHOD AND APPARATUS FOR FORMING A STREAM OF PARTIALLY OVERLAPPING PAPER SHEETS OR THE LIKE

Alfred Besemann, Hamburg, Fed. Rep. of Germany, assignor to E.C.H. Will (GmbH & Co.), Hamburg, Fed. Rep. of Germany

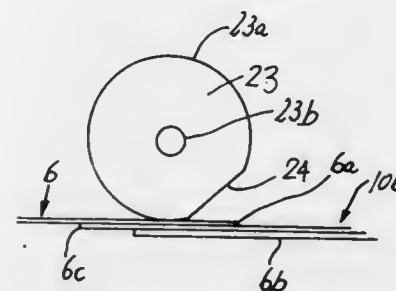
Filed Sep. 19, 1980, Ser. No. 188,677

Claims priority, application Fed. Rep. of Germany, Sep. 28, 1979, 2939277

Int. Cl.³ B65H 29/68

U.S. Cl. 271—182

7 Claims



1. Apparatus for converting a series of non-overlapping sheets into a stream of partially overlapping sheets, particularly for converting a series of non-overlapping paper sheets which issue from a cross cutter wherein a running paper web is severed to yield discrete sheets, comprising transporting means for advancing the sheets in a predetermined direction along a predetermined path, said transporting means including first conveyor means for advancing the sheets of said series at a first speed along a first portion of said path wherein each sheet has a leading edge, an intermediate portion behind the respective leading edge and a trailing edge behind the respective intermediate portion, said transporting means further including second conveyor means for advancing the sheets of said stream at a lower second speed along a second portion of said path downstream of said first portion, as considered in said direction; and a braking roller having a generally cylindrical peripheral surface of substantially constant radius over an arc in excess of 180° and also including at least one flat portion on said surface which is adjacent to but out of braking engagement with the leading edge of each sheet entering said second portion of said path, wherein the entire cylindrical peripheral surface of said braking roller is adapted to engage and brake the intermediate portions of successive sheets of said series on entry into said second portion of said path to thereby decelerate such sheets from said first speed substantially to said second speed whereby each sheet which advances beyond said first portion of said path overlaps with the freshly decelerated sheet.

4,364,553

SHEET STACKING APPARATUS

Lionel A. Wilson, Redbourn, England, assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 28, 1980, Ser. No. 201,676

Claims priority, application United Kingdom, Oct. 31, 1979, 7937764

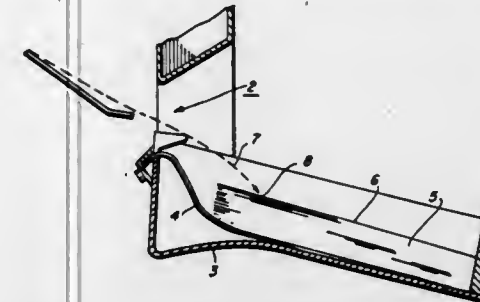
Int. Cl.³ B65H 31/10

U.S. Cl. 271—219

3 Claims

1. A sheet stacking apparatus comprising a device for feeding sheets from an exit location onto the stationary base portion of a catch tray positioned below the exit location, said stationary base portion being substantially planar and being inclined

slightly downward away from said exit location and means for supporting sheets fed into the catch tray such that further sheets fed from the exit location will encounter substantially constant conditions, characterized in that the means for supporting sheets fed into the catch tray comprises a plurality of resilient strips secured by one end adjacent the exit location



and extending in the feed direction above a part of said stationary base portion, and resilient strips directly supporting at least the trailing edges of sheets held in the catch tray thereon, said resilient strips being of such material and configuration as to be deflected by an amount substantially proportional to the weight of sheets being supported thereon.

4,364,554

CONVEYOR ARRANGEMENT FOR MAIL SORTING MACHINES

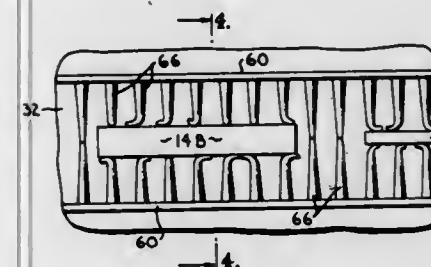
Roy Akers, Johnson County, Kans., assignor to Bell & Howell Company, Chicago, Ill.

Filed Jan. 26, 1981, Ser. No. 228,386

Int. Cl.³ B65H 5/02

U.S. Cl. 271—272

7 Claims



1. In a mail sorting machine for handling both relatively wide and relatively narrow articles of mail with the mail articles transported on the machine in a substantially vertical orientation, a conveyor arrangement comprising:

a pair of endless belts each having a plurality of flexible fingers projecting outwardly therefrom, said fingers being spaced apart from one another across the width and along the length of each belt;

means for supporting said belts on the machine with confronting surfaces of the belts oriented in substantially parallel vertical planes spaced apart at least as far as the thickness of the wide mail articles to provide a conveyor path for the mail articles between said confronting surfaces of the belts, said support means locating the tips of the fingers on each confronting surface adjacent the tips of the fingers on the opposed confronting surface to engage with opposing fingers the opposite sides of the relatively narrow mail articles located between said confronting surfaces of the belts;

a stationary support surface on the machine underlying said confronting surfaces of the belts, said support surface being oriented substantially horizontally to receive the lower edge portion of each mail article travelling along said conveyor path; and

drive means for driving said belts to move said confronting surfaces in the same generally horizontal direction to convey the mail articles along said conveyor path in a substantially vertical orientation, said fingers being flexed against opposite sides of the mail articles to convey both

the wide and narrow mail articles along said path with the lower edge portions of the mail articles moving along said support surface.

4,364,555

SHEET TRANSFER APPARATUS

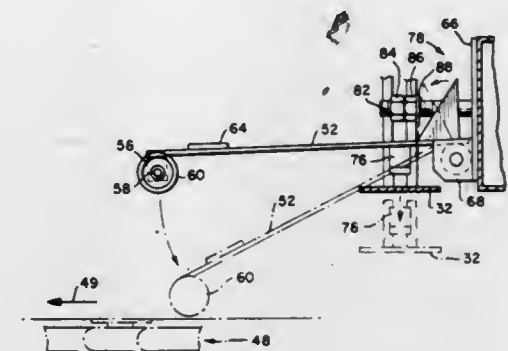
Robert J. Wise, Eugene, Oreg., assignor to Georgia-Pacific Corporation, Atlanta, Ga.

Filed Nov. 14, 1980, Ser. No. 206,964

Int. Cl.³ B65H 29/32

U.S. Cl. 271—308

22 Claims



1. A sheet transfer apparatus comprising:

a first station; a second station; means for transferring stiff sheets from said first station to said second station; conveyor means for moving sheets in a first direction from said second station;

a portion of said transfer means being located adjacent said second station to hold a sheet above said conveyor means; release means for releasing a sheet held by said transfer means at said second station from said transfer means to allow the released sheet to float downwardly to said conveyor means whereby the released sheet can subsequently be moved by said conveyor means;

hold-down means comprised of first and second bar members with contact surfaces for contacting the upper major surface of the released sheet during its entire downward floating motion, said first and second bar members extending in a second direction transverse to said first direction and across a major portion of the released sheet's dimension in said second direction, said first bar member being disposed adjacent a first end of the released sheet in said first direction and said second bar being disposed adjacent a second opposite end of the released sheet in said first direction.

4,364,556

EMERGENCY SHUT-OFF SWITCH AND FRAME ASSEMBLIES FOR EXERCISE APPARATUS

Gary Otte, Brazil, Ind., assignor to Nissen Corporation, Cedar Rapids, Iowa

Filed Oct. 20, 1980, Ser. No. 198,653

Int. Cl.³ A63B 23/06

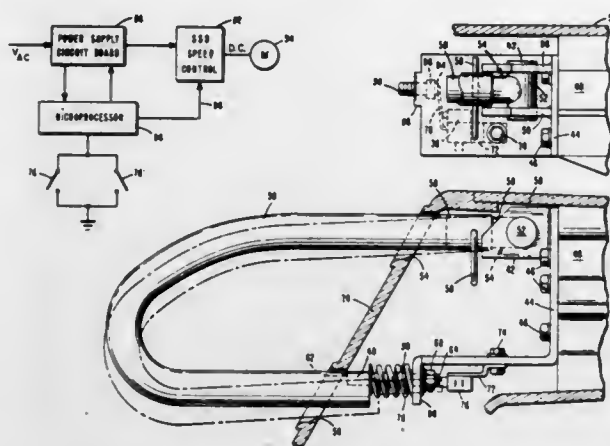
U.S. Cl. 272—69

4 Claims

1. In an exercise machine of the treadmill type having a frame assembly, a housing assembly supported by the frame assembly, a motor positioned within said housing assembly, an endless belt driven by the motor and guided by the frame assembly, and manually operated switch means for controlling starting and stopping of the motor, the improvement comprising an emergency shut-off switch assembly for substantially instantaneously de-energizing the motor to thereby stop belt movement, said emergency shut-off switch assembly comprising:

first and second handles having upper and lower ends connectable to said housing assembly in such manner that said

handles are positioned to be grasped by a user of the exercise machine;
means for pivotally connecting each of the upper ends of said handles to said housing assembly;
means for connecting each of the lower ends of said handles to said housing assembly including spring-biasing means for biasing the lower ends of the handles away from the housing assembly and in such manner that each of the lower ends is independently movable towards said housing assembly when a force sufficient to overcome said spring-biasing means is applied thereto; and



first independent switch means positioned in said housing assembly a predetermined distance from the lower end of said first handle and second independent switch means positioned in said housing assembly a predetermined distance from the lower end of said second handle, each of said first and second independent switch means being actuable by the means for connecting the lower ends of said handles to the housing assembly by movement exceeding a predetermined amount of its associated handle lower end toward said housing for substantially instantaneously de-energizing the motor to thereby stop belt movement.

4,364,557

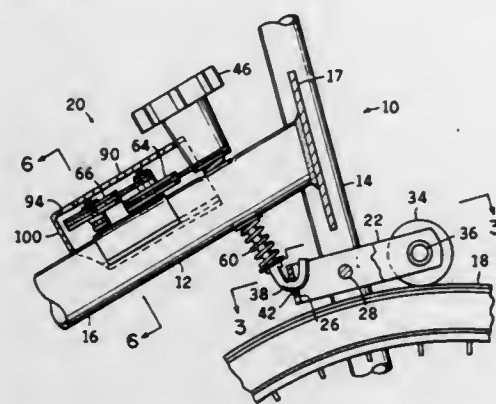
WORK CONTROL APPARATUS IN AN EXERCISER
Ronald A. Serati, St. Louis, Mo., assignor to The Perfection Manufacturing Company, St. Louis, Mo.

Filed Nov. 15, 1978, Ser. No. 960,765

Int. Cl.³ A63B 69/16

U.S. Cl. 272-73

1 Claim



1. A work control apparatus in an exerciser having a frame, and a driven member rotatively mounted on the frame, the apparatus comprising:

- a brake means operatively mounted on the exerciser frame and engaging the driven member,
- a rotatively mounted knob connected to the brake means for selectively determining the braking pressure exerted on the driven member,
- a rotatively mounted indicator wheel,
- drive means between the knob and the indicator wheel including flexible endless element means interconnecting

the knob and the indicator wheel in drive relation for rotating the indicator wheel an angular distance less than the corresponding angular distance of the knob upon rotation of the knob incident to adjusting the brake pressure,

- indicator means associated with the indicator wheel to indicate the braking pressure applied by the brake means to the driven member at a particular rotatively adjusted position of the knob,
- the drive means including a rotatively mounted idler wheel disposed between the knob and the indicator wheel,
- the flexible endless element means including a first flexible endless element interconnecting the knob and the idler wheel in drive relation, and a second flexible endless element interconnecting the idler wheel and the indicator wheel in drive relation,
- the idler wheel including an enlarged portion and a reduced portion,
- the first flexible endless element engaging the knob and the enlarged portion of the idler wheel, and the second flexible endless element engaging the reduced portion of the idler wheel and the indicator wheel, and
- the indicator wheel and the idler wheel being substantially identically formed but being reversely mounted relative to the exerciser frame.

4,364,558

PUNCHING BAG APPARATUS AND SUPPORTING MEANS THEREFORE

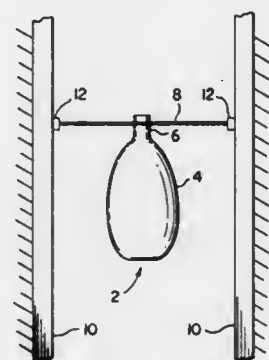
Louis Aragona, 11 Scheiber Ter., Cedar Grove, N.J. 07009

Filed Mar. 31, 1981, Ser. No. 249,344

Int. Cl.³ A63B 69/22

U.S. Cl. 272-78

5 Claims



1. Punching bag apparatus and supporting means therefor, comprising:

- a punching bag member having a body portion adapted for being struck by a user and a neck portion adapted for engaging a supporting member;
- the supporting member including a pair of elongated wire-like members which are twisted at opposite ends so that said wire-like members are unitary, with the twistings on one end being in spaced relation with the twistings on the opposite end to form a centrally disposed resilient portion for engaging the neck portion of the punching bag member so that said member offers resistance when the body portion thereof is struck by the user and automatically snaps back to the rest position, said elongated wire-like members having portions extending in opposite directions from the centrally disposed resilient portion; and

the portions of the supporting member extending in opposite directions from the centrally disposed resilient portion being adapted at their ends for being mounted on a supporting structure.

4,364,559

LEG EXERCISER

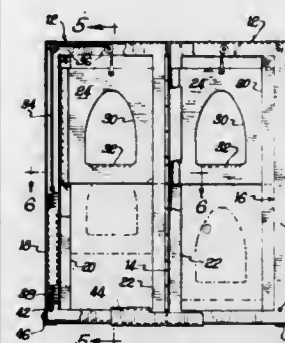
John B. Valentine, 4772 Hawley Blvd., San Diego, Calif. 92116

Filed Dec. 22, 1980, Ser. No. 218,546

Int. Cl.³ A63B 21/02

U.S. Cl. 272-142

3 Claims



1. A portable leg exerciser comprising:

- a frame having two sub-frames each defining parallel tracks;
- two foot pieces engageable by the left and right feet respectively and slideable in said respective sub-frames;
- resistance means reacting against the sliding of said foot pieces in said sub-frames in at least one direction whereby the feet and legs are exercised by overcoming said resistance means; and,
- said two sub-frames being hinged together along an axis parallel to the direction of sliding of said foot pieces to permit said frame to collapse for storage.

4,364,560

HOCKEY STICK PRACTICE WEIGHT

John F. Gemmel, 59 Maryland St., Winnipeg, Manitoba, Canada (R3G 1K6)

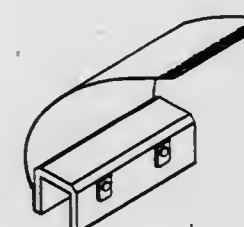
Filed Nov. 4, 1981, Ser. No. 317,796

Claims priority, application Canada, Oct. 4, 1978, 312664

Int. Cl.³ A63B 21/00, 59/12, 69/00

U.S. Cl. 273-1 B

4 Claims



1. A practice weight for hockey stick handles, said handles being substantially rectangular in cross section and including upper and lower edge faces and a pair of side faces; comprising a U-shaped weight engageable on said handle, means on said weight for detachably securing said weight on said handle in the desired location therealong, and a flexible cover means secured by one end thereof to said weight to wrap around said weight when secured to said stick in order to cover said weight, and means to secure the other end of said cover means to itself when wrapped around said weight.

4,364,561

PARTY GAME

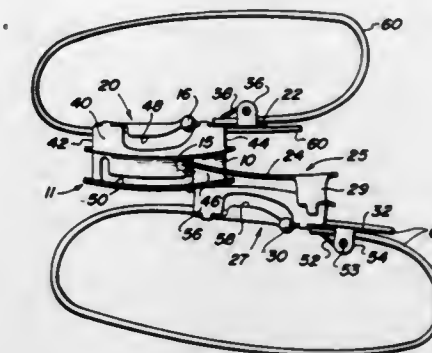
Robert E. Gill, 401 Liberty Blvd., Phillipsburg, N.J. 08865

Filed Jan. 4, 1982, Ser. No. 337,022

Int. Cl.³ A63F 9/00

U.S. Cl. 273-1 G

5 Claims



1. A party game in combination with two flat topped belt buckles comprising:

- a female part attached to one of said buckle tops, said female part comprising:
 - a tongue receiving tunnel having opposed U-shaped side slots; and
 - a double headed marker pin movably retained in and spanning said slots;
- a male part comprising a cantilevered tongue attached to said second buckle top in overlying spaced-apart registration, said male tongue part and said female tunnel being positioned in their respective buckle tops so that said tongue edge faces said tunnel opening; whereby, when said male tongue part is inserted into said female tunnel, said tongue can urge said marker pin forward from one slot end to the other.

4,364,562

BASEBALL REBOUND TARGET

John M. White, 25 Vernon St., Hyde Park, Mass. 02136, and

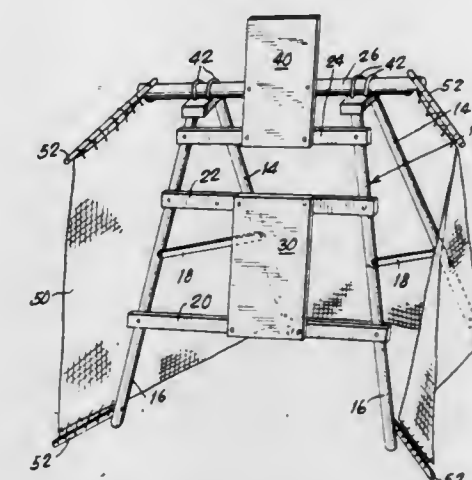
George Owen, Jr., 23 Robbins St., Milton, Mass. 02186

Filed Apr. 17, 1980, Ser. No. 141,049

Int. Cl.³ A63B 69/40

U.S. Cl. 273-26 A

9 Claims



1. A baseball rebound device useful in improving throwing accuracy which comprises:

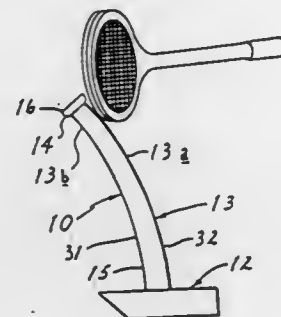
- a frame structure including a top cross-bar;
- a pair of legs movably attached substantially at each end of said cross-bar, each pair of said legs forming an inverted v;
- a pair of front legs defined by one leg of each said pair of legs and a pair of rear legs defined by the other leg of each said pair of legs, said front and rear legs being adjustable relative to each other,

- a plurality of horizontal cross-bars rigidly attached to the front legs; and
- a laminated, impact-resistant planar target board having substantially the same length and width as a normal baseball strike zone rigidly attached to the horizontal cross-bars at a location which corresponds to the location of a normal strike zone of an opposing baseball batter.

4,364,563

ENERGY DISSIPATING BALL TEE

David F. Stafford, 3504 N. Dale, Spokane, Wash. 99206
Continuation-in-part of Ser. No. 947,951, Oct. 2, 1978,
abandoned. This application Mar. 30, 1981, Ser. No. 248,974
Int. Cl.³ A63B 69/36, 69/38
U.S. Cl. 273—26 R 17 Claims



1. An energy dissipating ball tee for supporting a ball at a prescribed elevation to be struck at by a swinging bat moving in a selected direction, comprising:

- a base member;
- an elongated shaft mounted to the base member and projecting therefrom to an outward end;
- a ball support integral with the shaft and formed at the outward end of the shaft;
- said elongated shaft being formed of a self-supporting low density synthetic closed cell foam material of a defined volume having a homogeneous closed cellular cross section extending along the elongated shaft that serves as a critically damped inelastic energy-absorbing oscillator when the shaft is struck by the swinging bat moving in the selected direction with the shaft nondestructively progressively bending throughout the length of the elongated shaft from the base member to the ball support causing cell strain to vary throughout the cross section with a surface facing opposite the selected direction in maximum tension and a surface facing in the selected direction in maximum compression to distort the closed cells and to inelastically compress and to thereby heat air entrapped within the closed cells to absorb and dissipate the kinetic energy of the impact throughout the volume of the shaft without damaging either the bat or the shaft and to further cause the shaft to unbend to its original geometry without significant rebound.

4,364,564

SHOCK ABSORBER FOR TENNIS PLAYERS

David Lewis, 29 Hudson Ave., Waldwick, N.J. 07463
Filed Dec. 10, 1979, Ser. No. 102,038
Int. Cl.³ A63B 61/00

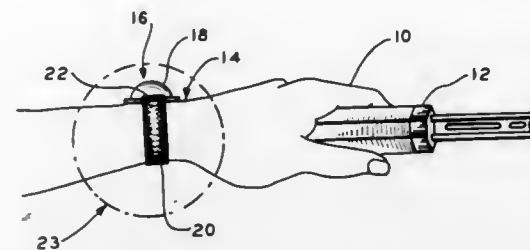
U.S. Cl. 273—29 R

8 Claims

1. A shock absorber for reducing the physiological effects on the arm or shoulder associated with the contact of a ball or the like with an instrument held by the hand, comprising:

- (a) a hollow housing;

- (b) approximately 0.13 cubic inches of liquid mercury disposed in the hollow portion of said housing, where the



- volume of said hollow portion is approximately 0.39 inches; and
- (c) means of securing the housing to the player's arm.

4,364,565

GAME BALL

Julius Tomar, Port-au-Prince, Haiti, assignor to Home of Champions, S.A., Port-au-Prince, Haiti
Continuation-in-part of Ser. No. 266,326, May 22, 1981,
abandoned. This application Jul. 31, 1981, Ser. No. 287,471
Int. Cl.³ A63B 37/00, 37/02

U.S. Cl. 273—60 R

5 Claims

1. In a game ball comprised of a spherical core and a cover, the improvement wherein said core is comprised of a partially blown single spherical mass of at least 10 percent by weight of a copolymer of ethylene and at least one unsaturated monocarboxylic acid having from 3 to 8 carbon atoms, said copolymer containing up to 30 percent by weight of said acid copolymerized therein with foam at the center of said core and having a skin with a density substantially equal to the density of said copolymer, said copolymer being crosslinked with thermolabile crosslinkages.

4,364,566

GAME APPARATUS WITH TOY VEHICLES

Hermann Neuhierl, Waldstrasse 36, D-851 Fürth/Bayern, Fed. Rep. of Germany

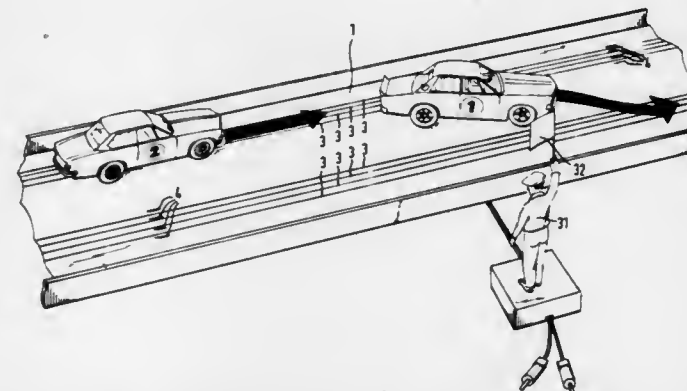
Filed Sep. 26, 1980, Ser. No. 191,027

Claims priority, application Fed. Rep. of Germany, Sep. 29, 1979, 2939703

Int. Cl.³ A63F 9/14

U.S. Cl. 273—86 B

24 Claims



1. In a game apparatus with toy vehicles adapted to run on a track, said vehicles being electrically identified with contact segments being located in said track and bridging contacts being provided on said vehicles whereby electrical contact with said contact segments is made the improvement comprising: at least one pair of said contact segments being arranged pair-wise so that upon the passage of a vehicle over the first contact segment there is generated a starting impulse and upon the passage of the said vehicle over the second contact segment there is generated a stop impulse; a start-stop generator means associated with each said pair of contact segments to

receive both said start and stop impulses therefrom and said generator emitting an impulse the length of which corresponds to a time interval between said start and stop impulses; at least one time comparator stage being connected to the output of said start-stop generator means and said comparator emitting an output impulse if the length of the impulse received from said start-stop generator means exceeds a predetermined length as set by a desired game variant, and a counter means receiving said output from said time comparator stage.

4,364,567

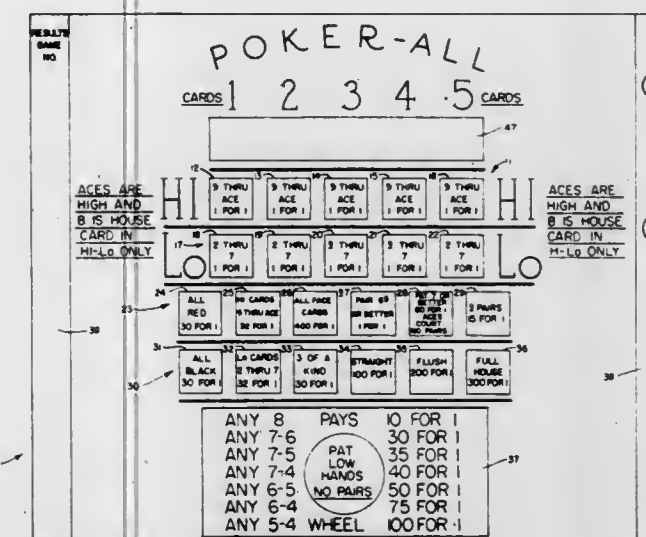
POKER-KENO GAME

Joseph Goott, Great Falls, Mont., assignor to Tropic Industries, Inc., Great Falls, Mont.

Continuation-in-part of Ser. No. 15,151, Feb. 26, 1979,
abandoned, which is a continuation of Ser. No. 808,954, Jun. 22,
1977, abandoned. This application May 30, 1979, Ser. No. 43,678
Int. Cl.³ A63F 5/00; A63B 71/00

U.S. Cl. 273—237

30 Claims



12. A game based on the card game of poker but playable by one person or more than one person by guessing values of one or more cards in a poker hand and/or predetermined combinations of two or more cards as occur in a poker hand in varying probabilities, comprising at least one game display, which is to be used by the one person or the more than one persons during a game, having means associated therewith for designating on the surface a first plurality of positions corresponding to the value of each card in a poker hand and a second plurality of positions corresponding to predetermined combinations of two or more cards in a poker hand; means for randomly selecting a poker hand; and means for showing the value of each card in the randomly selected poker hand on said first plurality of positions and any predetermined combinations of two or more cards as occur in randomly selected poker hand on said second plurality of positions, whereby a player can guess values of one or more cards in the randomly selected poker hand and/or one or more predetermined combinations of two or more cards in the poker hand.

4,364,568

METHOD OF PLAYING A STRATEGY GAME

George T. Tracy, 1515 S. Park Dr., Santa Ana, Calif. 92707
Filed May 5, 1980, Ser. No. 146,483

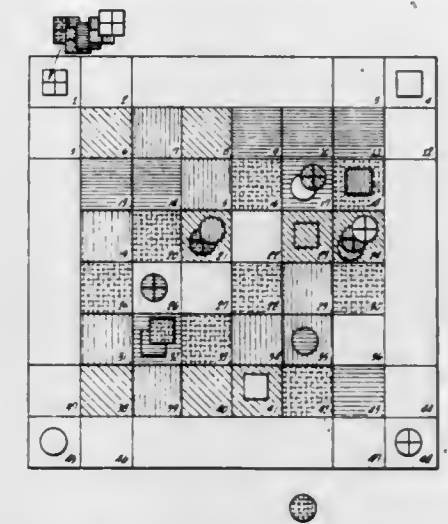
Int. Cl.³ A63F 3/00, 3/02

U.S. Cl. 273—242

17 Claims

1. A method of play of a strategy board game wherein each player moves his playing pieces, each piece having one of a number of distinct codes, one code being designated a neutral code, about a pattern of playing spaces, each space also having one of those codes, including said neutral code, in an attempt to capture the playing pieces of his opponent, the method of play comprising the steps of:

- (a) each player receiving an identical set of coded playing pieces;
- (b) each player placing his playing pieces on one or more designated starting spaces;
- (c) each player, then, in alternating turns, moving one of his playing pieces, as follows:
- (i) in any direction from its initial location on a designated starting space, or its other subsequent location, to any adjacent, unoccupied space;
- (ii) if any space adjacent to the player's piece is occupied by an opponent's playing piece, and if the playing space directly and linearly behind (relative to the player's piece) the playing space occupied by the opponent's playing piece is unoccupied and is coded similarly to that of the player's playing piece, or if either the play-



- er's piece or said space is of the neutral code, then capturing the opponent's playing piece by linearly jumping that piece into the unoccupied playing space behind it and removing the opponent's piece from the board;

- (iii) if any space adjacent to the player's piece is occupied by an opponent's playing piece, and if that adjacent space is coded similarly to that of the player's playing piece, or if either the player's piece or the adjacent space is of the neutral code, then capturing the opponent's playing piece by bumping onto that playing space and removing the opponent's playing piece from the board;
- (d) continuing in this manner until one player captures, either by jumping or bumping, a predetermined number of the other player's playing pieces.

4,364,569

SIMULATED GOLF BOARD GAME

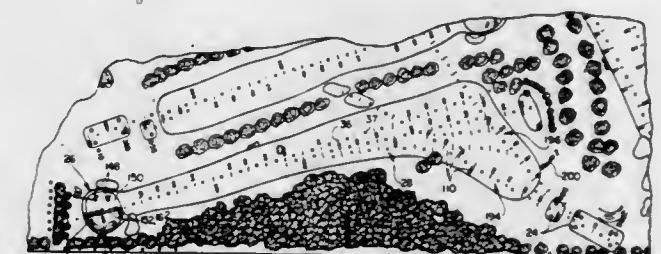
Ronald A. Duwell, 17 Chester Dr., and Jeffery A. Sabotka, 28 Ellis St., both of Windsor Locks, Conn. 06096

Filed May 15, 1980, Ser. No. 150,177

Int. Cl.³ A63F 3/00

U.S. Cl. 273—245

30 Claims



1. A parlor game for participation by one or more players closely simulating the outdoor game of golf comprising: a game board presented as a miniature, in plan view, of a

full-scale golf course including appropriate pictorial representations of a tee; a green distant from said tee; a fairway generally extending between said tee and said green; a plurality of troubles positioned on said fairway, adjacent to said fairway, and distant from said fairway; and distance indicia at preselected intervals along said fairway to denote distance from said green; at least one ball marker, representing

a player's ball, adapted to be moved manually and positioned on said game board;

first chance means for manipulation by a player for randomly generating numbers having two digits, the first of the digits being equal to or greater than the second of the digits;

a first source of information including separate sets of number indicia thereon relating to each of a plurality of clubs arbitrarily chosen by a player prior to manipulation of said chance means, said number indicia of each of said sets signifying travel of the player's ball when using a particular club according to the numbers generated in response to manipulation of said first chance means;

second chance means for manipulation by a player simultaneously with said first chance means for randomly indicating, from time to time, whether the player's ball following manipulation of said first and second chance means but before the ball lands on said green, is subject to a trouble situation;

a second source of information including trouble condition indicia to which the player's ball may be subjected at preselected intervals corresponding to said distance indicia and corresponding to said pictorial representations on said game board and responsive to an indication by said second chance means that said ball marker of the player is in a trouble condition signifying the extent of the trouble condition to which the player's ball is subjected upon manipulation of said first and second chance means;

third chance means for manipulation by a player for randomly generating numbers having one digit, one of said sets of number indicia of said first source of information relating to a driver club being in the form of a driver matrix, said number indicia of said driver matrix signifying travel of the player's ball according to a combination of the numbers generated in response to simultaneous manipulation of said first chance means and of said third chance means, said driver matrix including a plurality of columns and a plurality of rows, each of said columns having a heading number capable of being generated by manipulation of said third chance means and each of said rows having an identification number capable of being generated in response to manipulation of said first chance means, an intersection of said row and of said column defined, respectively, by said identification numbers and said heading numbers generated in response to manipulation of said first and third chance means resulting in designation of a specific one of said number indicia signifying travel of the player's ball.

4,364,570

ROPING TRAINING AID

Delbert W. Hallam, Rte. 1, Box 42, Evans, Wash. 99136

Filed Mar. 27, 1981, Ser. No. 248,565

Int. Cl.³ A63B 69/00

U.S. Cl. 273-338

11 Claims

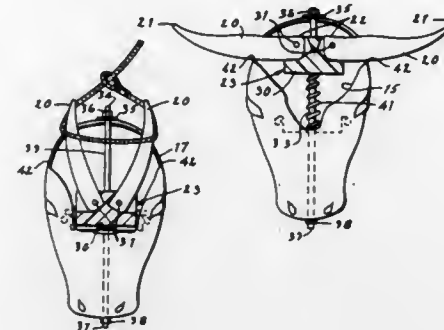
1. A retractable horn attachment for hollow steer head-shaped roping dummies, comprising:

a pair of horns, each having an inner base end and a remote outer end;

a carriage pivotally mounting the horns at their base ends for movement between horizontal oppositely projecting operative positions and substantially vertical inoperative positions;

guide means movably mounting the carriage and adapted to be mounted within a hollow steer head-shaped roping dummy for movement of the carriage between an ex-

tended position corresponding to the operative horn positions wherein the horns are extended from the hollow steer head-shaped roping dummy, and a retracted position corresponding to the inoperative horn positions wherein the horns are retracted into the hollow roping dummy; and



actuator means connected with the carriage and operable from a remote location for selectively causing the horns to move between their extended operative positions and their retracted inoperative positions.

4,364,571

TAPERED SEAL SEAT BETWEEN STATIONARY INSERT AND GLAND

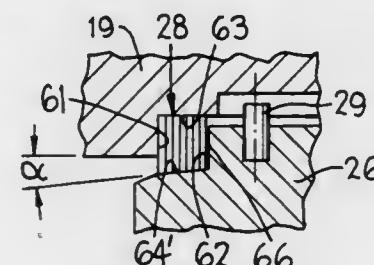
Lowell E. Hershey, Portage, Mich., assignor to Durametallic Corporation, Kalamazoo, Mich.

Filed Oct. 9, 1980, Ser. No. 195,461

Int. Cl.³ F16J 15/38, 15/36

U.S. Cl. 277-86

4 Claims



1. In a bellows-type mechanical seal construction for use between a wall and a shaft extending therethrough and rotatable relative thereto, wherein said mechanical seal construction has first and second annular sealing members which surround the shaft and have mutually contacting sealing faces, said first sealing member being nonrotatably fixed with respect to the wall, the second sealing member being nonrotatably fixed and axially slidable relative to the shaft, a collar fixed to the shaft, metal bellows means sealingly connected between the collar and said second sealing member for resiliently urging the second sealing member axially into engagement with said first sealing member, a gland ring fixed to the wall in surrounding relationship to the shaft, the first annular sealing member being nonrotatably fixed relative to the gland ring, the gland ring and the first sealing member defining thereon a first pair of opposed end faces which are axially spaced apart and a second pair of opposed peripheral faces which are radially spaced apart, whereby said first and second pairs of opposed faces define an annular recess therebetween, and an annular packing disposed within said recess for creating a sealed relationship between the gland ring and the first sealing member, said annular packing being of an axially laminated graphite construction, said bellows means resiliently urging the first sealing member axially relative to the gland ring in a selected direction whereby the opposed axially-spaced end faces thereon tend to move toward one another, comprising the improvement wherein the opposed radially-spaced peripheral faces which define said second pair are disposed in nonparallel relationship

and define a slope therebetween in the range of from 2° to 5° so that said peripheral faces diverge with respect to one another as they project axially in said selected direction, said annular packing having one of its axial end faces directed toward but slightly axially spaced from one of said end faces so as to define an annular clearance gap therebetween which is of small axial dimension, said clearance gap being located at the axial end of said annular recess which is of minimum radial spacing between the pair of opposed peripheral faces, and said bellows means causing said packing to be axially urged toward said one axial end face and radially compressed between said opposed radially-spaced peripheral faces due to the relative convergence between these latter faces in response to the urging of said first sealing member in said selected direction relative to said gland ring.

4,364,572

SEAL ASSEMBLY WITH LOAD RING

Teiji Yamamoto, Kadoma, and Tsukasa Yamazaki, Hirakata, both of Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

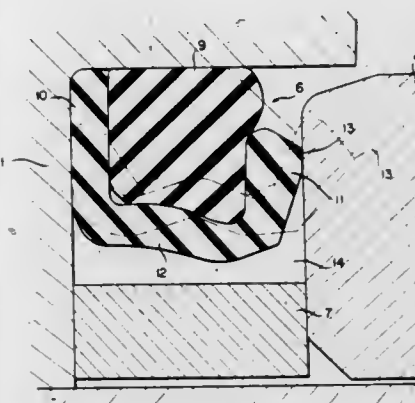
Filed Apr. 3, 1981, Ser. No. 250,598

Claims priority, application Japan, Sep. 10, 1979, 54-123919

Int. Cl.³ F16J 15/32

U.S. Cl. 277-92

1 Claim



1. A seal assembly comprising:

first and second axially spaced members mounted for relative rotation about a common axis, said first member having a counterbore formed in one face thereof, said second member having an end face opposite the counterbore;

a third member disposed between said first and second members;

a seal ring of tough abrasion-resistant material having a W-shaped cross-section in an unloaded condition disposed within the counterbore with the W-shaped cross-section defining an annular groove facing the side wall of the counterbore, said seal ring including a driving flange engaged in non-rotative driving contact with the side wall and an end wall of the counterbore at the juncture of these walls, a sealing flange adapted to be engaged in annular lip sealing rotative contact with the end face of said second member and a bight portion interconnecting said driving and sealing flanges, the thickness of the driving flange and the bight portion being made substantially same and the thickness of the sealing flange being made thicker than that of the driving flange and the bight portion; and

a load ring of elastomeric material having substantial spring response characteristics, said load ring being disposed within the annular groove of the W-shaped seal ring and engaging substantially the entire inner wall surface of the sealing flange and being axially compressed between the driving flange and the sealing flange;

wherein said seal ring is compressed between said first and second members when loaded in place and the shape of cross-section is transformed from W-shape to C-shape having a substantially straight bight portion interconnecting the

flanges with keeping a spacing between the bight portion of said seal ring and said third member.

4,364,573

GASKET SEAL FOR A SLIDING ROD IN A GUIDE BUSH
Guy Gautier, Montfort-L'Amaury, and Regis Bondiguet, Rueil Malmaison, both of France, assignors to Regie Nationale des Usines Renault, Boulogne-Billancourt, France

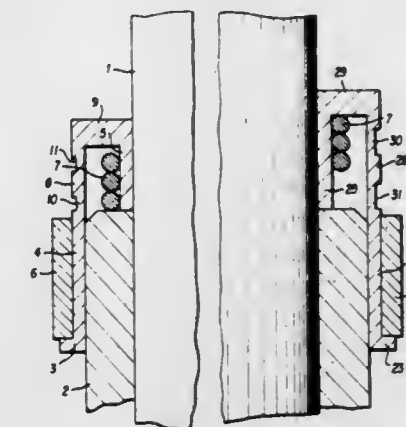
Filed Jun. 13, 1980, Ser. No. 159,306

Claims priority, application France, Jun. 27, 1979, 79 16542

Int. Cl.³ F16J 15/32

U.S. Cl. 277-153

1 Claim



1. A homogenous gasket seal for the passage of a valve shaft through a valve guide for an internal combustion engine comprising:

first rigid seal means disposed over the outer distal end portion of said valve guide;

second rigid seal means coaxial and integral with said first seal means so as to form a one-piece homogenous seal and closely fitted around and in direct axial contact with said valve shaft for the sealing thereof, said second seal means having a radial end surface portion formed on a first axial end portion thereof and being in engaging contact with a radial end surface portion of said distal end portion of said valve guide;

flexible connecting extension means for providing alignment flexibility between said first and said second seal means and extending from a first end portion of said first seal means and having an axial length substantially equal to the axial length of said second seal means, said extension means having at least one external circumferential groove formed in an outer surface portion thereof;

a first radial flange integrally connecting a second end portion of said first seal means opposite said first end portion of said first seal means with a second axial end portion of said second seal means opposite said radial end surface portion of said second seal means such that an enclosed annular chamber is formed around said valve shaft by said first seal means, said flange, said second seal means and said radial end surface portion of said distal end portion of said valve guide;

biasing means engaging said second seal means and disposed within said annular chamber;

a cylindrical leaf spring engaging the external surface of said first seal means and substantially surrounding said distal end portion of said valve guide; and

a second radial flange formed on a second end portion of said first seal means opposite said first end portion of said first seal means and in engaging contact with said leaf spring.

4,364,574

VEHICLE HEIGHT ADJUSTING APPARATUS

Tetsuo Saito, Zama, Japan, assignor to Tokico Ltd., Kawasaki, Japan

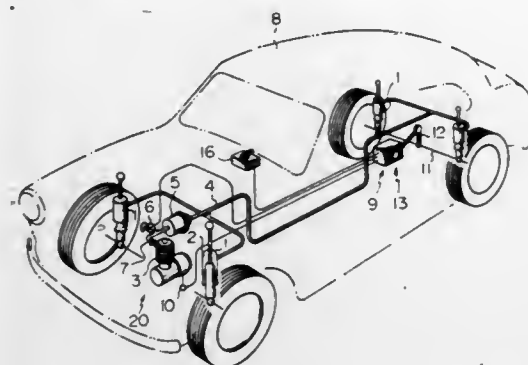
Filed Oct. 15, 1980, Ser. No. 197,323

Claims priority, application Japan, Oct. 19, 1979, 54/135001

Int. Cl.³ B62D 37/00

U.S. Cl. 280—6 R

2 Claims



1. A vehicle height adjusting device, comprising: height detecting means having a rotatable member rotatable in response to the height of a vehicle, at least three photo-electric detectors arranged along the circumference of the rotatable member and spaced from each other, and a number of light intercepting portions equal to the number of photo-electric detectors and being provided on the circumference of the rotatable member and being spaced from each other in the circumferential direction and cooperating with corresponding photo-electric detectors for generating one of at least five possible height signals, said one signal corresponding to the height of the vehicle; reference signal means for generating one of at least two reference signals corresponding to a desired height of the vehicle and supplying said one signal as output; comparator means including a comparator to which said height detecting means and said reference signal means are connected for comparing the height signal with the output of said reference signal means and generating an output signal, and a delay means for delaying the height signal supplied to said comparator, said delay means having actuating means to which said reference signal means is connected for turning the delay means on in response to receipt of a reference signal different from the previous reference signal generated by said reference signal means, and said comparator having the output thereof connected to said actuating means for turning said delay means off when said comparator produces an output indicating that said height signal and said reference signal are equal; and an adjusting system to which said comparator means is connected for receiving the output signal from said comparator and operating to adjust the height of the vehicle.

4,364,575

SKI LIFT FOR CHILDREN

Stephanie F. Schlumberger, Box 223, Woody Creek, Colo. 81656, and Donald H. Rayburn, Box 1532, Aspen, Colo. 81612

Filed Nov. 18, 1980, Ser. No. 207,877

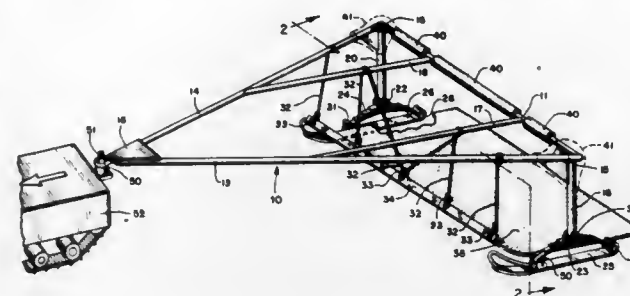
Int. Cl.³ B62B 9/04

U.S. Cl. 280—19

5 Claims

1. A ski lift especially adapted for children comprising a frame which is at least partially supported above the surface of the snow by snow runners and is adapted to be pulled over the snow surface, said frame including a horizontal bar extending substantially the transverse distance of the frame and disposed above the level of the snow surface a distance to constitute a holding rail for children standing at the level of the snow surface and a flexible sheet-like member extending substantially throughout the transverse distance of the frame and supported by the surface of the snow and means connecting said sheet-like member to said frame so that said sheet-like member is pulled forward with said frame as said frame is

pulled over the surface of the snow, said flexible sheet-like member being located under said holding rail in such position



that children wearing skis can be accommodated while standing on said sheet-like member and while so accommodated can conveniently grasp said holding rail.

4,364,576

BABY WALKER

Kenzo Kassai, Osaka, Japan, assignor to Kassai Kabushikikaisa, Osaka, Japan

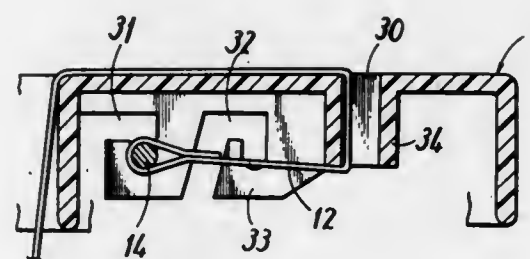
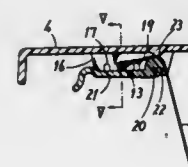
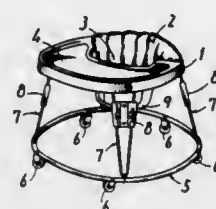
Filed Oct. 29, 1980, Ser. No. 202,177

Claims priority, application Japan, Oct. 31, 1979, 54-152218[U]

Int. Cl.³ A47D 13/04

U.S. Cl. 280—87.02 W

12 Claims



1. A baby walker comprising: an upper frame disposed at a predetermined distance from the floor and having an opening for receiving the torso of a baby, wheel holding means including wheels adapted to roll along the floor for movably supporting said upper frame with respect to the floor, adjusting members attached to the lower surface of said upper frame, each adjusting member having a plurality of pairs of engaging recesses which are opening downwardly and which are transversely arranged, a seat disposed below said opening in said upper

frame, straps for suspending said seat from said upper frame, said straps being connected at one of their respective ends to said seat, engaging bars installed at the other ends of said straps at right angles to the direction of the length of said straps and adapted to engage any one of said pairs of engaging recesses of its associated adjusting member, and guide means which contacts part of an associated strap to define the path along which said strap extends, said guide means being arranged so that when a load on said seat is transmitted to the strap, a tension is exerted on said strap to force said engaging bar ends into the innermost regions of said pair of engaging recesses.

4,364,578

LATERAL DRAG LINK TYPE STEERING LINKAGE FOR A VEHICLE

Hideo Ikeda, and Hideo Aizawa, both of Yokohama, Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

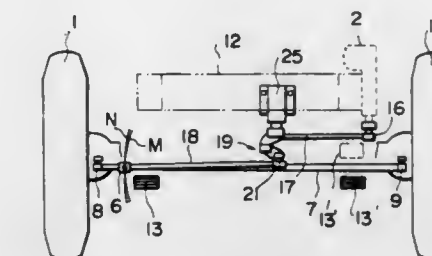
Filed Sep. 24, 1980, Ser. No. 190,293

Claims priority, application Japan, Oct. 1, 1979, 54-125420

Int. Cl.³ B62D 7/06

U.S. Cl. 280—95 R

13 Claims



13. A lateral drag link type steering linkage for an automotive vehicle equipped with a vehicle frame and a pair of front wheels and a pair of rear wheels attached thereto, characterized by a relay lever pivotally mounted at one end thereof to the vehicle frame, the relay lever having a connecting portion, a drag link ball joint through which the connecting portion of the relay lever is movably joined to one end of a drag link, a relay rod one end of which is movably connected to one end of a pitman arm for a steering gear and the other end of which is movably connected to the connecting portion of the relay lever, the drag link ball joint being positioned near the imaginary line between a pair of knuckle ball joints for a pair of knuckle arms, wherein the drag link ball joint is positioned within about 40 mm above or below the imaginary line between both the knuckle ball joints.

4,364,577

STEERING MECHANISM

Masayuki Tateyama, Ohme, and Takashi Hosotani, Tachikawa, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

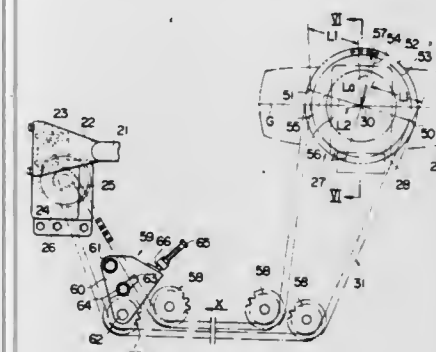
Filed Feb. 23, 1981, Ser. No. 237,482

Claims priority, application Japan, Feb. 29, 1980, 55-25971

Int. Cl.³ B62D 3/02

U.S. Cl. 280—93

5 Claims



1. A steering mechanism for a wheel vehicle having at least one steered vehicle wheel, comprising: a steering shaft; a first wheel rotatably driven by said steering shaft; a second wheel pivoting and steering said steered vehicle wheel and having a center axis of rotation extending on the equatorial plane of said steered vehicle wheel; torque transmitting means passed between said first and second wheels to transmit a steering force from said first wheel to said second wheel when said first wheel is rotated by said steering shaft, said torque transmitting means having a travelling path having a meeting point at which said torque transmitting means is brought into tangential engagement with said second wheel and a parting point at which said torque transmitting means is brought out of engagement with said second wheel, said travelling path having a semi-circular turning portion at which said torque transmitting means is engaged with the circumferential section of said second wheel; characterized in that said second wheel is formed to have such a circumference that the length between the center axis of rotation of said second wheel and any one of said meeting and parting points of said travelling path of said torque transmitting means is smaller than the length between the center axis of rotation of said second wheel and an arbitrary point on the semi-circular circumferential section of said second wheel in the state that said steered vehicle wheel assumes a straight movement position.

4,364,579

ROCK AND ROLL RECREATIONAL TOY

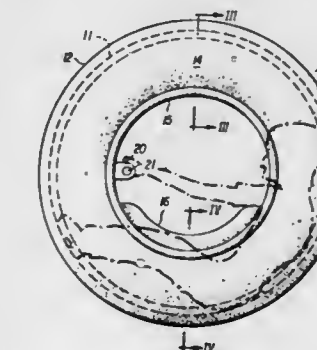
John A. Fisher, 2458 Red Apple Dr., Dayton, Ohio 45431

Filed Jul. 13, 1981, Ser. No. 283,013

Int. Cl.³ B62K 1/000; A63G 29/000

U.S. Cl. 280—206

12 Claims



1. A rock and roll amusement toy comprising an annular body, said body having an outer periphery surface with a pair of spaced-apart profiled hoop edge ground engaging portions that have the same diameter and are joined by a generally cylindrical portion having a smaller diameter than said edge portion, each of said edge portions being connected to a respective side wall portion, each said wall portion terminating in a respective inner rim, gripping means joining said rims, and restraining means joining said inner rims proximate said gripping means, said restraining means defining a sector of annular space for receiving and surrounding the front, sides and back of a person who by holding said gripping means with his arms extending over said annular space is capable of causing said body to rock on a level surface and by rocking to roll over.

4,364,580

WHEELCHAIR

Nigel G. Shapcott, Angus, England, assignor to The School of Bioengineering and Biophysics of the University of Dundee, Dundee, Great Britain

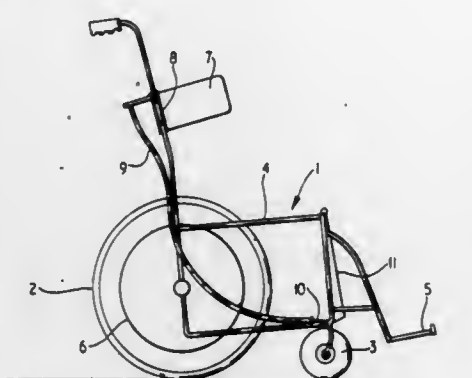
Filed Sep. 25, 1980, Ser. No. 190,896

Claims priority, application United Kingdom, Sep. 29, 1979, 7933873

Int. Cl.³ A61G 5/02

U.S. Cl. 280—266

8 Claims



1. A wheelchair having a frame, a seat on the frame, road wheels mounted on axles on the frame, two of the road wheels being pivotal independently of one another about axes normal to their respective axes of rotation, and steering mechanisms one for each of the pivotal road wheels and independent of one another, the steering mechanisms arranged to be actuated by movement of the upper body of an occupant of the seat, one of the steering mechanisms having a lever actuatable to pivot its respective pivotal road wheel in one direction only and the other steering mechanism having a lever actuatable to pivot its respective pivotal road wheel in the opposite direction only, the pivotal road wheels being otherwise freely pivotal.

4,364,581

FOLDABLE IMPLEMENT FRAME AND HITCH

Kenneth E. Shoup, P.O. Box 121, Bonfield, Ill. 60913

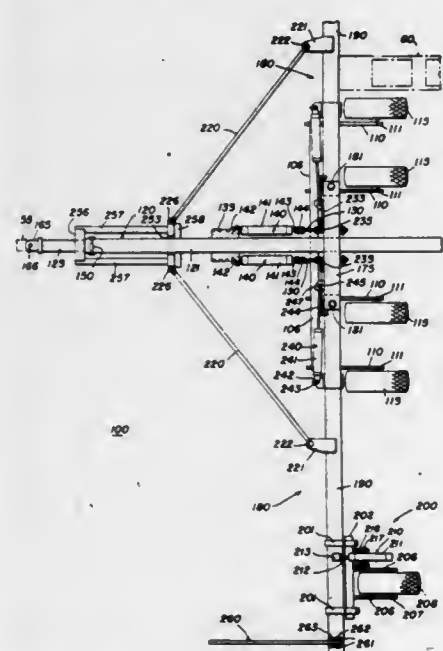
Continuation-in-part of Ser. No. 834,666, Sep. 19, 1977,

abandoned. This application Feb. 11, 1980, Ser. No. 120,572

Int. Cl.³ A01B 65/02

U.S. Cl. 280—411 A

19 Claims



7. A foldable implement frame and hitch for attachment to a draft vehicle equipped with a three-point hitch, comprising a support frame carrying a support wheel for supporting said support frame upon an underlying surface, a main frame including two telescoping frame members, the outer one of said frame members being supported upon said support frame and

the inner one of said frame members carrying on the other end thereof a hitch for connection to the three-point hitch on a draft vehicle, two wing frames pivotally mounted on the top of said support frame respectively on either side of said outer frame member for movement between extended working positions wherein said wings are in vertical alignment with said support frame and retracted transport positions, two wing wheel assemblies respectively mounted on said wing frames adjacent to the outer ends thereof and each including a support wheel for supporting the outer end of the associated wing frame upon an underlying surface, and two wing motors connected respectively between said outer frame member and the associated one of said wing frames for moving said wing frames between the extended working positions and the retracted transport positions, the inner one of said frame members extending a substantial distance beyond said support frame in a direction away from said hitch so that upon operation of said wing motors and the telescoping of said frame members to place said wing frames in the extended working positions thereof the associated draft vehicle is disposed only a short distance from said wing frames to provide good maneuverability of said implement frame in the field.

4,364,582

VEHICLE BODY SUSPENSION SYSTEM

Noriyuki Takahashi, Tokyo; Takumi Sakaguchi, and Yasutomo Tajima, both of Gyoda, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha & Showa Mfg. Co., Ltd., Tokyo, Japan

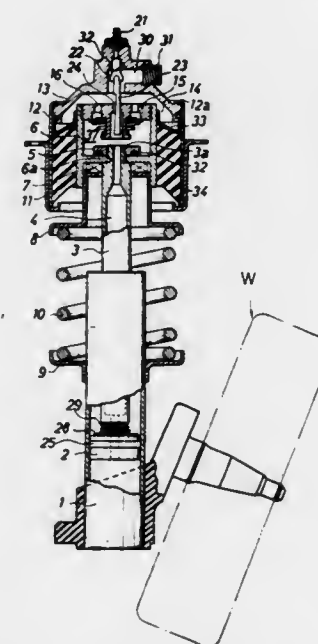
Filed Dec. 16, 1980, Ser. No. 216,940

Claims priority, application Japan, Dec. 17, 1979, 54-162804; Dec. 17, 1979, 54-162805

Int. Cl.³ B60G 3/00

U.S. Cl. 280—698

14 Claims



1. A suspension system for supporting the body of a vehicle, comprising:
a cylinder connected to a wheel of said vehicle;
a piston slidably disposed within said cylinder;
a piston rod coupled to said piston;
said piston and said piston rod having an oil channel extending axially therethrough;
coupling means including an annular elastic member arranged concentrically around an end of said piston rod remote from said piston, said coupling means connecting said piston rod to the body of said vehicle through said elastic member;
an oil chamber having a peripheral wall defined in part by part of the peripheral surfaces of said elastic member, said oil chamber having a volume which varies in accordance with deformation of said elastic member;
first damper means provided between said oil channel and

4,364,583

JUNCTION RING FOR CONTINUOUS-LOOP PASSIVE SEAT BELT SYSTEM

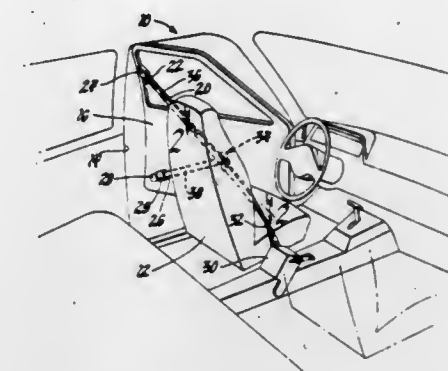
Lloyd W. Rogers, Jr., Utica, and James A. Winnale, Warren, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Apr. 15, 1981, Ser. No. 254,500

Int. Cl.³ B60R 21/10

U.S. Cl. 280—802

3 Claims



1. In vehicle seat belt system including a continuous-loop belt having ends mounted on the vehicle door, an anchor belt having an inboard end mounted inboard the occupant seat and an outboard end, and a junction device connected to the outboard end of the anchor belt and slidably encircling the continuous-loop belt to define variable length lap and shoulder belt portions thereof, the improvement comprising:

yieldable means acting between the junction device and the anchor belt to establish the junction device at a normal angular position relative the anchor belt to streamline the junction device for low interference travel across the occupant torso during opening and closing movement of the door, said yieldable means being yieldable upon imposition of oppositely directed occupant restraint loads on the continuous-loop belt and anchor belt whereby the junction device is permitted to seek an angular position providing optimum occupant restraint effectiveness.

4,364,585

SKI POLE

Michael P. Shields, 5977 Reseda Blvd., Tarzana, Calif. 91356

Continuation-in-part of Ser. No. 886,931, Mar. 15, 1978, Pat.

No. 4,247,132, which is a continuation-in-part of Ser. No.

783,170, Mar. 31, 1977, Pat. No. 4,175,683. This application

Mar. 12, 1979, Ser. No. 19,738

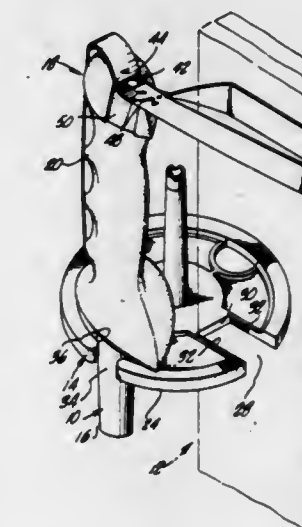
The portion of the term of this patent subsequent to Jan. 27,

1998, has been disclaimed.

Int. Cl.³ A63C 11/22

U.S. Cl. 280—814

15 Claims



1. A ski pole for use in securing together a pair of skis to facilitate carrying thereof, said ski pole comprising a basket, a

said oil chamber for restraining movement of said piston in the direction of said wheel when said piston is moved in said direction relative to said cylinder; and
second damper means provided on said piston for restraining movement of said piston in the direction of said vehicle body when said piston is moved in the direction of said vehicle body.

4,364,583

WEBBING GUIDE DEVICE

Hisashi Ogawa, Okazaki, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan

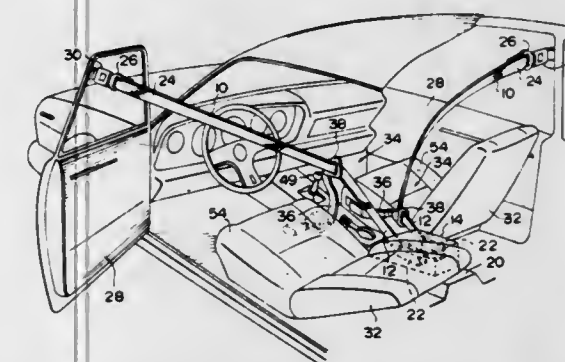
Filed Nov. 18, 1980, Ser. No. 207,889

Claims priority, application Japan, Feb. 18, 1980, 55-19481[U]

Int. Cl.³ B60R 21/10

U.S. Cl. 280—802

10 Claims



1. A webbing device for use in a seatbelt system for automatically fastening a webbing to protect an occupant in an emergency of a vehicle to the occupant after his entering the vehicle, wherein the intermediate portion of the webbing is moved forward in the vehicle when the occupant enters or leaves the vehicle, comprising:

- a shaft supported on an occupant's seat, the axis of which is held substantially horizontally and shifted through a predetermined angle from the lateral axial line of the vehicle;
- an arm rotatably secured near one end thereof to said shaft, disposed at the inboard side of said seat and rotatable in the forward and rearward directions in the vehicle, said arm being provided at an intermediate portion thereof with a bent portion for preventing said arm from interfering with said seat when said arm is rotated in the forward and rearward directions in the vehicle;
- a guide ring provided at the other end of said arm for longitudinally movably supporting the intermediate portion of said webbing, said guide ring being disposed more outboardly in the vehicle when it is moved along with the rotation of the arm in the forward direction in the vehicle than when the arm is rotated in the rearward direction in the vehicle due to the presence of said shaft being shifted from the lateral axial line of the vehicle, whereby said guide ring is prevented from interfering with a shift knob; and
- a motor connected to said shaft for rotating said arm forward in the vehicle, when the occupant enters or leaves the vehicle, to bend the intermediate portion of the webbing forward in the vehicle, thereby enlarging a space for the occupant to enter or leave the vehicle.

ski pole shaft and a grip, said basket being carried by said shaft and having a first recessed area therein, said area defining a curvilinear gripping surface and having an outer opening of reduced transverse dimension for receiving and retaining a second ski pole therein and a second recessed area readily positioned within said basket and disposed approximately 90° about said basket with respect to said first recessed area for receiving a transverse portion of a pair of adjacently disposed skis, said grip being secured to the upper end of said shaft and including a handle and an expansible safety strap, one end of said strap being swivelly mounted on said handle, the other end of said strap being detachably mounted to said handle and said strap including means intermediary to the ends thereof for adjustably securing said strap to said handle upon said strap being extended about said pair of adjacently disposed skis such that upon disposing each of said poles in the region adjacent the grips thereon within said first recessed area in the basket of the other pole, said poles are secured together and upon disposing said transverse portions of said skis within said second recessed areas of said baskets and securing said straps intermediary of the ends thereof about said skis to said handles, said skis are tightly secured to said poles for the carrying of said poles and skis.

4,364,586

STATUS RECORD SYSTEM

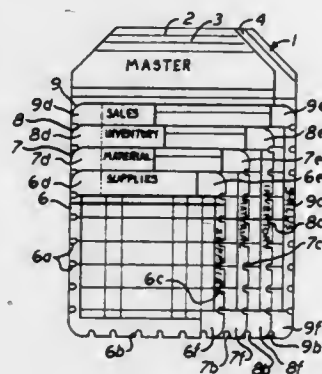
Clyde E. Ott, c/o Pace Precision Tool & Die Co., Inc., Ohio Ave., DuBois, Pa. 15801

Filed Jul. 22, 1980, Ser. No. 171,198

Int. Cl.³ B42D 15/00; B42F 21/00

U.S. Cl. 283—55

1 Claim



1. A master record card and a series of one or more operation description status cards associated therewith, positioned in predetermined aligned contact relation thereto, each operation card being progressively smaller in area than a card positioned rearwardly thereof, to provide simultaneous viewing of an area in the margin of each operation card, a signal element in each margin for said simultaneous viewing when the cards are positioned as stated, the signal element indicating the status of the operation described in each operation card, each operation card being substantially square and provided with means to position such card with respect to the master card, each operation card including an area of a different color at certain of the corners, corresponding colors indicating a corresponding status of operation, the position of a specific color area being determinative of the status, at least three of said corners having a different color area at each, the cards being shiftable to move a color area into predetermined position to signify action required, the predetermined position for each color area in each series of operation cards being identically related to the master card.

4,364,587

SAFETY JOINT

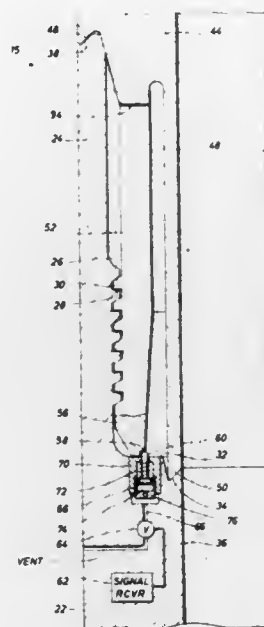
Travis L. Samford, 6110 Elmgrove, Spring, Tex. 77379

Continuation-in-part of Ser. No. 69,639, Aug. 27, 1979, abandoned. This application Nov. 24, 1980, Ser. No. 209,686

Int. Cl.³ F16L 37/08

U.S. Cl. 285—3

25 Claims



1. Safety joint apparatus for use in a drill string comprising:

(a) an upper tubular body having a threaded connection with a drill string portion thereabove and further having an axial passage therethrough communicated with the drill string to conduct drilling mud therethrough;

(b) a lower tubular body having a threaded connection with a drill string portion therebelow and further having an axial passage therethrough communicated with the drill string to conduct drilling mud therethrough;

(c) first and second mating threaded tubular surfaces concentrically joined to one another, said threaded tubular surfaces being supported by respective ones of said upper and lower tubular bodies and further including:

(1) threads on one of said mating threaded surfaces formed of coacting helically arranged shoulders, one of said shoulders positioned at an angle to cooperatively receive in threaded engagement therewith the other of said mating threaded surfaces;

(2) wherein said one shoulder is set at an angle to permit the other of said mating threaded surfaces to be pulled free of one of said mating threaded surfaces;

(3) wherein the other of said mating threaded surfaces incorporates a plurality of lengthwise slots to define a set of individual concentrically arranged collet fingers permitting relative radial deflection of said fingers to enable the threads to threadingly engage the threads on the other of said mating threaded surfaces on rotation and to ride over the threads on axial pull to separate said first and second mating threaded surfaces;

(4) lock means for securing said fingers in a radially determined relationship which prevents radial deflection thereof to maintain said first and second mating threaded surfaces in a threaded position preventing axial movement therebetween; and

(d) vibration responsive means for securing said lock means in a locking position and operative to release said lock means.

4,364,588

BAND SEAL CLAMP

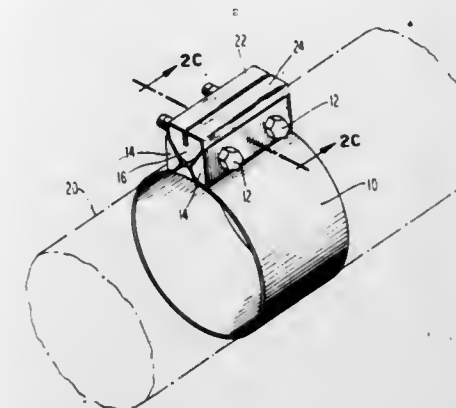
Steven R. Thompson, Moore, Okla., assignor to Garlock, Inc., Longview, Tex.

Filed Nov. 10, 1980, Ser. No. 205,639

Int. Cl.³ F16L 21/06

U.S. Cl. 285—419

15 Claims



1. A band clamp for clamping of one or more tubular members, comprising:

an elongated flat strip of material adapted to be circumferentially wrapped around said tubular members to be coupled and having outwardly extending end portions, said end portions having slots extending in the direction of elongation of said strip for interaction with clamping means inserted therethrough;

a central shaping and spacing member adapted to be disposed between the end portions of said strip and having holes formed therein for insertion of said clamping means, said holes being so sized as to fit relatively closely with said clamping means, and shaped to fit said tubular members to be clamped; and

first and second force transmitting members adapted to be disposed on opposite sides of said central shaping member and of said end portions of said band, said force transmitting members having holes formed therein for insertion of said clamping means and having outwardly extending reaction surfaces formed thereon to interact with inwardly extending reaction surfaces formed on the end portions of said band, whereby the slots permit the end portions of said band to move generally radially outwardly with respect to said tubular members when clamped by said clamping means.

4,364,589

PYROLYTIC LATCH ASSEMBLY HEAT COVER FOR RANGES

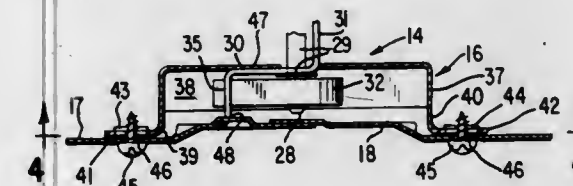
Howard E. Watson, Marion, Ohio, assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed Oct. 16, 1980, Ser. No. 197,568

Int. Cl.³ E05C 5/02

U.S. Cl. 292—113

12 Claims



1. In a latching mechanism having a latch assembly, locking means for locking the latch assembly, a heat sensor, mounting bracket means for supporting the sensor in the mechanism, and means responsive to the sensor for operating the locking means as a result of the sensor sensing a preselected high temperature of an adjacent wall, the improvement comprising:

a cover housing said sensor and having a force transfer portion engaging said mounting bracket means; and means for securing said cover to said adjacent wall with the force transfer portion, as a result of the cover being secured to said wall, urging said mounting bracket means to a preselected disposition relative to said wall to dispose said heat sensor supported by the mounting bracket means in a preselected thermal transfer spaced relationship to said wall for causing operation of the locking means in accurate correlation with the wall temperature.

4,364,590

AUTOMOBILE DOOR LOCKING APPARATUS WITH CANCELLATION MECHANISMS

Yoshikazu Hamada, Tokyo, Japan, assignor to Mitsui Kinzoku Kogyo Kabushiki Kaisha, Tokyo, Japan

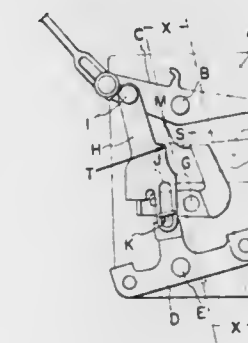
Filed Apr. 14, 1980, Ser. No. 140,089

Claims priority, application Japan, Jul. 9, 1979, 54-86668

Int. Cl.³ E05C 3/00

U.S. Cl. 292—336.3

3 Claims



1. An automobile door locking apparatus; which comprises an open lever laterally extending over a base body at its upper middle portion and pivotally mounted to said base body, a locking lever pivotally mounted by a shaft to the lower middle portion of the base body, and a connecting lever pivotally connected at its upper end to one of the ends of the open lever and having at its lower end formed as a slot opening which extends substantially vertically, said locking lever having a portion which extends from a portion thereof adjacent to its shaft toward the slot opening of the connecting lever and having a pin which projects from said portion and engages in the slot opening of the connecting lever;

and a line connecting the shaft of said locking lever and the pivotal connection point between the open lever and the connecting lever lying to one side of a window glass passage which will be mounted in an automobile door together with said door locking apparatus;

said open lever being mounted to said base body at about its middle portion whereby the two operating arms of said open lever are of approximately equal length;

and a separate cancellation lever independently pivotally mounted on the base body at a location to one side of said window glass passage and adjacent to the slot opening of the connecting lever, said cancellation lever being pivotally mounted on an axis spaced from the axis of said locking lever shaft, and said cancellation lever being engageable with said connecting lever at a lower portion thereof.

4,364,591

EYELET TRIM STRIP FASTENING ARRANGEMENT

Alfred A. Bien, West Bloomfield, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

Filed Apr. 24, 1981, Ser. No. 256,884

Int. Cl.³ B60R 19/08

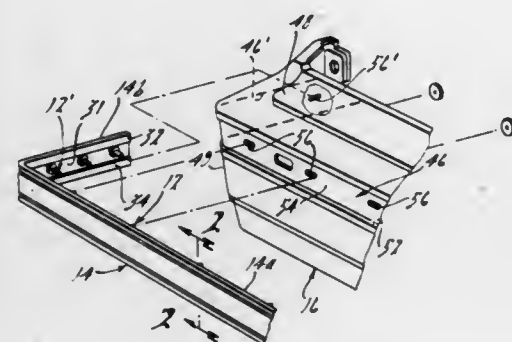
U.S. Cl. 293—102

2 Claims

1. A protective plastic molding strip for attachment to a vehicle body panel comprising, in combination,

a panel member having outer and inner surfaces;

a plastic molding protective trim strip adapted to be mounted on said panel outer surface;
 said molding strip having its back face formed with a pair of transversely spaced pressure sensitive tapes defining a longitudinally extending recess having a predetermined depth;
 a plurality of connecting eyelets each having an outer extended circular head flange portion and an axially extending tubular sleeve portion, said head flange portion having a thickness generally the same as but less than the recess depth;
 each said eyelet head flange portion planar face adhesively bonded to the strip recess;
 said panel member having a plurality of spaced openings each dimensioned for the passage of an eyelet sleeve portion;



each said eyelet having a metal retention disc on said panel inner surface, each disc having a predetermined diameter such that it engages said panel inner surface over an area substantially larger than the surface area of its associated eyelet head flange, the discs formed with a centrally located circular hole being of a predetermined diameter generally the same as the outer diameter of said eyelet sleeve plus a working clearance sufficient to permit the sleeve to pass through the disc hole; and
 means for expanding the free end of each said eyelet sleeve by applying a transverse pinching force thereto to form a laterally expanded bulbous portion for engagement with the outer surface of its associated disc to prevent axial displacement of said disc while allowing some axial movement of said disc relative to said sleeve whereby the molding strip is adapted for mounting on panels of various thicknesses.

4,364,592

MULTI-PURPOSE LOG HANDLING TOOL

Charles P. Jackson, 322 Thornridge Dr., Stamford, Conn. 06903
 Filed Mar. 20, 1981, Ser. No. 245,964

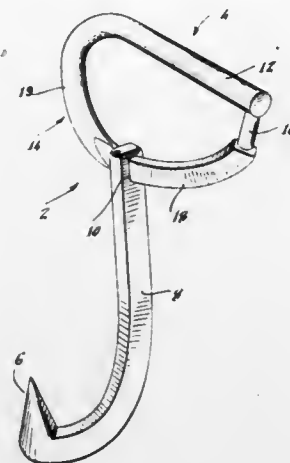
Int. Cl.³ B65G 7/12

U.S. Cl. 294—26

16 Claims

1. A multi-purpose tool for handling logs, said tool including:
 a hook having an opening defined at one end thereof, said hook being configured for gripping a portion of a log,
 a handle received through said opening in said hook for mounting said hook to said handle,
 said handle including a first section of smaller cross-sectional dimension than said opening in said hook so that said handle is pivotal relative to said hook when said opening is positioned on said first section of said handle,
 said handle including a second section having a cross-sectional area substantially complementing the cross-sectional area of said opening in said hook, the shape of said cross-section of said opening and said second section being such that said handle is maintained in an extended position relative to said hook and not pivotal therewith when said opening is positioned on said second section of said handle,

said hook and said handle being slideably movable relative to each other through said opening in said hook so that



said hook is selectively movable between said first and second sections of said handle.

4,364,593

OBJECT GRASPING SYSTEM

Yuji Maeda, Kashiwa, Japan, assignor to Agency of Industrial Science & Technology and Ministry of International Trade & Industry, both of Tokyo, Japan

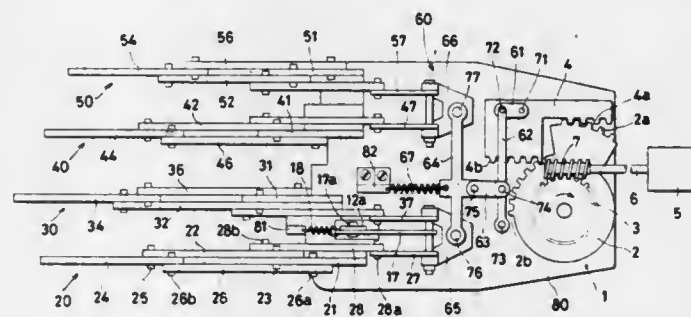
Filed Oct. 27, 1980, Ser. No. 200,912

Claims priority, application Japan, Oct. 25, 1979, 54-138054

Int. Cl.³ A61F 1/06; B25J 15/00

U.S. Cl. 294—106

5 Claims



1. In an object grasping system including a mechanical finger assembly operable to hold the object, a constant speed motor, a motion converting means for converting the rotary motion of said motor into linear motion, and a link mechanism for transmitting linear motion from said motion converting means to said mechanical finger assembly,
 the improvement wherein the said motion converting means comprises a stepped gear having at least two circular gear trains of different pitch circle and being constantly rotated by the rotary motion of said motor; and a stepped rack joined to said link mechanism and having at least two tooth trains which trains correspond to said circular gear trains of the stepped gear and are in gear engagement therewith,
 whereby said stepped rack moves linearly by the rotation of said stepped gear engaged therewith first at a higher speed then at a lower speed so that said mechanical finger assembly approaches the object at a higher speed and grasps the object at a lower speed with increased moment.

4,364,594

RAILWAY WHEEL VIBRATION DAMPING DEVICE

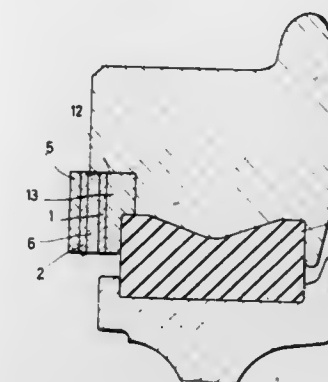
Erwin Raquet, Witten, Fed. Rep. of Germany, assignor to Fried. Krupp Huttenwerke AG, Bochum, Fed. Rep. of Germany
 Filed Aug. 8, 1979, Ser. No. 64,894

Claims priority, application Fed. Rep. of Germany, Aug. 10, 1978, 2835020

Int. Cl.³ B60B 17/00; B60C 7/06; F16F 15/12; F16H 55/14

U.S. Cl. 295—7

13 Claims



1. A vibration damping device for a vibrating body for damping vibrations, comprising:
 a plate adapted to be connected to said vibrating body said plate lying in a plane orthogonal to vibration direction with respect to vibrating direction of said body;
 an elastically flexible tongue member extending transversely to said plate, and means fixing a portion thereof to said plate and spaced therefrom to form a space between said tongue member and said plate;
 a vibration absorbing material in said space; and
 weight means fixed to a free end portion of said tongue member whereby said tongue member is resonant to two different frequencies.

9. In a vibration damping device for attachment to a vibrating body of a railroad wheel, said railroad wheel having a metal rim, a web, and an elastomeric material between said rim and said web, said rim being said vibratory body of said railroad wheel, the improvement comprising:

a plate, an elastically flexible tongue member with weight means at a free end thereof and spaced from said plate, a vibration absorbing material in a free space between said plate and said elastically flexible tongue member, and means fixing all of the aforesaid together with said flexible tongue member forming and said weight means forming a vibrating member to dampen two frequencies of vibration of said rim; and
 means coupling said plate, said elastically flexible tongue member, said weight means and said fixing means to said metal rim, said fixing means being centrally mounted and said coupling means fixedly coupling said vibrations damping device to said rim at said fixing means of said vibration damping device to permit vibration of said tongue member on both sides of said coupling means, said coupling means extending in a direction transversely with respect to the vibrating direction of said rim.

4,364,595

VEHICLE WINDOW ASSEMBLY

Cleon Morgan; John F. Thomas, Jr., and Raymond A. Meyer, all of Holland, Mich., assignors to Donnelly Mirrors, Inc., Holland, Mich.

Filed Oct. 6, 1980, Ser. No. 194,432

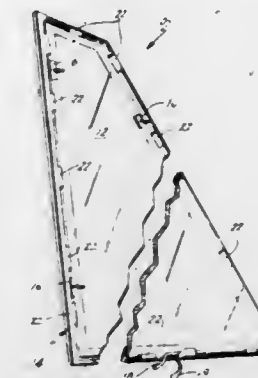
Int. Cl.³ B60J 1/02

U.S. Cl. 296—84 R

35 Claims

1. A window assembly for vehicles adapted for installation as a unit from the exterior of a vehicle to close an opening in the vehicle body comprising:
 a window pane having front, back and peripheral edge surfaces;
 a decorative frame covering the periphery of said window

pane, said frame including a flange extending a predetermined distance over said front surface of said window pane to cover an area adjacent said peripheral edge surface, and securing means for securing said frame to said pane; and



attaching means rigidly secured to at least one surface of said window pane for fastening said window assembly to an adjacent support, said attaching means being concealed from view when said assembly is viewed from the direction of said front surface.

4,364,596

VEHICLE PROTECTIVE DEFLECTOR HAVING VISUAL ENHANCEMENT AND ILLUMINATING MEANS

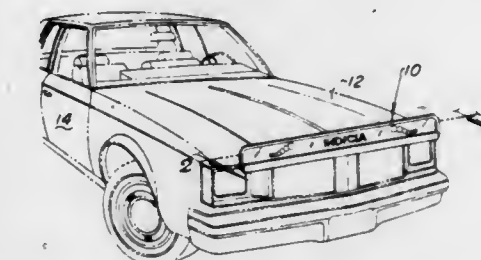
Charles E. Geisendorfer, 11600 Huebner, #2105, San Antonio, Tex. 78230

Filed Apr. 1, 1980, Ser. No. 136,265

Int. Cl.³ B60J 1/20

U.S. Cl. 296—91

4 Claims



1. In a protective deflector mountable on the frontal portion of a vehicle and having an upstanding transparent panel with a surface facing toward said vehicle, the improvement comprising: recess means in said surface opening toward said vehicle for providing visual enhancement for said panel; said recess means opening to said surface and the periphery of the openings of said recess means being surrounded by raised annuli of panel material disposed on said surface.

4,364,597

SUN VISOR FOR VEHICLES INCLUDING A MIRROR

Lothar Viertel, Saarlouis, and Klaus-Peter Kaiser, Wermelskirchen, both of Fed. Rep. of Germany, assignors to Gebr. Hapich GmbH, Fed. Rep. of Germany

Filed Jun. 18, 1980, Ser. No. 160,681

Claims priority, application Fed. Rep. of Germany, Aug. 1, 1979, 7921916[U]

Int. Cl.³ B60J 3/00

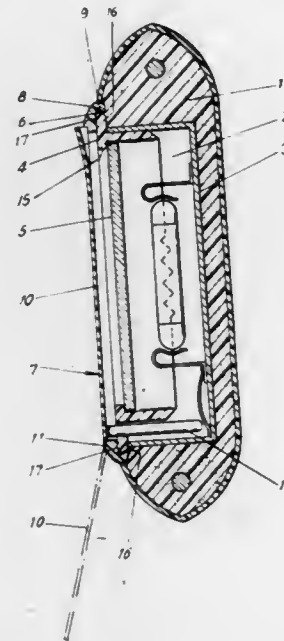
U.S. Cl. 296—97 H

10 Claims

1. A sun visor with an illuminated mirror for an automotive vehicle, or the like, comprising:
 a sun visor body; a recess defined in the visor body and extending in from a large surface side wall thereof; a first light-transmitting frame positioned in the recess; the first light-transmitting frame having a peripheral margin ex-

tending substantially parallel to the large surface side wall, the peripheral margin having a first beveled surface around its periphery, the first beveled surface being beveled inwardly of the visor body around the entire periphery thereof;

- a mirror supported in the first frame generally at the outside of the recess;
- a light source located behind the mirror in the recess for back lighting the mirror and for providing light to be transmitted by the first frame;
- a covering for covering over the outside of the first frame and the mirror; the covering including a covering frame generally located at the outside of the recess disposed



substantially forward of the mirror and extending around the first frame; a second surface of the covering frame being substantially parallel and complementary to the first beveled surface of the peripheral margin of the first frame around the entire periphery thereof, and cooperating with the first beveled surface to form a clip arrangement; the covering frame being clipped over the periphery of the peripheral margin of the first frame by the clip arrangement, the covering further including a cover flap and a hinge for connecting the cover flap to the covering frame at an edge of the cover flap and the hinge enabling the cover flap to pivot between a position covering the outside of the first frame and a position opening to uncover the outside of the first frame.

4,364,598

SWIVEL BEARING AND REINFORCEMENT FOR SUN VISOR

Lothar Viertel, Saarlouis, Fed. Rep. of Germany, assignor to Gebr. Happich GmbH, Fed. Rep. of Germany
Filed Feb. 26, 1981, Ser. No. 238,576

Claims priority, application Fed. Rep. of Germany, Mar. 26, 1980, 3011639

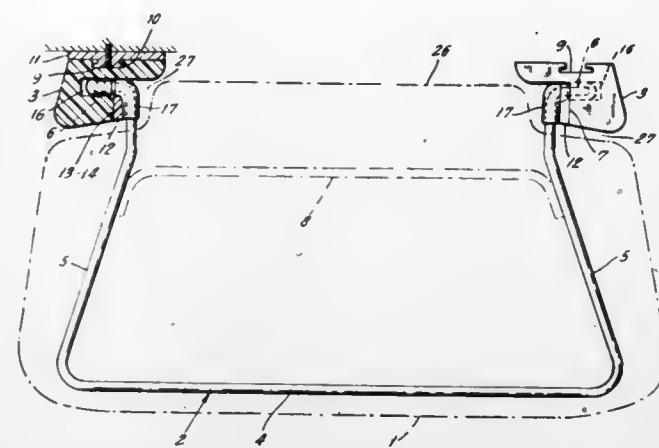
Int. Cl.³ B60J 3/02

U.S. Cl. 296—97 K

32 Claims

1. A sun visor, including a visor body having opposite lateral edges; a reinforcing insert on the body for stiffening the body; bearing pins supported on the insert and located at the opposite lateral edges of the visor body; each bearing pin including a portion protruding from the visor body to en-

gage in bearing block means associated with that bearing pin; a first leg adjacent to each bearing pin, the first leg



having a side thereof which is oriented for being biased outwardly to engage that associated bearing block means.

4,364,599

TRUCK, ESPECIALLY A LARGE CAPACITY VEHICLE OR TRACTOR SEMI-TRAILER COMBINATION

Hans Moll, Gräfelfing, and Klaus Flesche, Schlangenbad, both of Fed. Rep. of Germany, assignors to M.A.N. Maschinenfabrik Augsburg-Nürnberg Aktiengesellschaft, Munich, Fed. Rep. of Germany

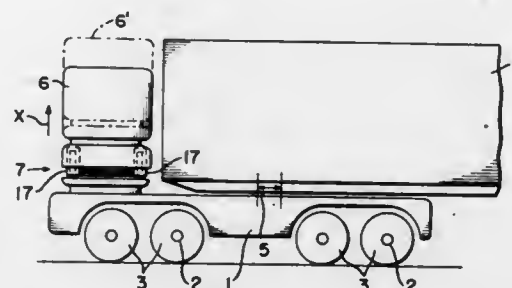
Continuation-in-part of Ser. No. 946,790, Sep. 28, 1978, Pat. No. 4,226,466. This application Jul. 30, 1980, Ser. No. 173,467
Claims priority, application Fed. Rep. of Germany, Sep. 13, 1977, 2741125

The portion of the term of this patent subsequent to Oct. 7, 1997, has been disclaimed.

Int. Cl.³ B62D 27/00

U.S. Cl. 296—190

4 Claims



1. A truck, especially large capacity vehicles and tractor semi-trailer combinations, comprising:

- a motor-steering unit;
- a payload carrier connected to said motor-steering unit;
- at least one vehicle control cab; and
- at least one additional structure, said at least one vehicle control cab and said at least one additional structure respectively being in the form of separate interconnected units arranged on top of one another in any desired order, the lowermost respective unit being mountable on said motor-steering unit, said at least one additional structure being a resting and sleeping cabin, said at least one vehicle control cab being arranged firmly connected to said at least one additional structure.

4,364,600

SAFETY VEHICLE SUN ROOF LOCK AND SUPPORT APPARATUS

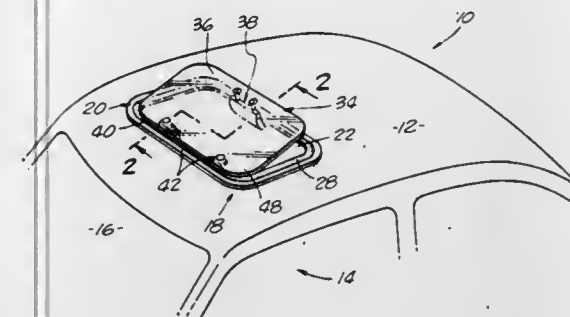
Peter Hauber, 9001 N. Glenoaks, Sun Valley, Calif. 91352
PCT No. PCT/US81/00164, § 371 Date Feb. 3, 1981, § 102(e)
Date Feb. 3, 1981, PCT Pub. No. WO82/02691, PCT Pub. Date Aug. 19, 1982

PCT Filed Feb. 3, 1981, Ser. No. 278,909

Int. Cl.³ B60J 7/18

U.S. Cl. 296—218

17 Claims



1. Safety vehicle sun roof lock and support apparatus for vehicle sun roof panels movably mounted in a vehicle roof opening circumscribed by a fixed flange, said apparatus comprising a roof panel, a roof opening interfitting flange defining a panel seat, anchor means secured to the flange freely of protrusions engendering personal injury, and an articulated coupler comprising first bar means connected at one end to the panel, and second bar means having left and right hand portions separably connected at one end to the anchor means in biased relation, said first and second bar means being pivotally connected to each other at their respective other ends for locking the panel in seated or opened position relative to the flange, said second bar means being separable from its anchor means connection for complete panel removal from said flange, said anchor means being thereby exposed and without exposing injury engendering protrusions.

4,364,601

VEHICLE SUN ROOF CONSTRUCTION

Yoshinori Katayama, Tokyo, and Yoshimasa Tuchiya, Sayama, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

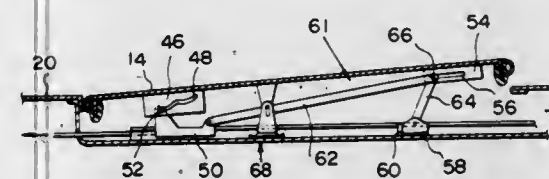
Filed Oct. 10, 1980, Ser. No. 195,739

Claims priority, application Japan, Oct. 12, 1979, 54-130797

Int. Cl.³ B60J 7/04

U.S. Cl. 296—221

11 Claims



1. In a vehicle having a cabin and a roof panel formed with a first opening, a sun roof comprising:

- a frame fixed to the inboard surface of said roof panel to define a space between said roof panel and said frame, said frame being formed with a second opening which cooperates with said first opening to define a sun roof opening;
- a rigid panel for closing said first opening;
- first and second guide rails secured to said frame, said first guide rail being disposed on one side of said second opening and said second guide rail being disposed on the other side of said opening;
- first and second shoes slidably disposed on said first and second guide rails, respectively, each of said first and second shoes having a pin thereon;
- third and fourth shoes slidably mounted on said first and second guide rails, respectively;
- first and second guide plates depending from a first end of

said rigid panel, said first guide plate being formed with a first shaped slot for receiving said pin of said first shoe therein, said second guide plate being formed with a second shaped slot for receiving said pin of said second shoe therein, said first and second shaped slots being shaped to extend upwardly toward said rigid panel as they extend toward a second end of said rigid panel;

third and fourth guide plates depending from said second end of said rigid panel, and
a linkage system interconnecting said first and second shoes with said third and fourth shoes,
said linkage system and said first and second guide plates cooperating so as to

(a) cause said rigid panel to lower away from said first opening toward said second opening and into said space without tilting, when said first and second shoes are driven from a home position in a first direction through a predetermined distance along said first and second guide rails, and thereafter, upon subsequent driving of said first pair of shoes in said first direction, to move away from between said first and second openings to open said sun roof opening, and

(b) when said first and second shoes are driven from said home position in a second direction, cause said rigid panel to pivot about one end thereof so that the other end thereof is lifted above the plane defined by said first opening.

4,364,602

SEAT SUPPORT STRUCTURE FOR THE DRIVING OF AN EARTH MOVING MACHINE

Corrado Rigazio, Turin, Italy, assignor to Fiat-Allis Macchine Movimento Terra, S.p.A., Lecce, Italy

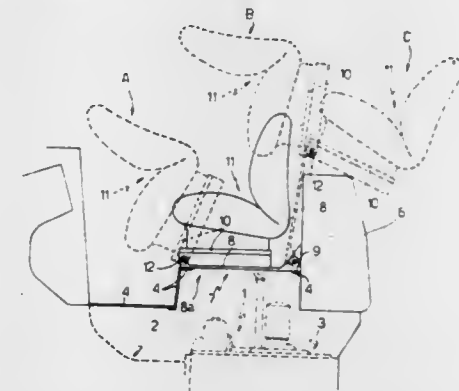
Filed Jul. 2, 1980, Ser. No. 164,503

Claims priority, application Italy, Jul. 27, 1979, 68565 A/79

Int. Cl.³ B60N 1/02

U.S. Cl. 297—334

12 Claims



1. In a vehicle having a body structure above a portion of a mechanism of the vehicle with an access opening in the body structure to provide access to the mechanism and a seat support assembly above the access opening, said seat support assembly comprising: first pivot means attached to the vehicle body structure adjacent to the access opening adjacent to the rear of the vehicle, flat base means having one edge attached to the first pivot means for selective pivotal movement about a first axis, first latching means operable to secure said base means in a fixed position relative to the vehicle above the access opening and being releasable to permit selective pivotal movement about said first axis, seat support means coupled to an opposite edge of said base means and supporting a seat of the vehicle, second pivot means to attach said seat support means to said base means for selective pivotal movement about a second axis, said second pivot means being spaced from the first pivot means a distance greater than the height of the vehicle body structure adjacent to the access opening above the first pivot means, second latching means operable to secure said seat support means in a fixed position relative to said base

means and being releasable to permit said selective pivotal movement of said base means about said second axis independent of said selective pivotal movement about said first axis, and said selective pivotal movement about said first and second axis allowing said base means and said seat support means to be moved to a position wherein the base means is pivoted away from the access opening to an attitude substantially parallel to the vehicle body structure adjacent to the access opening, and the seat support is positioned away from the access opening and above said vehicle body structure to provide access to portions of the vehicle disposed beneath said base means and said seat support in said fixed position.

4,364,603

RECLINING CHAIR

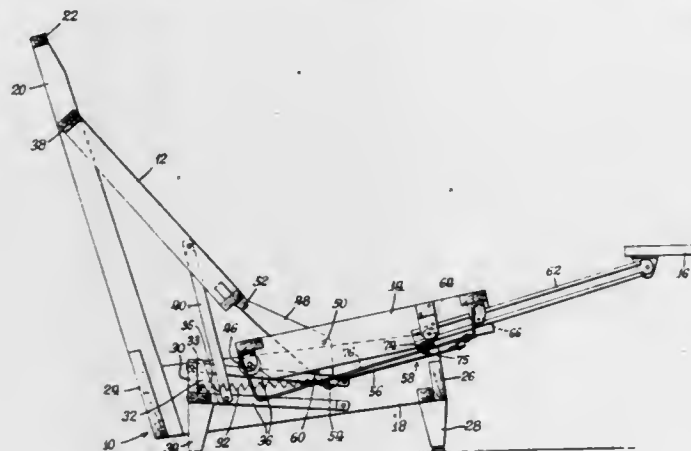
Carl B. Johnson, Pontiac, Ill., assignor to Pontiac Furniture, Inc., Pontiac, Ill.

Filed Nov. 2, 1979, Ser. No. 90,631

Int. Cl.³ A47C 1/02

U.S. Cl. 297-84

11 Claims



1. A reclining chair having
 - a normally stationary chair frame with an upstanding back portion,
 - a backrest pivotally suspended from the back portion of the chair frame for forward swinging movement of the lower end of the backrest from a sitting position to a reclining position, and vice versa, and
 - a seat member movably connected to the lower end of the backrest, and slidably and pivotally supported by the chair frame near the front of the chair frame;

the improvement wherein

the chair is also provided with a retractable footrest movable from a stowed position beneath the seat member to an extended position forwardly thereof to support the legs of the occupant, and a drive linkage beneath the seat member to extend and retract the footrest when actuated;

the movable connection between the seat member and backrest comprises a lever which is pivoted to both of them and connected to said drive linkage, and is oriented in said sitting position to utilize the weight of the occupant to cause the rear end of the seat member to descend and thereby to advance the lower end of the backrest relative to the seat member and to actuate the drive linkage to extend the footrest, the rear end of said seat member being conversely raisable by the forcible retraction of the footrest; and

means capable of being disabled by the occupant is provided to prevent the descent of the rear end of the seat member from the sitting position.

4,364,604

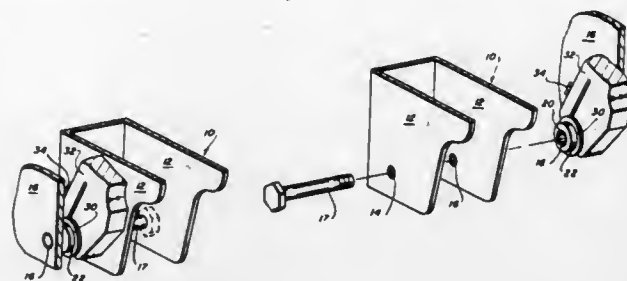
AIRCRAFT SEAT

Rene J. Brunelle, Wolcott, Conn., assignor to Kidde, Inc., Clifton, N.J.

Continuation-in-part of Ser. No. 42,324, May 25, 1979, abandoned. This application Mar. 20, 1980, Ser. No. 132,125
Int. Cl.³ A47C 7/62

U.S. Cl. 297-163

10 Claims



1. An aircraft seat comprising
 - a pair of pivot pins,
 - a pair of spaced seat back mounting brackets having apertures therein to permit the insertion of said pins there-through,
 - a pair of side frame forgings, each including a boss, each of said bosses including a peripheral clamping surface and an aperture therein for receiving one of said pins such that said pin and said boss surface have a common axis,
 - a tray assembly including a pair of legs having bifurcated clamp ends for clamping over said peripheral clamping surfaces for selective pivotal motion relative thereto, whereby
 - said tray assembly and said seat back brackets pivot about the common axis,
 - said tray assembly can be removed without removing said seat back mounting brackets, and
 - said seat back mounting brackets may be removed, by removing said pins, without removing said tray assembly.

4,364,605

SEAT WITH A SEAT PLATE OF ADJUSTABLE INCLINATION AND A BACKREST OF ADJUSTABLE INCLINATION

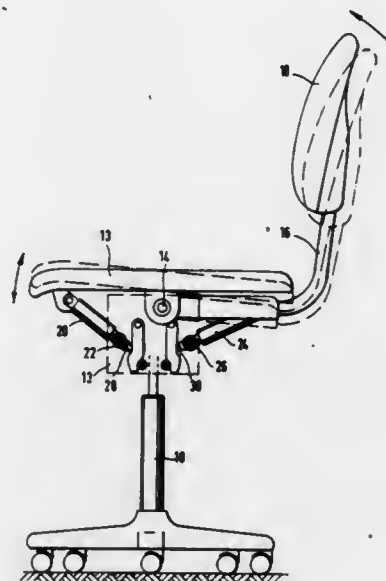
Hermann Meiller, Amberg, Fed. Rep. of Germany, assignor to Willibald Grammer, Amberg, Fed. Rep. of Germany
Filed Jun. 25, 1980, Ser. No. 162,762

Claims priority, application Fed. Rep. of Germany, Jul. 20, 1979, 2929428

Int. Cl.³ A47C 3/00; B60N 1/02

U.S. Cl. 297-306

10 Claims



1. A seat, particularly an office chair, comprising a seat plate

of adjustable inclination arranged on a seat carrier, and a backrest of adjustable inclination, characterized in that a first gas spring acts between the seat plate and seat carrier to adjust the inclination of the seat plate and a second spring acts between the seat carrier and backrest to adjust the backrest inclination, that the valve actuating pins of the gas springs are provided at the ends associated with the seat carrier and are oppositely disposed, preferably in V formation, and that a horizontal adjusting lever extending transversely to the valve actuating pin arrangement is mounted on the seat carrier to pivot vertically and horizontally about a common pivot point disposed beyond the straight connecting line between the valve actuating pins, and that two control arms on the seat carrier are movable in a scissor-like manner in a vertical plane containing the valve pin arrangement, the adjusting lever engaging between and co-operating with the control arms which co-operate with the valve actuating pins.

4,364,606

ARTICLES OF FURNITURE

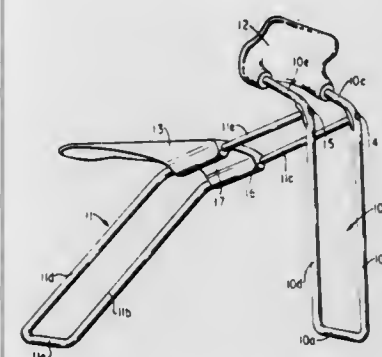
Georg Eknes, 5160 Eikangervag, Norway

Filed Jul. 11, 1980, Ser. No. 168,681

Int. Cl.³ A47C 3/20

U.S. Cl. 297-337

8 Claims



1. An article of furniture of an adjustable kind, such as a chair, especially a child's chair, as well as a stool and similar furniture, comprising a support component provided with a pair of backward inclining elongate tubular members for supporting a seat in adjustable positions thereat, whereas at the rear portion of said seat said tubular members are passing through a pair of support sleeves and a pair of slotted openings diverging downwards from said support sleeves, which slotted openings are allowing the seat to be tilted about a horizontal axis at the rear side portion of the seat by lifting the front side portion thereof, characterized in
 - that the support sleeves are made of a slide promoting material, such as plastic material, for allowing the seat to be slid freely along said tubular members with a minimum of friction, in an upwardly tilted position of the seat, and
 - that the upper side portion of said slotted openings spaced from said support sleeves is provided with a block of elastically yielding, friction promoting material, such as rubber, and said block is providing a main support surface between said seat and its associated tubular support member and of sufficient thickness to provide a spring effect between said seat and its associated tubular member, in a normal downwardly tilted position of the seat.

4,364,607

SEAT FOR VEHICLES

Pierluigi Tamburini, Castiglione, Italy, assignor to Gilardini S.p.A., Turin, Italy

Filed Jul. 28, 1980, Ser. No. 173,140

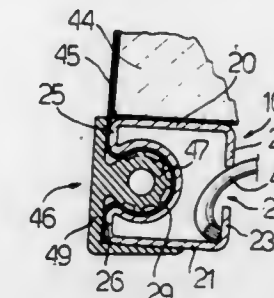
Int. Cl.³ A47C 7/02

U.S. Cl. 297-452

4 Claims

1. A seat for vehicles comprising a support structure for a seat cushion, a support structure for a seat back, and respective stuffing parts at least partially supported by said structures; said support structures each having an inner surface configured

to receive and be engaged by an element, such as a spring, forming a part of said seat; each of said support structures having an outer surface which includes a recessed zone adapted to receive and restrain therein an auxiliary element, said recessed zone having the configuration of a cavity with a restricted opening; said auxiliary element having a first portion



adapted to be forced and snap-fastened into said zone and a second portion which acts as a cover element for the outer surface of said support structures, such that said auxiliary element contacts an end portion of a surface covering material for said stuffing, locks said material inside said zone and covers the outer surface of said support structures and the contiguous areas of said surface covering material.

4,364,608

WHEEL COVER FOR A VEHICLE

Takao Ookubo, Yokohama; Yuko Baba, Tokyo, and Kiyoshi Kamihama, Yokohama, all of Japan, assignors to Nissan Motor Co., Ltd. and Hashimoto Forming Kogyo Co., Ltd., both of Yokohama, Japan

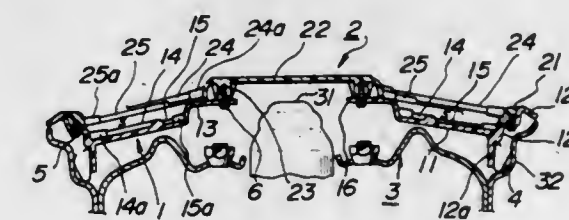
Filed Jun. 3, 1980, Ser. No. 155,926

Claims priority, application Japan, Jun. 4, 1979, 54-68843

Int. Cl.³ B60B 7/00

U.S. Cl. 301-37 SS

3 Claims



1. A wheel cover of a vehicle wheel, which comprises:
 - a first cover member including a first outer peripheral portion, a first inner peripheral portion and a plurality of radially extending first spoke portions located between and connected to the first outer and inner peripheral portions, said portions of the first cover member being formed integrally;
 - a second cover member including a second outer peripheral portion, a second inner peripheral portion and a plurality of radially extending second spoke portions located between and connected to the second outer and inner peripheral portions, said portions of the second cover member being formed integrally;
 - said first cover member being disposed on the axially rear side of the second cover member coaxially thereto, with the first outer and inner portions in abutting engagement with the second outer and inner portions, respectively, leaving a space between the first and the second spoke portions;
 - said first and second cover member being connected with each other such that the first spoke portions are visible from outside through uninterrupted spaces between the second spoke portions;
 - the spoke portions of each cover member crossing each other at cross points between the respective outer and

inner peripheral portions, the spoke portions of each cover member which cross each other being axially staggered;

the cross points of the spoke portions of the first cover member being circumferentially at mid points between two neighboring cross points of the spoke portions of the second cover member;

each spoke portion of at least the second cover member including an axial front and rear section, the width of said front section being greater than the width of the rear section, the boundary lines between said front and rear sections of the spoke portions lying axially in front at said cross points, and the boundary lines between said front and rear sections of the spoke portions lying axially behind at said cross points, being in a common plane; and means for attaching said first and second cover members to said wheel.

4,364,609

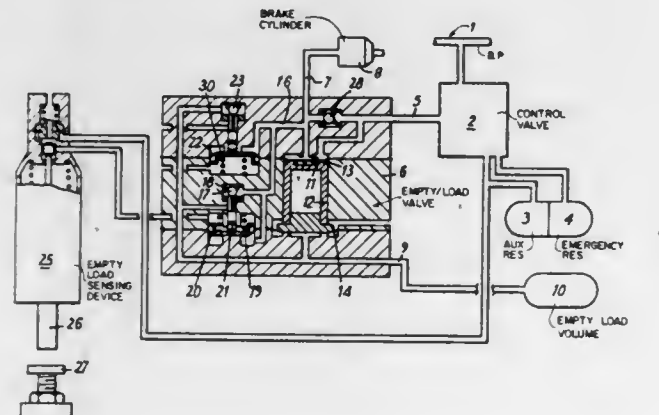
EMPTY/LOAD BRAKE CONTROL VALVE APPARATUS
David J. Wickham, London, England, assignor to Westinghouse Brake & Signal Co., England

Continuation of Ser. No. 772,255, Feb. 25, 1977, abandoned, which is a continuation of Ser. No. 638,668, Dec. 8, 1975, abandoned. This application Jul. 27, 1978, Ser. No. 928,578
Claims priority, application United Kingdom, Feb. 8, 1975, 05450/75

Int. Cl.³ B60T 8/18

U.S. Cl. 303—23 R

2 Claims



1. An empty/load fluid pressure control valve apparatus for controlling the brake cylinder pressure of a load carrying vehicle comprising: a control valve housing having a brake pressure input port, a brake pressure output port and a first communicating passage connecting the output port with the input port; means defining an extra volume; a first differential pressure means responsive to differences in pressure between said extra volume and the input port; a cut-off valve means, operable by said differential pressure means, for closing the communicating passage connecting the output port with the input port; a load sensing device for selectively producing at the output thereof a low pressure signal when the vehicle is empty and higher pressure signal when the vehicle is loaded; a second communicating passage connecting the output port and the extra volume; a second differential pressure means responsive to differences in pressure between the output of said load sensing device and the output port; a first resilient bias means acting on the second differential pressure means in the same sense as the output of the load sensing device so as to establish a first predetermined operating value in an empty condition and a second, higher, predetermined operating value in a loaded condition; a second valve in the second communicating passage operable by said second differential pressure means in a sense such that the second valve is closed in response to an output port pressure less than said first predetermined value for an empty condition and an output port pressure less than said higher second predetermined value for a loaded condition; a

vent leading to atmosphere and connected to the extra volume; a third valve in the vent and operable independently of the load sensing device; a second resilient bias means urging the third valve open; and a third pressure responsive means connected to operate said third valve to a closed position in response to pressure at the output port in excess of a third predetermined value determined by the resilient bias means such that, in operation, a decrease in pressure at the output port below the third predetermined value, irrespective of the output of the load sensing means, causes the third valve to open thereby venting pressure in the extra volume so that the cut-off valve means re-opens the first communicating passage to recharge the output port pressure.

4,364,610

RAILWAY VEHICLE BRAKING SYSTEMS

Eric F. Williams, Chippenham, England, assignor to Westinghouse Brake and Signal Company, Limited, England

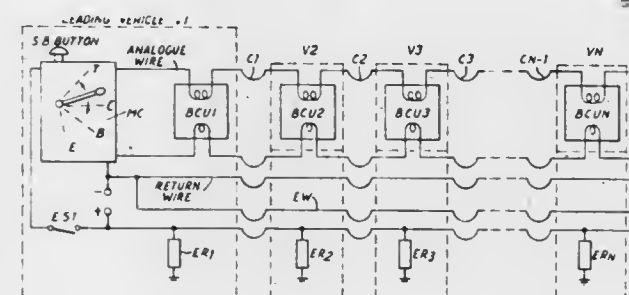
Filed Mar. 28, 1980, Ser. No. 134,764

Claims priority, application United Kingdom, Mar. 28, 1979, 7911002

Int. Cl.³ B60T 15/36

U.S. Cl. 303—36

8 Claims



1. In a railway vehicle braking system including an automatic slack adjuster for detecting excess slack in the brakes and for adjusting the brakes in accordance therewith and "snow brake" control means for, during operation of the "snow brake" control means, normally maintaining a light brake application when the vehicle is under traction or is coasting, the improvement wherein said "snow brake" control means includes brake interruption means operating automatically and intermittently to fully release the brakes and brake re-application means for operating automatically to re-apply the brakes after the brakes have been released by the brake interruption means at a time after the brakes have been released sufficient to permit the slack adjuster to make any adjustment necessary to accommodate any detected excess of slack.

4,364,611

SEPARATE 3-CYLINDER SYSTEM OF BRAKE FLUID FOR AUTOMOBILE SAFETY

Ming T. Jean, and Ming T. Liou, both of No. 2, Alley, 31, La. 465, Jean Chyan St., Shuh Lin Chyan, Taipei Hsian, Taiwan

Filed Aug. 26, 1980, Ser. No. 182,307

Int. Cl.³ B60T 17/18

U.S. Cl. 303—84 R

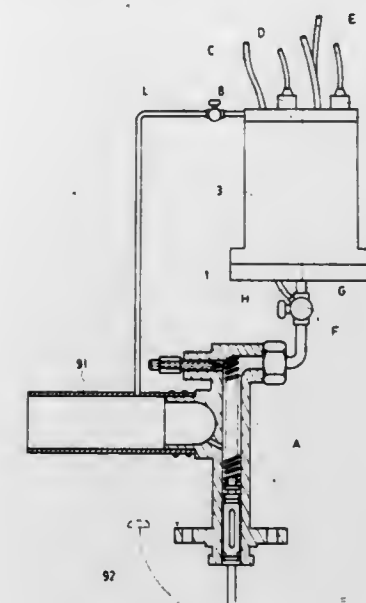
7 Claims

1. A pressing cylinder adapted to be connected to the master brake cylinder of an automobile braking system and for independently transmitting fluid pressure to the front wheel cylinders and right and left wheel cylinders in response to manual operation of an automobile brake pedal to effect braking action of said automobile, said pressing cylinder comprising in combination:

body means defining a front cylinder and right and left rear cylinders, said front cylinder having a larger bore than each of said right and left rear cylinders, said body means including piston means slidably and reciprocally engageable in each of said front cylinder and right and left rear cylinders, said piston means including sealing means sealingly engageable with said front cylinder and left and

right rear cylinder defining means for separating each of said front cylinder and said right and left rear cylinders into a fluid receiving chamber for receiving fluid from said master cylinder and a fluid discharge chamber for discharging fluid to said front wheel cylinders and said right and left rear wheel cylinders, respectively, in response to manual operation of said brake pedal;

first means covering said fluid receiving chamber including means defining a fluid receiving passageway, one end thereof for connection to said master cylinder, and the



other end thereof for concurrently distributing brake fluid from said master cylinder to said front cylinder and said right and left rear cylinders; and

second means covering said fluid discharge chamber including means defining fluid discharge passageways in operative communication with said front cylinder and said right and left rear cylinders for allowing brake fluid to pass therethrough in response to manual operation of said brake pedal and for connecting said pressing cylinder to said front wheel cylinders and right and left rear wheel cylinders respectively.

4,364,612

LOWER PAIR KINEMATIC ASSEMBLY WITH HYDROSTATIC BEARING

Franco Taddei, Milan, Italy, assignor to Casper S.p.A., Pavia, Italy

Filed Aug. 5, 1980, Ser. No. 175,675

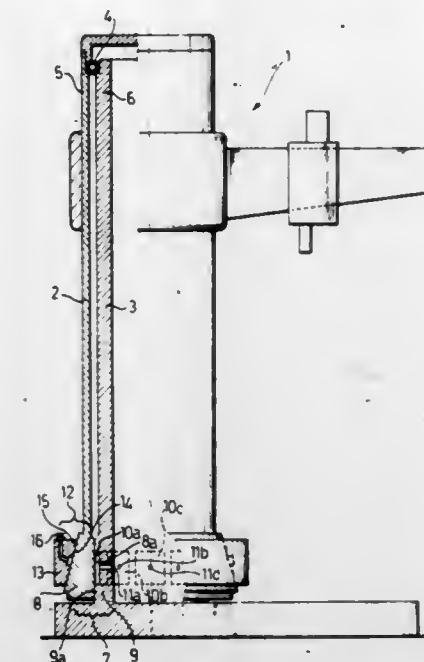
Int. Cl.³ F16C 32/06, 33/10

U.S. Cl. 308—5 R

2 Claims

1. A lower pair kinematic assembly comprising: two relatively movable, coaxial mechanical members with respective identical conjugate surfaces; hydrostatic bearing means between said members; means for relatively constraining the said conjugate surfaces of said two relatively movable mechanical members when said hydrostatic bearing means is inoperative, said constraining means including at least one annular member surrounding the outside surface of the outer of said two coaxial mechanical members, said annular member defin-

ing bearing means around said outside surface, and means for supplying fluid under pressure to said bearing means



defined by said annular member to precisely lock said two mechanical members relative to each other.

4,364,613

INTERMEDIATE BEARING SUPPORT MOUNTING FOR SECTIONAL OR ARTICULATED DRIVE LINE

Jacques Mangiavacchi, Chatou, France, assignor to Glaenger Spicer, Poissy, France

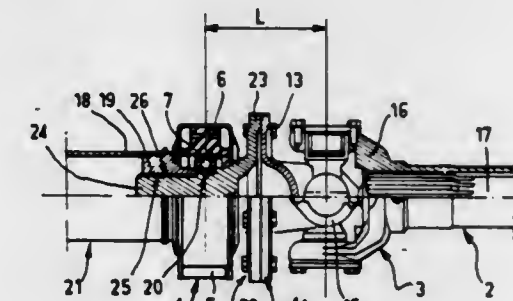
Filed Apr. 22, 1980, Ser. No. 142,711

Claims priority, application France, Apr. 24, 1979, 79 10412

Int. Cl.³ F16C 27/00

U.S. Cl. 308—184 R

4 Claims



1. An intermediate bearing support mounting for a sectional or articulated drive line including:

at least a first member having an internally splined sleeve fixed on its end,

a second member coupled to said first member,

a cushion housing of vibration absorbing elastic material, at least one antifriction bearing housed in said cushion housing,

a coupling part fitted in said antifriction bearing and being provided, at a first end, with a splined cylindrical shank for telescoping in said splined sleeve, and at a second end opposite said first end, with separable means for connecting said coupling member with said second member and centering said coupling member relative to said second member,

said separable means for connection with the second member comprising a plate provided with a centering bearing surface and fastener means, and

said antifriction bearing and said splined sleeve being received beside each other along said cylindrical shank of the coupling part, said splined sleeve having a collar crimped in a groove formed at the free end of said cylindrical shank, the crimped collar axially blocking parts

including said splined sleeve and said antifriction bearing on said cylindrical shank.

4,364,614

REMOVAL METHOD FOR REMOVABLE CLOSURE MEMBER FOR BEARING UNITS

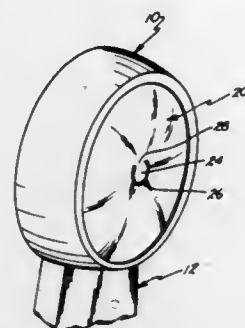
Siegfried K. Wels, Byron Center, and Donald T. Truskowski, Grand Rapids, both of Mich., assignors to C. L. Frost & Son, Inc., Grand Rapids, Mich.

Filed Jul. 2, 1980, Ser. No. 165,292

Int. Cl.³ F16C 33/78, 33/80

U.S. Cl. 308—187.1

5 Claims



1. A method for removing an imperforate closure member mounted on one side of the outer race means of a bearing unit, said closure member including a frangible knock-out portion therein, said method including the steps of:

- (1) supporting said bearing assembly on a rigid surface with said closure member facing in an accessible direction;
- (2) providing a tool for impacting said knock-out plug;
- (3) impacting said knock-out portion with said tool to break said portion away from said closure member to form an aperture through said closure member; and
- (4) prying said closure member away from said bearing unit by bending said closure member with a tool inserted in said aperture.

4,364,615

RETAINING RING

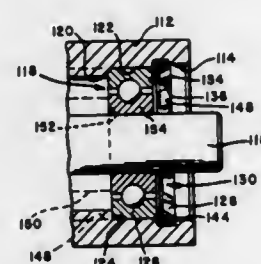
Richard W. Euler, LaPorte, Ind., assignor to The Bendix Corporation, Southfield, Mich.

Filed Sep. 8, 1980, Ser. No. 185,079

Int. Cl.³ F16C 33/30, 33/00, 13/00, 35/00

U.S. Cl. 308—236

3 Claims



1. Apparatus comprising in combination: a shaft defining an annular groove therein, a bearing member having an aperture therein and received on said shaft, said bearing member defining a radial surface adjacent said groove, abutment means on said shaft for preventing said bearing member from moving in one axial direction rela-

tive to said shaft, a retaining ring received in said groove and engaging said bearing member, said retaining ring including a cone-shaped resilient rim having a radially outer edge engaging said radial surface and a plurality of resilient teeth engaging said groove, said rim defining a Belleville spring providing a continuous axial load biasing said bearing member in said one axial direction toward said abutment means, said plurality of resilient teeth extending axially in an opposite direction to said one axial direction, and said plurality of resilient teeth expanding radially outwardly when said retaining ring is disposed on said shaft whereby said plurality of resilient teeth will expand radially inwardly into said groove when in alignment therewith in order to substantially prevent separation of said retaining ring from said shaft.

4,364,616

DIRECTORY DISPLAY

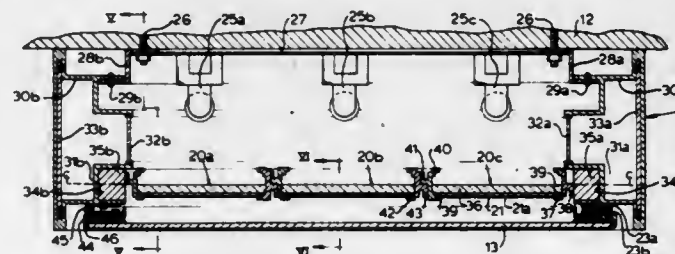
Thomas G. Harkins, Northbrook, and Robert D. Peterson, Chicago, both of Ill., assignors to Nelson-Harkins Industries, Inc., Chicago, Ill.

Filed Sep. 19, 1980, Ser. No. 188,847

Int. Cl.³ A47B 77/08; F16B 12/00

U.S. Cl. 312—223

11 Claims



1. A directory display system, comprising: a main frame with a back panel; a light source mounted within the main frame; at least two adjacent removable panels positioned vertically and in front of the light source in a panel supporting frame having two side members and a top and bottom member; the top and bottom members each having a channel within which the panels are positioned, the top member channel having a free space permitting upward movement of the panels to allow a bottom of a panel being lifted to clear the bottom member channel and allow removal of the panel; each of the panels having a light diffuser panel and indicia strips thereon with a coating thereon preventing transmission of light from the light source, the coating being selectively removed in the shape of indicia or figures desired to be displayed such that diffused light can pass there-through; each of the panels having first and second substantially identically constructed side frames parallel to one another and fastened at respective vertical side edges of said light diffuser panel and indicia strips, each side frame having a channel receiving the vertical side edges, and a single projection opposite the channel, said single projection lying to one side of a depth center line of the side frame and having an overlapping surface positioned at the depth center line, each of said side frames being usable on either the left or right side edges of the light diffuser panel; and one of the panels having one of its side frame projections abutting against one of the side members of the panel supporting frame, and the other side frame projection having its overlapping surface in abutment with the overlapping surface of the side frame projection of a laterally adjacent second panel, the overlapping surfaces lying on opposite sides of the center line, and wherein substantially no light can pass from the light source through cracks between the first and second panels and wherein the same side frames may be employed on either the left or right side edges of the panels.

4,364,617

METHOD AND APPARATUS FOR STABILIZING THE PRESSURE OF A GAS IN A CLOSED BODY

Takeshi Moriawaki, and Shinichi Tsunekawa, both of Yokohama, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

PCT No. PCT/JP79/00258, § 371 Date Jun. 13, 1980, § 102(e)

Date Jun. 11, 1980, PCT Pub. No. WO80/00896, PCT Pub.

Date May 1, 1980

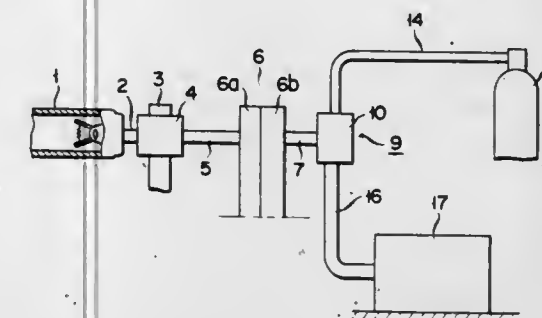
PCT Filed Oct. 11, 1979, Ser. No. 196,763

Claims priority, application Japan, Oct. 13, 1978, 53-125866

Int. Cl.³ H01J 9/395

U.S. Cl. 316—24

3 Claims



1. Apparatus for stabilizing a gas to a predetermined pressure in a closed body comprising: a hollow body; a first pipe connected to said hollow body and having a conductance C₁, said first pipe being connected to a source of said gas; a second pipe connected to said hollow body and having a conductance C₂, said second pipe being connected to a decompressing system, said first and second pipes and said hollow body directly and simultaneously interconnecting said decompressing system and said source during operation; and a third pipe connected to said hollow body and being adapted to be connected to said closed body and having a portion of least conductance C₃, said conductance C₁ being smaller than either of said conductance C₂ and said least conductance C₃, and said conductances C₁ and C₂ being so set that the gas pressure level inside said third pipe is substantially the same as said predetermined gas pressure attained in said closed body when the gas from said gas source constantly flows from said first pipe to said second pipe.

4,364,618

ELECTRONIC DEVICE PACKAGE

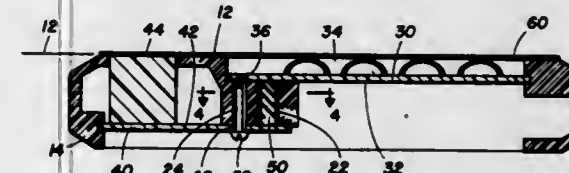
Ernest E. Godsey, Tucson, Ariz., assignor to Burr-Brown Research Corp., Tucson, Ariz.

Filed May 19, 1980, Ser. No. 150,740

Int. Cl.³ H01R 9/09

U.S. Cl. 339—17 LC

3 Claims



1. A package for operatively coupling at least two circuit boards in an electronic package, comprising: a case defining an operating and viewing surface; said case further defining an aperture having termini respectively adjoining each of said circuit boards; connector means having an elastomeric connector provided with conductors for electrically connecting said circuit boards; and fastener means for compressing said elastomeric connector

within said aperture and between said circuit boards so that a mechanical connection is effected among said circuit boards and said case and an electrical connection is effected between said circuit boards.

4,364,619

INTERCONNECTION SYSTEM FOR PRINTED CIRCUIT BOARD DEVICES

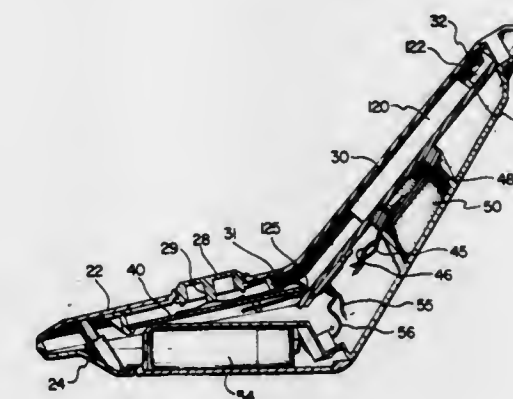
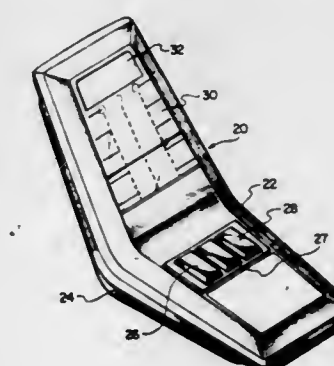
Gayan Inayat-Khan, Inglewood, Calif., assignor to Mattel, Inc., Hawthorne, Calif.

Filed Apr. 9, 1981, Ser. No. 252,557

Int. Cl.³ H05K 1/14; A63F 9/00

U.S. Cl. 339—17 F

16 Claims



1. In an electrical interconnection system, the combination comprising: a first member having electrical components thereon and having at least a portion thereof generally rigid with a plurality of electrically conductive members on said rigid portion; a second generally rigid member having a plurality of flexible finger-like projections; a flexible printed circuit lamina secured to said second member and having a section thereof looped over said projections with a conductive portion on said lamina aligned with each of said projections; means on each of said first and second members for aligning said first and second members in proximate relation with said conductive portions of said lamina urged by said finger-like projections into contact with said electrically conductive members; and means for maintaining said first and second members in position relative to each other.

4,364,620 SOCKET FOR HOUSING A PLURALITY OF INTEGRATED CIRCUITS

Wayne A. Mulholland, Plano; Robert J. Martin, Dallas, both of Tex.; David S. Wilson, Fort Collins, Colo., and Carlos Esparza, Jr., Lewisville, Tex., assignors to Mostek Corporation, Carrollton, Tex.

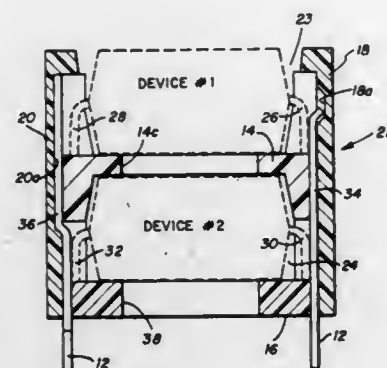
PCT No. PCT/US80/01139, § 371 Date Sep. 5, 1980, § 102(e) Date Sep. 5, 1980, PCT Pub. No. WO82/00923, PCT Pub. Date Mar. 18, 1982

PCT Filed Sep. 5, 1980, Ser. No. 261,236

Int. Cl.³ H01R 13/00

U.S. Cl. 339—17 CF

10 Claims



1. A socket for containing at least two integrated circuits and for connecting said circuits to operate independently through a plurality of socket leads, each of said integrated circuits having a plurality of circuit leads extending therefrom, the socket comprising:

- a housing having first and second interior chambers;
- a plurality of separator members positioned adjacent opposed interior walls of said first and second chambers forming a plurality of recesses on the opposed walls of said chambers;
- a plurality of first metallic strips in which each first metallic strip extends from within a recess in said first chamber to within a corresponding recess in said second chamber, each first metallic strip in contact with a respective one of said socket leads;
- a plurality of second metallic strips each extending from within one of said recesses for contact with one of said socket leads, said second metallic strips located in corresponding recesses of said first and second chambers; and
- each of said chambers adapted to contain one of said integrated circuits wherein the leads of said integrated circuits are received in respective ones of said recesses for contact with the metallic strips therein.

4,364,621

ELECTRICAL CONNECTOR

Robert B. Janvrin, Climax, and Charles J. Bowden, Battle Creek, both of Mich., assignors to General Signal Corp., Stamford, Conn.

Filed Feb. 28, 1980, Ser. No. 125,602

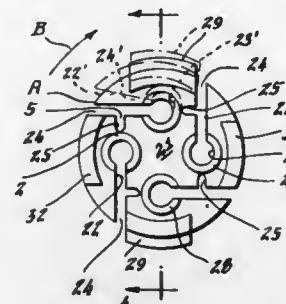
Int. Cl.³ H01R 11/00

U.S. Cl. 339—59 M

9 Claims

1. An apparatus for holding a plurality of electrical terminals comprising:
a body of molded insulating material adapted for receiving, supporting and fixedly holding a plurality of terminals in said body;
a plurality of openings in said body, each opening having (a) an axial passageway having a cross-sectional area substantially the same as the cross-sectional area of a terminal held therein and extending along the length of the body, each axial passageway having a collar mounted therein for fixedly holding a terminal inserted in the axial passageway, and (b) a radial passageway normally substantially smaller in cross-sectional area than the axial passageway and extending outwardly from the axial passageway so that a terminal can be axially and radi-

ally inserted in and removed from the body of the connector; and
a plurality of hinges operatively joined to the body, each hinge being adjacent each axial collar and operable for enlarging the cross-sectional areas of the radial passageway and the



axial collar enough to accommodate the passage of a terminal having a cross-sectional area substantially the same as the cross-sectional area of the axial passageway in order to facilitate the insertion or removal of terminals within the axial collars provided therefor.

4,364,622

CONNECTOR FOR FLAT CABLE

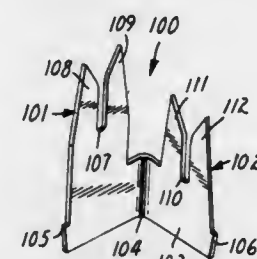
Ted R. Huntley, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 9, 1980, Ser. No. 148,222

Int. Cl.³ H01R 4/24

U.S. Cl. 339—97 R

9 Claims



1. A connector comprising an insulating base, an insulating cover, and, fixed in said base, folded bi-level twin spring compression reserve U-contact elements having their two bifurcate contact members extending to different lengths in the same direction and from the same edge of a folded base and in planes at right angles to each other.

4,364,623

SOLDERLESS UNIVERSAL OUTLET

S. Scott Hammill, Mount Laurel, N.J., assignor to SGL Industries, Inc., Haddonfield, N.J.

Filed Sep. 23, 1980, Ser. No. 190,050

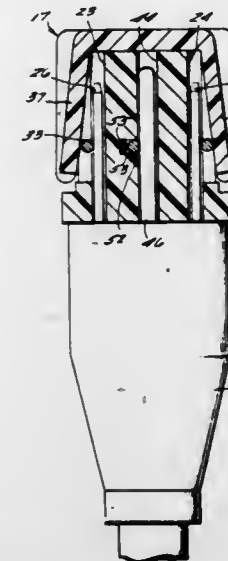
Int. Cl.³ H01R 13/11, 13/506, 21/06

U.S. Cl. 339—126 RS

11 Claims

1. An electrical receptacle comprising:
a receptacle body of electrical insulating material, and including a face part and a rear part;
means defining first and second parallel, spaced, elongated prong-receiving slots in said receptacle body face part, said slots open along the opposite sides of said body face part;
means defining first and second grooves in said body face part sides, each of said grooves substantially perpendicular to the direction of elongation of said first and second slots, and said first groove intersecting said first slot, and said second groove intersecting said second slot;
conductor means for providing electrical connection with an electrical plug prong inserted into each of said prong-receiving slots, said conductor means consisting of first and second conductor wires, each having a bare portion thereof at the

area of intersection of said first groove with said first slot; and said second wire received by said second groove and having said bare portion thereof at the area of intersection of said second groove with said second slot;
said receptacle body rear part including a resilient portion



thereof engaging said first and second conductor wire bare portions and resiliently biasing them into intersecting relationship with said respective prong-receiving slots; and attaching means for attaching said receptacle body face and rear parts together with said rear part resilient portion engaging and biasing said conductor wire bare portions.

4,364,624

ADAPTER ASSEMBLY FOR ELECTRICAL LEADS

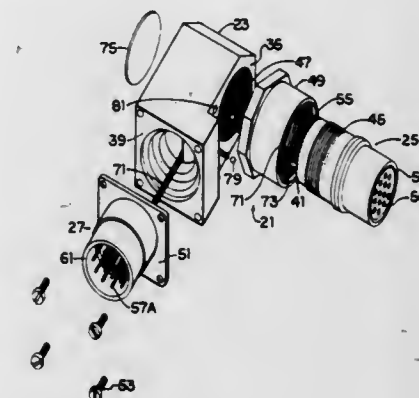
Robert A. Williams, 55 Bounty Rd., E., Fort Worth, Tex. 76116

Filed Apr. 14, 1978, Ser. No. 896,390

Int. Cl.³ H01R 11/00

U.S. Cl. 339—154 R

2 Claims



1. An adapter assembly comprising:
a body formed of metal,
a first opening extending through said body in a first direction,
said first opening having first and second ends on opposite sides of said body,
a second opening extending into said body in a second direction transverse to said first direction and intersecting said first opening,
first electrical connector means having a plurality of electrical terminals at one end adapted to be coupled to said first end of said first opening of said body,
second electrical connector means having a plurality of electrical terminals at one end adapted to be coupled to said second opening,
a plurality of electrical leads adapted to be coupled to said electrical terminals of said first and second electrical connectors and routed between said electrical terminals of said first and second electrical connectors through the passageway formed by said first and second openings, said second end of said first opening being employed to

facilitate connection and routing of said electrical leads to said terminals of said first and second electrical connectors, and
a metallic closure member adapted to be press fitted in said second end of said first opening for closing said second end of said first opening.

4,364,625

ELECTRICAL JACK ASSEMBLY

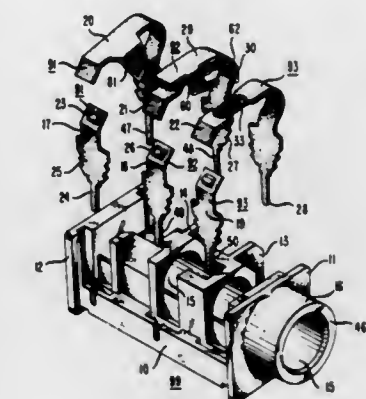
Paul A. Baker, Columbus, and John W. Hoell, Reynoldsburg, both of Ohio, assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jun. 12, 1980, Ser. No. 158,795

Int. Cl.³ H01R 17/18

U.S. Cl. 339—183

14 Claims



1. An electrical jack adapted to receive a plug having tip, ring and sleeve members, said jack comprising tip, ring and sleeve spring assemblies each including a pair of break contacts;

said ring spring assembly also including a first and second movable spring element in electrical engagement with each other and a stationary spring element in electrical engagement with said first spring element when said plug is removed from said jack; and
each assembly positioned to engage a correspondingly named plug member to actuate said contacts when said plug is fully inserted into said jack; and
one of said movable ring spring elements adapted to engage said plug tip member and said sleeve spring assembly adapted to engage said plug ring member while maintaining said contacts closed when said plug is partially inserted in said jack.

4,364,626

ELECTRICAL CONNECTOR

Edison A. Price, New York, N.Y., assignor to Edison Price Incorporated, New York, N.Y.

Filed Mar. 7, 1980, Ser. No. 128,167

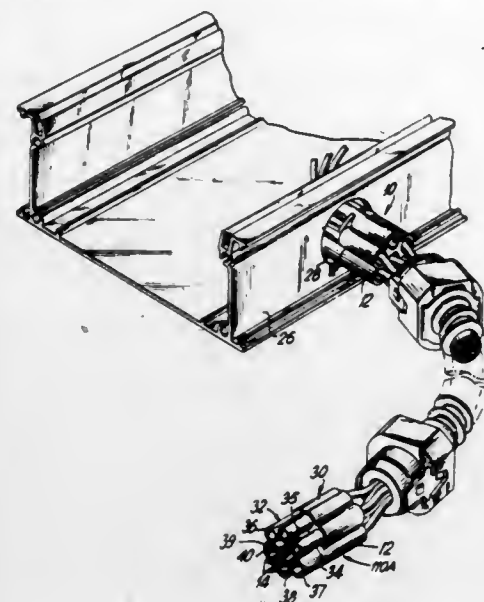
Int. Cl.³ H01R 13/64

U.S. Cl. 339—184 M

9 Claims

1. An electrical connector comprising:
a substantially cylindrical insulative housing comprising a base and a plurality of tubular projections extending axially from the base and including one central projection having a first axial extent and an equal number of first and second projections surrounding the central projections in a circle and having a second axial extent greater than that of the central projection, the first and second projections being configured and positioned so that all of the second projections of the housing are receivable in the first projections of a like housing;
a plurality of elongated conductive connector contacts; and
means axially mounting one contact in each projection with one end of each in the base, wherein the other end of each contact in the first and second projections terminates short of the second axial extent and is thereby not exposed

and the other end of the contact in the central projection has an axial extent which is greater than that of the other contacts and terminates between the first and second axial



extents and thereby projects from the central projection and is exposed while being shielded by the surrounding first and second projections.

4,364,627

METHOD AND SYSTEM FOR CONSTRUCTING A COMPOSITE HOLOGRAM

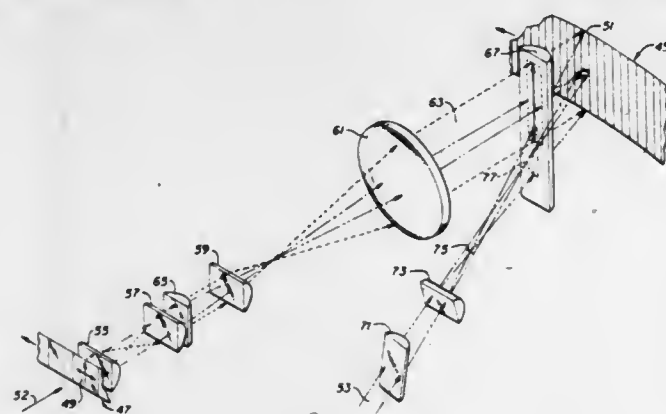
Kenneth A. Haines, Santa Clara, Calif., assignor to Eidetic Images, Inc., Elmsford, N.Y.

Filed Sep. 7, 1979, Ser. No. 73,181

Int. Cl.³ G03H 1/30, 1/24, 1/26

U.S. Cl. 350—3.76

31 Claims



1. In a method of making a lenticular hologram composed of narrow elongated hologram elements positioned along a horizontal line with their long dimensions vertical, each of said elements recording an image of an object, an improved method of constructing an individual hologram element thereof, comprising the steps of:

- obtaining a coherent radiation object beam that contains information of the object,
- optically processing the vertical and horizontal aspects of said object beam such that vertical and horizontal aspects of the image come to focus at substantially different, finite surfaces,
- directing said object beam onto a narrow elongated hologram detector, and
- simultaneously directing onto said detector at a finite angle to the object beam a reference beam of radiation that is coherent with said object beam.

4,364,628

OPTICAL SIGHTS

Frederick Garner, Thurcaston, England, assignor to The Marconi Company Limited, Chelmsford, England

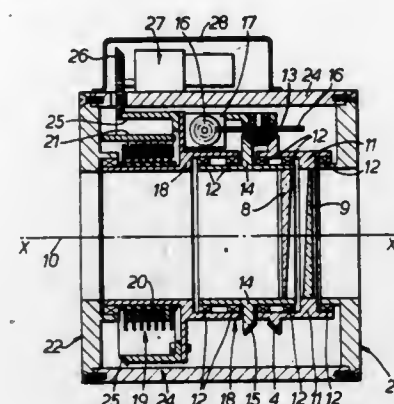
Filed Sep. 5, 1980, Ser. No. 184,332

Claims priority, application United Kingdom, Sep. 5, 1979, 7930786

Int. Cl.³ G02B 23/02

U.S. Cl. 350—500

5 Claims



1. A stabilisable optical sight suitable for use with a fighting tank gun control system which has gun barrel stabilisation apparatus including means for developing stabilisation error signals resulting from movement of the tank, and means for utilising the thus developed stabilisation error signals to drive the tank's gun barrel in elevation and the tank's gun turret in azimuth to provide the required stabilisation, said sight comprising:

- an optical system with an eye piece, an objective lens, and a pair of serially-arranged optical wedges disposed between said eye piece and said objective lens on the optical axis of said optical system, said pair of optical wedges being mounted on first and second mounting means so as respectively to be rotatable about said optical axis both relatively one wedge with respect to the other and together, whereby the line of sight through said optical system may be moved by rotation of one or both of said wedges;
- driving means connected to said first and second mounting means for causing said optical wedges to be so rotated in operation;

and means for applying servo control signals to said driving means, whereby in operation the wedges may be so rotated in order to stabilise the sight against movement of a body on which it is carried.

4,364,629

OPERATION MICROSCOPE HAVING A SMALL WORKING DISTANCE

Walter H. Lang, and Franz Muchel, both of Konigsbrunn, Fed. Rep. of Germany, assignors to Carl Zeiss-Stiftung, Oberkochen, Fed. Rep. of Germany

Filed May 12, 1980, Ser. No. 148,968

Claims priority, application Fed. Rep. of Germany, May 16, 1979, 2919678

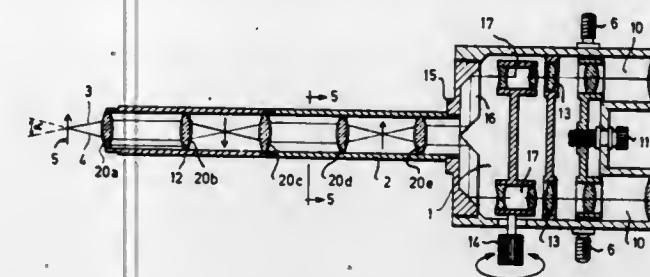
Int. Cl.³ G02B 21/20

U.S. Cl. 350—516

13 Claims

1. An operation-microscope kit, comprising a binocular viewing module having a viewing end and an objective-attachment end, said objective-attachment end being adapted for detachable connection to a conventional objective lens of relatively large diameter for operation upon object areas that are relatively exposed and uncluttered, an adapter module adapted for detachable connection to the objective-attachment end of said viewing module, said adapter module having a central region adapted for detachable connection to an objective-lens mount of reduced diameter substantially less than said large diameter and said adapter module having prism means for folding the binocular-viewing axes to within the lesser-

diameter capacity of said central region, and one or more objective-lens modules of substantially said reduced diameter



and adapted for detachable connection to each other and to said objective-lens mount in end-to-end relation.

4,364,630

AUTOMATIC FOCUSING DEVICE FOR MICROSCOPES

Toshimi Hayasaka, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

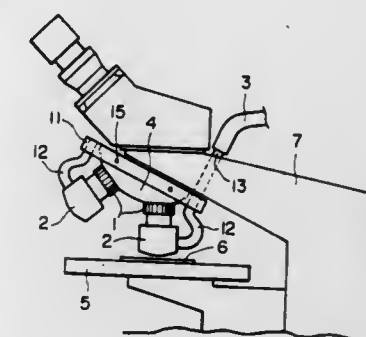
Filed Oct. 31, 1980, Ser. No. 203,224

Claims priority, application Japan, Nov. 6, 1979, 54-153246[U]

Int. Cl.³ G02B 7/11

U.S. Cl. 350—518

9 Claims



1. An automatic focusing device comprising a rotatable objective lens switching device equipped with a plural number of objective lenses, nozzles respectively arranged in the vicinity of said objective lenses and couplers respectively connected to said nozzles; and a gas feed tube connectable to any one of said nozzles through said any one of said couplers to supply gas into said any one of said nozzles thereby to focus, said automatic focusing device being adapted in such a manner that when one of the objective lenses is switched to another to be used for microscopy by rotating said objective lens switching device, said gas feed tube is connected to said any one of said nozzles, arranged in the vicinity of any one of said objective lenses to be used for microscopy through any one of said couplers, whereby the gas supplied through said gas feed tube passes through said any one of said couplers and is injected from said any one of said nozzles arranged in the vicinity of any one of said objective lenses to be used for microscopy to bring said any one of said objective lenses to be used for microscopy in focus condition.

4,364,631

CATADIOPTRIC DEVICE INTENDED FOR AN OPTICAL RESPONDER

Patrick Arondel, and Jean P. Lepetpre, both of Paris, France, assignors to Thomson - CSF, Paris, France

Filed Sep. 24, 1980, Ser. No. 190,380

Claims priority, application France, Oct. 5, 1979, 79 24890

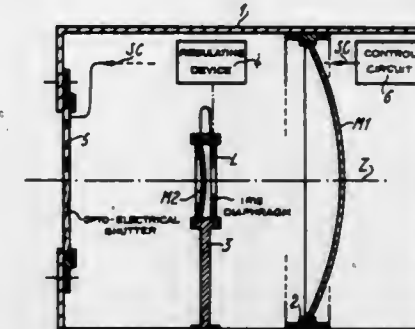
Int. Cl.³ G02B 17/06; H04B 9/00

U.S. Cl. 350—503

4 Claims

1. A catadioptric device comprising a concave spherical mirror of radius R1 and whose optical axis passes through its center of curvature, a convex spherical mirror of radius R2=R1/2, whose optical axis coincides with that of the concave mirror to constitute the optical axis of the device and

which faces said concave mirror at a distance from the latter which is at the most equal to the value R2 and is substantially equal to the said value for correcting the spherical aberration, means defining an optical pupil in a plane orthogonal to said axis and centered on the center of curvature of said concave



4,364,632

VERTICAL MICROSCOPE SLIDE

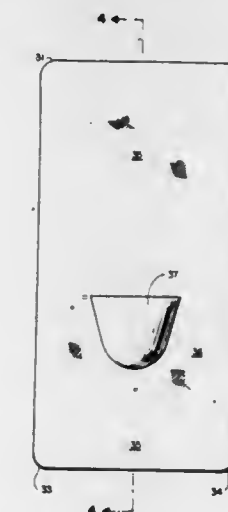
Joel F. Pullen, Rte. 1, 83B Lupine La., Templeton, Calif. 93465

Filed Jan. 12, 1981, Ser. No. 224,047

Int. Cl.³ G02B 21/34

U.S. Cl. 350—536

4 Claims



1. A rectangular microscope slide mounted from a single piece of clear material and containing a specimen envelope consisting of a base portion of uniform thickness, a platform portion located on, extending outwardly from and completely surrounded by said base portion, said platform portion having an upper transverse edge extending laterally outwardly from said base portion at essentially right angles, and a cavity of uniform thickness having a shape defined by the shape of said platform portion said cavity having an open upper end extending through the transverse laterally extending upper edge of said platform, said cavity having a front wall of uniform thickness and sidewalls formed from said platform portion and a rear wall of uniform thickness defined by said base portion.

4,364,633

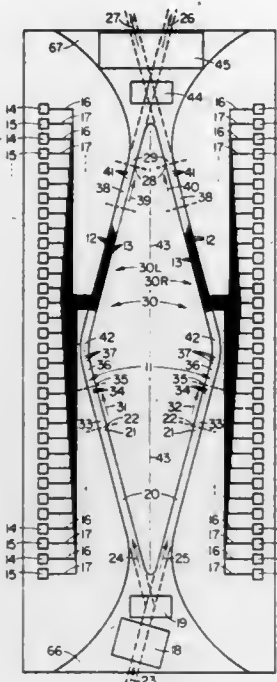
PAIRWISE COMPARISON DEVICE

Carl M. Verber, and Richard P. Kenan, both of Columbus, Ohio,
assignors to Battelle Memorial Institute, Columbus, Ohio
Filed Mar. 14, 1980, Ser. No. 130,329

Int. Cl.³ G02B 5/172

U.S. Cl. 350—96.14

19 Claims



2. Apparatus for comparing first and second sets of voltages having one-to-one correspondence, and providing an indication responsive to the magnitudes of the pairwise differences of the voltages; comprising

a plurality of channel waveguides, each having a first electrode on one side of the channel and a second electrode on the opposite side of the channel;
means for connecting each voltage of the first set to the first electrode of one waveguide;
means for connecting each voltage of the second set to the second electrode of the waveguide to the first electrode of which the corresponding voltage of the first set is connected;

means for directing to the input end of each waveguide a substantially plane wave of coherent light having predetermined relative intensity and phase; and
means responsive to the light emerging from the output end of the waveguides for providing an indication that is a function of the pairwise relative magnitudes of the first set of voltages and the second set of voltages, and

wherein the channel waveguides, electrodes, voltage connecting means, and light directing means comprise a device for guiding the input wave of coherent light, segmenting it into a plurality of waves, and reassembling them into a single output wave that may be similar to the input wave or may have a phase shift pattern imposed upon it; comprising

a thin film waveguide whose width is relatively broad at its input end, positioned to receive the input wave; comprising

a relatively short input end portion comprising a continuous region of thin material, having a relatively high index of refraction and of substantially uniform width, extending in a predetermined direction;

a first longer transitional portion comprising a continuation of the same material extending from the input end portion in approximately the same direction in a plurality of narrower first transitional strips of which adjacent ones are contiguous at the input end, each strip tapering away from the adjacent strips approximately as a long, narrow parabola to a substantially narrower width at its other end;

a middle portion comprising a further continuation of the same material extending from the narrower ends of the

first transitional strips in approximately the same direction, at least for a substantial length, in still longer middle strips of substantially uniform width and spacing;
a second transitional portion, similar to the first, comprising a further continuation of the same material extending from the middle strips in approximately the same direction in second transitional strips, each tapering from the narrow width of the middle strips approximately as a long narrow parabola to the width where it becomes contiguous to the adjacent strips; and
a relatively short output end portion, similar to the input end portion, comprising a further continuation of the same material in a continuous region extending from the second transitional portion in approximately the same direction.

4,364,634

REFLECTION DEVICE FOR ROADSIDE MARKING

John Björlund, Södra Vägen 93, Göteborg, Sweden (412 54)
PCT No. PCT/SE79/00061, § 371 Date Nov. 22, 1979, § 102(e)

Date Nov. 20, 1979, PCT Pub. No. WO79/00809, PCT Pub. Date Oct. 18, 1979

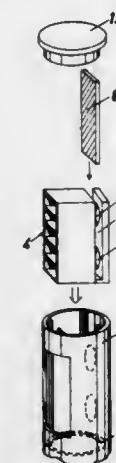
PCT Filed Mar. 20, 1979, Ser. No. 187,844

Claims priority, application Sweden, Mar. 22, 1978, 7803272; May 30, 1978, 7806183

Int. Cl.³ G02B 5/12

U.S. Cl. 350—97

9 Claims



1. In a reflective road marker of the type including a reflector supported at a specified height above the road, said reflector being removably carried by tubular means on a post beside the road, the improvement comprising:

said reflector being supported by said post for reflection of light, directed thereat, generally toward a first direction, being held behind said tubular means within said post and being removable from said post;

said tubular means being insertable into said post through an opening therein to a position where it at least substantially is received within said post, and including a plurality of channels, each channel

(1) having its length in said first direction;

(2) being closed at one end by said reflector and coacting therewith to define a stationary air cushion in front of said reflector;

(3) having its length at least one-half the maximum internal transverse dimension; and

(4) having a length-to-transverse-dimension ratio such that a visually roadside marking reflection effect of the incident light from the headlights of vehicles is provided at different positions on the road.

4,364,635

SLIDE-SCREEN FOR BACK PROJECTION

Horst Stief, 13, Gerhart-Hauptmann Strasse, D-4800 Bielefeld 1, Fed. Rep. of Germany

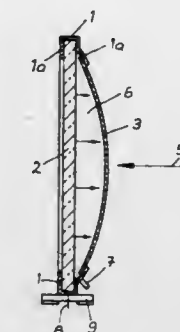
Filed Jun. 12, 1981, Ser. No. 272,843

Claims priority, application Fed. Rep. of Germany, Jun. 13, 1980, 8015655[U]

Int. Cl.³ G03B 21/56

U.S. Cl. 350—125

16 Claims



1. In a slide-screen for back projection, having a frame and a projection surface arranged within said frame, the improvement which comprises that the projection surface is double-skinned and consists of:

(i) a curved translucent partition which lets through light rays coming from a reflector, and

(ii) a natural or synthetic glass viewing screen which reflects the impinging light rays in the direction of the translucent partition while preventing the dissipation of light.

4,364,636

HELMET MOUNTED SIGHT WITH FIXED DISPLAY AND PIVOTAL ARM

Stafford M. Ellis, Sussex, England, assignor to Elliott Brothers (London) Limited, Chelmsford, England

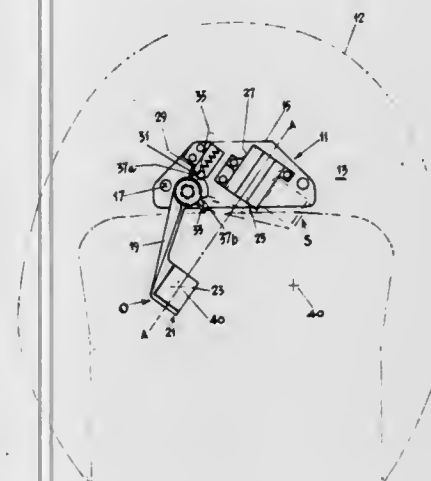
Filed Oct. 31, 1980, Ser. No. 202,710

Claims priority, application United Kingdom, Nov. 9, 1979, 7938918

Int. Cl.³ G02B 27/10

U.S. Cl. 350—174

3 Claims



1. A sight for an headgear comprising a mount member adapted to be secured to the headgear, an arm member pivotally connected to the mount member, a collimating sight carried by the arm member, and a substantially flat display surface a virtual image at infinity of which is to be formed by the collimating sight and in which the arm is pivotal between an operative position at which when the headgear is being worn the sight intercepts the wearer's forward line of sight to the distant scene and a stowed position at which the sight does not intrude into the wearer's field of view to the forward distant scene, and no part of the arm or the sight has a transverse dimension greater than a prescribed human interpupillary

4,364,637

HIGHLY REFLECTIVE PLASTIC REFLECTOR WITH CRYSTALLINE INORGANIC FILM COATING

Akira Ohno; Shitomi Katayama; Susumu Senaha; Suizo Kyo, and Akira Akagami, all of Yokohama, Japan, assignors to NHK Spring Co., Ltd. and Yokohama Kiko Co., Ltd., both of Kanagawa, Japan

Filed Jun. 13, 1979, Ser. No. 48,312

Claims priority, application Japan, Jun. 13, 1978, 53-70399; Jun. 13, 1978, 53-70400

Int. Cl.³ G02B 1/10, 5/08; B05D 302

U.S. Cl. 350—288

6 Claims

1. A reflector comprising a light-reflecting metallic film vacuum coated on one or more sides of a molded body of polymeric material or a composite thereof, with the surface of said body formed of a thermosetting resin devoid of volatile components, and a light-transmissible crystalline film of an inorganic material selected from the group consisting of a metal oxide, an oxide of an amphoteric element and a mixture thereof vacuum coated on said light-reflecting metallic film.

4,364,638

SIDE VIEW MIRROR PIVOTING ASSEMBLY FOR A VEHICLE

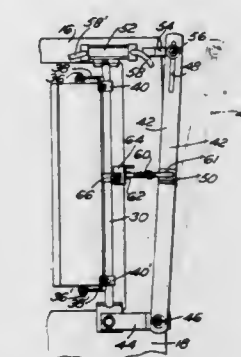
Ralph E. Pierce, III, Foster, R.I., assignor to Truck Repair Service, Inc., Warwick, R.I.

Filed Feb. 20, 1981, Ser. No. 236,131

Int. Cl.³ G02B 5/08

U.S. Cl. 350—289

3 Claims



1. A side view mirror pivoting assembly for a vehicle wherein a mirror support bracket is pivotally mounted to a door frame of a vehicle, said bracket supporting an elongated mirror thereon, the improvement for pivoting the bracket comprising a motor mounted on the door frame and having a reciprocating rod, said motor having means therein to produce linear motion of said rod,

an arm having one end coupled to said rod, the other end of the arm pivoted to the door frame at a point spaced from said rod,

a linkage connected at one end thereof to an intermediate portion of said arm and at the other end thereof to said bracket,

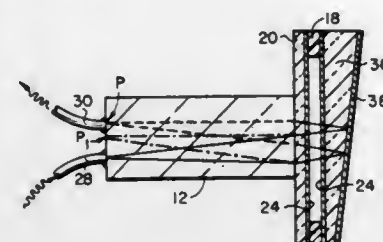
whereby upon linear movement of the reciprocating rod the arm will rock and the linkage will rock the bracket and the mirror attached thereto.

4,364,639

VARIABLE ATTENUATION ELECTRO-OPTIC DEVICE
William J. Sinclair, Nepean; Josef Straus, and Philip M. Garell-Jones, both of Ottawa, all of Canada, assignors to Northern Telecom Limited, Montreal, Canada
Filed Aug. 25, 1980, Ser. No. 181,173
Int. Cl.³ G02F 1/13

U.S. Cl. 350—331 R

8 Claims U.S. Cl. 350—426



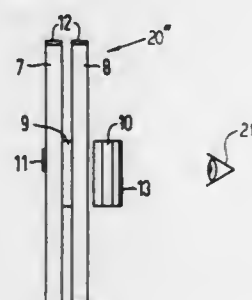
1. An electro-optic device comprising a graded refractive index lens for collimating input light at a liquid crystal cell and for focussing output light from the cell, the cell having a film of liquid crystal material flanked by first and second conducting films for applying an electric field across the liquid crystal to alter its optical transmissivity, and a reflector on a side thereof remote from the lens for reflecting input light propagating through the cell back through the lens.

4,364,640

ARRANGEMENT FOR BRIGHTNESS GAINS OF PASSIVE DISPLAY UNITS
Hans Krüger, Munich, and Karl-Heinz Walter, Grafting, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany
Filed Jun. 23, 1980, Ser. No. 162,161
Claims priority, application Fed. Rep. of Germany, Jul. 4, 1979, 2927100
Int. Cl.³ G02F 1/133

U.S. Cl. 350—345

4 Claims



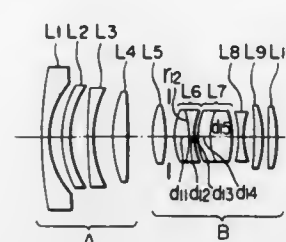
1. A device for capturing, guiding and concentrating light for coupling out of an outlet window comprising a first flexible foil of a synthetic material containing a fluorescent substance for converting ambient light into polarized fluorescent light of a first direction, a second foil of synthetic material containing a fluorescent substance for converting ambient light into polarized fluorescent light of a second direction being arranged parallel to the first foil with said first and second directions intersecting at right angles to each other, an optical active layer interposed between said first and second foil for rotating the direction of polarization by 90°, and means for forming an outlet window for the fluorescent light being disposed on an outer surface of one of said first and second foils facing away from the direction of viewing and being aligned with said optical active material.

4,364,641

WIDE ANGLE ZOOM LENS
Satoshi Mogami, Kodaira, Japan, assignor to Nippon Kogaku K.K., Japan
Filed Dec. 12, 1980, Ser. No. 215,752
Claims priority, application Japan, Dec. 28, 1979, 54-172197
Int. Cl.³ G02B 15/16

8 Claims U.S. Cl. 350—426

4 Claims



1. A zoom lens which comprises, in succession from the object side, a divergent lens group (A) and a convergent lens group (B) and whose magnification is changed by relative movement of the two groups and wherein the divergent lens group (A) comprises four lenses, i.e., in succession from the object side, three continuous negative meniscus lenses (L₁, L₂, L₃) having their respective convex surfaces facing the object side and a positive lens (L₄) having its surface of sharper curvature facing the object side and the convergent lens group (B) comprises, in succession from the object side, a single biconvex positive lens (L₅), a meniscus lens (L₆) comprising a doublet and having its convex surface facing the object side, a positive lens (L₇), a negative lens (L₈) and two continuous positive lenses (L₉, L₁₀), the zoom lens satisfying the following conditions:

- (I) $r_1 > 3.4f_w$
- (II) $0.9|f_A| < |f_{11}| < 1.3|f_A|$ ($f_{11} < 0, f_A < 0$)
- (III) $0.9f_w > d_{11} + d_{12} + d_{14} + d_{15} > 0.6f_w$
- (IV) $1.6f_w > |r_{12}| > 0.8f_w$ ($r_{12} < 0$)

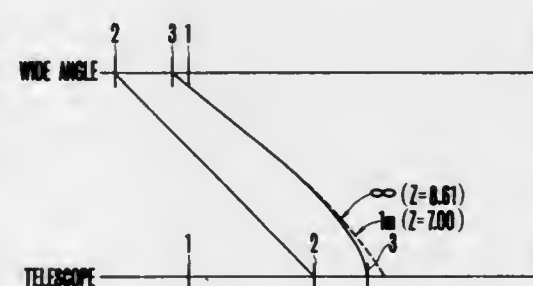
where f_A represents the focal length of the divergent lens group (A), f_{11} represents the focal length of the negative meniscus lens (L₁) which is most adjacent to the object side, r represents the curvature radii of the lens surfaces, d represents the thicknesses of the lenses and the air spaces between the lenses, the subscripts represent the order from the object side, and f_w represents the focal length of the entire system at the wide angle end.

4,364,642

ZOOM ELEMENT FOCUSABLE ZOOM LENS
Kazuo Tanaka, Tokyo, and Ryusho Hirose, Machida, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 882,115, Feb. 28, 1978, abandoned.
This application Aug. 11, 1980, Ser. No. 176,570
Claims priority, application Japan, Mar. 1, 1977, 52-21889
Int. Cl.³ G02B 7/10, 15/16

U.S. Cl. 350—429

2 Claims



1. A zoom lens comprising: first and second fixed lens groups both unmovable during zooming and during focusing, first and second movable

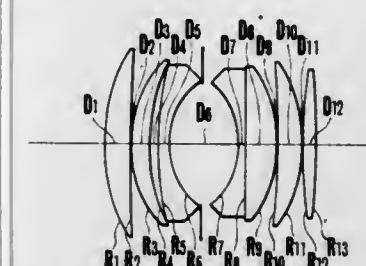
lens groups both arranged between the first fixed lens group and the second fixed lens group, said first movable lens group being movable during zooming and during focusing, and said second movable lens group being movable during zooming,
first detection means for detecting the distance which the first movable lens group departs from a predetermined standard position in a first lens condition,
second detection means for detecting the distance which the second movable lens group departs from the predetermined standard position,
third detecting means for detecting the distance which the first movable lens group departs from the predetermined standard position in a second lens condition when the first movable lens group is moved for focusing from the first lens condition, and
means for determining a movable path for the first movable lens group in response to externally caused movement of the second movable lens group.

4,364,643

LARGE APERTURE RATIO PHOTOGRAPHIC LENS
Kikuo Momiyama, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed May 28, 1980, Ser. No. 153,861
Claims priority, application Japan, May 30, 1979, 54-67047
Int. Cl.³ G02B 9/62, 11/32

U.S. Cl. 350—464

4 Claims



1. A large aperture ratio photographic lens comprising: six lens components the first component consisting of a positive meniscus lens having a convex plane toward the object, the second component a positive meniscus lens having a convex surface toward the object, the third component a negative meniscus lens having a convex surface toward the object, the fourth component a negative meniscus lens consisting of a negative and a positive lens cemented to each other and having a convex surface toward the image, the fifth component a positive meniscus lens having a convex surface toward the image and the sixth component a bi-convex lens, wherein the conditions:

- (1) $1.75 < (N_1 + N_2 + N_5 + N_6 + N_7) / 5$
- (2) $(v_1 + v_2 + v_5 + v_6 + v_7) / 5 > 45$
- (3) $1.85 < n_6$
- (4) $v_4 < 26$
- (5) $n_3 < 1.67$

$$0.34f < \frac{R_6 + |R_7|}{2} < 0.37f, R_7 < 0$$

(6)

- (7) $0.30f < D_6 < 0.35f$
- (8) $0.4/f < |\phi_4 + \phi_5| < 0.6/f, \phi_4 + \phi_5 < 0$
- (9) $0.68f < |R_{11}| < 0.73f, R_{11} < 0$

wherein:

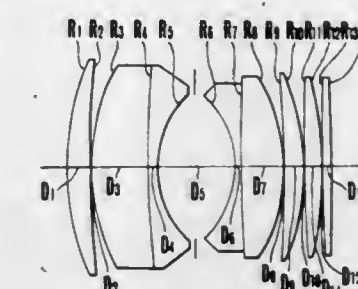
f is the focal length of the whole lens system
 R_i is the radius of curvature of the i -th surface
 D_i is the distance between the i -th and $(i+1)$ th surface
 N_i is the refractive index of the i -th lens
 v_i is the Abbe number of the i -th lens
 ϕ_i is the refracting power of the i -th surface.

4,364,644

GAUSS TYPE LARGE APERTURE PHOTOGRAPHIC OBJECTIVE
Keiji Ikemori, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 24, 1980, Ser. No. 209,493
Claims priority, application Japan, Nov. 27, 1979, 54-153258
Int. Cl.³ G02B 9/62, 13/18

U.S. Cl. 350—464

1 Claim



1. A Gauss type large aperture photographic objective comprising eight elements of which:
the first is a positive meniscus lens of convex curvature toward the front,
the second is a positive lens of convex curvature toward the front,
the third is a negative lens of concave curvature toward the rear,
the fourth is a negative lens of concave curvature toward the front,
the fifth is a positive lens of convex curvature toward the rear,
the sixth is a positive meniscus lens of convex curvature toward the rear,
the seventh is a bi-convex positive lens with its rear surface of stronger curvature, and
the eighth is a positive lens,
said second and third lenses being cemented together, said fourth and fifth lenses being cemented together, the first surface of said second lens being aspherical, its aspherical configuration being such that as the distance from the optical axis increases, the deviation of the surface from the spherical surface of paraxial radius of curvature increases toward the front, and said objective being characterized by satisfying the following conditions:

$$1.24 < \frac{D_3 + D_4}{D_6 + D_7} < 1.4 \quad (1)$$

$$1 < \frac{L}{f} < 1.1 \left(L = \sum_{i=1}^{13} D_i \right) \quad (2)$$

$$1.78 < \frac{N_1 + N_2 + N_5 + N_6 + N_7}{5} < 1.89 \quad (3)$$

$$2.17 < \frac{f}{R_5} < 2.56 \quad (4)$$

$$2.44 < \frac{f}{|R_6|} < 2.7 \quad (5)$$

$$R_6 < R_7 < R_8 \quad (6)$$

$$0.08 < n_2 - n_3 < 0.22 \quad (7)$$

$$0.1 < \frac{f}{R_4} < 0.5 \quad (8)$$

wherein

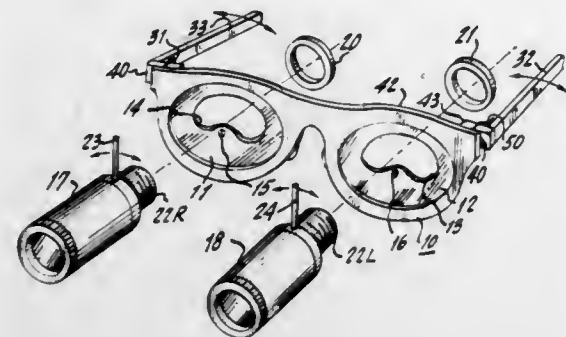
R_1, R_2, \dots, R_{14} are the radii of curvature of the various lens surface,
 D_1, D_2, \dots, D_{13} are the axial thicknesses of the various lenses and the axial separations between the successive lenses,

N1, N2, . . . , N8 are the indices of refraction of the various lenses (d-line),
 v_1, v_2, \dots, v_8 are the Abbe numbers of the various lenses,
 f is the focal length of the entire system,
 f_6, f_7 and f_8 are the focal lengths of the 6th, 7th and 8th lenses respectively.

4,364,645

ADJUSTABLE FRAME APPARATUS FOR TELESCOPIC SPECTACLES

William Feinbloom, P.O. Box 411, New Paltz, N.Y. 12561
 Filed Nov. 28, 1980, Ser. No. 211,468
 Int. Cl.³ G02C 5/14; A61B 3/10; G03B 1/58
 U.S. Cl. 351-204 10 Claims



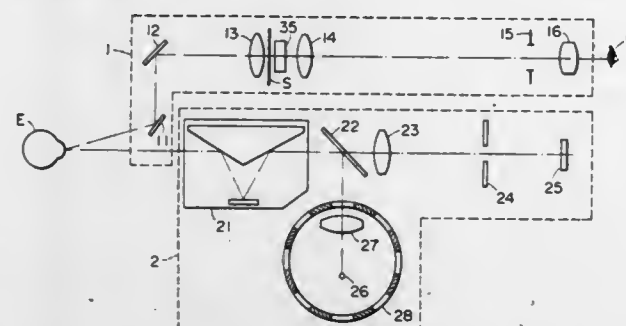
1. A trial frame for enabling prescribed measurements for spectacles used to compensate for vision defects in a handicapped user, comprising:

- (a) a spectacle frame having at least one test carrier lens emplaced in the eyepiece of said frame, said lens including an elongated aperture of a length selected to provide a given range manifesting average interpupillary distances associated with a user, and
- (b) a telescopic assembly positioned in said aperture to enable a practitioner to move said assembly within said aperture when said frame is accommodated on the face of said user to determine said interpupillary distance of said user.

4,364,646

POSITION ADJUSTING DEVICE FOR OPHTHALMOLOGIC INSTRUMENT

Masao Nohda, Yokohama, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan
 Filed Mar. 3, 1980, Ser. No. 126,846
 Claims priority, application Japan, Mar. 13, 1979, 54-31221[U]
 Int. Cl.³ A61B 3/10
 U.S. Cl. 351-208 10 Claims



1. A position adjusting device attached to an ophthalmologic measuring instrument to accurately position an eye to be examined with respect to the ophthalmologic measuring instrument, said device comprising:

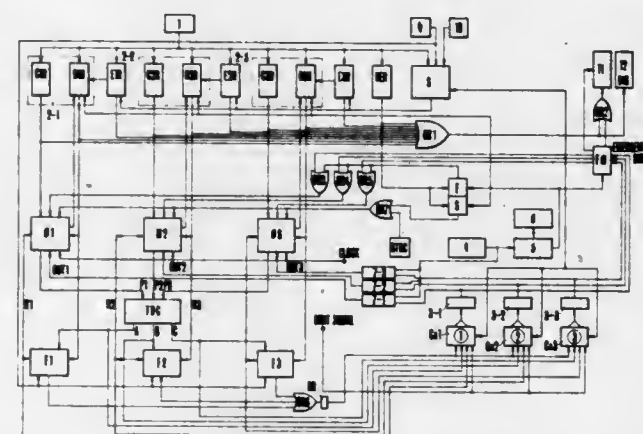
- (a) first projection means for projecting a predetermined projection pattern upon the eye to be examined;
- (b) an objective lens group for forming therethrough the reflected image of said projection pattern by the cornea of said eye to be examined;

- (c) a field stop provided at the image forming position of said objective lens group;
 - (d) a light-intercepting member provided near said objective lens group and having two openings outside of the optic axis of said objective lens group;
 - (e) a reflecting member obliquely disposed on the optic axis of said objective lens group rearwardly of and near said light-intercepting member;
 - (f) second projection means for projecting a standard chart image onto the position of said field stop through the reflection on said reflecting member so as to coincide the center of the standard chart image with the optical axis of said objective lens; and
 - (g) an eyepiece for observing the image of said projection pattern and the image of said standard chart both formed at the position of said field stop;
- whereby the distance adjustment between said ophthalmologic measuring instrument and said eye to be examined is achieved by moving said measuring instrument relative to said eye so that dual images resulting from light rays passing through said two openings of said light-intercepting member respectively coincide with each other, and whereby the position adjustment of said ophthalmologic measuring instrument and said eye to be examined may be achieved by moving said measuring instrument relative to said eye so that the image of said projection pattern and the image of said standard chart are formed in a predetermined positional relation at the position of said field stop.

4,364,647

CONTROL DEVICE FOR A CAMERA

Masaharu Kawamura, Hino; Nobuaki Sakurada, Yokohama; Nobuhiko Shinoda, Tokyo; Tadashi Ito, Yokohama; Fumio Ito, Yokohama, and Hiroyasu Murakami, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
 Continuation of Ser. No. 772,316, Feb. 25, 1977, abandoned.
 This application Dec. 18, 1978, Ser. No. 970,237
 Claims priority, application Japan, Mar. 4, 1976, 51-23500
 Int. Cl.³ G03B 1/18, 17/24, 17/40
 U.S. Cl. 354-23 D 21 Claims



1. A photographic system for a camera comprising:
 (A) a control device having:

- (a) an information memory circuit for storing information for determining a time interval between camera release operations and for storing information of a number of release operations;
- (b) a control circuit connected to the memory circuit, for forming a release signal at a certain determined time interval in accordance with the time interval information stored in the memory circuit, wherein said control circuit controls the number of release operations to be made in accordance with the number of the release signals produced from the control circuit and the release operation number information stored in the memory circuit;

said camera performing a shutter release operation and the

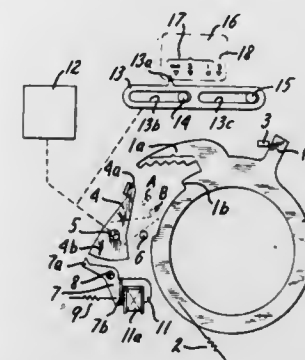
start of an exposure operation in response to the release signal; and

- (B) a film winding device for winding a film after exposure operation is terminated.

4,364,648

SAFETY DEVICE OF AUTO-FOCUSING POINT ADJUSTING CAMERA

Kiyoshi Kitai, and Yuzuru Takazawa, both of Chiba, Japan, assignors to Seiko Koki Kabushiki Kaisha, Japan
 Filed Dec. 28, 1978, Ser. No. 973,808
 Claims priority, application Japan, Dec. 29, 1977, 52-159269
 Int. Cl.³ G03B 7/08
 U.S. Cl. 354-25 6 Claims

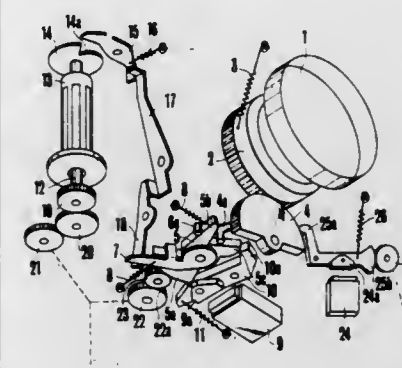


4. In an automatic focusing device for a camera lens having a movable focus adjustment member for focusing the lens and having a first cam thereon for defining a plurality of focusing positions, and latching means coactive with the first cam to select a focusing position in response to the receipt of a signal indicating a coincident auto-focusing point, the improvement comprising: a safety device for the automatic focusing device including a second cam on the focus adjustment member defining a pan focusing position corresponding to a predetermined pan focusing distance between zero and infinity; and wherein the latching means includes means coactive with the second cam when the signal indicating a coincident auto-focusing point is not produced to effect positioning of said focus adjustment member in the predetermined pan focusing position.

4,364,649

FILM WINDING AND LENS CONTROL MECHANISM FOR AUTOMATICALLY FOCUSING CAMERA

Toshiharu Mamiya, Kawasaki; Tateo Yamada, Yokohama; Michio Hirohata, Inagi; Yukio Ogawa, and Hiroyuki Kimura, both of Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
 Filed Nov. 3, 1980, Ser. No. 203,479
 Claims priority, application Japan, Nov. 1, 1979, 54-142304
 Int. Cl.³ G03B 3/00, 17/14
 U.S. Cl. 354-25 11 Claims



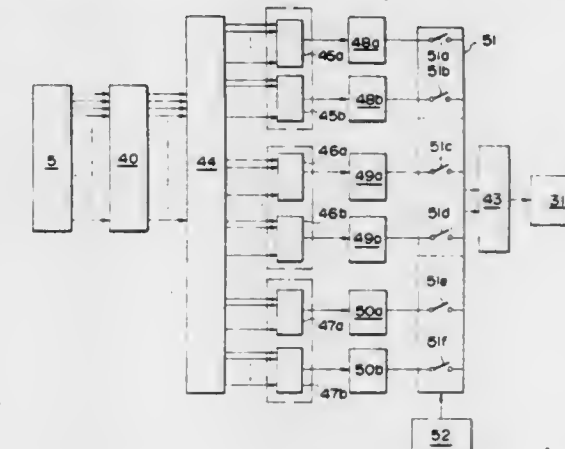
1. A winding stop release device for the automatic focusing camera provided with an electromagnetically driven shutter comprising:

- a photographing lens, said lens having a distance adjusting ring;
- an urging means for driving the distance adjusting ring from the infinite position to the very near position respectively from the very near position to the infinite position;
- a winding member;
- a winding stop member for stopping the winding operation of the winding member, said member being brought into the winding stop position at the termination of the winding operation of the winding member;
- a winding stop release member for moving the winding stop member from the winding stop position to the winding stop release position;
- a control member inserted between the winding member and the charge member, said member being movable between the first position in which the winding stop release member is operated, while the charge member is released from the holding of the charge state to the second position in which the winding stop release member is made non-operative, whereby during the movement from the first position to the second position the winding power of the winding member is transferred to the charge member; and
- a magnet for keeping the control member in the second position, said magnet enabling the control member to move from the second position to the first position by means of controlling the current supply.

4,364,650

EXPOSURE CONTROL METHOD AND DEVICE

Takaaki Terashita; Kazuo Shiota, and Kenji Nakauchi, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
 Filed Oct. 3, 1980, Ser. No. 193,878
 Claims priority, application Japan, Oct. 5, 1979, 54-128626
 Int. Cl.³ G03B 7/08
 U.S. Cl. 354-31 3 Claims



1. A method of controlling exposure based on the brightness of an object measured by light measuring means comprising steps of

- arranging a number of light measuring elements in a light measuring area for measuring the brightness of the object the image of which is focused on said light measuring area, said light measuring elements outputting a signal representing the brightness measured thereby;
- dividing said light measuring area into n-number of zones of a desired pattern, each zone including at least one of said light measuring elements;
- obtaining an average brightness B_{mi} (i: address of the zone) of said zone by calculation based on the output signals of said light measuring elements;
- obtaining the object brightness B by calculation based on said average brightness B_{mi} by use of a formula of

$$B = \sum_{i=1}^n K_{i+1} \cdot B_{mi}$$

where K^1 and K_{i+1} are coefficients, controlling exposure based on the object of brightness B ; and dividing said light measuring area into different patterns of zones for different positions of the optical instrument to which the method is applied.

4,364,651

EXPOSURE ASCERTAINING DEVICE FOR CAMERAS
Fumiaki Hiraike, Hachioji, Japan, assignor to Konishiroku Photo Industry Co., Ltd., Japan

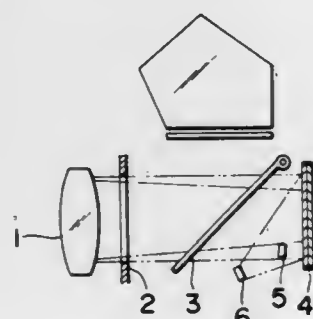
Filed Apr. 7, 1981, Ser. No. 251,750

Claims priority, application Japan, Apr. 15, 1980, 55/48730; Apr. 15, 1980, 55/48731

Int. Cl.³ G03B 7/00

U.S. Cl. 354—31

2 Claims



1. In a camera having a plurality of movable, sequentially operable parts controlling the exposure of a film, the combination of a first photoelectric element positioned outside of the normal optical path of incident light impinging upon the surface of a film but responsive to that part of the incident light advancing toward a film-surrounding region of the film-set side of the camera, a second photoelectric element positioned outside of the normal optical path of incident light impinging upon the surface of a film, but responsive to the light reflected from the film-surrounding region of the film-set side of the camera, whereby the outputs of said photoelectric elements are dependent upon the sequential operation of the movable camera parts during exposure of the film, means measuring the outputs of said photoelectric elements, and means responsive to said output measuring means for ascertaining the movement of said movable parts.

4,364,652

AUTOMATIC FOCUSING CAMERA

Hiroshi Iwata, Nara, and Wataru Hasegawa, Sakai, both of Japan, assignors to West Electric Co., Ltd., Osaka, Japan

Filed May 4, 1981, Ser. No. 260,112

Claims priority, application Japan, May 13, 1980, 55-63618

Int. Cl.³ G03B 13/22, 17/12

U.S. Cl. 354—197

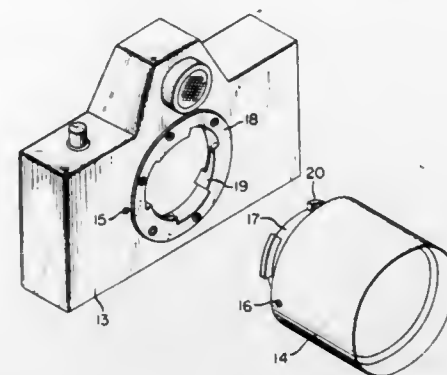
5 Claims

1. An ultrasonic transmitter for use in an ultrasonic ranging system for a camera capable of accepting various interchangeable lens assemblies having corresponding various angles of view, comprising:

an ultrasonic generator, the directivity of which varies with the ultrasonic frequency generated thereby;
a camera mount for receiving a selected one of said lens assemblies;

frequency determining means operatively associated with said camera mount and adapted to be coupled to said selected one of said lens assemblies when the selected assembly is received by said camera mount, for establish-

ing a frequency control parameter corresponding to the angle of view of said selected lens assembly; and ultrasonic frequency control means coupled to said ultrasonic generator and responsive to said frequency control



parameter for setting the ultrasonic frequency of said generator in accordance with the angle of view of said selected lens assembly, so that the directivity of said ultrasonic generator corresponds to the angle of view of said selected lens assembly.

4,364,653

FILM SUCTION MECHANISM FOR A CAMERA

Katumi Terada, Hachioji, Japan, assignor to Olympus Optical Company Ltd., Japan

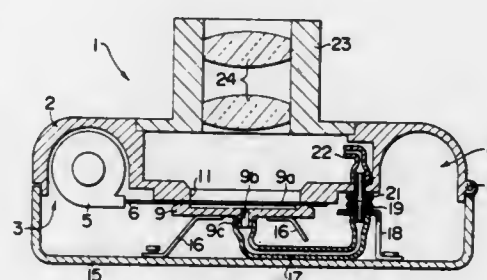
Filed Sep. 8, 1981, Ser. No. 300,203

Claims priority, application Japan, Nov. 8, 1980, 55-160203[U]

Int. Cl.³ G03B 1/52

U.S. Cl. 354—203

13 Claims



1. A film suction mechanism for a camera, comprising a suction unit disposed with a camera body, a first suction path communicating with said suction unit and formed in said camera body, a film pressure plate mounted on a rear lid of said camera body and having film suction openings formed therein, and a second suction path formed in said rear lid and communicating with said film suction openings, said second suction path being arranged so that it is connected to said first suction path in response to closure of said rear lid, thereby establishing a fluid communication between the suction unit and said film suction openings.

4,364,654

ELECTROMAGNETIC RELEASE SHUTTER

Michio Senuma, Tokyo; Fumio Shimada, Kawasaki; Yoshihiro Shigeta, Tokyo; Syuichiro Saito; Hiroshi Aizawa, both of Kawasaki; Takehiko Ohniwa, Chichibu, all of Japan, and Canon Denshi Kabushiki Kaisha, 03, Saitama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo

Filed Jul. 1, 1981, Ser. No. 279,258

Claims priority, application Japan, Jul. 7, 1980, 55-92888

Int. Cl.³ G03B 9/08, 9/40

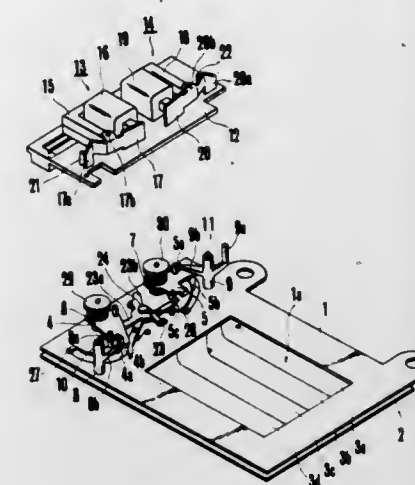
U.S. Cl. 354—234

10 Claims

1. An electromagnetic release shutter for a camera having shutter blades locked by locking members in a charged state and being arranged to expose a light-sensitive face to light by

unlocking the shutter blades through the actions of electromagnets, comprising:

- (a) first locking members, said members being capable of locking shutter blades in a charged state;
- (b) a first releasing member, said member being capable of releasing said shutter blades from their states of being locked by said first locking members;
- (c) second locking members, said members being capable of locking said shutter blades in a charged state; and
- (d) second releasing members arranged in combination with electromagnets, said members being capable of releasing said



shutter blades by electromagnetic forces from their states of being locked by the second locking members to permit the shutter blades to travel, said second releasing members being arranged to be actuated after the shutter blades are released by the first releasing member from their states of being locked by the first locking members; said second releasing members being armatures of electromagnets, said armatures being arranged to be driven by the electromagnets and to hit said second locking members after they have been displaced by the electromagnets to predetermined extents.

4,364,655

PHOTOGRAPHIC DARKROOM CONTROL SYSTEM WITH TIMING MEANS

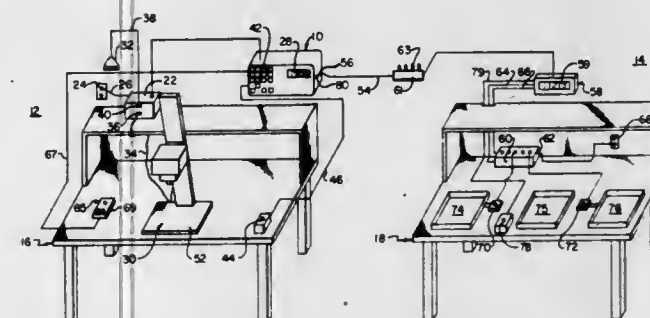
Russell A. Parker, 162 Locust St., Holliston, Mass. 01746

Filed Feb. 19, 1981, Ser. No. 236,055

Int. Cl.³ G03D 3/00, 3/02

U.S. Cl. 354—299

30 Claims



1. A process timing and controlling device system for use in photographic darkrooms involving multiple timing and control process steps comprising,

a control console, programmable in at least one channel to automatically run and step through substantially all timing and control process steps,
step timing means in at least one channel for counting down time remaining in a particular process step,
step timing indicator means in at least one channel for indicating time remaining in a particular process step,
means defining a power supply connecting a source of power with said console and said timing means which

when activated supplies power to said console and timing means, means for initiating a program step in at least one channel, switching means in at least one channel for manually stepping through steps independently of the programmed time including means for interrupting a programmed timing step during automatic running thereof and means for advancing from the interrupted timing step to the subsequent program step, a plurality of relays for operating programmed timing and control functions, and relay driving means programmed to select an appropriate output to activate each said relay.

4,364,656

ELECTROPHOTOGRAPHIC COPYING MACHINE
Nobuyuki Yanagawa, Chigasaki, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

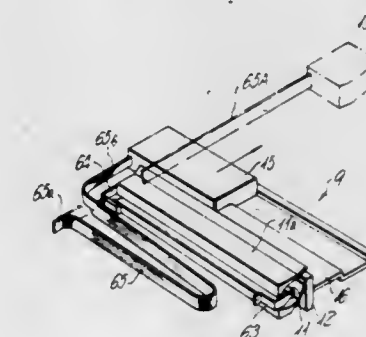
Filed Sep. 11, 1980, Ser. No. 186,276

Claims priority, application Japan, Sep. 14, 1979, 54-118091

Int. Cl.³ G03G 15/00

U.S. Cl. 355—3 CH

20 Claims



1. In an electrophotographic copying machine including a photosensitive member in the form of an endless belt having a portion which remains flat when the belt is at rest, a carriage disposed for reciprocating motion in parallel relationship with the flat portion of the photosensitive member, support means for supporting the carriage in a reciprocable manner, drive means for causing a reciprocating motion of the carriage, a charger mounted on the carriage for charging the photosensitive member by a corona discharge, an illumination unit mounted on the carriage for illuminating an original located in place, and a light transmitting device for transmitting an image of the illuminated original onto the photosensitive member; the improvement including a high tension generator mounted on the carriage for supplying a high tension to the charger and conductor means for supplying a relatively low voltage to said high tension generator.

4,364,657

MULTIPLE-BLADE PICKOFF FOR ELECTROPHOTOGRAPHIC COPIER

Ben Zion Landa, Alberta, Canada, assignor to Savin Corporation, Valhalla, N.Y.

Filed Sep. 24, 1980, Ser. No. 190,351

Int. Cl.³ G03G 15/00

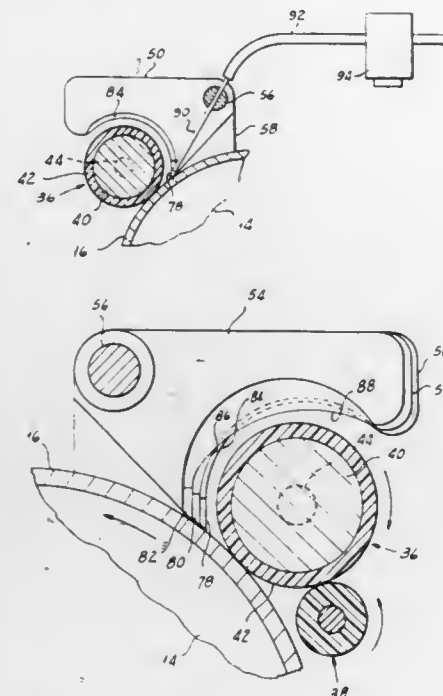
U.S. Cl. 355—3 SH

7 Claims

1. In an electrophotographic copier having a photoconductor, means for forming a developed toner image on said photoconductor, and means for moving said photoconductor past said image-forming means, the improvement comprising a roller, means for positioning said roller across said photoconductor to form a nip, means for feeding a carrier sheet to said nip with a predetermined leading edge orientation to transfer said developed image to said sheet, means for directing a jet of gas against a leading edge portion of said carrier sheet as it emerges from said nip to lift the adjacent sheet portion from said photoconductor, a plurality of pickoff elements, and

means for positioning said pickoff elements at transversely spaced locations across said photoconductor at progressively retarded positions following said roller sequentially to receive the leading edge of said carrier sheet, whereby said leading edge loses said predetermined orientation, said elements having respective guide surfaces defining an arcuate path around said roller of such progressively changing curvature across said photoconductor as to restore said predetermined leading edge orientation.

6. In an electrophotographic copier having a photoconductor, means for forming a developed toner image on said photo-



conductor, means for supplying a carrier sheet to said photoconductor, and means for moving said photoconductor past said image-forming means and said sheet-supplying means, the improvement comprising means for directing a jet of gas against an edge portion of said carrier sheet to lift the adjacent sheet portion from said photoconductor, a roller, and means for positioning said roller in engagement with said sheet at such a location spaced approximately one centimeter from said edge portion as to entrain gas in the region beneath said adjacent sheet portion and substantially prevent escape of gas therefrom to cause the pressure of said gas to lift said sheet portion from said photoconductor.

4,364,658

SCANNING ILLUMINATOR

Susumu Seto, Odawara; Mitsuhiro Tokuhara, Chigasaki; Yukio Takemura, Kawasaki; Yu Yamada, Kokubunji, and Takeshi Kuwayama, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 13, 1981, Ser. No. 282,914

Claims priority, application Japan, Jul. 25, 1980, 55-102583

Int. Cl.³ G03G 15/28

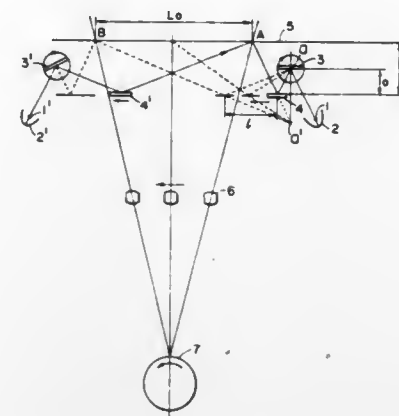
U.S. Cl. 355—8

7 Claims

1. A scanning illuminator comprising:

- a first source of light fixed adjacent to one end of an original to be copied;
- a first rotary mirror pivotable around a reflective point for reflecting the incident light from said first light source;
- a first translating mirror for receiving the light beam from said first rotary mirror, said first translating mirror being moved substantially parallel to the original in synchronism with said first rotary mirror for illuminating said original in a slit-shape;
- a second source of light fixed adjacent to the opposite end of said original;
- a second rotary mirror pivotable around a reflective point for reflecting the incident light thereon from said second light source; and
- a second translating mirror for receiving the light beam from

said second rotary mirror, said second translating mirror being moved substantially parallel to said original in synchronism with said second rotary mirror for similarly



illuminating the same slit-shaped area on said original as has been illuminated by the light beam from said first translating mirror.

4,364,659

CONTROLLING TONER CONCENTRATION OF DRY DEVELOPING AGENT IN ELECTROPHOTOGRAPHY

Nobutaka Noda, Kawasaki, Japan, assignor to Katsuragawa Electric Co., Ltd., Japan

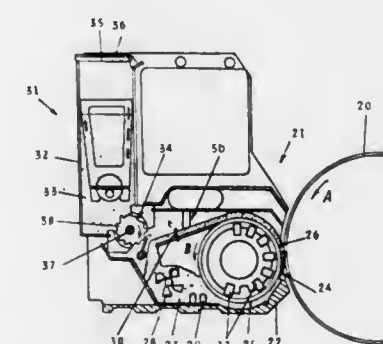
Filed May 14, 1980, Ser. No. 149,715

Claims priority, application Japan, Jun. 1, 1979, 54-67535

Int. Cl.³ G03G 15/09

U.S. Cl. 355—14 D

7 Claims



1. A device for controlling toner concentration of a developing agent used in an electrophotographic apparatus wherein an electrostatic latent image is developed by a developing agent including toner and magnetizable carrier comprising:

- (a) storage means for storing the developing agent;
- (b) toner supply means for supplying a toner into said storage means;
- (c) a magnet-brush sleeve to convey the developing agent for developing the latent image;
- (d) an inclined scraping member for scraping from said magnet-brush sleeve the developing agent which has participated in the development of the image, so that the developing agent flows along an upper surface of said scraping member;
- (e) detecting means spaced by a predetermined distance from said upper surface of said scraping member, said detecting means detecting the thickness of the flow of the developing agent dependent on whether or not said developing agent contacts said detecting means, and
- (f) means for metering toner from said toner supply means to said storage means when the developing agent is not in contact with said detecting means.

4,364,660

APPARATUS FOR AND METHOD OF CLEANING A PHOTO-SENSITIVE BODY WITH CLEANING BLADE BROUGHT GRADUALLY INTO CONTACT WITH BODY

Goro Oda, Tokyo, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

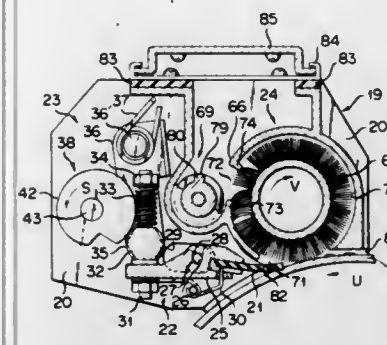
Filed May 22, 1980, Ser. No. 152,313

Claims priority, application Japan, May 29, 1979, 54-65546; May 29, 1979, 54-65547; May 29, 1979, 54-65548

Int. Cl.³ G03G 21/00

U.S. Cl. 355—15

9 Claims



1. An apparatus for cleaning a photo-sensitive body, comprising:

- a cleaning blade contractable with respect to the surface of the photo-sensitive body;
- a drive mechanism for moving said cleaning blade to be contacted with the surface of said photo-sensitive body before the start of the operation of said photo-sensitive body and to subsequently cause the contact pressure applied to the surface of said photo-sensitive body by said cleaning blade in contact therewith to be gradually increased in an initial stage of the operation of said photo-sensitive body; and
- a blade holding mechanism holding said cleaning blade and capable of being driven by said drive mechanism to move said cleaning blade with respect to the surface of said photo-sensitive body;
- said blade holding mechanism including a support body carrying said cleaning blade mounted thereon, a biasing member biasing said support body in the direction away from the surface of said photo-sensitive body, and a roller rotatably provided on said support body,
- said drive mechanism including a cam mechanism for moving said cleaning blade toward the surface of said photo-sensitive body against the biasing force of said biasing member, said cam mechanism including a cam member having a cam surface, said roller being capable of being brought into contact with said cam surface by the biasing force of said biasing member, said cam surface having a first portion serving to separate said cleaning blade from the surface of said photo-sensitive body, a second portion serving to bring said cleaning blade into contact with the surface of said photo-sensitive body and a third portion serving to gradually increase the contact pressure applied to the surface of said photo-sensitive body by said cleaning blade in contact therewith.

4,364,661

PROCESS AND APPARATUS FOR TRANSFERRING DEVELOPED ELECTROSTATIC IMAGES TO A CARRIER SHEET, IMPROVED CARRIER SHEET FOR USE IN THE PROCESS AND METHOD OF MAKING THE SAME

Benzion Landa, Edmonton, Canada, assignor to Savin Corporation, Valhalla, N.Y.

Filed May 13, 1980, Ser. No. 149,539

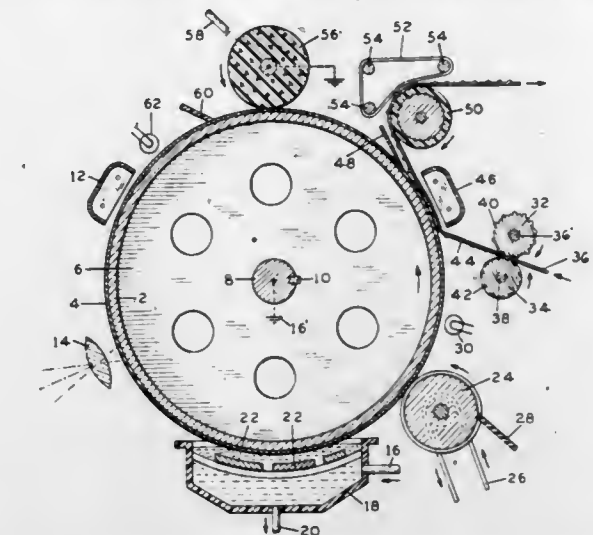
Int. Cl.³ G03G 15/00

U.S. Cl. 355—3 SH

9 Claims

1. A method of electrophotography including the steps of forming a latent electrostatic image on a photoconductive

surface, developing the image on said surface with charged toner particles, providing a carrier sheet having a generally smooth surface with dispersed spacing means formed in situ on said surface, said spacing means having a height appreciably greater than the height of said developed image, positioning



said spacing means in contact with said photoconductive surface to form a gap between said carrier sheet and the surface of said developed image, and then applying a potential of a polarity opposite to the charge of said toner particles to the back of said carrier sheet to transfer the developed image across said gap to said carrier sheet.

4,364,662

DUAL MODE CAMERA EXPOSURE METERS

Yoshio Yuasa, Kawachinagano; Toru Kisanuki, Toyokawa, and Susumu Shirai, Toyohashi, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

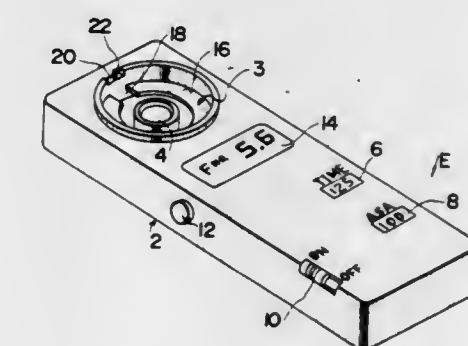
Filed May 16, 1980, Ser. No. 150,643

Claims priority, application Japan, Jun. 5, 1979, 54-76928[U]

Int. Cl.³ G01J 1/44

U.S. Cl. 356—225

8 Claims



1. An exposure meter usable as an incident light meter and as a reflected light meter by selective use of an incident-light measuring attachment and a reflected-light measuring attachment, comprising:

- attachment receiving means for selectively receiving said incident-light measuring attachment and said reflected-light measuring attachment;
- means for receiving light passed through the attachment mounted on said attachment receiving means to give an output in response to intensity of received light;
- means for processing at least the output of said light receiving means to obtain exposure information;
- means for indicating exposure information in response to the information obtained by said processing means;
- means for generating signals in dependence upon the attachment mounted on said attachment receiving means; and
- means for selecting between indication by incident light measuring and indication by reflected light measuring in

response to the signals generated by said means for generating;
whereby, the exposure information for incident light measuring is indicated when said incident-light measuring attachment is mounted on said attachment receiving means, and the exposure information by reflected light measuring is indicated when said reflected-light measuring attachment is mounted on said attachment receiving means.

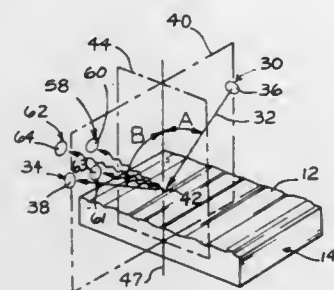
4,364,663

SURFACE ROUGHNESS GAUGE AND METHOD
Chester S. Gardner, Champaign, and William E. Streight, East Peoria, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Nov. 17, 1980, Ser. No. 262,057
Int. Cl.³ G01B 11/30; G01N 21/55

U.S. Cl. 356—371

18 Claims



1. A surface roughness gauge (10) comprising:
first means (30) for directing a light beam (32) directly upon a surface (12) of an article (14) to be measured;
second means (34) for providing a first signal proportional to the specular light reflected from the surface (12), the first and second means (30,34) defining a common plane (40);
third means (58) for providing a second signal proportional to the diffused light reflected from the surface (12) in the common plane (40);
fourth means (61) for providing a third signal proportional to the diffused light reflected from the surface (12) to the side of the common plane (40); and
fifth means (24) for receiving and processing the first, second and third signals and displaying a reading (26) directly corresponding to surface roughness in a linear unit of measurement.

4,364,664

DUAL WORM EXTRUDER HAVING WEAR RESISTANT BORE WALLS

Friedrich Theysohn, Hanover, Fed. Rep. of Germany, assignor to Firma Friedrich Theysohn, Langenhagen, Fed. Rep. of Germany

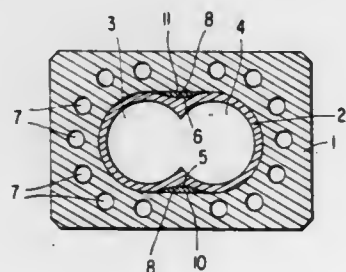
Filed Mar. 12, 1981, Ser. No. 243,149

Claims priority, application Fed. Rep. of Germany, Mar. 20, 1980, 3010659

Int. Cl.³ A21C 1/06; B30B 3/04

U.S. Cl. 366—84

6 Claims



1. In a dual worm extruder including a worm housing having an inner wall defining a cavity; and a wear resistant insert accommodated in said cavity; said insert having two parallel

extruder bores defining, when viewed together in cross section, passages of circular areas having an overlap; said insert having an outer surface formed of first surface parts facing first portions of said inner wall and being situated on opposite sides of said insert in zones adjacent said overlap and second surface parts facing second portions of said inner wall and being situated peripherally adjacent said first surface parts of said insert; the improvement wherein said first surface parts are peripherally concave, whereby the cross-sectional outline of said insert has the shape of an hourglass; further wherein said first portions of said inner wall define a clearance with respective said first surface parts of said insert and further wherein a flowable metal fills at least one said clearance.

4,364,665

STORAGE AND MIXING SILO FOR BULK MATERIAL
Norbert Ahrens, Oelde, and Heinrich Klockenbusch, Ahlen, both of Fed. Rep. of Germany, assignors to Krupp Polysius AG, Beckum, Fed. Rep. of Germany

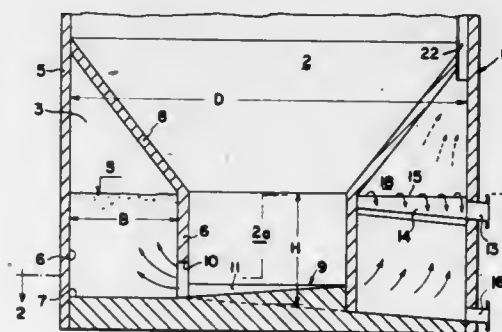
Filed Dec. 8, 1980, Ser. No. 213,811

Claims priority, application Fed. Rep. of Germany, Dec. 11, 1979, 2949791

Int. Cl.³ B01F 13/02

U.S. Cl. 366—106

22 Claims



1. A storage and mixing silo for bulk material comprising an upstanding, cylindrical body having walls defining a storage compartment; radially inner and outer boundary walls and a base at the lower end of said body defining a mixing compartment having a lower annular chamber, said chamber and said storage compartment being in communication with one another via a material inlet opening in said inner boundary wall, and said outer boundary wall having at least one material outlet opening circumferentially spaced from said inlet opening; an overflow chute extending radially between said inner and outer boundary walls adjacent and in communication with said material outlet opening, said chute having upstanding overflow edges operable to determine the level of material in said mixing compartment; and air permeable means in said chamber extending circumferentially from said inlet opening to said outlet opening and forming a plurality of independently aeratable circumferentially extending zones, said annular chamber having a radial width of between about 0.25 and 0.37 times the diameter of said body and a height of between about 0.7 and 1.4 times said radial width.

4,364,666

MACHINE FOR MIXING AND COOLING BATCHES OF DRY POWDER INGREDIENTS AND WATER

Richard M. Keyes, Lake Somerset, Ill., assignor to Beatrice Foods Co., Chicago, Ill.

Filed Oct. 3, 1980, Ser. No. 193,758

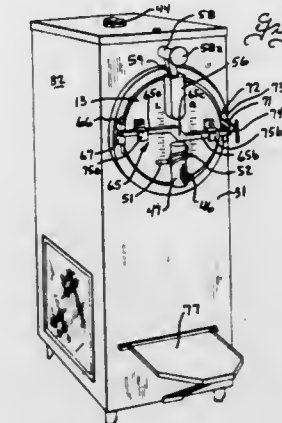
Int. Cl.³ B01F 7/08, 15/00

U.S. Cl. 366—142

2 Claims

1. A machine for mixing and cooling batches of dry powder ingredients and water comprising, a horizontal mixing cylinder open at one end, a rotary mixer in the cylinder, drive means extending through the other end of the cylinder for driving the

rotary mixer, refrigerating means for cooling the walls of the cylinder, a door for closing said one end of the cylinder, and means for securing said door in a cylinder closing position, the cylinder having a dry powder ingredient inlet passage communicating with the cylinder at a location spaced from said one end, said door having a mix dispensing outlet communicating with the lower portion of the cylinder and a dispensing valve for controlling flow through the dispensing outlet, said door having a water inlet communicating with the upper portion of the cylinder and funnel means at the outside of the door and extending upwardly to a level above the cylinder; said door being formed of a transparent plastic material and having liquid level graduations thereon correlated with the volume at different levels in the cylinder, water supply means including a



selectively operable water control valve mounted on the machine above the door and having a water delivery outlet at a location to deliver water to said funnel means on the door when the water control valve is opened, said means for securing the said door in a cylinder closing position including a retainer bar dimensioned to span the door and having means for securing the ends to the machine at opposite sides of the door, the retainer bar having first and second generally horizontal bar end portions interconnected adjacent the center of the door and vertically offset from each other a distance greater than the vertical height of the end portions so that when the liquid level is obscured at one side of the door by one bar end portion, the liquid level can still be viewed at the other side of the door.

4,364,667

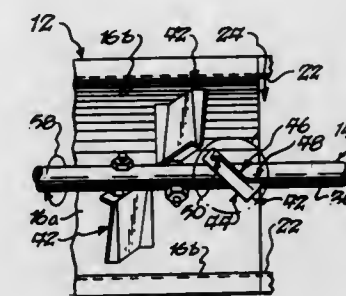
MIXING AND TRANSPORT CONVEYOR
Ralph E. Reiner, 6474 Chestnut La., Orchard Park, N.Y. 14127

Filed Feb. 6, 1981, Ser. No. 231,965

Int. Cl.³ B01F 7/04

U.S. Cl. 366—325

14 Claims



1. A conveyor for mixing and transporting a viscous material, including finely divided fruit and a pressing aid, to provide a charge of material to a press, said conveyor comprising:
a horizontally disposed trough having an inlet end for receiving material to be mixed and an outlet end for discharging material after mixing thereof, and a driven mixing/transport conveyor device extending lengthwise within said trough for simultaneously mixing said material and transporting same for discharge at said outlet end, said

trough including a mixing section of generally U-shaped cross-section, a first end plate joined to an end edge of said section and cooperating therewith to define said inlet end, a second end plate fixed in a spaced relationship to an opposite end edge of said section by a pair of side plates to define said outlet end, said opposite end edge, said second end plate and said side plates cooperating to bound a discharge opening permitting gravity discharge of material from said trough during operation of said conveyor device to mix and transport said material, said discharge opening having a width essentially co-extensive with the widthwise dimension of said section and a length, as measured between said opposite end edge and said second end plate sufficient to permit unobstructed discharge of said material from said trough, said conveyor device including a drive shaft extending lengthwise within said trough and journaled for rotation adjacent its opposite ends by said first and second end plates and a plurality of paddles fixed to said shaft in spaced relationship at least throughout the length of said mixing section, each of said paddles including a transport flange portion and a pair of mixing flange portions, said transport flange portion extending generally radially of the axis of said shaft, having a surface thereof leading in the direction of shaft rotation arranged at an obtuse angle relative to said axis and a pair of opposite side edges arranged in a leading and trailing relationship relative to said outlet and inlet ends of said trough, respectively, said mixing flange portions being joined one to each of said opposite side edges and extending in opposite directions therefrom relatively towards said outlet and inlet ends, respectively, said mixing flange portions lying within planes disposed essentially parallel to said axis.

4,364,668

TIMEPIECE WITH SECONDS DISPLAY ON DEMAND
Pierre-Luc Gagnebin, Bienne, and Pierre Ginalschi, St-Maurice, both of Switzerland, assignors to Societe Suisse pour l'Industrie Horlogere, Management Services S.A., Bienne, Switzerland

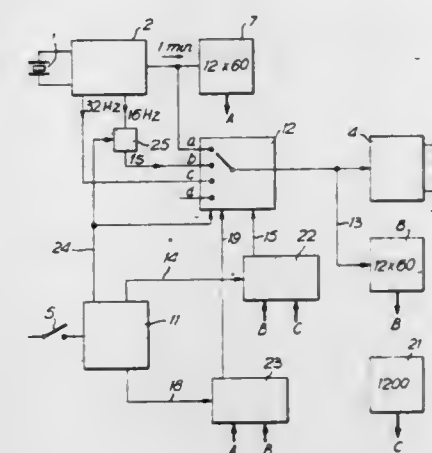
Filed Oct. 7, 1980, Ser. No. 195,217

Claims priority, application France, Oct. 9, 1979, 79 25528

Int. Cl.³ G04B 19/04; G04F 8/00

U.S. Cl. 368—80

11 Claims



1. A timepiece comprising:
a time-standard means for providing a time standard signal of a first frequency;
a divider circuit coupled to said time standard means for receiving said time-standard signal therefrom and producing additional time signals of related frequencies;
at least one electric motor means to be driven responsive to said additional time signals;
a display means including an hours hand and a minutes hand driven by said motor means and a stationary dial having indicia thereon for indicating a noon position and the time of the day in hours and minutes;

an electric-circuit means coupled between said divider circuit and said electric motor means for utilizing said additional time signals to drive said motor means to normally indicate the time of day on said dial with said hands, but said electronic-circuit means including a movable manual control element, and having the additional function of utilizing said additional time signals: to automatically drive said motor means to move said hands to, and stop said hands at, the noon position in response to a first movement of said manual control element; to drive the minutes and hours hands from the noon position at rates at which they indicate seconds and minutes on the dial in response to a second movement of said manual control element; to stop the movement of the hands in response to a third movement of said manual control element; to reposition the hands at the actual time of day in response to a fourth movement of the manual control element; and to thereafter drive said motor means to indicate the time of day on said dial with said hands.

4,364,669

CHRONOGRAPHIC WATCH

Marcel Thoenig, Granges, and Jean-Pierre Wattenhofer, Neuchâtel, both of Switzerland, assignors to Ebauches, S.A., Switzerland

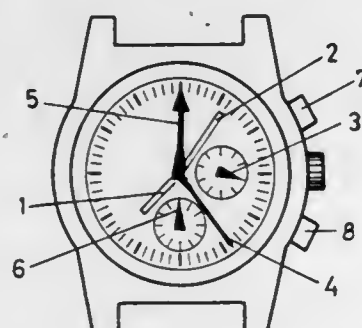
Filed Jan. 19, 1981, Ser. No. 226,182

Claims priority, application Switzerland, Jan. 21, 1980, 437/80

Int. Cl.³ G04F 10/00; G04B 19/04

U.S. Cl. 368—111

14 Claims



1. A chronographic watch, comprising a timepiece mechanism and a stopwatch mechanism, these mechanisms comprising a first set of gear-driven hands for indicating the hour, minute and second; a second set of gear-driven hands for indicating the chronometric hour, the chronometric minute and the chronometric second; a frequency source delivering a low frequency signal, an intermediate frequency signal and a high frequency signal; a first motor supplied with the low frequency signal and driving the first set of hands so that they perform the function of timepiece hands; a second motor driving the second set of hands; a circuit including means responsive to an external operation to start and stop the stopwatch mechanism by supplying and ceasing to supply the second motor with pulses at the intermediate frequency, means for storing the fraction of a second of chronometric time in excess of the time indicated by the second hand of the second set of hands and control means responsive to the stopping of the stopwatch mechanism for supplying to the first motor a number of pulses of the said high frequency corresponding to the said fraction in such a manner that the said fraction will be indicated by means of the second hand of the first set of hands; and means for resetting the second set of hands to zero in response to an external operation.

4,364,670

ELECTROPHORETIC ELAPSED TIME INDICATOR

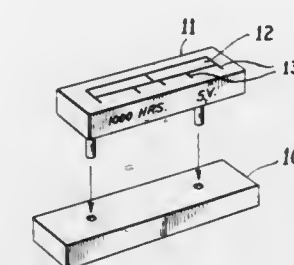
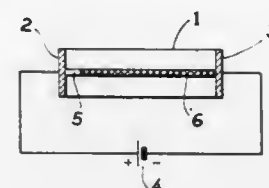
Roger P. White, Yonkers, N.Y., assignor to North American Philips Corporation, New York, N.Y.

Filed Nov. 28, 1979, Ser. No. 97,997

Int. Cl.³ G04C 17/60

U.S. Cl. 368—114

6 Claims



1. An electrophoretic elapsed time indicator comprising an electrophoretic suspension including colloidal particles suspended in a liquid, said particles providing a contrasting color to said liquid, means including a small inside diameter transparent tube for containing said electrophoretic suspension, and means including respective electrodes at each end of said tube for applying a DC voltage across said containing means and moving said particles from one end of said tube to the other end of said tube under said DC voltage in a predetermined time period for indicating said time period.

4,364,671

ELECTRONIC WATCH WITH DISPLAY BY DISCS

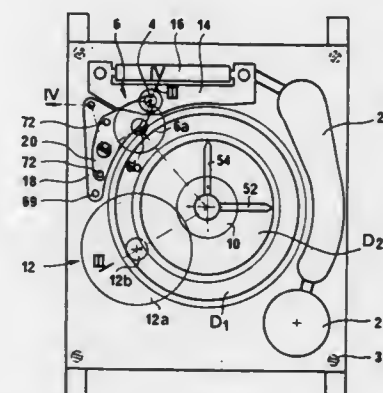
Josef Fluck, Granges, Switzerland, assignor to Ebauches, S.A., Switzerland

Filed Oct. 14, 1980, Ser. No. 196,774

Int. Cl.³ G04B 19/04, 33/06

U.S. Cl. 368—221

8 Claims



1. An electronic watch comprising:
a casing having a front wall provided with a glass, a rear wall, and a side wall connecting the front and rear walls, and, in said casing:
a spindle which is substantially perpendicular to said front and rear walls and which is mounted pivotally with respect to said casing;
a toothed transmission wheel which is secured to said spindle;
a minutes disc which is secured to said spindle and which is perpendicular thereto and which is provided with a tooth arrangement on its periphery;
an hours disc which is mounted pivotally on said spindle,

which is substantially parallel to the minutes disc and which is provided with a tooth arrangement on its periphery, said discs being disposed between said glass and said toothed transmission wheel;
an electric motor provided with a rotor and means for supplying and actuating said motor;
a first train of gears engaging with said rotor and said minutes disc; and
a second train of gears engaging with said hours disc and said transmission wheel.

4,364,672

METHOD FOR DRIVING LIQUID CRYSTAL DISPLAY ELEMENTS

Yoshimichi Shibuya, Masami Takahashi, and Tadashi Ishibashi, all of Mobara, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

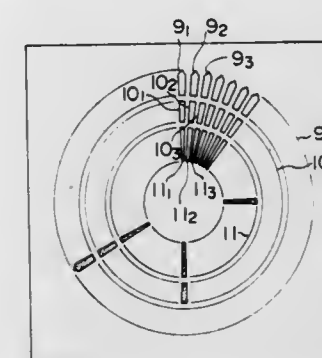
Filed Apr. 10, 1980, Ser. No. 138,977

Claims priority, application Japan, Apr. 13, 1979, 54-44153

Int. Cl.³ G04L 17/00; G09F 9/00

U.S. Cl. 368—240

7 Claims



1. A method for driving a liquid crystal display element disposed between a pair of substrates and having electrodes on the substrates, said electrodes being divided into a multiplicity of blocks to give an analogue display of at least 3 kinds of information, wherein said liquid crystal is driven over a 1/2-duty period by applying four kinds of voltage waveforms to the electrodes on one of said substrate and at least five kinds of voltage waveforms to the electrodes on the other substrate, thereby simultaneously displaying three arbitrary pieces of the information, and wherein one of said four kinds of voltage waveforms applied to the electrodes of one of said substrates is set to provide an OFF condition for the display regardless of which of the at least five voltage waveforms is applied to the electrodes of said other substrate.

4,364,673

ELECTRIC CLOCK, PARTICULARLY A QUARTZ CLOCK

Walter Bleuel, Hofheim, Fed. Rep. of Germany, assignor to VDO Adolf Schindling AG, Frankfurt am Main, Fed. Rep. of Germany

Filed Jan. 23, 1981, Ser. No. 227,839

Claims priority, application Fed. Rep. of Germany, Feb. 21, 1980, 3006503

Int. Cl.³ G04B 37/00

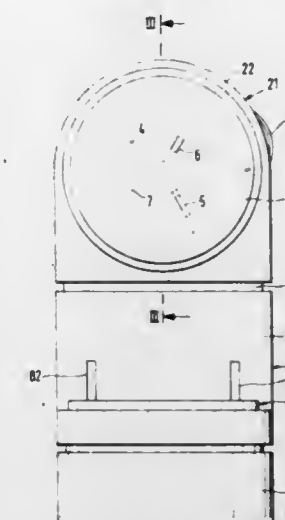
U.S. Cl. 368—316

19 Claims

1. In an electrical clock, particularly a quartz clock, with a movement case receiving a time-producing and time-indicating device, on the rear side of the movement case setting members being provided for the clock time and for an alarm device, and a mount in which the movement case is insertable in different relative positions relative to the mount, the improvement comprising

a viewing glass covering the time-indicating device, said movement case with said viewing glass forming a self-contained unit, the mount is formed as a housing surrounding on all sides at least the rear side of the movement case and has an inner periphery which corresponds to the periphery of the movement case, said movement case

being detachably catchably insertable within the inner periphery of said housing, attachment means for connection to said housing at the outer periphery of said housing,



setting means accessible from an outside of said housing are mounted in said housing, said setting means, when the movement case is inserted in said housing, for being operatively connected, in all relative positions of said movement case in said housing, with the setting member of the alarm device.

4,364,674

WATCH CASES WITH PUSHBUTTONS

Bernhard Tesch, Im Baumgarten 4, CH 6373, Ennetbürgen, Switzerland

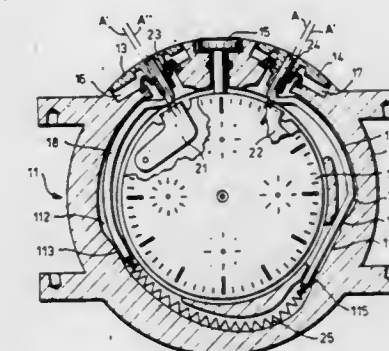
Filed Aug. 30, 1979, Ser. No. 71,050

Claims priority, application Fed. Rep. of Germany, Aug. 31, 1978, 2837939

Int. Cl.³ G04B 29/00

U.S. Cl. 368—319

38 Claims



1. A watch case comprising a case body housing a pushbutton mounted for movement relative to the case body, said case body having means for defining an interior chamber adapted to receive therein a watch movement, a rod rigidly connected to said pushbutton, said rod having a medial portion movable in a bore of said case body, said bore defining a radial direction perpendicular to the axis of the bore and having an innermost terminal end portion opening into said interior chamber said rod having a portion extending beyond the innermost terminal end portion of said bore in said radial direction, and means within said interior chamber defined by said case body spaced remote from said pushbutton and spaced outwardly in said radial direction from said bore, innermost terminal end portion for confiningly guiding the movement of said rod relative to said case body during the movement of the rod under the influence of the movement of the pushbutton.

4,364,675

WET MELTING POINT ANALYSIS

Bruce G. Frushour, Cary, N.C., assignor to Monsanto Company, St. Louis, Mo.

Filed Mar. 23, 1981, Ser. No. 246,489

Int. Cl.³ G01N 25/04

U.S. Cl. 374-16

4 Claims

1. A method for determining the amount of copolymerized vinyl monomer in an acrylonitrile copolymer formed by copolymerizing acrylonitrile and a vinyl monomer, wherein said copolymer contains at least 75% by weight of acrylonitrile, comprising:

- (1) mixing sufficient water with said acrylonitrile copolymer to provide a homogeneous mixture of copolymer and water in which the copolymer is saturated with water,
- (2) increasing the temperature of said mixture under conditions whereby the copolymer remains saturated with water and noting the temperature at which the copolymer melts under said conditions, and
- (3) from melting point/composition data previously obtained and compiled for a series of acrylonitrile/vinyl monomer copolymers of known composition and formed from the same vinyl monomer wherein the amount of vinyl monomer varied from copolymer to copolymer and melting points were determined in the manner set forth in above steps (1) and (2), translate the melting point obtained in step (2) to percent by weight copolymerized vinyl monomer.

4,364,676

HEAT TRANSFER METER

Viktor Oja, and Sigvard Wikström, both of Skelleftea, Sweden, assignors to Memoteknik AB, Skelleftea, Sweden

PCT No. PCT/SE80/00077, § 371 Date Nov. 13, 1980, § 102(e) Date Nov. 13, 1980, PCT Pub. No. WO80/01954, PCT Pub. Date Sep. 18, 1980

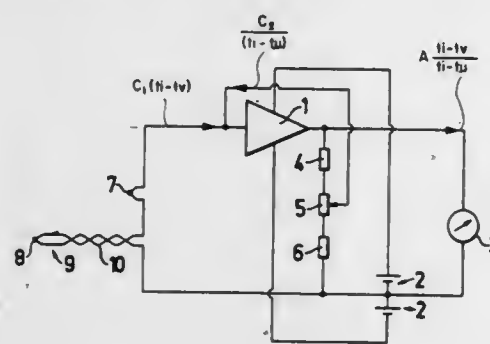
PCT Filed Mar. 13, 1980, Ser. No. 217,113

Claims priority, application Sweden, Mar. 16, 1979, 7902378

Int. Cl.³ G01N 25/18

U.S. Cl. 374-44

9 Claims



1. A device for measuring a heat transmission coefficient for a wall portion separating an inner media having a temperature t_i and an outer media having a temperature t_u , comprising: an amplifier having an input and an output; an indicator coupled to said output for indicating the measured heat transfer coefficient; first thermal sensor means adapted for sensing a temperature t_i of said wall portion at a surface thereof on its inner media side; second thermal sensor means for sensing said temperature t_i of said inner media, said first and second thermal sensors being connected by an input circuit coupled to said amplifier input to provide a signal proportional to $(t_i - t_u)$; and feedback circuit means coupled at least in part from said output to said input, said circuit being adjustable to provide a feedback signal to said input for causing the gain of said amplifier to be proportional to $1/(t_i - t_u)$, whereby there is developed at said output a signal proportional to $A(t_i - t_u)/(t_i - t_u)$ indicative of said heat transmission coef-

ficient, where A is a constant selected for calibrating said indicator to a predetermined scale.

4,364,677

METHOD AND MEANS OF RAPIDLY DISTINGUISHING A SIMULATED DIAMOND FROM NATURAL DIAMOND

Leland E. Ashman, Belmont, Mass., assignor to Ceres Electronics Corporation, Waltham, Mass.

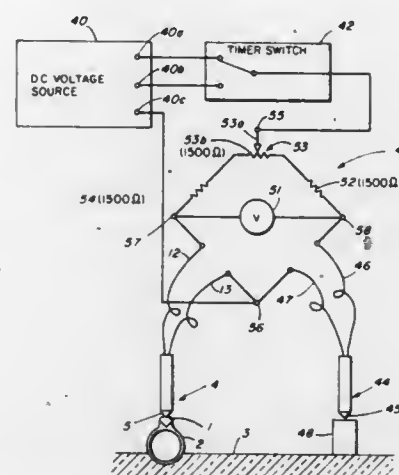
Continuation of Ser. No. 885,502, Apr. 10, 1978; Pat. No. 4,255,962. This application Mar. 3, 1981, Ser. No. 240,126

The portion of the term of this patent subsequent to Mar. 17, 1998, has been disclaimed.

Int. Cl.³ G01N 25/18

U.S. Cl. 374-44

6 Claims



1. A method of determining whether a test gem is a simulant gem or a gem which is simulated comprising the steps of: subjecting the test gem to heat flow from an electrically powered heat flow element in a probe tip while a pulse of electric power is applied to the heat flow element, the heat flow element being in close thermal relationship with a small gem contacting surface of the probe tip such that the heat flow element is thermally responsive to the test gem within a few seconds while power is applied thereto; and measuring the thermal response of the probe tip within a few seconds or less as an indication of the thermal conductivity of the test gem.

4,364,678

REINKABLE RIBBON CARTRIDGE

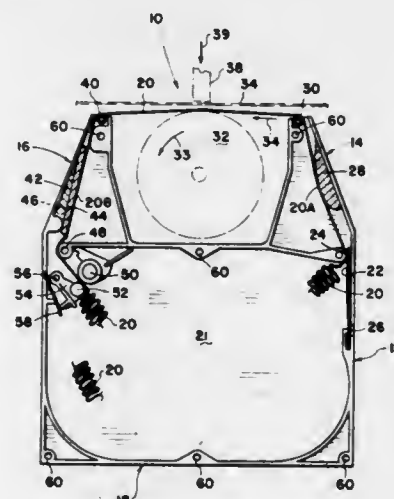
Robert M. Ogan, Gretna, La., assignor to Telex Computer Products, Inc., Tulsa, Okla.

Continuation of Ser. No. 61,844, Jul. 30, 1979, abandoned. This application Jan. 26, 1981, Ser. No. 228,071

Int. Cl.³ B41J 32/02, 31/16

U.S. Cl. 400-202.2

1 Claim



1. In a unitary, self-contained ribbon cartridge for use in a

printing device for printing information on a sheet or strip of paper, comprising:

- (a) a thin flat case having a general U-shaped configuration, the base of said U having a storage space for storing said ribbon in a continuous loop;
 - (b) one of the arms of said U being an exit arm, and the other arm being a re-entry arm;
 - (c) pressure roller drive means for withdrawing the ribbon from said storage space, out through said exit arm, across the open ends of said arms, and into and through said re-entry arm, where said pressure roller drive means forces said ribbon into said storage space;
- the improvement in means for continuously reinking said ribbon while in use, comprising:

- (d) a stationary ink absorbing reservoir strip in said re-entry arm comprising a pad of porous material such as felt;
- (e) a separate stationary ink transfer strip of felt or similar porous material, positioned with one side against said ink reservoir, the re-entering ribbon adapted to move against and along the opposite side of said ink transfer strip, the case having an opening in the wall there adjacent said ink absorbing reservoir strip whereby a liquid marking fluid may be added to said ink absorbing reservoir strip to be absorbed thereby whereby ink is transferred from said reservoir strip to said transfer strip and to said ribbon, and
- (f) an excess ink removing of felt or similar fibrous material, against and along which the inked side of said ribbon rubs while moving out of said exit arm.

4,364,679

CARTRIDGE RIBBON LIFT APPARATUS

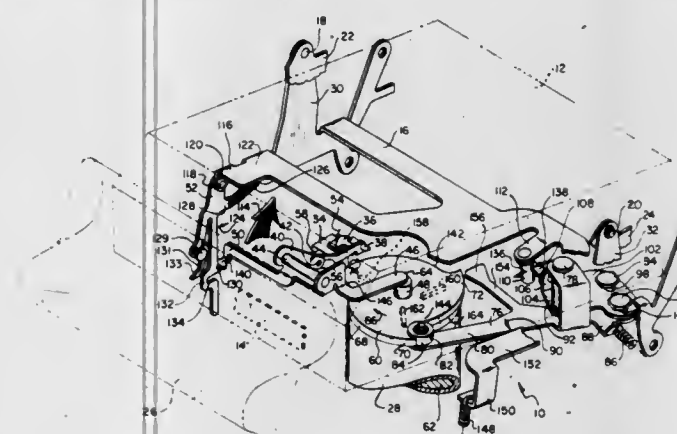
Scott J. Longrod, Danbury, Conn., and Francis R. Oakley, Cortland, N.Y., assignors to SCM Corporation, New York, N.Y.

Filed Feb. 17, 1981, Ser. No. 235,201

Int. Cl.³ B41J 35/10

U.S. Cl. 400-212

12 Claims



1. A ribbon lift apparatus for an electric printing device comprising:

- a ribbon support member operable for movement between a raised position for locating a ribbon in printing position and a lowered position for viewing printing characters;
- a lift linkage operable from a first position to a second position to raise said ribbon support member from said lowered position to said raised position and operable to return to said first position;
- a drive means including a cam cyclically operable for actuating said lift linkage to said second position and for allowing said lift linkage to return to said first position;
- electrical transducer means operatively connected to said drive means to cause said drive means to actuate said lift linkage; and
- a latch means responsive to operation of said electrical transducer means to latch said ribbon support member in said raised position for a sufficient period to allow printing while said lift linkage returns to said first position, said latch means responsive to deactivation of said electrical

transducer means to unlatch said ribbon support member to allow said ribbon support member to return to said lowered position.

4,364,680

INK RIBBON FEEDER

Katsumi Maeda, Shizuoka, Japan, assignor to Star Seimitsu Kabushiki Kaisha, Japan

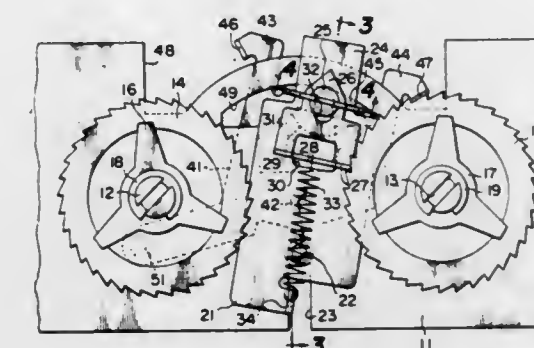
Filed May 1, 1980, Ser. No. 145,493

Claims priority, application Japan, May 2, 1979, 54-54539

Int. Cl.³ B41J 35/50

U.S. Cl. 400-220.1

4 Claims



1. An ink ribbon feeder for causing a reciprocating movement of an ink ribbon between a pair of spools, comprising a baseplate;

- a pair of ratchet wheels rotatably mounted on the baseplate for driving the spools;
- a control member located intermediate the pair of ratchet wheels and supported on the baseplate so as to be movable in a direction perpendicular to a line joining the axes of the pair of ratchet wheels and so as to permit one end thereof to be rockable toward either ratchet wheel;
- a ratchet wheel drive member carried by one end of the control member, the ratchet wheel drive member having one end which is disposed centrally in one end of the control member so as to be rockable and so as to be movable in a direction toward the other end of the control member, the other end of the ratchet wheel drive member selectively engaging with a tooth on a respective one of the ratchet wheels and being formed with an engaging portion which causes said one ratchet wheel to rotate when the control member rocks toward said one ratchet wheel;
- a resilient member having its one end connected to a central portion of the other end of the ratchet wheel drive member and its other end connected to a central portion of the other end of the control member, thereby urging the ratchet wheel drive member toward the other end of the control member;
- a switching lever having a pair of anti-reversing pawls on one end thereof which selectively engage a tooth on a respective one of the pair of ratchet wheels to prevent a reverse rotation of the engaged ratchet wheel, the switching lever being pivotally mounted on the baseplate intermediate its ends, one end of the switching lever carrying said one end of the control member so as to be movable in said perpendicular direction and so as to be rockable whenever the control member rocks in the same direction as the rocking motion of the control member;

means on the other end of the switching lever for selectively urging said one end of the switching lever toward one of the ratchet wheels said urging means acting, whenever the center of said one end of the switching lever has rocked toward either ratchet wheel from a line which perpendicularly intersects with said first mentioned line at a point midway between the pair of ratchet wheels, to cause said one end of the switching lever to rock toward the ratchet wheel;

a drive member for moving the control member in said perpendicular direction;
means for driving the drive member to urge the control member in one direction, the engaging element of the ratchet wheel drive member being engaged with one of the ratchet wheels when the urging means urges the control member in said one direction; and wherein the other end of the ratchet wheel drive member is provided with a projection on its bottom surface, and the control member has a guide slot in which the projection on the ratchet wheel drive member bottom surface loosely fits, the guide slot including a rectilinear slot portion which guides the drive member for movement in said direction, and the guide slot including an arcuate slot portion having a central portion connected with one end of the rectilinear slot portion for guiding the drive member for rocking motion.

4,364,681

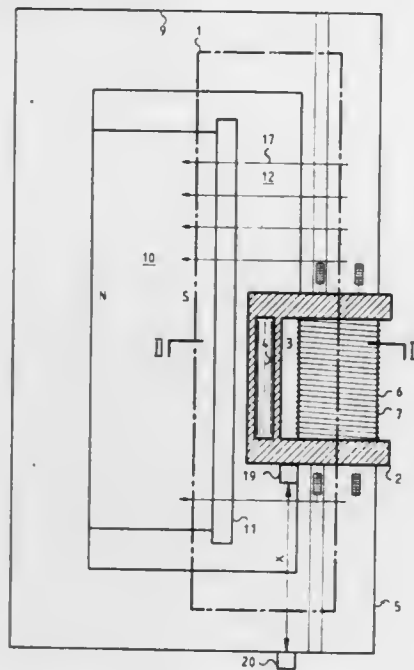
PRINTER HAVING A LINEAR MOTOR

Francois Gernelle, Le Chesnay, France, assignor to Compagnie Internationale Pour l'Informatique CII-Honeywell Bull
Filed Jun. 19, 1980, Ser. No. 161,149

Claims priority, application France, Jun. 19, 1979, 79 15627
Int. Cl.³ B41J 19/30

U.S. Cl. 400—322

8 Claims



1. A dot type printer comprising a printing head, a carriage carrying the head, an elongated guide rail having a high magnetic permeability, the carriage being mounted on the guide rail so the carriage can be translated longitudinally along the guide rail, a drive system for longitudinally translating the carriage along the guide rail, said drive system including: means for establishing a magnetic field with magnetic lines of flux extending, at right angles to the guide rail elongated direction, through an air gap, a winding wound on said carriage to produce magnetic field in the same direction as the elongated direction of the guide rail in response to current being applied to the winding, whereby the magnetic field from the winding interacts with the permanent magnetic lines of flux to produce a force to translate the carriage along the rail, the printing head including plural printing hammers, a coil for controlling activation of each hammer, the coil controlling the activation of each hammer being disposed in the air gap so as to be responsive to the magnetic lines of flux, whereby a magnetic field resulting from current being supplied to a particular coil interacts with the magnetic lines of flux to produce a force to activate the hammer associated with the particular coil.

4,364,682
ACOUSTIC MEMBER MOUNTING MEANS FOR USE IN TYPEWRITERS

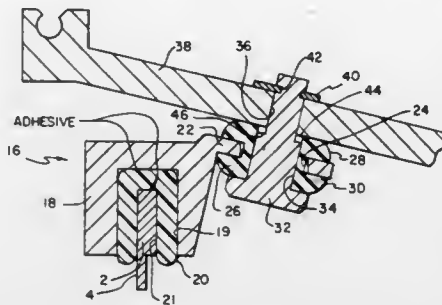
Scott J. Longrod, Woodbury, Conn., and Robert M. DuRoss, Huntsville, Ala., assignors to SCM Corporation, New York, N.Y.

Filed Oct. 15, 1981, Ser. No. 311,578

Int. Cl.³ B41J 5/00

U.S. Cl. 400—477

18 Claims



1. In a typewriter in which input signals generate sound waves in an acoustic member, said typewriter having means for mounting the acoustic member comprising:
a first insulating means in which the acoustic member is affixed;
a member in which the first insulating means is supported;
a second insulating means on which the support member means is mounted; and,
means for securing the second insulating means to a typewriter frame.

4,364,683

PAPER FEED ROLLER ASSEMBLY FOR A TYPEWRITER OR PRINTER

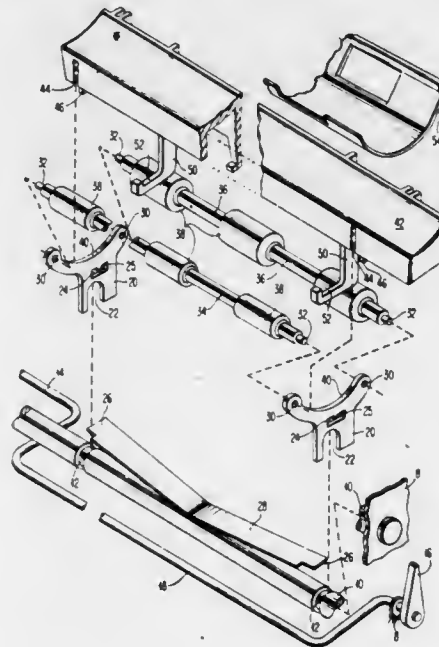
Iraj D. Shakib, and Krikor Yosmali, both of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 23, 1981, Ser. No. 333,958

Int. Cl.³ B41J 13/036, 13/16

U.S. Cl. 400—637

3 Claims



1. A manually insertable and removeable paper feed roll device for a printer having a rotatable platen, a frame comprising a frame having sides and at least a rail extending therebetween and a release bail capable of operator movement away from said platen, comprising:
a paper deflector support;
a paper deflector;
a plurality of feed rolls, said feed rolls having a periphery extending through said paper deflector for engagement of said platen;

support means for maintaining said feed rolls in spaced relation to each other;
said paper deflector support supportable on said support means and moveable thereon;
said paper deflector support further comprising retraction and retention means for engaging said release bail to retract said paper deflector support upon movement of said release bail;
spring means engageable with said rail and biasingly engaged with said support means, whereby said device is manually insertable into said printer and retained therein by said retention means engaging said release bail, and said support means are biased to engage said feed rolls with said platen when said release bail is disengaged from said retraction and retention means.

4,364,684

WRITING INSTRUMENT

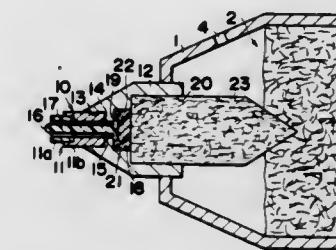
Tadashi Kohno, Ishioka; Takahiko Shimizu, Tokyo; Kenji Takahashi, Soka; Hishao Fukui, Tokyo; Akio Okubo, and Noriaki Masuda, both of Tsuchiura, all of Japan, assignors to Pentel Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 11, 1980, Ser. No. 158,387

Claims priority, application Japan, Jun. 21, 1979, 54-85107[U]; Jun. 21, 1979, 54-85108[U]; Dec. 25, 1979, 54-179590[U]; Jan. 24, 1980, 55-7355[U]; Jan. 31, 1980, 55-11135[U]

Int. Cl.³ B43K 3/04

U.S. Cl. 401—264

9 Claims



1. A writing instrument comprising:
a barrel having therein an ink reservoir;
a nib holder body extending from a fore end of said barrel;
a longitudinal nib member positioned within said nib holder body for longitudinal displacement with respect thereto between an inner position and an outer position;
said nib member having at a rear end thereof an enlarged head portion;
a resilient seat member comprising a block formed of an ink permeable material, mounted within said nib holder body and resiliently contacted with said head portion, for urging said nib member toward said outer position thereof until said head portion abuts against said nib holder body, whereat a fore end of said nib member projects forwardly from said nib holder body, whereby when a writing pressure from a writing surface is longitudinally applied to said fore end of said nib member, said nib member moves against the resilient force of said seat member to said inner position, whereat said head portion is spaced from and out of contact with said nib holder body; and
said nib member and said nib holder body being dimensioned such that when said nib member is in said inner position thereof due to the writing pressure, both said nib member and said nib holder body are in contact with the writing surface and function as a writing tip.

4,364,685

DEVICE FOR ATTACHING AN INSERT PART TO A BASE SURFACE

Joachim Janz, Wuppertal, Fed. Rep. of Germany, assignor to Gebr. Happich GmbH, Fed. Rep. of Germany

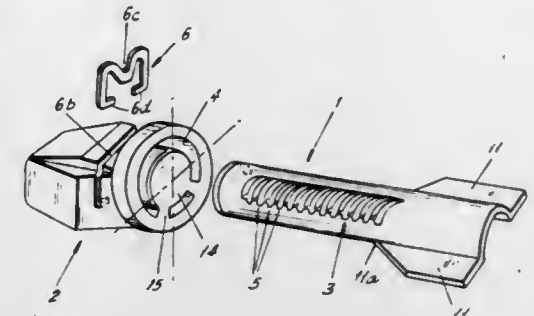
Filed Aug. 27, 1980, Ser. No. 181,801

Claims priority, application Fed. Rep. of Germany, Aug. 29, 1979, 2934788

Int. Cl.³ F16B 7/00; F16D 1/12

U.S. Cl. 403—108

24 Claims



1. An attachment device for attaching an object to a base surface, comprising:
the object having an insert that is to be secured to the base surface; said insert having a longitudinal axis and a cross-section comprising a circular arc;
an attachment clip for being secured to the base surface; said attachment clip having an aperture formed therein and shaped for receiving said insert; said insert being rotatable in said aperture between a first and a second rotational position; and
means for detachably securing said insert in said aperture, said securing means comprising a dentate structure on one of said insert and said attachment clip and locking means disposed on the other of said insert and said attachment clip for engaging said dentate structure; said dentate structure comprising a plurality of serrations arranged one behind the other in the direction of said longitudinal axis; said dentate structure and said locking means being so disposed as to engage each other to lock said insert in said aperture at any one of a plurality of insertion depths, each said depth corresponding to an engagement of said locking means and one of said plurality of serrations; at any insertion depth, said engagement occurring when said insert is in said first rotational position, and said dentate structure and said locking means being further disposed as not to engage each other when said insert is in said second rotational position, whereby said insert can be inserted into or drawn from said aperture when said insert is in said second rotational position.

4,364,686

LOCKING DEVICE FOR GRID SYSTEM

Joseph F. Sharp, Norwalk; Ormond S. Sutter, Placentia, and Philip W. Cornwell, Newport Beach, all of Calif., assignors to Lok Products Company, Fullerton, Calif.

Filed Nov. 17, 1980, Ser. No. 207,212

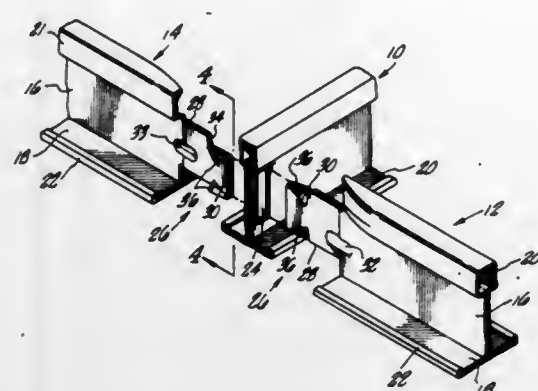
Int. Cl.³ F16B 7/22

U.S. Cl. 403—347

8 Claims

1. An apparatus for constructing a grid system comprising a support member and a pair of opposing transverse members, said support and transverse members having a similar cross-sectional configuration comprising a central web and lower flanges; a rectangular hole in the web of said support member; a tongue extending longitudinally from the web of each transverse member, said tongue having a tab portion adjacent to said web and an insert portion which communicates with said rectangular hole; said tongue being offset a distance from the plane of the web of said transverse member; shoulder means on said tongue to abut said web of said support member upon insertion of said insert portion into said hole; upper and lower shoulder means on said insert portion which face said trans-

verse member for engagement of said web of said support member adjacent to said rectangular hole at the upper and lower ends of said hole; and wedge means on said transverse



members for retaining said shoulder means on said insert portion in position against said web, said insert portion having sufficient longitudinal length to engage said wedge means on the opposing transverse member.

4,364,687

DOUBLE ACTING CONE COUPLING

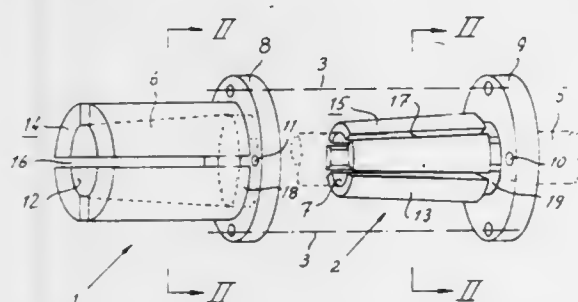
Lars Adell, Fylkinggatan 45, S-595 00 Mjölby, Sweden
PCT No. PCT/SE79/00254, § 371 Date Jul. 10, 1980, § 102(e)
Date Jul. 10, 1980, PCT Pub. No. WO80/01305, PCT Pub.
Date Jun. 26, 1980

PCT Filed Dec. 18, 1979, Ser. No. 200,496

Claims priority, application Sweden, Dec. 18, 1978, 7812978
Int. Cl.³ F16D 1/06

U.S. Cl. 403—370

10 Claims



1. A cone coupling for interconnecting two elements, such as a shaft and a hub, which are rotatable relative to one another, comprising:

an elongate outer cone sleeve having an inner conically tapered surface, having a strengthened base portion adjacent an end thereof, and having a cylindrical sleeve portion having a plurality of elongate axial through slots, each axial through slot extending along the entire sleeve portion from one end thereof to a position adjacent said strengthened base portion;

An elongate inner cone sleeve having an outer conically tapered surface, having a strengthened base portion adjacent an end thereof and having a cylindrical sleeve portion having a plurality of elongate axial through slots, each axial through slot extending along the entire sleeve portion from one end thereof to a position adjacent said strengthened base portion;

said inner and outer cone sleeves being adapted to be pulled together for connection together with the inner surface of the outer cone sleeve pressed against the outer surface of the inner cone sleeve;

said inner and outer cone sleeves each comprising a deformation zone in said cylindrical sleeve portion at a location adjacent said strengthened base portion, each of said deformation zones being constructed and arranged to permit a parallel radial displacement of the slotted sleeve portions of said inner and outer cones relative to their respective

strengthened base portions upon press pulling together of the inner and outer cone sleeves.

4,364,688

ANCHORING BASE FOR ROAD SIGN POSTS AND THE LIKE

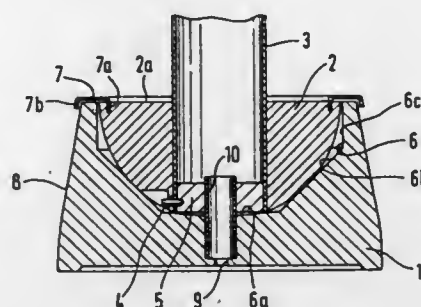
Tivadar Bitvai, Hågnegårdsvägen 6, 43600 Askim, Sweden
PCT No. PCT/SE80/00095, § 371 Date Dec. 6, 1980, § 102(e)
Date Dec. 5, 1980, PCT Pub. No. WO80/02167, PCT Pub.
Date Oct. 16, 1980

PCT Filed Apr. 2, 1980, Ser. No. 224,539

Int. Cl.³ E01F 9/00; E04H 12/22

U.S. Cl. 404—10

10 Claims



1. In combination: a base having a first cavity open at the top, a weight received in said first cavity and having an essentially flat top, a post supported by said weight, first breakable means interconnecting said base and said weight, said first interconnecting means including a pin inserted into coaxially arranged second cavities in said weight and in said base, and second breakable means interconnecting said weight and said post, said first cavity being defined in part by a substantially vertically extending portion adjacent the top of said cavity and adapted to cooperate with said flat top of said base in such a way that when said first connecting means is broken and said post is brought from an upstanding to a prostrate position said flat top engages and is held to said base by said substantially vertically extending portion, and that said second connecting means breaks before said weight becomes disengaged from said base.

4,364,689

MANHOLE COVER ASSEMBLY

Robert Dumortier, 9 rue Duchartre, Beziers, France

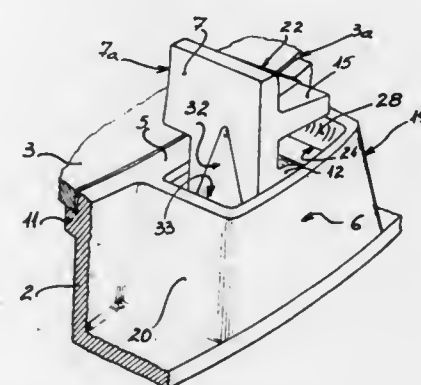
Filed Apr. 23, 1981, Ser. No. 256,922

Claims priority, application France, Apr. 25, 1980, 80 09720;
Nov. 24, 1980, 80 25029

Int. Cl.³ E02D 29/14

U.S. Cl. 404—25

9 Claims



1. A manhole cover assembly comprising:

a seating ring adapted to be received in a roadway pavement around a manhole opening, said ring being provided with at least one upwardly open lateral compartment communicating with the interior of said ring through a window

formed in said ring and overhung by a beak defining a gap at said window;
a plug-type cover receivable in said ring and formed with a radially extending finger adapted to pass through said gap and to underlie said beak upon rotation of said cover relative to said ring; and
locking means for preventing reverse rotation of said cover in said ring, said locking means including
a horizontal pivot extending radially from said finger and adapted to be received in said compartment, and
a pawl swingably mounted on said pivot for movement between an upright position allowing rotation of said cover in said ring and a horizontal position wherein a free end of said pawl is juxtaposed with a wall of said compartment to block rotation of said cover in said ring, said pivot and said pawl being provided with mutually engaging means preventing dislodgment of said pawl from said pivot.

4,364,690

METHODS OF SETTING ROADMAKING MATERIAL AND SMOOTHING SCREEDS FOR PERFORMING SUCH METHODS

Theodor Bruns, Jeddeloh, Fed. Rep. of Germany, assignor to Maschinenfabrik Klaus-Gerd Hoes, Wardenburg-Westerholt, Fed. Rep. of Germany

Filed Nov. 24, 1978, Ser. No. 963,598

Claims priority, application Fed. Rep. of Germany, May 31, 1978, 2823727

Int. Cl.³ E01C 19/22

U.S. Cl. 404—118

2 Claims

2. A smoothing screed for use with a road finishing machine in setting roadmaking material when renewing the surface of a road pavement, which has been damaged by tracks or depressions worn therein, comprising:

a central main screed having at least two screed sections each having an inner and outer lateral end, said screed sections being spaced-apart and being disposed laterally side by side with respect to one another with the inner lateral ends thereof disposed adjacent to one another;

a common smoothing plate having a central section and two lateral ends, on which said two screed sections are disposed;

a ridge profile adjustment device including an adjusting screw pivotably coupling said two screed sections together in the area adjacent to their inner lateral ends so as to permit said sections to be moved to an inclined position relative to one another and to, in turn, permit lateral bending of said common smoothing plate into a generally concave, depressed, negative ridge profile in the center section thereof;

two adjusting screeds, each of which is mounted for lateral movement between a retracted and withdrawn position relative to the outer lateral end of one of said screed sections so as to vary the working width of said smoothing screed, each of said adjusting screeds being at least partially disposed on said common smoothing plate; and

two supplementary ridge profile adjustment devices, each of which include an adjusting screw, which are each disposed adjacent to an opposite outer lateral end of said screed sections for pivotably coupling said adjusting screeds to said screed sections so as to permit said screed sections and adjusting screeds to be moved to an inclined position relative to one another and to, in turn, permit lateral bending of said smoothing plate into a generally convex, raised, positive profile adjacent the lateral ends thereof.

4,364,691

SURFACE WAVE ATTENUATION APPARATUS

Leslie S. Wirt, Newhall, Calif., assignor to Lockheed Corporation, Burbank, Calif.

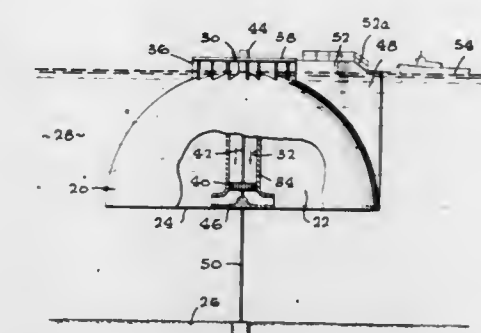
Filed Jun. 27, 1980, Ser. No. 163,814

The portion of the term of this patent subsequent to May 8, 1996, has been disclaimed.

Int. Cl.³ E02B 3/06

U.S. Cl. 405—26

3 Claims



1. An apparatus for providing a calm mooring area on a sea surface, said sea surface having waves moving thereon, said apparatus comprising a wave attenuating structure that includes:

(a) a generally dome-like shell for causing said waves to break, said shell being configured to refract said waves so that the waves after breaking flow along said shell toward a central opening at its apex;

(b) guide vanes secured to said shell for directing said breaking waves into said central opening to induce a downward vortical flow of sea water through said central opening;

(c) a standpipe having an inlet end and an outlet end, the inlet end being attached to said shell circumjacent said central opening, the outlet end extending into a region beneath said shell into which said downward flow of sea water is discharged;

(d) diffuser means attached to said outlet end of said standpipe for diffusing said sea water discharged from said standpipe into said region beneath said shell;

(e) tethering means for securing said shell in a partially submerged position with respect to said sea surface, said tethering means permitting random orientation of said shell with respect to said waves moving on said sea surface; and

(f) a fin-like member secured to said shell for providing a selected orientation for said shell with respect to the movement of said waves on said sea surface, said selected orientation being such that sea wave pressure is substantially equal on each side of said fin-like member, thereby providing a region of relatively calm water adjacent said fin-like member, said calm water region being said calm mooring area.

4,364,692

BUCKLE ARRESTOR FOR PIPE USING CLOSELY SPACED TURNS OF ROD TO FORM A COIL

Stelios Kyriakides, Pasadena, and Charles D. Babcock, Altadena, both of Calif., assignors to California Institute of Technology, Pasadena, Calif.

Filed Dec. 26, 1979, Ser. No. 107,325

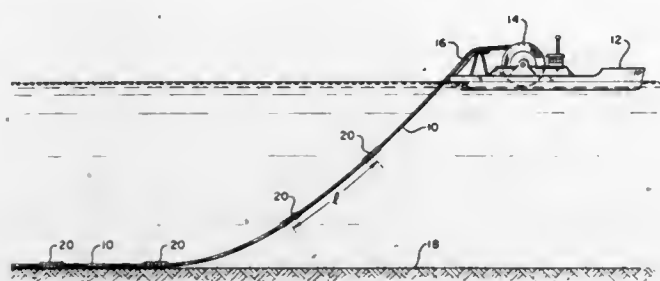
Int. Cl.³ F16L 1/00

U.S. Cl. 405—168

8 Claims

1. A method for arresting the propagation of a buckle along an underwater pipeline comprising the steps of paying out a continuous pipe into the water from a vessel, tightly winding a metal rod around the pipe to form arrestors at intervals on the pipe as it is being laid, each arrestor consisting of a plurality of turns of said rod, and securing the ends of said rod in each

arrestor to prevent the turns from expanding while a buckle propagating in the pipe is arrested, thereby to form flexible



buckle arrestors which allow the pipe to conform to natural bends as it is laid.

4,364,693

TOOL HOLDER

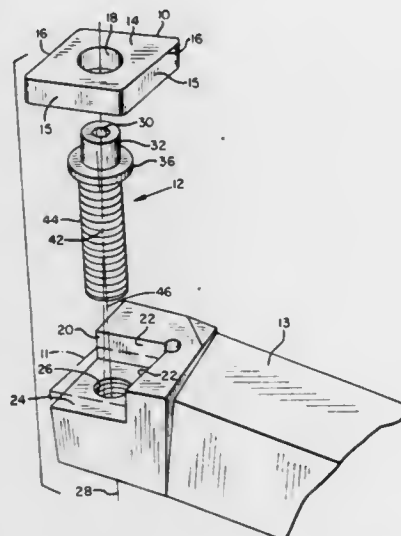
Harold W. Lindsay, 2480 NW. Vaughn, Portland, Oreg. 97210

Filed Dec. 22, 1980, Ser. No. 218,579

Int. Cl.³ B26D 1/00

U.S. Cl. 407-104

4 Claims



1. In a holder for holding a disposable cutting insert having an axial hole therein, the holder having a shank having a recess therein to provide a seating face and at least one supporting shoulder for supporting the cutting insert, the shank having a threaded bore therein, the bore being substantially normal to the seating face and adapted for alignment with the hole in the insert, and a threaded retention pin engaging the threaded bore, the pin having a cylindrical head portion adapted to engage the hole in the insert,

the improvement comprising:

a retention pin fabricated from a blank having a cylindrical body portion having a first axis concurrent with the axis of the cylindrical head portion, the body portion being threaded on a second axis angularly disposed with respect to the first axis and intersecting the same at about the midpoint of the cylindrical body portion,

whereby the pin when threaded into the bore rotates the head portion about the second axis, thereby to force the cutting insert against the supporting shoulder while drawing the insert into engagement with the seating face.

4. A retention pin fabricated from a blank having a cylindrical head and a cylindrical body portion, the body portion having a first axis concurrent with the axis of the head, the body portion being threaded on a second axis angularly disposed with respect to the first axis and intersecting the same at about the midpoint of the cylindrical body portion, whereby threading the pin into a threaded bore causes the head thereof to rotate about the second axis as the pin is received in the bore.

4,364,694

TAP HOLDER

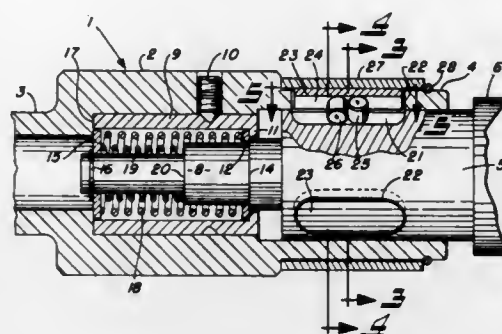
Wilbur N. Miles, Chagrin Falls, Ohio, assignor to Erickson Tool Company, Solon, Ohio

Filed Oct. 1, 1980, Ser. No. 192,737

Int. Cl.³ B23Q 5/22; B23G 1/46, 5/14

U.S. Cl. 408-139

5 Claims



1. A tap holder assembly comprising a housing having a tubular socket with at least three equally spaced-apart axially extending slots radially through the wall thereof; a tap holder having a shank extending coaxially into said socket; key means keying said housing and holder against relative rotation while permitting relative axial movement thereof; said key means comprising at least three equally spaced-apart axially extending V grooves in said shank, axially extending drive blocks in the respective slots of width slightly less than the width of said slots; said drive blocks having axially extending V grooves in their radially inner faces forming two pairs of perpendicularly related parallel faces with the respective V grooves in said shanks, and circular cross-section keys in said V grooves having rolling engagement with one pair or the other of said parallel faces according to the direction of a torque load imposed on said keys during relative axial movement of said housing and holder; and a retainer sleeve having a clearance fit over said socket and engaged with the radially outer faces of said blocks to retain said keys in engagement with the respective pairs of parallel faces.

4,364,695

CARVING MACHINE WITH AUXILIARY FRAME

John O. Lenz, Coon Rapids, Minn., assignor to Kurt Manufacturing Company, Inc., Minneapolis, Minn.

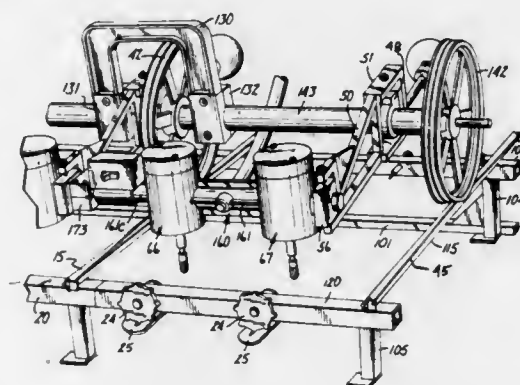
Division of Ser. No. 124,471, Mar. 3, 1980, abandoned. This

application Jun. 11, 1981, Ser. No. 272,709

Int. Cl.³ B23K 1/16

U.S. Cl. 409-103

4 Claims



1. In a carving machine, a frame comprising a pair of rail members, said rail members comprising rectilinear cross section tubes, each having one of its longitudinal extending corners projecting upwardly, cross members supporting said rails spaced apart in substantially parallel position, said cross members comprising rectilinear tubular members having open ends, a carving spindle arm support assembly mounted on said rails

for movement therealong comprising a pair of wheels, one on each of said rails, and an auxiliary carving machine frame having a single rail thereon, and an auxiliary carving spindle and arm support assembly mounted on the auxiliary frame and having one end supported on said single rail, said auxiliary frame including auxiliary cross members which align with said cross members of the main frame when the auxiliary frame is mounted to said main frame, means to couple the end of the auxiliary carving spindle arm support assembly opposite from the single rail to the main carving spindle arm support assembly for movement therewith, and means to align and clamp cross members of the main and auxiliary frames together comprising interior plug means within the aligning tubular cross members on each of said main frame and auxiliary frames and serving to clamp said tubular cross members in alignment and in end to end relationship.

4,364,696

EDGE FINISHING MACHINE

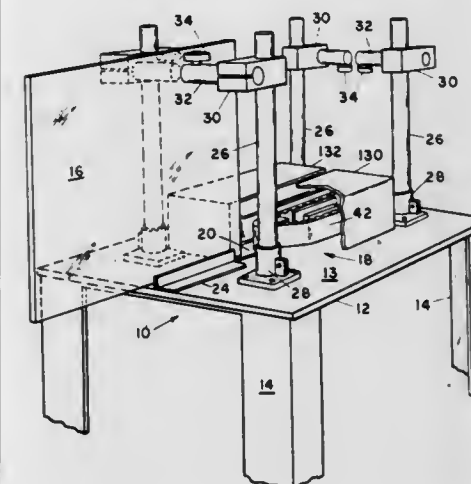
Louis W. Syarto, 184 Highland Rd., Fairfield, Conn. 06430, and Sanford S. Zimmerman, 40 Easton Rd., Westport, Conn. 06880

Filed Feb. 21, 1979, Ser. No. 13,077

Int. Cl.³ B23C 3/12; B27C 5/06

U.S. Cl. 409-138

3 Claims



1. A material working machine for edge finishing of workpieces of varying size and of various materials, said machine comprising:

- A. a work table having a flat work surface over which a workpiece is adapted to be fed,
- B. an aperture in said work table which defines a work station in the path of movement of the workpiece,
- C. a working tool disposed in said aperture and positioned therein in appropriate relation to the bottom edge of the workpiece to perform a working operation on said edge of the workpiece as the latter passes over said aperture,
- D. means mounted beneath said work table for supporting and operating said working tool, and
- E. a feeding assembly mounted on said work table for feeding a workpiece in operative association with said working tool, said feeding assembly comprising

- 1. a pair of opposed resilient gripping elements for forcibly pressing against opposite surfaces of the workpiece with sufficient pressure to hold the workpiece in feeding relationship, said resilient gripping elements comprising a pair of endless flexible belts,
- 2. means mounting said gripping elements for movement along a predetermined path of movement at least a portion of which traverses said working station, said means mounting said gripping elements comprising a plurality of rollers for each belt, the rollers for each belt being configured and spaced so as to define a pair of adjacent runs which are juxtaposed to and run along

said work station and a pair of remote runs which are spaced from said adjacent runs,

- 3. means disposed in the space between said adjacent runs and said remote runs for adjusting the space between said pair of adjacent runs of said belts, said means for adjusting the space between said adjacent runs of said belts comprising means for simultaneously moving the adjacent run and the remote run of each of said belts toward and away from said work station by the same amount of movement, said means for simultaneously moving the adjacent run and the remote run of each of said belts toward and away from said working station by the same amount of movement comprising
 - a. a block secured to said work table in the space between said adjacent and said remote runs of said belts,
 - b. a pair of rods movably mounted in said block,
 - c. a first backing plate secured to one end of said rods for movement therewith,
 - d. a second backing plate secured to the other end of said rods for movement therewith,
 - e. a cam mounted for rotation in said block between said first and second backing plates and being of a size to contact both backing plates, and
 - f. means for rotating said cam

whereby said cam causes movement of said first and second backing plates toward and away from said work station and thereby maintains the overall length of the belt constant.

4,364,697

BLIND FASTENER ASSEMBLY

Lloyd S. Binns, Fountain Valley, Calif., assignor to SPS Technologies, Inc., Jenkintown, Pa.

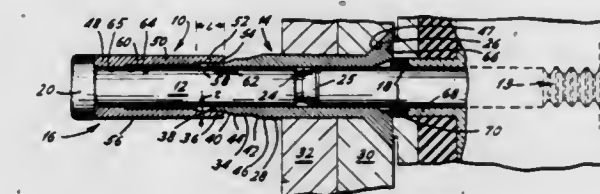
Continuation-in-part of Ser. No. 864,410, Dec. 12, 1977,

abandoned. This application Jul. 27, 1979, Ser. No. 61,361

Int. Cl.³ F16B 19/10

U.S. Cl. 411-38

15 Claims



1. A blind fastener assembly for installation in a workpiece having an accessible and an inaccessible surface and an opening therebetween, said assembly comprising:

a mandrel having an enlarged head at one end thereof, an elongated shank portion and means on said shank portion adapted for advancement of said mandrel in a direction along its longitudinal axis;

expander means having an enlarged head at one end thereof formed to bear upon the accessible workpiece surface, a cylindrical tail section extending from the other end thereof, a tapered surface varying in radial thickness in a longitudinal direction from a minimum radial thickness at a point adjacent said cylindrical tail section to a maximum radial thickness at a location spaced from said other end, and a shank portion intermediate said enlarged head and said tapered surface, said shank portion having an outer surface formed to be placed in the workpiece opening, and an internal bore extending through said expander means carrying said mandrel shank portion;

expandable sleeve means carried on said mandrel shank portion proximate said enlarged head, said sleeve means including a first portion of greater radial thickness adjacent one end thereof facing said enlarged head and a second portion of reduced radial thickness adjacent the other end thereof facing said expander means other end, said sleeve means having a discontinuity in the inside surface thereof between said first portion and said second portion, said portion having an inner diameter substan-

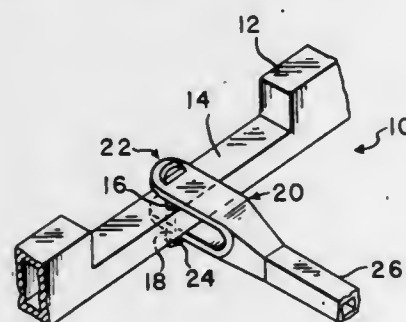
tially equal to the outer diameter of said cylindrical tail section and having a length which is greater than that of said cylindrical tail section, said second portion being adapted to be advanced along said expander means cylindrical tail section and tapered surface and expanded thereover upon advancement of said mandrel toward the inaccessible workpiece surface, said sleeve means forming a radially outwardly extending bulb at a location axially spaced from the inaccessible workpiece surface at approximately said inside surface discontinuity prior to contacting the inaccessible workpiece surface, said other end of said sleeve means ultimately contacting the inaccessible workpiece surface causing said outwardly extending bulb to expand radially and to propagate axially in a ripple manner toward the inaccessible workpiece surface and finally bear thereagainst over a selected area radially spaced from the area of contact of said sleeve means other end; and

locking means operatively arranged between said expander means and said mandrel for locking said mandrel and said expander means together to eliminate relative motion therebetween in one direction.

4,364,698 HITCH PIN

Raymond S. Hardy, R.R. #1, Bronson, Iowa 51107
Filed Sep. 18, 1980, Ser. No. 188,353
Int. Cl.³ B60D 1/02; F16B 19/00
U.S. Cl. 411—351

5 Claims



1. A hitch pin for use in a trailer hitch assembly which is adapted to absorb shock imposed thereon comprising a core, said core consisting of an elongated cylindrical member formed of spring steel, a handgrip rigidly secured to one end of said core, a resilient sleeve mounted on said core and extending the full length thereof, a plurality of bushings slidably positioned on said sleeve, said bushings completely covering said sleeve, and a fastener extending through said core, sleeve, and the bushing adjacent the end of said core to secure the bushings thereon in a manner so that the bushings can move relative to each other.

4,364,699

WHEELCHAIR TABLE AND FOOD TRAY FOR HANDICAPPED PERSONS

Cecilia R. Koppea, 417 C St., Washington, Kans. 66968
Filed Aug. 7, 1980, Ser. No. 176,053
Int. Cl.³ A47G 21/00

U.S. Cl. 414—9

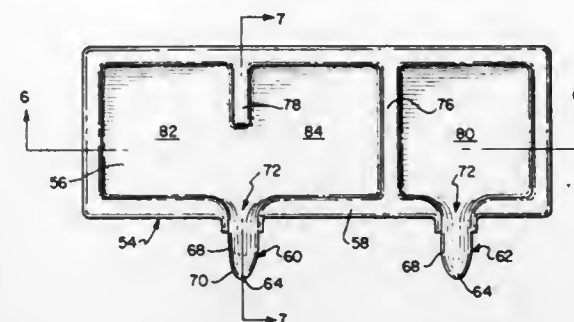
11 Claims

1. A device for aiding a handicapped person in eating comprising:

a relatively shallow, flat, rectangular food tray; and
an elongated, open top, relatively narrow mouthpiece integral with the tray and extending outwardly from one longitudinal edge of the tray intermediate and spaced from both ends of the tray,

said mouthpiece communicating with the tray for reception of food moved into the mouthpiece from the tray, said mouthpiece and the food thereon being adapted for

reception into the mouth of said person for removal of the food by said person from the mouthpiece,



said tray being, except for said mouthpiece, closed along its entire periphery by integral, continuous, upstanding, low profile, food retention means of uniform height.

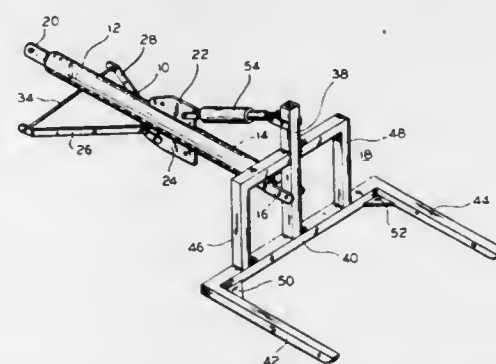
4,364,700

BALE-HANDLING APPARATUS

John Arabshian, Rte. 3, Wapaca, Wis. 54981, and Paul O. Mittelstaedt, Rte. 1, Box 61, Weyauwega, Wis. 54983
Filed Oct. 20, 1980, Ser. No. 198,773
Int. Cl.³ A01D 87/12; B66F 9/00

U.S. Cl. 414—24.5

3 Claims



1. An apparatus for handling forage bales, connectable to the three-point hitch of a tractor, comprising:

a unitary support bar comprising a single metal member extending outwardly away from the back of the tractor;
an upper flange secured to the uppermost side of said support bar;

a lower flange secured to the underside of said support bar aligned approximately vertically beneath said upper flange;

an end flange, secured to one end of said support bar, and pivotally attached to the pivot point on said tractor usually occupied by the stabilizer arm of the three-point hitch;

connecting means for connecting said one end of said support bar to the three-point hitch such that said support bar is held approximately horizontally outwardly from the tractor, including two support arms connected between one of said upper and lower flanges and the power arms of the three-point hitch;

carrying means, pivotally connected to the opposite end of said support bar, for sliding under and carrying the forage bales; and

pivoting means comprising a single hydraulic cylinder one end of which is connected to the one of said upper and lower flanges opposite the one to which said two support arms are attached, and the other end of which is connected to said carrying means at a point different than where said support bar is connected to said carrying means, for pivoting said carrying means on its pivotable connection to various angles with respect to said support bar,

said hydraulic cylinder being hydraulically connected to the tractor such that the action of said hydraulic cylinder, and

hence the pivoting of said carrying means, is controlled from the tractor.

4,364,701 COMBINED HAY BALE TRANSPORTING AND UNROLLING MECHANISM

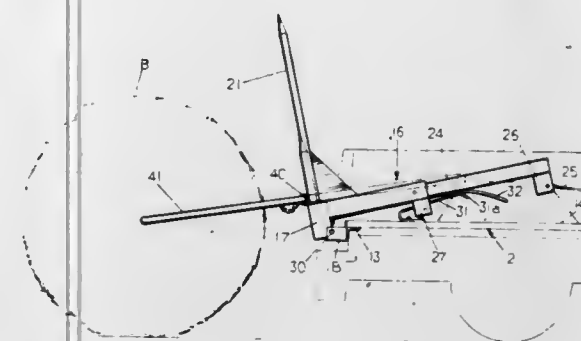
Bobby R. Lynch, and Robert L. Lynch, both of R.R. #2, Box 57, Ozark, Mo. 65721

Filed Dec. 4, 1980, Ser. No. 212,838

Int. Cl.³ A01D 87/12

U.S. Cl. 414—24.6

15 Claims



1. A combination bale handling and unrolling mechanism adapted to mounting on the bed portion of a pick-up truck, or the like, comprising

a base member attached to said truck bed portion,
a T-shaped finger support member having its cross-member pivotally mounted adjacent the rearward end of said base member and said truck bed portion,

a plurality of elongated finger members attached to and projecting rearwardly from the said pivotally-mounted cross-member in its lowered position adapted to penetrate and support the bale,

cable means connected to the free end portion of the central member of said T-shaped finger support member, winch means mounted on said base member spaced from said pivotal T-shaped finger support member and connected to the other end of said cable means adapted to raise and lower the finger-supported bale,

spring means mounted between the said pivotal T-shaped finger support member and said base member adapted to maintain continuous tension on said cable means, and
a pair of U-shaped arm members each having one leg portion telescopically and pivotally mounted parallel and adjacent to the cross-member of T-shaped finger support member, each arm having a pointed tip on its other free leg portion adapted to penetrate the bale center, the base portion of each U-shaped arm member having a greater dimension than the bale radius for its unrolling on forward movement of said bale handling and unrolling mechanism,

whereby said pivotally-mounted T-shaped finger support member is adapted to operate through essentially a right-angle between its lowered and raised positions and said pair of U-shaped arm members is adapted to operate through essentially about 180° between their operative and stored positions.

4,364,702

APPARATUS FOR STACKING OBJECTS OR GROUPS OF OBJECTS

Serge Coussot, Bersac, France, assignor to Etudes et Realisations Industrielles de Bersac (E.R.I.B.), France

Filed Oct. 6, 1980, Ser. No. 194,025

Claims priority, application France, Oct. 9, 1979, 79 25069

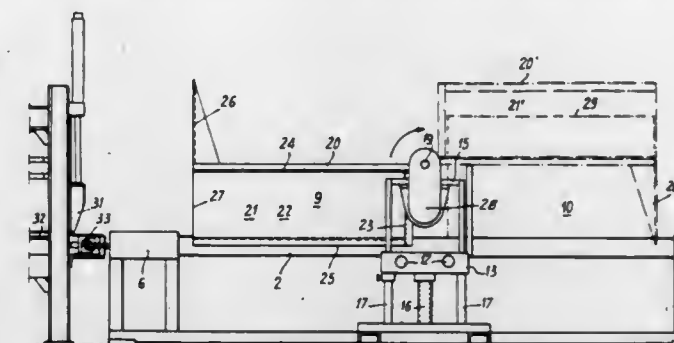
Int. Cl.³ B65G 57/081

U.S. Cl. 414—31

6 Claims

1. Device for stacking objects head to tail such as groups of several stacked cartons having one thickness at one end and a greater thickness at the opposite end, comprising a stationary frame which supports a conveyor having belts spaced in the

crosswise direction extending between a receiving zone and a delivery zone, a turning device having two arms each supported by a means of movement in rotation and translation, each means being placed between the receiving zone and delivery zone on both sides of the conveyor, the arms extending in a vertical plane parallel to the belts, two opposite vertical walls being fastened respectively to the arms, a crosswise edge extending between the two vertical walls in the vicinity



of the crosswise shaft, two bottom edges attached respectively to the vertical side walls being at the level of the belts, when the turning device is placed at the receiving zone for loading this device with cartons, the arms being able to turn 180° to put the turning device above the delivery zone, the bottom edges then being spaced from this zone in the vertical direction and the cartons contained in the device being held above this zone by the effect of the side walls thrust toward one another by jacks.

4,364,703

ROTARY PARKING STRUCTURE FOR PASSENGER CARS

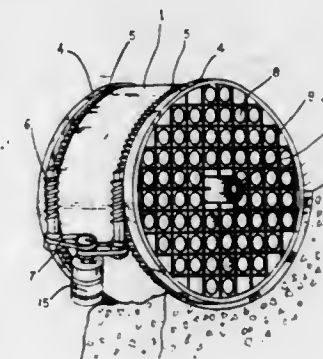
Yang-Kuang Pai, 2F No. 27, Lane 305, Wo-Lung St., Taipei, Taiwan

Filed Mar. 14, 1980, Ser. No. 130,447

Int. Cl.³ E04H 6/16

U.S. Cl. 414—250

3 Claims



1. A rotary vehicle parking structure, comprising:

a storage structure comprising an axle, a lattice structure secured to said axle and forming a plurality of parking compartments and a circular casing surrounding and attached to said lattice structure, said parking compartments each including a plurality of circular rails attached to said lattice structure, a rotatable cylindrical tube within said rails, said tube open at both ends and having a parking platform mounted therein, and a plurality of rollers disposed between said rails and said tube;

support means comprising a central support means including said axle, and an external support means comprising a base having a semicircular cavity, circular guide rails attached to the peripheral edges of said circular casing and a plurality of bearing rollers disposed between said cavity and said circular guide rails;

means for rotating said storage structure comprising a power means connected to at least one pinion gear and at least

one circular rack secured to the outer surface of said circular casing and engaging said at least one pinion gear.

4,364,704

GRAB BUCKET SUSPENDED FROM HOISTING INSTALLATION

Peter Dreesen, Essen, and Klaus Kiessling, Wetter, both of Fed. Rep. of Germany, assignors to Mannesmann-Demag AG, Fed. Rep. of Germany

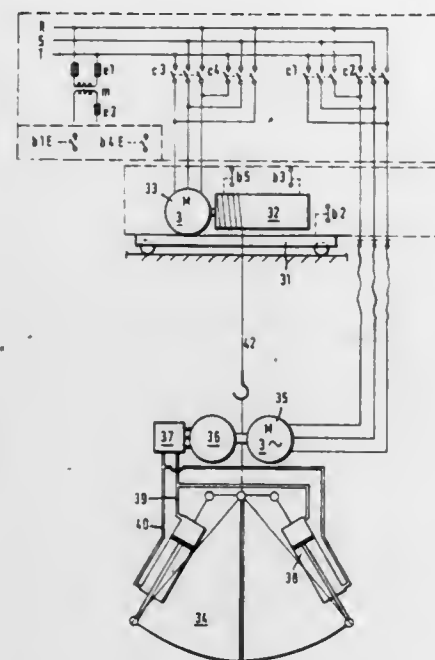
Filed Nov. 5, 1980, Ser. No. 204,234

Claims priority, application Fed. Rep. of Germany, Nov. 13, 1979, 2945746

Int. Cl.³ B86D 1/48

U.S. Cl. 414—624

5 Claims



1. An apparatus for lifting material from a pile, which comprises:

- (a) a grab bucket being operative to open and close,
- (b) a hoisting means including a cable for suspending said grab bucket and lowering and raising said grab bucket from said pile,
- (c) said hoisting means including a first reversible motor drive means associated with said cable to raise and lower said grab bucket,
- (d) a second reversible motor drive means associated with said grab bucket for opening and closing said grab bucket, and
- (e) electrical control means associated with said first and second motor drive means and including:
 - (i) a slackline limit switch to detect a slackening condition in said cable whereby upon said slackening condition said limit switch stops said first motor drive means and starts said second motor to close said grab bucket, and
 - (ii) timer relay means associated with said slackline limit switch and operative after predetermined time out periods to operate said first and second motor drive means in a predetermined sequence to close said bucket, raise said closing bucket above the pile, suspend the bucket above the pile until it is fully closed and raise the bucket to a destination position.

4,364,705

LOADER MECHANISM

John F. Shumaker, Mt. Pleasant, Iowa, assignor to J. I. Case Company, Racine, Wis.

Filed Jul. 7, 1980, Ser. No. 166,061

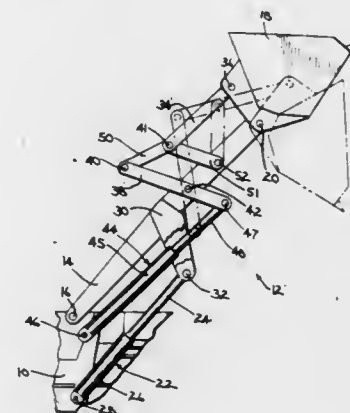
Int. Cl.³ E02F 3/00

U.S. Cl. 414—713

8 Claims

1. An improved loader, comprising:
 - (a) a frame;

- (b) a material-handling implement, disposed at the front end of said frame;
- (c) a lift arm pivoted at one end to said frame and at the opposite end to said implement;
- (d) first fluid ram means, pivotally joining said frame and said lift arm, for moving said implement relative to said frame between a raised position and a lowered position;
- (e) a cross link pivoted at a point intermediate its ends to said lift arm;
- (f) link means, pivotally connected at one end to said implement at a distance spaced from the pivotal connection between said lift arm and said implement and pivotally connected at its other end to one end of said cross link, for linking said implement to said cross link; said link means including a first rigid link pivotally connected at one end to said implement, a second rigid link pivotally connected at one end to said one end of said cross link and at its other end to the other end of said first rigid link, and a third rigid link pivotally connected at one end to said lift arm at a point on said lift arm between the pivotal connection of said cross link to said lift arm and the pivotal connection of said implement to said lift arm and at its other end to



said other end of said second rigid link, with said other end of said first rigid link being pivotally connected to said third rigid link; and

- (g) second fluid ram means, pivotally connected at one end to said frame and at the opposite end to the other end of said cross link, for rotating said implement relative to said lift arm between a rolled back position and a dump position, the dig position of said implement lying between said rolled back and said dump positions, the piston rod portion of said second fluid ram means being pivotally connected to said cross link and being disposed parallel to said first rigid link when said implement is in the dig position, whereby the maximum force available from said second fluid ram means is used to pivot said implement from the dig position to said rolled back position, and the extension and retraction of said first fluid ram means raising said lift arm relative to said frame and forcing said cross link to rotate said implement to compensate for the rotation of said implement induced by the rotation of said lift arm alone, whereby said implement when in the rolled back position remains essentially in the same orientation relative to said frame while said implement is moved by said lift arm between lowered and raised positions.

4,364,706

CARRIER APPARATUS FOR VERTICAL AND HORIZONTAL TRANSPORTATION OF LOADS

Reinhard Kranzlmüller, Bahnhofstrasse 28, A 6850 Dornbirn, Vorarlberg, Austria

Filed Jun. 25, 1980, Ser. No. 162,742

Int. Cl.³ B66F 9/14, 9/07; B65G 1/04

U.S. Cl. 414—733

7 Claims

1. Apparatus for transporting articles including carrier means and bracket means, said bracket means comprising:
 - first arm means having a first end mounted for pivotal mo-

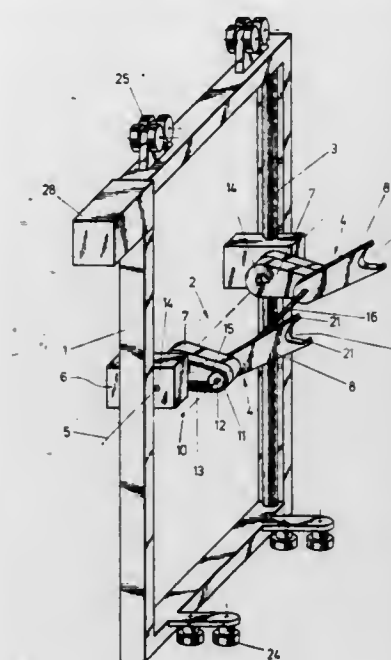
tion relative to said carrier means about a first generally horizontal pivot axis and a second end opposite said first end;

second arm means mounted at one end thereof to said second end of said first arm means for pivotal motion relative thereto about a second generally horizontal pivot axis;

said second arm means having at the other end thereof opposite said one end engaging means for enabling said articles which are to be transported to be held at said other end of said second arm means;

drive means for driving said first arm means to effect pivotal motion thereof about said first pivot axis;

interconnecting drive means operatively engaged between said first arm means and said second arm means to effect pivotal motion of said second arm means relative to said first arm means about said second pivot axis;



said interconnecting drive means including

a first drive element mounted for rotation with said first arm means,

a second drive element connected with said second arm means, and

an interconnecting element for effecting rotation of said second drive element upon rotation of said first drive element;

said interconnecting drive means being structured and dimensioned to maintain said other end of said second arm means moving along a path which is substantially linear and horizontal relative to said first pivot axis and which extends substantially perpendicular to said first pivot axis;

said apparatus further comprising means for moving said bracket means vertically upwardly and downwardly upon said carrier means.

4,364,707

OBJECT TRANSPORT APPARATUS

James D. Ott, Mesa, Ariz., assignor to Advanced Semiconductor Materials Die Bonding Inc., Chandler, Ariz.

Filed May 6, 1980, Ser. No. 147,227

Int. Cl.³ B25J 9/00

U.S. Cl. 414—744 B

10 Claims

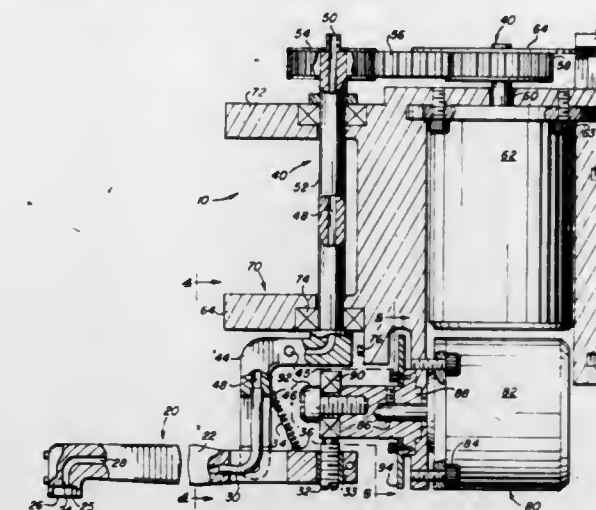
1. An object transport apparatus for conveying at least one object from a first reference surface position to a second reference surface position, comprising:
 - pickup means having a pickup surface for releasably engaging said object;
 - said pickup means including an elongated arm member;
 - said pickup surface defining at least a vacuum orifice;
 - said pickup means further having a selectively operable vacuum source open to said vacuum orifice;
 - transport means cooperatively connected to said pickup means for swinging said pickup surface from said first

reference position through an arcuate path having an independently selectively variable range of elevations to said second reference position;

said transport means having a frame;

said transport means further having a shaft rotatably supported about an axis by said frame for rotating said arm in a reversible angular motion over an arcuate range;

said transport means including pivot means for pivotally engaging said arm to said shaft;



said transport means yet further comprising cam means supported by said frame for pivoting said arm in a reversible pivotal motion about said pivot means over a pivotal range;

said arm having a cam follower surface for contacting at least a portion of said cam means; and

said cam follower surface having symmetry about said shaft axis so that said cam means can independently deflect said pickup surface to any elevation position of said arm within said arcuate range.

4,364,708

WINDMILL

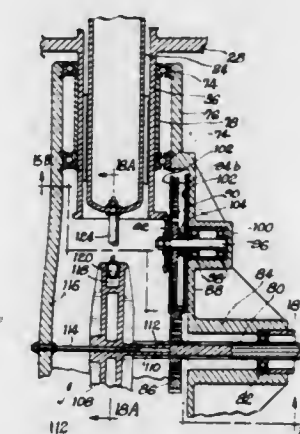
Constant V. David, 4952 Field St., San Diego, Calif. 92110

Filed Aug. 27, 1981, Ser. No. 296,973

Int. Cl.³ F03D 7/02

U.S. Cl. 416—132 B

13 Claims



1. A windmill comprising:
 - a hub;
 - means for supporting the hub for rotation about a substantially horizontal axis;
 - a plurality of blades each having a root, a tip and a spanwise twistable intermediate section;
 - linkages means for connecting the roots of the blades to the hub to permit selective independent rotation of the roots and the tips for varying the pitch and the spanwise twist of the blades independently;
 - an electric power generator;

means for providing a driving connection between the hub and the generator; and control means connected to the linkage means for varying the pitch and the spanwise twist of the blades in accordance with a predetermined desired relationship that will optimize generation of electric power.

4,364,709

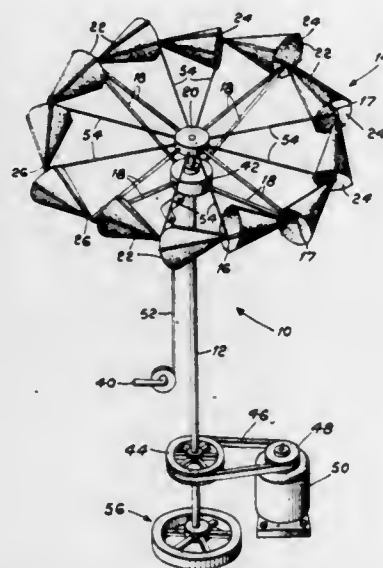
WIND POWER CONVERTER

August Tornquist, 125 Barclay Ave., Staten Island, N.Y. 10312
Filed Dec. 30, 1981, Ser. No. 331,523

Int. Cl.³ F03D 3/06

U.S. Cl. 416-132 B

11 Claims



1. A windmill for capturing wind comprising:
 - (a) a rotor assembly mounted for rotation about a first axis;
 - (b) said rotor assembly including a plurality of vane means radially spaced from said first axis at the periphery of said assembly and circumferentially spaced thereabout;
 - (c) each of said vane means being flexible and comprising a tapered configuration open at opposite ends thereof and having a substantially, continuous outer surface extending between said ends; and
 - (d) a plurality of rigid elongated rods spaced about the outer surface of each of said vane means, for substantially maintaining said tapered configuration of each of said vane means in response to impact with said wind.

4,364,710

VERTICAL-AXIS WINDMILL OF THE CHINESE TYPE

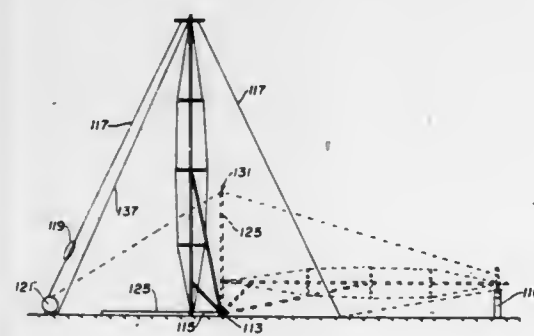
James Campbell, 74 Sleepy Hollow Ln., Orinda, Calif. 94563

Filed Dec. 7, 1979, Ser. No. 101,114

Int. Cl.³ F03D 11/04

U.S. Cl. 416-142

1 Claim



1. A windmill comprising a support for sails including a central support structure having a ground engageable end, at least one sail supported by said central structure, means for downwardly rotating said support structure for lowering said windmill without engagement of said sail with ground, a front cable secured from ground to the upper portion of said central

support structure, a gin-pole secured normal to said ground engageable end of said central support structure and extending in alignment with said front cable such that when said windmill is rotated, in a lowering direction, said gin-pole will rotate upward and contact said front cable to maintain said front cable in an elevated position to provide leverage for assisting in lowering and subsequently in raising of said windmill, said ground engageable end of said central support structure secured upon a rotatable base with said rotatable base including a pivot behind said windmill, said windmill characterized by having a balance position when its center of mass is rotated, during raising, to a position directly above said offset pivot, a safety gauge rod rotatably hanging freely from said gin-pole to engage the ground upon raising of said windmill to prevent said windmill from falling from said balance position to an upright position.

4,364,711

FOLDING BOAT PROPELLER

Lennart H. Brandt, Fjärås; Ingvar O. Hultmark, Hisings Kärna; Lars H. Petersson, Torslanda, and Carl U. Söderbaum, Askim, all of Sweden, assignors to AB Volvo Penta, Göteborg, Sweden

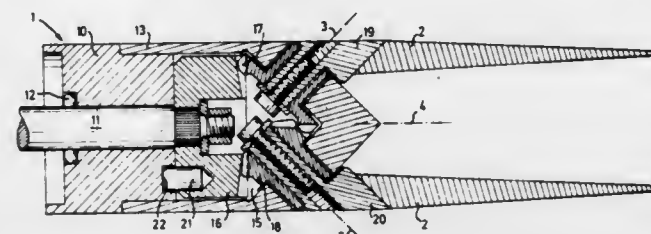
Filed Jan. 13, 1981, Ser. No. 224,799

Claims priority, application Sweden, Jan. 16, 1980, 8000362

Int. Cl.³ B63H 1/24

U.S. Cl. 416-142

9 Claims



1. Boat propeller comprising a hub for attachment to a propeller shaft and at least two propeller blades carried by said hub, each of which blades has a suction side and a pressure side, and which are pivotally mounted in the hub so that they are movable between an unfolded operating position and a folded position in which the blades extend rearwards in the direction of the shaft, characterized in that the mounting axes of the blades are arranged at such an angle relative to the rotational axis of the hub that the blades are movable between the unfolded and the folded positions by rotation about the respective mounting axis at least essentially one-half turn, the hub having means for permitting limited rotation of the hub relative to a said propeller shaft, and transmission means arranged, upon said relative movement, to transmit torque to the propeller blades for rotating them between the folded and the unfolded positions.

4,364,712

CROSS FLOW COOLING FAN

Herbert N. Charles, Chatham, Canada, assignor to Canadian Fram, Chatham, Canada

Filed Jul. 10, 1980, Ser. No. 168,233

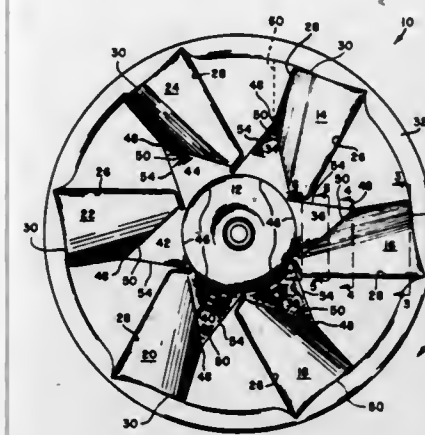
Int. Cl.³ F04D 29/26

U.S. Cl. 416-183

8 Claims

1. In a fan for imparting both axial and radial flow components to the air passing between the upstream and downstream sides of the fan, a hub, a plurality of circumferentially spaced fan blades, each of said fan blades having a leading edge and a trailing edge, characterized in that said fan includes backing plate portions associated with each of said blades, said backing plate portions being defined as circumferentially spaced sections of a common conical surface projecting from the down-

stream side of said hub, each of said blades being disposed in a plane oblique to the plane of said conical surface and intersect-



ing its corresponding backing plate portion to define a joining edge therebetween.

4,364,713

ELECTROMAGNETIC CONDUCTION-PUMP FOR LIQUID METAL

Henri Carbonnel, Antony, France, assignor to NOVATOME, Robinson, France

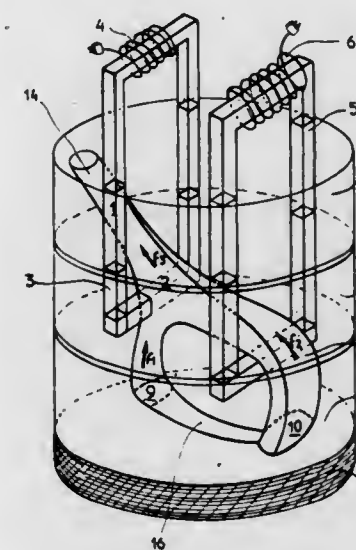
Filed May 23, 1980, Ser. No. 152,584

Claims priority, application France, Jun. 7, 1979, 79 14585

Int. Cl.³ H02N 4/20

U.S. Cl. 417-50

3 Claims



1. An electromagnetic conduction pump for liquid metal, comprising
 - (a) a part of refractory material which can be submerged in a bath of liquid metal;
 - (b) a first magnetic circuit including a horizontal arm embedded in said refractory material and having a gap;
 - (c) a second closed magnetic circuit having a feed coil and including a horizontal arm embedded in said refractory material;
 - (d) a rising channel in said refractory material for pumping of said liquid metal passing through said gap in said first magnetic circuit and a closed turn of liquid metal communicating with said rising pumping channel at the location where it passes through said gap;
 - (e) said turn comprising a channel of inverted-U shape the median plane of which is a vertical plane passing through said gap in said first magnetic circuit, the legs of said U dipping into said bath of metal in order to close said turn, one of said legs consisting of a section of said rising channel and the other leg partially interlacing said horizontal arm of said second magnetic circuit.

4,364,714

PROCESS TO SUPERCHARGE AND CONTROL A SINGLE SCREW COMPRESSOR

Bernard Zimmern, Neuilly sur Seine, France, assignor to Uniscrew Limited, Hamilton, Bermuda

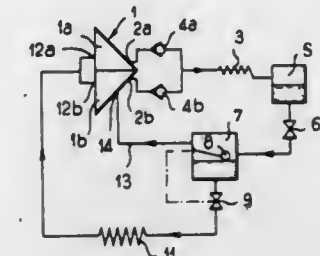
Filed Jun. 3, 1980, Ser. No. 156,110

Claims priority, application France, Jun. 19, 1979, 79 15675

Int. Cl.³ F04C 29/10; F04B 49/02; F01C 1/10; F25B 31/00

U.S. Cl. 417-53

2 Claims



1. A process for supercharging and controlling a composite compressor having a single screw cooperating with at least two pinions to provide a plurality of partial compressors equal in number to the number of said pinions, at least one of said partial compressors having means for controlling the delivery thereof, said process comprising the steps of:
 - injecting into a single one of said partial compressors a supercharging flow of gas at pressures intermediate compressor intake and discharge pressures; and
 - varying the delivery of said composite compressor from maximum delivery thereof by first reducing the deliveries of said partial compressors other than said single one partial compressor into which said supercharging flow is injected.

4,364,715

WAVE ACTUATED GAS COMPRESSION APPARATUS

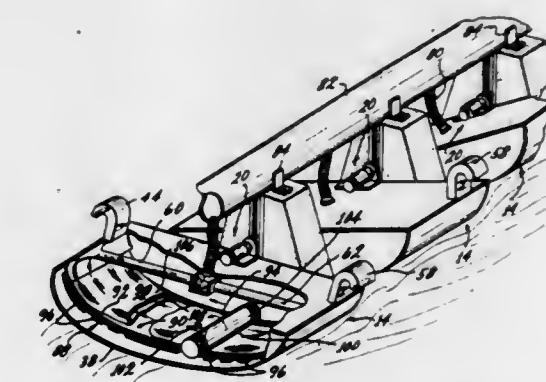
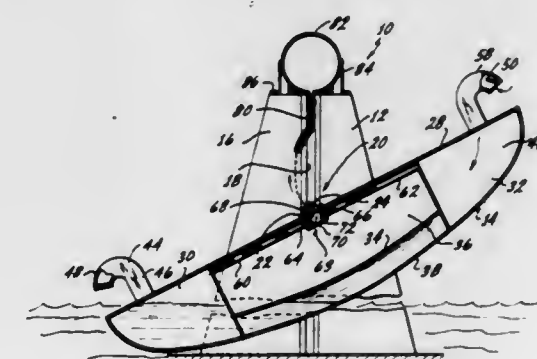
Richard D. Bolding, P.O. Box 870, Rialto, Calif. 92376

Filed Feb. 11, 1980, Ser. No. 120,673

Int. Cl.³ F03B 13/12; F04B 43/12

U.S. Cl. 417-100

4 Claims



1. An apparatus for harvesting the wave energy of a body of

water by utilizing wave movement of the body of water to compress a gas which comprises:

- a support means suitably anchored in a fixed position with respect to wave movement such that said support means is not substantially movable in response to wave movement;
- a hollow pontoon means located adjacent to said support means, said pontoon means including a pivot means located on the external surface of said pontoon means, said pontoon means pivotally mounted about said pivot means to said support means and movable about said pivot means in response to said support means in response to wave movement;
- said pontoon means having at least two chambers located in the interior of said pontoon means, each of said chambers having a gas inlet means connecting to the ambient atmosphere and a gas outlet means, each of said gas inlet means and said gas outlet means including a one way valve means restricting gas flow into said chambers through said gas inlet means and restricting gas flow out of said chambers through said gas outlet means;
- a gas collecting means located in the interior of said pontoon means and connecting the interiors of said chambers to each other;

a movable means located in the interior of said pontoon means and operatively associated with said chamber connecting means, said movable means sealing said chamber connecting means against gas flow between said chambers, said movable means moving within the interior of said pontoon means in response to movement of said pontoon means such that as said movable means moves within the interior of said pontoon means simultaneously the gas pressure in one of said chambers is increased while the gas pressure in the other of said chambers is decreased causing gas to flow through the outlet means of said chamber wherein said gas pressure is increased into said gas collecting means and causing gas to flow from the ambient atmosphere through the inlet means of said chamber wherein gas pressure is decreased;

said support means includes a pivot guide means mounted on said support means along the vertical axis of said support means;

said pivot means slidably attaching to said pivot guide means such that said pontoon means is capable of moving up and down in a vertical direction in respect to said support means; said pontoon means comprises an elongated pontoon having a first chamber located at one end of said pontoon and a second chamber located at the other end of said pontoon;

said chamber connecting means comprises a fluid conducting tube located at the bottom of said pontoon and connecting the bottom of each of said chambers to one another and forming a fluid pathway between said chambers;

said movable means comprises a quantity of liquid located in said chambers and in said fluid conducting tube so as to be capable of flowing from said first chamber through said tube to said second chamber when said pontoon pivots in one direction about said pivot means and flowing from said second chamber to said first chamber when said pontoon pivots in the opposite direction about said pivot means;

said gas collecting means includes a gas collecting manifold located on said support means and a flexible connecting means operatively attached between said gas collecting manifold and said gas outlet means such that gas passes from said gas outlet means through said flexible connecting means to said gas collecting manifold;

a plurality of said support means located proximal to each other in a unified array;

a plurality of said pontoon means each pivotally attached to one of said support means;

said gas collecting manifold located on said plurality of said support means and forming a continuous gas collecting pathway between said support means;

a plurality of said flexible connecting means equal in number to said number of said pontoon means, one end of each of said flexible connecting means attaching to one of said pontoon means and the other end of all of said flexible connecting means attaching to said gas collecting manifold;

said gas outlet means comprises a first and a second gas con-

duit, one end of said first gas conduit attaching to the upper portion of said first chamber and one end of said second gas conduit attaching to the upper portion of said second chamber, and a gas coupling having three gas ports, the other end of both said first and second gas conduits attaching to two of said gas ports;

said flexible connecting means attaching to the other of said gas ports such that gas can be conducted from said first and said second chambers through said first and said second conduits to said gas coupling and from said gas coupling into said flexible coupling means.

4,364,716

SURGICAL PUMPING OPERATION

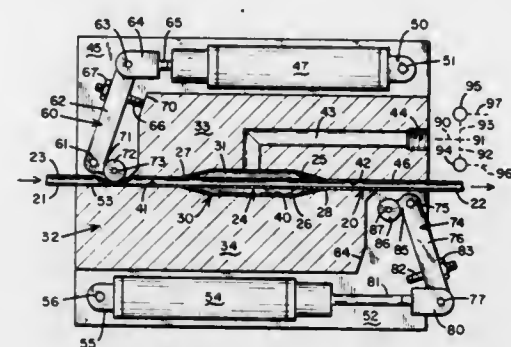
Gilmore T. Schjeldahl, Minnetonka, Minn., assignor to Cathedryne Corporation, Minnetonka, Minn.

Filed Feb. 23, 1981, Ser. No. 236,899

Int. Cl.³ F04B 17/04, 35/04

U.S. Cl. 417—394

5 Claims



1. A pump comprising, in combination:

an inner flexible resilient tube extending along an axis and having an inlet end, an outlet end, and a wall with a field of perforations therethrough located medially between said ends;

an outer flexible resilient tube of larger diameter coaxial with and surrounding said inner tube in the region of said field; means sealing the ends of said outer tube around the wall of said inner tube at sites beyond said field to define between said tubes a hollow, generally cylindrical space of predetermined normal volume;

a housing defining a chamber configured to closely receive said tubes, said housing comprising two rigid portions meeting along a surface containing the axis of said tubes; means mutually hinging said portions to separate along said surface, for insertion and removal of said tubes;

means in one of said portions connected to said chamber in the area of said field for subjecting said outer tube to positive and negative air pressures to compress and expand said outer tube; and

means carried by said housing and separately actuatable to compressively close the ends of said inner tubes.

4,364,717

EXHAUST GAS TURBOCHARGER

Heinz Schippers; Werner Branscheid; Erich Lenk, and Udo Hardt, all of Remscheid, Fed. Rep. of Germany, assignors to Barmag Barmer Maschinenfabrik AG, Remscheid, Fed. Rep. of Germany

Filed Jul. 3, 1979, Ser. No. 54,411

Claims priority, application Fed. Rep. of Germany, Jul. 3, 1978, 2829150

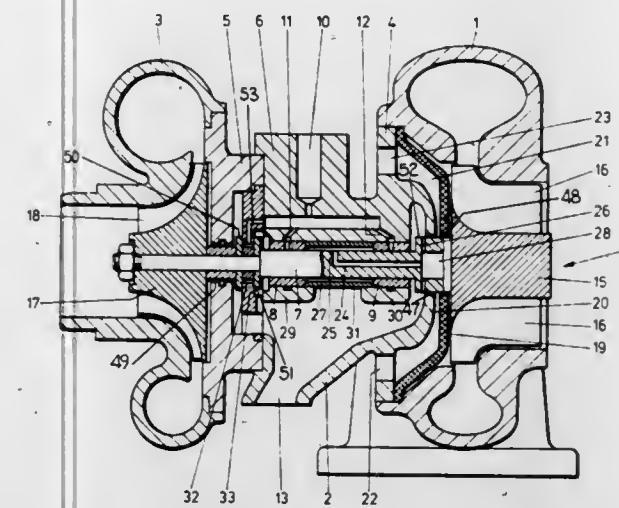
Int. Cl.³ F01D 25/12, 25/18

U.S. Cl. 417—407

18 Claims

1. An apparatus for turbocharging an internal combustion engine, and characterized by the ability to avoid excessive heat transfer to heat sensitive components thereof, said apparatus comprising

an exhaust gas turbine comprising a turbine housing and a turbine wheel, a rotary compressor comprising a compressor housing and a compressor wheel, a shaft mounting said turbine wheel at one end thereof and said rotary compressor wheel at the other end thereof, a bearing housing having an end wall with an opening therethrough, bearing means rotatably mounting said shaft in said bearing housing so that said shaft extends through said opening of said end wall, and with said turbine wheel being disposed on the outside of said end wall, said turbine housing having a rear wall with an opening therethrough,



means mounting said turbine housing to said bearing housing so that said turbine housing operatively encloses said turbine wheel, and with said shaft extending through said opening of said turbine housing rear wall and with said bearing housing end wall being opposed to and spaced from said turbine housing rear wall to define an annular cooling gap therebetween, and including aperture means permitting ambient air to flow through said cooling gap by natural convection during operation of the apparatus to cool the opposing surfaces of said end wall and said rear wall and thereby minimize heat transfer therebetween, and

means for directing a continuous stream of oil onto the surface of said bearing housing end wall to thereby cool the same.

4,364,718

DISPOSABLE PUMP FOR DISPENSING SMALL METERED AMOUNTS OF LIQUID FROM A CONTAINER AND A CONTROL UNIT FOR OPERATING SAID PUMP

Jacobus H. Beun, Maassluis, and Jan van Duijn, Vlaardingen, both of Netherlands, assignors to Internationale Octrooi Maatschappij "Octropa" BV, Rotterdam, Netherlands

Filed Feb. 24, 1981, Ser. No. 237,706

Int. Cl.³ F04B 39/10; B67D 3/00

U.S. Cl. 417—500

10 Claims

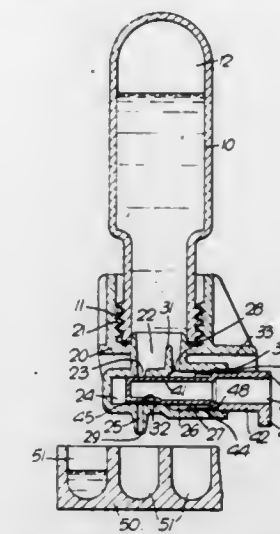
1. A disposable pump for dispensing small metered amounts of liquid from a container having only one mouth opening with adjacent connecting means for the pump,

said pump comprising a housing and a cylindrical piston, said housing having a first bore, closed at one end, for slidably and rotatably accommodating the piston, a second bore disposed perpendicularly with respect to the first bore, connecting means for co-operating with those of the container being arranged adjacent the outer end of the second bore,

said first bore comprising a narrow inward section and a coaxial wider section,

said narrow section communicating through a supply con-

duit with the second bore and through a dispensing conduit with a dispensing orifice opening outside the housing, the wider section communicating near its upward end portion through a gas inlet conduit with the second bore, said piston comprising a thinner inward section, closely fitting in the narrow section and provided with at least one groove at least partly extending longitudinally with respect to the piston up to the inward end thereof and being



arranged such as to prevent simultaneous communication with both the supply conduit and the dispensing conduit, said piston having a coaxial cylindrical sealing lip elastically bearing against the inner surface of the wider section of the first bore,

said piston also having coupling means for connection with a control unit for transmitting both longitudinal and rotational movement to the piston.

4,364,719

SPRAY APPARATUS FOR METAL FORMING AND GLASSWARE FORMING MACHINES

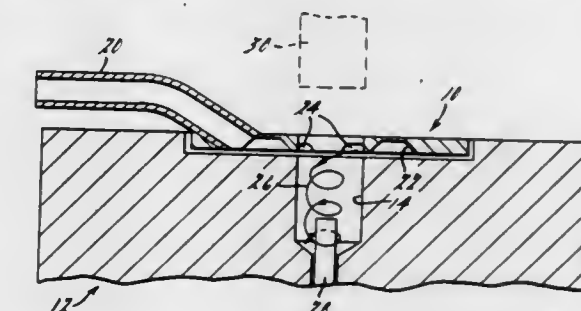
Walter E. Levine, Port Huron, Mich., assignor to Acheson Industries, Inc., Port Huron, Mich.

Filed Aug. 27, 1981, Ser. No. 297,017

Int. Cl.³ B30B 15/08; B29C 1/00

U.S. Cl. 425—78

8 Claims



1. A lubricant spraying apparatus for metal forming and glassware forming machines of the type having a forming cavity into which the material to be formed is placed, and a plurality of nozzle means arranged to discharge fluid lubricant into the cavity prior to each forming operation such that the walls of the cavity and parts associated therewith in the forming operation are properly coated with the lubricant, said apparatus being comprised of,

a spray ring means which is positioned generally around the opening of the cavity, said plurality of nozzle means being positioned on the spray ring and being operative to discharge fluid lubricant into the cavity in a helical tangential flow pattern, conduit means for connecting the nozzle means and spray ring means to a source of fluid lubricant whereby a predetermined amount of lubricant can be supplied to the cavity at desired intervals of operation.

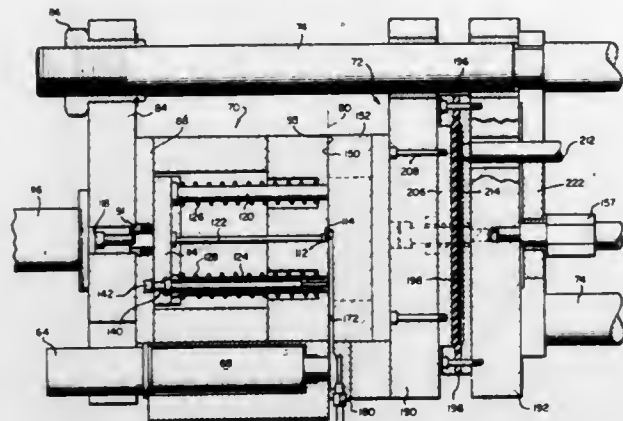
4,364,720

MOLDING MACHINE AND SYSTEM FOR ACCOMMODATING A PLURALITY OF SUCH MACHINES Francis E. Ryder, Arab, Ala., assignor to Ryder International Corporation, Arab, Ala.

Filed Dec. 22, 1980, Ser. No. 218,628
Int. Cl.³ B29F 1/06

U.S. Cl. 425—144

9 Claims



1. An injection molding machine including means for injecting thermoplastic material into a mold cavity defined by at least two mold components, which components are capable of being placed in preloaded, clamped abutting relationship means for producing relative movement and preloading of said mold components, said means comprising a first stationary platen for accommodating one of a pair of mold components, and a second, relatively movable platen for accommodating the other of a pair of mold components, said second relatively movable platen comprising, a forward plate member and rearward plate member, means for fixing the position of the rearward plate member, resilient diaphragm means interposed intermediate said forward and said rearward plate member, said resilient diaphragm means providing a diaphragm chamber and means for pressurizing said diaphragm chamber with a fluid medium to expand said resilient diaphragm means, and to force said forward plate member away from said fixed rearward plate member and toward said stationary platen, such that the abutting mold components carried by said first and second platens will be brought into clamped, preloaded relationship preparatory to the injection of thermoplastic material as a step in the molding process the resiliency of said diaphragm means serving to aid in the expelling of the fluid medium from said diaphragm chamber.

4,364,721

APPARATUS FOR BLOWING ORIENTED CONTAINERS Dewey Rainville, Westfield, N.J., assignor to Rainville Company, Inc., Middlesex, N.J.

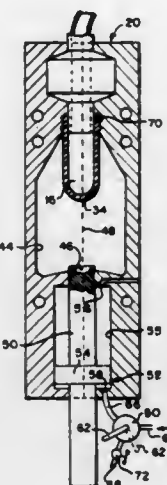
Division of Ser. No. 30,813, Apr. 17, 1979, abandoned. This application Oct. 7, 1980, Ser. No. 194,853
Int. Cl.³ B29C 17/07

U.S. Cl. 425—149

12 Claims

1. Apparatus for blowing plastic containers and bottles or the like including a parison-forming injection mold including a core rod around one end length of which a parison is molded, a blow mold to which the core rod and its parison are shifted from the injection mold, said blow mold including means forming a blow-mold cavity in substantial alignment with the core rod, a substantially solid piston rod that slides longitudinally in a guide at the end of the cavity opposite the core rod and in alignment with the core rod, an end portion of the piston rod that confronts and contacts with the end of the parison when the piston rod is advanced to its limit of movement toward the end of the parison and core rod, means for retracting the piston rod away from the core rod as the parison moves away from the end of the core rod at the start of a blowing operation in the blow mold, the end portion of the piston rod having a substantially continuous concave surface into which the confronting end of the parison extends to hold the confronting end portion of the parison against lateral movement

with respect to the longitudinal axis of the core rod and the piston rod during the blowing of the parison to the shape of the cavity of the blow mold, means for stopping the travel of the piston rod when the end portion of the piston rod reaches a position where it cooperates with an annular bottom of the blow mold that surrounds said piston rod in the end of the cavity remote from the core rod so that the bottom of the blow mold and the concave end surface of the piston rod provide a



4,364,722

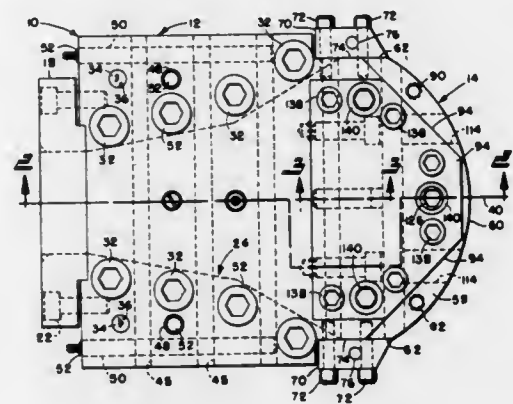
FOAM EXTRUSION DIE ASSEMBLY

Arthur L. Phipps, Tallmadge, Ohio, assignor to U.C. Industries, Tallmadge, Ohio

Filed Apr. 2, 1981, Ser. No. 250,273
Int. Cl.³ B29F 3/04

U.S. Cl. 425—192 R

32 Claims



16. An extrusion die assembly comprising a die body, a pair of spaced lip members having opposed arcuate lips defining an orifice therebetween, each lip member further having an axially extending flexible leg to the rear of said arcuate lip and a foot at each end of said leg opposite said lip, and means for adjustably securing each foot to said die body and for pivoting each lip about its flexible leg to provide a desired die orifice size and shape, said means for pivoting including lip adjustment means engaged with said lips for positively driving said lips both towards and away from one another thereby to cause said lips to pivot about the flexing legs so as to vary both the size and shape of the orifice.

4,364,723

APPARATUS FOR TEXTURING A THERMOPLASTIC FILM

Paul R. Louis, Green Township, Hamilton County; Eugene R. Sorensen, Springfield Township, Hamilton County, and Thomas R. Ballard, Sycamore Township, Hamilton County, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

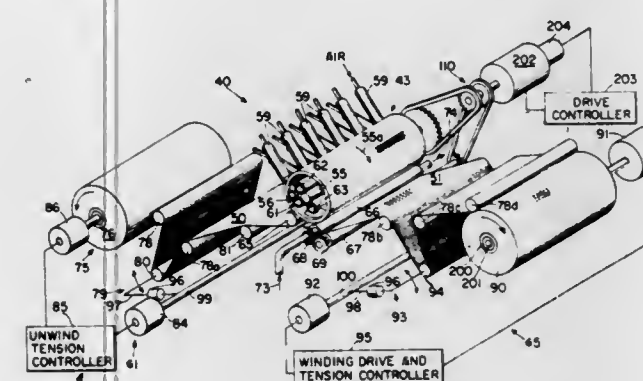
Division of Ser. No. 36,254, May 4, 1979, Pat. No. 4,259,286.

This application Aug. 20, 1980, Ser. No. 179,907

Int. Cl.³ B29C 17/04, 17/03

U.S. Cl. 425—384

4 Claims



1. An apparatus for texturing a running ribbon of thermoplastic film material comprising:

- a frame;
- a texturing means for imparting a multiplicity of nubbles to said thermoplastic film material said texturing means comprising a texturing cylinder having a radially outwardly surface, said surface having a closely packed array of tapered holes, and having a multiplicity of particles adhered to said radially outwardly surface and to the walls of said tapered holes;
- first means for forwarding a smooth, running ribbon of thermoplastic film into contact with said texturing means;
- second means for forwarding said running ribbon of thermoplastic film from said texturing means;
- tension maintaining means for maintaining substantially constant predetermined levels of tension in said film being forwarded into contact with and from said texturing means;
- isolating means for sufficiently isolating a portion of said film while said isolated portion is in contact with said texturing means from said levels of tension so that said portion of film can be heated to above its thermoplastic temperature without being macroscopically distended;
- heating means for heating said portion of said film to a temperature above the thermoplastic temperature of said film;
- urging means for urging said portion of said film against said texturing means with a pressure sufficient to impart a multiplicity of nubbles to said film;
- cooling means for sufficiently cooling said portion of said film before said film is forwarded from said texturing means to cause the nubbles to be set in said film, and to enable said predetermined level of tension to be applied to said film being forwarded from said texturing means without causing said film to be substantially distended in the machine direction.

4,364,724

METHOD AND APPARATUS FOR DOSING AN AIR-FUEL MIXTURE IN BURNERS HAVING EVAPORATING TUBES

Jan A. Alpkvist, Linköping, Sweden, assignor to Förenade Farbiksverken, Eskilstuna, Sweden

PCT No. PCT/SE79/00121, § 371 Date Feb. 2, 1980, § 102(e) Date Feb. 1, 1980; PCT Pub. No. WO80/00034, PCT Pub. Date Jan. 10, 1980

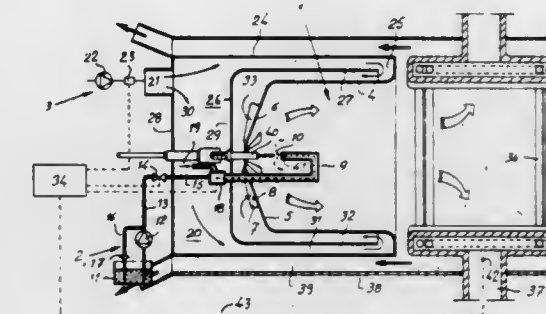
PCT Filed May 28, 1979, Ser. No. 190,672

Claims priority, application Sweden, Jun. 2, 1978, 7806536

Int. Cl.³ F23D 11/44

U.S. Cl. 431—11

7 Claims



1. Method of dosing the air-fuel mixture in burners of the type which is formed with an evaporator tube through which fuel and some amount of combustion air is introduced in the combustion chamber and is mixed in said chamber with further combustion air and is inflamed, characterized in that the optimum amount of combustion air is determined for different types of fuel and different reference temperatures in a predetermined point of the evaporator tube adjacent the mouth thereof in the combustion chamber, and the temperature of the air-fuel mixture is measured in the said point of the evaporator tube and the actual temperature is compared with a predetermined reference temperature at a given amount of injected fluid, and for an actual temperature below and above respectively the reference temperature the amount of combustion air is reduced and increased respectively in proportion to the measured temperature difference until the actual temperature has increased and dropped respectively to the reference temperature, whereby the burner in the combustion chamber gets the predetermined optimum amount of combustion air.

4,364,725

BLUE-FLAME OIL BURNER

Winfried Buschulte, Celle, Fed. Rep. of Germany, assignor to Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt e.V., Cologne, Fed. Rep. of Germany

Continuation of Ser. No. 859,716, Dec. 12, 1977, abandoned.

This application Dec. 7, 1981, Ser. No. 328,004

Claims priority, application Fed. Rep. of Germany, Jan. 8, 1977, 2700671

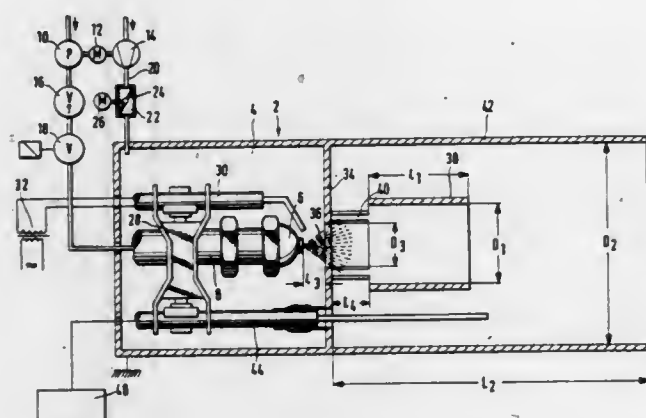
Int. Cl.³ F23D 13/40

U.S. Cl. 431—116

6 Claims

1. An apparatus for burning oil and combustion air under relatively high pressure for producing a high-heat blue flame, comprising a burner having a chamber in which an oil atomizing device is located, means for introducing pressurized combustion air into said chamber for surrounding said oil atomizing device, an interior wall spaced from said oil atomizing device downstream therefrom, orifice means formed in said interior wall and communicating with said oil atomizing device, said oil atomizing device injecting oil under pressure therefrom for mixing with said combustion air, a flame tube joined to said interior wall in coaxial relation with respect to said oil atomizing device and defining the downstream portion of said burner, a mixing tube located interiorly of and coaxially with respect to said oil atomizing device and said flame tube and said orifice means and being disposed downstream of said orifice means and spaced from said interior wall, the area in said flame tube

that is located downstream of the downstream end of said mixing tube and that is spaced inwardly of the discharge end of said flame tube defining a combustion zone which is the region of highest temperature in said flame tube, said mixing tube having opening means formed in the upstream end thereof, wherein the space between said interior wall and the upstream end of said mixing tube provides for reentry into said upstream end of a portion of the combustion gases that are discharged from the downstream end of said mixing tube for recirculation thereof, said recirculated combustion gases being those gases in which the oil has not been completely oxidized, said recirculated gases being drawn from the combustion zone toward the upstream end of said mixing tube by the velocity of the mixed atomized oil and combustion air passing into said mixing tube from said orifice means, the recirculated combustion gases providing for heating of the mixture of air and atomized oil entering the mixing tube from said orifice means whereby the atomized oil is vaporized, the upstream end of said flame tube



being sealingly connected to said interior wall in which said orifice means is located, a freely open annular space being formed between the outer surface of said mixing tube and the inner surface of said flame tube, recirculation of the combustion gases occurring over substantially the entire length of said flame tube from said combustion zone to said mixing tube, the path of said recirculated combustion gases that emanate from the region of highest temperature in said flame tube being directed through said annular space into the upstream end of said mixing tube, the wall of said flame tube being relatively thin, wherein the freely open annular space as defined between said flame tube and said mixing tube is of sufficient dimension to provide for the free flow of said recirculating combustion gases therethrough to said mixing tube, said mixing tube having a ratio of length (L_1) to diameter (D_1) of between about 1.0 and 1.75, said flame tube having a ratio length (L_2) to diameter (D_2) of between about 2.0 and 5.0 and said flame tube being a diameter (D_2) which is about 2-2.5 times the diameter (D_1) of said mixing tube.

4,364,726

CERAMIC BURNER HEAD WITH SEPARATE FUEL AND OXIDIZER PASSAGES

Siegfried Förster, Alsdorf; Manfred Kleemann, Bergheim, and Berthold Sack, Aachen, all of Fed. Rep. of Germany, assignors to Kernforschungsanlage Jülich GmbH, Jülich, Fed. Rep. of Germany

Filed Dec. 5, 1979, Ser. No. 100,634

Claims priority, application Fed. Rep. of Germany, Dec. 9, 1978, 2853309

Int. Cl.³ F23D 11/44

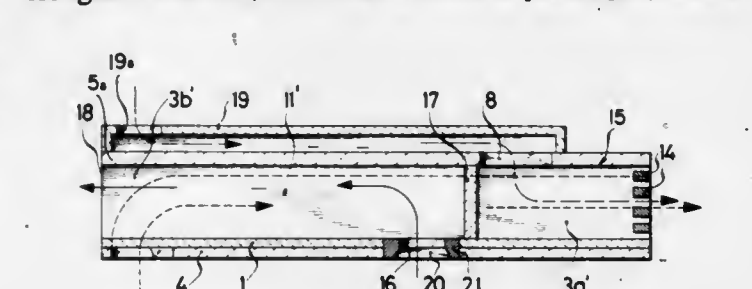
U.S. Cl. 431-215

7 Claims

1. A ceramic burner head comprising an elongated ceramic body formed with at least two sets of longitudinally extending interleaved and staggered flow channels extending parallel to each other with the channels of one set off-set from the channels of the other set toward opposite sides of said body whereby partitions of the ceramic material of said body separate adjacent channels of the

two sets and the channels of the sets alternate with one another, said channels opening substantially in a common plane at an end of said body to discharge respective fluids into a combustion chamber;

respective cover plates along said sides of said body for closing the channels of the respective sets while being provided with windows admitting a plurality of fluids to said channels including a combustion-sustaining oxidizing agent and a fuel whereby heat exchange is effected between said oxidizing agent and said fuel through said partitions between respective channels of said sets, all of said flow channels having elongated uniform flow cross sections in planes perpendicular to the flow direction, said fuel and said agent being discharged into said combustion chamber, at least one of said plates being formed with an opening for feeding a heating medium partly through at least some of said channels as one of said fluids to preheat another of said fluids in a preheating zone of the burner head, the channels of one of said sets being subdivided into two flow passages by respective separator walls;



means for passing said fuel through one of said passages; and means for passing said heating medium through the other of said passages in a direction opposite to the flow of said oxidizing agent along adjacent channels of the other set.

4,364,727

HEAT TREATMENT OF FOODSTUFF

Bernard E. Enga, Maidenhead, England, assignor to Johnson, Matthey & Co., Limited, London, England

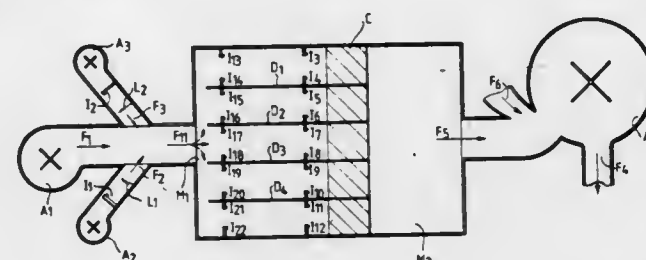
Filed Apr. 1, 1981, Ser. No. 249,981

Claims priority, application United Kingdom, Apr. 1, 1980, 8010893

Int. Cl.³ F27D 17/00

U.S. Cl. 432-1

9 Claims



1. A method for the heat treatment of a foodstuff using apparatus comprising a pilot burner or electrical heating element and a catalytic combustor composed of a catalyst supported on a temperature stable and oxidation resistant monolith coated with a refractory oxide layer which comprises:

- preheating an oxygen-containing gas stream by means of said pilot burner or electrical heating element;
- combining a second oxygen-containing gas stream with the preheated oxygen-containing gas stream in a mixing zone;
- injecting fuel into the mixture of gas streams combined at (b);
- passing the mixture of gas streams and injected fuel from (c) through the catalytic combustor such that catalytic combustion of the fuel is initiated; and
- contacting the foodstuff with the gas stream resulting from (d).

4,364,728

CONTINUOUS STRIP PREHEAT FURNACE AND METHOD OF OPERATION

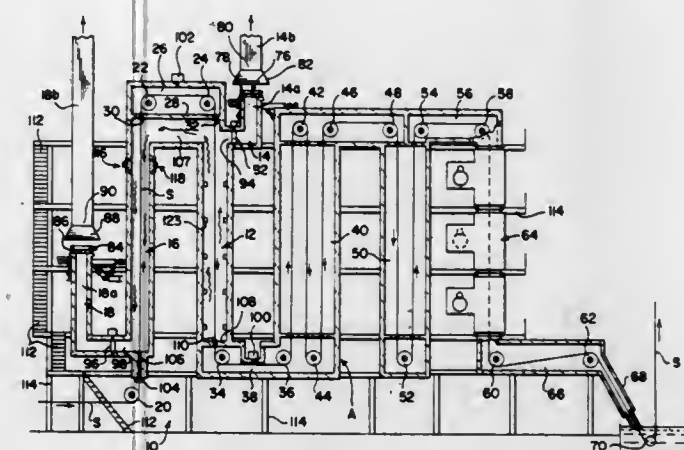
Donald F. Stamp, North Benton, Ohio, assignor to The Electric Furnace Company, Salem, Ohio

Filed May 19, 1981, Ser. No. 265,153

Int. Cl.³ F27B 9/28; F27D 1/18; C21D 9/52, 9/54

U.S. Cl. 432-8

23 Claims



15. In a preheat furnace having a fully enclosed strip pass line, an unfired preheat chamber in contiguous communication with a fired preheat chamber, a flue gas exhaust stack secured to each of said chambers; and a temperature responsive adjustable damper and an adjustable exhaust stack cover for each of the exhaust stacks to selectively exhaust flue gases from said exhaust stack.

4,364,730

PERIDONTAL PROBE

Per A. T. Axelsson, Drottninggatan 27, S-652 25 Karlstad, Sweden

Filed Oct. 21, 1981, Ser. No. 313,490

Claims priority, application Sweden, Oct. 31, 1980, 8007684

Int. Cl.³ A61C 3/00

U.S. Cl. 433-141

8 Claims



1. A periodontal probe for the investigation of a periodontal cavity comprising a handle portion, a pin member rotatably mounted on said handle portion about an axis of rotation, said pin member having a first and second end portion, said first end portion carrying attachment means for rotatably mounting said pin member on said handle portion and said second end portion being a free end portion and being straight and flat and terminating in a free end, said free end portion lying wholly to one side of said axis of rotation and being co-planar therewith, to define a space therebetween, said spacing between said free end portion and said axis of rotation being constant.

4,364,731

METHODS FOR PRODUCING ADHESIVE BONDS BETWEEN SUBSTRATE AND POLYMER EMPLOYING AN INTERMEDIATE OXIDE LAYER

Barry K. Norling, and James L. Bugg, Jr., both of San Antonio, Tex., assignors to Board of Regents, The University of Texas System, Austin, Tex.

Filed Jan. 29, 1981, Ser. No. 229,752

Int. Cl.³ A61C 5/08, 5/10

U.S. Cl. 433-218

13 Claims

1. A method for producing a dental crown composite comprising the steps of:

- providing a clean dental crown substrate surface;
- depositing onto the substrate surface an exogenous coating of inorganic oxide to a desired thickness on the substrate surface to enhance adhesion between the substrate and subsequently applied silane coupling agent;
- bonding a layer of silane coupling agent to the oxide coating; and
- applying a polymeric resin to the exposed silane coupling layer.

8. A dental crown composite comprising a dental crown substrate; a layer of exogenous inorganic oxide applied to a desired thickness to the surface of the substrate; a layer of silane coupling agent bonded to the layer of oxide; and a coating of polymeric resin applied to the surface of the silane coupling layer.

4,364,732

SIMULATED INTERACTIVE DIVIDING AND ALLOCATING PROCESS

Uli H. Chi, Kent, and Mark R. Lembersky, Seattle, both of Wash., assignors to Weyerhaeuser Company, Tacoma, Wash.

Filed Apr. 6, 1981, Ser. No. 251,557

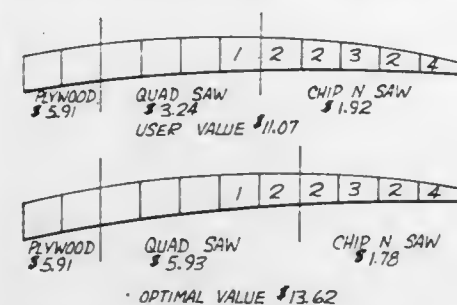
Int. Cl.³ G09B 7/02

U.S. Cl. 434-219

1 Claim

1. An interactive simulated process for segmenting and allocating objects including a user and a display and input unit coupled to a programmable data processing system having a memory, including the steps of:

loading a parameter table, utility table, series of objects including a preferred segmentation pattern and allocation, and an evaluation algorithm into the memory, prompting the user to select at least one of the stored objects for visual display through the input unit, displaying the geometric outline of the selected object on an area of the display and loading the object and its preferred segmentation and allocation into the memory,



inputting a user decision with respect to at least where the object will be segmented, executing the evaluation algorithm using the user decision for at least the segmentation and a default allocation, storing the calculated utility and parameters in the memory, and displaying a visual comparison of the user decision and of the preferred decision.

4,364,733

TRIMMER FOR MOTORBOATS

Ludwig Lohner, Gilching, Fed. Rep. of Germany, assignor to Bayerische Motoren Werke A.G., Munich, Fed. Rep. of Germany

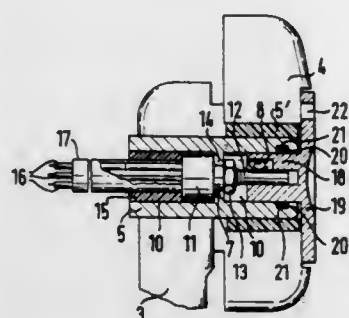
Filed Jul. 15, 1980, Ser. No. 169,136

Claims priority, application Fed. Rep. of Germany, Jul. 20, 1979, 2929420

Int. Cl.³ B63H 5/12

U.S. Cl. 440—2

8 Claims



1. A trimmer for indicating the trimming position of a drive mechanism of a motorboat wherein the drive mechanism is mounted to be rotatably movable in a gimbal ring by way of horizontal pins, said trimmer comprising a revolving part and a fixed part, both said revolving part and said fixed part being arranged within one of said horizontal pins, said fixed part being connected for rotation with the pin and the revolving part being connected for rotation with the gimbal ring, whereby said trimmer is protected from damage and requires no separate structural volume.

4,364,734

INFLATABLE MARINE CRAFT HAVING IMPROVED TOWING CHARACTERISTICS

Geoffrey J. S. Haughton, and Malcolm Bimpson, both of Sutton Coldfield, England, assignors to Dunlop Limited, London, England

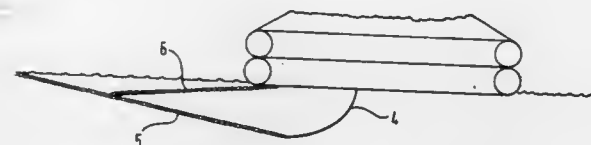
Continuation of Ser. No. 901,639, May 1, 1978, abandoned. This application Apr. 8, 1981, Ser. No. 252,237

Claims priority, application United Kingdom, May 7, 1977, 19261/77

Int. Cl.³ B63C 9/04

U.S. Cl. 441—37

7 Claims



1. A towable, inflatable, floatable, marine craft having a generally flat underside and means to prevent nose diving which results in irregular undulating motion of said craft when said craft is being towed, said means comprising at least one vane attached to and extending downwardly from the underside of said craft, with its point of attachment being spaced back from the front edge of the underside, and suspended therefrom to form a pocket between the underside and the upper surface of the vane so that, when said craft is being towed, the upper surface of said at least one vane makes an angle of 90° or less with the underside of said craft, relative to the direction of towing.

4,364,735

COMBINED TORQUE CONVERTER AND CLUTCH

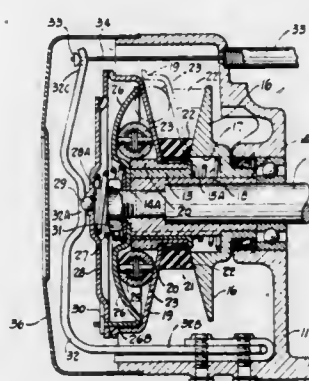
Gerhard R. Plamper, Valley City; Paul R. Fortlage, Brunswick, and Hans-Hartmut Kaesgen, Berea, all of Ohio, assignors to MTD Products Inc., Cleveland, Ohio

Filed Aug. 7, 1978, Ser. No. 931,767

Int. Cl.³ F16H 55/52

U.S. Cl. 474—14

20 Claims



1. In a variable speed torque converter having a housing and a fixed sheave and an axially opposed movable sheave in the housing, said sheaves being non-rotatively mounted on a converter shaft interengaged with a motor shaft for rotation of the shafts together, said movable sheave being resiliently biased axially away from said fixed sheave, an endless belt reeved about said pair of sheaves for engagement with opposed faces of said sheaves, the belt being reeved about a pulley for driving interengagement of said belt and pulley, the said motor and converter being mounted to maintain tension on said belt, the motor and converter being resiliently biased toward said pulley to yield to said tension, the combination of a plate member in axial alignment with said converter shaft and engaged therewith for rotation with said converter shaft and said sheaves, said plate member and movable sheave having opposed faces defining an annular space therebetween concentric with said converter shaft, a spring-biased weight assembly in circular

form disposed in said annular space and concentric with said converter shaft, said spring-biased weight assembly including a plurality of substantially equidistantly spaced weights distributed about said circular form and resilient means connecting said weights, said resilient means biasing said weights radially inwardly in said annular space, said weights under centrifugal force imparted thereto upon rotating of said sheaves and converter shaft being urged radially outwardly in said annular space in opposition to said resilient means, the opposed faces defining said annular space being so disposed relative to each other that radial outward movement of said weights against said opposed faces forces said movable sheave toward said fixed sheave, a clutch disk in axial alignment with said converter shaft and said sheaves, said clutch disk facing, for interengagement with, said movable sheave to force said movable sheave axially toward said fixed sheave and into engagement with said belt between the sheaves, said clutch disk being resiliently biased axially away from said fixed sheave, said clutch disk having a centrally located engaging portion on a side thereof, an actuating member carried by said housing and extending diagonally across said clutch disk and movable toward and away from said clutch disk, said actuating member having an abutting portion disposed substantially in alignment with said engaging portion of said clutch disk in position to abut the said engaging portion of the clutch disk upon movement of the actuating member toward said clutch disk, said actuating member being resiliently biased away from said clutch disk to urge said abutting portion of the actuating member away from said engaging portion of the clutch disk, and connecting means connected to said actuating member to move the actuating member against the resilient bias imparted thereto toward the clutch disk and to cause the engaging portion of the clutch disk to press the clutch disk axially toward and against the movable sheave to move the same toward the fixed sheave, the spacing between the movable and fixed sheaves being such that in the non-driving position of the converter the movable sheave is out of engagement with the belt, that in low-speed position the movable sheave engages the belt and the belt and sheaves revolve about the axis of the converter, and that in higher-speed positions the movable sheave is moved axially toward the fixed sheave by the weights of the spring-biased weight assembly under centrifugal force moving radially outward in said annular space, the arrangement providing for clutching operation of the torque converter into and out of driving positions and the determination of the driving speed upon the axial spacing of the sheaves relative to each other under the action of the said spring-weight assembly in said annular space.

4,364,736

PULLEY AND METHOD OF MAKING SAME

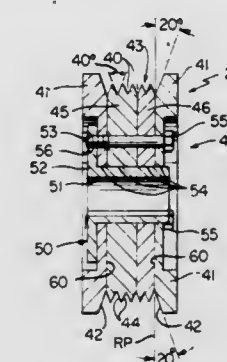
G. Brian Hetz, Springfield, Mo., assignor to Dayco Corporation, Dayton, Ohio

Filed Jun. 4, 1980, Ser. No. 156,450

Int. Cl.³ F16H 55/36, 55/52

U.S. Cl. 474—168

10 Claims



1. In a pulley having a plurality of annular grooves for receiving a V-ribbed endless polymeric power transmission belt which has a corresponding plurality of V-shaped belt elements, said pulley comprising a pair of annular side flanges

each having a belt element supporting side wall and annular rib means between said flanges, each said flange having opposed sides one of which is disposed outboard of said rib means and the other of which is disposed adjacent said rib means, said rib means having belt element support side walls; the improvement in which said side flanges are separate substantially identical parts which are fully interchangeable on said pulley from side to side and have substantially equal diameters that are larger than the diameter of said rib means, said rib means comprising at least one disc-like annular member disposed in sandwiched relation between said other sides of said side flanges, each said flange having a recess in said one side thereof, and means detachably fastening said side flanges and rib means together to define said pulley; said fastening means comprising openings through said side flanges and rib means which are disposed in aligned relation, a hub member having a tubular central portion extending through a central bore in each of said flanges and rib means, said hub member having a hub flange provided with a plurality of threaded openings therein, and a plurality of fastening members extending through said openings in said side flanges and rib means, said fastening members having threaded outer ends being threadedly received within the threaded openings of said hub flange, said fastening means having outer end portions of said fastening members confined within said recess of one of said side flanges and said hub flange of said hub confined within said recess of the other of said side flanges whereby said fastening means is completely disposed inboard of said one sides of said side flanges.

4,364,737

METHOD FOR CONNECTING TOGETHER A PLURALITY OF WEBS OF FLEXIBLE MATERIAL

Terence D. Sowden, 32 Marlborough Rd., Idle, Bradford, BD 10 9SY, West Yorkshire, England

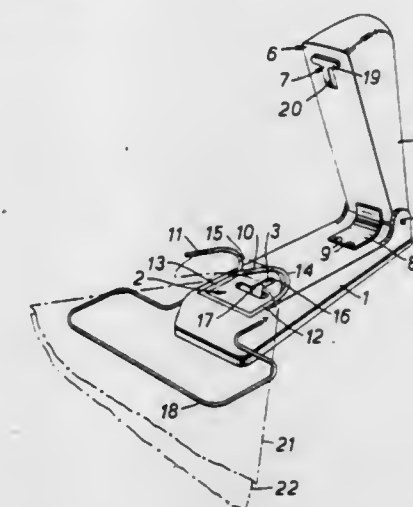
Division of Ser. No. 65,653, Aug. 10, 1979, abandoned. This application Jan. 15, 1981, Ser. No. 225,231

Claims priority, application United Kingdom, Feb. 28, 1979, 7907009

Int. Cl.³ B31F 1/00

U.S. Cl. 493—346

6 Claims



1. A method for connecting together a plurality of webs of flexible material comprising: folding said plurality of webs, punching a hole through said folded plurality of webs so as to pass therethrough twice and define punched web portions and remaining openings each of which includes an enlarged head and a narrow shank that extends from the enlarged head and has a base at which the punched portion remains connected to the associated web, and then unfolding the punched webs such that the enlarged heads of certain of the punched portions are received within the narrow shanks of the openings left by other punched portions to thereby lock the webs together.

CHEMICAL

4,364,738

**CRYSTALLINE BROMIDE OR IODIDE SALTS OF
TRIAZOLE DYES FOR POLYACRYLONITRILE**
Rudolf Zink, Therwil, and Peter Loew, Münchenstein, both of
Switzerland, assignors to Ciba-Geigy Corporation, Ardsley,
N.Y.

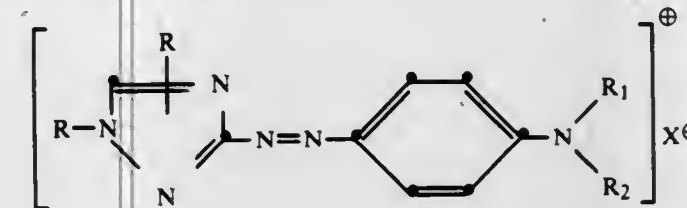
Filed Jul. 23, 1981, Ser. No. 285,903

Claims priority, application Switzerland, Aug. 1, 1980,
5875/80

Int. Cl.³ C09B 44/18, 69/6

U.S. Cl. 8-634 12 Claims

12. A process of dyeing or printing a textile which is dyeable with cationic dyes, comprising the step of contacting the textile with a dye of the formula



wherein

R is the CH_3 or C_2H_5 group,

R₁ is a C₁-C₄-alkyl group,

R₂ is an unsubstituted or substituted C₁-C₄-alkyl group, and X is the bromine or iodine ion.

4,364,739

METHOD OF MAKING ELECTRICALLY CONDUCTING FIBER

Shinji Tomibe, Kyoto; Reizo Gomibuchi, Uji, and Kiyofumi Takahashi, Yawata, all of Japan, assignors to Nihon Sanmo Dyeing Co., Ltd., Kyoto, Japan

Division of Ser. No. 183,639, Sep. 3, 1980. This application Mar. 31, 1981, Ser. No. 249,416

Claims priority, application Japan, Mar. 5, 1980, 55-028386

Int. Cl.³ D06P 1/673, 1/41; B05D 5/12

U.S. Cl. 8-654 16 Claims

1. A method of making an electrically conducting fiber comprising subjecting at least one fiber selected from the group consisting of acrylic fiber and modacrylic fiber to a first heat-treatment in a bath containing a copper compound and a reducing agent to adsorb monovalent copper ions within the fiber, subjecting the fiber to a second heat-treatment in the presence of a sulfur-containing compound to convert said adsorbed monovalent copper ions to copper sulfide.

11. A method as claimed in claim 1 or 2 wherein the fiber from said second heat-treating step is dyed with a cationic dye.

4,364,740

METHOD FOR REMOVING UNDESIRABLE COMPONENTS FROM COAL

Lester G. Massey, Cuyahoga County, Ohio; Robert I. Brabets, DuPage County, and William A. Abel, Will County, both of Ill., assignors to CNG Research Company, Cleveland, Ohio Continuation-in-part of PCT/US81/100273, Mar. 4, 1981, abandoned, which is a continuation-in-part of Ser. No. 127,740, March 6, 1980, Pat No. 4,313,737. This application Mar. 7, 1981, Ser. No. 261,470.

Int. Cl.³ C10L 9/08, 1/32, 9/02

U.S. Cl. 44-1 C **48 Claims**
29. A method of treating a hydrocarbonaceous material containing an admixture of hydrocarbonaceous components and mineral components to increase the usefulness of the material as a fuel, comprising, in combination:

(a) admixing the hydrocarbonaceous material with a low molecular weight alcohol to form a slurry of alcohol and hydrocarbonaceous material;

(b) heating and pressurizing the slurry to a temperature and pressure above the critical temperature and critical pressure of the alcohol;

(c) maintaining the slurry at a supercritical temperature and pressure, prior to step (d), for a length of time sufficient to permit the alcohol to substantially saturate the hydrocarbonaceous material and achieve the desired degree of interaction with the hydrocarbonaceous components, thereby providing: (1) a dissolved portion of the hydrocarbonaceous components in alcohol; (2) an undissolved suspended portion of the hydrocarbonaceous material saturated with the alcohol; and (3) a discrete suspended portion of the mineral components;

(d) passing the slurry, in a substantially instantaneous manner, from the supercritical pressure to an expansion zone having a temperature and pressure below the critical temperature and critical pressure of the alcohol, thereby flash precipitating the dissolved portion of the hydrocarbonaceous components as discrete hydrocarbonaceous particles and providing a pressure differential between the alcohol saturating the undissolved suspended portion of the hydrocarbonaceous materials and the surface of said material sufficient to comminute the hydrocarbonaceous from the mineral components therein without substantially comminuting either the mineral components therein or the discrete undissolved suspended portion of the mineral components, thereby producing an admixture of the discrete hydrocarbonaceous particles and discrete mineral particles; and

(e) separating the discrete hydrocarbonaceous particles from the discrete mineral particles in a separation zone to provide an enriched hydrocarbonaceous fraction of material and an enriched mineral fraction of material.

43. The method of claim 29 further including contacting the slurry with a sulfur scavenging agent while the slurry is at a temperature of between about 200° F. and about 300° F. to remove sulfur from the slurry.

4.364.741

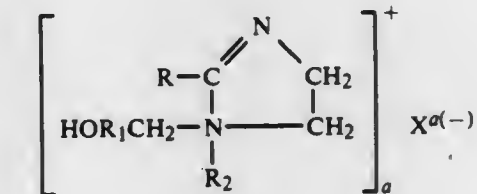
OIL SLURRIES OF CARBONACEOUS MATERIALS
Jose' L. Villa, Bridgewater, N.J., assignor to Diamond Shamrock Corporation, Dallas, Tex.

Filed March 26, 1981, Ser. No. 247,702

Int. Cl.³ C10L 1/32

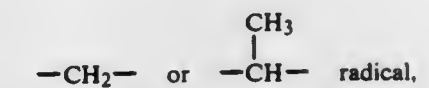
U.S. Cl. 44-51 8 Claims

1. An oil slurry of solid particulate carbonaceous material having an imidazoline quaternary salt of the formula



wherein:

R is a hydrocarbon radical having 9 to 23 carbon atoms,

 R_1 is a

R₂ is hydrogen, an unsubstituted aliphatic hydrocarbon radical having 1 to 6 carbon atoms, a hydroxy-substituted aliphatic hydrocarbon radical having 1 to 6 carbon atoms or a benzyl radical,

X is a water-soluble anion, and

a is a number equal to the ionic valence of the anion, X, present in an amount sufficient to stabilize the slurry at elevated temperatures.

4,364,742

CARBONACEOUS MATERIALS IN OIL SLURRIES

Kathy A. Knitter, Morristown, and Jose' L. Villa, Bridgewater, both of N.J., assignors to Diamond Shamrock Corporation, Dallas, Tex.

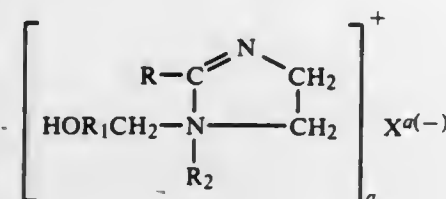
Filed April 1, 1981, Ser. No. 250,018
Int. Cl.³ C10L 1/32

U.S. Cl. 44—51

10 Claims

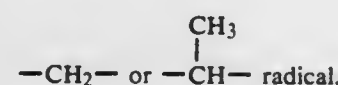
1. An oil slurry of solid particulate carbonaceous material having a mixture of

(a) from about 99% to about 75% by weight of an imidazo-line quaternary salt of the formula



wherein:

R is a hydrocarbon radical having 9 to 23 carbon atoms, R₁ is a



R₂ is hydrogen, an unsubstituted aliphatic hydrocarbon radical having 1 to 6 carbon atoms, a hydroxy-substituted aliphatic hydrocarbon radical having 1 to 6 carbon atoms or a benzyl radical,

X is a water-soluble anion, and

a is a number equal to the ionic valence of the anion, X, and (b) from about 1% to about 25% by weight of a nitrogen base having from 0 to 9 carbon atoms, the mixture being present in an amount sufficient to stabilize the slurry at elevated temperatures.

4,364,743

SYNTHETIC LIQUID FUEL AND FUEL MIXTURES FOR OIL-BURNING DEVICES

William E. Erner, 5840 New England Woods Dr., Burke, Va. 22015

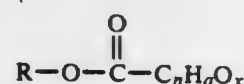
Continuation-in-part of Ser. No. 72,699, Sep. 5, 1979, abandoned. This application June 17, 1980, Ser. No. 160,434
Int. Cl.³ C10L 1/18

U.S. Cl. 44—66

6 Claims

1. A combustible energy-producing fuel mixture consisting essentially of

(a) at least one fatty acid ester having the formula



wherein R is alkyl having from 1 to 12 carbon atoms; alkoxyalkyl where the alkoxy portion has from 1-4 carbon atoms and the alkyl portion is ethyl or propyl; cyclopentyl or cyclohexyl, or hydroxy ethyl or hydroxy propyl; n=11-22; a=2n+1, 2n-1, 2n-3, 2n-5 or 2n-7 and x is 0 or 1, and

(b) a middle distillate fuel, wherein the ester and middle distillates have a ratio in the range of from about 10 to 75 to about 90 to 25 percent by weight based on the total weight of the mixture.

4,364,744

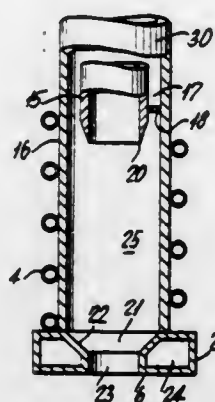
BURNER FOR THE PARTIAL OXIDATION OF SLURRIES OF SOLID CARBONACEOUS FUELS

William B. Crouch, Chappaqua, N.Y.; George N. Richter, San Marino, Calif.; Charles P. Marion, Mamaroneck, N.Y.; Blake Reynolds, Riverside, Conn.; Albert Brent, Huntington, and Edward T. Child, Tarrytown, both of N.Y., assignors to Texaco Inc., White Plains, N.Y.

Division of Ser. No. 107,215, Dec. 26, 1979, Pat. No. 4,338,099. This application March 26, 1981, Ser. No. 247,967
Int. Cl.³ C10J 3/50

U.S. Cl. 48—86 R

17 Claims



1. A burner for mixing together a feedstream comprising a pumpable slurry of solid carbonaceous fuel in a liquid carrier with a separate feed stream comprising a free-oxygen containing gas optionally in admixture with a temperature moderator to produce a multiphase mixture and introducing said multiphase mixture into a partial oxidation gas generator comprising: a retracted central conduit coaxial with the central longitudinal axis of the burner and having an upstream inlet through which a first feedstream comprising said free-oxygen containing gas optionally in admixture with a temperature moderator may be separately introduced, and a downstream discharge outlet; an outer coaxial conduit concentric with said central conduit and having an upstream inlet through which a second feedstream comprising a pumpable slurry in the range of about of 30 to 75 wt. % of solid carbonaceous fuel in a liquid carrier may be separately introduced, and an exit nozzle coaxial with and terminating said outer conduit at the downstream tip of the burner comprising a converging frusto-conical rear portion and a right cylindrical front portion which terminates at the downstream face of the burner, and the height of the front cylindrical portion of said exit nozzle is in the range of about 0.1 to 1.0 times its own diameter; a coaxial annular shaped cooling chamber surrounding said exit nozzle at the burner tip; wherein said central conduit discharge outlet is retracted upstream from the downstream face of the burner a distance of two or more times the minimum diameter of said outer conduit downstream exit nozzle to provide a pre-mix zone comprising a single communicating pre-mix chamber coaxial with the central longitudinal axis of said burner wherein intimate mixing together of the feedstreams takes place and a controlled amount of the liquid carrier is vaporized without burning; and means for radially spacing said central and outer conduits from each other to provide a coaxial annular passage through which said second feedstream may separately pass concurrently with said first feedstream into said pre-mix zone where a multiphase mixture is produced prior to being discharged through said outer conduit exit nozzle.

4,364,745

PLANT HYDROCARBON RECOVERY PROCESS

Thomas A. Weil, Naperville, Ill., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Filed June 26, 1981, Ser. No. 277,836
Int. Cl.³ C10J 3/00

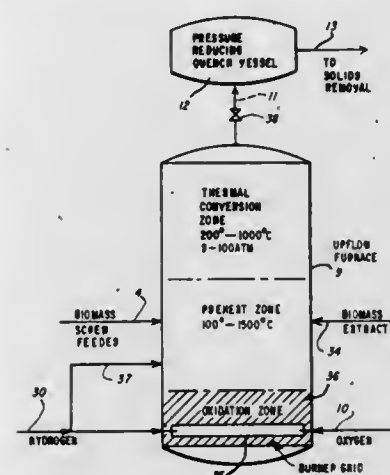
U.S. Cl. 48—209

8 Claims

1. A process which comprises hydropyrolysis in gas phase of

hydrocarbon containing whole plant biomass for production of fuel gases and organic liquids suitable for use as hydrocarbon fuels and as chemical feedstocks which process comprises:

- feeding chopped whole plant biomass feed of a suitable particle size by means of feed inlet ports to a furnace containing an oxidation zone, a preheat zone and a thermal conversion zone wherein said furnace is an upflow furnace and means are provided for exclusion of oxygen-containing gases from said feed inlet ports,
- injecting hydrogen at a pressure within the range of from 2 to 100 atmospheres into a burner grid of said oxidation zone and said preheat zone,
- injecting a limited amount of an oxygen-containing gas into said burner grid of said oxidation zone at a pressure of from about 1 to 100 atmospheres, wherein the ratio of oxygen to hydrogen is within the range of from about 1:2 to 1:100, moles of oxygen to moles of hydrogen, so that a hydrogen-oxygen reaction takes place,
- injecting said biomass feed into said preheat zone to heat said biomass feed to a temperature suitable for thermal



conversion, excess hydrogen being present at sufficient pressure to provide an upflow draft, thereby transporting said biomass feed from said preheat zone wherein the preheat zone temperature is in the range of from 100° C. to 1500° C. to said thermal conversion zone wherein a reducing atmosphere is present at a thermal conversion zone temperature of from 200° C. to about 1000° C. and a pressure of from 2 to 100 atmospheres,

- exposing said transported biomass feed in said thermal conversion zone to said thermal conversion zone temperature for a period of 0.1 second to one minute so that the biomass is hydropyrolyzed,
- removing biomass products and unconverted mass from said thermal conversion zone to a pressure-reducing quench vessel wherein pressure is reduced and temperature of said biomass products and the unconverted biomass feed is reduced to a temperature less than 400° C.,
- removing solids from said biomass products,
- recovering liquid condensibles and generated product gases from the biomass products.

4,364,746

ABRASIVE MATERIAL

Diethelm Bitzer, Hechingen-Stetten, Fed. Rep. of Germany; Jost Kramis, Islikon, and Jakob Ackermann, Wigoltingen, both of Switzerland, assignors to SIA, Schweizer Schmirgel- u. Schliel-Industrie AG, Frauenfeld, Switzerland

Continuation-in-part of Ser. No. 24,199, Mar. 27, 1979, abandoned. This application October 15, 1980, Ser. No. 197,193
Claims priority, application Fed. Rep. of Germany, March 28, 1978, 2813258

Int. Cl.³ C09K 3/14

U.S. Cl. 51—298

17 Claims

1. In an abrasive carrier containing abrasive grains, at least a substantial portion of which comprises individual agglomerate abrasive grains each comprising a plurality of single abrasive

grains bound together by a first binder, said grains being bound to a carrier or formed into an abrasive element by means of a second binder, the improvement by which a uniform cutting depth, a uniform rate of wear and a long lifetime of practical use are achieved, wherein said agglomerate abrasive grains comprise a plurality of substantially different groups of agglomerate abrasive grains, each of which groups exhibit substantially different structural strength qualities, and therefore different abrasive power and ability to sustain abrading forces, from the other group or groups, the grains of all said groups being mixed together prior to application to said carrier or formation into said element.

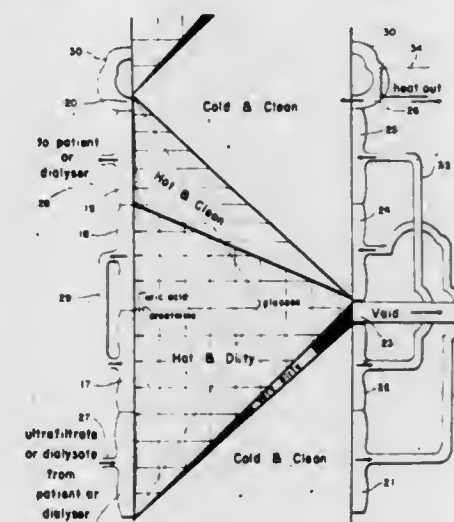
4,364,747

SYSTEM FOR REGENERATIVE THERMALLY REVERSED ADSORPTION

Perry L. Blackshear, Jr., Mahtomedi, Minn., assignor to The Regents of the University of Minnesota, Minneapolis, Minn.
Filed August 29, 1977, Ser. No. 828,924
Int. Cl.³ B01D 53/04

U.S. Cl. 55—25

8 Claims



1. A regenerative thermally reversible system for concentrating an adsorbate by reversing the relative adsorptivity of the adsorbate versus heat, said system comprising:

- providing an initially relatively cool adsorbent bed of a material capable of developing a peak of concentration of an adsorbate immediately ahead of a thermal front, said bed being composed of a highly adsorptive material in proximity to a non-adsorptive material having an effectively high volumetric heat capacity,
- passing a relatively warmer adsorbate-containing fluid through said bed to create a thermal front therein,
- first separating the resulting pulse of fluid freed from its contained adsorbate,
- then separating the resulting pulse of concentrated adsorbate, both at the downstream end of the bed.

4,364,748

PROCESS FOR RECOVERING MALEIC ANHYDRIDE BY CONDENSATION

Kiran R. Bakshi, El Cerrito, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Continuation of Ser. No. 809,734, Jun. 24, 1977, abandoned. This application 1979, Ser. No. 11,972
Int. Cl.³ B01D 19/00

U.S. Cl. 55—27

5 Claims

1. A process for recovering maleic anhydride from gaseous compositions containing maleic anhydride and water, comprising cooling said composition to a temperature in the range of from about 25° C. to about 40° C. at a pressure less than about 50 millimeters of mercury thereby to obtain solid maleic anhydride having less than 300 ppm of maleic acid and fumaric acid impurities.

4. In a process for stripping low-boiling impurities from crude maleic anhydride produced by the vapor phase oxidation of a hydrocarbon feedstock; the improvement which comprises, passing the lights stripper overhead vapor containing, by volume, about 1 to 30 percent maleic anhydride and about 10 to 70 percent water, through a condenser system maintained at a temperature in the range of from about 25° C. to 40° C. at less than about 50 millimeters of mercury pressure thereby to obtain solid maleic anhydride having less than 300 ppm of maleic acid and fumaric acid impurities.

4,364,749

METHOD AND APPARATUS FOR SEALING THE INLET OF A FILTER COMPARTMENT TO ISOLATE THE COMPARTMENT WITHIN A BAGHOUSE INSTALLATION

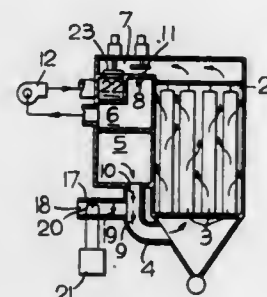
S. Michael Dunseith, Louisville, Ky., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed October 9, 1981, Ser. No. 310,133

Int. Cl.³ B01D 46/04, 46/44

U.S. Cl. 55—73

10 Claims



1. A method for isolating a filter compartment in a gas cleaning system having a plurality of filter compartments wherein hot dirty gases containing corrosive agents are directed into a common inlet manifold and drawn into the filter compartments through an inlet passage connecting the inlet manifold with each of the compartments including first damper means adapted to regulate the flow of dirty gases through the inlet passage and second damper means connected to said inlet passage, said second damper means being in flow communication with said first damper means and a source of pressurized air wherein the dirty gases flow through filter bags supported within the compartments and exit each of the compartments through third damper means regulating flow of gas from connecting each compartment to a common outlet manifold, comprising:

closing the third damper means of the compartment to be isolated to prevent the flow of gases between said compartment and the outlet manifold;
closing the first damper means in the inlet passage of said compartment to prevent the flow of gases between said compartment and the inlet passage, said first damper means having a pair of spaced closure members movable between an open position allowing the flow of gases through the inlet passage and a closed position whereat the closure members are positioned and arranged with respect to the interior surface of the inlet passage to form a chamber within the passage; and
opening the second damper means to said source of pressurized air so as to supply pressurized air to said chamber at a pressure above the pressure of the dirty gases in the inlet passage to form a pressurized zone within the inlet passage preventing seepage of dirty gases into said compartment.

9. In a gas treating system for cleaning a stream of hot dirty gases containing corrosive agents at subatmospheric pressures including a plurality of filter compartments and common inlet and outlet manifolds, wherein each of the filter compartments includes an inlet duct opening into the inlet manifold and an outlet passage opening into the outlet manifold to accommodate drawing the gas stream through the compartment into the outlet manifold from the inlet manifold, and a plurality of filter

bags secured within the compartments to filter the gases as they are drawn through the compartments, the improvement comprising:

outlet damper means connected with each compartment and being selectively positionable to close off its respective outlet passage to prevent the flow of gases between the compartment and the outlet manifold;

inlet damper means connected with each compartment including a pair of spaced closure members selectively positionable across its respective inlet duct to close off said duct to form a chamber within it between the closure members; and

additional damper means connected with each of the inlet ducts and in flow communication with said chamber for selectively venting the chamber formed in each of the ducts to the atmosphere upon opening said additional damper means; whereby

one of the compartments can be isolated during operation of the gas treating system by closing the inlet and outlet damper means of said compartment and then opening the additional damper means associated with said compartment, thereby allowing a stream of ambient air to flow into the chamber within the inlet duct of said compartment to form a pressurized zone within said duct preventing the seepage of dirty gases into said compartment.

4,364,750

PROCESS AND APPARATUS FOR PURIFYING WASTE GASES

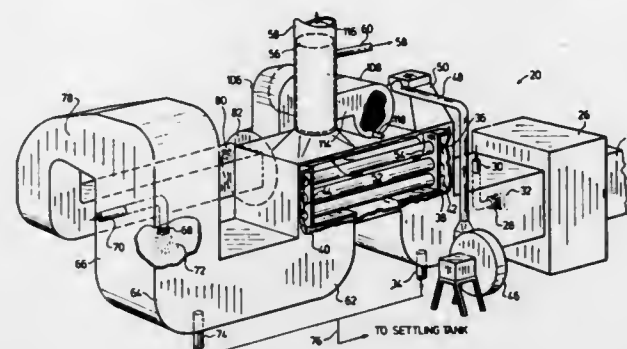
Attila P. Koncz, Mississauga, Canada, assignor to Canadian Fine Color Company, Limited, Toronto, Canada

Filed 1981, Ser. No. 232,567

Int. Cl.³ B01D 47/00

U.S. Cl. 55—89

28 Claims



1. A process for purifying a waste gas stream containing minute pollutant liquid and solid particles as small as 1 micron or less, said process comprising treating said gas stream with a fine spray of scrubbing liquid by introducing into said gas stream said spray of a droplet size in the range of 1 micron or less, generating in said gas stream by agitation a turbulent region without appreciably increasing the pressure of said gas stream, said turbulent region having a Reynolds number measure of turbulence in the range of 1×10^6 to 1×10^8 , mixing the introduced scrubbing liquid and pollutant particles in said turbulent region to enhance thereby the conglomeration of pollutant particles with scrubbing droplets to form larger particles and passing the mixed gas stream out of said turbulent region and removing the enlarged conglomerated contaminant particles from the gas stream to purify it.

4,364,751

SELF-CLEANING PULSED AIR CLEANER

George A. Copley, Farmington, Minn., assignor to Donaldson Company, Inc., Minneapolis, Minn.

Division of Ser. No. 195,873, Oct. 10, 1980, Pat. No. 4,331,459.

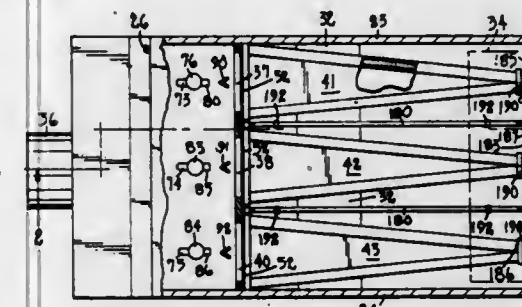
This application 1982, Ser. No. 338,308

The portion of the term of this patent subsequent to May 25, 1999, has been disclaimed.

Int. Cl.³ B01D 46/04

U.S. Cl. 55—96

2 Claims



1. The method of removing particles of solid matter from air which comprises:

- supplying a stream of uncleaned air to one end of a filter having adjacent sections defining chambers with a motion having a generally horizontal component parallel to the surface of the filter, so that the particles are initially collected on a surface of said filter and the air passes through the filter;
- repeatedly and sequentially supplying a reverse air pulse to each of the chambers in a sequence from the uppermost section to the lowermost section dislodging the particles briefly from the surface of each filter section to enable them to migrate therealong toward the adjacent section and downstream toward a scavenge outlet located toward the remaining end of the filter; and
- withdrawing at said scavenge outlet said air carrying the migrated particles.

4,364,752

ELECTROSTATIC PRECIPITATOR APPARATUS HAVING AN IMPROVED ION GENERATING MEANS

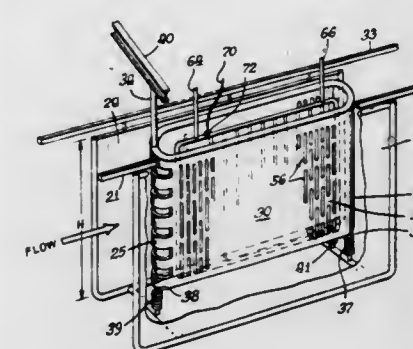
Richard A. Fitch, 2340 Calle de Oro, La Jolla, Calif. 92037, and Joseph T. Roe, 5853 Valley Forge Rd., Houston, Tex. 77057

Filed March 13, 1981, Ser. No. 243,487

Int. Cl.³ B03C 3/00

U.S. Cl. 55—138

32 Claims



1. A system for removing particles from a gaseous medium carrying the same, comprising:

- a flow channel through the system through which the gaseous medium passes in a downstream direction;
- a first precipitating stage within said channel, a second precipitating stage within said channel, said second stage being located only downstream of said first stage and comprising at least one conductive shell means, each of said shell means comprising a pair of generally flat side walls, an upstream end wall interconnecting said side walls, said upstream end wall having a plurality of open-

4,364,753

APPARATUS FOR THE ADSORPTIVE CLEANING OF GASES

Norbert Wagner, Schleiderloh, Fed. Rep. of Germany, assignor to Linde AG, Wiesbaden, Fed. Rep. of Germany

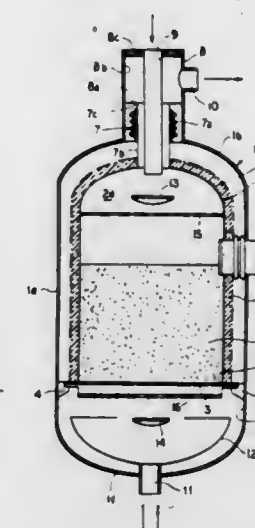
Filed October 16, 1978, Ser. No. 951,876

Claims priority, application Fed. Rep. of Germany, October 18, 1977, 27466735

Int. Cl.³ B01D 53/04

U.S. Cl. 55—179

4 Claims



1. An adsorber for cleaning of gases comprising:

- a pressure retentive thick-wall outer vessel provided with a duct at a bottom portion of said outer vessel;
- a rigid grate spanning the interior of said outer vessel and rigidly secured thereto;
- a loose gas-permeable body of an adsorbent resting on said grate;
- a closed-top downwardly open inner vessel of lesser wall thickness than said outer vessel and disposed in said outer vessel and having a unitary therewith a lower edge resting

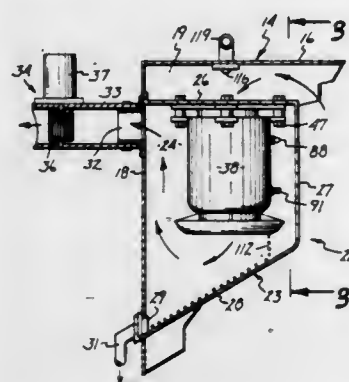
freely upon said grate without attachment thereto, said inner vessel being bottomless and fully open downwardly at said edge while confining said gas-permeable body of said adsorbent resting on said grate, a free space completely surrounding said inner vessel within said outer vessel to permit lateral movement of said inner vessel relative to said grate and said outer vessel; and yieldable means including a further duct connecting said upper portion of said inner vessel to an upper portion of said outer vessel for permitting gas flow out of and into said inner vessel.

4,364,754

APPARATUS FOR SEPARATING FOREIGN MATTER FROM A GAS WITH A HEAT EXCHANGER
Wolodymyr Diachuk, Golden Valley, Minn., assignor to Century 21 Pollution Control, Inc., Minneapolis, Minn.
Filed April 13, 1981, Ser. No. 253,311
Int. Cl.³ B01D 51/00

U.S. Cl. 55-269

25 Claims



1. An apparatus for separating foreign matter from a hot gas and transferring heat from the gas to a fluid comprising: first means having a continuous uninterrupted fluid impervious heat conducting tubular wall surrounding a tubular passage, said wall having a gas inlet end and a gas outlet end aligned with the passage; second means located in the passage along the longitudinal length of the passage to direct gas and foreign matter flowing through said passage in a generally helical path extended from the gas inlet end to the gas outlet end thereof, said foreign matter entrained in the gas being collected on the inside surface of said tubular wall, said collected foreign matter moving along said inside surface of said tubular wall toward the gas outlet end; annular means fixed with respect to said tubular wall to collect foreign matter that moves from the outlet end and permit clean gas to pass centrally thereof; cylindrical jacket means surrounding the heat conducting tubular wall providing a chamber accommodating a fluid located in engagement with said heat conducting tubular wall whereby heat from said tubular wall is transferred to said fluid, said jacket means having opposite ends secured to the tubular wall adjacent the gas inlet and outlet ends thereof, said jacket means having a general spiral shape along the length thereof providing said chamber with a spiral passage for carrying fluid and directing the flow of fluid around and along the length of the tubular wall whereby the tubular wall is cooled and the temperature of the gas in the passage adjacent the inside surface of the tubular wall is lowered to enhance condensation of gases into liquids which collect on said inside surface of the tubular wall, means for supplying fluid to one end of said chamber, and means for carrying fluid from the other end of said chamber to a desired location.

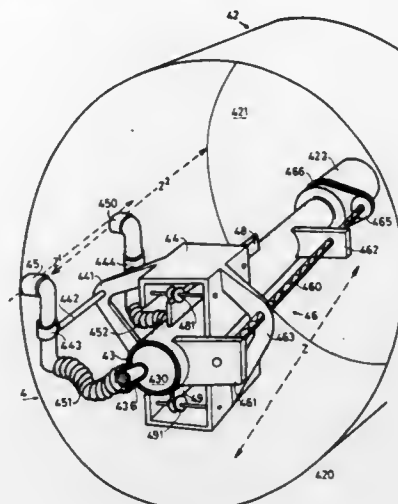
4,364,755

FILTER ASSEMBLY

Hans Ferri, Müllerwis 27, 8606 Greifensee, Switzerland
Filed December 17, 1981, Ser. No. 331,887
Int. Cl.³ B01D 46/38

U.S. Cl. 55-290

9 Claims



1. A filter assembly for the removal of solid materials from a gas stream, especially from an air stream during textile processing comprising:
a separator means;
means for delivering to the interior of said separator means a gas stream containing the solid materials;
said separator means containing a filter drum provided with a stationary, substantially cylindrical and gas-pervious filter jacket;
an approximately axially arranged rotating hollow shaft containing a hollow space and disposed within said filter drum;
drive means operatively connected to said hollow shaft for driving said hollow shaft;
at least one suction nozzle rigidly connected for rotation to said hollow shaft;
a suction device for sucking-off through said suction nozzle and the hollow space of said hollow shaft the solid materials deposited at an inner surface of said filter jacket;
at least one slide means rigidly connected for rotation in radial direction to said hollow shaft but displaceable in the axial direction of said hollow shaft;
said at least one suction nozzle being operatively connected with said slide means;
means rigidly connected for rotation to said hollow shaft for converting the driven movements of said hollow shaft generated by said drive means into axial oscillating movements of said slide means which revolves with said hollow shaft;
said at least one suction nozzle being guided by said slide means along a substantially wave-like path over the inner surface of said filter jacket; and
a flexible conduit connecting said at least one suction nozzle with said hollow space of said hollow shaft.

4,364,756

REFRIGERANT SUCTION LINE FILTER/FILTER-DRIER AND METHOD FOR THE CONSTRUCTION THEREOF
John P. Clarke, and Ernest W. Schumacher, both of DeSoto, Tex., assignors to Virginia Chemicals Inc., Portsmouth, Va.
Filed July 7, 1981, Ser. No. 281,213

Int. Cl.³ B01D 50/00, 25/02, 27/02; F25B 47/00
U.S. Cl. 55-316

17 Claims

1. A filter/filter-drier for use in air conditioning and refrigerating systems, comprising:
A. a shell assembly, comprising a cylindrical shell having an interior diameter, a pair of closure members which are sealably attached to opposite ends of said shell, an inlet

connector which is sealably attached to one said closure member, and an outlet connector which is sealably attached to the other said closure member;

B. a desiccant, formed in the shape of a cylindrical plug, which is disposed within said shell to provide an upstream space and a downstream space between said desiccant and said connectors;

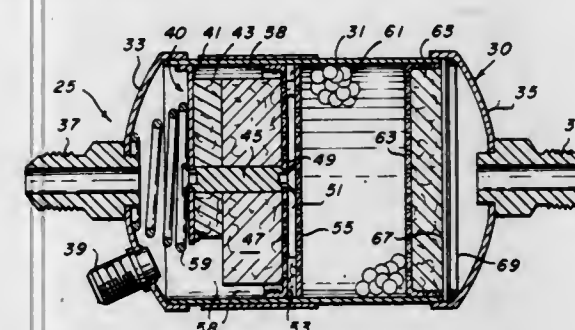
C. a dual filter system, comprising:

(1) a primary filter assembly which is coaxially disposed within said upstream space, comprising:

(a) a center spacer post having a pair of ends,
(b) an inlet deflector which is fastened to one said end,
(c) a stepped filter having a maximum diameter which is substantially less than said interior shell diameter, and
(d) a perforated filter pad support which is fastened to said other end of said spacer post and has substantially the same diameter as said interior shell diameter, said stepped filter being disposed between said inlet deflector and said perforated filter pad support and in surrounding relationship to said center spacer post, whereby said stepped filter is selectively compressed between said deflector and said filter pad support;

(2) a secondary filter assembly which is disposed in said downstream space and has substantially the same diameter as said interior shell diameter;

D. an annular inlet gasket which is disposed adjacent to said filter pad support and is in peripheral contact with said cylindrical shell, for sealably separating said upstream space from said downstream space; and



E. a spring which is coaxially disposed within said shell and in pressurized contact with one said closure member and which thereby compresses said dual filter system, said gasket, and said desiccant between said closure members.

14. A method of glass constructing a filter/filter-drier to provide increased contaminant holding capacity therewithin and to enable pressure drop across said filter/filter-drier to increase gradually and provide a warning of impending need for replacement thereof, wherein said filter/filter-drier comprises a cylindrical shell, a pair of sealably attached closure members at the ends thereof, coaxially disposed inlet and outlet openings in said closure members, and a primary filter assembly, said method comprising:

A. providing, as a part of said filter assembly, a stepped filter having a selected peripheral area, a selected facial area, and a selected internal volume which is accessible to a selected open upstream space that surrounds said stepped filter and is in flow communication with the inlet opening; and

B. providing, as another part of said filter assembly, a rigid deflector member which is disposed in coaxial alignment with said inlet opening, substantially downstream thereof, and transversely thereto for protecting said stepped filter; and

C. providing a sealing means for isolating said open upstream space from said outlet opening except through a plurality of openings which are in flow communication with said stepped filter, whereby an incoming refrigerant mixture enters said inlet openings, impinges upon said liquid deflector member, swirls through said upstream space, enters both said facial and said peripheral areas of said stepped filter, moves along strata within said stepped

filter, and deposits its solid particles at many locations within said internal volume before passing through said plurality of openings to said outlet opening.

4,364,757

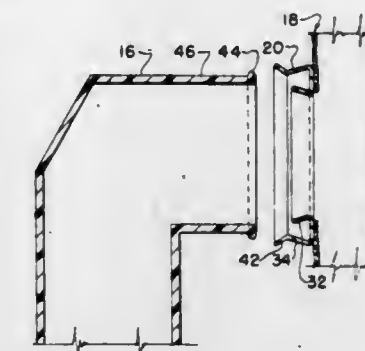
VACUUM CLEANER FILTER BAG COLLAR ARRANGEMENT

John A. Leonatti, Uniontown, Ohio, assignor to The Hoover Company, North Canton, Ohio

Filed August 24, 1981, Ser. No. 295,830
Int. Cl.³ B01D 46/02

U.S. Cl. 55-357

11 Claims



1. A vacuum cleaner filter bag having a filter body of air-pervious material with an opening therein for admitting dirt laden air into an interior portion thereof and a plastic collar specially adapted for use with a flanged air duct, said filter bag further comprising:

(a) said plastic collar having a generally circular shaped aperture therethrough communicating with the opening in the filter body;

(b) said plastic collar further including a base secured to the filter body and extending radially outwardly from the filter body opening with an outer periphery thereof terminating in an annular peripheral skirt; and

(c) said annular peripheral skirt extending both axially in a direction away from the filter body and inwardly toward the axis of the filter body opening for cooperation with a flanged air duct for retention and sealing purposes.

4,364,758

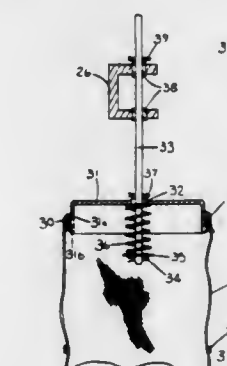
SELF TENSIONING CAP FOR BAG FILTERS

Jack T. Clements, and Robert E. Mace, both of Raytown, Mo., assignors to Standard Havens, Inc., Kansas City, Mo.

Filed August 10, 1981, Ser. No. 291,624
Int. Cl.³ B01D 46/02

U.S. Cl. 55-365

5 Claims



1. In an inside to outside dust collector having a bag support frame and a cell plate to which is connected one end of a fabric sleeve filter, a self tensioning bag retainer comprising:

a circular bag support member which is sealingly connected to the other end of said fabric sleeve filter to support said filter, said bag support member having first and second sides;

an elongate shaft centrally penetrating said bag support member and having first and second ends extending respectively from said first and second sides of said bag support member, said elongate shaft having a lateral opening intermediate the ends thereof;

compressible tensioning means disposed between said first end of the elongate shaft and said first side of the bag support member to urge said bag support member toward said second end of the elongate shaft;

removable compression holding means comprising a pin member removably disposed through said lateral opening of said elongate shaft to engage said second side of the bag support member to compress said compressible tensioning means and to limit travel of said bag support member toward said second end of the elongate shaft; and

adjustable support means connecting said second end of the elongate shaft to said bag support frame.

2. In an inside to outside dust collector having a bag support frame and a cell plate to which is connected one end of a fabric sleeve filter, a self tensioning bag retainer comprising:

a circular bag support member which is sealingly connected to the other end of said fabric sleeve filter to support said filter, said bag support member having first and second sides;

an elongate shaft centrally penetrating said bag support member and having first and second ends extending respectively from said first and second sides of said bag support member, said shaft having a plurality of spaced holes bored laterally therethrough adjacent said second end thereof;

compressible tensioning means disposed between said first end of the elongate shaft and said first side of the bag support member to urge said bag support member toward said second end of the elongate shaft; and

adjustable support means connecting said second end of the elongate shaft to said bag support frame, said support means comprising a pin removably disposed through one of said spaced holes of said elongate shaft to engage said bag support frame for support thereon.

4,364,759

METHODS FOR PREPARING ANISOTROPIC HOLLOW FIBER MEMBRANES COMPRISING POLYMER OF ACRYLONITRILE AND STYRENE AND HOLLOW FIBER MEMBRANES PRODUCED THEREFROM

Albert A. Brooks, St. Louis; Jay M. S. Henis, and Mary K. Tripodi, both of Creve Coeur, all of Mo., assignors to Monsanto Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 24,754, Mar. 28, 1979, abandoned. This application 1980, Ser. No. 122,956
Int. Cl.³ B01D 53/22; B29D 27/04; B32B 3/20; D01F 6/18
U.S. Cl. 55—487 17 Claims

1. A dry, integral anisotropic hollow fiber membrane for the separation of at least one gas of a gaseous mixture comprising a homogeneously-formed, thin, exterior, separating layer on an open, cellular support and comprising polymer of acrylonitrile and styrene in which polymer, acrylonitrile comprises at least about 20 mole percent of said polymer and styrene comprises up to about 60 mole percent of said polymer, wherein a volume majority of the wall of said hollow fiber membrane consists of cells having a mean major dimension of less than about 2 microns and said open, cellular support comprising a substantial absence of macrovoids having a major dimension greater than about 3 microns and a ratio of maximum length to maximum width greater than about 10, said hollow fiber membrane exhibiting a ratio of permeability of at least one of hydrogen, helium and ammonia to the permeability constant of the material of the hollow fiber membrane for said gas of at least about 5×10^4 reciprocal centimeters; a permeability ratio of (i) the permeability of a lower molecular weight gas divided by the permeability of a higher molecular weight gas to (ii) the square root of the molecular weight of said lower molecular weight gas divided by the square root of the molecular weight of said higher molecular weight gas of at least about 6, wherein said

lower molecular weight gas is one of hydrogen and helium and said high molecular weight gas is one of nitrogen, carbon monoxide and carbon dioxide and has a permeability constant in the polymer at least about 10 times less than the permeability constant of said lower molecular weight gas in said material; and a collapse pressure of at least about $4(T_S/t/D)^3$ wherein T_S is the tensile strength of the polymer, t is the wall thickness and D is the outside diameter of the hollow fiber membrane, said membrane having a permeability for water of less than about 0.05×10^{-6} .

4,364,760

CERAMIC HONEYCOMB FILTER

Noboru Higuchi; Teruo Yano, both of Nagoya, and Masahiro Ohnishi, Kuwana, all of Japan, assignors to NGK Insulators, Ltd., Nagoya, Japan

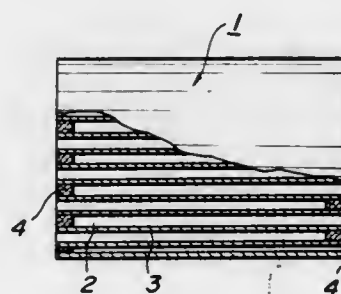
Filed October 15, 1980, Ser. No. 197,017

Claims priority, application Japan, August 28, 1980, 55-117736

Int. Cl.³ B01D 39/20

U.S. Cl. 55—523

5 Claims



1. A ceramic honeycomb filter comprising a ceramic honeycomb structural body with a multiplicity of parallel channels extending therethrough, said channels being defined by a plurality of interlaced thin gas filtering porous partition walls between adjacent channels, said channels being selectively sealed by sealant in such a manner that said channels include a first group comprising inlet passages open at one end of the channels and closed at the other end, a second group comprising outlet passages closed at said one end of the channels and open at the other, wherein said inlet and outlet passages are arranged side by side such that each said inlet and outlet passages are defined by said porous partition walls so as to form a filtering surface for gas flow between said adjacent channels, said ceramic honeycomb structural body having a coefficient of thermal expansion α_A of 0 to $8.0 \times 10^{-6}/^\circ\text{C}$. for 40°C . to 800°C ., said sealant having a coefficient of thermal expansion α_B for 40°C . to 800°C . in a range satisfying a relationship of $|\alpha_A - \alpha_B| \leq 3.5 \times 10^{-6}/^\circ\text{C}$.

4,364,761

CERAMIC FILTERS FOR DIESEL EXHAUST PARTICULATES AND METHODS FOR MAKING

Morris Berg, Grand Blanc; Carl F. Schaefer, Flint, both of Mich., and William J. Johnston, Birkdale, England, assignors to General Motors Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 99,933, Dec. 3, 1979, abandoned. This application June 15, 1981, Ser. No. 273,660
Int. Cl.³ B01D 39/20

U.S. Cl. 55—523

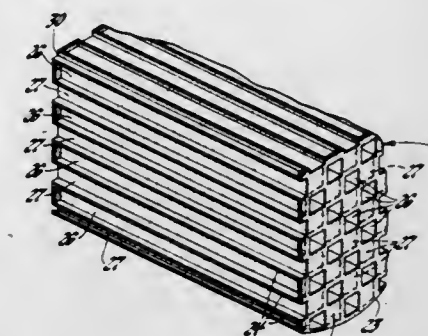
9 Claims

1. A combination with a diesel engine exhaust system of a compact high efficiency incineration cleanable exhaust particulate filter element comprising a ceramic monolith structure having a plurality of thin interlaced porous internal walls defining a plurality of small inlet passages extending adjacent to a plurality of small outlet passages, said inlet and outlet passages being separated by the porous walls of the monolith structure to permit gas flow through the pores between the inlet and outlet passages, said monolith structure having an

average overall porosity of at least 9 percent, a mean pore size of between 2 and 15 microns with individual pore sizes substantially all between 0.5 and 70 microns, said internal walls having not less than 9 square inches of wall filtering area for each cubic inch of the monolith structure.

9. A method of making a compact through flow exhaust particulate filter element for internal combustion engines, said method comprising

forming a ceramic monolith of thin interlaced porous wall elements defining internally a plurality of parallel through-extending passages, comprising first and second



groups, in which each nonengaged portion of every internal wall element defines part of a passage of each group and permits gas flow communication between them through the pores of said wall elements, and closing with a high temperature resistant material the outlet ends of the first group of passages and the inlet ends of the second group of passages whereby gas flow through the filter element entering the passages of the first group must pass through the porous wall elements for filtration prior to discharge of the gas through the passages of the second group.

4,364,762

MINERAL FIBER FORMING

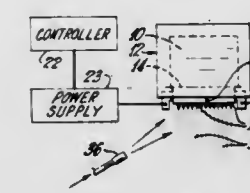
Timothy A. Sullivan, Newark, Ohio, and James Whitfield, Jr., Anderson, S.C., assignors to Owens-Corning Fiberglass Corporation, Toledo, Ohio

Filed October 5, 1981, Ser. No. 308,227

Int. Cl.³ C03B 37/025

U.S. Cl. 65—2

1 Claim



1. The method for producing fibers from molten mineral material of the type in which said fibers are pulled downwardly from a heated bushing having associated therewith a temperature sensing means and a temperature control means for supplying power responsive to said temperature sensing means, where the downward travel of said fibers during production induces a flow of air traveling toward said fibers and substantially in a horizontal plane located immediately beneath said bushing, and where the induced air flow functions as a heat sink to cool said bushing during production, wherein the improvement comprises supplying a secondary flow of cooling air to said bushing during cessation of said induced air flow caused by the interruption of production, said secondary flow of cooling air being of a flow rate and temperature sufficient to

replace the heat sink function provided by the induced air flow, thereby causing the power supplied to said bushing to remain substantially constant during said cessation of induced air.

4,364,763

METHOD OF MAKING MIRROR BLANKS INCLUDING BLANKS MADE ACCORDING TO SAID METHOD

Gustav B. Rennerfelt, Nilstropsvagen 82, S-181 47 Lindingo, Sweden

PCT No. PCT/SE80/00151, § 371 Date 1981; § 102(e) Date 1981, PCT Pub. No. WO80/02684, PCT Pub. Date December 11, 1980

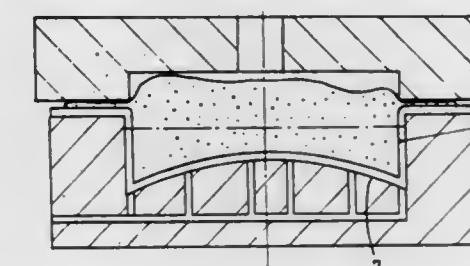
PCT Filed May 23, 1980, Ser. No. 228,066

Claims priority, application Sweden, May 25, 1979, 7904584

Int. Cl.³ C03C 17/02; C03B 19/06; G02B 5/08

U.S. Cl. 65—22

12 Claims



1. A method of making mirror blanks, characterized by moulding at least one slab, (3; 16, 17) of a thermoplastic, normally solid material under heat treatment against a matrix (1; 14, 15) having a form substantially matching that of the final mirror, to form a shell, introducing into the shell a material selected from the group consisting of

- (1) glass bubbles of a thermoplastic, normally solid material, and
- (2) a composition of a powder of glass together with an expansion agent, and
- (3) mixtures thereof,

and bringing the glass bubbles and the powder particles of the composition resp., the latter after expansion, to adhere, on one hand to each other, and on the other to the shell (6) to form a porous supporting structure.

4,364,764

AUTOMATIC STOP ROUTINE FOR A GLASSWARE FORMING MACHINE

Daniel S. Farkas, and Eric R. Zabor, both of Toledo, Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio

Continuation of Ser. No. 182,196, Aug. 28, 1980, abandoned, which is a continuation-in-part of Ser. No. 970,691, Dec. 18, 1978, abandoned, which is a continuation of Ser. No. 866,085, Dec. 30, 1977, abandoned. This application November 25, 1981, Ser. No. 324,754

Int. Cl.³ C03B 9/40

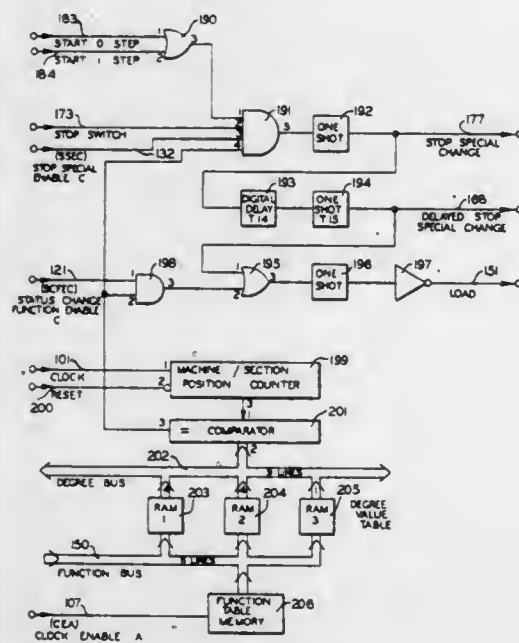
U.S. Cl. 65—29

14 Claims

1. In a machine for forming articles of glassware from gobs of molten glass, the machine including forming means responsive to a plurality of control signals for controlling the machine in a "run" condition for forming an article of glassware from each one of the gobs of molten glass in a cyclic predetermined series of forming steps wherein each machine cycle has at least one point at which a stop routine is initiated in response to a machine stop signal, a control means comprising:

- means for generating a machine start signal and a machine stop signal;
- means responsive to the generation of said machine start signal for generating a first group of control signals for controlling the forming means in a start routine to place the machine in a condition for performing the cyclic

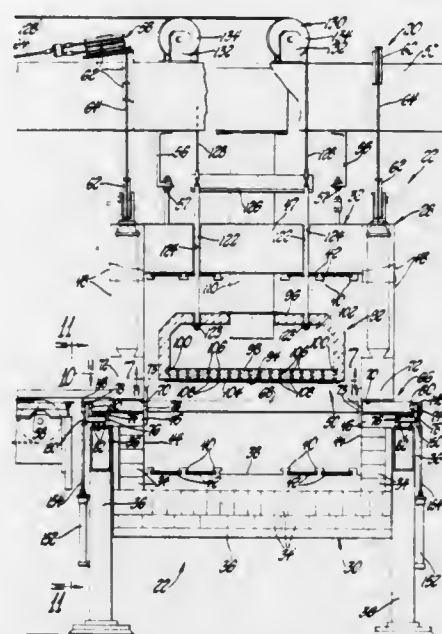
4. A method for controlling a machine for forming articles of glassware from gobs of molten glass, the machine including forming means responsive to a plurality of control signals for controlling the machine in a "run" condition for forming an article of glassware from each one of the gobs in a cyclic predetermined series of forming steps wherein each machine



generating a machine start signal;
generating a first group of control signals in response to said machine start signal for controlling the forming means in a start routine to place the machine in a condition for performing the cyclic predetermined series of forming steps of the "run" condition;
generating a machine stop signal;
generating a second group of the control signals for controlling the forming means in a first stop routine to place the machine in a "safe" condition in response to the generation of said machine stop signal when the machine is in the "run" condition and the series of forming steps is at the one point in the machine cycle at which a stop routine is initiated; and
generating a third group of the control signals at a predetermined exit point in said start routine, different from the one point in the machine cycle at which a stop routine is initiated, for controlling the forming means in a second stop routine to place the machine in a "safe" condition in response to the generation of said machine stop signal during said start routine.

Division of Ser. No. 118,822, Feb. 5, 1980, Pat. No. 4,282,026,
and a continuation of Ser. No. 872,201, Jan. 25, 1978,
abandoned. This application May 14, 1981, Ser. No. 263,670
The portion of the term of this patent subsequent to May 13,
1997, has been disclaimed.
Int. Cl.³ C03B 35/14

8 Claims



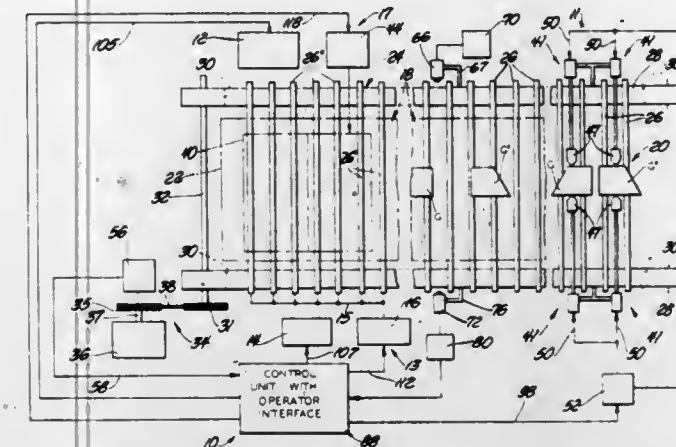
5. A method for handling heated glass sheets comprising: drawing a vacuum within an opening in a downwardly facing surface of a vacuum holder to initially support a heated glass sheet against the holder surface; and thereafter reducing the extent of vacuum drawn to maintain the heated glass sheet supported without deforming the sheet at the opening.

U.S. Cl. 65—160 **17 Claims**

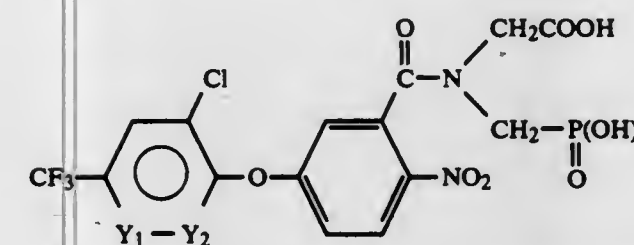
1. A control system for monitoring and controlling the processing of sheets of glass in a glass processing system wherein the glass sheets are conveyed by a horizontal roller conveyor and received from certain rolls of the roller conveyor by a bending apparatus of the glass processing system to perform bending thereof, the control system including sensor means located along the path of conveyance for sensing the glass sheets as the glass sheets are conveyed by the roller conveyor past the sensor means and providing glass sense signals upon sensing the glass sheets; and generating means coupled to the roller conveyor for generating a transport

987

programmable signal processing means for processing said glass sense and transport signals corresponding to each

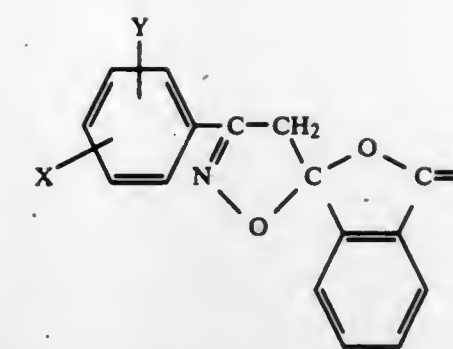


4 Claims



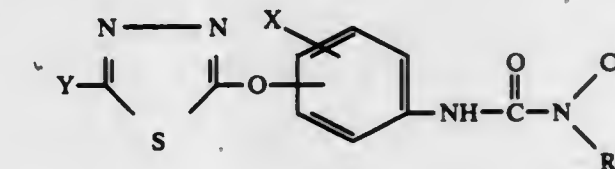
3. A herbicidal composition comprising a compound according to claim 1 and an agronomically acceptable carrier.

1. A method of regulating the growth of desirable leguminous plants which comprises applying to the plant locus a plant growth regulating effective amount of a compound having the formula



wherein X and Y are independently selected from the group consisting of hydrogen, halogen, lower alkyl, lower alkoxy, halo-lower-alkyl, phenoxy, phenyl and cyano.

22 Claims



X is hydrogen, halogen or trimethylsilyl, Y is hydrogen, C₁–C₆ alkyl optionally substituted by halogen or cyano, C₃–C₆ cycloalkyl, cyclopropylmethyl, phenyl optionally substituted by chlorine or C₁–C₄ alkyl, C₁–C₄ alkylthio, C₁–C₄ alkoxy, C₁–C₄ alkylsulfanyl, C₁–C₄ alkylsulfonyl, sulfamoyl or dimethylsulfamoyl, and R₁ is methyl or methoxy.

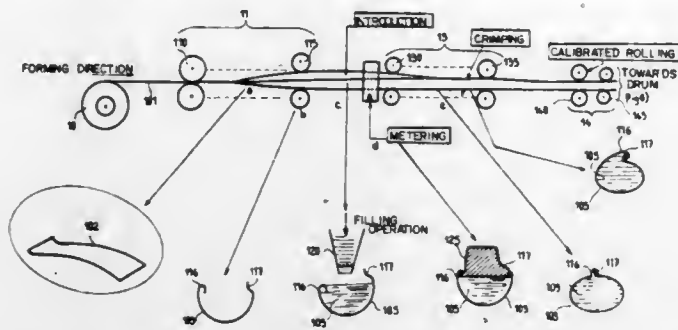
22. A method of selectively controlling weeds in crops of cultivated plants, which comprises applying to said crops a herbicidally effective amount of a 1,3,4-thiadiazoloxymethylphenylurea according to claim 1.

Int. Cl.³ C22B 9/00

13 Claims

(a) filling a tubular envelope with a powder capable of aggregation; and

- (b) reducing the cross-section of the filled tubular envelope while keeping its circumference substantially constant;



- (c) whereby said powder is compacted in situ while being safely retained within said tubular product.

4,364,771

PRODUCT FOR THE DESULPHURIZATION OF CAST IRONS AND STEELS

Jean Cordier, Dunkerque; Michel Demange, Le Fayet, and Jean Idier, St. Beat, all of France, assignors to Societe Francaise d'Electrometallurgie SOFREM, Paris, France
PCT No. PCT/FR80/00073, § 371 Date 1981, § 102(e) Date December 17, 1980, PCT Pub. No. WO80/02565, PCT Pub. Date November 27, 1980

PCT Filed May 12, 1980, Ser. No. 224,535

Claims priority, application France, May 15, 1979, 79 13279
Int. Cl.³ C21C 7/02

U.S. Cl. 75—58

15 Claims

1. A product for the desulphurization of forge pigs and foundry pig irons and steels and for the nodularization of foundry pig irons intended to be injected by means of a nozzle in a current of carrier gas into the liquid cast iron or steel, characterized in that it contains, in combination, from about 10 to about 90% of magnesium shot and from about 90 to about 10% of an expanded porous granulated basic slag comprising, alumina, silica and magnesia having an index of basicity higher than 1.

4,364,772

RAIL WHEEL ALLOY

Larry A. Niemond; Michael W. Helwig, Jr., and Thomas J. Connare, all of Lewistown, Pa., assignors to Titanium Metals Corporation of America, Pittsburgh, Pa.

Filed May 28, 1981, Ser. No. 268,032

Int. Cl.³ C22C 38/18, 38/40

U.S. Cl. 75—126 R

9 Claims

1. An alloy particularly adapted for the manufacture of rail wheels and having an improved combination of hardness, and wear resistance, plus resistance to thermal cracking, said alloy consisting essentially of, in weight percent, carbon 0.48 to 0.64, phosphorus 0.05 max., sulfur 0.05 max., silicon 0.40 max., manganese 0.60 to 1.10, chromium 0.30 to 0.60, nickel 0.50 max. and balance iron and incidental impurities.

4,364,773

WASTE METAL CONVERSION PROCESS AND PRODUCTS

Marcel Veronneau, 48 North St., Watertown, Conn. 06795, and Thomas Marino, Hydlar Ave., Prospect, Conn. 06712

Filed December 23, 1980, Ser. No. 220,002

Int. Cl.³ C08L 95/00

U.S. Cl. 106—281 R

41 Claims

1. In a process for producing a finely divided filler material from an aqueous waste solution containing at least one metal capable of reaction to form insoluble hydroxide and sulfide compounds, the steps comprising:

- (a) effecting reaction in said solution to produce an aqueous

sludge comprised of an insoluble hydroxide and sulfide precipitate of said metal;

- (b) removing water from said sludge to produce a concentrate containing less than about 60 weight percent of water;

(c) admixing with said concentrate about 10 to 40 percent, based upon the weight thereof, of a basic fixative, comprised at least 50 percent by weight of calcium oxide, capable of exothermic hydration and combination with said metal precipitate and effecting hydration reaction therebetween; and

- (d) drying said concentrate to produce a homogeneous, particulate filler material containing less than about 25 weight percent of water.

4,364,774

SULPHUR PELLETIZING

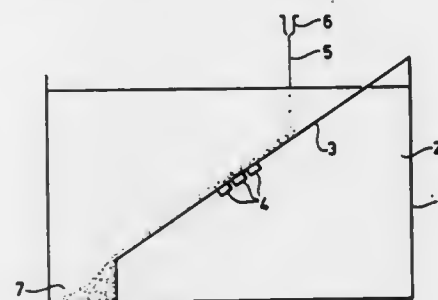
Herbert J. Elliott, 63 Poulton Estate, Bradford on Avon, Wiltshire, England

Division of Ser. No. 966,459, Dec. 4, 1978, Pat. No. 4,254,067, which is a continuation of Ser. No. 664,619, Mar. 8, 1976, abandoned. This application August 4, 1980, Ser. No. 175,225

Int. Cl.³ C01B 17/027; C09K 3/00

U.S. Cl. 106—287.13

8 Claims



1. Combination comprising

a mixture of molten sulfur containing dispersed therewithin an effective minor amount of a mechanical strength improving modifying additive and which is sufficient for increasing the mechanical strength of the corresponding solidified pelletized form of such sulphur as compared to that of the corresponding solidified pelletized form of such sulfur which has been solidified without such additive being dispersed in the molten sulfur, said additive being selected from the group consisting of organopolysiloxane, between about 4-10 ppm based on the sulfur content of kerosene, between about 4-10 ppm based on the sulfur content of other lower boiling range hydrocarbon than kerosene, and mixtures thereof.

4,364,775

AQUEOUS OXIDATIVE SCRUBBER SYSTEMS FOR REMOVAL OF MERCURY

John A. Starkovich, Redondo Beach, Calif., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed June 19, 1981, Ser. No. 275,531

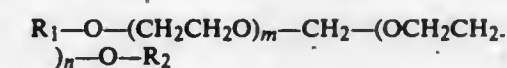
Int. Cl.³ C23G 1/02

U.S. Cl. 134—3

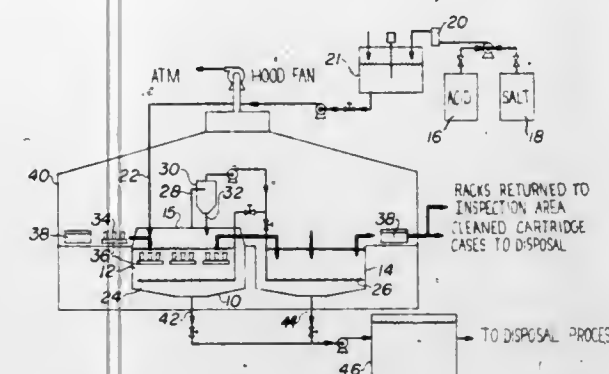
10 Claims

1. A process for removing mercury from plated solid substrates comprising the steps of contacting said solid substrate with an aqueous solution of an oxidative salt and nitric acid in a ratio by weight of from about 1.4 to about 4 for a period sufficient to remove mercury from said substrate, and then

removing the solid substrate from the solution, said oxidative salt being selected from the group consisting of alkali metal



wherein R₁ is a straight or branched chain alkyl having from 12 to 18 carbon atoms; R₂ is a straight or branched chain alkyl having from 2 to 4 carbon atoms, m is a number from 7 to 15 and n is 1, as said defoaming agent.



and ammonium chromate and alkali metal and ammonium dichromate.

4,364,776

RECOVERY OF HEAVY HYDROCARBONS FROM OIL SLUDGE

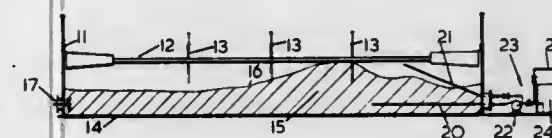
Alistair D. McBride, Wishaw, Scotland, and Ian S. Ripley, Middlesbrough, England, assignors to Emultec Limited, Eaglescliffe, England

Filed 1981, Ser. No. 228,274

Claims priority, application United Kingdom, 1980, 8001862
Int. Cl.³ B08B 3/02, 9/08

U.S. Cl. 134—10

5 Claims



1. A method of fluidising a non-pumpable hydrocarbonaceous sludge body deposited by an oil having a substantial heavy hydrocarbonaceous content when such oil is left standing in a bulk-storage container, said method comprising the steps of penetrating one or more substantially rigid tubular lances into the sludge body, physically and chemically breaking down the sludge body by pumping into the sludge body by way of the tubular lances dispersant chemical borne by a water jet, said dispersant chemical being present in the water jet in an amount sufficient to form emulsified hydrocarbonaceous fractions on the surface of the sludge body, the dispersant chemical being emulsifiable in water, continuously drawing off the emulsified hydrocarbonaceous fractions from the surface of the sludge body and recirculating these fractions under pressure by way of the tubular lances into the sludge body.

4,364,777

PREVENTION OF FOAM IN ALKALINE CLEANSING BATH BY THE USE OF MIXED FORMALS OF POLYGLYCOL ETHERS

Margarete Grünert, Kaarst; Karl Schmid, Mettmann, and Holger Tesmann, Düsseldorf-Unterbach, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien (Henkel KGaA), Düsseldorf-Holthausen, Fed. Rep. of Germany

Filed April 27, 1981, Ser. No. 257,855

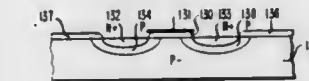
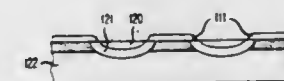
Claims priority, application Fed. Rep. of Germany, May 12, 1980, 3018149

Int. Cl.³ B08B 3/08; C11D 1/722

U.S. Cl. 134—29

3 Claims

1. In the process of washing rigid solid articles with a strongly alkaline washing solution having a pH of more than 10 and containing a defoaming effective amount of a defoaming agent, rinsing said rigid solid articles and recovering cleaned rigid solid articles, the improvement consisting of using a



1. A method of making a semiconductor device by steps comprising melting one or more times a surface region of a semiconductor body by means of a radiation beam, wherein the duration of each melting at a given location on said body is less than 10 milliseconds, and wherein said melting extends into a single crystal region of said semiconductor body, with said single crystal region having a given dopant type immediately beneath said melted region.

CHARACTERIZED IN THAT

the melted region comprises a first dopant having an equilibrium segregation coefficient of less than 0.1, and a second dopant having an equilibrium segregation coefficient of greater than 0.1, with at least said second dopant being deposited on, or introduced in, said surface region prior to said melting, and with said melting extending to a depth greater than the depth of such deposited or introduced dopant or dopants prior to said melting, whereby a junction is formed within said region upon resolidification of the melt.

4,364,779

FABRICATION OF SEMICONDUCTOR DEVICES INCLUDING DOUBLE ANNEALING STEPS FOR RADIATION HARDENING

Avid Kamgar, Millington, and Ashok K. Sinha, New Providence, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed August 4, 1980, Ser. No. 175,055

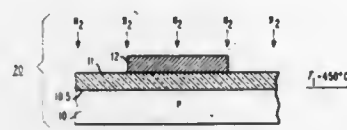
Int. Cl.³ H01L 21/477, 7/54

U.S. Cl. 148—1.5

20 Claims

1. A process for manufacturing a silicon semiconductor device in which the semiconductor is heated to a first elevated temperature and exposed to an ambient containing hydrogen,

cooled in said ambient to a lower temperature, and then heated to a second elevated temperature,



CHARACTERIZED IN THAT the device is pervious to hydrogen during a time interval while being cooled to said lower temperature.

4,364,780

METHOD OF PROVIDING A METAL COMPONENT WITH A THERMALLY BLACK SURFACE

Jacob Blanken, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

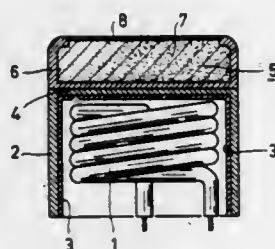
Filed April 13, 1981, Ser. No. 253,486

Claims priority, application Netherlands, May 9, 1980, 8002665

Int. Cl.³ C23C 17/00; B32B 15/20, 15/18, 15/04

U.S. Cl. 148—6

12 Claims



1. A method of providing a thermally black surface on a substrate comprising the steps of:
forming a layer of a metal compound on said substrate, said metal compound comprising aluminum and at least one of molybdenum, nickel, iron, tungsten and copper; and oxidizing part of the aluminum from said metal compound.

4,364,781

METHOD OF TREATING ZIRCONIUM-BASED ALLOY TUBES

Gunnar Vesterlund, Västerås, Sweden, assignor to AB Asea-Atom, Västerås, Sweden

Filed 1981, Ser. No. 235,627

Claims priority, application Sweden, 1980, 8001401

Int. Cl.³ C23F 7/02

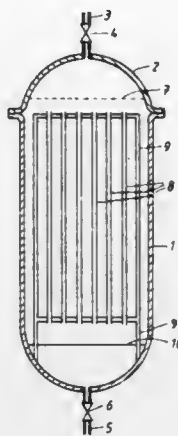
U.S. Cl. 148—6.3

14 Claims

1. A method of producing cladding tubes, said method comprising the steps of

- providing a tube made of a zirconium-based alloy,
- treating the internal surface of the tube of step (a) to form an oxide layer thereon having a thickness of between about 0.01 and about 0.1 micron,
- contacting the oxide layer on the internal surface of the tube of step (b) with an activating solution, said activating solution consisting of an aqueous solution containing from about 1 to about 3 g/l of hydrogen fluoride, from about 2 to about 8 g/l of ammonium fluoride and from about 0.1 to

about 0.5 g/l of sulfuric acid, the amount of ammonium fluoride, calculated in moles, exceeding the amount of hydrogen fluoride, calculated in moles, by at least 5 percent,



- applying a copper layer to the treated oxide layer on the internal surface of the tube of step (c), and
- treating the tube of step (d) to provide a layer of zirconium dioxide between the internal surface of the tube and the copper layer thereon.

4,364,782

PERMISSIBLE SLURRY EXPLOSIVE

Albert G. Funk; Daniel A. Wasson, and Joe N. Ikeda, all of Salt Lake City, Utah, assignors to IRECO Chemicals, Salt Lake City, Utah

Filed September 12, 1980, Ser. No. 186,371

Int. Cl.³ C06B 45/02

U.S. Cl. 149—21

13 Claims

1. A permissible explosive composition comprising:
 - (a) inorganic oxidizer salt comprising at least about 15% by weight calcium nitrate;
 - (b) from about 10% to about 35% by weight water;
 - (c) from 5% to about 18% inert material;
 - (d) from about 2% to about 8% finely flaked aluminum particles; and
 - (e) cross-linking and thickening agents.

4,364,783

ULTRASONIC END-CAPPING OF BETA"-ALUMINA TUBES

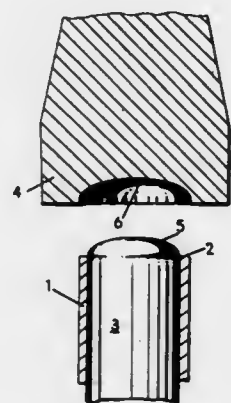
Ares N. Theodore, Farmington Hills, and Robert A. Pett, Franklin, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed September 8, 1981, Ser. No. 300,404

Int. Cl.³ B29C 27/08; C04B 35/44, 35/64

U.S. Cl. 156—69

29 Claims



1. A method of ultrasonically end-capping a tubular green body which comprises:
 - (A) providing a tubular green body comprised of a mixture of about 40–60 volume percent sinterable particulate solids and

60–40 volume percent organic sacrificial binder, wherein said binder consists essentially of:

- (a) a thermoplastic block copolymer component selected from the group consisting of linear, radial and linear and radial block copolymers, having a first aromatic block which is glassy or crystalline at 20°–25° C., and which has a softening point between about 80°–250° C. and a second aliphatic block which is different from said first block and behaves as an elastomer at temperatures between about 15° C. below and about 100° C. above said softening point of said first block;
- (b) oil at least about 75 percent by weight of which boils in a range between about 285°–560° C., has a viscosity of between about 30–220 Saybolt Universal Seconds (SUS) at 100° C., and has an Aniline Point in the range between about 75°–125° C.;
- (c) wax which melts at a temperature in a range between about 80° C. and at least 75 percent by weight of which boils at temperatures in a range between about 315°–490° C.;
- (d) a first stiffening thermoplastic polymer which is glassy or crystalline at 20°–25° C., has a softening point between about 80°–250° C. and comprises aromatic monomeric units associable with the block copolymer (a);
- (e) a second stiffening thermoplastic polymer, different from said first polymer and which is glassy or crystalline at 20°–25° C. and comprising aromatic monomeric units associable with the first block and has a softening point below about 80°–250° C.
- (f) processing aid comprising an ester of fatty acids; and said sinterable particulate solids consisting essentially of a particle size distribution of beta"-alumina precursor particulate solids, the weight of (a) being greater than (b) and (c) combined, greater than (d) and (e) combined and greater than about two times (b), (c), (d), (e) or (f) alone; and
- (g) forming an end-cap of desired configuration having a composition comprising said mixture;
- (h) applying pressure and ultrasonic vibrations by means of an ultrasonic horn to said tubular green body and end-cap between a tubular mandrel and said ultrasonic horn, said mandrel having a shaped end of desired configuration and the ultrasonic horn having a female mold shape adapted to receive said mandrel with said tubular body disposed therein;
- (i) maintaining said pressure and ultrasonic vibrations for a time necessary for ultrasonic vibrations to travel to the tubular body end-cap interface, wherein they are dissipated in the form of frictional heat and melt said binder so as to weld the joining surfaces.

4,364,784

METHOD AND APPARATUS FOR CONTINUOUS APPLICATION OF FOAM TO A PLANAR TEXTILE STRUCTURE

Kurt Van Wersch, Wegberg, and Manfred Pabst, Cologne, both of Fed. Rep. of Germany, assignors to A. Monforts, Monchen-Gladbach, Fed. Rep. of Germany

Filed September 30, 1980, Ser. No. 192,302

Claims priority, application Fed. Rep. of Germany, October 1, 1979, 2939797

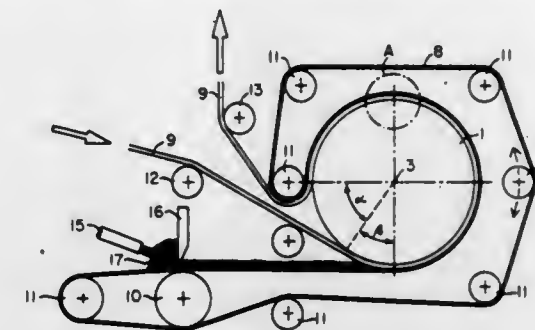
Int. Cl.³ B32B 31/16

U.S. Cl. 156—78

8 Claims

1. Method of continuously applying a foamed treatment medium to a planar textile structure which comprises applying the foam directly to the surface of an air-impermeable planar follower, guiding the planar follower synchronously into areal contact with the planar textile structure, and transferring the foam from the surface of the planar follower into the planar textile structure while the planar follower and the planar textile structure are in areal contact by applying vacuum to a side of the planar textile structure opposite the air-impermeable planar follower.
6. Apparatus for performing a method of continuously ap-

plying a foamed treatment medium to a planar textile structure comprising a drum having, at the shell surface thereof, an evacuable support layer, an air-impermeable planar follower spanning part of the drum periphery in areal contact with and for guiding the planar textile structure on the drum shell surface, said planar follower having an inlet section supported by at least one roller, means disposed at said inlet section for



supplying foam to be applied between said planar textile structure and said planar follower, a wiper disposed opposite said one roller for uniformly distributing foamed treatment applied to the planar follower region preceding said wiper means for supplying suction through said support layer to a side of the planar textile structure opposite said air-impermeable planar follower, and means for separating the planar textile structure and the planar follower from one another.

4,364,785

ASSOCIATION OF A PIECE OF FABRIC WITH A SHEET OF PVC

Michel Wajs, and Helene Wajs, both of rue de Fiennes 61, 1070 Bruxelles, Belgium

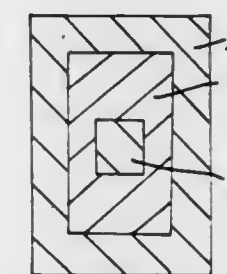
Continuation of Ser. No. 89,892, Oct. 31, 1979, abandoned. This application 1981, Ser. No. 239,131

Claims priority, application Belgium, October 11, 1979, 197590

Int. Cl.³ B32B 31/18, 31/20

U.S. Cl. 156—88

3 Claims



1. In a process of making a composite article comprising a layer of fabric and a superposed layer of thermoplastic material, the combination of steps of:
 - cutting only said fabric to predetermined shape by cutting said fabric along an outer periphery and also along an inner periphery defining an opening in the fabric,
 - placing on one side only of said fabric a sheet of said plastic material which completely covers said fabric and extends beyond all peripheral edges of said fabric,
 - welding said plastic sheet to said fabric along a first weld line inwardly of the outer periphery of said fabric and along a second weld line adjacent but outwardly of said inner periphery of the fabric,
 - cutting said plastic sheet along a first line inwardly of said first weld line and along a second line outwardly of said second weld line,
 - removing that portion of said plastic sheet between said first and second cutting lines, and
 - cutting said plastic sheet along a line outwardly of the outer periphery of said fabric to sever a marginal portion of said

plastic sheet, and removing the severed marginal portion of said plastic sheet.

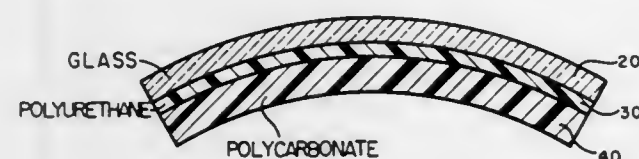
4,364,786

PROCESS FOR MAKING SAFETY GLASS LAMINATES SUBJECT TO NONSYMMETRICAL THERMAL STRESS
W. Novis Smith, Jr., and Nelson P. Bolton, both of Quakertown, Pa., assignors to Advanced Glass Systems Corp., Trumbauersville, Pa.

Filed March 23, 1981, Ser. No. 246,662
Int. Cl.³ B32B 17/00

U.S. Cl. 156—99

16 Claims



1. A process for producing a non-symmetrical laminate of glass and plastic comprising the steps of:

- (a) treating a glass blank with a difunctional silane coupling agent;
- (b) forming a first laminate by placing the glass blank against a sheet of an aliphatic polyether polyurethane, and heating to about 200°–220° F.; and
- (c) forming a second laminate of said initial laminate and a plastic sub-layer by placing sub-layer against the aliphatic polyether polyurethane, and simultaneously heating to about 130°–160° F. and pressurizing to about 150 psi for about one hour, whereby non-symmetrical thermal shear stresses between the first and second laminates are minimized.

9. A process for producing a non-symmetrical laminate of glass and plastic comprising the steps of:

- (a) treating a glass blank with a difunctional silane coupling agent;
- (b) injecting an uncured aliphatic polyurethane having a polyether backbone and a curing accelerator between said glass blank and a plastic sublayer; and
- (c) curing said product by heating to about 100° F. for about one hour, whereby non-symmetrical thermal shear stresses are minimized.

4,364,787

APPARATUS FOR APPLYING ELASTIC RIBBON SEGMENTS TO DIAPERS

Edmund Radzins, Sheboygan Falls, Wis., assignor to Curt G. Joa, Inc., Sheboygan Falls, Wis.

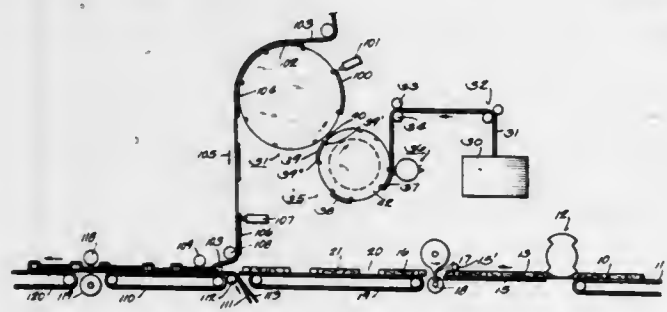
Continuation of Ser. No. 180,256, Aug. 22, 1980, abandoned.

This application August 24, 1981, Ser. No. 295,338

Int. Cl.³ B32B 31/08

U.S. Cl. 156—164

9 Claims



1. A method of fixing elastic ribbon segments between interfacing nominally inelastic flexible sheets comprising an article such as a diaper in which it is desired to develop elasticity in at least one direction for inducing at least a portion of the article

to conform to the contour of a body portion when the article is applied to a body, said method including the steps of:

- releasably securing unstretched segments of said elastic ribbon successively to a first transport device moving at a first velocity for the leading end of the segment to arrive at a place adjacent a second transport device moving at a second velocity which is higher than said first velocity, engaging the leading end of the segment with the higher velocity second transport device at said place while the trailing end remains secured to the first lower velocity transport device such that said elastic ribbon segment will be stretched,
- engaging the trailing end of the stretched elastic segment with said second transport device and substantially simultaneously releasing said trailing end from the first transport device for said stretched segment to be transported solely on said second device in stretched condition, causing a moving one of the flexible sheets of which said article is comprised and a stretched elastic segment being transported to come into contact relationship after a selected one or the other of said segment or sheet has had adhesive applied for adhering said stretched segment and sheet together,
- then running said first sheet in contact with a moving second one of said sheets comprising the article for adhering said sheets together where one or the other of said segment or said sheet has had adhesive applied, and
- cutting said sheets transversely remotely from the ends of the stretched segments to yield individual flexible articles and enable said stretched segments to contract the regions of said articles to which they are applied.

4,364,788

METHOD OF FORMING A FIBER RIBBON CABLE UNIT
Lonnie B. Bloodworth, Jr., Tucker; Christian Scholly, Atlanta, and Thomas L. Williford, Jr., Lawrenceville, all of Ga., assignors to Western Electric Company, Inc., New York, N.Y.

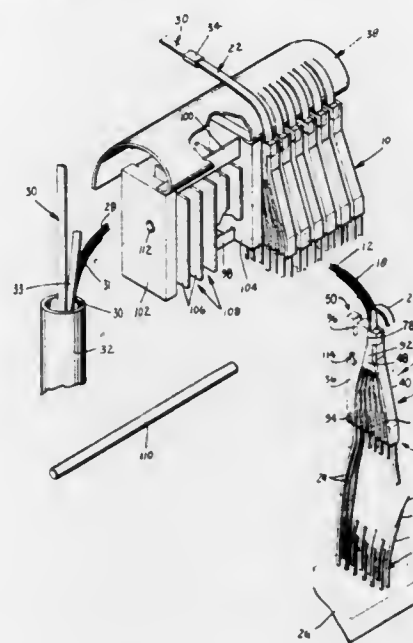
Division of Ser. No. 104,245, Dec. 17, 1979, Pat. No. 4,305,642.

This application August 13, 1981, Ser. No. 292,366

Int. Cl.³ B32B 5/00; G02B 5/16

U.S. Cl. 156—179

6 Claims



1. A method of forming a fiber ribbon cable unit from a plurality of individual fibers, comprising the steps of:

- attaching an end portion of a first flexible strip to an exit end of a fiber-receiving transition means such that the strip extends outwardly from the exit end of the transition means;
- positioning first portions of the individual fibers adjacent an entrance end of the fiber-receiving transition means in spaced relationship such that the first fiber portions extend outwardly from the entrance end of the transition means

in an individual configuration for connection to associated equipment;

mounting second intermediate portions of the individual fibers in respective converging channels in the fiber-receiving transition means such that third portions of the fibers exit from an exit passage in the transition means in closely adjacent relationship;

mounting the third portions of the fibers in a planar array on the outwardly extending first flexible strip;

positioning a second flexible strip over the third portions of the fibers on the outwardly extending first flexible strip; and

bonding the first and second flexible strips to one another with the third portions of the fibers therebetween, to form the fiber ribbon cable unit such that the fiber ribbon cable unit extends outwardly from the exit end of the fiber-receiving transition means.

5. A method of forming a fiber ribbon cable unit from a plurality of individual fibers of insulated construction having first, second and third insulated portions, comprising the steps of:

stripping the insulation from the insulated third portions of the fibers;

stripping the insulation from parts of the insulated second portions of the fibers to form end surfaces on the insulation intermediate opposite ends of the second portions;

positioning the insulated first portions of the individual fibers adjacent an entrance end of a fiber-receiving transition means in spaced relationship;

mounting the second portions of the individual fibers in the fiber-receiving transition means in converging relationship such that the third insulation-stripped portions of the fibers exit from an exit passage in the transition means in closely adjacent relationship;

abutting the end surfaces on the remaining insulation on the second portions of the fibers against internal stop surfaces of the fiber-receiving transition means to locate the second portions of the optical fibers in the transition means;

attaching an end portion of a first flexible strip to an exit end of the fiber-receiving transition means;

mounting the insulation-stripped third portions of the fibers in a planar array on the first flexible strip;

positioning a second flexible strip over the insulation-stripped third portions of the fibers on the first flexible strip; and

bonding the first and second flexible strips to one another with the insulation-stripped third portions of the fibers therebetween, to form the fiber ribbon cable unit.

4,364,789

METHOD OF MAKING LATERALLY CURVED DECORATIVE TRIM STRIP ASSEMBLY

Eric Moran, Burlington, Canada, assignor to P.V. Trim Limited, Mississauga, Canada

Filed 1981, Ser. No. 233,047

Int. Cl.³ B32B 31/18

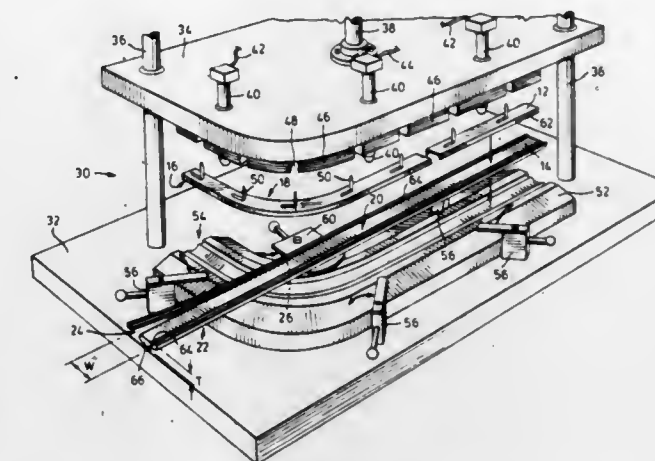
U.S. Cl. 156—214

4 Claims

1. A method of making a decorative trim strip assembly having a laterally curved portion formed therein, comprising the steps of:

- providing an elongated polymeric resinous material strip element having substantially greater width than thickness, and having a substantially planar first surface; and a substantially rigid metallic backing plate having a substantially planar face, and having a laterally curved portion formed therein to a desired configuration in a plane parallel to said substantially planar face;
- making at least one longitudinal slit in said polymeric resinous material strip element, and placing said slitted element in a jig having the desired configuration and holding the same therein so that said slit extends in said strip element from a place situated beyond a first end of said curved

portion to the end of said strip element which is beyond said curved portion remote from said first end thereof; and bonding said substantially planar face of said backing plate to said substantially planar first surface of said strip element;



and thereafter cutting off the ends of any slit portions of said slitted strip element extending beyond a pre-determined distance relative to the end of said backing plate.

4,364,790

APPARATUS FOR MAKING PLASTER BOARD
Adrien Delcoigne, Chantilly, and Jacques Lanneau, Breuil-le-Vert, both of France, assignors to Saint Gobain Industries, Neuilly, France

Division of Ser. No. 3,414, Jan. 15, 1979, Pat. No. 4,288,263.

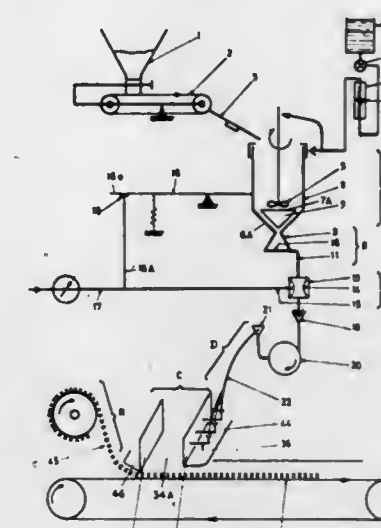
This application November 26, 1980, Ser. No. 210,681

Claims priority, application France, 1978, 78 03473; 1978, 78 03474; 1978, 78 03475

Int. Cl.³ B32B 13/04, 13/14

U.S. Cl. 156—346

22 Claims



1. A device for making board from a fluid evolutive product including a moving conveyor, a reservoir having an open bottom above the conveyor and having a downstream wall which, with the conveyor, forms a transverse slit for the movement of fluid evolutive product away from the reservoir, means for moving the conveyor to pass the product from the reservoir through the slit to form the board, a plurality of product supply tubes extending through the downstream wall for discharging the fluid product into the reservoir, means including horizontal spaced nozzles on said supply tubes for continuously introducing streams of fresh fluid evolutive product substantially horizontally into the reservoir, and means for discharging the product through the nozzles into the reservoir with such force as to eliminate dead spots and prevent premature hardening of said product.

4,364,791

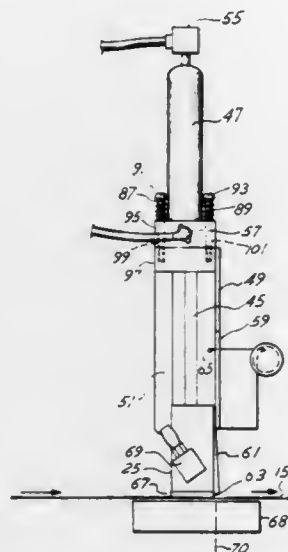
SPLICER ASSEMBLY FOR A TAPE CASSETTE LOADER
David W. Kincheloe, West Chicago, Ill., assignor to King Instrument Corporation, Westboro, Mass.

Filed September 2, 1980, Ser. No. 183,472

Int. Cl.³ B31F 5/06; G03D 15/04

U.S. Cl. 156—506

10 Claims



1. For use in a high-speed cassette loader, a magnetic tape splicer assembly for splicing a magnetic tape junction with a strip of splicing tape, said splicer assembly comprising in combination:

a tape applicator slidably mounted relative to a magnetic tape junction to be spliced, said applicator including means for carrying a strip of splicing tape and applying the same across the junction as said applicator is moved into close relationship with the tape junction;

guideway means for guiding said applicator into relationship with the junction in order to press the strip of splicing tape across the junction;

a first cutter blade positioned on one side of said applicator and having a first cutting edge, said first cutter blade spaced a distance above the tape junction;

a second cutter blade including a second cutting edge and a blunt edge at one end thereof;

means pivotally mounting said second cutter blade to said applicator so that said second cutter blade confronts said first cutter blade and said one end of said blade may be moved away from said applicator;

means for feeding a length of a web of splicing tape between said first and second cutting edges;

biasing means maintaining said second cutter blade against said first cutter blade as said applicator is moved along said first cutter blade and rotating said one end of said second cutter blade away from said applicator as said applicator moves subjacent to said first cutter blade so as to (a) move said blunt edge of said second cutter blade into a position wherein said blunt edge may contact said magnetic tape and (b) simultaneously move said second cutting edge of said second cutter blade to a position to prevent contact of said second cutting edge with the magnetic tape when said applicator is moved into close relationship with said tape junction.

4,364,792

PROCESS FOR THE PRODUCTION OF ADHESIVE METAL LAYERS ON NON-CONDUCTORS ESPECIALLY SYNTHETIC RESINS

Ralf Gliem, Wetter, and Reinhard Brandt, Marburg, both of Fed. Rep. of Germany, assignors to Degussa AG, Frankfurt am Main and Schoeller & Co., Elektronik GmbH, Wetter, both of, Fed. Rep. of Germany

Filed April 18, 1980, Ser. No. 141,301

Claims priority, application Fed. Rep. of Germany, April 20, 1979, 2916006

Int. Cl.³ B44C 1/22; B05D 3/06

U.S. Cl. 156—628

8 Claims

1. In a process for the production of an adhesive metal coating on a non-conductor chemically, by evaporation in a vacuum or by sputtering through roughening, the region of the surface to be coated by means of an etching process before the metallization, the improvement comprising exposing the region of the surface to be coated before the etching process to heavy ion radiation, the heavy ions having a mass of at least 10 and an energy of greater than 0.1 MeV per nucleon.

4,364,793

METHOD OF ETCHING SILICON AND POLYSILICON SUBSTRATES

Clinton G. Graves, 241 Heather Pl., Danville, Calif. 94526

Filed August 28, 1981, Ser. No. 297,138

Int. Cl.³ H01L 21/306; B44C 1/22; C03C 15/00

U.S. Cl. 156—643

5 Claims

1. A method for etching silicon or polysilicon substrates comprising, supporting silicon or polysilicon substrates in a plasma reactor, the substrates having a surface exposed to a reactive plasma etch within a region of said reactor, injecting gaseous aluminum chloride to the plasma region, and terminating the plasma etch after a desired depth of silicon or polysilicon has been removed from the substrate.

4,364,794

LIQUID CONCENTRATION APPARATUS

Henry G. Lankenau, Fort Myers, Fla., assignor to Ecodyne Corporation, Chicago, Ill.

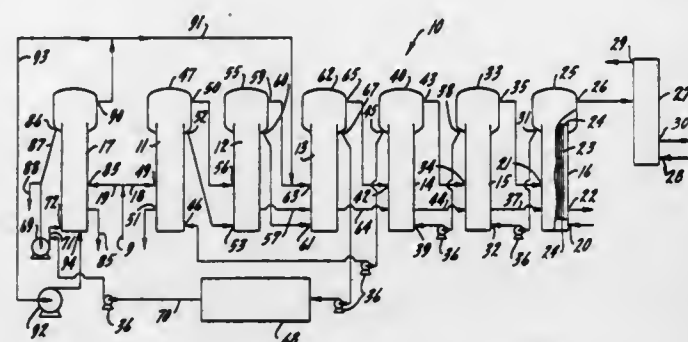
Division of Ser. No. 110,417, Jan. 7, 1980, Pat. No. 4,265,701.

This application November 20, 1980, Ser. No. 208,900

Int. Cl.³ B01D 1/06

U.S. Cl. 159—17 P

15 Claims



1. Apparatus for increasing the solids content of a liquid-solids mixture by evaporation comprising:

A. a concentrator having an entrance end and an exit end for said mixture;

B. a heat transfer surface connecting said entrance end with said exit end;

C. means capable of causing said mixture to flow past one side of said surface at a predetermined first velocity from said entrance end to said exit end;

D. means causing a heat transfer fluid to contact another side of said surface so as to convert a portion of the liquid in said mixture into heated vapor;

E. means for collecting said heated vapor;
F. means for passing a sufficient amount of the collected heated vapor at a predetermined second velocity through a vapor conduit into said entrance end where said heated vapor mixes with the incoming mixture; said means for passing and said conduit being sized and dimensioned to provide a flow of vapor sufficient to increase the velocity at which said mixture moves past said heat transfer surface to more than about 20 feet per second.

7. A multiple effect liquid evaporator for increasing the solids content of pulp and paper mill wastes comprising:

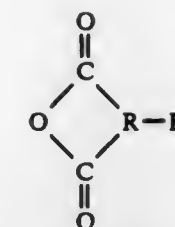
A. a plurality of liquid evaporator effects, each of which comprises;

1. an inlet for a liquid-solids waste mixture,
2. an outlet for heated vapor,
3. an outlet for the more concentrated liquid-solids waste mixture treated by each such effect,
4. an inlet for a heat transfer fluid, and
5. an outlet for said heat transfer fluid;

B. means for feeding said mixture into the inlet of the effect which operates at the lowest temperature, and means connecting the outlet for more concentrated liquid-solids waste mixture of an effect which operates at higher intermediate temperature to a concentrator for feeding said more concentrated liquid-solids waste mixture to said concentrator,

C. said concentrator comprising;

1. an entrance end and a discharge end for said mixture,
2. a series of heat transfer tubes connecting said entrance end to said discharge end,
3. means capable of pumping said mixture at a predetermined first velocity through said heat transfer tubes from said entrance end to said discharge end,
4. an entrance and an exit for steam and means for passing steam over the outside of said tubes so as to convert a portion of the liquid in said mixture into a heated vapor,
5. means for collecting said heated vapors, and
6. means forcing at least some of the collected heated vapor at a predetermined second velocity through a vapor conduit into said entrance end where said heated vapor mixes with the incoming mixture; said means forcing and said conduit being sized and dimensioned to enable said second velocity to be sufficiently greater than said first velocity, such that the velocity at which said mixture moves through said tubes is increased by said forced heated vapor sufficient to substantially prevent deposit of solids therewithin.



wherein R is selected from the class consisting of dimethylene and trimethylene radicals and wherein R' is a long hydrophobic side chain and is selected from the class of alkyl, alkenyl, aralkyl and aralkenyl groups and (2) the reaction product of maleic acid anhydride and an internal olefin in an amount sufficient to attain in said sheet, at a time subsequent to said coating, a Cobb value of about 0.4 to 1.0 gram as measured on the surface of said sheet which is coated.

4,364,796

METHOD AND SYSTEM FOR DISPOSING PYROLYSIS GAS

Yoshiaki Ishii; Naoyoshi Ando; Tsutomu Kume, and Shosaku Fujinami, all of Yokohama, Japan, assignors to Seichi Ishizaka, President of Agency of Industrial Science and Technology, Tokyo, Japan

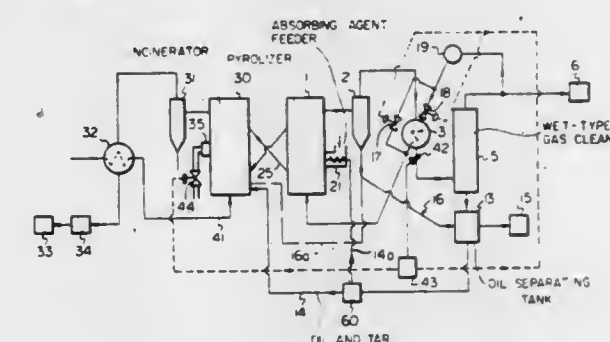
Filed 1981, Ser. No. 224,832

Claims priority, application Japan, 1980, 55-3578

Int. Cl.³ C10B 21/10

U.S. Cl. 201—4

3 Claims



1. In a method for the treatment of pyrolysis gas generated in a thermal reactor to eliminate harmful gas therefrom, the method comprising the steps of:

supplying absorbing agent to the reactor together with materials to be pyrolyzed;

collecting solid particles of char and unreacted absorbing agent from the pyrolysis gas fed from said reactor by a dry type collector;

feeding said gas passed through said dry type collector to a wet type gas cleaner using water for further trapping oil and tar and other minute particles still remaining in said gas;

feeding the water trapped oil, tar and minute particles to a separating tank where the trapped items are settled; and recirculating the solid particles collected at the dry type collector and the items settled in said separating tank to said reactor;

said method being characterized in that a portion of said particles collected at said collector is fed to said separating tank for promoting the separation of the oil and tar in said tank.

4,364,795

GYPSUM WALLBOARD AND METHOD FOR PRODUCING SAME

Arthur E. Kennedy, North Tonawanda, N.Y., assignor to National Gypsum Company, Dallas, Tex.

Continuation of Ser. No. 124,106, Feb. 25, 1980, Pat. No. 4,311,767.

This application August 17, 1981, Ser. No. 293,114

The portion of the term of this patent subsequent to 1999, has been disclaimed.

Int. Cl.³ D21D 3/00

U.S. Cl. 162—158

6 Claims

1. The method of treating paper which comprises completely forming a web of paper by a wet process of forming paper, drying at least partially said web of paper, and coating one surface of said at least partially dried web of paper with a synthetic size, said synthetic size being of the group consisting of (1) a cyclic dicarboxylic acid anhydride corresponding to the structural formula

4,364,797

AUTOMATICALLY FED DISTILLATION AND FRACTIONATION SYSTEM

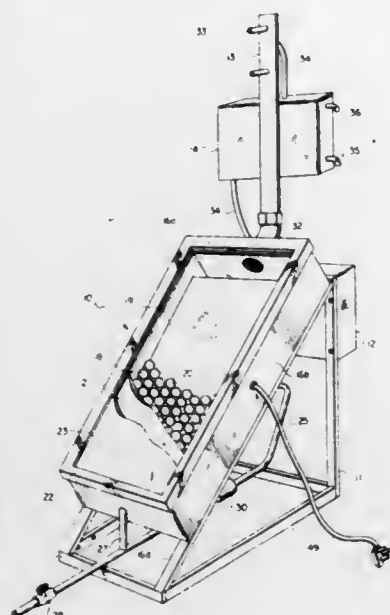
Boyd R. Beck, Spring City; Lamar H. Stewart, Gunnison; Steven Tapp, Ephraim; Don L. Anderson, Jr., Gunnison, and Daniel E. Nuffer, Ephraim, all of Utah, assignors to Stil Sun Oil, Inc., Centerfield, Utah

Division of Ser. No. 134,878, Mar. 28, 1980, Pat. No. 4,314,890, which is a continuation-in-part of Ser. No. 83,281, Oct. 10, 1979, abandoned. This application July 27, 1981, Ser. No. 287,239

Int. Cl.³ B01D 3/02, 3/42

U.S. Cl. 202—181

5 Claims



1. A distillation system for the separation of liquid mixtures which comprises:

an inclined still consisting of sidewalls, a lower endwall, an upper endwall, a bottom floor, and a translucent light transmitting top all being joined together to form a sealed still compartment, said compartment being divided into an upper vaporization chamber and a lower preheating chamber by a vaporization floor sealed to said sidewalls and lower endwall parallel to said bottom floor and translucent top, said vaporization floor terminating at its upper end short of said upper endwall, thereby forming a baffle over which liquid from said preheating chamber may overflow into said vaporization chamber, means located on the top surface of said vaporization floor to impede the downward flow of liquid on said surface, means located in said preheating chamber for heating said vaporization floor and liquid contained in the preheating chamber to a specified temperature, inlet means for introducing liquid mixture feed into the lower end of said preheating chamber, outlet means for removing residual liquid from the lower end of said vaporization chamber, and outlet means in said upper endwall for removing vapors formed within the still compartment;

feed control means interconnected with the inlet means to said preheating chamber for controlling the amount of liquid that flows thereinto, said feed control means consisting of a feed chamber having an inlet and an outlet and a hydraulically operated float control valve, which valve controls the flow of feed liquid through the feed chamber to the preheating chamber, said float control valve being selectively positioned substantially level with said baffle, such that, when liquid in the preheating chamber is below a specified temperature, the valve will remain closed, and when liquid in the preheating chamber is raised to at least said specified temperature, the liquid in the preheating chamber expands in volume, thereby becoming less dense, and is pushed over the baffle end of the vaporization floor by the more dense, cooler liquid feed in the feed chamber that flows by gravity through the outlet of the feed chamber to the preheating chamber, the exiting of liquid feed from the feed chamber causing the float control valve to open, thereby allowing feed liquid to flow through the

inlet to the feed chamber as long as the temperature of the feed liquid in the preheating chamber is above the specified temperature and the feed liquid is overflowing the baffle end of the vaporization floor; and an insulated condensation section interconnected with said still compartment consisting of a fractionation column which receives distilled vapors from the outlet means in the upper endwall of the still compartment, and condenser means for receiving and condensing vapors from the fractionation column into a distillate.

4,364,798

REBUILT COKE OVEN HEATING CHAMBER AND METHOD OF MAKING THE SAME

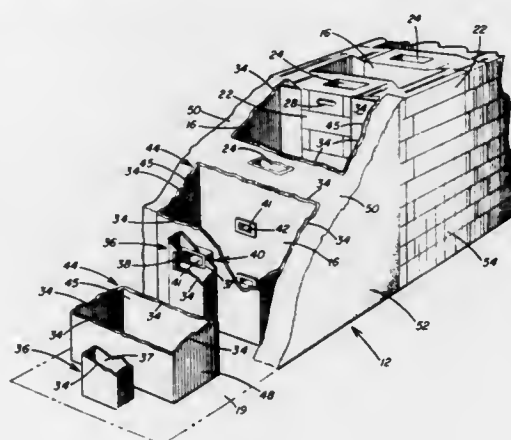
Richard A. Costa, Mingo Junction, Ohio, assignor to BMI, Inc., Pittsburgh, Pa.

Filed December 30, 1980, Ser. No. 221,310

Int. Cl.³ C10B 29/06; E04B 1/16; E04G 21/02; F27D 1/16

U.S. Cl. 202—267 R

15 Claims



12. A coke oven comprising, a heating chamber and a coking chamber, said heating chamber including a wall portion forming at least one passageway for the conveyance of gas through the heating chamber to heat said coking chamber, a first portion of said heating chamber being formed by brickwork and a second portion of deteriorated brickwork being removed, a reconstructed portion of said heating chamber positioned in place of said second portion of said deteriorated brickwork, said reconstructed portion being formed of a refractory material applied by spraying in a configuration to rebuild said wall portion and said passageway of said second, removed portion, and said reconstructed portion being connected to said brickwork of said first portion to form said reconstructed portion integral with said first portion and thereby form a unitary rebuilt portion of said heating chamber.

4,364,799

METHOD AND APPARATUS FOR CONTACTING WORK SURFACES WITH LIQUIDS

Emile Steiger, Pre-de L'etang, 1807 Blonay, Switzerland
Continuation of Ser. No. 862,652, Dec. 20, 1977, abandoned, which is a continuation of Ser. No. 726,746, Sep. 27, 1976, abandoned. This application May 4, 1979, Ser. No. 36,168
Claims priority, application Switzerland, September 27, 1975, 12572/75

Int. Cl.³ C25D 5/02

U.S. Cl. 204—15

2 Claims

1. A method for electrochemical liquid treatment of surface portions of workpieces comprising the steps of: providing a single sheet of a flexible elastic material having an elastic sealing means located along its edges, said sealing means including a plurality of spaced adjacent walls

4,364,801

METHOD OF AN APPARATUS FOR SELECTIVELY SURFACE-TREATING PRESELECTED AREAS ON A BODY

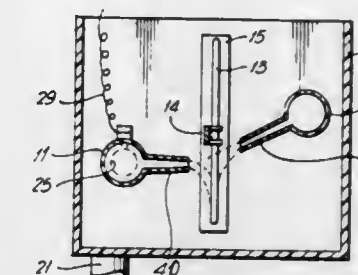
Amir Salama, Cartierville, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Filed June 29, 1981, Ser. No. 278,865

Int. Cl.³ C25D 5/02, 17/00

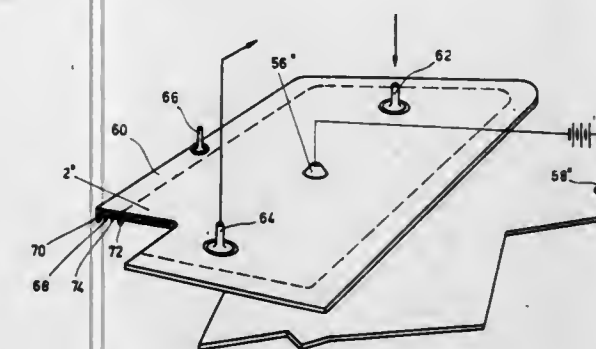
U.S. Cl. 204—15

21 Claims



1. A method of electro-plating a front surface of an elongate terminal pin having a rectangular cross-section; including ejecting a plating solution against the front surface of said pin and ejecting a gas to prevent wetting of a back surface and both side surfaces of the pin.

which extend generally parallel to one another to form a sealing space, spacer dimples being disposed within said sealing space to prevent its collapse; forming a treatment chamber on a portion of the surface of the workpiece to be treated by forming the edges of said elastic material into a conforming shape with the periphery of the surface portion to be treated and the shape of the workpiece along its periphery, the surface portion of the workpiece being treated and said sheet of elastic material forming the treatment chamber; applying a reduced pressure to the sealing space of said sealing means so as to firmly seal the sheet to the workpiece surface during treatment; providing at least one treatment liquid and a closable supply container therefor;



providing (i) an electrode for said workpiece (ii) an electrode for said sheet positioned to contact said treatment liquid while within the chamber, and (iii) an electric current between said electrodes; providing an inlet conduit and an outlet conduit at spaced locations on said sheet to provide communication between the treatment chamber and the treatment liquid supply container through the inlet conduit; providing an inert gas under pressure; opening the supply container and feeding the treatment liquid via said inlet conduit to said treatment chamber and withdrawing it through the outlet conduit under the pressure of said inert gas so the treatment liquid flows across the surface portion of the workpiece to treat it electrochemically, and the liquid and the surface under treatment are protected from the atmosphere.

4,364,800

SITU METAL PLATING OF THE CATHODE TERMINAL SURFACE OF AN ELECTROCHEMICAL CELL

Alan H. Partridge, Horsham, England, assignor to Duracell International Inc., Bethel, Conn.

Filed December 19, 1980, Ser. No. 218,223

Claims priority, application United Kingdom, May 23, 1980, 8017192

Int. Cl.³ C25D 5/02, 5/34

U.S. Cl. 204—15

10 Claims

1. A process for making a sealed electrochemical cell with a cathode terminal having a metal plated solely on the external exposed surface thereof with the remaining surface portion thereof being within the cell, unexposed, and unplated, comprising the steps of assembling said cell using an unplated cathode terminal; thereafter immersing the electrochemical cell in an aqueous metal plating solution containing metal ions, whereby said cell is in direct contact with said plating solution; permitting said cell to remain in contact with said plating solution for a time sufficient to permit the cell's electrical output to cause metal ions to deposit as a film on the entire exposed surface of said cathode terminal of said cell; and removing said cell from said plating solution, whereby said cell has a metal plated solely on the external exposed surface of said cathode terminal.

4,364,802

SCANNING ELECTRODE VIBRATION ELECTRODEPOSITION METHOD

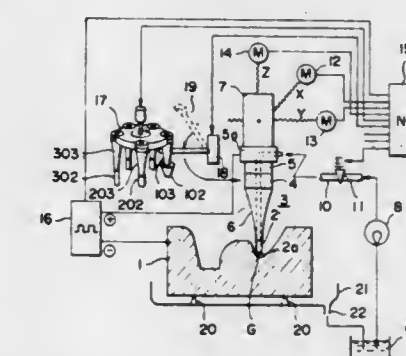
Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

Filed March 5, 1981, Ser. No. 240,919

Int. Cl.³ C25D 5/04

U.S. Cl. 204—23

20 Claims



1. A method of electrodeposition, comprising the steps of: spacedly juxtaposing a substrate with an electrode having a relatively small area in the region thereof confronting said substrate to define a small electrodeposition gap therebetween; flushing said electrodeposition gap with a liquid electrolyte; passing an electric current through said gap between said electrode and said substrate to electrodeposit a metallic substance from said liquid electrolyte onto said substrate; imparting high-frequency mechanical vibrations to said electrode; and relatively displacing said electrode and said substrate to cause said electrode area to sweep over at least a selected surface area of said substrate, thereby forming thereon a layer of the electrodeposition of a predetermined thickness.

4,364,803

DEPOSITION OF CATALYTIC ELECTRODES ON ION-EXCHANGE MEMBRANES

Antonio Nidola, and Gian N. Martelli, both of Milan, Italy, assignors to Oronzio de Nora Impianti Elettrochimici S.p.A., Milan, Italy

Filed December 2, 1980, Ser. No. 212,173
Int. Cl.³ C25D 5/00, 9/04, 17/00

U.S. Cl. 204—30

17 Claims

1. A process for producing a metal coating on the surface of a polymeric ion-exchange membrane by chemical reduction of metal ion adsorbed on the surface of the membrane wherein prior to the reduction of the metal ions, the membrane is contacted with a solution of an amphoteric compound capable of being adsorbed by the polymeric membrane.

4,364,804

BATH FOR THE GALVANOPLASTIC DEPOSITION OF A YELLOW-GOLD TINTED METALLIC ALLOY

Pino Aliprandini, 98D, route de Thonon, Vesenz, Geneve, Switzerland

Continuation-in-part of Ser. No. 159,300, Jun. 13, 1980, abandoned. This application July 16, 1981, Ser. No. 283,901
Claims priority, application Switzerland, March 17, 1980, 2067/80

Int. Cl.³ C25D 3/58

U.S. Cl. 204—44

1 Claim

1. An aqueous bath having a pH from 9 to 12 for the galvanoplastic deposition of a yellow-gold tinted metallic alloy on a nickel-plated, stainless steel or brass substrate containing 10 to 20 g/l of copper in the form of a double cyanide, 2 to 10 g/l of tin in the form of potassium stannate, 0.01 to 4 g/l of zinc in the form of a cyanide or sulfate, 2 to 50 mg/l of lead in the form of an acetate, 30 to 60 g/l of potassium and sodium double tartrate, 1 to 50 g/l of concentrated aqueous ammonia (28% NH₃), 1 to 20 g/l of potassium carbonate and a wetting agent.

4,364,805

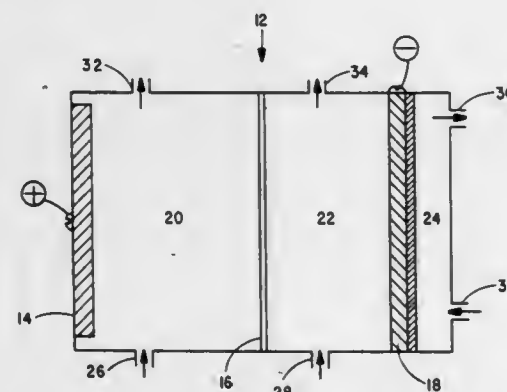
GAS ELECTRODE OPERATION

Douglas K. Rogers, Painesville, Ohio, assignor to Diamond Shamrock Corporation, Dallas, Tex.

Filed May 8, 1981, Ser. No. 261,773
Int. Cl.³ C25B 1/34, 11/03, 11/08, 11/12

U.S. Cl. 204—98

6 Claims



1. In a method of operating a gas electrode employing an oxygen-containing gas; and a laminate oxygen cathode of a wetproofing layer containing polytetrafluoroethylene particles, an active layer containing carbon particles, and a current distributor: the improvement which comprises feeding the oxygen-containing gas to the oxygen cathode at blow-through pressure.

4,364,806

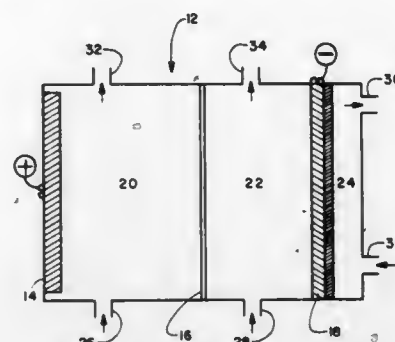
GAS ELECTRODE SHUTDOWN PROCEDURE

Douglas K. Rogers, Painesville, Ohio, assignor to Diamond Shamrock Corporation, Dallas, Tex.

Filed May 8, 1981, Ser. No. 261,774
Int. Cl.³ C25B 1/34, 11/08, 11/12

U.S. Cl. 204—98

8 Claims



1. In a gas electrode shutdown procedure where an electrode oxidizable when not protected by electrical polarity is operating on a given gas supply in an electrolytic cell at a given operating voltage and the cell is deprived of electrical power, the improvement comprising feeding nitrogen gas to said cell to establish a nitrogen atmosphere (blanket) therein and maintaining same for the duration of the power outage to said cell.

4,364,807

METHOD OF ELECTROLYTICALLY RECOVERING ZINC

Adolf von Röpenack; Günter Stock, both of Datteln, and Ulrich Heubner, Bad Homburg, all of Fed. Rep. of Germany, assignors to Ruhr Zink GmbH, Datteln, Fed. Rep. of Germany

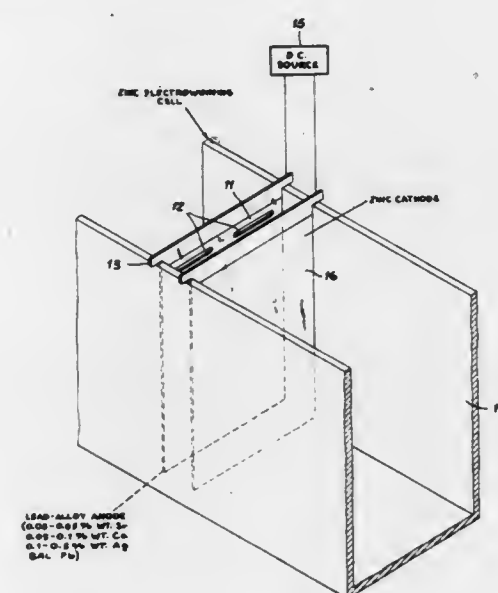
Filed 1981, Ser. No. 233,491

Claims priority, application Fed. Rep. of Germany, 1980, 3005674

Int. Cl.³ C25B 11/03; C25C 1/16

U.S. Cl. 204—114

3 Claims



1. A method of electrolytically recovering zinc from an acid electrolyte comprising the steps of immersing an anode consisting of essentially 0.1 to 0.5% by weight silver, at least one element selected from the group which consists of 0.05 to 0.25% by weight strontium and 0.05 to 0.1% by weight calcium, balance lead, in said electrolyte and juxtaposing said anode with a cathode; and electrolyzing said electrolyte between said anode and said cathode to deposit zinc on said cathode.

4,364,808

PHOTOCHEMICAL PREPARATION OF SILANES CONTAINING IMIDE GROUPS

Dieter Lohmann, Mattenz, and Siegfried Wyler, Dornach, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

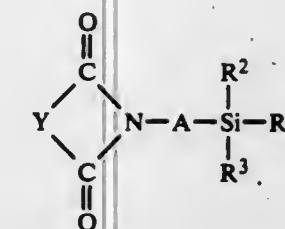
Division of Ser. No. 67,864, Aug. 20, 1979, Pat. No. 4,271,074.
This application December 15, 1980, Ser. No. 216,355
Claims priority, application Switzerland, August 30, 1978, 9154/78

Int. Cl.³ B01J 19/12

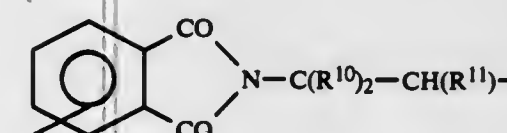
U.S. Cl. 204—158 R

5 Claims

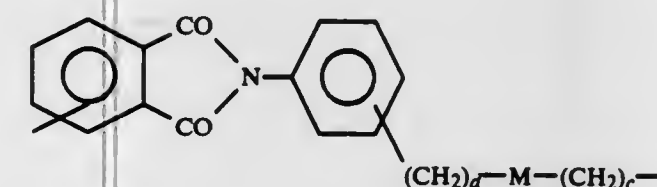
1. A composition of matter obtained by irradiating a compound of the formula III



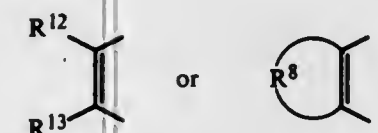
or a mixture of different compounds of the formula III, in which R¹ and R² independently of one another are methyl, ethyl, phenyl, vinyl, chlorine or a group —OR, R³ is chlorine or —OR, R is alkyl having 1–10 C atoms, cycloalkyl having 5–8 C atoms or phenyl, A is a substituted or unsubstituted, divalent, saturated or unsaturated, aliphatic, cycloaliphatic, aliphatic-aromatic or aromatic radical, where the aliphatic radicals A or aliphatic moieties of aliphatic-aromatic radicals A can be interrupted by hetero-atoms, or A is a grouping



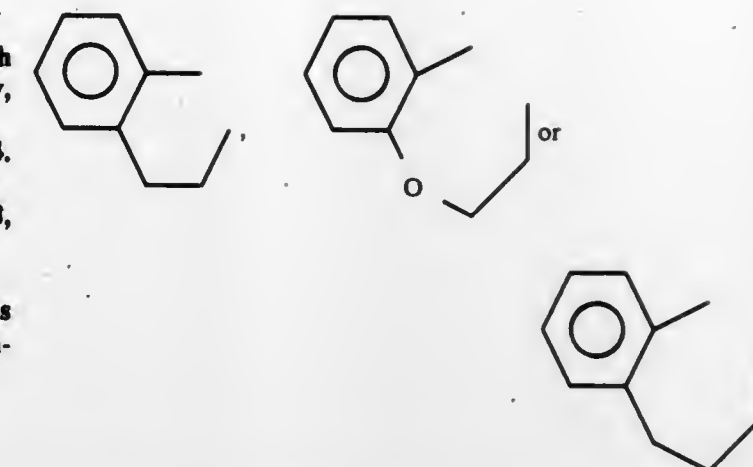
or a grouping



and in the two last-mentioned groupings the bond to the particular N atom is effected via the free valency in the benzene nuclei, R¹⁰ is hydrogen, methyl or ethyl, R¹¹ is hydrogen or alkyl having 1 to 10 C atoms, d is a number from 0 to 6, c is a number from 1 to 6 and M is —O—, —NH— or —N(R¹¹)—, and in which Y is



R¹² and R¹³ independently of one another are hydrogen, methyl, phenyl, —CN or halogen and R⁸ is alkylene having 3 or 4 C atoms, which can be branched and can be interrupted by a hetero-atom, or is one of the radicals



(III) in an organic solvent at temperatures between 5° C. and 120° C. with UV light.

4,364,809

METHOD FOR PREPARING CURED RUBBERY PRODUCTS OF ORGANOPOLY-SILOXANES

Yasuhiko Sato; Hiroshi Inomata, and Hiroshige Okinooshima, all of Annaka, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed March 5, 1980, Ser. No. 127,523

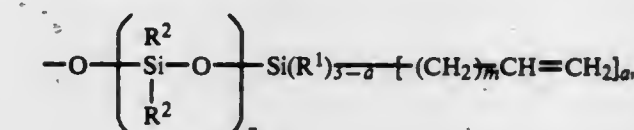
Claims priority, application Japan, March 19, 1979, 54-32130; March 26, 1979, 54-35221

Int. Cl.³ C08F 2/48, 130/08

U.S. Cl. 204—159.13

5 Claims

1. A method for the preparation of a rubbery cured product of an organopolysiloxane which comprises irradiating an organopolysiloxane containing aliphatically unsaturated groups and having a substantially linear molecular structure as represented by the general formula



wherein

R¹ is a methyl or a phenyl group

R² is a substituted or unsubstituted monovalent hydrocarbon group, m is zero, a is 2 or 3, and n is zero or a positive integer, with ultraviolet light in the wavelength region from 100 to 300 nm in the absence of a photosensitizer and the molar ratio of the aliphatically unsaturated groups to all of the hydrocarbon groups represented by the symbol R² in a molecule of the organopolysiloxane is 10% or less.

4,364,810

ELECTROCHEMICAL GAS DETECTION SYSTEM

Gerardo A. Razumney, Philadelphia, Pa., assignor to Rexnord, Incorporated, Milwaukee, Wis.

Division of Ser. No. 813,394, Jul. 6, 1978. This application December 6, 1979, Ser. No. 100,805

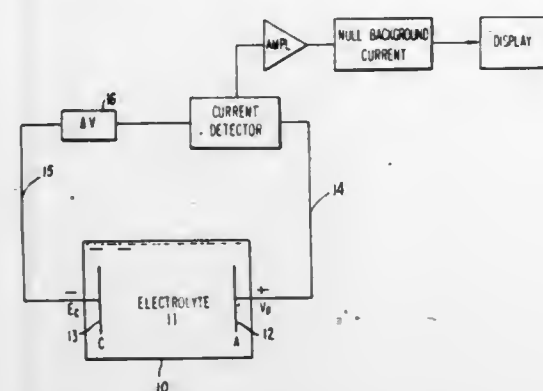
Int. Cl.³ G01N 27/28, 27/54

U.S. Cl. 204—195 R

10 Claims

1. A polarographic electrochemical system for measuring the concentration of an electrochemically oxidizable gas in a gaseous sample consisting of (a) a gas diffusion sensing anodic electrode exposed to the sample gas and including an electrocatalyst, (b) a non-polarizable, reducible counter electrode, (c) an electrolyte in contact with both said electrodes, (d) means for applying a selected constant potential difference in the range of between 0.9 to 1.4 V versus a reversible hydrogen

electrode in the same solution to said electrodes so as to bias said gas diffusion electrode into the limiting current plateau region of the current-potential curve where no parallel reactions interfere and in which the current is substantially inde-



pendent of the potential for oxidation of the electrochemically oxidizable gas, and (e) means for measuring the current flowing between said electrodes as an indication of the electrochemically oxidizable gas in the gaseous sample.

4,364,811

ELECTRODES FOR ELECTROLYTIC CELLS

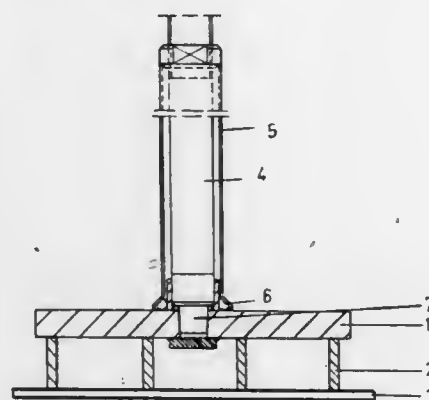
Peter Fabian; Karlheinz Eisenhuth, both of Freigericht; Ernst Jedlitschka, Bruchköbel, and Helmut Krebs, Freigericht, all of Fed. Rep. of Germany, assignors to Heraeus Elektroden GmbH, Hanau am Main, Fed. Rep. of Germany
Filed December 3, 1980, Ser. No. 212,570

Claims priority, application Fed. Rep. of Germany, December 8, 1979, 2949495

Int. Cl.³ C25B 9/04, 11/02

U.S. Cl. 204—220

17 Claims



1. An electrode for electrolytic cell comprising:

- (a) a means for supplying electric current;
- (b) a main current distributor;
- (c) rectangular-sectioned conductors having flat activated electrode faces and arranged standing upright, the ratio of the width to height of a cross-section being from about 1:5 to about 2:3; and
- (d) flat, rectangular-sectioned current distributors arranged perpendicularly to the conductors (c) and spaced from about 30 to about 150 mm apart, the ratio of the width to height of a cross-section being smaller than that for the cross-section of conductors (c), the ratio of free passage area to projected area in the zone of the conductors (c) being from about 20:30 to about 60:80 and conductors (c) being connected to current distributors (d), which are in turn connected to main current distributor (b) and the components (b), (c), and (d) being arranged in three planes above each other, perpendicular to each other in adjacent planes, and all consisting of flat sections having rectangular cross-sections.

4,364,812

GUIDE BODY MEMBER FOR A WIRE ELECTRODE IN A WIRE-CUTTING ELECTROEROSION MACHINE

Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

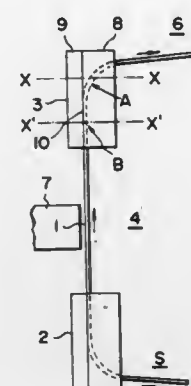
Filed 1981, Ser. No. 229,549

Claims priority, application Japan, 1980, 55-9740[U]

Int. Cl.³ B23P 1/12; B23K 9/16

U.S. Cl. 204—224 M

5 Claims



1. A guide body for constituting at least one of a pair of guide members for a continuous wire electrode axially advanced continuously to travel through a cutting zone from an inlet side to an outlet side in a wire-cutting electroerosion machine having means for applying tension to the traveling-wire electrode across the inlet and outlet sides and the guide members disposed intermediate the inlet and outlet sides for rectilinearly supporting the traveling-wire electrode therebetween and positioning the axis thereof in a predetermined machining relationship with a workpiece in the cutting zone, the guide body comprising:

- a first segment defining a continuous elongated wire-receiving groove having a first portion which is rectilinear and proximate to said cutting zone and a second portion which is arcuate and remote from said cutting zone, the groove being V-shaped in cross-section continuously over said first and second portions and thereby defining a pair of continuous and elongated wire-bearing surfaces adjoining with an angle to form a V-shaped in cross-section; and
- a second segment coupled to said first segment for holding said wire electrode traveling in said first portion of the groove in a bearing contact with said surfaces in said first segment.

4,364,813

SOLID POLYMER ELECTROLYTE CELL AND ELECTRODE FOR SAME

Preston S. White, Corpus Christi, Tex., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 105,055, Dec. 19, 1979, abandoned. This application June 22, 1981, Ser. No. 276,124

Int. Cl.³ C25B 9/00, 11/03, 11/04, 13/08

U.S. Cl. 204—252

2 Claims

1. In an electrolytic cell divided into two electrolyte compartments by a solid polymer electrolyte, said solid polymer electrolyte comprising a permionic membrane having an electrode pair of anodic electrocatalyst in contact with one surface thereof and cathodic electrocatalyst in contact with the opposite surface thereof, the improvement wherein at least one electrode removably bears upon the permionic membrane and comprises a catalyst carrier having particulate electrocatalyst material and fluorinated hydrophilic ion exchange material thereon, said fluorinated ion exchange material being adherent to the particulate electrocatalyst material and to the catalyst carrier.

4,364,814

APPARATUS FOR THE PRODUCTION OF AQUEOUS ALKALI METAL HYPOCHLORITE

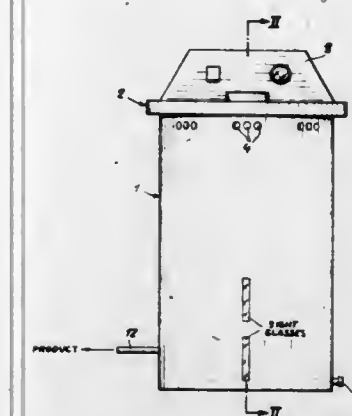
Robert C. Langley, 214 Old Forge Rd., Millington, N.J. 07946

Filed May 20, 1981, Ser. No. 265,548

Int. Cl.³ C25B 9/00, 11/03, 11/10

U.S. Cl. 204—278

9 Claims



1. An apparatus for the controlled production of an aqueous alkali metal hypochlorite solution, which comprises:

- (a) tank and means forming a vent at an upper part of said tank;
- (b) a tank cover movably mounted on the upper end of said tank;
- (c) an electrode assembly inserted into said tank and removable therefrom, said electrode assembly comprising an anode, a cathode, and a support holding the anode and the cathode at least one-half inch from one another, but in juxtaposed relation;
- (d) a D.C. power source electrically connected to said anode and to said cathode;
- (e) a partition within said tank dividing said tank into an upper compartment for containing brine and a lower compartment containing the electrode assembly, said partition defining at least one hole to controllably allow brine to pass from said upper compartment to said lower compartment and being provided with means for allowing hydrogen produced in the electrolytic cell in the lower compartment to pass through the brine in the upper compartment to then exit the tank through said vent; and
- (f) means communicating with said lower compartment to remove aqueous alkali metal hypochlorite solution therefrom.

4,364,815

SOLID POLYMER ELECTROLYTE CHLOR-ALKALI PROCESS AND ELECTROLYTIC CELL

William B. Darlington, Portland, and Donald W. Dubois, Corpus Christi, both of Tex., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 120,217, Feb. 11, 1980, abandoned, which is a continuation-in-part of Ser. No. 76,898, Sep. 19, 1979, abandoned. This application June 22, 1981, Ser. No. 276,123

Int. Cl.³ C25B 11/02, 13/08

U.S. Cl. 204—283

5 Claims

1. In an electrolytic cell having an anode separated from a cathode by a permionic membrane, said anode and said cathode both contacting said permionic membrane, the improvement wherein said anode comprises a pervious substrate having anodic electrocatalyst bonded thereto, said anode bearing upon the permionic membrane, said cathode is bonded to and embedded in the permionic membrane, and said permionic membrane comprises a fluorocarbon resin having the moieties:



and



where

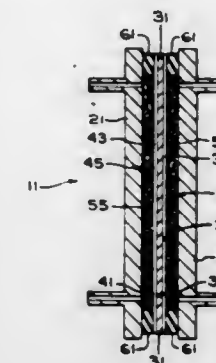
X is chosen from the group consisting of —F, —Cl, —H, and —CF₃;

X' is chosen from the group consisting of —F, —Cl, —H, —CF₃, and (CF₂)_mCF, where

m is an integer from 1 to 5;

Y is chosen from the group consisting of —A, —φA, —P—A, and

—O—(CF₂)_n—(P,Q,R)—A, where P is (—CF₂)_a (CXX')_b(CF₂)_c, Q is (—CF₂—O—CXX')_d



and R is (—CXX'—O—CF₂)_e, (P,Q,R) is or contains one or more of P, Q, and R n is 0 or 1; a,b,c,d, and e are integers from 0 to 6;

φ is a phenylene group and A is chosen from the group consisting of —COOH, —CN, —COF, —COCl, —COOR, —COOM, and —CONR₂R₃,

where R₁ is a C₁ to C₁₀ alkyl group, and R₂ and R₃ are chosen from the group consisting of —H, and

C₁ to C₁₀ alkyl groups; and m is chosen from the group consisting of —H and alkali metals.

4,364,816

RECORD MATRIX PREPARATION

David E. Birt, Hanwell, England, assignor to EMI Limited, Hayes, England

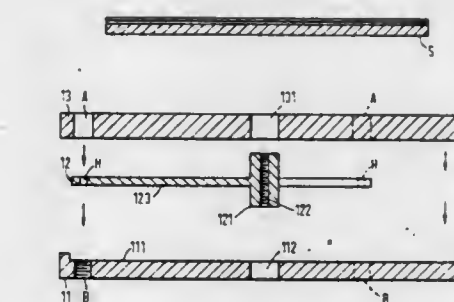
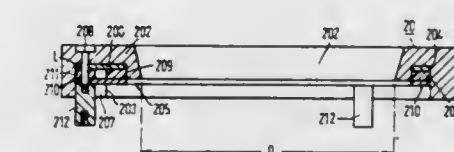
Filed December 5, 1980, Ser. No. 213,483

Claims priority, application United Kingdom, December 7, 1979, 7942336

Int. Cl.³ C25D 1/10, 2/00

U.S. Cl. 204—297 W

4 Claims



1. An electroplating arrangement comprising a metal or metalized cathode plate suitable for use in production of a disc record matrix, a current terminal located on an axis intersecting substantially the centre of said cathode plate and an electrically conducting annular contact member, a clamping means including a current distribution member, said clamping means being adapted to hold said contact member against said cathode plate, said current distribution member establishing a sub-

stantially uniform distribution of current from said terminal to the contact member, wherein the distribution member comprises a plurality of spaced electrical conductors, said conductors comprising an electrically conductive strip extending substantially radially from a common location on said axis and including an electrically conductive linkage member connecting each said strip to the contact member.

4,364,817 METHOD FOR CONTROLLING BOILING POINT DISTRIBUTION OF COAL LIQUEFACTION OIL PRODUCT

Raymond P. Anderson, Overland Park, Kans.; David K. Schmalzer, Englewood, Colo., and Charles H. Wright, Overland Park, Kans., assignors to The Pittsburg & Midway Coal Mining Co., Englewood, Colo.

Filed March 4, 1981, Ser. No. 237,762
Int. Cl.³ C10G 1/00, 1/06

U.S. Cl. 208—8 LE

27 Claims

1. A continuous process for controlling the relative ratio of heavy distillate to light distillate produced in a coal liquefaction process, which comprises passing a mineral-containing feed coal, hydrogen, recycle normally solid dissolved coal, recycle mineral residue and a liquid solvent to a coal liquefaction zone, said liquid solvent comprising a heavy distillate and a light distillate in a predetermined ratio of heavy distillate to light distillate to dissolve hydrocarbonaceous material of said feed coal and to hydrocrack said hydrocarbonaceous material to produce a product fuel oil containing heavy distillate and light distillate, wherein the ratio of heavy distillate to light distillate in the product fuel oil varies inversely with the ratio of heavy distillate to light distillate in the liquid solvent, and continuously controlling the weight ratio of heavy distillate to light distillate in the fuel oil product by varying the weight ratio of heavy distillate to light distillate fed to the liquefaction zone inversely to the desired weight ratio of heavy distillate to light distillate in the fuel oil product, said heavy distillate and said light distillate in said liquid solvent comprising recycle distillate fractions, said heavy distillate boiling in the range of between about 550° F. (288° C.) to about 900° F. (482° C.) and said light distillate boiling in the range of between about 380° F. (193° C.) to about 550° F. (288° C.), said liquid solvent comprising heavy distillate and light distillate in a ratio of heavy distillate to light distillate of greater than 3:1 on a weight basis.

4,364,818 CONTROL OF PYRITE ADDITION IN COAL LIQUEFACTION PROCESS

Bruce K. Schmid, and James E. Junkin, both of Englewood, Colo., assignors to The Pittsburg & Midway Coal Mining Co., Englewood, Colo.

Filed July 15, 1981, Ser. No. 282,731
Int. Cl.³ C10G 1/06

U.S. Cl. 208—10

15 Claims

1. A coal liquefaction process for increasing the amount of liquid product boiling in the range C₅—900° F. (482° C.), which comprises passing hydrogen and a feed slurry comprising a high calcium feed coal and a distillate solvent to a coal liquefaction zone, and adding pyrite to said feed slurry in inverse proportion to the calcium content of said feed coal.

4,364,819 CONVERSION OF ASPHALTENE-CONTAINING CHARGE STOCKS

Leroi E. Hutchings, Mt. Prospect, and Algje J. Conner, Downers Grove, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed April 24, 1981, Ser. No. 257,043
Int. Cl.³ C10G 67/04

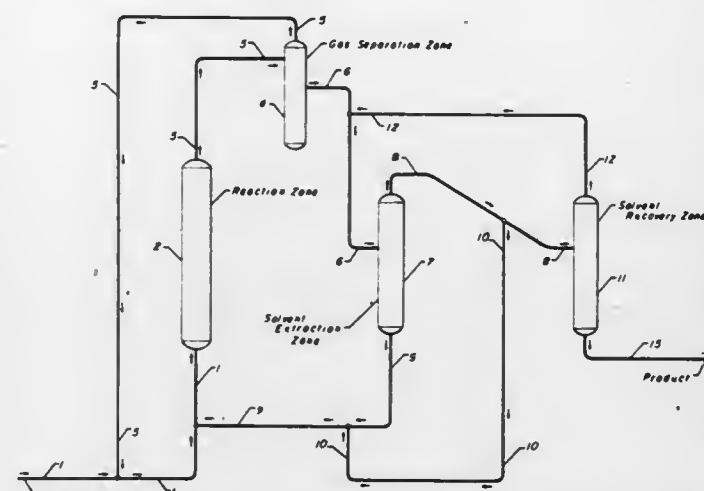
U.S. Cl. 208—96

9 Claims

1. A process for the conversion of an asphaltene-containing,

hydrocarbonaceous black oil, and the recovery of deasphalted oil therefrom, which comprises the steps of:

- reacting said black oil, hydrogen, a first hereinafter described recycle stream comprising unreacted asphaltene and a metal catalyst selected from the iron-group metals and the metals from Group V-B and VI-B, and a second hereinafter described recycle stream comprising a solvent rich liquid phase containing deasphalted oil, in a reaction zone at conversion conditions selected to convert asphaltene material into lower-boiling hydrocarbons;
- separating the resulting reaction product effluent, in a first separation zone, to provide (i) a hydrogen-rich first vaporous phase and, (ii) a first liquid phase, containing metal catalyst and unreacted asphaltene, and recycling at least a portion of said first vaporous phase to combine with said black oil;
- deasphalting said first liquid phase with a hydrocarbonse-



lective solvent comprising a light hydrocarbon having from about 3 to about 9 carbon atoms per molecule in a solvent extraction zone to provide (i) a solvent rich second liquid phase, containing deasphalted oil, and, (ii) a solvent-lean mixture of unreacted asphaltene and metal catalyst;

- recycling at least a portion of said solvent-lean mixture of unreacted asphaltene and metal catalyst to combine with said black oil;
- recycling a portion of said solvent rich second liquid phase, containing deasphalted oil to combine with said black oil; and
- separating a portion of said solvent rich second liquid phase in a solvent recovery zone to provide (i) a stream comprising said hydrocarbon-selective solvent, and recycling at least a portion of said stream to said solvent extraction zone and (ii) a substantially solvent-free deasphalted oil.

4,364,820 RECOVERY OF C₃+ HYDROCARBON CONVERSION PRODUCTS AND NET EXCESS HYDROGEN IN A CATALYTIC REFORMING PROCESS

Richard R. DeGraff, Deerfield, and Kenneth D. Peters, Elmhurst, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed 1982, Ser. No. 337,191
Int. Cl.³ C10G 47/00

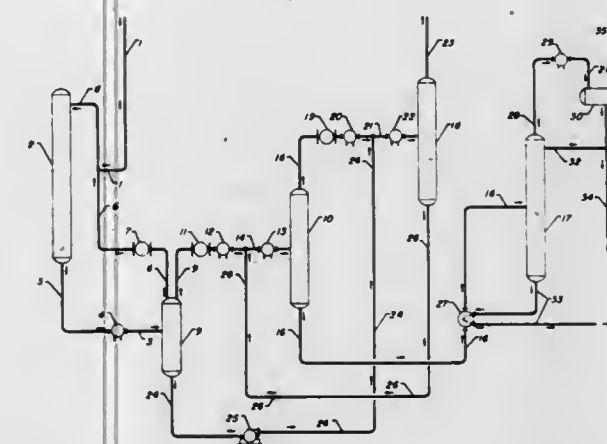
U.S. Cl. 208—101

9 Claims

1. A hydrocarbon conversion process comprising the steps of:

- treating a hydrocarbonaceous feedstock in a reaction zone in admixture with hydrogen and in contact with a hydrocarbon conversion catalyst at hydrocarbon conversion conditions of temperature and pressure to provide a reaction zone effluent stream comprising normally liquid and normally gaseous hydrocarbon conversion products admixed with hydrogen;
- treating said effluent stream in a first gas-liquid separa-

- tion zone at a reduced temperature effecting the separation of a liquid hydrocarbon phase and a hydrogen-rich vapor phase;
- recycling a portion of said hydrogen-rich vapor phase to said reaction zone in admixture with said hydrocarbonaceous feedstock;
- admixing the balance of said vapor phase with a liquid hydrocarbon phase recovered from a third gas-liquid separation zone in accordance with step (f), and treating said mixture in a second gas-liquid separation zone at substantially the same temperature as said first separation zone and at an elevated pressure relative thereto to effect the separation of a liquid hydrocarbon phase having a reduced concentration of hydrogen and C₂— hydrocarbons, and a hydrogen-rich vapor phase having a reduced concentration of C₃+ hydrocarbons;
- treating the last mentioned liquid hydrocarbon phase in a fractionation column at conditions to separate an overhead fraction comprising light hydrocarbon conversion products from the higher boiling hydrocarbon conversion products;



- admixing the last mentioned hydrogen-rich vapor phase separated in accordance with step (d) with the liquid hydrocarbon phase separated in accordance with step (b), and treating said mixture in a third gas-liquid separation zone at substantially the same temperature as said second separation zone and at an elevated pressure relative thereto to effect the separation of a liquid hydrocarbon phase having a reduced concentration of hydrogen and C₂— hydrocarbons, and a hydrogen-rich vapor phase having a reduced concentration of C₃+ hydrocarbons; and,
- recovering said hydrogen-rich vapor phase, and admixing said liquid hydrocarbon phase with the hydrogen-rich vapor phase from step (b) in accordance with step (d).

2. The process of claim 1 further characterized in that said hydrocarbon conversion process is a catalytic reforming process wherein a naphtha feedstock is treated in a reaction zone in admixture with hydrogen and in contact with a reforming catalyst at reforming conditions including a temperature of from about 500° to about 1050° F. and a pressure of from about 50 to about 1200 psig.

4,364,821 FLUID CONTACTING PROCESS

Dennis E. O'Brien, Arlington Heights, Ill., assignor to UOP Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 173,560, Jul. 30, 1980, Pat. No. 4,307,063. This application September 11, 1981, Ser. No. 301,241
Int. Cl.³ C10G 21/22, 21/12

U.S. Cl. 208—325

3 Claims

1. A liquid-liquid extraction process which comprises the steps of:

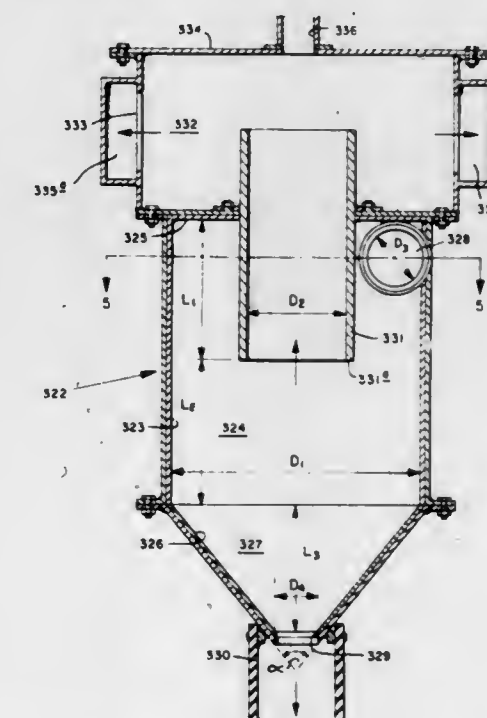
- passing a liquid-phase solvent stream into the upper portion of the vertically oriented extraction column and downward through the column, with the solvent stream traveling downward within an annular bed of contacting

media which is vertically oriented and centrally located within the column;

- passing a liquid-phase feed stream comprising hydrocarbons into the bottom portion of the extraction column and upward through the column in a sigmoid path which includes a plurality of radial flow passages through the bed of contacting media, with each passage of the feed stream through the bed of contacting media being in the opposite radial direction and at a higher vertical elevation than the immediately preceding passage of the feed stream through the bed of contacting media;
- withdrawing a raffinate stream from the top portion of the extraction column; and,
- withdrawing an extract stream from the bottom portion of the extraction column.

4,364,822
AUTOGENOUS HEAVY MEDIUM PROCESS AND
APPARATUS FOR SEPARATING COAL FROM REFUSE
John W. Rich, Jr., Gilberton Coal Co., Gilberton, Pa. 17934
Continuation-in-part of Ser. No. 253,401, Apr. 13, 1981,
abandoned. This application July 1, 1981, Ser. No. 279,627
Int. Cl.³ B03B 5/34; B04C 5/081
U.S. Cl. 209—3

45 Claims



34. A process for separating coal and refuse from raw input comprising the steps of:

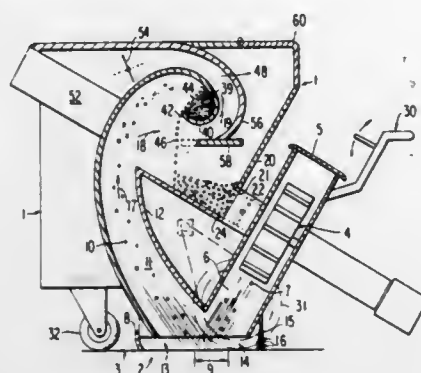
- screening said raw input to a size range of about 2"×0;
- entraining said screened raw input in a heavy medium slurry having a specific gravity lower than the specific gravity of the coal to be separated;
- admitting said raw input and heavy medium tangentially under pressure through an inlet into a substantially cylindrical chamber having an axial length slightly greater than its diameter to subject said input to a substantially constant acceleration for a predetermined time interval;
- causing said raw input to enter a tapered chamber having an included cone angle of about 90° to about 120° at one end of said substantially cylindrical chamber for increasing the acceleration on the raw input;
- discharging a refuse-rich slurry through an orifice at the apex of said tapered chamber; and
- exhausting coal-rich slurry from about the middle of said cylindrical chamber through a vortex finder of a predetermined inside diameter.

4,364,823

APPARATUS FOR SEPARATING ABRASIVE BLASTING MEDIA FROM DEBRISJames R. Goff, Rte. 1, Box 247AB, Seminole, Okla. 74868
Filed 1981, Ser. No. 232,465Int. Cl.³ B07B 7/04

U.S. Cl. 209—135

7 Claims



1. An apparatus for separating debris from spent abrasive in an abrasive blasting apparatus in which the debris and spent abrasive mixed in a stream of fluid are recirculated from a blast zone at high speed through a recirculating chamber comprising

means for providing said stream of fluid through said recirculating chamber;

means for receiving said debris and spent abrasive from said recirculating chamber and allowing a quantity of said debris and spent abrasive to collect thereby forming a pile of said debris and spent abrasive with a face of said pile exposed to substantially all of the incoming high speed debris and spent abrasive from said recirculating chamber; wherein said pile has an angle of repose whereby additional incoming debris and spent abrasive lose a substantial proportion of their kinetic energy upon impacting said face and fall down said face to form a substantially unobstructed, vertical, uniform curtain of falling debris and spent abrasive; and

means having an opening disposed below said receiving means in direct communication with said recirculating chamber for drawing off said stream of fluid from said recirculating chamber, whereby said falling curtain is washed of debris by said stream of fluid by passing the stream of fluid from said recirculating chamber through said falling curtain and into said opening of said drawing means to thereby entrain said debris from said falling curtain in said stream of fluid.

4,364,824

FLOTATION OF PHOSPHATE ORES CONTAINING DOLOMITE

Robert E. Snow, Lakeland, Fla., assignor to International Minerals & Chemical Corp., Terre Haute, Ind.

Filed June 2, 1981, Ser. No. 269,448

Int. Cl.³ B03D 1/14

U.S. Cl. 209—167

23 Claims

1. A flotation method for separating alkaline earth metal carbonate impurities from a deslimed sized phosphorite ore the steps comprising

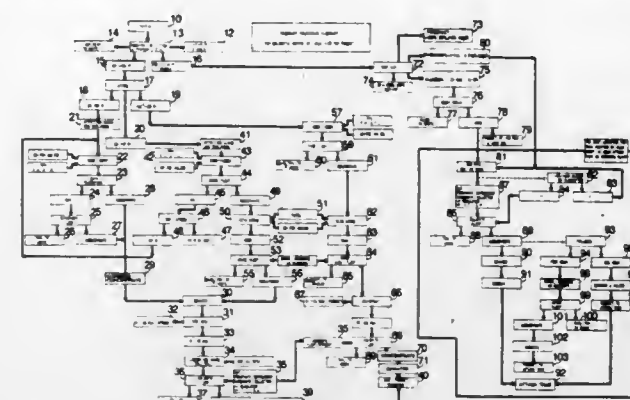
(a) slurring with water to about 20–25% solids a phosphorite ore fraction containing phosphate values and an excessive level of alkaline earth metal carbonate impurities, said phosphorite ore fraction having a particle size less than about 0.45 mm;

(b) reagentizing said phosphorite ore fraction by adding thereto a pH regulator to adjust the pH of said slurred phosphorite ore fraction to about 5.5–6.0, a carbonate collector comprising a water soluble salt of a sulfonated linear fatty acid having a straight carbon chain of 12 to 22 carbon atoms, said carbonate collector having a direct

carbon to sulfur bond, and a phosphate depressant to depress the phosphate;

(c) subjecting said reagentized, slurred phosphorite ore fraction to flotation;

(d) separating the cell overflow which contains the major



amount of said alkaline earth metal carbonate impurities; and

(e) collecting the cell underflow phosphate concentrate from said flotation cell which contains the major portion of said phosphate values and a substantially reduced level of alkaline earth metal carbonate impurities.

4,364,825

LIQUID FILTER

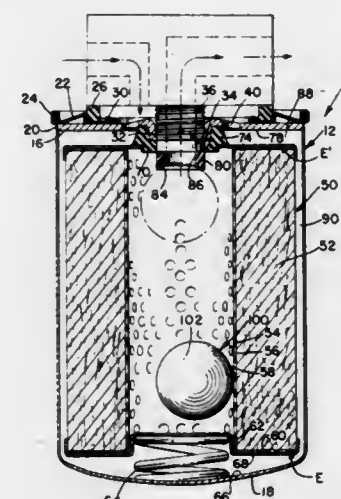
Augustus S. Connor, Jr., Gastonia, N.C., assignor to Wix Corporation, Gastonia, N.C.

Filed 1981, Ser. No. 231,050

Int. Cl.³ B01D 35/02

U.S. Cl. 210—109

13 Claims



1. A device for filtering fluid comprising:

an elongate housing having an inlet and an outlet, both of which are situated at one end of said housing, said outlet having a main opening therein through which fluid flows; an annular elongate filter means in said housing, said filter means having a bore defined longitudinally therethrough and positioned in said housing to be interposed between said housing inlet and outlet and to have said bore in fluid communication with said outlet;

outlet blocking means located within said filter means bore and positioned to be in alignment with said outlet main opening, said outlet blocking means being composed of a material which floats in water but does not float in the fluid being filtered and being located to be lodged against said outlet main opening to prevent fluid from passing into said main opening when a predetermined amount of water has been collected in said housing, said outlet blocking means being sized and positioned to permit essentially full flow of fluid into said main opening until said predetermined amount of water has been collected in said housing,

then to block said main opening essentially immediately when said predetermined amount of water has been collected so that an on-off action occurs.

4,364,826

WATERWHEEL SYSTEM FOR AERATION

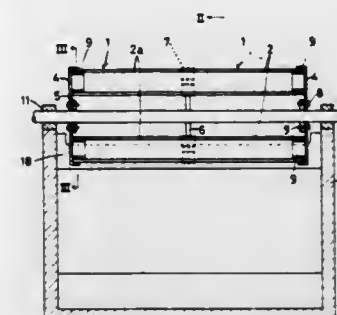
Masashi Kato, Daito-shi, Japan

Filed April 13, 1981, Ser. No. 253,600

Int. Cl.³ C02F 3/08

U.S. Cl. 210—150

6 Claims



1. An aerator waterwheel system, means to rotate said shaft; comprising in combination:

(a) a support shaft (3) with bearing support means (11) to support the shaft above water for rotation at a slow rate of speed at a workstation;

(b) a pair of disc-shaped end plates (4) mounted on said shaft at opposite sides of said workstation; and,

(c) a plurality of synthetic resin, cylindrical, interwoven honeycombed rotating tubes (2a) each having numerous small perforations on their circumference, each being disposed between said end plates (4) and rigidly secured thereto substantially at the periphery thereof, each with a central axis disposed parallel to said shaft (3) and encircling the same so as to form waterwheel wings (2) around said shaft, said wings being so disposed at said workstation that the tubes when in the lower phase of a cycle of rotation are immersed in water, said shaft being rotated at a slow speed so that splashing does not occur.

4,364,827

HYDRAULIC FILTER PLATE SHIFTER

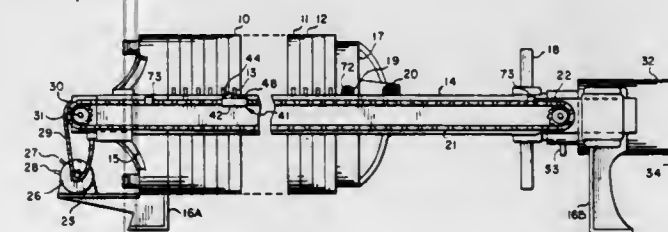
Murray M. Guttman, Saddle Brook, N.J., assignor to Envirotech Corporation, Menlo Park, Calif.

Continuation of Ser. No. 940,916, Sep. 11, 1978, abandoned, which is a continuation of Ser. No. 815,616, Jul. 13, 1977, abandoned. This application December 28, 1979, Ser. No. 107,213

Int. Cl.³ B01D 25/14

U.S. Cl. 210—225

2 Claims



1. An improved filter apparatus for separating liquid from a liquid-solid mixture to form filter cake including a frame, a stationary press head mounted at one end of the frame, a follower mounted on the frame for reciprocable movement toward and away from the press head, a plurality of filter plates mounted for movement on said frame between the stationary press head and the follower, a carriage mounted for reciprocable movement on the frame to selectively and sequentially couple to and uncouple from each of the filter plates beginning with the filter plate nearest the follower, a closing

cylinder connected to the follower to reciprocate the follower between an open position spaced from the stationary press head and a closed position that is closer to the press head to hold the filter plates in abutting relation whereby filter cake can be formed in chambers between adjacent filter plates, and means operatively connected to said carriage for shifting a selected filter plate in an opening direction away from an adjacent filter so that the filter cake formed in the chamber between the shifted filter plate and the adjacent filter plate may be dumped therefrom and for thereafter shifting the carriage in a return direction to cause the carriage to engage another filter plate to be shifted, wherein the improvement comprises: said shifting means including drive chains connected to said carriage; a reversible hydraulic motor that is operatively connected to the chains; a hydraulic pump; a directional control valve coupled in fluid-flow communication between the pump and the motor for selectively causing the motor to drive the carriage in said opening and return directions; pressure-sensitive means responsive to the fluid pressure between the pump and the hydraulic motor for automatically reversing the hydraulic motor when the carriage shifts a filter plate to the end of its travel in said opening direction and to subsequently reverse the motor when the carriage engages the next filter plate to be shifted at the end of its travel in said return direction; an adjustable flow regulator valve installed in fluid-flow communication between the pump and the motor for regulating the speed at which the carriage is shifted in said opening direction, and another adjustable flow regulator valve installed in fluid-flow communication between the pump and motor for regulating the rate of speed at which said carriage means is moved in said return direction, said flow regulator valves being set to cause the carriage to be moved more rapidly in the return direction than it is shifted in the opening direction.

4,364,828

FILTER APPARATUS

Raymond E. Ward, 1905 N. Val Vista, Mesa, Ariz. 85205

Filed 1981, Ser. No. 223,858

Int. Cl.³ B01D 27/08

U.S. Cl. 210—232

2 Claims



1. A filter apparatus, comprising: a multiplicity of particulate filtering elements: case means having first and second case members defining a cavity for enclosing said filtering elements; said case means defining a fluid inlet and a fluid outlet; filling means for permitting said filtering elements to be placed within said case means between said inlet and said outlet; said filling means including said first and second case members respectively provided with rotatably communicating overlapping portions; said filling means also including said first and second case members respectively having first and second apertures through said overlapping portions; said filling means having first and second baffle members respectively in communication with the internal circumferential surfaces of said first and second case members so that placement of said filtering elements within said cavity

biases said baffle members against said case members to define inlet and outlet chambers respectively open to said inlet and outlet;
said filling means further including said first and second apertures having alignability so that said case members can be loaded with said filtering elements through said first and second apertures when aligned and further so that said filtering elements can be sealed within said case members by rotating said first and second case members relative to one another to misalign said first and second apertures; and
sealing means for permanently sealing said first and second case members together with said first and second apertures in a mis-aligned condition so that said filtering elements can be sealed within said cavity.

4,364,829

OIL FILTER WITH TURN ATTACHMENT

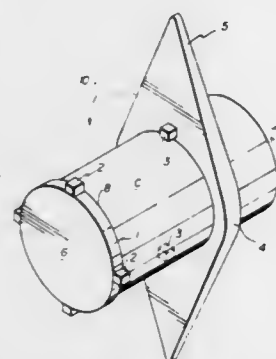
Donald A. Atkins, 114 Morningside Dr., Nolanville, Tex. 76559, and Marilyn M. Atkins, Colorado Springs, Colo.

Filed July 1, 1981, Ser. No. 279,665

Int. Cl.³ B01D 27/08

U.S. Cl. 210—238

9 Claims



1. A device for facilitating changing of oil filters on engines or the like comprising in combination:
an oil filter canister of cylindrical configuration having an outer annular surface with at least one interlocking means fixed thereon,
an interengaging means operatively associated with said interlocking means including at least one radially extending lever bar and permanently carried on said canister annular surface whereby when said interengaging means coacts with said interlocking means, said oil filter canister can be rotated about a longitudinal axis thereof by said lever bar.

4,364,830

FILTER BOTTOM

Robert L. Roberts, Boothwyn, Pa., assignor to Roberts Filter Manufacturing Company, Darby, Pa.

Filed September 3, 1981, Ser. No. 299,105

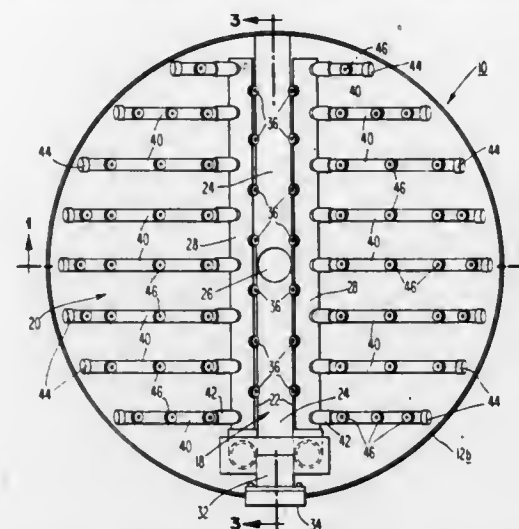
Int. Cl.³ B01D 23/18

U.S. Cl. 210—268

10 Claims

1. A bottom for a filter of the type that includes granular material for removing impurities from liquids, characterized in that said bottom includes:
a fill material having an upper surface adapted to support said granular material, said upper surface including an elongate trough defined, in part, by elongate sidewall sections having a steeper slope than adjacent lateral wall sections of said upper surface, said lateral wall sections sloping in an upward direction from the trough toward sidewalls of the filter;
egress passage means interrupting an elongate bottom wall section of the trough, said egress passage means being adapted for use in removing granular material from the filter;
an elongate header embedded in a sidewall section defining a part of the elongate trough, said header including a central passageway and a plurality of openings extending through

an outer wall thereof for communicating with said central passageway, said openings being spaced along the elongate extent of the header for receiving filtered liquid, said header communicating with an outlet for said filtered liquid;
a plurality of conduits extending laterally from the header at spaced locations along the elongate extent of said header, said conduits having central passageways communicating with the central passageway through the header, said conduits having a plurality of openings through outer walls thereof for receiving filtered liquid, said openings extending



along the elongate extent of said conduits and communicating with the central passageways therethrough, said conduits sloping upwardly from the header toward sidewalls of the filter and being embedded in the sloping lateral wall sections of the bottom; and
liquid-pervious screen means associated with the openings that extend through the outer walls of the header and lateral conduits for permitting filtered liquid to pass into said header and conduits while impeding the flow of granular material.

4,364,831

CHIP CONVEYOR

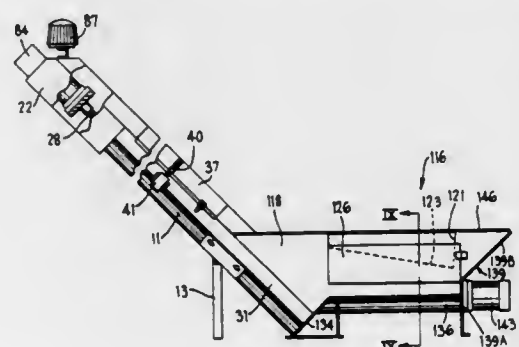
Donald L. Burns, Oshtemo Township, Kalamazoo County; John M. Harbour, and James J. Lister, both of Kalamazoo, all of Mich., assignors to Kalamazoo Conveyor Company, Kalamazoo, Mich.

Filed December 15, 1980, Ser. No. 216,346

Int. Cl.³ B65G 33/14; B01D 21/24

U.S. Cl. 210—298

11 Claims



1. An apparatus for conveying and separating liquids and solids deposited therein, comprising:
a pair of inclined, upwardly opening, adjacent and elongated trough means extending parallel to each other;
an inclined, elongated helical flight disposed in each said trough means for rotation about its longitudinal axis;
drive means for effecting rotation of said helical flights;
tank means secured to said trough means and receiving the

lower ends of said helical flights, said tank means having spaced and upright first wall means;
a pair of second wall means disposed within said receiving tank means between and spaced from said first wall means for receiving said liquids and solids therebetween, said second wall means extending above the top of at least a portion of each said first wall means; and
elongated edge means defining said portion of the top of each said first wall means, said edge means being adjustable about a horizontal axis transverse of said first wall means;
each said first wall means comprising an upright side wall having a recessed portion in the top edge thereof;
each said elongated edge means comprising a plate having a linear top edge and disposed against a side wall substantially parallel thereto to partially cover said recessed portion;
means pivotally supporting said plate on said side wall for effecting said adjustment of said top edge; and
means for releasably securing said plate against pivotal movement and in a position in which said top edge of said plate is substantially horizontal;
whereby said solids introduced between said second wall means are conveyed by said rotating flights to the upper ends of said trough means and said liquid introduced between said second wall means passes under said second wall means and overflows the tops of said edge means.

4,364,832

SEPARATING MEMBER IN A SEPARATING TUBE FOR CENTRIFUGAL SEPARATION

Uwe W. Ballies, Jaegersberg 7 - 9, 2300 Kiel, Fed. Rep. of Germany

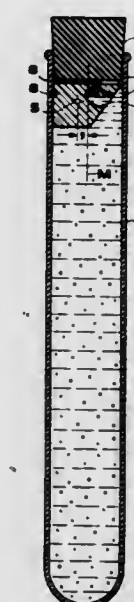
Filed 1982, Ser. No. 340,044

Claims priority, application Fed. Rep. of Germany, 1981, 3101733

Int. Cl.³ B01D 21/26

U.S. Cl. 210—518

12 Claims



1. Separating member in a separating tube for the centrifugal separation of a liquid containing at least two components, which has a top surface and a bottom surface and is made from inelastic material, particularly inelastic plastic material, whose specific gravity is between that of the components to be separated and which in the rest state seals the cross-section of the separating tube, characterized in that the centre of gravity (S) of the separating member (6-6'') is arranged eccentrically with respect to its central axis (M) and that due to its shape, during centrifuging, the separating member (6-6'') can only be tilted in the separating tube (2) in such a way that a gap (f) is formed between the largest circumference (D₁) of the separating member (6-6'') and the inner wall of the separating tube (2).

4,364,833

APPARATUS FOR REMOVING SUBSTANCES FROM A MIXTURE

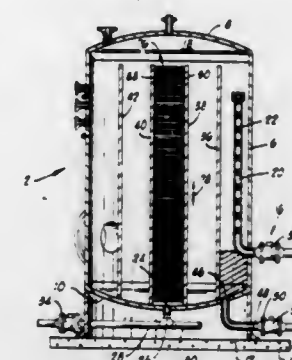
Cory L. Loegering, Lake Charles, La., assignor to Conoco Inc., Ponca City, Okla.

Filed March 11, 1981, Ser. No. 242,802

Int. Cl.³ B01D 21/08

U.S. Cl. 210—521

10 Claims



1. An apparatus for separating a plurality of liquid, solid and gaseous components of a fluid mixture comprising:
a separator vessel;
inlet means for introducing said fluid mixture into said vessel;
outlet means for discharging said components of said fluid mixture from said vessel;
a fluid flow path in said vessel between said inlet and outlet means;
a first plurality of plate members in said flow path within said vessel, each of said first plate members defining a plane which is parallel to the plane of an adjacent one of said first plate members and spaced therefrom, said planes of said first plurality of plate members being parallel to said flow path, and
a second plurality of plate members in said flow path within said vessel, each of said second plate members defining a plane which is parallel to the plane of an adjacent one of said second plurality of plate members and spaced therefrom, said planes of said second plurality of plate members being parallel to said flow path and at right angles to said planes of said first plurality of plate members.

4,364,834

SEDIMENTATION APPARATUS HAVING AN IMPROVED SKIMMING MECHANISM

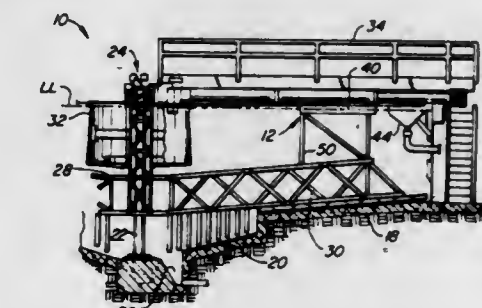
Walter G. Wawro, Longmont, Colo., assignor to Envirotech Corporation, Menlo Park, Calif.

Filed November 10, 1981, Ser. No. 320,141

Int. Cl.³ B01D 21/18

U.S. Cl. 210—525

3 Claims



1. An improved rotary sedimentation apparatus of the type including a cylindrical tank having a bottom wall, at least one rake arm structure adapted to push thickened mixture inwardly toward the center of the bottom wall, a drive and lift unit that is located at the center of the tank and that is connected to the rake arm for rotating the rake arm about the center of the tank and for selectively raising the rake arm, wherein the improvement comprises: an inner skimmer blade, an outer skimmer

blade, a support structure vertically affixed to the rake arm, means for slideably mounting the inner blade in a radial orientation relative to the tank and for vertically sliding movement upon the support structure, said drive and lift unit including a portion which is adapted to rotate with the rake arm but which does not change its elevation when the rake arm is lifted or lowered, a cable connected between said inner blade and said last mentioned part, said cable having a length adapted to suspend the inner blade at the surface level of the liquid in the clarifier, means for pivotally mounting the outer blade to the inner blade to permit the outer blade to swing about an axis that extends radially of the tank, and scum collecting means that cooperates with the outer blade to collect scum urged forwardly ahead of the outer blade.

4,364,835

SULFITE DESTRUCTION OF DIRECT ACTING MUTAGENS IN DRINKING WATER

Albert M. Cheb, Silver Spring, Md., assignor to Regents of the University of Minnesota, Minneapolis, Minn.

Filed October 24, 1980, Ser. No. 200,376

Int. Cl.³ C02F 1/70, 1/76

U.S. Cl. 210—752

17 Claims

1. The method of reducing the activity of non-volatile mutagens in chlorinated water, which method comprises:

- (A) determining the residual chlorine in the water,
- (B) adding sulfite to the water in amount in excess of that sufficient to eliminate the residual chlorine,
- (C) uniformly and thoroughly admixing said sulfite and water to dechlorinate the water and at least partially destroy the mutagens therein.

4,364,836

PROCESS FOR THE REMOVAL OF ALKALI METAL HALIDES FROM CELLULOSE ETHERS SOLUBLE IN COLD WATER AND USE OF THE PURIFIED PRODUCTS IN WASHING AND CLEANSING AGENT COMPOSITIONS

Horst Ziche, Dusseldorf, Fed. Rep. of Germany, assignor to Henkel Kommanditgesellschaft auf Aktien, Dusseldorf-Holthausen, Fed. Rep. of Germany

Division of Ser. No. 126,901, Mar. 3, 1980, Pat. No. 4,296,235.

This application September 8, 1981, Ser. No. 300,024

Claims priority, application Fed. Rep. of Germany, March 29, 1979, 2912486

Int. Cl.³ C11D 3/22, 3/37, 11/02; C08B 11/20

U.S. Cl. 252—135

3 Claims

1. In the process of preparing a powdered washing agent comprising surface-active agents, builders, soil suspension agents, and cold-water-soluble cellulose ethers, comprising the steps of preparing an aqueous slurry of the ingredients, spray-drying the slurry at temperatures below 100° C. and recovering a powdered washing agent, the improvement comprising adding the cellulose ether component to said aqueous slurry as an aqueous suspension of a cold-water-soluble cellulose ether substantially freed of alkali metal halides, where said cellulose ethers are selected from the group consisting of methyl cellulose, ethyl cellulose, mixed methyl/ethyl cellulose, mixed ethyl/hydroxyethyl cellulose, mixed ethyl/hydroxypropyl cellulose and mixed ethyl/dihydroxypropyl cellulose, in an aqueous salt solution containing from 4% to 15% by weight of alkali metal or ammonium sulfates, phosphates, silicates and/or carbonates, said suspension having a total solids content of from 8% to 20% by weight, as said cold-water-soluble cellulose ether, wherein said aqueous suspension of a cold-water-soluble cellulose ether in an aqueous salt solution is prepared by a process consisting essentially of suspending a cold-water-soluble cellulose ether crude reaction product containing 25% by weight or more of alkali metal halides, based on the dry weight, where said cellulose ethers are selected from the group consisting of methyl cellulose, ethyl cellulose, mixed methyl/ethyl cellulose, mixed ethyl/hydroxyethyl cellulose, mixed ethyl/hydroxypropyl cellulose and mixed ethyl/dihydroxy-

propyl cellulose, in an aqueous solution containing from 4% to about 25% by weight of one or more water-soluble salts selected from the group consisting of alkali metal or ammonium sulfates, phosphates, silicates and/or carbonates, with agitation at a temperature of from 10° C. to 50° C., separating the purified cellulose ether solids and repeating the suspending and separating steps zero, one or more times, then suspending said purified cellulose ether solids in an aqueous solution containing from 4% to 15% by weight of said one or more water-soluble salts in an amount sufficient to give a suspension having a total solids content of from 8% to 20% by weight.

3. The process of claim 1 wherein said aqueous salts are selected from the group consisting of alkali metal sulfates, alkali metal phosphates, alkali metal silicates and alkali metal carbonates.

4,364,837

SHAMPOO COMPOSITIONS COMPRISING SACCHARIDES

Morton Pader, Teaneck, N.J., assignor to Lever Brothers Company, New York, N.Y.

Filed September 8, 1981, Ser. No. 300,078

Int. Cl.³ C11D 3/22

U.S. Cl. 252—173

55 Claims

1. A freely pourable, substantially homogeneous shampoo composition comprising:

- (a) about 15 to about 70% by weight of a water-miscible saccharide;
- (b) about 20 to about 75% by weight water;
- (c) about 0.1 to about 30% by weight of at least one nonionic or cationic hair grooming agent; and
- (d) about 3 to about 60% by weight of an anionic or amphoteric detergent,

the shampoo composition having a viscosity of about 400 to about 6,000 cps at 25° C.

4,364,838

LIQUID CRYSTAL MIXTURES

Arthur Boller, Binningen; Alfred Germann, Basel; Martin Schadt, Seltisberg, and Alois Villiger, Basel, all of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Continuation-in-part of Ser. No. 131,320, Mar. 18, 1980, abandoned. This application November 10, 1980, Ser. No. 205,181

Claims priority, application Switzerland, November 14, 1979, 10154/79; June 17, 1980, 4651/80; September 9, 1980, 6767/80

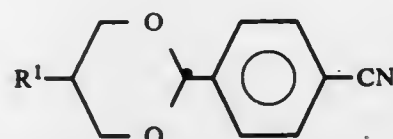
Int. Cl.³ C09K 3/34; G02F 1/13

U.S. Cl. 252—299.61

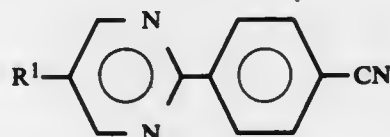
37 Claims

1. A liquid crystalline mixture comprising:

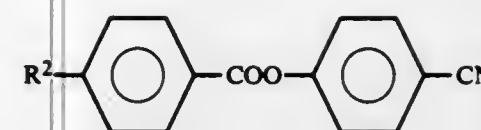
- (a) about 10 to about 75 mol percent of at least one trans-phenyl-dioxane of the formula:



wherein R¹ is straight chain alkyl of 3 to 7 carbon atoms; (b) about 5 to about 30 mole percent of at least one phenylpyrimidine of the formula:



wherein R¹ is as above; and (c) about 2 to about 20 mol percent of at least one phenylbenzoate of the formula:



wherein R² is straight chain alkyl of 2 to 7 carbon atoms.

4,364,839

CATALYST COMPRISING CHROMIUM ON SILICA/PHOSPHATE SUPPORT

Max P. McDaniel, and Marvin M. Johnson, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed December 31, 1980, Ser. No. 221,746

Int. Cl.³ C08F 4/02, 4/62

U.S. Cl. 252—430

35 Claims

1. A catalyst system comprising:

- (a) a catalyst comprising a chromium component on a silica/phosphate support, said phosphate being selected from at least one of aluminum phosphate and boron phosphate; and
- (b) a cocatalyst selected from organoaluminum compounds and organoboron compounds.

4,364,840

PHOSPHATED SILICA-CHROMIUM CATALYST WITH BORON-CONTAINING COCATALYST

Max P. McDaniel, and Marvin M. Johnson, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed December 31, 1980, Ser. No. 221,754

Int. Cl.³ C08F 4/02, 4/62

U.S. Cl. 252—430

24 Claims

1. A method of making a catalyst system comprising:

- (a) treating a silica-containing support with a phosphating agent and activating said thus treated catalyst in an oxidizing atmosphere at an elevated temperature, said support either having a chromium compound coprecipitated therewith or having a chromium compound added thereto prior to said activating in said oxidizing atmosphere, said phosphating agent being utilized in an amount sufficient to give 0.1 to 20 mole percent of said phosphating agent based on the moles of silica in said silica-containing support; and
- (b) combining a cocatalyst selected from trihydrocarbyl boron compounds, boron alkoxides and halogenated alkyl boron compounds with said catalyst.

4,364,841

PHOSPHATE CONTAINING SUPPORT WITH ZEROVALENT CHROMIUM

Max P. McDaniel, and Marvin M. Johnson, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed December 31, 1980, Ser. No. 221,759

Int. Cl.³ C08F 4/02, 4/62

U.S. Cl. 252—430

29 Claims

1. A catalyst system comprising:

- (a) a catalyst comprising a zerovalent chromium compound on a phosphate-containing support; and
- (b) cocatalyst selected from organoboron and organoaluminum compounds.

4,364,842

PHOSPHATE SUPPORTED CHROMIUM CATALYST

Max P. McDaniel, and Marvin M. Johnson, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed December 31, 1980, Ser. No. 221,877

Int. Cl.³ B01J 31/02

U.S. Cl. 252—430

43 Claims

1. A catalyst system comprising

- (a) a catalyst comprising a chromium compound on a predominantly amorphous aluminum phosphate containing xerogel base; and
- (b) a cocatalyst comprising a boron compound selected from trihydrocarbyl boron compounds, boron alkoxides, and mixtures thereof.

4,364,843

CATALYTIC COMPOSITE, METHOD OF MANUFACTURE, AND PROCESS FOR USE

David H. J. Carlson, Park Ridge, Ill., assignor to UOP Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 98,009, Nov. 28, 1979, abandoned, and a continuation-in-part of Ser. No. 95,748, Nov. 19, 1979, abandoned. This application April 20, 1981, Ser. No. 255,409

Int. Cl.³ B01J 31/22

U.S. Cl. 252—430

14 Claims

1. A catalytic composite comprising a catalytically effective amount of a metal phthalocyanine and an alkali metal hydroxide disposed on an adsorptive support, said alkali metal hydroxide comprising at least about 10 wt. % of said catalytic composite, said catalytic composite being prepared by a method which comprises:

- (a) preparing an admixture of an adsorptive support, a metal phthalocyanine, an alkali metal hydroxide, and an alcohol having fewer than six carbon atoms, said admixture also containing from 0 wt. % to about 25 wt. % water based on the weight of said alcohol; and
- (b) drying said admixture at a temperature of less than about 30° C. to form a catalytic composite.

4,364,844

CATALYST FOR PRODUCTION OF UNSATURATED CARBOXYLIC ACID, PREPARATION THEREOF AND PRODUCTION OF UNSATURATED CARBOXYLIC ACID

Sumio Umemura; Kyoji Ohdan; Fumihiko Sakai; Kenichi Suzuki; Yasuo Bando; Toshihiko Hogami, and Masataka Fuginaga, all of Ube, Japan, assignors to Ube Industries, Ltd., Yamaguchi, Japan

Filed September 4, 1980, Ser. No. 184,178

Claims priority, application Japan, September 4, 1979, 54-112421

Int. Cl.³ B01J 27/18, 21/00

U.S. Cl. 252—435

14 Claims

1. In a catalyst containing molybdenum, phosphorus, vanadium and the alkali metals supported on a carrier which is used for the production of an unsaturated carboxylic acid by the catalytic vapor phase oxidation of an unsaturated aldehyde, the catalyst being prepared by admixing a composition containing the constituent elements of the catalyst with the carrier, whereby the composition is supported on pores of the carrier, followed by calcination; the improvement wherein the catalyst is in the form of particulate particles and wherein the carrier is at least one heat-resistant inorganic substance having a particle diameter of 2 through 10 mm, an apparent porosity of 35 through 60%, a water absorption of 20 through 50%, an average pore diameter of not less than 40 microns, a specific surface area of not more than 2 m²/g and a bulk specific gravity of 1.5 through 2.0.

4. A catalyst as claimed in claim 1, wherein said heat-resistant inorganic substance is at least one substance selected from

the group consisting of alumina, silica-alumina and silicon carbide.

4,364,845

CONCENTRATED AQUEOUS SOLUTIONS OF SULFO GROUP-CONTAINING FLUORESCENT BRIGHTENERS WHICH ARE STABLE ON STORAGE

Werner Fringeli, Laufen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed July 6, 1979, Ser. No. 55,417

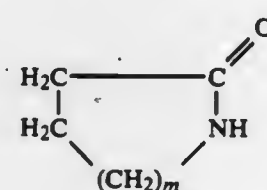
Claims priority, application Switzerland, July 17, 1978, 7706/78

Int. Cl.³ C09K 11/06

U.S. Cl. 252—301.22

9 Claims

1. A concentrated aqueous solution, which is stable on storage, of a sulfo group-containing fluorescent brightener, which contains a stilbene fluorescent brightener substituted by sulfo groups and a lactam of the formula



in which m is 0 or an integer between 1 and 9.

4,364,846

PROCESS FOR PREPARING A HAZE-FREE DETERGENT AND CORROSION INHIBITING ADDITIVE FOR MOTOR FUELS

Benjamin J. Kaufman, Wappingers Falls, N.Y., assignor to Texaco Inc., White Plains, N.Y.

Filed March 30, 1981, Ser. No. 248,169

Int. Cl.³ C23F 11/12, 11/14

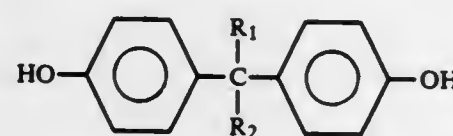
U.S. Cl. 252—392

3 Claims

1. In a method for preparing a primary aliphatic hydrocarbon alkylene substituted asparagine in which one mole of maleic anhydride is reacted with approximately two moles of a N-alkyl-propane diamine composition represented by the formula:



in which the typical chain distribution of R is 0.5% dodecyl (C-12); 3.5% tetradecyl (C-14); 0.5% pentadecyl (C-15); 4.0% hexadecyl (C-16); 1.0% heptadecyl (C-17); 14.0% octadecyl (C-18); 1.5% tetradecenyl (C-14); 5.0% hexadecenyl (C-16); 67.0% (C-18); 3.0% octadecadienyl (C-18); and wherein said primary aliphatic hydrocarbon alkylene substituted asparagine product is characterized by being hazy or becoming hazy on standing, the improvement which comprises conducting said reaction between said maleic anhydride and said N-alkyl-propane diamine composition in the presence of from about 0.5 to 5 weight percent based on the weight of N-alkyl propane diamine mixture of a phenolic compound represented by the formula:



in which R₁ and R₂ each represent hydrogen or an alkyl radical having from 1 to 9 carbon atoms and the total number of carbon atoms in R₁ and R₂ does not exceed 9.

4,364,847

PASSIVATION OF METAL CONTAMINANTS ON CRACKING CATALYST WITH A LITHIUM COMPOUND

Hosheng Tu, Lake Forest, Calif., assignor to UOP Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 124,507, Feb. 25, 1980, abandoned. This application May 26, 1981, Ser. No. 266,764

Int. Cl.³ B01J 29/38, 21/20; C10G 11/18, 11/05

U.S. Cl. 252—412

11 Claims

1. A process for passivating a metal on fluidized cracking catalyst which has been contaminated with said metal due to the use of said catalyst in a fluidized cracking system and wherein said catalyst is cycled between a cracking zone, in which said catalyst is contacted at an elevated temperature with a hydrocarbon feedstock containing said metal contaminant which deposits on said catalyst, and a regeneration zone, in which carbon is oxidized and thereby removed from said catalyst, which process comprises contacting at least a portion of said catalyst at passivation reaction conditions with a lithium compound in an amount to deposit on the catalyst about 0.5 wt % to 1.25 wt % lithium on an elemental metal basis, to effect a passivation reaction between said metal and said lithium and the passivation of said metal contaminant so as to increase yield of C₅⁺ and reduce the yield of hydrogen in said fluidized cracking system.

4. A process in accordance with claim 1 wherein said contacting of said catalyst with said lithium compound occurs in a passivation zone with said catalyst being cycled from said regeneration zone to said passivation zone and from said passivation zone to said cracking zone.

9. A process in accordance with claim 1 wherein said lithium compound is oil soluble and is added to the feedstock of said cracking system thereby effecting contact of said catalyst with said lithium compound and passivation of said metal contaminants occurs in said cracking zone.

4,364,848

PASSIVATION OF METAL CONTAMINANTS ON CRACKING CATALYST

Carmen Castillo, Lyons, and John C. Hayes, Palatine, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 132,602, Mar. 21, 1980, abandoned. This application November 21, 1980, Ser. No. 209,073

The portion of the term of this patent subsequent to November 30, 1999, has been disclaimed.

Int. Cl.³ B01J 29/38, 21/20; C10G 11/18, 11/05

U.S. Cl. 252—417

8 Claims

1. A process for passivating a metal on fluidized cracking catalyst which has been contaminated with said metal due to the use of said catalyst in a fluidized cracking system, and wherein said catalyst is cycled between a cracking zone, in which said catalyst is contacted at an elevated temperature with a hydrocarbon feedstock containing said metal which deposits on said catalyst, and a regeneration zone, in which carbon is oxidized and thereby removed from said catalyst, said metal being included in the group comprising nickel, cobalt or iron, the total amount of all metals of said group contained in said feedstock comprising at least one part per million by weight of said feedstock, which process comprises contacting said catalyst, prior to the cycling of said catalyst to said cracking zone, with a mixture of gases comprising (1) hydrogen (2) hydrocarbons selected from the group consisting of hydrocarbons containing one, two and three carbon atoms at passivation reaction conditions selected so as to effect reduction of substantially all said metal to its metallic state and deactivation of said metal in its metallic state by carbonization.

4. A process in accordance with claim 1 wherein said contacting of said catalyst with said gaseous mixture occurs in a passivation zone comprising a vessel in the dip leg line between the regeneration vessel and the reactor riser.

8. A process for passivating a metal on fluidized cracking catalyst which has been contaminated with said metal due to

the use of said catalyst in a fluidized cracking system, and wherein said catalyst is cycled between a cracking zone, in which said catalyst is contacted at an elevated temperature with a hydrocarbon feedstock containing said metal which deposits on said catalyst, and a regeneration zone, in which carbon is oxidized and thereby removed from said catalyst, said metal being included in the group comprising nickel, cobalt or iron, the total amount of all metals of said group contained in said feedstock comprising at least one part per million by weight of said feedstock, which process comprises contacting said catalyst, prior to the cycling of said catalyst to said cracking zone, with a gas comprising hydrogen at passivation conditions prior to contact with a hydrogen gas to effect at least partial reduction of said metal and contacting said partially reduced catalyst with a gas comprising hydrocarbons selected from the group consisting of hydrocarbons containing one, two or three carbon atoms at passivation reaction conditions selected so as to effect reduction of substantially all said metal to its metallic state and deactivation of said metal in its metallic state by carbonization.

4,364,849

FLUID CATALYST REGENERATION PROCESS AND APPARATUS

Anthony G. Vickers, and David A. Lomas, both of Arlington Heights, Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed September 14, 1981, Ser. No. 301,923

Int. Cl.³ B01J 29/38, 21/20; C10G 11/18

U.S. Cl. 252—417

8 Claims

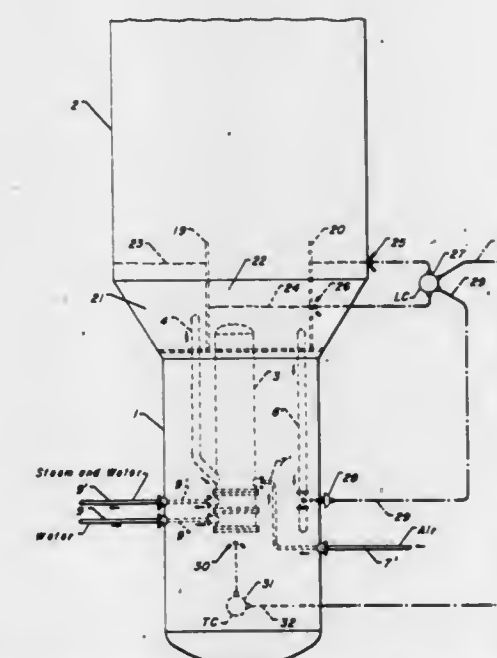
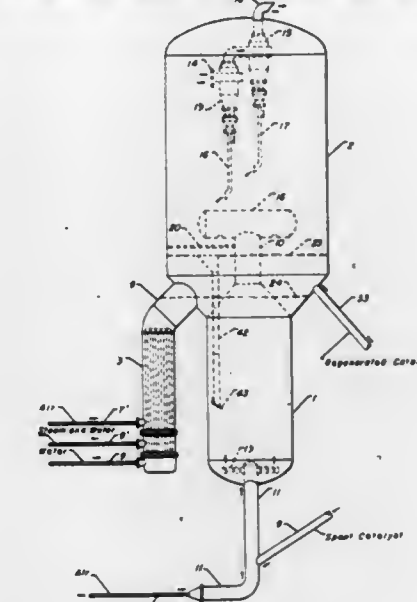
1. A process for regenerating a coke contaminated fluid catalyst, said process including the steps of:

- introducing oxygen containing regeneration gas, coke contaminated fluid catalyst, and cooled recycled regenerated catalyst from a source hereinafter described, into a lower locus of combustion zone maintained at a temperature sufficient for coke oxidation and therein oxidizing coke to produce hot regenerated catalyst and hot flue gas;
- transporting said hot flue gas and said hot regenerated catalyst from an upper locus of said combustion zone into a regenerated catalyst disengaging zone, wherein said hot regenerated catalyst is separated from said flue gas and collected in a first collection zone at a lower locus of said disengaging zone as a fluidized bed the surface of which is at a first level;
- transporting a portion of said hot regenerated catalyst from said first collection zone by means of downward gravity flow to the lower locus of a cooling zone separate from and below said disengaging zone wherein said cooling zone heat is withdrawn from said hot regenerated catalyst by indirect heat exchange with a cooling fluid enclosed in a heat exchange means inserted into said cooling zone to produce cool regenerated catalyst, said catalyst being maintained in said cooling zone as a dense phase fluidized bed by passing a fluidizing gas upwardly through such bed;
- withdrawing said cool regenerated catalyst from said cooling zone by means of said catalyst overflowing from said cooling zone into a second collection zone at a lower locus of said disengaging zone, said catalyst being collected in said second collection zone as a dense phase fluidized bed the surface of which is at a second level, said first level being of sufficient height above said second level to provide the driving force required to circulate said catalyst through said cooling zone and;
- transporting said catalyst by means of downward gravity flow from said second collection zone to said lower locus of said combustion zone as said cooled recycled regenerated catalyst.

2. The process of claim 1 wherein the quantity of catalyst circulated through said cooling zone and thereby the quantity of heat removed from said catalyst is controllably maintained by controlling the height of said second level by controlling the quantity of catalyst transported from said second collection

zone to said lower locus of said combustion zone, the height of said first level being held constant.

3. The process of claim 2 wherein the temperature at a



selected locus of said combustion zone is controllably maintained by controlling the quantity of catalyst circulated through said cooling zone in response to said temperature at said selected locus.

4,364,850

Patent Not Issued For This Number

4,364,851

PROCESS FOR PRODUCING OLEFIN POLYMERS
Akinobu Shiga; Yoshiharu Fukui; Toshio Sasaki; Masahisa Okawa; Hideaki Matsu-Ura, all of Niihama, and Yasuharu Yamada, Osaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed 1980, Ser. No. 113,668

Claims priority, application Japan, 1979, 54-10555

Int. Cl.³ C08F 4/64

U.S. Cl. 252—429 B

12 Claims

1. A supported catalyst component prepared by a process comprising

- (1) forming a solid product carrier in an inert atmosphere by (I) reacting (a) an organomagnesium compound of the formulae R^6MgX or R^6_2Mg wherein R^6 is an alkyl group, an aryl group, an aralkyl group, or an alkenyl group each having up to 8 carbon atoms and X is a halogen atom with (b) (i) an aluminum halide compound of the formula R_nAlX_{3-n} wherein R is an alkyl group, an aryl group, an aralkyl group, or an alkenyl group each having up to 8 carbon atoms, X is a halogen atom, and n is a number defined by $0 \leq n < 3$ and/or (ii) a silicon halide compound of the formula $R^1_mSiX_{4-m}$ wherein R^1 is an alkyl group, an aryl group, an aralkyl group, or an alkenyl group each having up to 8 carbon atoms, X is a halogen atom, and m is a number defined by $0 \leq m < 4$ in a hydrocarbon solvent and/or an etheral solvent at a temperature of 0° to 100° C., in a former-to-latter molar ratio of 1:10 to 10:1 to form a solid product, (II) separating the resulting solid product from the reaction system and (III) washing the solid product with a hydrocarbon solvent to form a solid product carrier,
- (2) (I) heating a liquid ether complex of titanium trichloride in a hydrocarbon solvent at a temperature of about 25° to about 150° C. in the presence of said carrier to deposit titanium trichloride on the carrier, the amount of trivalent titanium atoms contained in the solid product being 3 to 20% by weight, (II) separating the resulting titanium trichloride-containing solid product from the reaction system, and (III) washing the solid product with a hydrocarbon solvent, and
- (3) (I) further reacting the titanium trichloride-containing solid product obtained above with titanium tetrachloride at a temperature of about 20° to 150° C., (II) separating the resulting supported catalyst component from the reaction system, and (III) washing the supported catalyst component with a hydrocarbon solvent.

4,364,852

POLYOLEFIN CATALYSTS CONTAINING HETEROCYCLIC CARBOXYLIC ACID ESTERS

Rolf F. Foerster, Morris, Ill., assignor to Northern Petrochemical Company, Omaha, Nebr.

Filed June 4, 1981, Ser. No. 270,258

Int. Cl.³ C08F 4/64

U.S. Cl. 252—429 B

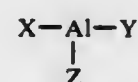
3 Claims

1. A catalyst system for the preparation of homopolymers and copolymers of alpha monoolefins comprising (1) a titanium halide of the formula



where M is a number from 0 to 0.5,

- (2) an ester of a carboxylic acid having an oxygen, nitrogen, or sulfur-containing heterocyclic structure, wherein the ester group is attached to a carbon atom in the heterocyclic structure, and
- (3) an aluminum-alkyl of the formula



where X and Y are each alkyl of not more than 8 carbon atoms, and Z is chlorine or alkyl of not more than 8 carbon atoms, with the proviso that (I) the molar ratio of ester (2):

titanium halide (1) is from about 0.005 to about 5, and (II) the molar ratio of titanium halide (1): aluminum-alkyl (3) is from 1:1 to 1:20.

4,364,853

CATALYST FOR POLYMERIZING OLEFINS

Robert I. Mink, and Ronald A. Epstein, both of Yonkers, N.Y., assignors to Stauffer Chemical Company, Westport, Conn.

Filed September 18, 1981, Ser. No. 303,329

Int. Cl.³ C08F 4/64

U.S. Cl. 252—429 B

30 Claims

1. A catalytic system for polymerizing olefins comprising: (a) a component containing an organoaluminum compound, and (b) a component containing a titanium halide obtained by a process comprising: (i) intimately contacting a magnesium compound containing halogen or a manganese compound containing halogen with a carboxylic acid to produce an activated product, and (ii) reacting the activated product with a titanium halide compound.

4,364,854

ACID GELLING ALUMINUM PHOSPHATE FROM CONCENTRATED MASS AND CATALYST CONTAINING SAME

Max P. McDaniel, and Marvin M. Johnson, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed December 31, 1980, Ser. No. 221,747

Int. Cl.³ B01J 27/18; C01B 15/16

U.S. Cl. 252—437

26 Claims

1. A method for producing aluminum orthophosphate comprising combining an aluminum salt with a source of orthophosphate ions in a concentrated mass, combining said concentrated mass with a neutralizing agent, said neutralizing agent being used in an amount insufficient to cause immediate gelation, and aging until gelation occurs to form a hydrogel.

4,364,855

PRODUCTION OF ALUMINUM PHOSPHATE FROM CONCENTRATED MASS

Max P. McDaniel, and Marvin M. Johnson, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed December 31, 1980, Ser. No. 221,753

Int. Cl.³ B01J 27/18; C01B 15/16, 25/16

U.S. Cl. 252—437

20 Claims

1. A method for producing aluminum orthophosphate comprising combining an aluminum salt with a source of added orthophosphate ions in a concentrated mass containing 40 weight percent or less water based on the weight of said aluminum salt, combining the resulting composition with a base to form aluminum phosphate hydrogel still in a concentrated mass containing 40 weight percent or less water based on the weight of said aluminum salt, and removing water from said hydrogel to produce a xerogel.

15. An aluminum orthophosphate made in accordance with claim 1.

19. An aluminum orthophosphate supported catalyst produced by combining an aluminum salt with a source of phosphate ions in a concentrated mass containing 40 weight percent

or less water based on the weight of said aluminum salt, combining the resulting composition with a base to form aluminum phosphate hydrogel still in a concentrated mass containing 40 weight percent or less water based on the weight of said aluminum salt, and removing water to form a xerogel and activating at an elevated temperature, the thus activated aluminum phosphate containing in addition 0.001 to 10 weight percent vanadium based on the weight of the xerogel.

20. A catalyst produced by combining an aluminum salt with a source of orthophosphate ions in a concentrated mass containing 40 weight percent or less water based on the weight of said aluminum salt, combining the resulting composition with a base to form aluminum phosphate hydrogel still in a concentrated mass containing 40 weight percent or less water based on the weight of said aluminum salt, and removing water to form a xerogel, activating at an elevated temperature and introducing a zerovalent chromium compound under anhydrous conditions.

4,364,856

MIXED METAL PHOSPHORUS OXIDE COATED CATALYSTS FOR THE OXIDATIVE DEHYDROGENATION OF CARBOXYLIC ACIDS

Harry H. I. Teng, Waldwick, N.J., and S. Erik Pedersen, Mentor, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed 1981, Ser. No. 225,572

Int. Cl.³ B01J 27/14, 21/02

U.S. Cl. 252—437

19 Claims

1. A process for the preparation of coated iron phosphorus oxide containing catalysts comprising (a) partially wetting a carrier with a liquid comprising a solution or colloidal suspension of SiO_2 in water; (b) contacting the partially wet carrier with a powder of the iron phosphorus oxide catalyst to form a mixture; (c) agitating said mixture to form the coated catalyst; (d) drying said coated catalyst; (e) calcining said coated catalyst.

4,364,857

FIBROUS CLAY MIXTURES

Donald S. Santilli, Pinole, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed 1981, Ser. No. 224,713

Int. Cl.³ B01J 20/12, 21/16

U.S. Cl. 252—455 R

21 Claims

7. A composition of matter comprising codispersed rods of tubular halloysite and fibrous attapulgite.
8. The composition of claim 7 wherein at least 5 weight percent of said composition is attapulgite based on total weight of composition.
12. The composition of claim 8 further comprising at least one metal selected from the transition group of metals.

4,364,858

METHOD OF PRODUCING AN ACTIVATED ALUMINA CLAUS CATALYST

Kenneth P. Goodboy, Pittsburgh, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed July 21, 1980, Ser. No. 170,638

Int. Cl.³ B01J 21/04

U.S. Cl. 252—463

6 Claims

1. A method of producing an activated alumina catalyst suitable for use in a Claus process and having increased resistance to sulfate poisoning and increased catalytic activity, the method consisting essentially of:

- (a) sizing alumina to an average particle size of about 10 microns or less;
- (b) then, rapidly activating the sized alumina particles by exposure to relatively high temperatures of greater than 300° C. for less than one minute;

- (c) agglomerating the activated alumina in the presence of water;
- (d) aging the alumina agglomerates in the presence of water at pH greater than 7 to rehydrate the alumina; and
- (e) activating the aged alumina by exposure to relatively high temperatures from 350° to 900° C., the activated alumina catalyst produced having sodium oxide present in an amount greater than 0.50 wt. % (1100° C. calcined basis), an LOI (400° to 1100° C.) of less than 6.0 wt. % and a specific surface area greater than 100 m²/g (BET).

4,364,859

METHOD FOR PRODUCING OXIDE POWDER

Katsuyuki Ohtsuka, Mito; Jin Ohuchi, Tokai, and Yoshiharu Takahashi, Katsuta, all of Japan, assignors to Doryokuro Kakuneryo Kaihatsu Jigyodan, Tokyo, Japan

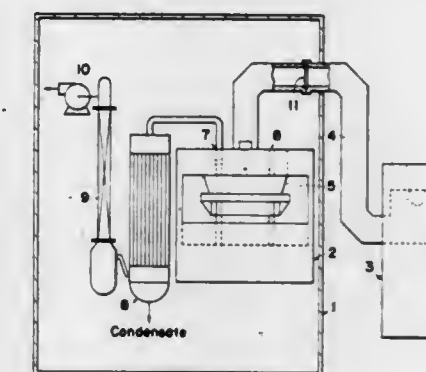
Division of Ser. No. 18,320, Mar. 7, 1979, abandoned. This application July 14, 1980, Ser. No. 168,144

Claims priority, application Japan, March 13, 1978, 53-28526

Int. Cl.³ G21F 9/08

U.S. Cl. 252—643

9 Claims



1. A method for producing oxide powder suitable for the manufacture of nuclear fuel pellets, said method comprising: preparing a nitrate solution of uranium, thorium, plutonium or a mixture thereof; and applying to a substance consisting essentially of said nitrate solution microwave energy sufficient to directly convert said nitrate solution into a product consisting essentially of oxide powder of uranium, thorium, plutonium or a mixture thereof, respectively, suitable for the manufacture of nuclear fuel pellets.

4,364,860

CATHODICALLY DEPOSITABLE AQUEOUS ELECTRO-DIPPING LACQUER COATING COMPOSITION

Hans-Peter Patzschke, and Armin Gobel, both of Wuppertal, Fed. Rep. of Germany, assignors to Herberts Gesellschaft mit beschränkter Haftung, Wuppertal, Fed. Rep. of Germany

Division of Ser. No. 18,004, Mar. 7, 1979, Pat. No. 4,252,703.

This application July 1, 1980, Ser. No. 164,952

Claims priority, application Austria, March 13, 1978, 1766/78

Int. Cl.³ C08L 75/12, 63/02

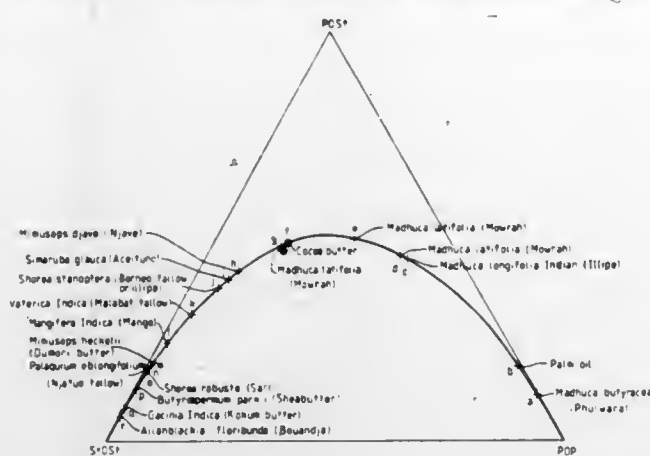
U.S. Cl. 525—127

16 Claims

1. A cathodically depositable aqueous electro-dipping coating composition comprising a binder dilutable in water by protonization with acids, said binder consisting essentially of:

- (a) 55 to 95% by weight, based on the total weight of binder being a reaction product of the resin having at least one isocyanate per molecule and a compound selected from the group consisting of polyamines, ketimines containing amino groups, ketimines containing hydroxyl groups and ketimines containing amino and hydroxyl groups and said reaction product having an average molecular weight (Mn) of about 500 to about 10,000, a pK_a value of about 3 to about 7, and containing amino groups selected from the group consisting of primary, secondary and tertiary amino groups to an amine value of about 30 to about 150; and

as exemplified in FIG. 1 under the curve $Z^2=4XY$, where $X=StOst$, $Y=POP$ and $Z=POST$, outside a polygonal figure



bounding the composition of POP, POST and StOst in natural fats and their blends on the diagram as exemplified in FIG. 1.

4,364,869

PROCESS FOR PRODUCING ALKYL ESTERS OF SATURATED ALIPHATIC CARBOXYLIC ACIDS

Wolfgang H. E. Müller, and Peter Hofmann, both of Marl, Fed. Rep. of Germany, assignors to Chemische Werke Hüls A.G., Marl, Fed. Rep. of Germany

Filed July 29, 1981, Ser. No. 288,065

Claims priority, application Fed. Rep. of Germany, September 12, 1980, 3034420

Int. Cl.³ B01D 3/36; C11C 3/12; C07C 67/48

U.S. Cl. 260—410.9 R 7 Claims

1. A process for the production of alkyl esters of saturated aliphatic carboxylic acids, comprising:

- (a) reacting in an alkoxy-carbonylation stage starting material olefins with carbon monoxide and alkanols in the presence of a catalyst consisting of a cobalt compound and a promoter selected from the group consisting of pyridine, non-ortho-substituted alkylpyridine or mixtures thereof at an elevated pressure of about 10 to 800 bars and an elevated temperature of about 80° to 300° C. to produce a reaction mixture containing reaction products which include said alkyl esters, said cobalt compound, said promoter, and unreacted starting material;
- (b) separating said cobalt compound from said reaction mixture;
- (c) adding a given carboxylic acid to said reaction mixture separated from said cobalt compound, said carboxylic acid being thermally stable and forming a maximum azeotrope with said promoter under rectification;
- (d) rectifying said reaction mixture containing said carboxylic acid and free of said cobalt compound and separating by rectification said azeotrope containing said carboxylic acid and said promoter; and
- (e) feeding said separated promoter to said alkoxy-carbonylation stage.

4,364,870

ONE-STEP SYNTHESIS OF URANIUM HEXAMETHOXIDE AND MIXED METHOXY URANIUM (VI) FLUORIDES FROM URANIUM HEXAFLUORIDE AND TWO-STEP SYNTHESIS OF URANIUM HEXAMETHOXIDE FROM URANIUM TETRACHLORIDE

Tobin J. Marks; Edward A. Cuellar, both of Evanston, Ill.; Steven S. Miller, New York, N.Y., and Eric Weitz, Evanston, Ill., assignors to Northwestern University, Evanston, Ill.

Filed May 5, 1980, Ser. No. 137,440

Int. Cl.³ C07F 5/00; B01J 19/08

U.S. Cl. 260—429.1 3 Claims

1. A process for synthesizing uranium hexamethoxide by reacting uranium hexafluoride with a methoxide having for-

mula $M(OCH_3)_x$ wherein M is an electropositive metal of group 1A of the periodic table and x is 1, or M is a silicon residue having 1 to 3 alkyl radicals, and x is an integer from 1 to 3

said method comprising the steps of:
dissolving UF_6 in a dry halogenated hydrocarbon solvent selected from the group consisting of chlorinated aliphatic solvents, chlorofluorinated aliphatic solvents and mixtures thereof cooled to below 0° C.,

suspending said methoxide in a dry halogenated hydrocarbon solvent selected from the group consisting of chlorinated aliphatic solvents, chlorofluorinated aliphatic solvents and mixtures thereof cooled to below 0° C.,

preparing a reaction mixture by gradually adding the solution of UF_6 to the suspension of said methoxide and allowing said reaction mixture gradually to warm up to a temperature of about 0° C.,

separating a red solid reaction product from said halogenated hydrocarbon solvent, and washing said reaction product with a dry hydrocarbon solvent to provide a purified uranium hexamethoxide.

4,364,871

PROCESS FOR MAKING AMINOPOLYCARBOXYLIC ACID CHELATES OF IRON

Katherine H. Svatek, Lake Jackson; David A. Wilson, Richmond, and Freddie Griffin, Jr., Missouri City, all of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed September 8, 1980, Ser. No. 184,848

Int. Cl.³ C07F 15/02

U.S. Cl. 260—439 R 3 Claims

1. An improved process for producing a ferric-ammonium-chelate of ethylenediaminetetraacetic acid (EDTA) wherein an oxide of iron is reacted with said EDTA in the presence of a base, which comprises: (1) providing a mixture in water of ammonia together with said EDTA in a molar ratio of ammonia to EDTA of at least 1.0 but not more than 1.5, (2) adding to said mixture said oxide of iron at less than 1 mole of iron per mole of EDTA, (3) heating said mixture to a reaction temperature within the range of from about 85° to about 105° C., and conducting said reaction in the substantial absence of oxygen, (4) maintaining said reaction temperature for a time sufficient to complete the reaction, (5) cooling said mixture to a temperature within the range of from about 45° to 80° C., (6) introducing ammonia to said mixture in sufficient amount to dissolve and to maintain in solution the iron chelate so formed, (7) cooling said chelate solution to room temperature and (8) oxidizing any ferrous ion present in said chelate solution to the ferric ion.

4,364,872

METHOD OF MAKING ALUMINUM ALKYL

Steven P. Diefenbach, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

Filed July 13, 1981, Ser. No. 282,493

Int. Cl.³ C07F 5/06

U.S. Cl. 260—448 A 22 Claims

1. A method of effecting an alkyl exchange reaction, comprising reacting trialkylaluminum having at least two carbon atoms in the alkyl group with methyl halide in the presence of a bismuth-based catalyst to form an alkyl halide having at least two carbon atoms and an alkyl aluminum product containing at least some aluminum to methyl bonds, said bismuth-based catalyst comprising a bismuth compound which is capable of forming an alkyl bismuth bond or an aryl bismuth bond in the reaction.

4,364,873

METHOD OF MAKING ALUMINUM ALKYL

Steven P. Diefenbach, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

Filed July 13, 1981, Ser. No. 282,494

Int. Cl.³ C07F 5/06

U.S. Cl. 260—448 A 27 Claims

1. A method of making trimethylaluminum, comprising reacting trialkylaluminum having at least two carbon atoms in the alkyl group with a methyl halide in the presence of a vanadium-based catalyst to form trimethylaluminum and an alkyl halide, said vanadium-based catalyst comprising a vanadium compound, an aluminum alkyl compound and an alkyl iodide.

4,364,874

METHOD OF MAKING ALUMINUM ALKYL

Steven P. Diefenbach, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

Filed July 13, 1981, Ser. No. 282,495

Int. Cl.³ C07F 5/06

U.S. Cl. 260—448 A 20 Claims

1. A method of making aluminum alkyl or aralkyl compounds comprising reacting a trialkyl or triaralkyl aluminum compound with an alkyl or aralkyl iodide in which the alkyl or aralkyl group differs from at least one of the alkyl or aralkyl groups of the trialkylaluminum compounds at a temperature of from about -20° C. to about 200° C. to form via an uncatalyzed exchange reaction a trialkylaluminum compound product having the alkyl or aralkyl radical of the alkyl or aralkyl iodide reactant and an alkyl or aralkyl iodide having the alkyl or aralkyl radical of the trialkyl or triaralkylaluminum compound.

4,364,875

PROCESS FOR THE PREPARATION OF CERTAIN DIPHENYL ETHERS

Richard Sehring, and Wolfgang Buck, both of Ingelheim am Rhein, Fed. Rep. of Germany, assignors to Celanese GmbH & Co. KG, Ingelheim am Rhein, Fed. Rep. of Germany

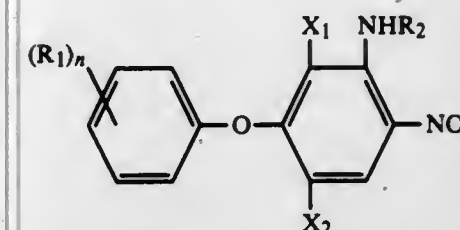
Continuation of Ser. No. 188,480, Sep. 18, 1980, abandoned. This application July 7, 1981, Ser. No. 281,123

Claims priority, application Fed. Rep. of Germany, September 24, 1979, 3938595

Int. Cl.³ C07C 121/78, 95/08, 101/44, 109/04

U.S. Cl. 260—465 E 2 Claims

1. The method of preparing a compound of the formula



wherein

R_1 is hydrogen, halogen, alkyl of 1 to 8 carbon atoms, trifluoromethyl, —CN, acetyl, C_1 — C_4 -alkoxy or C_1 — C_4 -alkylthio;

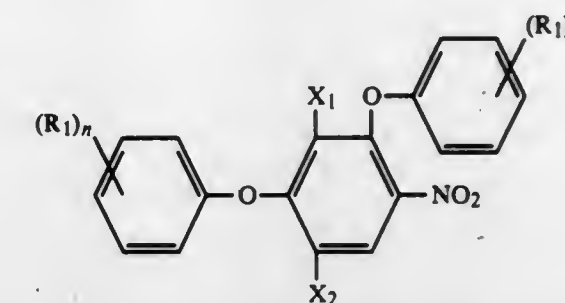
n is 1 when R_1 has all the defined meanings, or 2 or 3 when R_1 is halogen or alkyl;

R_2 is hydrogen; alkyl of 1 to 18 carbon atoms; alkenyl of 2 to 16 carbon atoms; alkynyl of 2 to 16 carbon atoms; mono-substituted alkyl of 2 to 6 carbon atoms, where the substituent is hydroxyl, alkoxy of 1 to 4 carbon atoms, phenoxy, halo-phenoxy, (alkyl of 1 to 4 carbon atoms)phenoxy, (alkoxy of 1 to 4 carbon atoms) phenoxy, nitro-phenoxy, cyano-phenoxy, amino or (alkyl of 1 to 4 carbon atoms)thio; benzyl; halo-benzyl; trifluoromethyl-benzyl; — NR_3R_4 ; — CHR_3 — $COOR_4$; or — CHR_3 — $CONR_4R_5$;

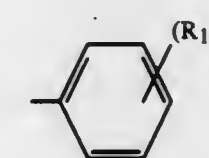
where

R_3 , R_4 and R_5 are each hydrogen or alkyl of 1 to 8 carbon atoms; and

X_1 and X_2 are each hydrogen or halogen, which comprises reacting a compound of the formula



wherein n, R_1 , X_1 and X_2 have the meanings previously defined, and the two



groups may be identical to or different from each other, with an amine of the formula



wherein R_2 has the meanings previously defined, at a temperature between about 20° and 160° C.

4,364,876

NOVEL 2-CYANOACRYLATE, PROCESS FOR PRODUCING SAME AND CURABLE COMPOSITION COMPRISING SAME

Kaoru Kimura, Kuroishi, and Kazuyuki Sakabe, Tokai, both of Japan, assignors to Toagosei Chemical Industry Co., Ltd., Tokyo, Japan

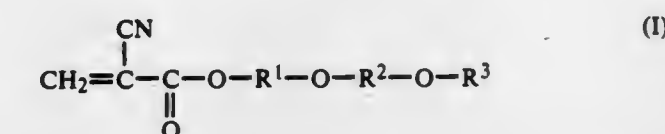
Filed March 16, 1981, Ser. No. 244,276

Claims priority, application Japan, March 27, 1980, 55-38174

Int. Cl.³ C07C 121/30

U.S. Cl. 260—465.4 3 Claims

1. A 2-cyanoacrylate represented by the formula:



wherein R^1 is a 1,2-alkylene group having 2-4 carbon atoms, R^2 is an alkylene group having 2-4 carbon atoms and R^3 is an alkyl group having 1-6 carbon atoms.

4,364,877

PROCESS FOR PRODUCING FRITTED ALUMINA MEMBERS

Rene Clement, and Francis Gugliermotte, both of Castries, France, assignors to Societe Europeenne des Ceramiques Alumineuses "EUROCERAL", Vendargues, France

Filed 1981, Ser. No. 228,896

Claims priority, application France, 1980, 80 02787

Int. Cl.³ C04B 35/44

U.S. Cl. 264—1.2 7 Claims

1. A process for producing fritted alumina members having a high optical transparency and a high mechanical strength from a high purity alumina powder to which has been added an organic binder and a small percentage of oxide, particularly of magnesium and/or rare earth, followed by the shaping thereof and subjecting them to two successive heat treatments, namely

a first treatment in an oxidizing atmosphere to remove the binder and consolidate the particles and a second treatment at a higher temperature and in a hydrogen-rich atmosphere for obtaining fritting, wherein the second heat treatment takes place by continuously passing the said members at a constant translation speed between 3 and 50 millimeters per minute through a kiln kept at a temperature between 1820° and 1970° C. and having a heat gradient therein, the total time necessary for firing a member from the consolidated or slightly warm state up till its return to ambient temperature varying from approximately 30 minutes to a maximum of 5 hours.

4,364,878

METHOD FOR MOLDING OPHTHALMIC LENSES

Albert J. Laliberte, South Woodstock, Conn., and Joseph L. Jerominek, Dudley, Mass., assignors to Omnitech Inc., Southbridge, Mass.

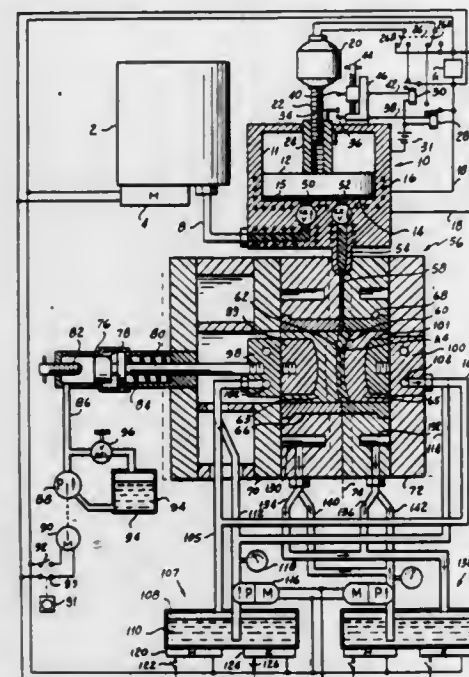
Continuation of Ser. No. 932,442, Aug. 10, 1978, abandoned.

This application 1980, Ser. No. 123,518

Int. Cl.³ B29D 11/00

U.S. Cl. 264—2.2

10 Claims



1. A method of forming a lens of thermoplastic resin by injection including the steps of first forming a mold space having a movable surface portion conforming to the shape of the finished lens, then injecting into said space a measured charge of plasticized thermoplastic resin equal to the amount required to form the finished lens, said mold space having a volume greater than that of said injected charge, then moving said surface portion in such a direction while confining said injected resin to said space as to reduce the volume of said mold space and apply pressure to said charge, cooling said mass while applying said pressure thereto, and removing said pressure when the charge reaches the glass transition temperature of said resin.

METHOD FOR FORMING A COATED ARTICLE INCLUDING ULTRA-VIOLET RADIATION OF THE COATING

Karl Gut, Benken; Marcel Voegeli, Schaffhausen, both of Switzerland, and Haiko Schneider, Hemmenhofen, Fed. Rep. of Germany, assignors to Georg Fischer Aktiengesellschaft, Schaffhausen, Switzerland

PCT No. PCT/CH79/00104, § 371 Date March 21, 1980, § 102(e) Date March 20, 1980, PCT Pub. No. WO80/00249, PCT Pub. Date 1980

PCT Filed July 18, 1979, Ser. No. 192,518

Claims priority, application Switzerland, July 21, 1978, 7888/78; July 13, 1979, 6527/79

Int. Cl.³ B29C 25/00; B29D 9/00

U.S. Cl. 264—22

4 Claims

1. In a method for making molded plastic articles, wherein a particulate filler is mixed with a hardenable resin to form a mixture and the mixture is deposited in a mold and the resin of said mixture is hardened to form a self-supporting molded article with open pores, the molded article is placed under vacuum, the pores are filled with a hardenable material, and the hardenable material is hardened in a final curing step to form a molded article; the improvement comprising:

- coating the molded article with a liquid, ultra-violet light curable, unsaturated polyester resin composition,
- immersing the polyester coated article in a bath of glycol or glycerol, and
- curing said polyester resin with ultra-violet light by irradiating said polyester resin coating on said article while said article is in said bath.

4,364,880

METHOD FOR MAKING A BREAST PROSTHESIS

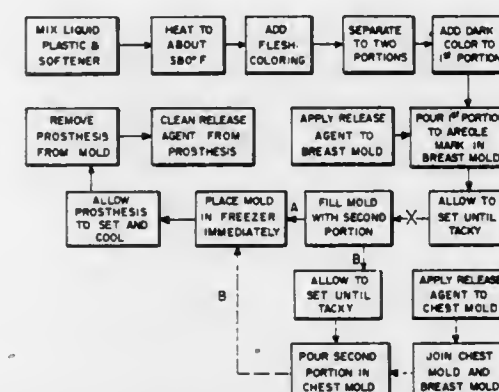
Jeanette W. Howse, Rte. 3 Box 908, St. Cloud, Fla. 32769

Filed 1981, Ser. No. 228,709

Int. Cl.³ B29C 5/08, 9/08

U.S. Cl. 264—28

8 Claims



1. A method of forming a female breast prosthesis using a mold comprising the steps of:

- heating an uncured liquid plasticized or polyvinylchloride plastic to a temperature greater than the curing temperature of the plastic;
- tinging a first portion of the heated liquid plastic to a selected first color representative of the color of the nipple and areola of a human female breast;
- tinging a second portion of the heated liquid plastic to a selected second color representative of the color of a human female skin;
- coating the mold with a release agent;
- pouring the first portion of the heated liquid plastic into the nipple-areola portion of the mold;
- partially curing the poured liquid plastic until it becomes slightly tacky;
- pouring the second portion of the heated liquid plastic into the mold and over the nipple-areola portion to a preselected level in the mold to form the breast prosthesis;
- chilling the mold immediately after pouring the second

portion to a selected low temperature much lower than ambient; and curing the breast prosthesis in the mold at the selected low temperature.

4,364,881

CONTINUOUS EXTRUSION METHOD OF MANUFACTURING CERAMIC HONEYCOMB STRUCTURES WITH THE AID OF SCREW TYPE VACUUM EXTRUDING MACHINE

Hiroshige Mizuno, Rye, N.Y., and Akiyoshi Kurishita, Kasugai, Japan, assignors to NGK Insulators, Ltd., Nagoya, Japan

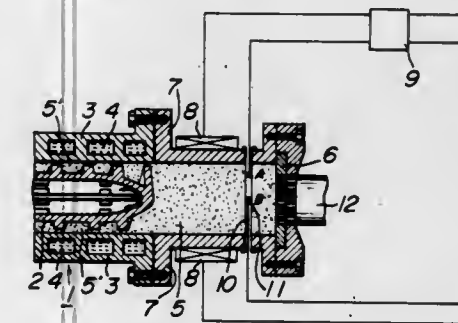
Continuation of Ser. No. 820,247, Jul. 29, 1977, abandoned. This application 1981, Ser. No. 234,606

Claims priority, application Japan, August 10, 1976, 51-94550

Int. Cl.³ B29D 23/04

U.S. Cl. 264—40.7

4 Claims



1. In a continuous extrusion method of manufacturing ceramic honeycomb structures comprising extruding a ceramic raw material batch through an extrusion die of a screw type vacuum extruding machine, the improvement comprising the step of adjusting a temperature differential between the center and periphery of a section of the raw material batch by passing the raw material batch between a first cylinder provided with a cooling means and a rotating screw and further passing the raw material batch through a second hollow cylinder provided with a heating means for heating the periphery of the raw material batch, said section being parallel to said die and located 40 mm from said die, and the relation between the temperature (T_p) of said periphery and the temperature (T_c) of said center at said section being $10^\circ \text{C.} > T_p - T_c \geq 0.5^\circ \text{C.}$

4,364,882

PROCESS AND AN APPARATUS FOR THE EXTRUSION OF PLASTIC PIPES WITH COMPOSITE WALLS

Marcel Doucet, Paris, France, assignor to Societe Generale de Canalisations Sogecan, Paris, France

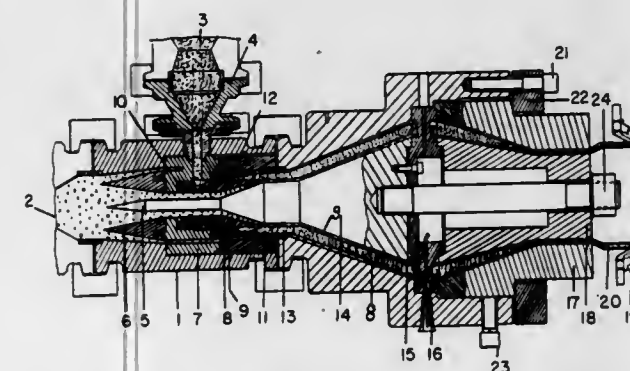
Filed May 8, 1980, Ser. No. 147,945

Claims priority, application France, May 10, 1979, 79 12515

Int. Cl.³ B29D 27/00

U.S. Cl. 264—45.9

8 Claims



1. In a process for the manufacture by coextrusion of plastic pipe having a composite structure formed of inner and outer walls of plastic material enclosing an intermediate layer of a filling material which is synthetic plastic or polymeric in nature and which adheres to said walls comprising introducing

the material constituting said pipe walls in a heated and plastic state, separating the introduced plastic material into two distinct streams, injecting the filling material in a plastic state to between the separated streams of material constituting the inner and outer walls, bringing the three streams into a contacting relation with the stream of filling material sandwiched between the streams forming the inner and outer walls to form a composite having the final structure, the improvement comprising passing the sandwiched streams through a divergent passageway to form the sandwiched streams to a dimension greater than the final dimension of the product, separating the sandwiched streams into circumferentially separated streams, passing the separated sandwiched streams through a convergent passageway and die for rejoinder of said separated streams and to form a homogeneous pipe to final dimension.

5. A process as claimed in claim 1 in which the filling material is an expandable porous material.

4,364,883

CERAMIC PRODUCTS AND METHOD OF DRYING SAME

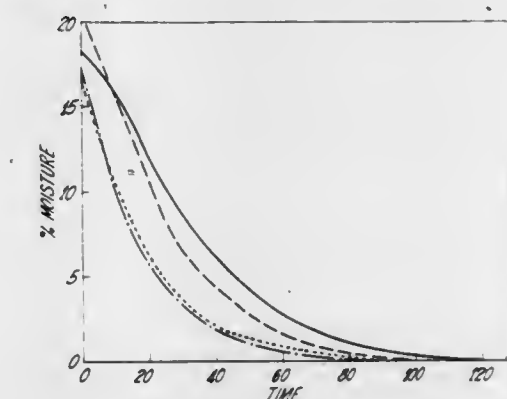
Richard F. Shannon, Lancaster, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Continuation of Ser. No. 32,050, Apr. 23, 1979, abandoned, which is a continuation of Ser. No. 864,186, Dec. 27, 1977, abandoned. This application November 7, 1980, Ser. No. 205,033

Int. Cl.³ C04B 33/36

U.S. Cl. 264—60

5 Claims



1. A method of producing clay, alumina or silica base ceramic products, comprising: adding chopped strand of mineral filaments having a hydrophilic surface into a green ware forming formulation that includes water, said filaments being bonded together into the strand by binder that is sufficiently water soluble that the strand is completely filamentizable when agitated in water; mixing the strand and formulation together under conditions which break the strand apart into individual monofilaments and disperse the monofilaments throughout the green ware forming formulation to give a three dimensional network of from 300 to 150,000 inches of filament per cubic inch; molding the mixture to form green ware under conditions preserving said three dimensional network; drying the green ware under conditions allowing the filaments to aid in moving water from the interior of the green ware to its surface; and firing the products above a temperature which fuses the green ware into a hard ceramic product.

4,364,884

METHOD OF MANUFACTURING A RADOME

G. Robert Traut, South Killingly, Conn., assignor to Rogers Corporation, Rogers, CT

Filed May 15, 1980, Ser. No. 149,952

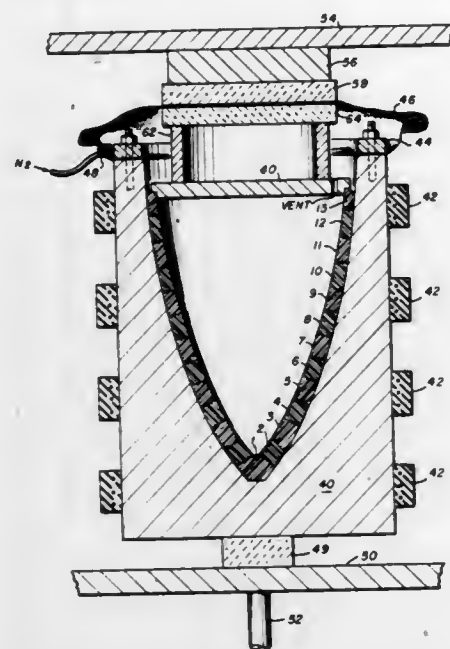
Int. Cl.³ C04B 37/00

U.S. Cl. 264—118

9 Claims

1. A method for the production of complex shapes from fiber reinforced polymeric material comprising the steps of:

forming a mixture of polymeric material in powder form and reinforcing fibers;
cold molding the mixture to form a fiber-polymer composite billet wherein the majority of the fibers are orientated in a desired direction;



machining preform segments of the complex shape from the billet, the segments being formed to have planar abutting surfaces;
stacking the segments in a mold; and
heating the mold while applying force to the segments to sinter the polymer composite and effect bonding between adjacent segments.

4,364,885

PROCESS FOR PRODUCING EASILY ADHERABLE POLYESTER FILM

Tamaki Kanai, Sagami-hara; Takashi Yamaguchi, Yokohama; Hirofumi Yoshikawa, Hachioji; Kenji Suzuki, and Yoshikatsu Ohta, both of Sagami-hara, all of Japan, assignors to Teijin Limited, Osaka, Japan

Filed June 11, 1981, Ser. No. 272,524

Claims priority, application Japan, June 16, 1980, 55-80229

Int. Cl.³ B29D 9/00; B29C 17/02; B32B 27/18

U.S. Cl. 264-134

4 Claims

1. A process for producing an easily adherable biaxially stretched polyester film, which comprises coating a primer composition consisting essentially of (A) an aqueous dispersion of polyurethane and (B) a montan wax salt on the surface of a polyester film which has not yet been stretched completely, drying the coating, completing the stretching of the coated film, and then heat-setting it to thereby form a primer coated layer on the film surface, said aqueous dispersion of polyurethane (A) being an aqueous dispersion of polyurethane free from an emulsifying agent, which is obtained by reacting (i) a dihydroxy compound having a molecular weight of 750 to 3,000, (ii) a polyisocyanate compound, (iii) a water-soluble salt of an aliphatic aminocarboxylic acid or an aliphatic sulfonic acid having at least one hydrogen atom bonded to nitrogen, and (iv) a compound having a molecular weight of not more than 300 and two hydrogen atoms reactive with the isocyanate groups and being free from a salt group as a chain extender in a solution or dispersion in a water-containing organic solvent, and finally removing the organic solvent portion.

4,364,886 PROCESS FOR THE MANUFACTURE OF POLYVINYLIDENE FLUORIDE - INCOMPATIBLE POLYMER LAMINATES

Albert Strassel, Oullins, France, assignor to Chimiques Ugine Kuhlmann, Courbevoie, France

Filed 1981, Ser. No. 236,821

Claims priority, application France, March 7, 1980, 80 05151
Int. Cl.³ B29D 9/00, 7/02; B29F 3/00

U.S. Cl. 264-171

5 Claims

1. The process of making a molded article having at least one outer surface of a polyvinylidene fluoride comprising first placing a preformed polyvinylidene fluoride laminate into a compression or injection mold so as to have a polyvinylidene fluoride layer adjacent a wall of the mold, introducing a moldable polymer that is incompatible in terms of adhesion to polyvinylidene fluoride but adherent to polymethyl methacrylate to the mold, and molding at a pressure and temperature sufficient and for a time sufficient to form a shaped laminate; said preformed polyvinylidene laminate having a thickness no greater than about 800 microns and consisting of a polyvinylidene fluoride layer and a polymethyl methacrylate layer and being formed by coextrusion with the polyvinylidene fluoride used to form the laminate having an apparent viscosity, in poises at 200° C., between the minimum and maximum values for at least two of the viscosity gradients set forth below:

Velocity Gradient Sec-1	Values of Apparent Viscosities In Poise	
	Minimum	Maximum
3.54	30×10^3	200×10^3
11.81	18×10^3	93×10^3
35.4	11×10^3	47×10^3
118	6.5×10^3	21×10^3
354	3.9×10^3	10×10^3
1,181	2.3×10^3	4.5×10^3

and the polymethyl methacrylate used to form the laminate having a viscosity, in poises at 200° C., between the minimum and maximum values for any given viscosity gradient set forth below:

Velocity Gradient Sec-1	Values of Apparent Viscosities in Poise	
	Minimum	Maximum
3.54	100×10^3	500×10^3
11.81	50×10^3	280×10^3
35.4	25×10^3	150×10^3
118	13×10^3	80×10^3
354	7×10^3	50×10^3
1,181	3.5×10^3	30×10^3

4,364,887

METHOD OF MOLDING MULTI-PLY REINFORCED PANELS AND/OR BELTS

Cletus A. Becht, Akron; Ramamoorthy M. Krishnan, Stow, and James M. Hogan, Tallmadge, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed August 24, 1981, Ser. No. 295,399

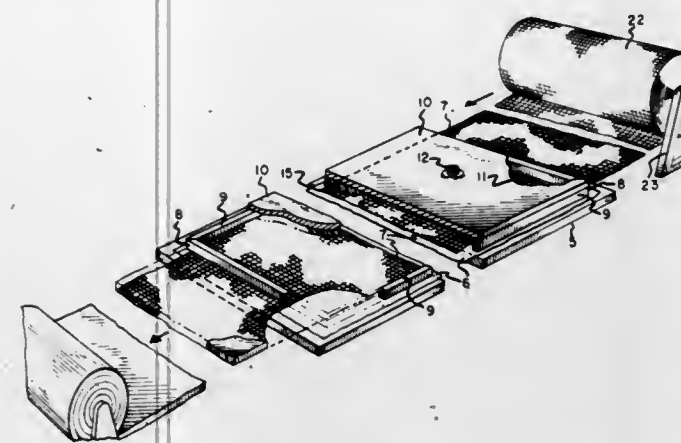
Int. Cl.³ B29H 3/08, 7/22

U.S. Cl. 264-171

5 Claims

1. A method of making a fabric reinforced belt comprising spreading a release material on a flat surface, placing at least one fabric reinforcing member under tension on the release material, forming a pressurizable cavity over said fabric reinforcing member by locking the cavity member having at least one injection opening and a top and side closure means, filling to pressurize said cavity with an elastomeric precursor to encapsulate the fabric, setting said precursor to form a belt ply, inverting said ply to expose the side in contact with said release

material, placing at least one other fabric reinforcing member on the exposed side of said ply, forming said pressurizable cavity over said ply by locking said cavity member, filling to



pressurize said cavity over said ply with an elastomeric precursor and curing said precursor to form a multiple ply belt having the plies bonded together.

4,364,888

METHOD AND APPARATUS FOR EXTRUDING A HONEYCOMB STRUCTURE

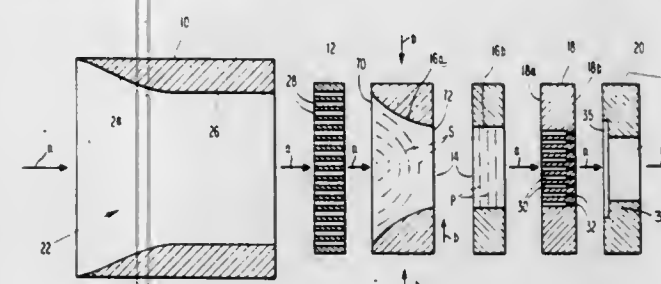
Philip S. Levin, Rocky Hill, Conn., assignor to Corning Glass Works, Corning, N.Y.

Filed May 4, 1981, Ser. No. 260,343

Int. Cl.³ B29F 3/04

U.S. Cl. 264-177 R

29 Claims



1. Apparatus for extruding a honeycomb structure having thin-walled cells from an extrudable material comprising: an extrusion die having an inlet face, an outlet face and passageways extending between said faces for forming said honeycomb structure from said material, said passageways including a plurality of feed holes communicating with interconnected discharge slots sequentially in the direction of extrusion;

an entrance cavity coupled to said inlet face, said entrance cavity including a funnel section tapering inwardly from a larger cross-sectional cavity area to a smaller cross-sectional cavity area and a substantially straight-walled section extending between said funnel section and said inlet face and with a cross-sectional cavity area substantially conforming to said smaller cross-sectional cavity area and to the cross-sectional area of the structure to be extruded through said die.

24. A method of extruding a honeycomb structure having a plurality of thin-walled cells from an extrudable Bingham plastic material using an extrusion die having passageways including a plurality of feed holes communicating with interconnected discharge slots sequentially in the direction of extrusion, said method comprising:

advancing the material toward said die;
reducing the cross-sectional area of the material transverse to the direction of advancement;
creating shearing flow in the material as the material is advanced toward the die and the cross-sectional area is reduced;

maintaining constant the reduced cross-sectional area of the material;
establishing plug flow in the material and substantially terminating shearing flow in the material while maintaining constant the reduced cross-sectional area prior to reaching the die; and
extruding the material through the die so as to form the structure with a cross-sectional area substantially conforming to the reduced cross-sectional area of the material prior to reaching the die.

4,364,889

PROCESS FOR PREPARING A COTTON-LIKE RAYON FIBER

Charles J. Geyer, Jr., Berwyn, and Ben E. White, Wayne, both of Pa., assignors to Fiber Associates, Inc., Berwyn, Pa.

Filed May 15, 1980, Ser. No. 150,094

Int. Cl.³ D01F 2/06

U.S. Cl. 264-188

3 Claims

1. A process for producing cotton-like rayon filaments having a degree of polymerization above about 500, an alkali solubility below about 7.5%, said alkali solubility being a measure of the percentage of said fiber dissolved in an aqueous solution comprising 10% sodium hydroxide, a tenacity of about 5-6 g/d, a conditioned elongation of 10-20%, a wet strength of 2.5-3.25 g/d, and a wet modulus of 7-9 g/d at 5% elongation, which comprises spinning into a formaldehyde-free bath having an acid concentration of 5.0-8.0% and a zinc salt concentration of 3.0-5.0% at a temperature between about 30°-40° C., a viscose solution prepared by continuously steeping, mercerizing, aging and filtering, said viscose solution being composed of cellulose xanthate in a concentration of 6.0-9.0% with a degree of polymerization of at least 500, and containing an effective amount of modifier, and stretching the resulting filaments 125-135% in a dilute acid bath.

4,364,890

PROCEDURE FOR THE PREPARATION OF CRIMPED HIGH-WET-MODULUS STAPLE FIBRES

Erich E. Treiber, Lidingö; Dag E. Ehrengard, Stockholm, and Owe S. Lidbrandt, Sollentuna, all of Sweden, assignors to Svenska Rayon AB, Valberg, Sweden

PCT No. PCT/SE79/00235, § 371 Date July 14, 1980, § 102(e)
Date July 9, 1980, PCT Pub. No. WO80/00979, PCT Pub.
Date May 15, 1980

PCT Filed November 14, 1979, Ser. No. 199,464

Claims priority, application Sweden, November 14, 1978, 7811741

Int. Cl.³ D01F 2/08

U.S. Cl. 264-191

8 Claims

1. In a process for the production of crimped high-wet-modulus staple fibers wherein fibers are spun from an unripe cellulose viscose, containing 7-8% cellulose, 6.8-7.5% sodium hydroxide, 35-38% carbon disulphide and one or more metal-ion-free, organic modifiers, the improvement which comprises adding to said viscose after xanthation has been completed, but prior to spinning, a substance, selected from the group consisting of unsubstituted compounds of cyclohexanone or cyclopentanone, methylated compounds of cyclohexanone or cyclopentanone, polyalkylated monoamino compounds of cyclohexanone or cyclopentanone in an amount in the range from about 0.3% to 5% based on the amount of cellulose in the viscose, the fibers being spun at gamma number of <50 and a salt index of <5 in a coagulation bath of 30°-40° C. temperature containing 60-80 grams sulphuric acid, 100-180 grams sodium sulphate and 30-55 grams zinc sulphate, all calculated per liters, and stretched 110-120% in an acid bath with a temperature of 90°-100° C.

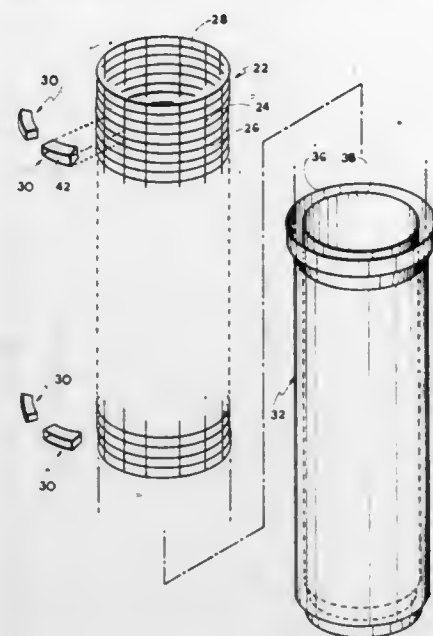
4,364,891

SLOTTED CONCRETE PIPE

Vincent A. Saggese, 15 Pleasant View Dr., Bayville, N.Y. 11709
Filed October 31, 1979, Ser. No. 89,955
Int. Cl.³ B32B 9/00

U.S. Cl. 264—263

11 Claims



1. A method of forming slotted concrete pipe comprising: forming a grid of reinforcing bars, arranging a plurality of inserts with the grid with each insert having a through passage-way, and covering the grid and inserts with concrete so as to form a hollow tube of concrete with the grid and inserts permanently embedded therein, and the grid of bars providing reinforcement for the concrete and the passageways of the inserts forming slots for communication between the interior and exterior of the concrete pipe at predetermined locations.

4,364,892

PROCESS FOR SURFACE TREATMENT OF FOAMED SHEETS

Helmut Rehlen, Härte 6, 7951 Ingoldingen, and Jürgen Roellinghoff, Föhrenweg 9, 7950 Biberach-Mettenberg, both of Fed. Rep. of Germany

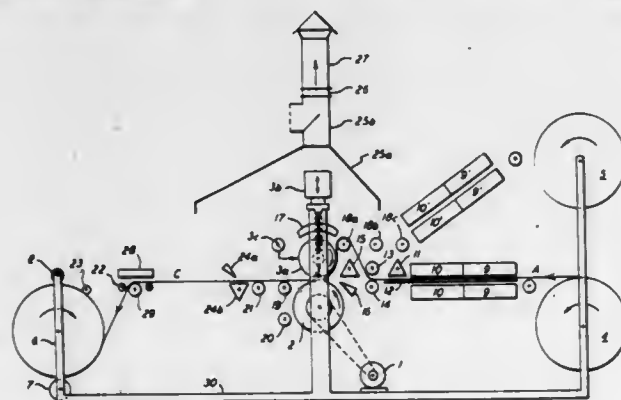
Filed July 20, 1979, Ser. No. 59,357

Claims priority, application Fed. Rep. of Germany, July 25, 1978, 7822256[U]; July 25, 1978, 7822259[U]; July 25, 1978, 7822264[U]; July 25, 1978, 7822278[U]; July 25, 1978, 7822284[U]

Int. Cl.³ B29C 17/00; B29D 27/00

U.S. Cl. 264—284

4 Claims



1. A process for the continuous modification of the surface portion only of a foamed plastic web to impart high mechanical resistance with retention of air permeability and elasticity, which comprises preheating the web to a temperature below its melting point, then subjecting the preheated web to shock heating by means of a device disposed at a distance of 5 to 10 mm from the web and at a temperature of from 150° C. to 300°

C., and then passing the preheated and shock heated web through the nip of a calender comprising a pressure roller and a backing roller, the pressure roller being heated to a predetermined temperature above the melting point of the web and up to 500° C., the web being fed to the calender nip in such a way that it is looped around the pressure roller through an angle of at least 30° and is then withdrawn from the calender and wound up.

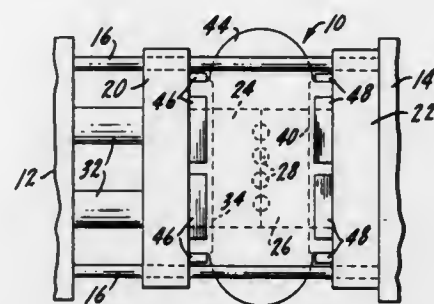
4,364,893

MOLD ATMOSPHERE CONTROL SYSTEM

Michael A. Waters, Elk Grove Village, Ill., assignor to Application Engineering Corporation, Elk Grove Village, Ill.
Filed June 15, 1981, Ser. No. 273,904
Int. Cl.³ B30B 11/02; B29C 3/00

U.S. Cl. 264—325

21 Claims



1. A mold atmosphere control system for a molding press of the kind comprising two platens, each bearing a mold half, cyclically movable between a closed molding position in which the mold halves are closed upon each other and an open discharge position in which the mold halves are substantially displaced from each other, the system comprising:

- a tent formed of flexible sheet material;
- mounting means for mounting the tent on the platens with the tent substantially enclosing the mold halves except for a bottom opening large enough to allow discharge of molded products formed in the press;
- an gas diffuser mounted on one of the platens, within the tent;
- and gas supply means, connected to the diffuser, for continuously supplying a stream of gas, under pressure, flowing through the diffuser into the tent and out through the bottom opening, the gas stream having a volume sufficient to maintain the tent inflated throughout the mold cycle of the press.

4,364,894

METHOD FOR MOLDING A REINFORCED PLASTIC TUBULAR BODY HAVING A SOCKET, AND MOLD THEREFORE

Masakatsu Mayumi, Osaka; Takeshi Okuyama, Kyoto, and Kenji Mitooka, Okayama, all of Japan, assignors to Sekisui Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed April 16, 1981, Ser. No. 254,663

Claims priority, application Japan, April 21, 1980, 55/53383; April 21, 1980, 55/55090[U]

Int. Cl.³ B29D 3/02, 23/00; B29C 1/00

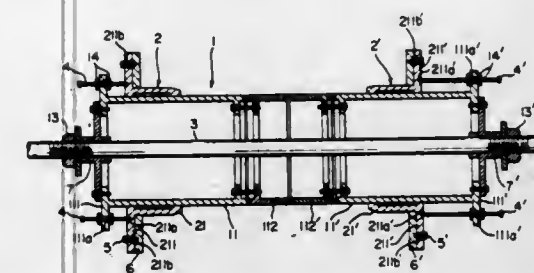
U.S. Cl. 264—334

8 Claims

1. A method for molding a socket-type plastic tubular body, comprising:

- placing an annular member on the periphery of a cylindrical section of a socket molding member and sliding it axially along the cylindrical section to a predetermined position where one side of the annular member will be contacted by plastic of which the tubular body is to be molded during the molding, and fixing said annular member at said predetermined position;
- placing said socket-molding member on the periphery of a tubular section of a main mold body and sliding it axially

along the tubular portion to a further predetermined position and fixing it to the tubular section at said further predetermined position for forming a mold; forming a layer of plastic molding material around the thus formed mold and curing it; and



pushing on said socket-molding member in a direction form moving said socket-molding member and said main mold body out of the thus molded layer of plastic molding material and with a force which reacts on said annular member for pulling the socket-molding member and the main mold body out of the thus molded layer of plastic.

4,364,895

FLUID-ASSISTED CORE-RELEASE METHOD AND APPARATUS

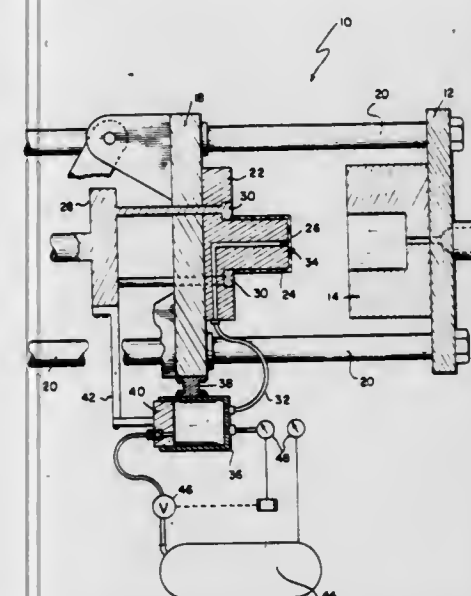
J. Larry Underwood, c/o Underwood Mold Company, Inc. 104 Dixie Dr., Woodstock, Ga. 30188

Filed July 29, 1981, Ser. No. 288,168

Int. Cl.³ B29C 7/00; B29F 1/14

U.S. Cl. 264—335

10 Claims



1. An apparatus for assisting in the removal of an injection-molded article from a core of a mold in which the article was formed, the mold core being movable with respect to an ejector means for mechanically removing the molded article from the core, the apparatus comprising a conduit leading to a surface of the mold core against which the molded article is formed, and means for introducing into the conduit a measured volume of fluid at about atmospheric pressure at a rate controlled by the rate of relative movement between the core and the ejector means.

10. A method of assisting in the removal of an ejection-molded article from a core of a mold in which the article was formed, the mold core being attached to a platen and having an ejector means movable with respect to the platen for mechanically removing the molded article from the core, the method comprising the steps of providing a conduit leading to a surface of the mold core against which the molded article is formed, and introducing into the conduit a measured volume of fluid at about atmospheric pressure at a rate controlled by the rate

of relative motion between the platen and the ejector means.

4,364,896

METHOD FOR MAKING A MULTI-LAYERED BLOWN PLASTIC CONTAINER

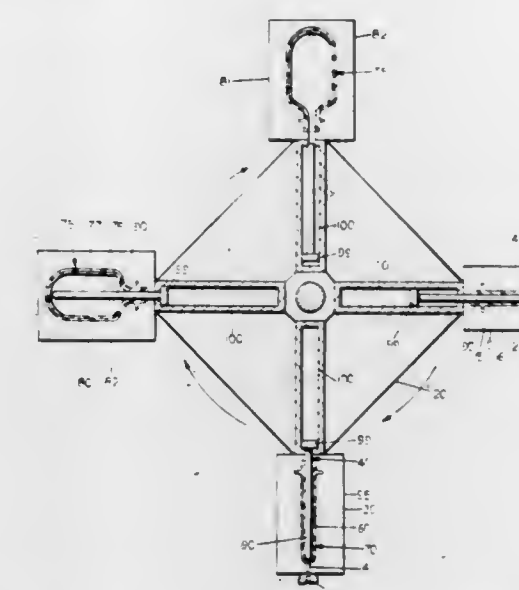
Robert F. Kontz, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed September 21, 1981, Ser. No. 303,759

Int. Cl.³ B29C 17/07; B29D 9/00

U.S. Cl. 264—513

11 Claims



1. A method of making a hollow blown plastic container comprising the steps of:

- A. injection molding a first parison of thermoplastic material,
- B. bringing the temperature of the first parison to its orientation temperature and axially stretching the parison,
- C. injection molding at least a second thermoplastic parison around the stretched first parison to form a multi-layered parison,
- D. bringing the multi-layered parison to orientation temperature, and
- E. blowing the multi-layered parison at the orientation temperature of Step D to form a multi-layered oriented hollow plastic container in which the inner layer is oriented in the axial direction and the hoop direction and the outer layer is oriented in the hoop direction.

4,364,897

MULTI-STEP CHEMICAL AND RADIATION PROCESS FOR THE PRODUCTION OF GAS

Russell D. O'Neal, Ann Arbor; Charles B. Leffert, Troy; Theodor Teichmann, and Robert J. Teitel, both of Ann Arbor, all of Mich., assignors to Texas Gas Transmission Corporation, Owensboro, Ky.

Filed 1975, Ser. No. 548,230

Int. Cl.³ G21B 1/00; C01B 3/12

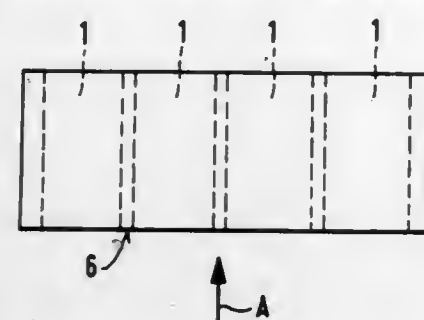
U.S. Cl. 376—148

2 Claims

1. A process for producing hydrogen comprising the steps of:

- (a) injecting carbon dioxide into the central reaction chamber of a fusion reactor,
- (b) causing within said chamber a deuterium-tritium fusion reaction producing 14.1 mev neutron radiation such that said carbon dioxide is dissociated radiolytically into carbon monoxide and oxygen,
- (c) removing said carbon monoxide and oxygen from said chamber for external use,
- (d) reacting said carbon monoxide developed in step (c) with water to form carbon dioxide and pure hydrogen outside said reaction chamber, and

cles, and the bottom part represents an open rack for receiving test tubes freely therein while permitting viewing of the test tubes, the two parts are separated by a parting line that is substantially perpendicular to the longitudinal direction of the



vertical receptacles, easily detachable means for interconnecting the top and bottom parts against horizontal displacement, and the bottom part additionally includes a pair of oppositely-directed tabs whereby the stand may be suspended directly in a centrifuge, without the need for an additional receptacle.

4,364,905

FLUID CATALYTIC CRACKING APPARATUS HAVING RISER REACTOR AND IMPROVED MEANS ASSOCIATED WITH THE RISER REACTOR FOR SEPARATING CRACKED PRODUCT AND ENTRAINED PARTICULATE CATALYST

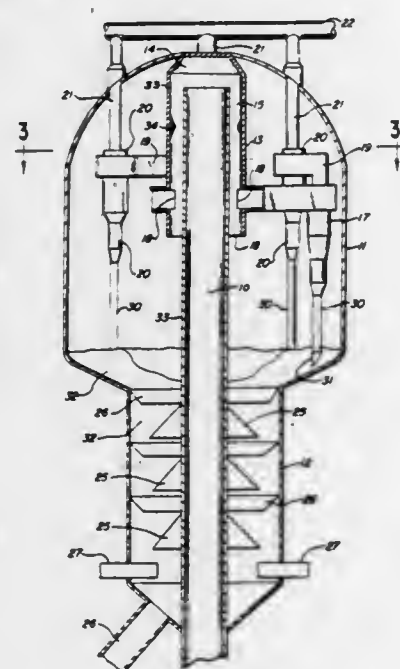
Robert J. Fahrig, Lansing, and Lansing M. Hinrichs, Chicago, both of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Division of Ser. No. 96,939, Nov. 23, 1979, Pat. No. 4,295,961. This application 1981, Ser. No. 235,999

Int. Cl.³ B01J 8/18; B01D 45/12; B04C 5/26, 5/28

U.S. Cl. 422-144

4 Claims



1. In an apparatus for fluidized catalytic cracking of hydrocarbon feedstocks, the improvement comprising the combination of an ascending riser reactor having its upper end opening into a separator vessel and means at its lower end for introduction of hydrocarbon feedstock and particulate catalyst, flow reversal means at the upper end of said riser reactor and an attached downwardly directed flow reversal conduit the lower end of which opens into said separator vessel for directing the flow of cracked hydrocarbon product and entrained particulate catalyst downwardly toward said separator vessel, a catalyst stripper located at the bottom of said vessel, and cyclone separator means having gas inlet duct means which are in communication through the wall of said flow reversal conduit with the interior thereof, said cyclone separator means being

connected to said separator vessel so as to vent said cracked hydrocarbon products outside of said separator vessel.

4,364,906

METHOD FOR SELECTIVELY REMOVING FLUORINE AND FLUORINE-CONTAINING CONTAMINANTS FROM GASEOUS UF₆

Robert L. Jones, Paducah; Milton G. Otey, Melber, and Roy W. Perkins, Mayfield, all of Ky., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed November 24, 1980, Ser. No. 209,920

Int. Cl.³ C01G 43/06; B01D 53/34

U.S. Cl. 423-19

10 Claims

1. The method of treating a gaseous mixture of UF₆ and a contaminant selected from the group consisting of fluorine and gaseous fluorides which are more reactive with CaCO₃ than is UF₆, to effect selective removal of said contaminant from said mixture, comprising:

contacting said mixture with particulate CaCO₃ at a temperature effecting reaction of said contaminant and said CaCO₃, and recovering the resulting purified gaseous UF₆.

4,364,907

PROCESS FOR RECOVERY OF RHODIUM VALUES

Robert L. Barnes, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 274,859, Jun. 18, 1981,

abandoned. This application May 24, 1982, Ser. No. 381,275

Int. Cl.³ C01G 55/00

U.S. Cl. 423-22

1 Claim

1. Process for the recovery of residual rhodium from tar obtained by submitting a catalyst-tar solution to an extraction using methyl iodide and aqueous hydrogen iodide, thereby recovering catalyst values in the aqueous phase and tar containing residual rhodium in the methyl iodide phase wherein the catalyst-tar solution is derived from a production system in which acetic anhydride is prepared by carbonylating methyl acetate in the presence of rhodium, lithium and methyl iodide wherein the residual rhodium-containing tar is submitted to an extraction using a water-immiscible, inert solvent for the tar and aqueous ammonia and recovering residual rhodium in the aqueous phase.

4,364,908

METHOD FOR PURIFYING TITANYL HYDRATE

Joseph A. Rahm, Long Branch, and Ivan B. Lampe, Oceanport, both of N.J., assignors to NL Industries, Inc., New York, N.Y.

Filed July 24, 1981, Ser. No. 286,305

Int. Cl.³ C01G 23/04

U.S. Cl. 423-86

16 Claims

1. A process for removing impurities from titanyl hydrate comprising:

- slurrying an impure titanyl hydrate with a sufficient amount of water to prepare a titanyl hydrate slurry containing between about 25% and about 45% by weight titanyl hydrate;
- treating the titanyl hydrate slurry to solubilize impurities from the titanyl hydrate by the addition of a trivalent titanium compound in an amount between about 0.01 grams and about 0.7 grams trivalent titanium compound as TiO₂ per 100 grams titanyl hydrate as calcined TiO₂ to form a titanyl hydrate slurry containing less than about 10 grams/liter free mineral acid;
- separating the titanyl hydrate from the treated titanyl hydrate slurry containing solubilized impurities;
- washing the separated titanyl hydrate to remove residual impurities and to produce a purified titanyl hydrate; and
- recovering the purified titanyl hydrate.

4,364,909

REMOVAL OF CA⁺⁺ FROM MGCL₂

John M. Lee, and William C. Bauman, both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed March 16, 1981, Ser. No. 244,377

Int. Cl.³ C02F 1/42

U.S. Cl. 423-157

10 Claims

1. A process for substantially reducing the amount of a Ca⁺⁺ ion impurity in a MgCl₂ brine, where the MgCl₂ is at a concentration of at least about 30% by weight, said process comprising contacting said MgCl₂ brine with a crystalline synthetic zeolite having the empirical formula Na₁₂[(AlO₂)₁₂(SiO₂)₁₂].nH₂O where nH₂O represents waters of hydration, and recovering from said zeolite the MgCl₂ brine with the Ca⁺⁺ ion impurity reduced to a lower level than the initial impurity level.

4,364,910

INTEGRATED FLUE GAS PROCESSING METHOD

Howard P. Willett, Darien, and Even Bakke, Stamford, both of Conn., assignors to Peabody Process Systems, Inc., Stamford, Conn.

Division of Ser. No. 130,202, Mar. 13, 1980, Pat. No. 4,305,909, which is a continuation-in-part of Ser. No. 85,470, Oct. 17, 1979, abandoned. This application June 8, 1981, Ser. No. 271,512

Int. Cl.³ C01B 17/00

U.S. Cl. 423-242

13 Claims

1. An integrated process for removing sulfur dioxide and flyash from flue gas comprising feeding flue gas to a scrubber-quencher, introducing aqueous slurry to the scrubber-quencher, saturating the flue gas with water vapor, removing coarse flyash particles from the flue gas in the scrubber-quencher, conducting the flue gas to a spray tower for upward flow therein, spraying alkali slurry into the flue gas within the tower to absorb and react with the sulfur dioxide therein, recirculating slurry containing absorbed sulfur dioxide to increase the residence time for the reaction of alkali and sulfur dioxide, removing slurry containing reaction products of alkali and sulfur dioxide and precipitated flyash from the tower, dewatering the slurry so removed to obtain a waste product, passing the flue gas through an interface tray located in the tower downstream of the alkali slurry spray, spraying the interface tray with an unreactive aqueous solution to substantially saturate the flue gas, passing the flue gas through a wet electrostatic precipitator located downstream of the spray tower, electrostatically precipitating flyash and entrained slurry droplets from the flue gas, removing heat from the saturated flue gas passing through the wet electrostatic precipitator by causing ambient air to flow across the outside of precipitation tubes through which the flue gas passes, heating the flowing ambient air, cooling the precipitation tube walls, causing condensation of water vapor in the flue gas on the tube walls, conducting the heated flowing ambient air away from the precipitator and utilizing the heat therein.

4,364,911

METHOD FOR TREATING THE RESIDUE FROM THE PRODUCTION OF PHOSPHOROCHLORIDOTHIONATES

Russell B. Caffy, Mt. Pleasant, Tenn.; Mark S. Carron, Spring Valley, N.Y.; Robert W. Hull, Mt. Pleasant, Tenn.; Pawan K. Jain, Norwood, N.J., and Harold S. Mickley, Westport, Conn., assignors to Stauffer Chemical Company, Westport, Conn.

Filed September 26, 1979, Ser. No. 78,640

Int. Cl.³ C01B 15/16, 25/26, 17/00

U.S. Cl. 423-317

6 Claims

1. A method of treating distillation residue from the production of phosphorochloridothionates in a continuous or semi-continuous manner comprising introducing the residue into sufficient agitated water to form a pumpable and storeable slurry

having a temperature below that necessary to cause decomposition of the residue and hydrolyzing the slurry in controllable amounts to decompose the residue and produce hydrolysis by-products comprising sulfur, phosphoric acid, and decomposition gases at controllable rates.

4,364,912

POST PRECIPITATION CONTROL OF LOW-IRON PHOSPHORIC ACID, WITHOUT PERLITE

Richard N. Hill, Lakeland, Fla., assignor to W. R. Grace & Co., New York, N.Y.

Filed July 20, 1981, Ser. No. 284,623

Int. Cl.³ C01B 25/16

U.S. Cl. 423-321 R

6 Claims

1. The method of preparing a solids-containing wet process phosphoric acid having a P₂O₅ concentration of 56-62 weight % wherein said solids remain substantially suspended, and are soft, free-flowing, and non-caking; said acid prepared in the absence of perlite and consisting essentially of the following steps:

- preparing a crude dilute acid in a wet process reaction train, said acid having a P₂O₅ content of 22-45 weight percent and having an Fe₂O₃/P₂O₅ weight ratio not in excess of 0.03;
- removing a suspended solids from the said acid in a clarification zone to provide a clarified acid having less than 2% by volume of suspended solids and a sludge-containing residue;
- evaporating the clarified acid to a P₂O₅ content of 46-52%;
- charging the evaporated acid to a crystallizing-settling zone to permit settling sludge from the acid, and settling for at least 8 hours;
- passing substantially sludge-free acid from the crystallizing-settling zone to an evaporating zone, and evaporating said acid to a P₂O₅ content of 56-62%, said acid characterized in that ammoniation is possible without substantial foaming.

4,364,913

HNCO MANUFACTURE BY ADIABATIC AIR OXIDATION OF HCN

Daniel S. Katz, Stamford, and Kenneth E. Olson, Riverside, both of Conn., assignors to American Cyanamid Company, Stamford, Conn.

Filed September 24, 1981, Ser. No. 305,057

Int. Cl.³ C01C 3/14

U.S. Cl. 423-365

8 Claims

1. A process for oxidation of hydrogen cyanide to isocyanic acid which comprises passing a gas feed stream of hydrogen cyanide, oxygen and inert gas under adiabatic conditions in contact with a solid catalyst effective to promote the reaction of hydrogen cyanide and oxygen to form isocyanic acid, the proportion of oxygen being at least one-half mole per mole of hydrogen cyanide, the reaction temperature at the catalyst being about 500°-700° C., and said temperature being controlled by the proportion of inert gas in said gas feed stream.

4,364,914

PROCESS FOR THE MANUFACTURE OF POTASSIUM NITRATE WITH CO-PRODUCTION OF HYDROCHLORIC ACID

Shalom Manor, Haifa; Moshe Bar-Guri, Kfar Hasidim; Amiad Alexandron, and Moshe Kreisel, both of Haifa, all of Israel, assignors to Haifa Chemicals Ltd., Haifa, Israel

Filed March 31, 1981, Ser. No. 249,677

Claims priority, application Israel, April 30, 1980, 59952

Int. Cl.³ C01D 9/04

U.S. Cl. 423-399

9 Claims

1. A process for the manufacture of potassium nitrate by reacting potassium chloride and nitric acid which comprises the performance of said reaction in the medium of an organic

solvent selected from butanols and pentanols, the ratio between said reactants being in the range of 0.9 mole of HNO_3 per one mole of KCl up to 3 moles of HNO_3 to one mole of KCl , separating the potassium nitrate, while the liquid phase removed consists of an aqueous solution and organic solvent extract containing hydrochloric acid and nitric acid, washing the solvent extract in obtaining a hydrochloric acid containing nitric acid, the improvement consisting in that said solution of hydrochloric acid and nitric acid is contacted with an organic solvent selected from organic esters of phosphoric acid, ketones having five to ten carbon atoms and straight or cyclic polyethers having molecular weight in the range of 100 to 1000, and polyalkylene glycols slightly miscible in water and having molecular weight in the range of 1000 to 3000, or mixtures thereof, preferably in the presence of an organic diluent, whereby said organic solvent extracts selectively the nitric acid leaving a relatively concentrated aqueous solution of hydrochloric acid substantially nitrate-free.

4,364,915

PROCESS FOR RECOVERY OF CARBON DIOXIDE FROM FLUE GAS

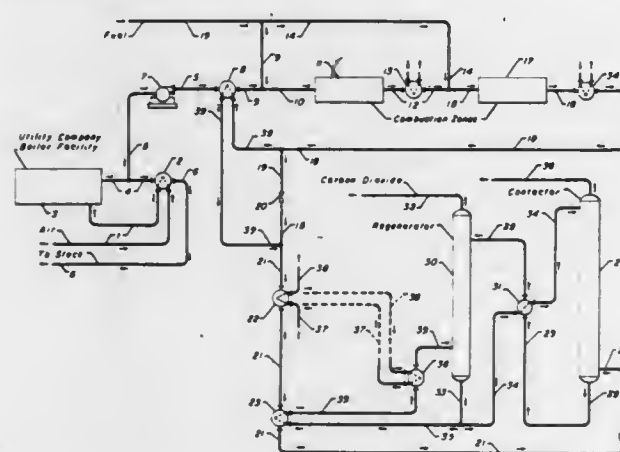
Russell C. Proctor, Missouri City, Tex., assignor to Procon International Inc., Des Plaines, Ill.

Filed May 21, 1981, Ser. No. 265,768

Int. Cl.³ C01B 31/20; B01D 53/34

U.S. Cl. 423—437

25 Claims



1. A process for recovering carbon dioxide from a flue gas stream which comprises the steps of:
 - (a) admixing a combustible fuel into a flue gas stream;
 - (b) passing the flue gas stream through a combustion zone in which the combustible fuel is reacted with oxygen originally present in the flue gas stream;
 - (c) cooling the flue gas stream;
 - (d) contacting the flue gas stream with a lean absorber liquid comprising an aqueous amine solution which absorbs carbon dioxide at carbon dioxide absorbing conditions in a contacting zone; and
 - (e) recovering carbon dioxide from the absorber liquid.

4,364,916

PROCESS FOR THE PRODUCTION OF STABILIZED ACRYLIC FIBERS WHICH ARE PARTICULARLY SUITED FOR THERMAL CONVERSION TO CARBON FIBERS

Ilmar L. Kalnin, Millington; George J. Breckenridge, Jr., Clark; Andrew H. DiEdwardo, Parsippany, and John M. Rhodes, Summit, all of N.J., assignors to Celanese Corporation, New York, N.Y.

Filed October 14, 1981, Ser. No. 311,131

Int. Cl.³ D01F 9/22

U.S. Cl. 423—447.6

22 Claims

1. An improved process for the relatively rapid thermal stabilization of a multifilamentary acrylic fibrous material in the substantial absence of filament coalescence comprising:

- (a) contacting said acrylic fibrous material with a dilute solution of hydroxylamine having a pH of approximately

6 to 8 provided at a temperature of approximately 95° to 130° C.,

- (b) washing said fibrous material,
- (c) contacting said resulting fibrous material with a dilute solution of an oxidizing agent selected from the group consisting of ammonium permanganate, calcium permanganate, magnesium permanganate, and mixtures thereof, provided at a temperature of approximately 80° to 120° C.,
- (d) washing said fibrous material, and
- (e) heating said resulting fibrous material in a gaseous oxygen-containing atmosphere until a thermally stabilized acrylic fibrous material is formed which is capable of undergoing carbonization and is non-burning when subjected to an ordinary match flame.

4,364,917

CONTINUOUS PROCESS FOR MAKING CALCIUM HYPOCHLORITE

Herman H. Tiedemann, Texas City, Tex.; Gilbert Thibault, Coquitlam, and Joseph G. J. Laberge, Oakville, both of Canada, assignors to C-I-L Inc., North York, Canada

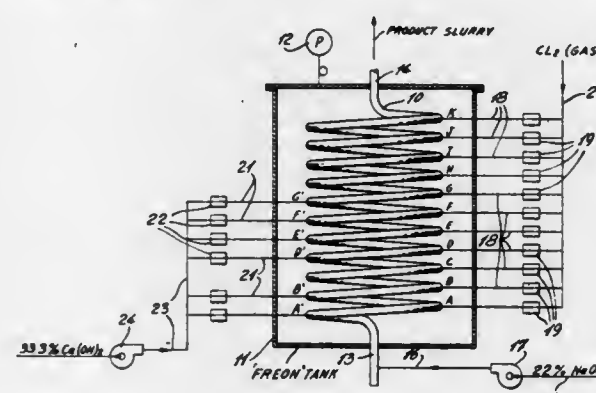
Filed 1982, Ser. No. 352,543

Claims priority, application Canada, Mar. 9, 1981, 372583

Int. Cl.³ C01B 11/06

U.S. Cl. 423—474

4 Claims



1. A process for the continuous preparation of calcium hypochlorite slurry which comprises:
 - (a) continuously feeding an aqueous solution of sodium hydroxide to one end of a stirred tubular reactor;
 - (b) at each one of a number of injection sites axially spaced along the length of the tubular reactor continuously and separately injecting chlorine and an aqueous slurry of calcium hydroxide at such rates and molar ratio to each other that the redox potential of the resulting reaction mixture at any one injection site remains constant at a value not lower than that at the immediately preceding injection site, said rates of injection and molar ratio being such at the last injection site that the redox potential of the reaction mixture at that site is in the range from 900 to 950 mV; and
 - (c) removing the produced slurry of calcium hypochlorite from the other end of the tubular reactor; the temperature of the reaction mixture throughout the process being maintained within the range from 10° C. to 30° C.

4,364,918

SEPARATION OF THIOSULFATE FROM STRETFORD SOLUTION

Wilton F. Espenscheid, De Soto, Tex., assignor to Mobil Oil Corporation, New York, N.Y.

Filed March 5, 1979, Ser. No. 17,636

Int. Cl.³ C01B 17/04

U.S. Cl. 423—573 R

1 Claim

1. In the process of purifying a hydrogen sulfide contaminated gas by indirectly oxidizing the hydrogen sulfide with oxygen gas to form elemental sulfur and purified gas, which process comprises recycling a reactive, regenerable aqueous

sorbent comprising sodium salts of anthraquinone disulfonic acid and an oxyanion of vanadium as means for effecting said indirect oxidation, and wherein a stream of said recycled aqueous sorbent containing thiosulfate is purged; the improvement comprising removing thiosulfate from said purge stream by:

- (a) treating said purge stream with a nickel ethylenediamine complex forming a precipitate of insoluble nickel ethylenediamine thiosulfate without precipitation of anthraquinone disulfonic acid or vanadate;
- (b) separating said aqueous sorbent from said insoluble precipitate and returning said sorbent to said recycling step;
- (c) acidifying said precipitate with sulfuric or phosphoric acid whereby decomposing thiosulfate;
- (d) alkalizing the acidified precipitate whereby forming a precipitate of insoluble salts;
- (e) recovering a regenerated nickel ethylenediamine complex; and
- (f) recycling the regenerated nickel ethylenediamine complex to be used in treating said purge stream.

4,364,919

PROCESS FOR PRODUCING COARSE GRAINS OF ALUMINUM HYDROXIDE

Koichi Yamada; Takuo Harato; Hisakatsu Kato, and Yasumi Shiozaki, all of Niihama, Japan, assignors to Sumitomo Aluminium Smelting Company, Limited, Osaka, Japan

Filed 1982, Ser. No. 347,546

Claims priority, application Japan, 1981, 56-24780

Int. Cl.³ C01F 7/14

U.S. Cl. 423—629

3 Claims

1. A process for producing coarse grains of aluminum hydroxide by continuously precipitating coarse grains of aluminum hydroxide from a supersaturated sodium aluminate solution of the Bayer process, which comprises:

- (1) a first precipitation step of adding recycle seed aluminum hydroxide to a supersaturated sodium aluminate solution having a molar ratio of Na_2O as caustic soda to Al_2O_3 in solution of less than 1.8 supplied to a precipitation tank of substantially complete mixing type in a ratio of 30–150 kg of the recycle seed to 1 m³ of the solution, thereby partially decomposing the seed-added solution until the molar ratio of the solution reaches 2.0–2.4 while keeping the solution at 65°–80° C.;
- (2) a second precipitation step of supplying the resulting sodium aluminate solution in a slurry state from the first precipitation step to at most three precipitation tanks of growth type arranged in series and decomposing the solution in the slurry state until the molar ratio reaches at least 2.6 while keeping the solution in the slurry state at a precipitated solid aluminum hydroxide concentration of 400–1,500 g/l and at a slurry temperature of 45°–65° C. in the precipitation tanks of growth type; and
- (3) a third step of supplying the decomposed solution in a slurry state from the second precipitation step to a classifier, thereby classifying the precipitated aluminum hydroxide grains into coarse grains of aluminum hydroxide as product and fine grains of aluminum hydroxide, and recycling the fine grains of aluminum hydroxide as seed.

4,364,920

STABLE DIAGNOSTIC REAGENTS

Harry S. Winchell, Lafayette, Calif., assignor to Medi-Physics, Inc., Emeryville, Calif.

Filed April 30, 1975, Ser. No. 573,297

Int. Cl.³ A61K 49/00, 43/00

U.S. Cl. 424—1

14 Claims

1. A method of stabilizing a reagent suitable for the preparation of a radiopharmaceutical by the addition thereto of a radionuclide, said reagent comprised of a chelating agent and stannous ion comprising adding to said chelate from about 1 mole to about 100 moles of a substance selected from the group consisting of ascorbic acid, erythorbic acid, pharmaceutically

acceptable inorganic salts thereof and mixtures thereof for each mole of stannous ion.

4,364,921

NOVEL TRIIODINATED ISOPHTHALIC ACID DIAMIDES AS NONIONIC X-RAY CONTRAST MEDIA

Ulrich Speck; Peter Blaszkiewicz; Dieter Seidelmann, and Erich Klieger, all of Berlin, Fed. Rep. of Germany, assignors to Schering, Aktiengesellschaft, Berlin & Bergkamen, Fed. Rep. of Germany

Filed March 6, 1980, Ser. No. 127,613

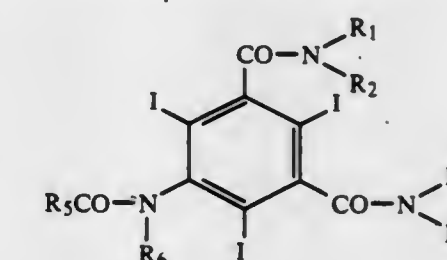
Claims priority, application Fed. Rep. of Germany, March 8, 1979, 2909439

Int. Cl.³ A61K 49/04; C07H 3/00; C07C 103/78

U.S. Cl. 424—5

15 Claims

1. A triiodinated isophthalic acid diamide of the formula



wherein

- the amide residues $-\text{CO}-\text{N}(\text{R}_1)\text{R}_2$ and $-\text{CO}-\text{N}(\text{R}_3)\text{R}_4$ are different from each other and
- R_1 is hydrogen or C_{1-6} alkyl,
 - R_2 is mono- or polyhydroxyalkyl,
 - R_3 is hydrogen or C_{1-6} alkyl,
 - R_4 is mono- or polyhydroxyalkyl,
 - R_5 is C_{1-6} alkyl or monohydroxy- C_{1-6} -alkyl or C_{1-3} -alkoxy- C_{1-3} -alkyl, and
 - R_6 is hydrogen or C_{1-6} alkyl or mono-.
9. A method of conducting a radiological examination of a patient which comprises administering to the patient a radiopaque amount of a compound of claim 1.

4,364,922

ADENOSINE ANTAGONISTS IN THE TREATMENT AND DIAGNOSIS OF A-V NODE CONDUCTION DISTURBANCES

Robert M. Berne; Luiz Belardinelli, and Rafael Rubio, all of Charlottesville, Va., assignors to University of Virginia Alumni Patents Foundation, Charlottesville, Va.

Filed October 14, 1980, Ser. No. 196,652

Int. Cl.³ A61K 49/00, 31/52, 31/46

U.S. Cl. 424—9

27 Claims

1. A method of treating atrioventricular conduction block, comprising the steps of:
 - administering to a human or animal with an atrioventricular conduction block an amount of an antagonist of adenosine sufficient to alleviate atrioventricular conduction block, wherein said antagonist competitively inhibits adenosine or reduces the level of adenosine present in myocardial tissue and associated fluids.
22. A method of diagnosing atrioventricular conduction block, comprising the steps of:
 - administering an antagonist of adenosine to a human or other animal, wherein said antagonist competitively inhibits adenosine or reduces the levels of adenosine present in myocardial tissue and associated fluids; and
 - monitoring the delay between atrial and ventricular contraction.

4,364,923

CHEMICAL COMPOUNDS

Peter B. Cook, Standon, and John H. Hunt, Theydon Bois, both of England, assignors to Allen & Hanburs Limited, London, England

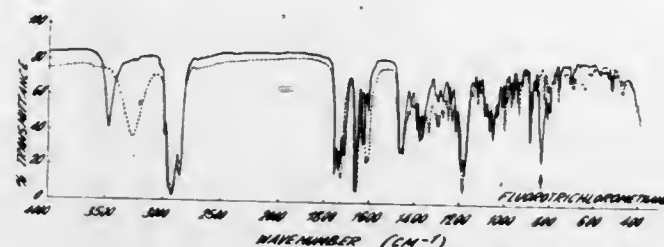
Division of Ser. No. 805,910, Jun. 13, 1977, which is a division of Ser. No. 703,821, Jul. 9, 1976, Pat. No. 4,044,126, which is a continuation of Ser. No. 352,187, Apr. 18, 1973, abandoned. This application April 30, 1981, Ser. No. 259,015

Claims priority, application United Kingdom, April 20, 1972, 18421/72

Int. Cl.³ A61K 31/56

U.S. Cl. 424—46

12 Claims



1. An aerosol formulation comprising an aerosol propellant containing suspended therein an anti-inflammatory steroid in the form of a crystalline solvate with a halogenated hydrocarbon or said crystalline solvate from which part or all of the halogenated hydrocarbon has been removed, wherein said halogenated hydrocarbon is a chloro or chlorofluoro hydrocarbon having 1 or 2 carbon atoms; said steroid being stabilized with respect to further growth in said aerosol propellant and the particle size of substantially all of said steroid material being such as to permit inhalation into the bronchial system when dispersed as an aerosol.

4,364,924

ALKALI METAL SALTS OF POLY(VINYLBENZOIC ACID) AS DENTAL PLAQUE BARRIER AGENTS

Robert J. Gander, Whitehouse; Carl J. Buck, Berkeley Heights, and Tibor Sipos, Lebanon, all of N.J., assignors to Johnson & Johnson Products, Inc., New Brunswick, N.J.

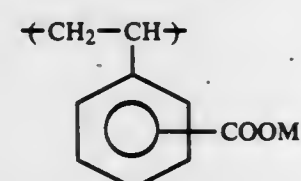
Filed July 25, 1980, Ser. No. 172,495

Int. Cl.³ A61K 7/16, 31/74, 31/19; C08F 30/04

U.S. Cl. 424—49

4 Claims

1. An oral hygiene composition comprising an effective amount for preventing deposition of dental plaque or teeth of an alkali metal salt of a homopolymer of vinylbenzoic acid having repeating units of structure (A),



(A)

wherein M is selected from the group consisting of lithium, sodium, and potassium, in a pharmaceutically acceptable oral hygiene vehicle compatible with said polymer.

4,364,925

UNITIZED ANIMAL FOOD SYSTEM PRODUCT

Stanton E. Fisher, c/o Items, Incorporated, 3960 Olive St., St. Louis, Mo. 63108

Continuation-in-part of Ser. No. 117,081, Feb. 19, 1971, abandoned, Ser. No. 221,035, Jan. 26, 1972, abandoned, Ser. No. 242,428, Apr. 10, 1972, abandoned, and Ser. No. 534,064, Dec. 18, 1974, Pat. No. 4,260,635. This application March 11, 1975, Ser. No. 557,248

Int. Cl.³ A23G 1/00; A23K 1/18; A61K 7/28

U.S. Cl. 424—50

5 Claims

1. A simultaneously compacted, shaped, molded and unit-

ized, self-contained, unit integral chew-resistant multilayer animal food system product containing (A) at least one chew-resistant layer with animal food as a part thereof and at least one lesser chew resistant layer with animal food as a part thereof, said latter layer being less chew-resistant than said former layer, the chew resistance of each of said layer being primarily controlled by the relative presence or absence of structure supporting fibers selected from the group consisting of (1) animal safely digestible structure-supporting fibers, said animal safely digestible structure-supporting fibers being derived from animal skins or hides in fibrous form, (2) animal safely indigestible structure-supporting fibers, and (3) a mixture of said animal safely digestible structure-supporting fibers and animal safely indigestible structure-supporting fibers, and, in one or both of said layers, (B) an enzyme selected from the group consisting of (1) an enzyme capable of removing plaque from the animal's teeth, (2) a mixture of enzymes capable of removing plaque from the animal's teeth, (3) an enzyme capable of removing tartar from the animal's teeth, (4) a mixture of enzymes capable of removing tartar from the animal's teeth and (5) any combination of two or more of (1), (2), (3) and (4), said structure supporting fibers being present in said animal food system product in said latter layer and in said former second layer or in said latter layer or in said former layer in amounts or in an amount sufficient to make said animal food system product chew-resistant, self-contained and unit integral and to enable it to be and remain in its compacted, shaped and molded form, and wherein each of the layers contains structure-supporting fibers which are animal safely digestible structure-supporting fibers derived from animal skins or hides.

4,364,926

NOVEL ALKALINE PROTEASE M₃ METHOD FOR THE PREPARATION THEREOF AND DENTAL CARIES-PROPHYLACTIC COMPOSITION CONTAINING THE SAME

Kanae Yokogawa, Nara; Takeshi Yamamoto, Takatsuki; Yoshiyuki Takase, Amagasaki; Hiromi Katae, Kawachinagano, and Shigeo Kawata, Kobe, all of Japan, assignors to Dainippon Pharmaceutical Co., Ltd., Osaka, Japan

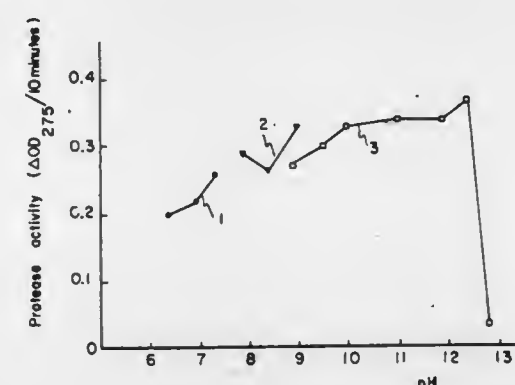
Filed 1981, Ser. No. 225,266

Claims priority, application Japan, 1980, 55-007557

Int. Cl.³ C12N 9/50, 9/52; A61K 7/28

U.S. Cl. 424—50

6 Claims



1. Alkaline protease M₃ which has the following chemical and physical properties:

- (1) Activities: It can hydrolyze casein and inhibits the activity of glucosyltransferase.
- (2) Optimum pH and pH stability: It has an optimum pH range of 9 to 12.5 (substrate: casein), and when it is kept in a buffer solution (pH 4-9) at 37° C. for 6 days, about 50% or more of the protease activity is remained.
- (3) Optimum temperature and heat stability: It has an optimum temperature of about 65° C. (substrate: casein), and even when an aqueous solution of this enzyme is heated at 55° C. for minutes, it is stable.

4,364,929

GERMICIDAL COLLOIDAL LUBRICATING GELS AND METHOD OF PRODUCING THE SAME

Ernest J. Sasnor, Yonkers, N.Y., and Kenneth G. Rothwell, Easton, Conn., assignors to The Purdue Frederick Company, New York, N.Y.

Continuation of Ser. No. 26,401, Apr. 2, 1979, abandoned, which is a continuation of Ser. No. 949,378, Oct. 6, 1978, abandoned.

This application April 30, 1980, Ser. No. 145,232

Int. Cl.³ A61K 31/79, 33/18, 31/74; H01B 1/06

U.S. Cl. 424—80

4 Claims

- (4) Conditions for inactivation: When an aqueous solution of this enzyme is heated at 60° C. for 10 minutes, about 50% of the protease activity is lost, and when the aqueous solution is heated at 65° for 10 minutes, 90% or more of the activity is lost
- (5) Effects of various additives: The protease activity of this enzyme is completely inhibited by 10⁻⁴M of N-bromosuccinimide, but is almost not inhibited by 10⁻³M of iodoacetic acid, diisopropyl fluorophosphate, ethylenediamine tetraacetate, and FeSO₄.
- (6) Isoelectric point: about pH 9.5
- (7) Molecular weight: about 1.7 × 10⁴.
5. A composition for prevention of dental caries comprising alkaline protease M₃ of claim 1 in admixture with conventional carrier of diluent.

4,364,927

SULFONATED NAPHTHALENE FORMALDEHYDE CONDENSATION POLYMERS AS DENTAL PLAQUE BARRIERS

Tibor Sipos, Lebanon, and Henry F. Motkowski, Jr., Hamilton Square, both of N.J., assignors to Johnson & Johnson Products, Inc., New Brunswick, N.J.

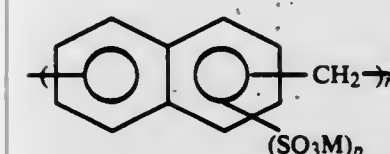
Filed July 25, 1980, Ser. No. 172,351

Int. Cl.³ A61K 7/16, 31/185, 31/765, 31/775

U.S. Cl. 424—56

8 Claims

1. An oral hygiene composition comprising an effective amount for preventing deposition of dental plaque on teeth of a sulfonated condensation polymer of formaldehyde with naphthalene, said polymer having repeating units of structure:



wherein M is selected from the group consisting of lithium, sodium, potassium, calcium, magnesium, zinc, aluminum, hydrogen, ammonium, and substituted ammonium ions derived from pharmaceutically acceptable organic amines, and p has an average value in the range of from about 0.4 to about 1.4, said polymer having a molecular weight in the range of from about 500 to about 5,000, in a pharmaceutically acceptable oral hygiene vehicle compatible with said polymer.

4,364,928

NOVEL SALTS OF ION EXCHANGE RESINS OF THE ACID TYPE

Jacques Martel, Bondy; Jean Tessier, Vincennes; Pierre Girault, Paris, and Jean A. Grandadam, Saint-Maur des Fosses, all of France, assignors to Roussel-Uclaf, Paris, France

Filed October 7, 1980, Ser. No. 194,907

Claims priority, application France, October 23, 1979, 79 26221; Japan, 1980, 55-9464

Int. Cl.³ B01J 39/20; A61K 31/74

U.S. Cl. 424—79

41 Claims

1. An ion exchange resin of the acid type at least partially sulfated with 7-bromo-6-chloro-febrifugin.

4,364,930

COSMETIC OR PHARMACEUTICAL COMPOSITIONS IN THE FORM OF STABLE OIL-IN-WATER EMULSIONS

Jacqueline Griat, Ablon; Arlette Zabotto, and Constantin Koulbanis, both of Paris, all of France, assignors to Societe Anonyme dite: L'OREAL, Paris, France

Filed March 18, 1981, Ser. No. 245,207

Claims priority, application France, March 24, 1980, 80 06468

Int. Cl.³ A61K 31/78, 35/12, 7/42, 7/021

U.S. Cl. 424—81

7 Claims

1. An oil-in-water emulsion comprising 15 to 60 percent by weight of an oil phase, 40 to 85 percent by weight of an aqueous phase and an effective amount of an emulsifying agent, said emulsifying agent comprising

- (i) a mixture of (1) an alkyl carboxylate of α-methyl glucoside, wherein the alkyl carboxylate moiety is selected from the group consisting of mono-laurate, di-laurate, mono-palmitate, di-palmitate, mono-stearate and di-stearate, or a mixture of said alkyl carboxylates of α-methyl glucoside and (2) an alkyl carboxylate of α-methyl glucoside polyoxyethylenated with 10-30 moles of ethylene oxide wherein the alkyl carboxylate moiety is selected from the group consisting of mono-laurate, di-laurate, mono-palmitate, di-palmitate, mono-stearate and di-stearate, or a mixture of said polyoxyethylenated alkyl carboxylates of α-methyl glucoside, the weight ratio of (1) to (2) ranging from 40-60:60-40, said mixture of (1) and (2) being present in an amount of about 3 to 15 percent by weight based on the total weight of said emulsion,
- (ii) vegetable lecithin or egg lecithin, present in an amount of about 0.03 to 1.2 percent by weight based on the total weight of said emulsion,
- (iii) egg yolk oil present in an amount of about 0.3 to 4 percent by weight based on the total weight of said emulsion, and
- (iv) a water-soluble acrylic acid polymer present in an amount of about 0.1 to 0.5 percent by weight based on the total weight of said emulsion.

4,364,931

COMPOSITE INSECT ATTRACTANT FOR MALE WHITE-LINE DART MOTHS AND A PROCESS FOR PREPARING THE ACTIVE INGREDIENTS THEREOF
Csaba Szantay; Lajos Novak; Miklós Tóth, all of Budapest, József Jakab, Gyöngyös; Attila Kis-Tamás, Budapest; István Ujvári, Budapest; Ferenc Jurák, Budapest, all of Hungary, assignors to Egypt Gyógyszeripari Gyar, Budapest, Hungary

Filed December 24, 1980, Ser. No. 220,113

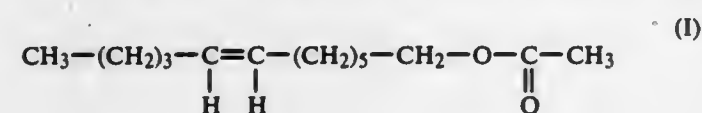
Claims priority, application Hungary, December 29, 1979, EE-2721

Int. Cl.³ A01N 17/14

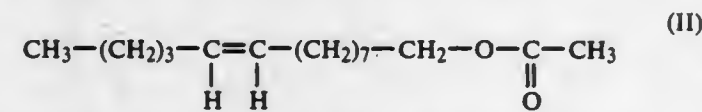
U.S. Cl. 424—84

6 Claims

1. A composite insect attractant for male white-line dart moths, containing 7(Z)-dodecen-1-ol acetate of the formula I



and 9(Z)-tetradecen-1-ol acetate of the formula II



in a weight ratio of 50 to 99:50 to 1 as active ingredients.

4. A process for disrupting the mating of white-line dart moths, which comprises emitting into the atmosphere a combination of 7(Z)-dodecen-1-ol acetate and 9(Z)-tetradecen-1-ol acetate in a weight ratio of 50 to 99:50 to 1 with a speed of 5.0–30 mg/hectare/hour.

4,364,932

MONOCLONAL ANTIBODY TO HUMAN CYTOTOXIC AND SUPPRESSOR T CELLS AND METHODS OF PREPARING SAME

Patrick C. Kung, Bridgewater, and Gideon Goldstein, Short Hills, both of N.J., assignors to Ortho Pharmaceutical Corporation, Raritan, N.J.

Continuation-in-part of Ser. No. 76,642, Sep. 18, 1979, abandoned. This application October 9, 1979, Ser. No. 82,515
Int. Cl.³ A61K 39/395; C12N 5/00, 5/02, 15/00; C12Q 1/00; G01N 33/48, 33/68, 33/96

U.S. Cl. 424—85

11 Claims

1. A monoclonal antibody of class IgG produced by a hybridoma formed by fusion of cells from a mouse myeloma line and spleen cells from a mouse previously immunized with human thymocytes, which antibody:

- (a) reacts with greater than 90% of cytotoxic and suppressor TH_2^+ T cells (being about 20–30% of all normal human peripheral T cells), but not with normal human peripheral B cells, Null cells or macrophages;
- (b) reacts with about 80% of normal human thymocytes;
- (c) does not react with TH_2^- T cells or T cells which also react with antibody produced by hybrid cell line ATCC CRL 8002, but reacts with about 68% of T cells which do not react with antibody produced by hybrid cell line ATCC CRL 8002;
- (d) defines a T cell population which is strongly cytotoxic and which is lower than normal levels in primary biliary cirrhosis, multiple sclerosis, and hyper IgE, normal levels in all stages of Hodgkins disease, and higher than normal levels in Type I acquired agammaglobulinemia and acute infectious mononucleosis.

5. Mouse monoclonal antibody which reacts with greater than 90% of cytotoxic and suppressor TH_2^+ human T cells but not with normal human peripheral B cells, null cells, or macrophages.

6. A monoclonal antibody which reacts with greater than 90% of cytotoxic and suppressor TH_2^+ human T cells but not

with normal human peripheral B cells, null cells, or macrophages prepared by the method, which comprises the steps of:

- (i) immunizing mice with normal human thymocytes;
- (ii) removing the spleens from said mice and making a suspension of the spleen cells;
- (iii) fusing said spleen cells with mouse myeloma cells in the presence of a fusion promoter;
- (iv) diluting and culturing the fused cells in separate wells in a medium which will not support the unfused myeloma cells;
- (v) evaluating the supernatant in each well containing a hybridoma for the presence of antibody to E rosette positive purified T cells;
- (vi) selecting and cloning a hybridoma producing antibody which reacts with greater than 90% of cytotoxic and suppressor TH_2^+ human T cells but not with normal human peripheral B cells; null cells, or macrophages; and
- (vii) recovering the antibody from the supernatant above said clones.

4,364,933

MONOCLONAL ANTIBODY TO A HUMAN THYMOCYTE ANTIGEN AND METHODS OF PREPARING SAME

Patrick C. Kung, Bridgewater, and Gideon Goldstein, Short Hills, both of N.J., assignors to Ortho Pharmaceutical Corporation, Raritan, N.J.

Filed December 4, 1979, Ser. No. 99,970

Int. Cl.³ A61K 39/395; C12N 5/00, 5/02, 15/00; C12Q 1/00; G01N 33/48, 33/68, 33/96

U.S. Cl. 424—85

11 Claims

1. A monoclonal antibody of class IgG produced by a hybridoma formed by fusion of cells from a mouse myeloma line and spleen cells from a mouse previously immunized with human thymocytes, which antibody:

- (a) reacts with approximately 70 percent of normal human thymocytes, but not with normal human peripheral T cells, B cells, Null cells, or bone marrow cells;
- (b) reacts with about 65 percent of untreated thymocytes, 10 percent of thymocytes previously treated with monoclonal antibody produced by hybrid cell line ATCC CRL 8002 and complement, 82 percent of thymocytes previously treated with monoclonal antibody produced by hybrid cell line ATCC CRL 8001 and complement, and 13 percent of the thymocytes previously treated with monoclonal antibody produced by hybrid cell line ATCC CRL 8014 and complement;
- (c) reacts with stage II T-cell ALL but not with stage I or stage III T-cell ALL;
- (d) reacts with CEM and MOLT-4 cell lines but not with HSB-2 cell line; and
- (e) defines a T cell population which is lower than normal levels in primary biliary cirrhosis, multiple sclerosis, and hyper IgE, higher than normal levels in acute graft versus host reaction, and completely absent in myasthenia gravis, acute infectious mononucleosis, all stages of Hodgkins disease, and psoriasis.

5. Mouse monoclonal antibody which reacts with approximately 70% of normal human thymocytes but not with normal human peripheral T cells, B cells, null cells, or bone marrow cells.

6. A monoclonal antibody which reacts with approximately 70% of normal human thymocytes but not with normal human peripheral T cells, B cells, null cells, or bone marrow cells, prepared by the method which comprises the steps of:

- (i) immunizing mice with normal human thymocytes;
- (ii) removing the spleens from said mice and making a suspension of the spleen cells;
- (iii) fusing said spleen cells with mouse myeloma cells in the presence of a fusion promoter;
- (iv) diluting and culturing the fused cells in separate wells in a medium which will not support the unfused myeloma cells;

4,364,935

MONOCLONAL ANTIBODY TO A HUMAN PROTHYMOCYTE ANTIGEN AND METHODS OF PREPARING SAME

Patrick C. Kung, Bridgewater, and Gideon Goldstein, Short Hills, both of N.J., assignors to Ortho Pharmaceutical Corporation, Raritan, N.J.

Filed December 4, 1979, Ser. No. 100,072

Int. Cl.³ A61K 39/395; C12N 5/00, 5/02, 15/00; C12Q 1/00; G01N 33/48, 33/68, 33/96

U.S. Cl. 424—85

11 Claims

1. A monoclonal antibody of class IgG produced by a hybridoma formed by fusion of cells from mouse myeloma line and spleen cells from a mouse previously immunized with human leukemic T-ALL cells, which antibody:

- (a) reacts with approximately 95 percent of normal human thymocytes, 5 percent of normal human peripheral T cells, 10 percent of E⁺ peripheral mononuclear cells (B cells and null cells), and 10–20 percent of bone marrow cells;
- (b) reacts with 92 percent of untreated thymocytes, 75 percent of thymocytes previously treated with monoclonal antibody produced by hybrid cell line ATCC CRL 8002 and complement, 86 percent of thymocytes previously treated with monoclonal antibody produced by hybrid cell line ATCC CRL 8001 and complement, and 85 percent of the thymocytes previously treated with monoclonal antibody produced by hybrid cell line ATCC CRL 8014 and complement;
- (c) is reactive with an antigen on leukemic T-ALL cells; and
- (d) reacts with HSB-2, CEM and MOLT-4 cell lines.

5. Mouse monoclonal antibody which reacts with approximately 95% of normal human thymocytes, 5% of normal human peripheral T cells, 10% of E⁺ peripheral mononuclear cells (B cells and null cells) and 10–20% of bone marrow cells.

6. A monoclonal antibody which reacts with approximately 95% of normal human thymocytes, 5% of normal human peripheral T cells, 10% of E⁺ peripheral mononuclear cells (B cells and null cells) and 10–20% of bone marrow cells, prepared by the method which comprises the steps of:

- (i) immunizing mice with human leukemic T-ALL cells;
- (ii) removing the spleens from said mice and making a suspension of the spleen cells;
- (iii) fusing said spleen cells with mouse myeloma cells in the presence of a fusion promoter;
- (iv) diluting and culturing the fused cells in separate wells in a medium which will not support the unfused myeloma cells;
- (v) evaluating the supernatant in each well containing a hybridoma for the presence of antibody to E rosette positive purified T cells or human thymocytes;
- (vi) selecting and cloning a hybridoma producing antibody which reacts with approximately 95% of normal human thymocytes, 5% of normal human peripheral T cells, 10% of E⁺ peripheral mononuclear cells (B cells and null cells) and 10–20% of bone marrow cells; and
- (vii) recovering the antibody from the supernatant above said clones.

4,364,936

MONOCLONAL ANTIBODY TO A HUMAN MONOCYTE ANTIGEN AND METHODS OF PREPARING SAME
Patrick C. Kung, Bridgewater, and Gideon Goldstein, Short Hills, both of N.J., assignors to Ortho Pharmaceutical Corporation, Raritan, N.J.

Filed 1980, Ser. No. 110,509

Int. Cl.³ A61K 39/395; C12N 5/00, 5/02, 15/00; C12Q 1/00; G01N 33/48, 33/68, 33/96

U.S. Cl. 424—85

11 Claims

1. A monoclonal antibody of class IgG produced by a hybridoma formed by fusion of cells from a mouse myeloma line and spleen cells from a mouse previously immunized with human mononuclear cells, which antibody:

- (a) reacts with an antigen found on normal human monocytes and granulocytes, but not with normal human pe-

- (v) evaluating the supernatant in each well containing a hybridoma for the presence of antibody to E rosette positive purified T cells or human thymocytes;
- (vi) selecting and cloning a hybridoma producing antibody which reacts with approximately 70% of normal human thymocytes but not with normal human peripheral T cells, B cells, null cells, or bone marrow cells; and
- (vii) recovering the antibody from the supernatant above said clones.

4,364,934

MONOCLONAL ANTIBODY TO A HUMAN EARLY THYMOCYTE ANTIGEN AND METHODS FOR PREPARING SAME

Patrick C. Kung, Bridgewater, and Gideon Goldstein, Short Hills, both of N.J., assignors to Ortho Pharmaceutical Corporation, Raritan, N.J.

Filed December 4, 1979, Ser. No. 100,071

Int. Cl.³ A61K 39/395; C12N 5/00, 5/02, 15/00; C12Q 1/00; G01N 33/48, 33/68, 33/96

U.S. Cl. 424—85

11 Claims

1. A monoclonal antibody of class IgG produced by a hybridoma formed by fusion of cells from mouse myeloma line and spleen cells from a mouse previously immunized with human leukemic T-ALL cells, which antibody:

- (a) reacts with approximately 10 percent of normal human thymocytes, but not with normal human peripheral T cells, B cells, Null cells, or bone marrow cells;
 - (b) reacts with 8 percent of untreated thymocytes, 6 percent of thymocytes previously treated with monoclonal antibody produced by hybrid cell line ATCC CRL 8002 and complement, 12 percent of thymocytes previously treated with monoclonal antibody produced by hybrid cell line ATCC CRL 8001 and complement, and 5 percent of the thymocytes previously treated with monoclonal antibody produced by hybrid cell line ATCC CRL 8014 and complement;
 - (c) reacts with Early Thymocyte (Thy 2) Stage I and Common Thymocyte (Thy 3) Stage II T cell ALL Stages but not with Prothymocyte (Thy 1) Stage I, Common Thymocyte (Thy 4, Thy 3–4, or Thy 4–6) Stage II or Late Thymocyte (Thy 8) Stage III T cell ALL Stages;
 - (d) reacts with HSB-2, CEM and MOLT-4 cell lines; and
 - (e) defines a T cell antigen which appears on 30–50 percent of peripheral T cells after mitogen stimulation.
5. Mouse monoclonal antibody which reacts with approximately 10% of normal human thymocytes but not with normal human peripheral T cells, B cells, null cells, or bone marrow cells.

6. A monoclonal antibody which reacts with approximately 10% of normal human thymocytes but not with normal human peripheral T cells, B cells, null cells, or bone marrow cells, prepared by the method which comprises the steps of:

- (i) immunizing mice with human leukemic T-ALL cells;
- (ii) removing the spleens from said mice and making a suspension of the spleen cells;
- (iii) fusing said spleen cells with mouse myeloma cells in the presence of a fusion promoter;
- (iv) diluting and culturing the fused cells in separate wells in a medium which will not support the unfused myeloma cells;
- (v) evaluating the supernatant in each well containing a hybridoma for the presence of antibody to E rosette positive purified T cells or human thymocytes;
- (vi) selecting and cloning a hybridoma producing antibody which reacts with approximately 10% of normal human thymocytes but not with normal human peripheral T cells, B cells, null cells, or bone marrow cells; and
- (vii) recovering the antibody from the supernatant above said clones.

- peripheral T cells, B cells, Null cells, thymocytes, lymphoblastoid cell lines, or tumor cells of T or B cell lineage;
- (b) reacts with about 27% of unfractionated, about 18% of nonadherent, and about 78% of adherent human peripheral blood mononuclear cells;
- (c) reacts with about 13.5% of E rosette positive and about 57.5% of E rosette negative human peripheral lymphocytes;
- (d) reacts with about 84% of normal human Ig⁺, E⁺, non-adherent null cells;
- (e) reacts with leukemia cells from patients with acute myelomonocytic leukemia;
- (f) defines a monocyte population necessary for a proliferative response to soluble antigens;
- (g) defines a monocyte population which is lower than normal levels in primary biliary cirrhosis, acute infectious mononucleosis, and graft versus host reaction, higher than normal levels in multiple sclerosis, myasthenia gravis, and abnormal Hodgkins disease, and normal levels in hyper IgE, early Hodgkins disease, and psoriasis.
5. Mouse monoclonal antibody which reacts with an antigen found on normal human monocytes and granulocytes, but not with normal human peripheral T cells, B cells, Null cells, thymocytes, lymphoblastoid cell lines, or tumor cells of T or B cell lineage.

6. A monoclonal antibody which reacts with an antigen found on normal human monocytes and granulocytes, but not with normal human peripheral T cells, B cells, Null cells, thymocytes, lymphoblastoid cell lines, or tumor cells of T or B cell lineage prepared by the method, which comprises the steps of:

- immunizing mice with human mononuclear cells;
- removing the spleens from said mice and making a suspension of the spleen cells;
- fusing said spleen cells with mouse myeloma cells in the presence of a fusion promoter;
- diluting and culturing the fused cells in separate wells in a medium which will not support the unfused myeloma cells;
- evaluating the supernatant in each well containing a hybridoma for the presence of antibody to E⁺ and E⁻ human peripheral blood lymphocytes;
- selecting and cloning a hybridoma producing antibody which reacts with an antigen found on normal human monocytes and granulocytes, but not with normal human peripheral T cells, B cells, Null cells, thymocytes, lymphoblastoid cell lines, or tumor cells of T or B cell lineage; and
- recovering the antibody from the supernatant above said clones.

4,364,937

MONOCLONAL ANTIBODY TO A HUMAN T CELL ANTIGEN AND METHODS OF PREPARING SAME
Patrick C. Kung, Bridgewater, and Gideon Goldstein, Short Hills, both of N.J., assignors to Ortho Pharmaceutical Corporation, Raritan, N.J.

Filed 1980, Ser. No. 110,510

Int. Cl.³ A61K 39/395; C12N 5/00, 5/02, 15/00; C12Q 1/00; G01N 33/48, 33/68, 33/96

U.S. Cl. 424—85

11 Claims

1. A monoclonal antibody of class IgG produced by a hybridoma formed by fusion of cells from a mouse myeloma line and spleen cells from a mouse previously immunized with leukemic cells from a human with T-ALL, which antibody:

- reacts with essentially all normal human peripheral T cells and with approximately 95% of normal human thymocytes, but not with normal human B cells or Null cells;
- reacts with early, common, and mature human thymocytes and with inducer and cytotoxic/suppressor human T cells, but not with human prothymocytes;
- defines a T cell population which is lower than normal levels in myasthenia gravis and multiple sclerosis; higher than normal levels in acute graft versus host reaction,

hyper IgE, acute infectious mononucleosis, and primary biliary cirrhosis; and completely absent in all stages of Hodgkins disease and psoriasis.

5. Mouse monoclonal antibody which reacts with essentially all normal human peripheral T cells and with approximately 95% of normal human thymocytes, but not with normal human B cells or Null cells.

6. A monoclonal antibody which reacts with essentially all normal human peripheral T cells and with approximately 95% of normal human thymocytes but not with normal human B cells or Null cells prepared by the method, which comprises the steps of:

- immunizing mice with human leukemic T-ALL cells;
- removing the spleens from said mice and making a suspension of the spleen cells;
- fusing said spleen cells with mouse myeloma cells in the presence of a fusion promoter;
- diluting and culturing the fused cells in separate wells in a medium which will not support the unfused myeloma cells;
- evaluating the supernatant in each well containing a hybridoma for the presence of antibody to E rosette positive purified T cells or human thymocytes;
- selecting and cloning a hybridoma producing antibody which reacts with essentially all normal human peripheral T cells and with approximately 95% of normal human thymocytes, but not with normal human B cells or Null cells; and
- recovering the antibody from the supernatant above said clones.

4,364,938

PRODUCTION OF IMMUNOGENIC PRODUCTS AND TREATMENT OF ALLERGIC REACTIONS THEREWITH
Gijsberk T. Hoek, Parklaan 81, Haarlem, Netherlands (2001HB)

Filed 1981, Ser. No. 234,303

Int. Cl.³ A61K 39/35, 39/36

U.S. Cl. 424—88

7 Claims

1. A method of preparing an immunogenic product useful in the therapeutic treatment of patients suffering from allergic conditions, and which product possesses reduced allergenic properties, which comprises extracting an allergenic product by treatment thereof with a suitable solvent selected from the group consisting of water, alcohol, glycerol, dimethyl sulfoxide and phenol, in which the allergens to be extracted are soluble, until most of the soluble allergens contained in said allergenic product are extracted therefrom, discarding the solute thus obtained, and recovering the extracted residue thereof which contains no more than 1:100 w/w of its original allergen content, to yield the desired immunogenic product.

6. A method of preparing an immunogenic product useful in the therapeutic treatment of patients suffering from allergic conditions, and which product possess reduced allergenic properties, which comprises extracting an allergenic product by treatment thereof with a suitable solvent until most of the soluble antigens contained therein are extracted therefrom, discarding the solute thus obtained, recovering the extracted residue thereof which contains no more than 1:100 w/w of its original allergen content, and further treating said extracted residue with β -propiolactone, the weight ratio of β -propiolactone to said residue being between 1:1 and 1:100, and removing all said β -propiolactone to yield the desired final product.

4,364,939

DERIVATIVES OF COENZYME B₁₂
Denise Autissier, Paris, and Pierre Barthelemy, Barbary, both of France, assignors to Roussel Uclaf, Paris, France
Continuation-in-part of Ser. No. 38,774, May 14, 1979, abandoned, which is a continuation of Ser. No. 852,036, Nov. 16, 1977, abandoned. This application September 15, 1980, Ser. No. 186,831

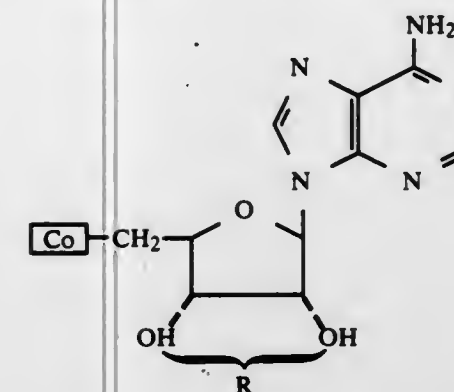
Claims priority, application France, November 25, 1976, 76 35533

Int. Cl.³ A61K 31/52; C07H 19/18

U.S. Cl. 424—180

14 Claims

1. A compound of the formula:



wherein R is acyl of an aliphatic carboxylic acid of 4 to 20 carbon atoms and Co is α -(5,6-dimethyl-benzimidazolyl)-cobamide.

4,364,940

COMPOSITIONS FOR TREATING ACNE
Edward S. Neiss, New Canaan, Conn., and Bernard Loev, Scarsdale, N.Y., assignors to USV Pharmaceutical Corporation, Tarrytown, N.Y.

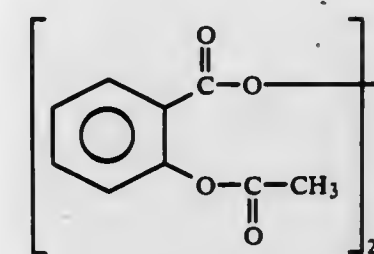
Filed 1981, Ser. No. 237,234

Int. Cl.³ A61K 31/60

U.S. Cl. 424—230

2 Claims

1. A composition for the topical treatment of acne in the form of a lotion or cream containing from about 1 to 10% by weight of a compound of the formula



4,364,941

METHOD FOR REGULATING BONE METABOLISM OF WARM-BLOODED ANIMALS, AND PHARMACEUTICAL COMPOSITIONS THEREOF

Mamoru Kiyoki, Ohme; Hiroyoshi Endo, Kanagawa; Tatsuyuki Naruchi, Hino, and Yoshinobu Hashimoto, Fujisawa, all of Japan, assignors to Teijin Limited, Osaka and Teijin Pharmaceutical Co., Ltd., Tokyo, both of Japan

Continuation of Ser. No. 137,755, Apr. 7, 1980, abandoned. This application August 31, 1981, Ser. No. 297,975

Claims priority, application Japan, April 10, 1979, 54-42447

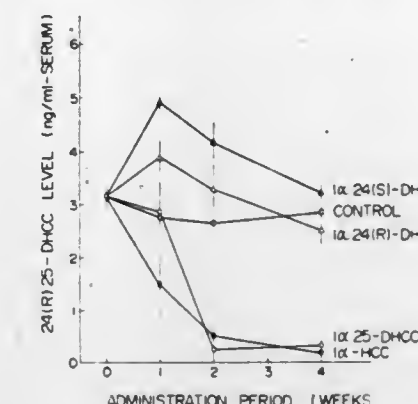
Int. Cl.³ A61K 31/59

U.S. Cl. 424—236

13 Claims

1. A method for regulating the bone metabolism of a warm-blooded animal, which comprises administering pharmaceutically effective amounts of 1 α ,24-dihydroxycholecalciferol and

24,25-dihydroxycholecalciferol to the warm-blooded animal, said amount being sufficient to bring abnormal bone metabo-



lism to a normal bone metabolism or to maintain normal bone metabolism.

4,364,942

2,3-DIHYDRO-IMIDAZO (2,1-B)BENZOTHIAZOLES COMPOSITIONS USEFUL AS ANTI-PARKINSONISM AGENTS

Victor Sipido, Merksem, Belgium, assignor to Janssen Pharmaceutica N.V., Beerse, Belgium

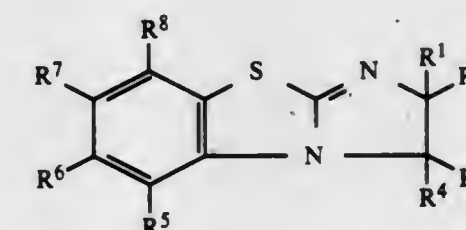
Division of Ser. No. 50,734, Jun. 21, 1979, Pat. No. 4,262,004. This application March 30, 1981, Ser. No. 248,757

Int. Cl.³ A61K 31/425; C07D 277/60

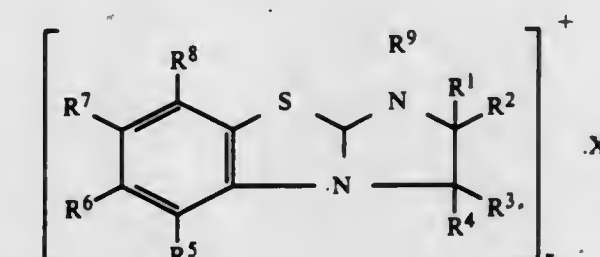
U.S. Cl. 424—245

3 Claims

1. A composition to treat Parkinsonism, comprising an inert carrier and, as an active ingredient, an amount, which is effective to treat Parkinsonism, of a compound selected from the group consisting of a 2,3-dihydroimidazo[2,1-b]benzothiazole which may structurally be represented by the formula



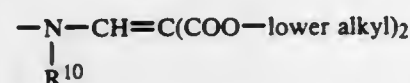
and the pharmaceutically acceptable acid addition salts thereof, the pharmaceutically acceptable imidazo[2,1-b]benzothiazolium salts of formula



and metal salt complexes thereof with a transition metal salt, wherein:

R¹ and R³ are each independently selected from the group consisting of hydrogen and lower alkyl;
R² and R⁴ are each independently selected from the group consisting of hydrogen, lower alkyl, aryl, aryl-lower alkyl, lower alkyloxy-lower alkyl or aryloxy-lower alkyl;
R⁵, R⁶, R⁷ and R⁸ are each independently selected from the group consisting of hydrogen; halo; nitro; alkyl having from 1 to 20 carbon atoms; cycloalkyl having from 3 to 6 carbon atoms; hydroxy; lower alkyloxy; aryloxy; α -hydroxy-arylmethyl; amino; mono- and dialkyl-amino; mono-, di- and trihalo-lower alkylamino; lower alkynylamino; lower alkynylamino; (aryl-lower alkyl)amino;

(lower alkoxy-lower alkyl)amino; (hydroxy-lower alkyl)amino; (aryloxy-lower alkyl)amino; [mono- and di-(lower alkyl)amino-lower alkyl]amino; lower alkanoylamino; N-(lower alkyl)lower alkanoylamino; aminocarbonylamino; (1-lower alkyl-4-piperidinyl)amino; cycloalkylamino wherein said cycloalkyl represents a mino-, bi-, tri- or tetracyclic hydrocarbon radical having from 3 to 10 carbon atoms; and a radical of the formula



wherein R¹⁰ is selected from the group consisting of hydrogen, lower alkyl, lower alkenyl and lower alkynyl; or, when taken together R⁵ and R⁶, R⁶ and R⁷, or R⁷ and R⁸ may form a tri- or tetramethylene bridge or complete a fused benzene nucleus;

R⁹ is a member selected from the group consisting of lower alkyl, lower alkenyl, lower alkynyl and aryllower alkyl; and

X is a pharmaceutically acceptable anion and n represents the valency of the anion;

wherein aryl as used in the foregoing definitions is phenyl, optionally substituted with 1 to 3 substituents each independently selected from the group consisting of halo, lower alkyl, lower alkoxy and trifluoromethyl; and aryl is arylcarbonyl.

4,364,943

SYN-ISOMER OF

7-[2-ALKOXYIMINO-2-(2-AMINO-ALKANOYLAMINO-OR HALOALKANOYLAMINO-THIAZOL-4-YL) ACETAMIDS]-3-[HEXANOYL-, OR PHENYLALKANOYL-OXYMETHYL OR BENZOTHAZOLYLTHIOMETHYL]-3-CEPHEM-4-CARBOXYLIC ACID

Takao Takaya, Kawanishi; Takashi Masugi, Kitamachi; Hisashi Takasugi, Kohamanishi, and Hiromu Kochi, Sakai, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

Division of Ser. No. 887,999, Mar. 20, 1978, Pat. No. 4,279,818, which is a continuation-in-part of Ser. No. 767,700, Feb. 11, 1977, Pat. No. 4,166,115. This application March 3, 1981, Ser. No. 240,221

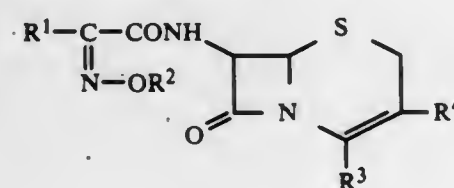
Claims priority, application Japan, October 19, 1976, 51-125826; United Kingdom, April 12, 1976, 14916/76; June 7, 1976, 23490/76

Int. Cl.³ A61K 31/545; C07D 501/34

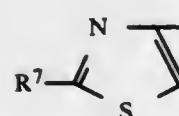
U.S. Cl. 424-246

8 Claims

1. Syn-isomer of 3,7-disubstituted-3-cephem-4-carboxylic acid compounds of the formula:



in which



wherein R⁷ is amino, lower alkanoylamino or halo(lower)alkanoylamino; R² is lower alkyl; R³ is carboxy; and

R⁴ is hexanoyloxymethyl, phenyl(lower)alkanoyloxymethyl, or benzothiazolylthiomethyl; and pharmaceutically acceptable salts thereof.

8. An antibacterial composition comprising an effective amount of a compound of claim 1 in association with a pharmaceutically acceptable, non-toxic carrier or excipient.

4,364,944

CEPHALOSPORINS

Berna Wetzel; Eberhard Weitun, both of Biberach; Wolfgang Reuter, Laupertshausen; Roland Maier, Biberach; Uwe Lechner, Ummendorf, and Hanns Goeth, Biberach, all of Fed. Rep. of Germany, assignors to Dr. Karl Thomae Gesellschaft mit beschränkter Haftung, Biberach, Fed. Rep. of Germany

Filed November 20, 1981, Ser. No. 323,382

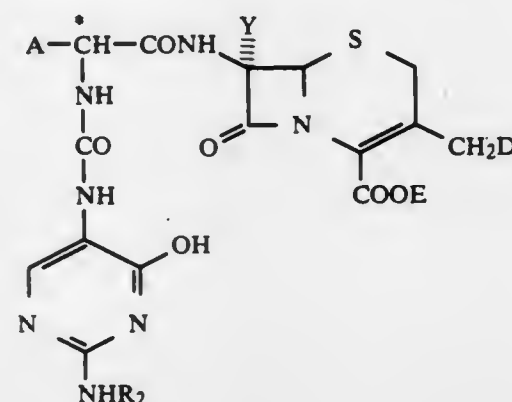
Claims priority, application Fed. Rep. of Germany, December 2, 1980, 3045330; December 2, 1980, 3045331

Int. Cl.³ A61K 31/545; C07D 501/56

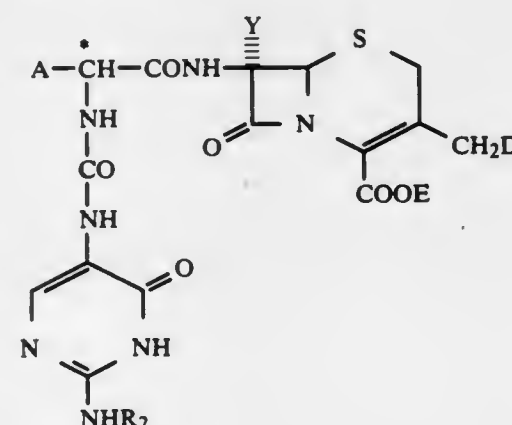
U.S. Cl. 424-246

10 Claims

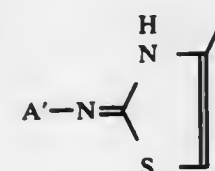
1. A compound of the formula



or



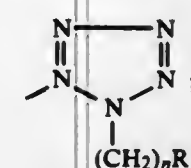
wherein
Y is hydrogen or methoxy;
A is



or, when Y is methoxy, also phenyl, 4-hydroxy-phenyl, 2-thienyl, 3-thienyl or 3,4-dihydroxy-phenyl;

A' is hydrogen, $\text{---COCH}_2\text{Cl}$, $\text{---COCH}_2\text{Br}$, $\text{---COOCH}_2\text{CCl}_3$, formyl or trityl;

D is hydrogen, acetoxy, aminocarbonyloxy, pyridinium, 4-aminocarbonyl-pyridinium or -S-Het, where Het is 3-methyl-1,2,4-thiadiazol-5-yl, 1,2,4-thiadiazol-5-yl, 1,3,4-thiadiazol-5-yl, 2-methyl-1,3,4-thiadiazol-5-yl, 4H-5,6-dioxo-1,2,4-triazin-3-yl, 4-methyl-5,6-dioxo-1,2,4-triazin-3-yl, 1-vinyl-tetrazol-5-yl, 1-allyl-tetrazol-5-yl or



n is 1, 2 or 3;

R₁ is hydroxyl, amino, dimethylamino, acetylamino, aminocarbonyl, aminocarbonylamino, aminosulfonyl, aminosulfonylamino, methylcarbonyl, methylsulfonylamino, cyano, hydroxysulfonylamino, methylsulfonyl, methylsulfinyl, a carboxylic acid group or a sulfonic acid group; or $\text{---(CH}_2\text{)}_n\text{R}_1$ is alkyl of 1 to 4 carbon atoms or 2,3-dihydroxypropyl;

R₂ is an unsubstituted or monosubstituted radical selected from the group consisting of 3-pyridyl, 5-pyrimidinyl, 2-thienyl, 2-furyl-methyl, 2-thienyl-methyl, 2-imidazolyl-methyl, 2-thiazolyl-methyl, 3-pyridyl-methyl or 5-pyrimidinyl-methyl, where the substituent is chlorine, methyl, acetylamino, hydroxyl, methylsulfinyl, methylsulfonyl, aminocarbonyl or aminosulfonyl; and

E is hydrogen or a carboxyl-protective group which is easily removable in vitro or in vivo,

or, when E is hydrogen, a non-toxic, pharmacologically acceptable salt thereof formed with an inorganic or organic base.

9. An antibiotic pharmaceutical composition consisting essentially of an inert pharmaceutical carrier and an effective antibiotic amount of a compound of claim 1.

4,364,945

NASAL COMPOSITION FOR RELIEVING NASAL DISTRESS

Barry J. Whittle, 8770 Sand Point Way NE., Seattle, Wash. 98115

Continuation of Ser. No. 103,208, Dec. 13, 1979, Pat. No. 4,269,835. This application April 20, 1981, Ser. No. 255,360

The portion of the term of this patent subsequent to May 26, 1998, has been disclaimed.

Int. Cl.³ A61K 31/54, 31/355

U.S. Cl. 424-247

1 Claim

1. A composition for topical application to the nasal passages which does not employ a vasoconstrictor compound as a decongestant, consisting essentially of a buffered, isotonic aqueous solution containing an effective amount of antihistamine and a saturated amount of one or more of the natural or synthetic isomers of tocopherol or the esters of one of the isomers of tocopherol.

4,364,946

METHOD OF TREATING INSUFFICIENCIES IN HEMATOSIS WITH ALMITRINE

Etienne Labeyrie; Jean-Pierre Poirier, both of Paris, and Francoise Arnaud, La Garenne Colombes, all of France, assignors to Science Union et Cie, Suresnes, France

Filed August 18, 1981, Ser. No. 294,014

Claims priority, application France, August 18, 1980, 80 18074

Int. Cl.³ A61K 31/53

U.S. Cl. 424-249

7 Claims

1. A method of treating insufficiencies in hematosi in a patient suffering from such insufficiency comprising the step of administering to the said patient the compound almitrine or a pharmaceutically-acceptable salt thereof in an amount effective for such purpose by the oral or intravenous route, the said amount administered being 0.5 to 3 mg/kg/day by the oral route or 0.05 to 0.3 mg/kg/day by the intravenous route.

4,364,947

VINCAMINE DERIVATIVES USEFUL AS CEREBRAL METABOLIC AND CIRCULATORY REGULATORS

Yoshio Toyomaki, Nara, Japan, assignor to Nippon Zoki Pharmaceutical Co., Ltd., Osaka, Japan

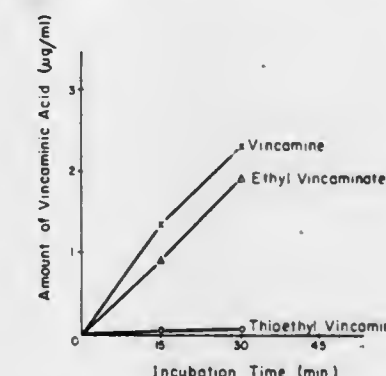
Filed May 8, 1981, Ser. No. 261,977

Claims priority, application Japan, May 16, 1980, 55-65774

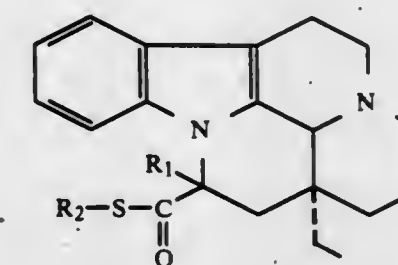
Int. Cl.³ A61K 31/435; C07D 461/00

U.S. Cl. 424-256

9 Claims

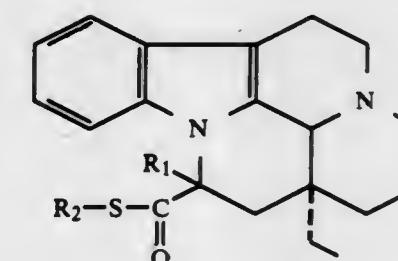


1. Compounds having the general formula (I):



wherein R₁ is hydrogen or a hydroxyl group and R₂ is an alkyl group having 1 to 4 carbon atoms, and salts thereof.

9. A method for treating cerebral blood flow disorders which comprises administering to a host a therapeutically effective dose of a compound having the general formula (I):



wherein R₁ is hydrogen or a hydroxyl group and R₂ is an alkyl group having 1 to 4 carbon atoms, or a pharmacologically acceptable salt thereof.

4,364,948

PYRAZOLO[3,4-b]PYRIDINE COMPOUNDS

Anthony F. Heald, Glen Mills, Pa., and Richard A. Wildonger, Elmwood, Del., assignors to ICI Americas Inc., Wilmington, Del.

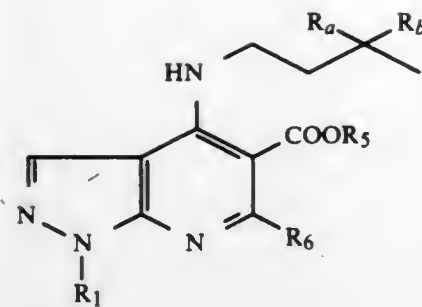
Filed September 28, 1981, Ser. No. 306,481

Int. Cl.³ A61K 31/44; C07D 471/04

U.S. Cl. 424-256

11 Claims

1. A pyrazolopyridine compound of the following formula (I)



wherein

R₁ is lower alkyl;

R₂ is hydrogen and R₃ is hydroxy or R₂ and R₃ combine to form a =O group;

R₅ is hydrogen or lower alkyl; and

R₆ is lower alkyl,

and the pharmaceutically-acceptable salts thereof.

9. A pharmaceutical composition comprising an anxiolytically-effective amount of a pyrazolopyridine of claim 1 in association with a pharmaceutically-acceptable diluent or carrier.

4,364,949

HYDROXYPHENYL KETONES

Rene Muntwyler, Hofstetten, and Raphael Menasse, Münchenstein, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed December 10, 1980, Ser. No. 214,825

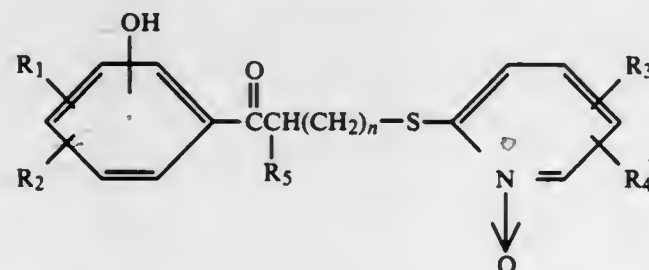
Claims priority, application Switzerland, December 21, 1979, 11401/79

Int. Cl.³ C07D 213/64; A61K 31/44

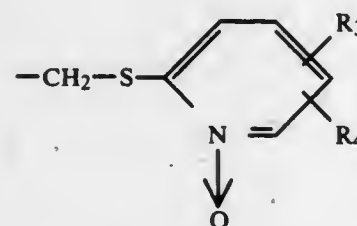
U.S. Cl. 424-263

10 Claims

1. A hydroxyphenyl ketone of the formula:



in which n is the number 0, 1, 2 or 3, wherein the hydroxyl group is in the 3-position only when n is 0 or 1, R₁ and R₂ independently of one another are hydrogen, fluorine, chlorine, bromine, nitro, methyl or methoxy, R₃ is hydrogen, chlorine, bromine, methyl or methoxy, R₄ is hydrogen, chlorine, bromine or methyl, and R₅ is hydrogen or, if n is 1, a group of the formula:



in which R₃ and R₄ are as defined above.

10. A method for combating micro-organisms on or in an organic substrate and for protecting said substrate against micro-organisms, comprising the step of incorporating in or applying to the surface of said substrate an effective amount of a hydroxyphenyl ketone of claim 1.

4,364,950 5-CYANO-PROSTACYCLIN DERIVATIVES AND USE AS MEDICINES

Werner Skuballa; Helmut Vorbrüggen; Bernd Radüchel; Jorge Casals-Stenzel; Ekkehard Schillinger, and Michael H. Town, all of Berlin, Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Berlin, Fed. Rep. of Germany

Filed November 2, 1981, Ser. No. 317,621

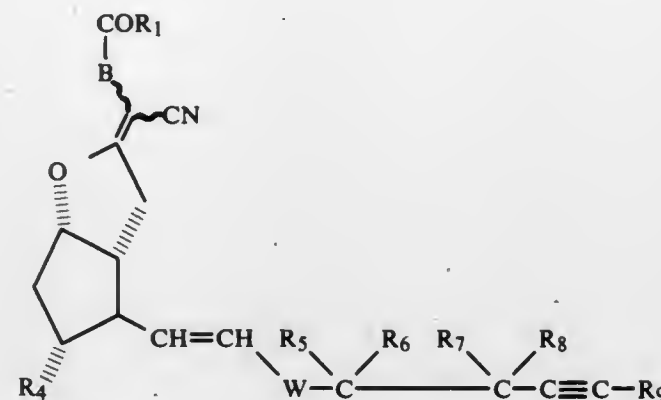
Claims priority, application Fed. Rep. of Germany, October 31, 1980, 3041602

Int. Cl.³ A61K 31/557; C07D 307/935

U.S. Cl. 424-263

23 Claims

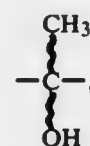
1. A 5-cyano-prostacyclin of the formula



wherein

R₁ is OR₂ or NHR₃; R₂ and R₃ each independently is (a) H, (b) C₁₋₁₀-alkyl, (c) C₁₋₁₀-alkyl substituted by halo, C₁₋₄-alkoxy or phenyl, 1-naphthyl or 2-naphthyl each optionally substituted as defined below, (d) C₄₋₁₀-cycloalkyl, (e) C₄₋₁₀-cycloalkyl substituted by C₁₋₄-alkyl, (f) phenyl, 1-naphthyl or 2-naphthyl, (g) phenyl, 1-naphthyl or 2-naphthyl substituted by 1-3 halogen atoms, phenyl, 1-3 alkyl groups of 1-4 C atoms each, or a chloromethyl-, fluoromethyl-, trifluoromethyl-, carboxyl-, hydroxy- or alkoxy-group of 1-4 C atoms, or (h) an aromatic, 5- or 6-membered heterocyclic ring containing one hetero atom which is O, N or S, the remaining atoms being carbon; or R₃ is an acyl group of a C₁₋₁₅-hydrocarbon carboxylic or sulfonic acid;

B is straight chain or branched alkylene of 2-10 C atoms; W is hydroxymethylene or



wherein the OH group may be in the alpha or beta position, and is optionally modified by replacement of the H atom of the OH with an ether or acyl group which is conventional for such replacements in prostaglandins and which is readily cleavable at physiological pH's;

R₄ is hydroxy, optionally modified as described for W above;

R₅, R₆, R₇ and R₈ each independently is hydrogen, alkyl of 1-5 C atoms of methoxy; and

R₉ is alkyl of 1-5 C atoms, or

for compounds wherein R₂ is H, the salts thereof with physiologically compatible bases.

23. A method of lowering the blood pressure in a host in need of such treatment comprising administering an effective amount of a compound of claim 1 to the host.

4,364,951 PROSTACYCLINS AND USE AS MEDICINAL AGENTS

Werner Skuballa; Helmut Vorbrüggen; Olaf Loge; Peter Vischer, and Bernd Radüchel, all of Berlin, Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Fed. Rep. of Germany

Filed November 2, 1981, Ser. No. 317,690

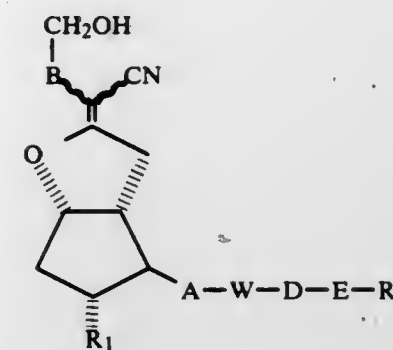
Claims priority, application Fed. Rep. of Germany, October 31, 1980, 3041601

Int. Cl.³ A61K 31/557; C07D 307/935

U.S. Cl. 424-263

18 Claims

1. A prostane derivative of the formula

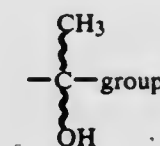


wherein

B is straight-chain or branched alkylene of 1-10 carbon atoms,

A is -CH₂-CH₂-, trans-CH=CH-, or -C≡C-;

W is hydroxymethylene or a



wherein the OH-group can be in the α- or β-position, and is optionally modified by replacement of the H atom with an ether or acyl group which is conventional for such replacements in prostaglandins and which is readily cleavable at physiological pH's;

D and E together are a direct bond or

D is straight-chain or branched alkylene of 1-10 carbon atoms or such alkylene of 4-10 carbon atoms containing a double bond in the 2- or 3-position, all of which can optionally be substituted by fluorine, 1,2-methylene, 1,1-trimethylene, or methoxy;

E is oxygen, sulfur, -C≡C- or a direct bond;

R₂ is C₁₋₁₀-alkyl or C₂₋₁₀-alkenyl each of which optionally is substituted by phenyl, 1-naphthyl or 2-naphthyl each of which is optionally substituted as defined below; C₄₋₁₀-cycloalkyl optionally substituted by C₁₋₄-alkyl; phenyl, 1-naphthyl, or 2-naphthyl, each of which is optionally substituted by 1-3 halogen atoms, a phenyl group, 1-3 alkyl groups each independently of 1-4 carbon atoms, or a chloromethyl, fluoromethyl, trifluoromethyl, carboxy, C₁₋₄-alkoxy, or hydroxy group; or an aromatic 5- or 6-membered heterocyclic ring having one hetero ring atom of O, N, or S, the remaining atoms being carbon; and R₁ is hydroxy optionally modified as described for W above.

18. A method of lowering the blood pressure in a host in need of such treatment comprising administering an effective amount of a compound of claim 1 to the host.

4,364,952
CERTAIN

1,4-DIHYDRO-2,6-DIMETHYL-3,5-PYRIDINE-DICARBOXYLATES, COMPOSITION CONTAINING SAME AND METHOD OF USE

Carsten Materne, Bonn, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed May 29, 1981, Ser. No. 268,417

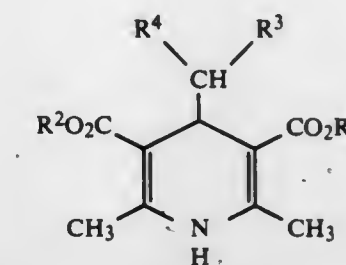
Claims priority, application Fed. Rep. of Germany, June 12, 1980, 3021958

Int. Cl.³ A61K 31/455; C07D 213/55

U.S. Cl. 424-266

9 Claims

1. A compound which is a 1,4-dihydropyridine of the formula



or a salt pharmaceutically acceptable thereof, in which

R¹ and R² are identical or different and denote a straight-chain or branched alkyl radical with 1 to 4 carbon atoms, R³ represents a hydrogen atom, a methyl group or a phenyl radical and

R⁴ represents a phenyl or phenoxy radical unsubstituted, or may optionally carry 1 substituent selected from nitro, halogen, methyl, methoxy or dimethyl, with a proviso that R³ represents hydrogen or methyl only when R⁴ is phenoxy or substituted phenoxy.

9. A method of lowering blood pressure in warm-blooded animals which comprises administering to the animals in need of such treatment, a blood pressure lowering effective amount of an active compound according to claim 1 either alone or in admixture with a diluent or in the form of a medicament.

4,364,953

2-O- AND 5-O-SUBSTITUTED 1,4;3,6-DIANHYDROHexitol MONONITRATES AND PHARMACEUTICAL COMPOSITION

Klaus Klessing, Ettlingen, and Shyam S. Chatterjee, Karlsruhe, both of Fed. Rep. of Germany, assignors to Firma Willmar Schwabe, Karlsruhe, Fed. Rep. of Germany

Filed July 20, 1981, Ser. No. 285,407

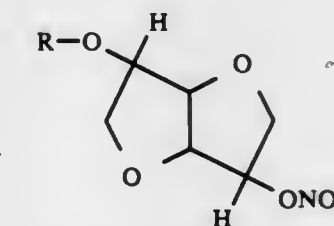
Claims priority, application Fed. Rep. of Germany, July 25, 1980, 3028289

Int. Cl.³ A61K 31/34, 31/455; C07D 493/04

U.S. Cl. 424-266

14 Claims

1. 2-O- and 5-O-substituted 1,4;3,6-Dianhydrohexitol mononitrates of the general formula I,



wherein R is a halogen-substituted phenyl group, a methanesulfonyl or nicotinoyl group, as well as their physiologically acceptable acid-addition salts, insofar as R signifies the nicotinoyl group.

4,364,954

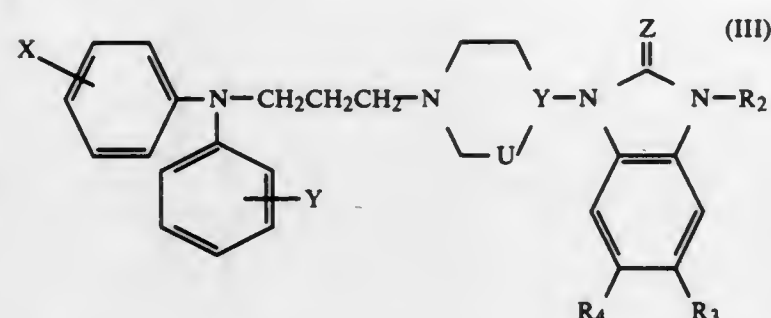
DIPHENYLPROPANAMINES, COMPOSITIONS THEREOF AND USE THEREOF

Ian C. Pattison, Ann Arbor, Mich., assignor to Warner-Lambert Company, Morris Plains, N.J.
Division of Ser. No. 111,043, Jan. 10, 1980, Pat. No. 4,292,321, which is a continuation of Ser. No. 42,175, May 24, 1979, abandoned. This application May 29, 1981, Ser. No. 268,502
Int. Cl.³ A61K 31/445; C07D 401/04

U.S. Cl. 424—267

10 Claims

1. A compound of the formula (III)



and the non-toxic, pharmaceutically acceptable salts thereof.

9. A composition for treating schizophrenia and related ailments in a mammal consisting essentially of an anti-schizophrenically effective amount of a compound as defined in claim 1, in combination with a pharmaceutically acceptable carrier.

4,364,955

COMBATING FUNGI WITH 1-(SUBSTITUTED PHENYL)-1-OXIMINO-2-(1,2,4-TRIAZOL-1-yl)-ETHANE

Wolfgang Krämer; Karl H. Büchel; Helmut Timmler, all of Wuppertal; Wilhelm Brandes, Leichlin, and Paul-Ernst Froberger, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Continuation-in-part of Ser. No. 22,913, Mar. 22, 1979, Pat. No. 4,264,772. This application April 21, 1980, Ser. No. 142,515
Claims priority, application Fed. Rep. of Germany, April 18, 1978, 2816817

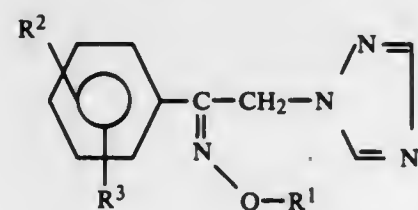
The portion of the term of this patent subsequent to April 28, 1998, has been disclaimed.

Int. Cl.³ A01N 43/64, 55/02; C07D 249/08

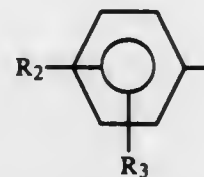
U.S. Cl. 424—269

7 Claims

1. A 1-(substituted phenyl)-1-oximino-2-(1,2,4-triazol-1-yl)-ethane of the formula

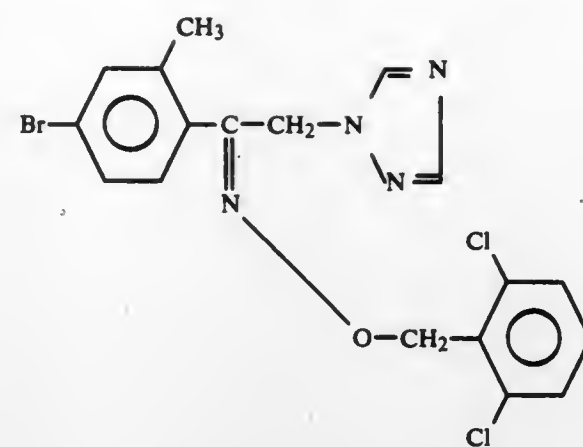


in which R1 is 2,6-dichlorobenzyl, and R2



is 2-chloro-4-methylphenyl, 4-bromo-2-methylphenyl, or 4-chloro-2-trifluoromethylphenyl, or an acid addition salt or metal salt complex thereof.

3. A compound according to claim 1, wherein such compound is 1-(4-bromo-2-methylphenyl)-1-(2,6-dichlorobenzyl)-2-(1,2,4-triazol-1-yl)-ethane of the formula



4,364,956

5-SUBSTITUTED PYRANONE COMPOUNDS AND THEIR USE AS PHARMACEUTICALS TO TREAT AN IMMEDIATE HYPERSENSITIVITY CONDITION

Barry P. Clark, Fleet; William J. Ross, Lightwater, and Alec Todd, Wokingham, all of England, assignors to Lilly Industries Limited, London, England

Division of Ser. No. 134,387, Mar. 27, 1980, abandoned. This application September 17, 1981, Ser. No. 303,307

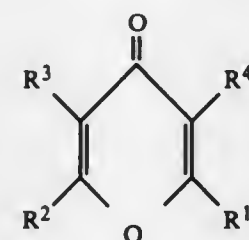
Claims priority, application United Kingdom, April 5, 1979, 7912063

Int. Cl.³ A61K 31/34, 31/35; C07D 309/32

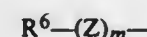
U.S. Cl. 424—269

9 Claims

1. A compound of the formula



in which R¹ is COOR⁵, CONHR⁵, cyano, 5-tetrazolyl or 5-tetrazolylaminocarbonyl, where R⁵ is hydrogen or C₁₋₆ alkyl; R² is hydrogen or C₁₋₆ alkyl; R³ is a group of the formula



where m is 0 or 1, Z is O, S, SO, SO₂ or CO, and R⁶ is phenyl optionally substituted by one or more group selected from halogen, C₁₋₄ alkyl, C₃₋₆ cycloalkyl, C₁₋₄ alkoxy, benzyloxy, hydroxy, nitro, C₁₋₄ alkylthio, C₁₋₄ alkylsulphonyl, C₁₋₄ alkylsulphonyl, amino and NHR⁷ where R⁷ is C₂₋₆ acyl; and R⁴ is hydrogen, C₁₋₆ alkyl or halogen; and pharmaceutically acceptable salts thereof.

8. A method of treating an animal, including a human, susceptible to or suffering from an immediate hypersensitivity condition of the type represented by asthma, which comprises administering a effective amount of a compound as defined in claim 1.

4,364,957

BIS-ESTERS OF ALKANEDIOLS AS ANTIBACTERIAL AGENTS

Wayne E. Barth, East Lyme, Conn., assignor to Pfizer Inc., New York, N.Y.

Continuation-in-part of Ser. No. 79,127, Sep. 26, 1979, Pat. No. 4,256,733. This application 1981, Ser. No. 236,407

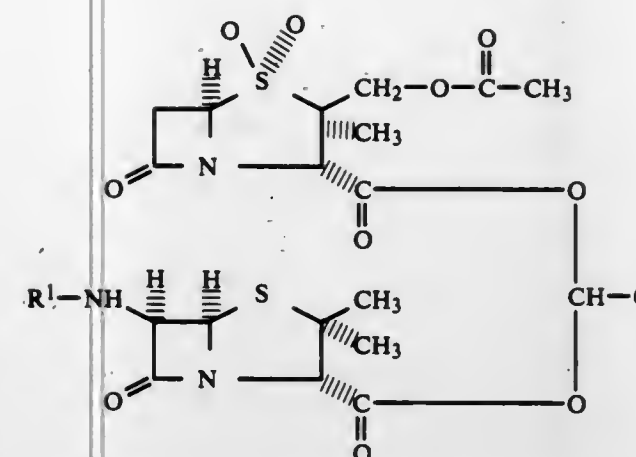
The portion of the term of this patent subsequent to March 17, 1998, has been disclaimed.

Int. Cl.³ C07D 499/44; A61K 31/43

U.S. Cl. 424—271

9 Claims

1. A compound of the formula



and the pharmaceutically-acceptable salts thereof,

wherein R¹ is selected from the group consisting of 2-phenylacetyl, 2-phenoxyacetyl, 2-amino-2-phenylacetyl, 2-amino-2-[4-hydroxyphenyl]acetyl and 2-carboxy-2-phenylacetyl;

and Q is selected from the group consisting of hydrogen and methyl.

4,364,958

1-SUBSTITUTED-3-CYCLOALKYL-SULFONYL-PYRROLIDINE-2,5-DIONE DERIVATIVES AND FUNGICIDAL COMPOSITIONS THEREOF

Jenő Seres, Erika Varkonyi, Nél Schlanrcskó, Sandor Virag, Gábor Kulcsár, all of Budapest, Hungary, assignors to Chino Gyógyszer és Vegyszeti Termékek Gyára Rt., Budapest, Hungary

Filed July 16, 1980, Ser. No. 169,439

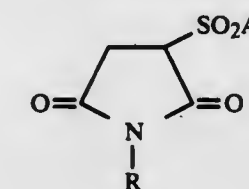
Claims priority, application Hungary, July 17, 1979, CI 1951

Int. Cl.³ C07D 207/416; A01N 43/36

U.S. Cl. 424—274

23 Claims

1. A compound of the formula (I)



wherein

A is C₅ to C₁₀ cycloalkyl; and

R is hydrogen, C₁ to C₆ alkyl, phenyl optionally substituted by either one or two substituents wherein the substituents are selected from the group consisting of C₁ to C₄ alkyl, nitro, hydroxy, carboxy, sulfo, halogen, C₁ to C₄ alkoxy, acetoxy, C₂ to C₅ alkoxycarbonyl, and acetyl, or phenyl (C₁ to C₄ alkyl).

12. A fungicidal pharmaceutical composition comprising a fungicidally effective amount of at least one 1-substituted-3-cycloalkyl-sulfonyl-pyrrolidine-2,5-dione of the formula I as defined in claim 1, together with a conventionally used fungicidally acceptable filling agent.

4,364,959

IMINO ETHER SULFIDE DERIVATIVES AND USE AS INSECTICIDES

Jozef Drabek, Allschwil, Switzerland, and Manfred Böger, Weil am Rhein, Fed. Rep. of Germany, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

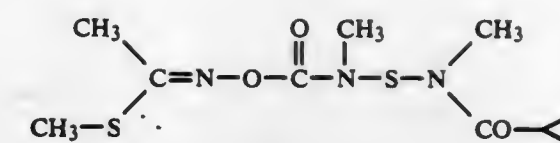
Continuation of Ser. No. 807,107, Jun. 16, 1977. This application June 20, 1978, Ser. No. 917,447

Int. Cl.³ A01N 35/10; C07C 119/18, 125/06; A01N 37/18

U.S. Cl. 424—298

13 Claims

1. The compound of the formula



12. An insecticidal composition comprising an insecticidally effective amount of a compound of claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or 11, together with an appropriate carrier therefor.

4,364,960

PROCESS FOR THE PRODUCTION OF VINEGAR WITH HIGH ACETIC ACID CONCENTRATION

Yoshio Kunimatsu, Handa; Hajime Okumura, Toda; Hiroshi Masai, Handa; Koki Yamada, Handa, and Mikio Yamada, Handa, all of Japan, assignors to Nakano Vinegar Co., Ltd., Tokyo, Japan

Filed September 30, 1980, Ser. No. 192,468

Claims priority, application Japan, October 24, 1979, 54-136373

The portion of the term of this patent subsequent to August 4, 1998, has been disclaimed.

Int. Cl.³ C12J 1/00

U.S. Cl. 426—17

3 Claims

1. A continuous batch process for the production of vinegar comprising:

- preparing a broth of alcohol, water, finished vinegar or acetic acid and nutrients for acetic acid bacteria;
- charging the broth into a first submerged fermentation tank;
- innoculating the broth with acetic acid bacteria to initiate fermentation under aeration;
- withdrawing a portion of the fermenting broth after fermentation has proceeded at a temperature between 27° and 32° C., at the point of time when the acetic acid concentration of the fermenting broth has increased to between 12 and 15% weight by volume and charging the withdrawn portion into another submerged fermenting tank while maintaining the dissolved oxygen concentration of the withdrawn portion at such an extent so as not to reduce the activity of acetic acid bacteria;
- recharging said first fermentation tank with a mash; and
- continuing fermentation under aeration in said another tank while lowering the temperature of fermenting broth from a temperature between 27° and 32° C. in said another tank in such a manner that any lowered temperature of fermenting broth may not become higher than the temperature lowered antecedently thereto and that the final temperature of the fermenting broth may not fall below 18° C.

4,364,961

MANUFACTURE OF BREAD CRUMB-LIKE PRODUCT

Kenneth S. Darley, Whitby; Michael A. F. Fenn, Ajax, and David V. Dyson, Richmond Hill, all of Canada, assignors to The Griffith Laboratories, Limited, Scarborough, Canada

Filed March 30, 1981, Ser. No. 248,721

The portion of the term of this patent subsequent to August 19, 1997, has been disclaimed.

Int. Cl.³ A23D 6/00

U.S. Cl. 426—19

12 Claims

1. A continuous process for the manufacture of a particulate leavened farinaceous product, which comprises: feeding farinaceous product-forming components including flour and water to a continuous mixing zone in quantities such that the total moisture in the farinaceous product-forming components is about 30 to about 50% by weight, advancing the farinaceous product-forming components in plug flow manner through said mixing zone in about 15 to about 100 seconds, introducing at least one gaseous material to said farinaceous

product-forming components at a plurality of locations during the passage of said components through said zone at a gas flow rate of about 1 to about 30 SCF/100 lb. of farinaceous product-forming components, subjecting said farinaceous product-forming components and introduced gaseous material to conditions of high shear within said mixing zone such that the work done on the materials within the mixing zone varies from about 15 to about 40 watt hr/lb. of farinaceous product-forming components to cause mixing of said components and distribution of gaseous material within the mixture, subjecting said farinaceous product-forming components and introduced gaseous material to an elevated temperature within said mixing zone during at least a major proportion of the time of passage thereof through said mixing zone to cause partial gelation of starch material contained in said farinaceous product-forming components while also subjecting said farinaceous product-forming components to a back pressure of about 200 to about 600 psig, extruding dough having an internal temperature of about 90° to about 210° F. through a die having a plurality of openings therein having a maximum diameter of about $\frac{1}{2}$ to about 1 inch, cutting the dough extruded through said plurality of openings into discrete dough particles of about $\frac{1}{16}$ to about $\frac{1}{2}$ inch in length, subjecting said discrete dough particles to a flowing air stream having a temperature of about 180° to about 300° F. to surface dry the particles and to stabilize the physical form thereof, and drying said surface-dried particles to a moisture level of below about 10% by weight.

4,364,962

METHOD FOR ENZYMATICALLY DECOMPOSING A LOW MOLECULAR WEIGHT MATERIAL

Jürgen Tuchenhausen, Vlotho-Uffeln; Franz Roiner, Barsinghausen, and Josef Grosserhede, Frielingen, all of Fed. Rep. of Germany, assignors to Prof. Dipl.-KFM. Franz Poiner, Barsinghausen, Fed. Rep. of Germany
Continuation of Ser. No. 102,850, Dec. 12, 1979, abandoned.

This application June 24, 1981, Ser. No. 276,819
Claims priority, application Fed. Rep. of Germany, December 20, 1978, 2855100

Int. Cl.³ A23C 9/12, 9/142, 9/146, 21/02

U.S. Cl. 426—41

11 Claims

1. A method for enzymatically decomposing lactose in an aqueous polydispersed system selected from the group consisting of milk, skim milk, curdled milk, whey, sour cream, buttermilk, permeated milk, and mixtures thereof, the polydispersed system having a high molecular weight component and a low molecular weight component containing lactose, said method comprising the steps of:

- contacting the lactose with an enzyme preparation that splits lactose to saccharides and a microorganism that ferments lactose to lactic acid;
 - separating the low molecular weight component containing decomposition products of lactose comprising saccharides and lactic acid from the high molecular weight component;
 - recycling at least a portion of the high molecular weight component from step (b) to step (a); and
 - separating lactic acid from the low molecular weight component containing saccharides and lactic acid and recycling the residual low molecular weight component containing saccharides to step (a);
- (e) repeating steps (a) through (d) until the amount of lactose in the polydispersed system has been reduced to a predetermined level; and
- (f) recovering a polydispersed system of reduced lactose content.

4,364,963

FOOD PREPARATION PROCESS

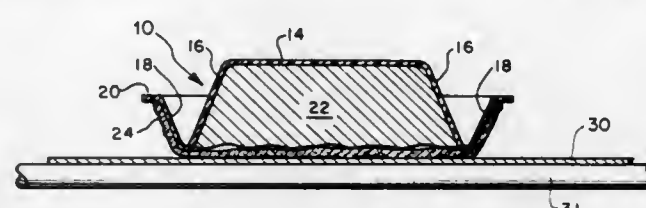
Arnold M. Munter, and David W. Ahlgren, both of Duluth, Minn., assignors to Jeno's, Inc., Duluth, Minn.

Filed September 18, 1981, Ser. No. 303,556

Int. Cl.³ A21D 8/02; A21B 3/13

U.S. Cl. 426—283

4 Claims



1. A food preparation process comprising the following steps in the order recited:

- providing an inedible, heatable container having a centrally-depressed receptacle which is defined by a base at the bottom of the container and sidewalls and with an outwardly and downwardly extending rim adjacent said sidewalls and terminating in a free edge;
- depositing a pre-prepared filling which becomes fluid when a sufficient amount of heat is applied to it into said container directly onto said depressed receptacle;
- covering said container receptacle and said container rim with a sheet of unbaked dough and shaping the dough so that said dough conforms to said outwardly and downwardly extending container rim so that upon baking, an inverted edible receptacle is formed including sidewalls and a centrally depressed bottom which will retain the filling when said edible receptacle is positioned such that its depressed bottom is lowermost;
- freezing the now-filled and covered container;
- inverting the frozen filled and covered container so that the dough sheet rests on a surface and the container rests on the dough sheet;
- heating the frozen inverted, filled container in an oven to bring the filling to a fluid state while forming a seal between the container rim and the dough sheet to prevent escape of the fluid; and
- removing the container whereby the seal is broken and the filling flows outwardly to fill the edible receptacle.

4,364,964

PROCESS OF THE DECAFFEINATION OF GREEN COFFEE BEANS

Gerrit H. D. van der Stegen, Montfoort, Netherlands, assignor to D.E.J. International Research Company B.V., Utrecht, Netherlands

Continuation of Ser. No. 927,734, Jul. 24, 1978, abandoned. This application August 27, 1980, Ser. No. 181,899

Claims priority, application United Kingdom, August 5, 1977, 32859/77

Int. Cl.³ A23F 5/22

U.S. Cl. 426—422

11 Claims

1. A continuous process for extracting caffeine from an aqueous solution containing same with an adsorbent and regenerating the adsorbent with water, said process comprising the steps of:

- contacting a caffeine-laden aqueous solution at a temperature of about 50° to about 100° C. with a macroporous synthetic polymer resin adsorbent produced by polymerizing a monomer containing aromatic ring systems and polar acidic groups having a P_K value greater than 6.5 and wherein the ratio of to adsorption capacity for said caffeine to total ion exchange capacity of said polymer is greater than 1 and less than 25 and thereafter
- regenerating the caffeine-laden resin adsorbent by contacting it with water as the sole regenerating means and removing the adsorbed caffeine from said resin.

4,364,965

PROCESS FOR EXTRACTING CAFFEINE FROM SOLUTIONS THEREOF IN CARBON DIOXIDE UNDER HIGH PRESSURE

Gerrit H. D. van der Stegen, Montfoort, and Hendricus G. J. de Wilt, Zaltbommel, both of Netherlands, assignors to D.E.J. International Research Company B.V., Utrecht, Netherlands
Continuation of Ser. No. 958,666, Nov. 8, 1978, abandoned. This application August 29, 1980, Ser. No. 182,715

Claims priority, application Netherlands, November 14, 1977, 7712503

Int. Cl.³ A23F 5/20

U.S. Cl. 426—481

10 Claims

1. A process for decaffeinating green coffee beans without introducing foreign ions into the green coffee beans or green coffee extract, said process comprising the steps of:

- adjusting the moisture content of the green coffee beans to a value of from about 30 to about 60% by weight;
- passing water-saturated carbon dioxide through said green coffee beans under a high pressure of about 20.3 to about 40.5 MPa and extracting caffeine from the moistened coffee beans;
- contacting the caffeine-containing carbon dioxide gas stream of step (b) with a macroporous synthetic polymer resin adsorbent, said resin produced by the polymerization or copolymerization of monomers containing aromatic ring systems and polar acidic groups having a P_K value greater than 7, and wherein the ratio in said resin of the total molar adsorption capacity for caffeine, expressed as the number of moles of caffeine adsorbed per kg of resin, to complete saturation, to the total number of acidic groups, expressed as acid equivalents per kg of resin, is between 1 and 25, thereby adsorbing and removing the caffeine from the caffeine-laden carbon dioxide gas stream;
- returning the carbon dioxide stream of step (c) to step (b) for reuse;
- regenerating the caffeine-laden adsorbent of step (c) by contacting said resin with water as the sole regenerating material at a temperature in the range of about 50° to about 100° C.;
- reusing the regenerated resin from step (e) in step (c); and
- recovering and drying the decaffeinated green coffee product.

4,364,966

BLENDS OF EGG ALBUMEN AND WHEY PROTEIN HAVING IMPROVED GEL STRENGTH

Pei K. Chang, Montrose, N.Y., assignor to Nutrisearch Company, Cincinnati, Ohio

Filed April 13, 1981, Ser. No. 253,967

Int. Cl.³ A23C 21/04; A23J 3/00; A23L 1/32

U.S. Cl. 426—573

11 Claims

1. A process for preparing a dried blend of a pasteurized egg albumen and whey protein-containing composition which exhibits improved gel strength, said dried blend comprising the steps of

- subjecting desugared, dried pasteurized egg albumen to a heat treatment at a temperature ranging from about 55° C. to about 65° C. for a period of time ranging from in excess of about 2 weeks to about 8 weeks beyond the time of dry pasteurization of the dry egg albumen at above about 55° C., said period of time being sufficient to elevate the gel strength of the egg albumen above 250 grams over the gel strength of the egg albumen prior to pasteurization, and
- blending from about 50% to about 85% of said so treated egg albumen with at least 15% of a whey protein-containing composition having from about 35% to about 80% whey protein.

4,364,967

NEUTRAL FLAVORED HIGH STABILITY PEANUT PASTE CHOCOLATE MIX

David J. Black, Tyrone, Pa., assignor to James W. Gardner Enterprises, Inc., Tyrone, Pa.

Filed October 14, 1980, Ser. No. 196,321

Int. Cl.³ A23L 7/36

U.S. Cl. 426—632

3 Claims

1. A process for producing a chocolate extender, said process comprising the steps of:

- blanching a starting batch of peanuts;
- pressing said peanuts in order to distort said peanuts while substantially preserving their particle integrity in order to remove a substantial proportion of the natural oil contained therein;
- reconstituting and roasting said peanuts while substantially preserving their particle integrity in a first bath of high stability oil in the range of from 275° to 350° F.;
- quenching said peanuts while substantially preserving their particle integrity in a second bath of high stability oil at a temperature substantially in the range of from 140° to 170° F.;
- said high stability oil having a melting point approximately equal to that of chocolate;
- said high stability oil replacing said natural oil in said peanuts to produce an intermediate batch of peanuts containing from 45 to 60 weight percent of said high stability oil;
- cooling said peanuts while substantially maintaining their particle integrity to set up said high stability oil therein;
- milling said peanuts into a paste characterized by a particle size of less than 74 microns;
- and vacuum degassing said paste to substantially remove entrained oxygen;
- said paste being characterized by substantially neutral flavor, high stability, and compatibility with chocolate.

4,364,968

PROCESS FOR PREPARING A DRIED GRAPE PRODUCT

Reuben H. Waitman, Pearl River, N.Y., and Bettie M. Frank, West Orange, N.J., assignors to General Foods Corporation, White Plains, N.Y.

Filed March 31, 1981, Ser. No. 249,544

Int. Cl.³ A23L 1/212; A23B 7/08

U.S. Cl. 426—639

4 Claims

1. A process for preparing a dried grape product comprising:

- providing whole or sectioned grapes;
- immersing the grapes into an aqueous hydrophillic carbohydrate solution having a concentration effective to provide significant osmotic withdrawal of water from the grapes and deposition of carbohydrate into the grapes in place of the water said hydrophillic carbohydrate is a member selected from the group consisting of glycerol, propylene glycol, fructose, sorbitol, mannitol, high fructose corn syrup, honey corn syrup, and combinations of these;
- heating the grapes and carbohydrate for a period of time and at a temperature effective to melt surface wax and to cause inactivation of any normally-degrading natural enzymes present in the grapes and to increase the rate of osmotic dehydration and carbohydrate infusion;
- removing excess solution from the surface of the grape;
- drying the grapes to a moisture content of less than 30%; and
- converting the dry grapes into simulated raisins by storing the grapes obtained after step (e) for a period of time under controlled humidity and at an elevated temperature effective to provide a darkening in color and to develop a natural raisin-like flavor within the grapes without further drying of the grapes.

4,364,969

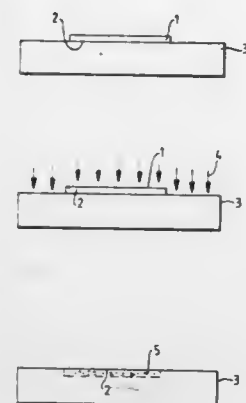
METHOD OF COATING TITANIUM AND ITS ALLOYS
Geoffrey Dearnaley, Abingdon, and Robert E. J. Watkins,
Brightwell-cum-Sotwell, both of England, assignors to United
Kingdom Atomic Energy Authority, London, England

Filed December 8, 1980, Ser. No. 214,102

Claims priority, application United Kingdom, December 13, 1979, 7943049

Int. Cl.³ C23C 13/02

U.S. Cl. 427—38



1. A process for improving the wear resistance of titanium and its alloys comprising the operations of coating a surface of a workpiece made of titanium or an alloy of titanium and which is likely to be subject to wear with a layer of a metal selected from the group consisting of aluminium, copper, iron, tin, nickel, platinum, zinc and zirconium, and then subjecting the coated surface to bombardment with ions of a light species the mass of which is insufficient to cause a harmful degree of sputtering of the surface during implantation, so as to cause the metal to migrate into the workpiece.

4,364,970

METHOD FOR IMPROVING SURFACE PROPERTIES OF SHAPED ARTICLES OF POLYVINYL CHLORIDE RESINS

Kiyoshi Imada; Tokuji Abe, both of Omiya, and Susumu Ueno, Ibaragi, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Toyka, Japan

Continuation of Ser. No. 96,423, Nov. 21, 1979, abandoned. This application June 23, 1981, Ser. No. 276,485

Claims priority, application Japan, November 30, 1978, 53-148545

Int. Cl.³ B05D 3/04, 3/14

U.S. Cl. 427—40

8 Claims

1. A method for improving surface properties of a shaped article of a vinyl chloride-based resin which comprises

- exposing the surface of the shaped article to low temperature plasma of a gas having no polymerizability in the plasma condition, and
- contacting the plasma-treated surface of the shaped article with an aqueous solution which is devoid of any film forming component, is inert to and does not dissolve or swell the vinyl chloride-based resin and which contains a surface active agent, within 24 hours after the termination of the exposure to the plasma for at least 1 second and then rinsing and drying the thus contacted article.

4,364,971

WATERPROOF PHOTOGRAPHIC PAPER AND METHOD OF PRODUCING SAME
Wieland Sack, Bissendorf; Reiner Anthonen, Bramsche, and Ferenc Kertesz, Bissendorf, all of Fed. Rep. of Germany, assignors to Felix Schoeller, Jr. GmbH & Co., Fed. Rep. of Germany

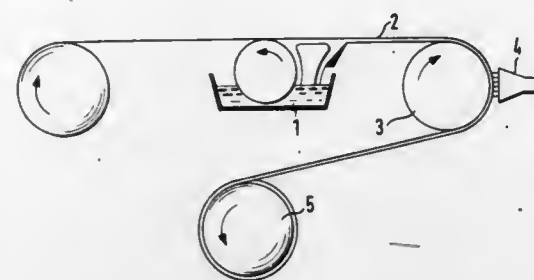
Filed June 12, 1981, Ser. No. 273,110

Claims priority, application Fed. Rep. of Germany, June 18, 1980, 3022709

Int. Cl.³ B05D 3/06

U.S. Cl. 427—44

13 Claims



1. Method for making a waterproof photographic paper support which comprises:

- coating at least one surface of a sized photographic base paper with a pigment-coating resin hardenable by radiation, with resin comprising acrylate-modified mixtures of organic resins containing $C=C$ double bonds,
- pressing the resin coated surface against a substantially solid high gloss surface,
- bombarding the surface of the paper opposite the coated surface with sufficient electrons to substantially completely harden the resin while the resin is in contact with said high gloss surface; and
- separating the substantially completely cured coated surface from said high gloss surface to form a waterproof paper support having a surface smoothness which is at least 70% that of an ideal flat mirror surface, as measured by an image reflected from said hardened, coated surface.

4,364,972

PRESSURE-SENSITIVE ADHESIVE COPOLYMERS OF ACRYLIC ACID ESTER AND N-VINYL PYRROLIDONE
John D. Moon, Hastings, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed 1981, Ser. No. 225,763

Int. Cl.³ B05D 3/06; C08F 8/00

U.S. Cl. 427—54.1

6 Claims

1. A pressure-sensitive adhesive copolymer of essentially only

- acrylic acid ester of non-tertiary alcohol, the alkyl groups of which have an average of about 4 to 14 carbon atoms, said acrylic acid ester being per se polymerizable to a sticky, stretchable, elastic adhesive mass, and
- N-vinyl-2-pyrrolidone, wherein the improvement comprises the N-vinyl-2-pyrrolidone comprises from 15 to 50 parts by weight of the total monomers (1) and (2) and the copolymer when uncrosslinked has a Fikentscher K-value exceeding 100 and when crosslinked has a gel swell in ethyl acetate exceeding 600%.

4,364,973

METHOD FOR FABRICATING A SOLID-STATE IMAGING DEVICE USING PHOTOCONDUCTIVE FILM
Norio Koike, Tokyo; Toru Baji, Kokubunji; Toshihisa Tsukada, Sekimachi, and Hideaki Yamamoto, Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

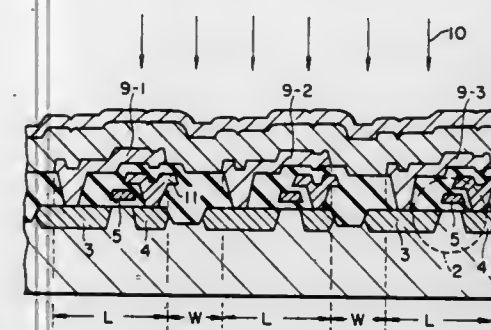
Filed March 26, 1981, Ser. No. 247,737

Claims priority, application Japan, March 26, 1980, 55-37463

Int. Cl.³ B05D 1/32; H01L 31/18

U.S. Cl. 427—75

11 Claims



1. A method for fabricating solid-state imaging devices wherein a photoconductive film for photoelectric conversion to generate photocharges and a transparent electrode are stacked on a scanner integrated circuit in which switching elements in a two-dimensional array and scanning shift registers for scanning the switching elements are integrated, characterized by forming said photoconductive film by the steps of holding a shield plate which is open in only an area to form said photoconductive film, in close contact with said scanner integrated circuit or with some spacing therefrom, and depositing a photoconductive material onto said scanner integrated circuit, whereby said shield plate prevents deposition of photoconductive material on areas of said scanner integrated circuit not corresponding to the open part of the shield plate.

4,364,974

METHOD OF PRODUCING AN INTERMEDIATE IN THE PRODUCTION OF SILICON OR SILICON CARBIDE
Gert-Wilhelm Lask, Berus, Fed. Rep. of Germany, assignor to International Minerals & Chemical Luxembourg Societe Anonyme, Luxembourg, Luxembourg

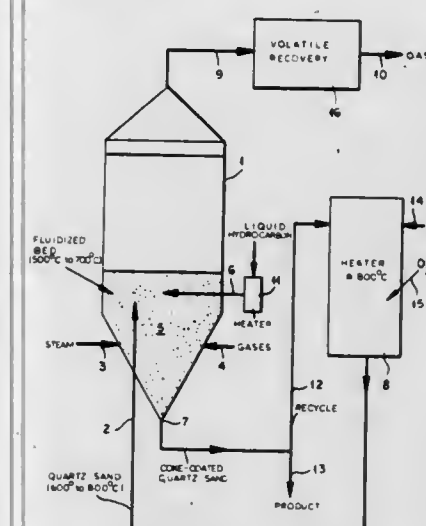
Filed June 19, 1981, Ser. No. 275,159

Claims priority, application Fed. Rep. of Germany, June 21, 1980, 3023297

Int. Cl.³ C10B 55/10, 45/00

U.S. Cl. 427—213

3 Claims



1. A continuous method of producing an intermediate in the production of silicon or silicon carbide, said intermediate being silicon dioxide particles coated with carbon layers, said method of comprising the steps of:

- fluidizing silicon dioxide particles in a fluidized bed with a fluidizing gas in the presence of cracking hydrocarbons

and at a temperature such that coke coatings form on said particles to produce said carbon layers, the coated particles becoming heavier and sinking toward the bottom of said bed;

- spraying liquid hydrocarbons heated to a temperature above 250° C. into said bed to crack the liquid hydrocarbons therein and form said cracking hydrocarbons;
- continuously withdrawing coke-coated particles from the bottom of said bed;
- continuously feeding coke-coated particles withdrawn in step (c) to a preheater together with fresh silicon dioxide particles, and burning at least part of the coke coatings of the particles in said preheater to heat the particles in said preheater to a temperature of substantially 600° to 800° C.;
- continuously feeding preheated particles from said preheater in step (d) into the fluidized bed of step (a) for coke-coating therein;
- continuously feeding fresh silicon dioxide particles into the preheater in step (d); and
- upon attainment of thermal equilibrium between said preheater and said bed, recovering as said intermediate, an excess of the particles withdrawn in step (c) over the coke-coated particles fed to step (d).

4,364,975

METHOD OF AND APPARATUS FOR PRODUCING ASPHALT SATURATED FIBERBOARD

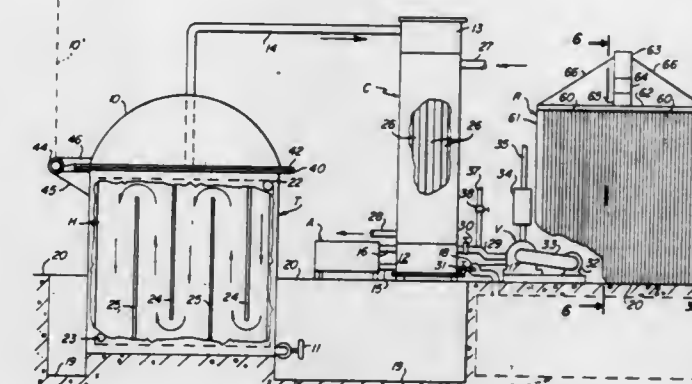
Dale J. Cork, Elgin, Ill., and Russell Pellman, deceased, late of West Dundee, Ill. (by Marguerite Pellman, executrix), assignors to W. R. Meadows, Inc., Elgin, Ill.

Filed June 29, 1981, Ser. No. 278,797

Int. Cl.³ B05D 3/00, 3/12; C23C 13/08

U.S. Cl. 427—294

18 Claims



1. A method of impregnating saturable members with asphalt or the like, which comprises:

- placing a series of laterally spaced members in an upright position in an enclosable space;
- enclosing and sealing said space;
- introducing a solution of asphalt and a solvent therefor into said enclosed space to a level corresponding to the upper edges of said members in order to impregnate said members with said solution;
- removing solution at the lower portion of said enclosed space, including solution which drains from said members;
- applying suction to said enclosed space in order to reduce the pressure therein and produce a vacuum;
- supplying heat to said enclosed space;
- continuing said suction to reduce the pressure in said enclosed space to a relatively high degree of vacuum; p1
- supplying sufficient heat to said enclosed space so that the treated members will contain a minimum of solvent in addition to asphalt;
- condensing the solvent vapors removed by suction from said enclosed space and collecting the condensed solvent for reuse;
- discontinuing said suction;
- bleeding air into said enclosed space to reduce the vacuum

therein and produce an equilization with atmospheric pressure;
unsealing and opening said space; and
removing the treated members from said space.

4,364,976

METHOD OF PREPARING MODIFIED WOOD

Skipchik L. Prokofievna, ulitsa Koltsova, 4, korpus 3, kv. 59; Shutov G. Moiseevich, ulitsa Lomonosova, 10, kv. 33; Erdman M. Emmanuilovna, ulitsa Vostochnaya, 11, kv. 5; Pukhalsky M. Eduardovich, ulitsa Kakhovskaya 37, kv. 32; Lezhen V. Ivanovich, Leninsky prospekt 14, kv. 15; Shevchenko A. Ignatievich, ulitsa Ya. Mavra, 44, kv. 20, all of Minsk, and Vrublevsky E. Vladimirovich, Gomelskaya oblast ulitsa Zavodskaya 3, Svetlogorsk, all of U.S.S.R.

Filed July 23, 1981, Ser. No. 285,905

Int. Cl.³ B05D 1/18, 3/02

U.S. Cl. 427—382

5 Claims

1. A method of preparing modified wood, comprising the successive steps of impregnating a wood in two stages, at the first stage the wood being impregnated by phenolic alcohols, while at the second stage the wood is impregnated by fire retardants, drying it and heat treating to obtain the end product.

4,364,977

AUTOMATIC SELF-ADJUSTING PROCESSING APPARATUS

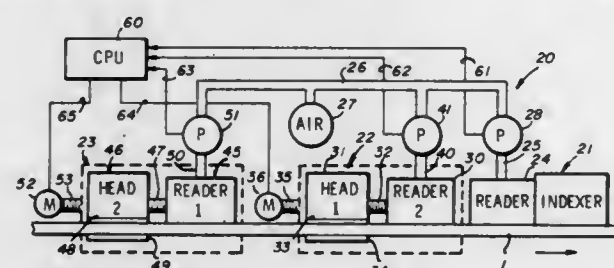
Carl E. Bernardi, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed July 6, 1981, Ser. No. 280,597

Int. Cl.³ B05C 1/06, 1/16

U.S. Cl. 427—429

6 Claims



6. A method of plating an object comprising the steps of:
transporting the object to a plating head;
directing a stream of fluid against at least one aperture in said object;
measuring the back pressure in said stream;
providing an output that is a function of said back pressure; and
if necessary, adjusting the position of the plating head to obtain a predetermined output.

4,364,978

PROCESS FOR HIGH-TEMPERATURE GALVANIZING

Erwin Diehl, Mannheim; Wolfgang Müller, Hollfeld, and Artur Stroh, Rohrhof, all of Fed. Rep. of Germany, assignors to Th. Goldschmidt AG, Fed. Rep. of Germany

Filed July 7, 1981, Ser. No. 281,221

Claims priority, application European Pat. Off., August 14, 1980, 80104834.9

Int. Cl.³ C23C 1/02

U.S. Cl. 427—433

2 Claims

1. In the process for high-temperature galvanizing steel parts containing from 0.01 to 0.6 percent by weight of silicon by immersion into molten zinc heated to about 470° to 550° C., the improvement which comprises using a zinc melt containing lead in a quantity up to the maximally soluble amount at the operational temperature employed but at least about 2 percent by weight based upon the weight of the zinc melt.

4,364,979

COMPOSITION BOARD

Edward I. Dutton, 7 Cockcroft Rd., Honey Hills, Florida, Transvaal, South Africa

Filed November 12, 1980, Ser. No. 206,179

Claims priority, application South Africa, November 12, 1979, 79/6056

Int. Cl.³ B32B 5/16

U.S. Cl. 428—2

24 Claims

1. A particle board comprising a body of structural lignocellulosic particles and filler material bonded together by a binder, said structural particles comprising of at least about 25% chicory root particles and said filler material being selected from the group consisting of coffee grounds, sawdust and vegetable products and comprising less than approximately 50% by weight of the finished board.

10. A method of making a particle board comprising the steps of taking a mixture of ground coffee and chicory root and making up a pulp with coffee and chicory root in the ratio of 50 to 70% chicory root, reducing the water content to between 3% and 12% by weight to form a mixture of dried particles, separating the dried particles into a coarse stream and fine stream, respectively, mixing the dried particles with coarse and fine particles of bagasse, adding binder to the mixtures, forming the particle board with the coarse mixture as a central core and the fine mixture at either side thereof said coarse mixture containing at least about 25% chicory root particles, and finally applying heat and pressure to the board.

4,364,980

HOLLOW BODY SUITABLE FOR RECEIVING DIFFUSIBLE SUBSTANCES, COATED WITH RESIN VARNISH, AND A PROCESS FOR ITS PRODUCTION AND ITS USE

Manfred Mass, Wuppertal, and Günter Walter, Metzingen, both of Fed. Rep. of Germany, assignors to Daimler-Benz AG, Stuttgart and Herberts GmbH, Wuppertal, both of, Fed. Rep. of Germany

Filed March 11, 1981, Ser. No. 242,654

Claims priority, application Fed. Rep. of Germany, March 12, 1980, 3009412

Int. Cl.³ B24B 1/00; B32B 31/00; B05D 3/00

U.S. Cl. 428—35

13 Claims

1. Hollow body, suitable for receiving diffusible substances and made of substantially non-elastomeric plastics material coated with varnish resins, characterized in that said body possesses an external surface having a roughness obtained by blasting with a granular blasting agent, measured in profile according to DIN 4768, Part 1, of R_z = from 10 to 150 μ m, and R_{max} = from 100 to 250 μ m on which a coating, positively linking with that surface and providing a seal against diffusion of liquids and gases present in the body, consisting of a chemically crosslinked polyurethane resin is located in a layer thickness of from 60 to 800 μ m.

8. Process for the production of a hollow body according to claim 1, characterized in that the external surface of the plastics hollow body is roughened to a roughness, measured in profile, of R_z = from 10 to 150 μ m and R_{max} = from 100 to 250 μ m and, subsequently, coated with a varnish, based on a chemically crosslinkable two-component polyurethane resin, in a layer thickness of from 60 to 800 μ m, and dried at temperatures of between 20° and 80° C.

4,364,981

THREE LAYER FILM HAVING A CORE LAYER OF LOW PRESSURE, LOW DENSITY POLYETHYLENE

Jerome T. Horner, Indian Head Park; John Anthony, Downers Grove, both of Ill., and William A. Fraser, Princeton, N.J., assignors to Union Carbide Corporation, Danbury, Conn.

Continuation-in-part of Ser. No. 108,281, Dec. 28, 1979, abandoned. This application June 3, 1981, Ser. No. 270,099

Int. Cl.³ B32B 7/02; B28B 3/20; B32B 27/08; B65D 1/00

U.S. Cl. 428—35

8 Claims

1. A flexible co-extruded three-layer film comprising outer layers of high pressure, low density, polyethylene and a core layer of low pressure, low density polyethylene, said film having been produced by a conventional blown film tubular extrusion process at a throughput rate of from about 4 to about 25 pounds per hour per inch of die at a process temperature of from about 350° F. to about 600° F., said film being characterized as free of melt fracture and having a tensile strength in the transverse direction of at least about 4.0 pounds per inch.

7. A bag formed from the film of claim 1 wherein the film has been produced at a throughput rate of from about 4 to about 20 pounds per hour per inch of die at a process temperature of from about 350° F. to about 470° F.

4,364,982

GASKETS

Colin Gee, Mirfield, England, assignor to Flexitallic Gaskets Limited, Yorkshire, England

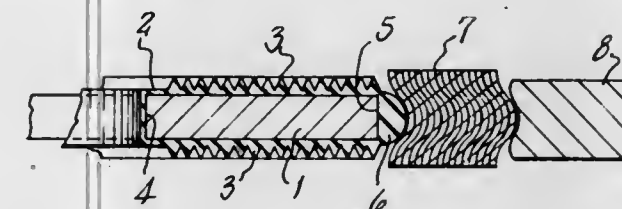
Filed December 5, 1980, Ser. No. 213,492

Claims priority, application United Kingdom, December 15, 1979, 7943295

Int. Cl.³ F16J 15/00; F16L 21/04; F16J 9/04

U.S. Cl. 428—65

6 Claims



1. In a spiral wound gasket the improvement comprising the provision of an inner ring coated with an elastomer material, said inner ring lying radially inwardly of and coplanar with said gasket, said inner ring being in the form of an annulus having two opposed substantially flat faces as the major faces of said annulus, and on at least one of said major faces the elastomer material is formed into a sealing profile.

4,364,983

MULTIFILAMENT YARN OF INDIVIDUAL FILAMENTS OF THE MULTICOMPONENT MATRIX/SEGMENT TYPE WHICH HAS BEEN FALSETWISTED, A COMPONENT THEREOF SHRUNK, A COMPONENT THEREOF HEATSET; FABRICS COMPRISING SAID

Walter Brücher, Wuppertal; Karl H. Hense, Erlenbach, and Reiner Modtler, Wuppertal, all of Fed. Rep. of Germany, assignors to Akzona Incorporated, Asheville, N.C.

Filed 1980, Ser. No. 125,097

Claims priority, application Fed. Rep. of Germany, March 2, 1979, 2908101; May 7, 1980, 8012389

Int. Cl.³ D02G 1/20; D03D 27/00

U.S. Cl. 428—85

14 Claims

1. A multifilament yarn of individual filaments of the multicomponent matrix/segment type containing the individual filaments essentially as matrix segment and at least three individual filaments split off therefrom as segment fibers, whereby the segment fibers have been shrunk at least about 10% with respect to the matrix fiber, wherein said individual filaments of the yarn exhibit a falsetwist texture and said individual fila-

ments are bonded to each other within the yarn unit at irregular intervals by means of bonding sites involving all or part of the filament cross section.

14. A process for the production of a textile sheet structure comprising falsetwisting a multifilament yarn of individual filaments of the multicomponent matrix/segment type at a heatsetting temperature in the range from about 180° C. to about 240° C., whereby said individual filaments are bonded to each other at from 10 to 40 bonding points per meter, forming a textile sheet structure from said multifilament yarn and subjecting said textile to treatment with an organic solvent which will lower the zero shrinkage temperature of the segment polymer(s) by at least 160° C., and simultaneously, subjecting said textile sheet structure to a milling treatment.

4,364,984

SURFACED ORIENTED STRAND BOARD

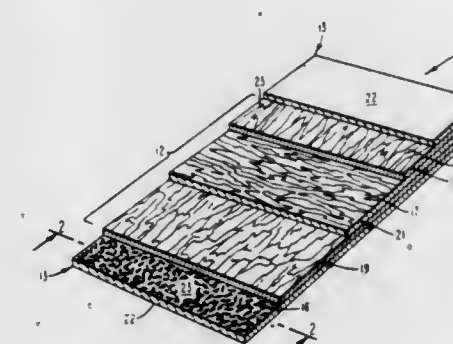
Irvin Wentworth, Menlo Park, Calif., assignor to Bison-Werke, Bahre & Greten GmbH & Co., KG, Springe, Fed. Rep. of Germany

Filed 1981, Ser. No. 227,797

Int. Cl.³ B32B 5/12; D04H 1/16

U.S. Cl. 428—106

8 Claims



1. A surfaced multilayer wood composition structure comprising:

a multilayer core structure including first and at least second core layers, each core layer formed principally of adhesively bonded wood strands having an average length substantially greater than their average width, said wood strands have fiber elements extending generally parallel to the length of the strands and are oriented to define a selected mean length direction, said core layers adhesively bonded together with the selected mean length direction of the wood strands forming each core layer transverse to the selected mean length direction of the wood strands forming the adjacent core layer to which said each core layer is bonded; and

a first surface layer formed principally of adhesively bonded wood fines having an average width and thickness less than the average width of the wood strands forming said core layers, some of said wood fines elongated, said wood fines distributed throughout said first surface layer in an unoriented graduated size pattern from a first surface to a second surface with the wood fines of progressively larger width and thickness closer to said first surface, said first surface layer adhesively bonded to an exposed surface of one of said core layers with its first surface including elongated wood fines against said exposed surface.

4,364,985

POROUS SHEET

Mitsuru Tokuyama, Utsunomiya; Kenji Ohki, Chiba; Masayuki Sagae, Tochigi, and Kaoru Tsujii, Utsunomiya, all of Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

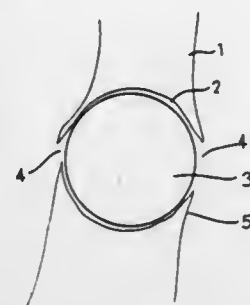
Filed May 29, 1981, Ser. No. 268,204

Claims priority, application Japan, May 29, 1980, 55-71864

Int. Cl.³ B32B 5/16, 27/14

U.S. Cl. 428-149

10 Claims



1. A liquid-impermeable, vapor-permeable, thin, flexible, porous sheet made from a composition comprising a blend of thermoplastic resin and solid filler particles, said thermoplastic resin forming a matrix in which said filler particles are dispersed, said solid filler particles extending to the opposite surfaces of said sheet, said thermoplastic resin matrix being spaced from the surfaces of said solid filler particles thereby to provide apertures surrounding said solid filler particles, the portions of said thermoplastic matrix on the opposite surfaces of said sheet that overlie the outermost portions of said solid filler particles having been removed by abrasion or buffing so that said outermost portions of said solid filler particles are uncovered and exposed and said apertures form passages that extend between and penetrate through said opposite surfaces of said sheet, said passages being of a small size so that liquid cannot substantially permeate through said sheet and vapor can permeate through said sheet.

4,364,986

DYE-CONTAINING LAYER OF A FILM-FORMING POLYMERIC BINDER AND THE USE THEREOF IN AN INFORMATION RECORDING ELEMENT

Dirk J. Zwanenburg; Wilhelmus P. M. Nijssen, and Caspert G. I. van der Staak, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 172,787, Jul. 28, 1980, abandoned. This application October 6, 1980, Ser. No. 194,507
Claims priority, application Netherlands, August 1, 1979, 7905914

Int. Cl.³ B32B 3/00; G01D 15/34

U.S. Cl. 428-156

6 Claims

1. An information recording element for optically recording optically readable information comprising a disc-shaped substrate on one surface of which there is present an optically readable servo track which has at least partially a relief structure of servo areas situated alternatively at a higher and a lower level and on which servo track there is present, as a recording layer, a mixture of a dye and a copolymer (1:1) of methyl vinyl ether and maleic anhydride or a semi-ester of said copolymer and an aliphatic alcohol which may be substituted with an aromatic radical and contains 1-8 carbon atoms.

4,364,987

FIRE DOOR CONSTRUCTION

Walter A. Goodwin, Mississauga, Canada, assignor to Cawm-Crete International Limited, Ontario, Canada

Filed August 27, 1981, Ser. No. 296,794

Claims priority, application Canada, May 14, 1981, 377574

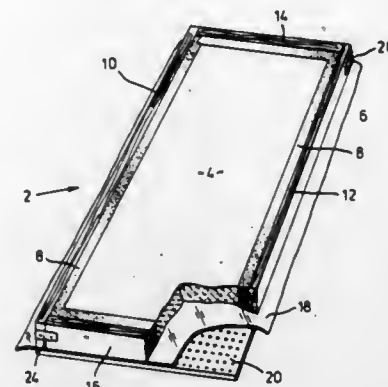
Int. Cl.³ B32B 23/02; E04C 2/34; E04B 1/74; B28B 1/16

U.S. Cl. 428-192

9 Claims

1. A core for a fire-resistant door comprising wooden stiles

and rails forming the peripheral edges of said core; a slab filling the space between the surfaces of and surrounded by said stiles and rails; said slab comprising a cured mixture of magnesium oxychloride containing inclusions of fibreglass strands, and perlite.



5. A method of making a fire-resistant door core comprising the steps of forming a rectangular frame of stiles and rails; fastening a sheet of planar material to the underside of said frame to provide a bottom to a mold formed by the cavity surrounded by said frame stiles and rails; pouring a mixture of material curable to form a core slab in the cavity formed by said frame; allowing said material to cure and bond to said stiles and rails to form an inner panel.

4,364,988

MAGNETIC RECORDING MEDIUM

Haruo Andoh, Suita; Susumu Kitaoka, Kyoto; Toshinobu Sueyoshi, Kyoto; Hikaru Ishida, Kyoto, and Akira Kato, Takarazuka, all of Japan, assignors to Hitachi Maxell, Ltd., Osaka, Japan

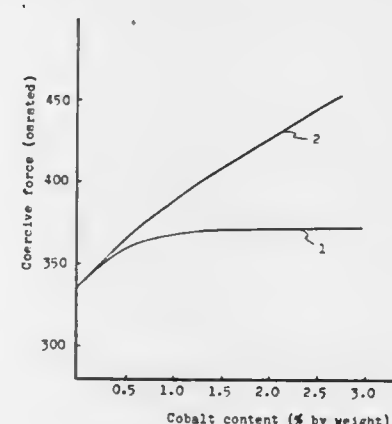
Filed July 27, 1979, Ser. No. 61,253

Claims priority, application Japan, July 31, 1978, 53/93891; July 31, 1978, 53/93895

Int. Cl.³ G11B 5/70

U.S. Cl. 428-212

11 Claims



1. A magnetic recording medium which comprises as a recording element a substrate with a single layer of a composition on the surface thereof comprising a mixture of cobalt-containing iron oxide magnetic particles consisting essentially of ferromagnetic iron oxide particles containing cobalt in the most outer layer thereof and γ -ferric oxide particles, said cobalt-containing iron oxide magnetic particles and γ -ferric oxide particles being mixed in the ratio of 10:90 to 50:50 by weight, said cobalt-containing iron oxide magnetic particles having a coercive force of 20 to 100 oersteds higher than the coercive force of the γ -ferric oxide particles.

4,364,989

SNACK FOOD PACKAGING MATERIAL

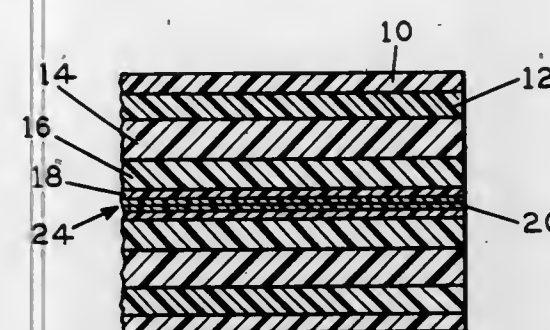
LaMont E. Moyle, Milford, N.J., assignor to Rexham Corporation, New York, N.Y.

Filed March 19, 1981, Ser. No. 245,698

Int. Cl.³ B32B 7/02

U.S. Cl. 428-216

11 Claims



1. A flexible, heat sealable packaging material which comprises a lamination of
(a) an outer film of polypropylene,
(b) a laminate of low density polyethylene, and
(c) an inner coextruded film which includes a coextrusion of high density polyethylene, polypropylene and ethylene methyl acrylate, said ethylene methyl acrylate having a coating of a polyvinylidene chloride emulsion on its exposed surface.

4,364,990

CONSTRUCTION MATERIAL FOR STRINGED MUSICAL INSTRUMENTS

Daniel W. Haines, Columbia, S.C., assignor to The University of South Carolina, Columbia, S.C.

Filed March 31, 1975, Ser. No. 563,387

Int. Cl.³ B32B 7/02

U.S. Cl. 428-218

12 Claims



1. A construction material especially suitable for use in the manufacture of soundboards and panels used in stringed musical instruments comprising a mat of fibers embedded in a resin matrix in which said fibers have a Young's modulus of elasticity greater than 18×10^{11} dynes/cm² and a density less than 2 g/cc and are oriented in such manner as to effect a bending stiffness ratio of at least 4:1 in said construction material bonded to a mat of cardboard having a density within the range of 0.15 g/cc and 1 g/cc.

4,364,991

FIRE RESISTANT COMPOSITIONS AND COMPOSITES

Norman R. Byrd, Villa Park, and Daniel C. Peek, Long Beach, both of Calif., assignors to McDonnell Douglas Corporation, Long Beach, Calif.

Filed September 25, 1980, Ser. No. 190,741

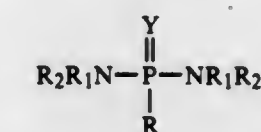
Int. Cl.³ 524 137; B32B 27/38, 27/36, 27/34, 27/30, 27/28, 27/18; C08K 5/53, 5/50

U.S. Cl. 428-265

51 Claims

22. A fire resistant composition having low thermal conductivity, consisting essentially of a mixture of a resin selected from the group consisting of epoxies and condensation polymers; and a phosphorylated amide as an additive; and which

resin is selected so that it has the following properties and characteristics (1) the additive is soluble in the resin and (2) when contacted with the additive such resin will form a stable resin char when heated by a flame to an elevated temperature of about 2000 degrees F. and (3) the fire resistance of the resin is increased and its thermal conductivity is decreased when contacted by the additive and so heated; said composition being capable of being cured and permanently bonded to a structural substrate to improve char characteristics and provide low thermal conductivity thereto and to permit such substrate to maintain structural integrity thereof, said additive being solubilized in said resin to form a homogeneous composition and employed in an amount sufficient to form said stable resin char when said composition is heated by a flame to an elevated temperature of about 2000 degrees F.; said phosphorylated amide having the following general formula



where Y is O or S, R is selected from the group consisting of H, alkyl containing from about 1 to about 6 carbon atoms, cycloalkyl containing from about 5 to about 7 carbon atoms, aryl containing from about 6 to about 14 carbon atoms, the corresponding halogenated alkyl and aryl groups, nitroaryl containing about 6 to 14 carbon atoms, heterocyclic containing 5 to 6 members in the heterocyclic nucleus, and O, N or S as hetero atoms, and where R₁ and R₂ can be the same or different, and are selected from the group consisting of H, alkyl, aryl, and cycloalkyl, all as defined above for R, amino, alkyl-amino containing from about 1 to about 8 carbon atoms in the alkyl group, aryl-amino containing from about 6 to about 14 carbon atoms, aliphatic acyl containing from about 1 to about 7 carbon atoms, and aroyl containing from about 7 to about 11 carbon atoms.

4,364,992

TWO LAYER ABSORBENT ARTICLE WITH SUPER WATER-ABSORBING POLYMER

Osamu Ito, Utsunomiya, and Kazunori Nishizawa, Funabashi, both of Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

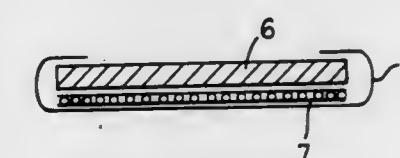
Filed June 12, 1981, Ser. No. 273,156

Claims priority, application Japan, June 23, 1980, 55/84995

Int. Cl.³ B32B 5/16

U.S. Cl. 428-283

7 Claims



An absorbent article, comprising: an upper, first, absorbing layer having a density, in both the dry state and the wet state, of less than 0.045 g/cm³ when measured under a load of 35 g/cm², wherein the density in the wet state does not include the density of absorbed liquid, said first absorbing layer weighing from 15 to 50 g/m², said first absorbing layer being a felt made of bonded fibrous webs and being comprised of from 30 to 60% by weight of hollow polyester fibers and from 30 to 50% by weight of heat-fusible fibers; and a lower, second,

absorbing layer having a super water-absorbing polymer fixed thereto.

4,364,993

SIZED CARBON FIBERS, AND THERMOPLASTIC POLYESTER BASED COMPOSITE STRUCTURES EMPLOYING THE SAME

Robert Edelman, Staten Island, N.Y.; Paul E. McMahon, North Plainfield, and Gene P. Daumit, Berkeley Heights, both of N.J., assignors to Celanese Corporation, New York, N.Y.

Filed July 14, 1980, Ser. No. 167,987

Int. Cl.³ B05D 5/10; C08K 7/06; C09J 3/16; D04H 1/58
U.S. Cl. 428—288 7 Claims

1. At least one carbon fiber having coated on the surface thereof a sizing composition of sorbitol polyglycidyl ether having a total chlorine content of at least 10%, by weight, based on the weight of the sorbitol polyglycidyl ether, and an epoxide equivalent weight of from about 160 to about 230.

4. A composite structure comprising a continuous matrix of a thermoplastic polyester comprising a poly (alkylene terephthalate, isophthalate, or mixed terephthalate, isophthalate), said alkylene groups containing from about 2 to about 4 carbon atoms, and a reinforcing agent contiguous and firmly bonded thereto, said reinforcing agent comprising carbon fibers sized with a sizing composition of sorbitol polyglycidyl ether having a total chlorine content of at least 10%, by weight, based on the weight of the sorbitol polyglycidyl ether and an epoxide equivalent weight of from about 160 to about 230.

4,364,994

PROCESS AND COMPOSITION FOR MINIMIZING ACCUMULATION OF MOISTURE ON A COLD SURFACE EXPOSED TO HUMID CONDITIONS AND PRODUCT OBTAINED THEREBY

Ernst R. Fogelberg, Vällingby, Sweden, assignor to AB Bonnierföretagen, Stockholm, Sweden

Filed August 29, 1980, Ser. No. 182,625

Int. Cl.³ B05D 5/04

U.S. Cl. 428—316.6 16 Claims

1. A process for minimizing accumulation of moisture on a cold surface exposed to humid conditions which tend to cause condensation on the surface, which comprises painting said surface with a liquid coating composition having dispersed in a volatile vehicle water-absorptive particles in admixture with a resinous binder in an amount sufficient to bind said particles together in an adherent coating on said surface but insufficient to occlude the water absorptivity of the particles, said particles comprising a mixture of cellulose fibers and water-absorptive, heat-expanded perlite having a bulk density less than 150 kg/m³, the pores of which particles are filled with said volatile vehicle when the liquid coating composition is applied, and allowing or causing the volatile vehicle to evaporate from the applied coating and from the pores of the particles therein, and in which the heat-expanded perlite is present in an amount of about 5 percent to about 15 percent by weight, the cellulose fibers are present in an amount of about 1 percent to about 5 percent by weight, the binder is present in an amount of about 15 percent to about 40 percent by weight and, the volatile vehicle in the amount of about 20 percent to about 45 percent by weight.

4,364,995

METAL/METAL OXIDE COATINGS

George H. Crawford, White Bear Lake; Edward J. Downing, St. Paul, and Roy G. Schlemmer, Oakdale, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed 1981, Ser. No. 231,500

Int. Cl.³ B32B 15/04, 15/08

U.S. Cl. 428—336 12 Claims

1. An article comprising a substrate having on at least one surface thereof a coating comprising at least two components of (a) metal and (b) metal oxide or metal sulfide or combinations thereof of between 15 Å and 5 × 10⁴ Å in thickness, said

coating being characterized by having a composition which varies its proportions of said at least two components through a thickness of at least 15 Å in a continuous manner, said variation in proportions being further characterized by the ratio of said components only increasing or only decreasing through the thickness of the coating.

4,364,996

SYNTHETIC FIBERS HAVING DOWN/FEATHER-LIKE CHARACTERISTICS AND SUITABLE FOR WADDING

Hiroshige Sugiyama, Otsu, Japan, assignor to Toyo Boseki Kabushiki Kaisha, Osaka, Japan

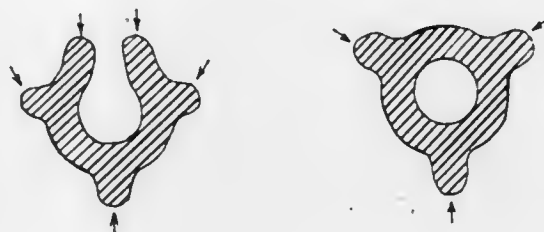
Filed May 28, 1981, Ser. No. 268,035

Claims priority, application Japan, May 29, 1980, 55-72268

Int. Cl.³ D01F 6/62

U.S. Cl. 428—369

4 Claims



1. A synthetic fiber for wadding which has a plurality of projections in its cross section and a section deformation ratio (S) of not less than 5000/√D (wherein D is a monofiber denier) and which has the following physical characteristics:

Monofiber denier (D, denier): 0.1 to 3;
Coefficient of inter-fiber static friction (μ_s): not more than 0.14;

Crimp number (CN, number/25 mm): 4 to 14;

Ratio of crimp index and crimp number (Ci(%) / CN): 0.6 to 1.8;

H_{0.2}(cm): not less than 7.3;

H_{0.2}/H₂₅ (cm/cm): not less than 6.5;

δD (g/cm²/cm): not more than 0.4.

4,364,997

CLUTCH FACING MATERIAL AND METHOD FOR MANUFACTURING THE SAME

Yasunobu Yamamoto, Chiryu; Toshiaki Sakabe, Toyota, and Eizi Hamada, Handa, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha and Aisin Kako Kabushiki Kaisha, both of, Japan

Filed May 19, 1981, Ser. No. 265,241

Claims priority, application Japan, May 24, 1980, 55-69488

Int. Cl.³ D02G 3/00

U.S. Cl. 428—372

8 Claims

1. A clutch facing comprising strings of asbestos having a material applied thereto, said material comprising a first additive consisting essentially of a mixture of solid cashew resin and graphite, and a second additive comprising cashew dust.

4,364,998

SPUNLIKE YARNS

Lun-Yan Wei, Newark, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed July 20, 1981, Ser. No. 285,023

Int. Cl.³ D02G 3/00

U.S. Cl. 428—399

8 Claims

1. A yarn consisting essentially of a plurality of synthetic fibrous elements having an irregular and varying cross section and being forked and merged in a fortuitous manner, the cross-sectional area and cross-sectional shape of each fibrous element changing along its length and some of said fibrous elements terminating in free ends, the cross-sectional area and cross-sectional shape of most of said fibrous elements being of approximately the same cross-sectional area and cross-sectional shape as those fibrous elements that terminate in free ends, and those

fibrous elements that do not have approximately said area and said shape being forked to form fibrous elements of approximately said area and said shape, many of said fibrous elements having at least one ragged side that extends longitudinally of the fibrous elements, the fibrous elements being frequently entangled along the length of the yarn, said yarn having 10 to 150 free ends per centimeter of yarn length.

4,364,999

HEAT SENSITIVE RECORD SHEET

Katsuichi Motohashi; Toshio Obara; Kazuo Kaneko, and Masahiko Yamaguchi, all of Tokyo, Japan, assignors to Hodo-gaya Chemical Co., Ltd., Tokyo, Japan

Filed August 24, 1981, Ser. No. 295,371

Claims priority, application Japan, September 17, 1980, 55/127976

Int. Cl.³ B41M 5/18

U.S. Cl. 428—411

3 Claims

1. A heat sensitive record sheet which comprises a coated layer comprising 2-(2-chlorophenyl)amino-6-di-propyl- or butyl-aminofluoran.

4,365,000

MOLDED BODIES OF VULCANIZED RUBBER HAVING A VULCANIZED-ON LAYER OF VARNISH

Hanns P. Müller, Odenthal; Kuno Wagner, Leverkusen; Johannes Blahak, Gauting-Buchendorf, and Hermann Menk, Bodolz, all of Fed. Rep. of Germany, assignors to Metzeler Kautschuk GmbH, Munich, Fed. Rep. of Germany

Filed March 28, 1980, Ser. No. 134,884

Claims priority, application Fed. Rep. of Germany, April 21, 1979, 2916271

Int. Cl. B32B 27/40

U.S. Cl. 428—423.9

5 Claims

1. Method of manufacturing an article of vulcanized rubber having a strongly attached urethane varnish layer, which comprises employing as the substrate to be coated, a body with at least part of its surface composed of unvulcanized rubber containing olefinic double bonds, applying to the rubber surface of the body before vulcanization of said rubber, a urethane varnish which contains a binding agent with olefinic, unsaturated groups which on subsequent vulcanization of the coated body will take part in the vulcanization reaction; and subsequently subjecting the coated body to vulcanization with the binding agent entering the vulcanization reaction causing the urethane varnish to be strongly connected with the surface of the rubber containing the olefinic double bonds.

5. An article of vulcanized rubber having a strongly attached urethane varnish layer produced by the process of claim 1.

4,365,001

LAMINATES OF IMPROVED FIRE RESISTANCE

Nicolas Meyer, Bully les Mines, and Michel Cousin, Loison sous Lens, both of France, assignors to Societe Chimique Des Charbonnages, Paris, France

Filed April 22, 1981, Ser. No. 256,368

Claims priority, application France, April 24, 1980, 80 09192

Int. Cl.³ B32B 27/08, 27/36, 27/42; C09K 3/28

U.S. Cl. 428—480

10 Claims

1. In a laminate having a reinforced phenolic resin substrate, a hardened furan resin layer bonded to at least one side of said substrate, and a moderately inflammable thermosetting unsaturated polyester resin layer bonded to the obverse side of said furan resin layer,

the improvement wherein said hardened furan resin layer is hardened by using as the hardener a substantially anhydrous boric anhydride solution comprising at least 5% by weight of boric anhydride; whereby sufficient boron is introduced into said furan resin layer as boric anhydride to improve the fire resistance of the laminate without requiring the incorporation of boron into the polyester resin layer.

4,365,002

COATED PLASTIC FILMS

Shigeyuki Takahashi; Shozo Yamamoto, both of Amagasaki, and Nagayoshi Tsukane, Himeji, all of Japan, assignors to Daicel Chemical Industries Ltd., Osaka, Japan

Filed June 17, 1981, Ser. No. 274,438

Claims priority, application Japan, June 25, 1980, 55-87183
Int. Cl.³ B05D 3/02; B32B 27/08, 27/42; B37B 23/08

U.S. Cl. 428—483

17 Claims

1. A coated plastic film possessing good printability, slip properties, oxygen and moisture barrier properties and transparency, comprising a plastic film and a coating thereon, said coating including a thermoplastic base resin and a crosslinked, electrostatically neutral synthetic resin in an amount of from 0.01–2 parts by weight per 100 parts by weight of said thermoplastic resin, said synthetic resin having a softening temperature of above 100° C. and an average particle diameter of 1–20 microns.

5. The coated plastic film according to claim 1, wherein the plastic film is a polypropylene film, a polyester film or a cellulosic resin film.

4,365,003

SILICATE TREATMENT FOR COATED SUBSTRATE

Claudia L. Danforth, Chardon, and Jon A. deRidder, Madison, both of Ohio, assignors to Diamond Shamrock Corporation, Dallas, Tex.

Filed 1981, Ser. No. 224,094

Int. Cl.³ B22F 5/00; C23F 7/24

U.S. Cl. 428—552

14 Claims

1. A coated metal substrate protected with an undercoating-/topcoating composite which is resin-free and contains particulate metal, with the proviso that only the undercoating of the composite contains the particulate metal while the total of the coating composite is substantially resin-free, each coating being established from compositions curable to water resistant protective coatings, with the undercoating being applied as a substantially resin free composition containing, in liquid medium, a hexavalent-chromium-providing substance plus the particulate metal and in an amount sufficient to provide, upon curing, above 10 but not substantially above about 5000 milligrams per square foot of coated substrate of particulate metal, and said topcoating being substantially resin free and containing silica substance in liquid medium in an amount sufficient to provide above about 50 milligrams per square foot of coated substrate of silica substance in cured coating.

4,365,004

METALLIC CORE PANEL AND METHOD OF MAKING SAME

James R. Campbell, South Laguna, and Roy L. Anspach, Anaheim, both of Calif., assignors to Thomas P. Mahoney and Donald A. Ruston, both of Balboa Island, Calif.

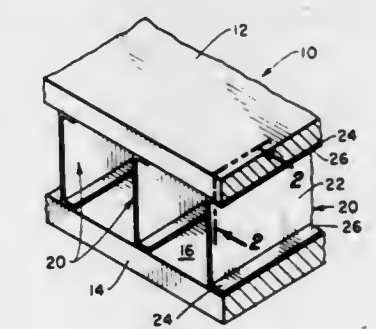
Division of Ser. No. 948,012, Oct. 2, 1978, Pat. No. 4,254,188.

This application 1981, Ser. No. 227,654

Int. Cl.³ B23P 3/00; B32B 3/06

U.S. Cl. 428—593

5 Claims



1. In a metallic, core reinforced panel, the combination of: first and second face sheets disposed in spaced relationship

with each other to define a cavity between the confronting inner surfaces thereof; a core structure disposed in said cavity and secured to said face sheets by a plurality of weldments; and an additional metallic element secured to the external surface of one of said face sheets by said weldments.

4,365,005

METHOD OF FORMING A LAMINATED RIBBON STRUCTURE AND A RIBBON STRUCTURE FORMED THEREBY

August F. Witt, Winchester, Mass., and Ramaswamy V. Raman, Columbus, Ohio, assignors to Massachusetts Institute of Technology, Cambridge, Mass.

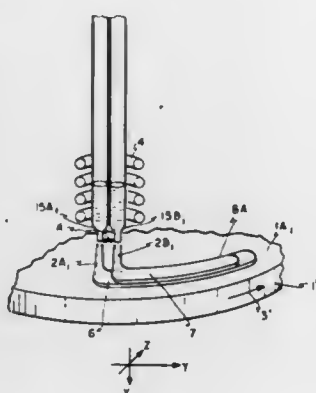
Division of Ser. No. 950,965, Oct. 13, 1978, Pat. No. 4,229,231.

This application March 3, 1980, Ser. No. 126,762

Int. Cl.³ B32B 15/04; C23C 1/00; H01F 1/04

U.S. Cl. 428—611

11 Claims



1. A multi-layered ribbon that comprises, a supporting substrate having a thickness in the range from about 10 to 50 micrometers; and at least one electrically active layer formed upon the substrate and in electrical contact therewith, the thickness of the active layer being in the range of about 10 to 50 micrometers.

4,365,006

FUEL CELL SYSTEM FOR MOBILE APPLICATIONS

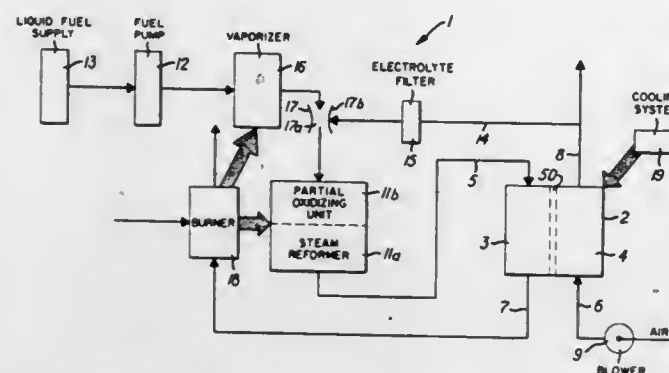
Bernard S. Baker, Brookfield Center, Conn., assignor to Energy Research Corporation, Danbury, Conn.

Filed March 26, 1981, Ser. No. 247,877

Int. Cl.³ H01M 8/04

U.S. Cl. 429—17

39 Claims



1. A fuel cell system comprising:
a fuel cell including an anode section for receiving fuel process gas and a cathode section for receiving oxidant process gas;
and means for receiving a supply of fuel and gas exhausted from said cathode section for oxidizing a portion of said fuel with said cathode exhaust gas and for converting a portion of said fuel to said fuel process gas by directly utilizing said oxidized portion of fuel, said converting being with at least the water in the products in said cath-

ode exhaust gas and at least the water in the products in said oxidized portion of fuel.

4,365,007

FUEL CELL WITH INTERNAL REFORMING

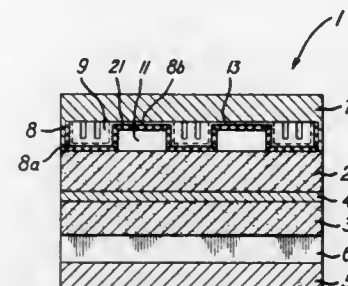
Hansraj C. Maru, Brookfield Center, and Pinakin S. Patel, Danbury, both of Conn., assignors to Energy Research Corporation, Danbury, Conn.

Filed June 12, 1981, Ser. No. 272,947

Int. Cl.³ H01M 8/18

U.S. Cl. 429—19

35 Claims



1. An electrochemical cell system comprising:
a gas diffusion electrode;
first passage means in communication with said electrode;
second passage means having a catalyst for reforming hydrocarbons and including a gas porous member in communication with said first passage means;
and means for establishing a differential pressure between said first and second passage means so as to promote gas flow from said second passage means through said gas-porous member to said first passage means, whereby the hydrocarbon content of supply gas introduced into said second passage means is reformed by said catalyst and said reformed hydrocarbon content is aided by said differential pressure to pass through said gas-porous member into said first passage means to said gas-diffusion electrode for electrochemical reaction, and electrolyte vapor in said first passage means is retarded by said differential pressure from contacting and passing through said gas-porous member to said second passage means.

4,365,008

DENSIFIED EDGE SEALS FOR FUEL CELL COMPONENTS

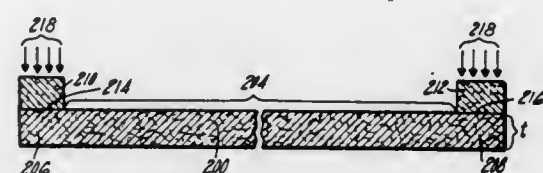
Anthony J. DeCasperis, South Windsor; Richard J. Roethlein, Stafford Springs, and Richard D. Breault, Coventry, all of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed July 27, 1981, Ser. No. 287,464

Int. Cl.³ H01M 2/00; 4/88; B29C 25/00; C01B 31/00

U.S. Cl. 429—36

3 Claims



1. A component for use in a fuel cell stack comprising:
a fully graphitized sheet of gas porous, thermosetting resin bonded, carbon fibers, said sheet having a top surface and a bottom surface and comprising a central portion bordered by a pair of parallel edge portions, said central and edge portions having substantially the same thickness and being of essentially the same material, the density of said sheet in said edge portions being two to three times greater than the density of said sheet in said central portion, said edge portion having a mean pore size of less than 10 microns, and an 80% pore size range with an upper limit no greater than about 20 microns.

about 10 microns, and an 80% pore size range with an upper limit no greater than about 20 microns.

4,365,009

METHOD OF IMPROVING THE ION SELECTIVITY OF MEMBRANES

Patrick G. Grimes, and Richard J. Bellows, both of Westfield, N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

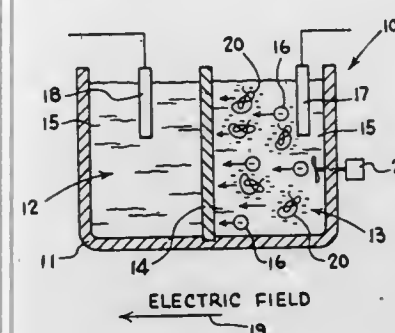
Continuation-in-part of Ser. No. 128,822, Mar. 10, 1980, Pat. No. 4,259,417. This application August 18, 1980, Ser. No. 178,993

The portion of the term of this patent subsequent to March 31, 1998, has been disclaimed.

Int. Cl.³ H01M 2/16

U.S. Cl. 429—50

25 Claims



1. In an electrochemical cell, comprising: a first fluid-containing compartment; a second fluid-containing compartment; a nonselective porous membrane disposed between said first and second fluid-containing compartments; A method of modifying the ion selectivity of said membrane comprising the steps of:

- passing ions through said membrane; and
- migrating a polyelectrolyte disposed in a fluid of at least one of said compartments towards, and forming an ionic barrier at, said membrane in response to the ionic flow through said membrane, said polyelectrolyte modifying the ion selectivity of said membrane by causing substantially only selected ions to pass through said membrane.

4,365,010

PHOTOELECTROCHROMIC GENERATOR AND DISPLAY DEVICE

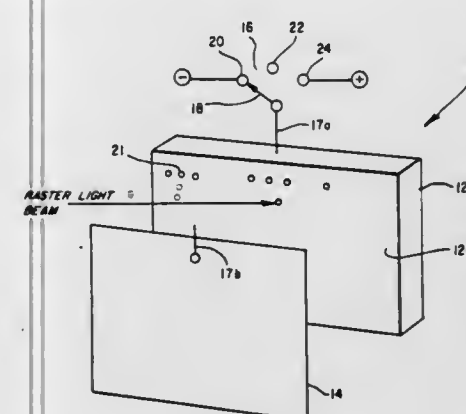
Allen J. Bard; Fu-Ren F. Fan, both of Austin, Tex., and Benjamin Reichman, Birmingham, Mich., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed 1981, Ser. No. 230,850

Int. Cl.³ H01M 6/36; G02F 1/01

U.S. Cl. 429—111

6 Claims



1. A device usable as a photoelectric cell or as a rechargeable storage battery, comprising:
a semiconductor first electrode comprising P-GaAs pro- in which

4,365,012

LIGHT SENSITIVE RECORDING MATERIAL

Jürgen Hocker, Bergisch Gladbach, and Erwin Ranz, Leverkusen, both of Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed 1981, Ser. No. 222,085

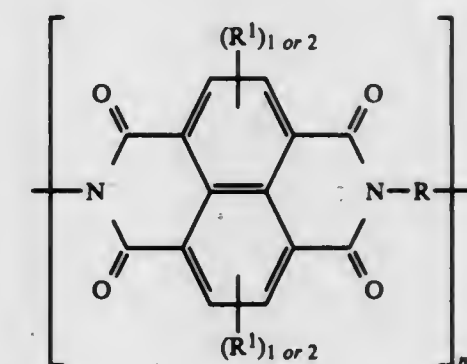
Claims priority, application Fed. Rep. of Germany, 1980, 3000167

Int. Cl.³ G03C 5/24, 1/52

U.S. Cl. 430—19

3 Claims

1. A process for producing reversible images in a light-sensitive recording material which comprises the step of imagewise exposing to light, a supported layer containing a light-sensitive substance corresponding to the formula



R represents a divalent aliphatic group containing an electron donor function;
 R^1 represents hydrogen, halogen, SO_3H , CN , $COOR^2$, $N(R^3)_2$, OR^4 , or NO_2 ;
 R^2 , R^3 , and R^4 represent hydrogen or C_1 - C_6 alkyl and n represents an integer of from 2 to 1,000 and subsequently reverting said recording material to a monochromatic state.

4,365,013

ELECTROPHOTOGRAPHIC MEMBER

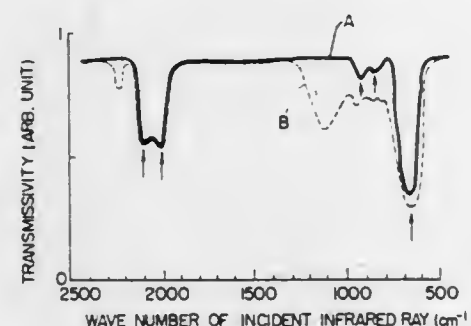
Sachio Ishioka, Tokyo; Eiichi Maruyama, Kodaira; Yoshinori Imamura, Hachioji; Hirokazu Matsubara, Hamuramachi, and Shinkichi Horigome, Tachikawa, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed July 28, 1981, Ser. No. 287,633

Claims priority, application Japan, July 28, 1980, 55-102530
 Int. Cl.³ G03G 5/08

U.S. Cl. 430-57

7 Claims



1. In an electrophotographic member having at least a support and a photoconductor layer which is principally formed of amorphous silicon; an electrophotographic member characterized in that said amorphous silicon contains at least 50 atomic-% of silicon and at least 1 atomic-% of hydrogen as an average within said layer, and that a part which is at least 10 nm thick from a surface or/and interface of said photoconductor layer toward the interior of said photoconductor layer has a hydrogen content in a range of at least 1 atomic-% to at most 40 atomic-% and an optical forbidden band gap in a range of at least 1.3 eV to at most 2.5 eV and also has the property that an intensity of at least one of peaks having centers at wave numbers of approximately $2,200\text{ cm}^{-1}$, approximately $1,140\text{ cm}^{-1}$, approximately $1,040\text{ cm}^{-1}$, approximately 650 cm^{-1} , approximately 860 cm^{-1} and approximately 800 cm^{-1} in an infrared absorption spectrum which are attributed to a bond between silicon and oxygen does not exceed 20% of a higher one of the intensities of peaks having centers at wave numbers of approximately $2,000\text{ cm}^{-1}$ and approximately $2,100\text{ cm}^{-1}$ which are attributed to a bond between silicon and hydrogen.

4,365,014

ELECTROPHOTOGRAPHIC PHOTOCONDUCTOR

Kiyoshi Sakai; Mitsuru Hashimoto; Masafumi Ohta, all of Numazu, and Masaomi Sasaki, Shizuoka, all of Japan, assignors to Ricoh Company, Limited, Tokyo, Japan

Filed September 27, 1979, Ser. No. 79,406

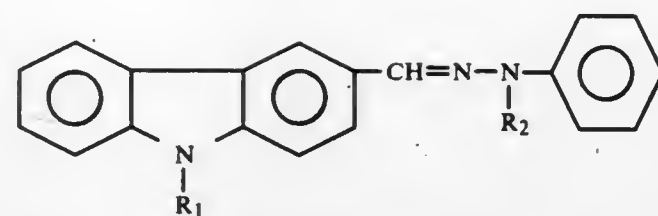
Claims priority, application Japan, September 29, 1978, 53-119949

Int. Cl.³ G03G 5/06, 5/14

U.S. Cl. 430-59

6 Claims

1. An electrophotographic element comprising:
 an electroconductive support member;
 a charge carrier producing layer comprising an azo pigment having a styrylstilbene group, as a photoconductive material effective for producing charge carriers; and
 a charge transport layer adjacent said charge carrier producing layer, which consists essentially of a hydrazone having the formula



wherein R_1 is methyl, ethyl, 2-hydroxyethyl, or 2-chloroethyl, and R_2 is methyl, ethyl, benzyl or phenyl, and a binder resin selected from the group consisting of polyamide, polyurethane, polyester, epoxy resin, polyketone, polyvinyl ketone, polystyrene, poly-N-vinyl carbazole and polyacrylamide.

4,365,015

PHOTOSENSITIVE MEMBER FOR ELECTROPHOTOGRAPHY COMPOSED OF A PHOTOCONDUCTIVE AMORPHOUS SILICON

Nobuo Kitajima, Toride; Shunichi Ishihara, Kodaira; Yuji Nishigaki, Kawasaki, and Nobuko Kitahara, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed August 11, 1980, Ser. No. 177,118

Claims priority, application Japan, August 20, 1979, 54-105671; August 21, 1979, 54-106759

Int. Cl.³ G03G 5/08, 5/14

U.S. Cl. 430-62

13 Claims

1. An electrophotographic photosensitive member adapted for use in an electrophotographic process in which a photoconductive layer having electrodes is subjected to imagewise exposure in the presence of a voltage to generate a difference in the distributed voltage between the exposed and unexposed areas due to the change in resistance in the exposed area of said photoconductive layer thereby creating a potential image by the difference in surface potential corresponding to said difference in the distributed voltage, which comprises a photoconductive layer principally composed of amorphous silicon, a number of electrically isolated conductors formed on the surface of the photoconductive layer, and one pair of electrodes arranged at the photoconductive layer, said one pair of electrodes arranged in such a way that a potential applied between said one pair of electrodes can be distributed through each of said isolated conductors.

4,365,016

BENZOTELLUROPYRYLIUM DIKETONATE ELECTRON ACCEPTING DYE SENSITIZERS FOR ELECTRON DONATING PHOTOCONDUCTIVE COMPOSITIONS

Michael R. Detty; Bruce J. Murray, and Jerome H. Perlstein, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed July 1, 1981, Ser. No. 279,363

Int. Cl.³ C07D 345/00; G03C 1/72

U.S. Cl. 430-83

17 Claims

1. A dye comprising a benzotelluropyrylium diketonate nucleus.

4,365,017

TELLUROPYRYLIUM ELECTRON ACCEPTING DYE SENSITIZERS FOR ELECTRON DONATING PHOTOCONDUCTIVE COMPOSITIONS

Michael R. Detty; Bruce J. Murray, and Jerome H. Perlstein, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed July 1, 1981, Ser. No. 279,365

Int. Cl.³ C07D 345/00; G03C 1/72

U.S. Cl. 430-83

15 Claims

1. A dye comprising a telluropyrylium nucleus.
 4. A dye comprising a benzotelluropyrylium nucleus.

4,365,018

IMAGING ELEMENT AND AN IMAGING TECHNIQUE
 E. Bryant Crutchfield, Dayton; Richard F. Wright, Chillicothe; Paul C. Adair, Chillicothe; Seth O. Harris, Chillicothe; Dale R. Shackle, Chillicothe, and Dennis L. Williams, Chillicothe, all of Ohio, assignors to The Mead Corporation, Dayton, Ohio

Filed May 11, 1981, Ser. No. 262,015

Int. Cl.³ G03C 5/04

U.S. Cl. 430-139

36 Claims

20. A process for imaging which comprises:
 positioning adjacent an original an image element including:
 a support member,
 a light generating unit wherein said light generating unit comprises one or more layers containing at least one reagent of a chemiluminescent reaction system, said system being temporarily prevented from reacting and chemiluminescing by physically separating at least one reagent from the balance of said system, and
 a light sensitive imaging layer sensitive to the chemiluminescence of said light generating unit,
 activating said light generating unit such that said light generating unit chemiluminesces,
 image-wise exposing said light sensitive imaging layer with chemiluminescence reflected from said original, and
 forming an image in said light sensitive imaging layer.

4,365,019

POSITIVE-WORKING RESIST QUINONE DIAZIDE CONTAINING COMPOSITION AND IMAGING METHOD HAVING IMPROVED DEVELOPMENT RATES

Robert C. Daly, Greece, and John R. Guild, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed August 6, 1981, Ser. No. 290,461

Int. Cl.³ G03C 1/60, 1/72; G03F 7/08

U.S. Cl. 430-190

7 Claims

1. In a positive-working composition sensitive to light or electron beams comprising in admixture a 1,2-quinone diazide condensation product and a sensitivity-enhancing agent; the improvement wherein said sensitivity-enhancing agent is a heterocyclic compound having one, two or three rings, the nuclear atoms of which consist of carbon atoms and from 2 to 4 nitrogen atoms, at least one of the nitrogen atoms being bonded to hydrogen, said compound having at least two halogen substituents bonded to said nuclear carbon atoms.

4,365,020

METHOD FOR THE PREPARATION OF ANTIBIOTIC SISOMICIN

Istvan Gado; Antonia Jekkel nee Bokany; György Szvoboda; Miklos Jari; Sandor Piukovich, all of Budapest, and Sandor Istvan, Szentendre, all of Hungary, assignors to CHINOIN Gyogyszer es Vegyszeri Termek Gyara R.T., Budapest, Hungary

Filed December 8, 1980, Ser. No. 214,425

Claims priority, application Hungary, 1979, CI 1911

Int. Cl.³ C12P 19/48

U.S. Cl. 435-80

10 Claims

1. A process for producing sisomicin comprising cultivating *Micromonospora rosea*, in a nutrient medium containing assimilable sources of carbon and nitrogen under aerobic conditions.

4,365,021

LOW TEMPERATURE SEALANT GLASS

Perry P. Pirooz, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed July 22, 1981, Ser. No. 286,104

Int. Cl.³ C03C 3/10, 3/08

U.S. Cl. 501-15

7 Claims

1. A sealing glass composition consisting essentially of a vitreous lead borate glass in admixture with a sufficient amount of a crystalline beta eucryptite such that together they provide

the desired coefficient of expansion for a strong, tightly hermetic, moisture-resistant seal, said beta eucryptite having an average linear coefficient of thermal expansion of $-123 \pm 5 \times 10^{-7}$ (0° - 300° C.) in/in $^\circ$ C.

4,365,022

METHOD FOR MANUFACTURE OF HIGH-STRENGTH SINTERED ARTICLE OF SUBSTANCES HAVING β -SILICON NITRIDE TYPE CRYSTAL STRUCTURE

Hideyo Tabata; Yoshitaka Kuwahara, both of Kasugai; Michihide Machida, Nagoya; Shyoichi Kume, Nagoya; Takeo Iga, Nagoya; Kazuo Saitoh, Nagoya, and Shinji Tomura, Seto, all of Japan, assignors to Agency of Industrial Science & Technology and Ministry of International Trade & Industry, both of Tokyo, Japan

Filed November 2, 1981, Ser. No. 317,542

Claims priority, application Japan, December 6, 1980, 55-172417; December 6, 1980, 55-172418

Int. Cl.³ C04B 35/58

U.S. Cl. 501-97

6 Claims

1. A method for the manufacture of a high-strength sintered article of β -silicon nitride composition, which comprises blending 50 to 99.9 wt. % of a composition which, on being burned, acquires the structure of β -silicon nitride composition with 50 to 0.1 wt % of a mixture, as a sintering aid, consisting of BeO , Ga_2O_3 , and Al_2O_3 of respective amounts such as to have a Ga_2O_3/BeO ratio in the range of from 2.8 to 9.4, an Al_2O_3/BeO ratio in the range of from 0.0 to 2.6, and an Al_2O_3/Ga_2O_3 ratio in the range of from 0.0 to 1.1, all ratios being ratios by weight, molding the resultant blend, and sintering the molded blend at a temperature in the range of from 1300° to 1850° C.

4,365,023

METHOD FOR MANUFACTURING BLOCK COPOLYMER

Teruo Fujimoto; Mitsuru Nagasawa, both of Nagoya, and Syotaro Ohno, Tokuyama, all of Japan, assignors to Toyo Soda Manufacturing Co., Ltd., Shinnanyo, Japan

Filed November 13, 1980, Ser. No. 206,562

Claims priority, application Japan, November 27, 1979, 54/152386

Int. Cl.³ B01J 43/00

U.S. Cl. 521-32

7 Claims



1. A method for manufacturing by living anion polymerization a ternary copolymer of a molecular structure formed with a macro-molecule which has a cation exchange group, a macro-molecule which has an anion exchange group and another macro-molecule which does not have any ion exchange group therein linked together into a straight chain, said method comprising: obtaining a crude ternary block copolymer by carrying out block copolymerization of a monomer component which is capable of forming a macro-molecular domain permitting introduction of a cation exchange group therein, a monomer component which is capable of forming a macro-molecular domain permitting introduction of an anion exchange group therein and a monomer component which is capable of forming another macro-molecular domain which contains no ion exchange group; a process of shaping said crude ternary block copolymer into a desired form; introducing a cation exchange

group into said macro-molecular domain which permits introduction of a cation exchange group thereinto; and introducing an anion exchange group into said macro-molecular domain which permits introduction of an anion exchange group thereinto; wherein the percentage by weight of the monomer component which is capable of forming said macro-molecular domain having no ion exchange group is 30-90%, and the percentage by weight of the monomer which is capable of forming said macro-molecular domain permitting introduction of a cation exchange group and that of the monomer component which is capable of forming said macro-molecular domain permitting introduction of an anion group are at least 5% respectively.

4,365,024

POLYOXYALKYLENE/UNSATURATED DIESTER REACTION PRODUCT FOR CELLULAR FOAM STABILIZATION

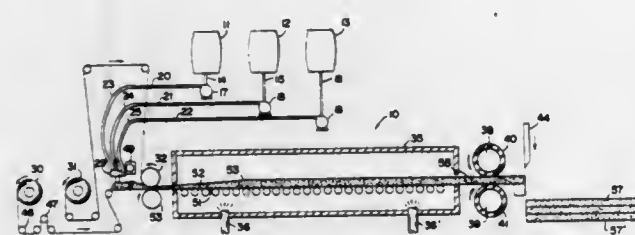
Richard L. Frentzel, Clearwater, Fla., assignor to The Celotex Corporation, Tampa, Fla.

Filed July 10, 1981, Ser. No. 282,322

Int. Cl.³ C08J 9/14

U.S. Cl. 521-114

37 Claims



1. A foam material comprising the reaction product of:
 - A. phenol aldehyde resin forming ingredients, and
 - B. a blowing agent, and
 - C. a surfactant which comprises the reaction product consisting of
 - (a) a polyoxyalkylene adduct having the formula

H—polyoxyalkylene chain), R,

wherein R is an organic or inorganic radical and t is the number of polyoxyalkylene chains reacted onto R, and (b) an esterified unsaturated dibasic acid having the formula



wherein u is 2 or 3 and T¹ and T² are identical or different and represent a straight or branched, saturated or unsaturated hydrocarbon chain, in the presence of an effective amount of a free-radical initiator, and wherein polyoxyalkylene adduct is treated either before or after its reaction with the esterified unsaturated dibasic acid with a capping agent capable of reacting with the hydroxyl groups of said adduct to reduce the hydroxyl number of said adduct to less than 50.

4,365,025

FLEXIBLE POLYURETHANE FOAMS FROM POLYMETHYLENE POLYPHENYL ISOCYANATE CONTAINING PREPOLYMERS

Robert M. Murch, Brinklow, and Louis L. Wood, Rockville, both of Md., assignors to W. R. Grace & Co., New York, N.Y.

Filed December 8, 1981, Ser. No. 328,478

Int. Cl.³ C08G 18/14

U.S. Cl. 521-159

25 Claims

1. A flexible foam having low compression set values of about 25% or less and good hydrolytic stability made by mixing together and reacting an aqueous phase and a resin phase comprising a prepolymer derived from
 - (a) a diphenylmethane diisocyanate-containing isocyanate product with a functionality of greater than 2.0 com-

prising a mixture of diphenylmethane diisocyanate and polymethylene polyphenyl isocyanate, and
(b) a polyol having at least about 50% by weight of oxyethylene groups and having nominally two to three hydroxyl equivalents per mole, the ratio of the isocyanate equivalents to the total hydroxyl equivalents being in the range of 1.5:1 to 5:1.

4,365,026

(HALO)(HYDROXY)-SUBSTITUTED PHOSPHITES AND PHOSPHORATES AS FLAME RETARDANTS IN POLYURETHANE FOAMS

Chester E. Pawloski, Bay City, and Sally P. Ginter, Sanford, both of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed April 2, 1981, Ser. No. 250,449

Int. Cl.³ C08G 18/14, 18/32, 18/38; C07F 9/02

U.S. Cl. 521-168

8 Claims

1. A polyurethane compound comprising the reaction product of a diisocyanate compound and an effective amount for flame retardancy of a substituted phosphorus-containing compound having a viscosity at 25° C. as measured by a Brookfield viscosity meter of less than 500,000 centipoise selected from the group consisting of:



where

X is halo;

R is hydroxyl, halo or a moiety having up to 10 carbons selected from the group consisting of alkyl, aryl, haloalkyl, haloaryl, alkoxy and haloalkoxy;

R' is a divalent moiety having up to 10 carbons selected from alkylene, arylene, alkyl- or aryl-substituted derivatives thereof, and $-(OCH_2CHR''-)_x$, wherein R'' is hydrogen, methyl, ethyl or halomethyl, and x is 1, 2 or 3;

m is zero or 1; and

n is a number greater than or equal to zero and less than three that indicates the number of equivalents of specified moiety per mole of named compound.

4,365,027

REMOVAL OF ACRYLONITRILE FROM LATEX WITH OXIMES

Michael L. Senyek, Tallmadge, and Albert J. Costanza, Fairlawn, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed December 28, 1981, Ser. No. 334,770

Int. Cl.³ C08K 5/16

U.S. Cl. 523-332

14 Claims

1. An improved process for reducing the concentration of free acrylonitrile in an acrylonitrile polymer emulsion containing free acrylonitrile, comprising adding to said acrylonitrile polymer emulsion an oxime in amounts and under conditions sufficient to react with said free acrylonitrile to form a cyanoethyl oximino ether linkage.

4,365,028

COATING COMPOSITION

Gus W. Leep, Elgin, and Morris J. Root, Highland Park, both of Ill., assignors to Seymour of Sycamore, Inc., Sycamore, Ill.

Filed June 11, 1981, Ser. No. 272,784

Int. Cl.³ C08L 23/00, 63/00, 67/02, 75/06

U.S. Cl. 523-402

13 Claims

1. An improved water-in-oil emulsion coating composition comprising: (a) a continuous phase, said continuous phase including an organic solvent, said solvent being of aliphatic or aromatic or combined aliphatic and aromatic hydrocarbon composition; (b) a dispersed phase, said dispersed phase including water; (c) a film-forming resin dissolvable in said solvent, said continuous phase further including an effective amount of said resin for forming a film on a workpiece; and, (d) an emulsifier, said coating composition including an effective amount of said emulsifier for maintaining stable dispersion of said dispersed phase throughout said continuous phase, said emulsifier having an HLB value of from 2 to about 6, whereupon said coating composition has as much as 80 percent water on a weight basis, said water thereby extending said solvent as to said coating composition, said water being substituted for said solvent throughout said coating composition.

4,365,029

COATING AND ADHESIVE COMPOSITION COMPRISING (A) PVC, (B) ACRYLATE POLYMER HAVING CARBOXYL CURE SITES AND (C) REINFORCING FILLER

Robert F. Reizer, Stanton; Albert H. Koivu, Huntington Beach, and Leslie J. Cohen, Los Angeles, all of Calif., assignors to McDonnell Douglas Corporation, Long Beach, Calif.

Filed 1981, Ser. No. 234,779

Int. Cl.³ C08F 8/00; C08L 63/00, 33/02; C08K 3/04

U.S. Cl. 523-437

17 Claims

1. An abrasion resistant coating composition or adhesive which comprises an ethylene-acrylic elastomer having cure site carboxyl groups, a high molecular weight polyvinyl chloride and a reinforcing filler.

4,365,030

OVERTREATED HIGHER DIALKYL DIMETHYL AMMONIUM CLAY GELLANTS

Alexis A. Oswald, Mountainside, and Harry W. Barnum, Edison, both of N.J., assignors to Exxon Research and Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 712,667, Aug. 9, 1976, abandoned, which is a division of Ser. No. 509,809, Sep. 27, 1974, Pat. No. 3,974,125. This application March 23, 1977, Ser. No. 780,450

Claims priority, application Canada, August 20, 1975, 233773; United Kingdom, August 22, 1975, 34951/75; Italy, September 5, 1975, 26976 A/75; Fed. Rep. of Germany, September 18, 1975, 2541557; France, September 20, 1975, 75 29615

Int. Cl.³ C08L 67/08, 67/06

U.S. Cl. 523-508

19 Claims

1. A process for preparing a quaternary higher dialkyl dimethyl ammonium clay composition of layer and chain type structure comprising reacting in a reaction media comprising a water miscible, polar organic solvent and water having dispersed therein mineral clays of layer and chain type structure with a quaternary higher dialkyl dimethyl ammonium salt dissolved in said reaction media, wherein the concentration of ammonium ions of said ammonium salt ranges from about 12 to 25% above the ion exchange capacity of the clay as expressed in milliequivalents per 100 g. dry clay and as determined by the amount of ammonium acetate which reacts with the clay when an excess of ammonium acetate is used as a reactant.

4,365,031

COMPOSITION AND PROCESS FOR MAKING A GREEN COLORED POLYESTER

Fred L. Massey, Uniontown, and Douglas D. Callander, Akron, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation-in-part of Ser. No. 198,071, Oct. 27, 1980. This application March 4, 1981, Ser. No. 240,426

Int. Cl.³ C08K 3/22; C08L 67/02

U.S. Cl. 524-88

35 Claims

1. In a polyester article the improvement comprising: a small amount of various color-imparting compounds contained in the polyester for imparting a green color thereto, said color-imparting compounds comprising a niobium catalyst compound, and a blue pigment, the amount of said niobium catalyst compound utilized is such that the amount of elemental niobium in said niobium catalyst compound ranges from about 5 to about 150 parts by weight based upon one million parts by weight of said polyester, and the amount of said blue pigment ranges from about 20 parts to about 100 parts by weight based upon one million parts by weight of said polyester, said amount of said compounds imparting a green color to said article.

4,365,032

MONOESTER COMPOUND OF 2,2-ALKYLIDENE BIS(4,6-DI-SUBSTITUTED PHENOL)

Akihiko Yosizato; Yoshinori Morifuji; Kunio Kondo, all of Moriyama, and Masatsugu Yoshino, Numazu, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha Osaka, Japan

Continuation of Ser. No. 100,457, Dec. 5, 1979, abandoned. This application November 4, 1981, Ser. No. 318,018

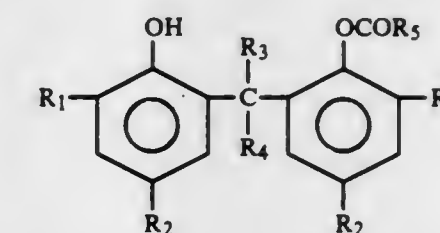
Claims priority, application Japan, December 6, 1978, 53-150063; October 25, 1979, 54-137051; November 28, 1979, 54-152872

Int. Cl.³ C08K 5/34; C07D 5/13; C07C 67/14, 67/08, 69/92, 69/88, 69/78, 69/74, 69/28

U.S. Cl. 524-99

42 Claims

1. A compound of the formula,



wherein R₁ and R₂, which may be the same or different, each represents a C₁₋₄ alkyl group, a C₅₋₆ cycloalkyl group or a methyl-substituted C₅₋₆ cycloalkyl group; and one of R₃ and R₄ represents a hydrogen atom and the other represents a hydrogen atom or a C₁₋₁₀ alkyl group or both of them represent a methyl group; R₅ represents a C₄₋₉ alkyl group, a C₃₋₇ cycloalkyl group, a phenyl group, a C₁₋₄ alkyl-substituted phenyl group, a C₁₋₄ alkoxy-substituted phenyl group, a mono- or di-C₁₋₄ alkyl-substituted hydroxyphenyl group, a benzyl group or a pyridyl group.

35. A polyurethane synthetic resin composition comprising 100 parts by weight of polyurethane synthetic resin and about 0.001 to about 10 parts by weight of the compound of the Formula (I) of claim 1.

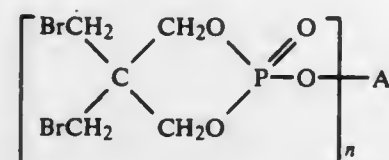
4,365,033

FLAME-RETARDANT POLYMER COMPOSITIONS CONTAINING METAL OR AMINE SALTSYuval Halpern, Skokie, and Donna M. Mott, Des Plaines, both of Ill., assignors to Borg-Warner Corporation, Chicago, Ill.
Filed July 2, 1981, Ser. No. 279,634
Int. Cl.³ C08K 5/34, 5/52

U.S. Cl. 524—118

8 Claims

1. A composition comprising a normally flammable polymer and a minor porportion, sufficient to impart flame-retardant properties to said composition, of a salt of 5,5-bis (bromomethyl)-2-hydroxy-2-oxo-1,3,2-dioxaphosphorinane having the structure



where A is a polyvalent metal or protonated amino-s-triazine group and n is an integer corresponding to the valence of A.

4,365,034

ACETYLENE-TERMINATED POLYIMIDE COMPOSITIONS

Mark F. Grimes, Springfield, and Theodore J. Reinhart, Jr., Dayton, both of Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed September 21, 1981, Ser. No. 304,126
Int. Cl.³ C08G 73/12

U.S. Cl. 524—256

3 Claims

1. A composition of matter comprising a major amount of an acetylene-terminated polyimide oligomer and a minor amount of a cure rate inhibitor selected from the group consisting of hydroquinone maleic acid, glutaric acid, dibetanaphthyl para-phenylene diamine.

4,365,035

PIGMENTED JET PRINTING INK

Daniel M. Zabiak, Park Ridge, Ill., assignor to A. B. Dick Company, Niles, Ill.

Continuation of Ser. No. 850,140, Nov. 10, 1977, abandoned.
This application May 18, 1979, Ser. No. 40,117
Int. Cl.³ C08K 5/04

U.S. Cl. 524—283

24 Claims

1. A water base jet printing ink composition for printing on black, dark, or highly colored substrates, the essential components of the water based jet printing ink consisting essentially of

- (1) a highly water dispersible white inorganic pigment having a particle size less than 5 microns,
- (2) a water dispersible thermoplastic acrylic resin,
- (3) a solvent selected from the group consisting of low boiling alcohol and water-alcohol mixture,
- (4) a basic compound dissolved in the solvent for adjustment of the pH to within the range of 7.5-9.5,
- (5) a plasticizer which imparts water resistance and abrasion resistance to the formed ink image, and
- (6) water.

4,365,036

FAST CRYSTALLIZING POLYALKYLENETEREPTHALATE RESIN COMPOSITIONS

Chung J. Lee, Sheboygan, Wis., assignor to Plastics Engineering Company, Sheboygan, Wis.

Filed December 15, 1981, Ser. No. 330,879
Int. Cl.³ C08K 5/12, 5/06, 11/00; C08L 67/02

U.S. Cl. 524—299

16 Claims

1. A fast crystallizing molding composition comprising essentially:

- a. a polyalkyleneterephthalate in which the alkylene group has 2-4 carbon atoms;
- b. a complex of NaI and a polymeric compound having at least two recurring units having the formula $-\text{CH}_2\text{C}(\text{H}_2\text{O})-$, the amount of said complex being enough to give a proportion of 0.025-2 percent by weight of NaI based on the weight of said polyalkyleneterephthalate.

4,365,037

GLASS FIBER-REINFORCED POLYARYLENE SULFIDE RESIN COMPOSITION

Tuneyuki Adachi, Nara, and Hiroshi Nakamura, Sakai, both of Japan, assignors to Dainippon Ink & Chemicals, Inc., Tokyo, Japan

Filed July 15, 1981, Ser. No. 283,373
Claims priority, application Japan, July 18, 1980, 55-98269; October 3, 1980, 55-137580
Int. Cl.³ C08L 81/00

U.S. Cl. 524—449

9 Claims

1. A glass fiber-reinforced polyarylene sulfide resin composition comprising 30 to 95 parts by weight of a polyarylene sulfide resin and 70 to 5 parts by weight of glass fibers having a diameter of from 5 to 11.5 microns, the total of the resin and glass fibers being 100 parts by weight, and as an optional component, mica powder.

4,365,038

COMPOSITION OF POLYPHENYLENE ETHER RESINS AND EPDM-POLYSTYRENES MODIFIED WITH SILICONE OIL

Glenn D. Cooper, and Arthur Katchman, both of Delmar, N.Y., assignors to General Electric Company, Pittsfield, Mass.

Filed December 23, 1980, Ser. No. 220,167
Int. Cl.³ C08K 5/54

U.S. Cl. 260—29.1 SB

18 Claims

1. A thermoplastic molding composition which comprises:

- (a) from about 20 to about 80% by weight of a polyphenylene ether resin;
- (b) from about 80 to about 20% by weight of a polystyrene resin-modified with a rubbery interpolymers of a mixture of mono-olefins and a polyene by polymerizing a styrene monomer in the presence of the rubbery interpolymers, and
- (c) a silicone oil, free from unsaturated hydrocarbon groups, in an amount effective to enhance the impact resistance of the composition, at both room temperature and low temperature, and also its surface appearance, wherein said silicone oil is added to a solution of the rubbery interpolymers in the styrene monomer before polymerization of the styrene.

4,365,039

VAPOR PERMEATION CURABLE POLYESTER RESIN COATING COMPOSITIONS FOR FLEXIBLE SUBSTRATES

James R. Blegen, Worthington, Ohio, assignor to Ashland Oil, Inc., Dublin, Ohio

Division of Ser. No. 216,323, Dec. 15, 1980, Pat. No. 4,343,839.
This application April 5, 1982, Ser. No. 365,602
Int. Cl.³ C08G 18/42; B05D 3/10; C08G 18/82

U.S. Cl. 524—773

20 Claims

1. A coating composition rapidly curable at room temperature in the presence of a vaporous tertiary amine catalyst and

possessing a pot life of at least about 4 hours in an open pot, a cured film thereof at a thickness of between about 0.1 and 0.5 mils possessing a flexibility sufficient for a zero T-bend on metal, and a mar resistance of at least about 2,000 grams as borne by the edge of a nickel passed over said cured film, comprising:

(A) an aromatic hydroxyl-functional condensation product having an acid number of less than about 10 and made by condensing the following ingredients in the indicated molar proportions or double thereof except for the phenolic-functional carboxylic acid:

- (1) between about 1 and 2 moles of a $\text{C}_2\text{--C}_{12}$ linear aliphatic dibasic acid,
- (2) between about 1 and 2 moles of an ortho or meta aromatic dicarboxylic acid or anhydride thereof,
- (3) between about 1 and 4 moles of a $\text{C}_2\text{--C}_6$ alkylene glycol,
- (4) between about 1 and 2 moles of a sterically hindered diol,
- (5) between about 1 and 2 moles of a mono-epoxide or diol having a pendant $\text{C}_8\text{--C}_{22}$ hydrocarbyl group, and
- (6) between about 1 and 2 moles of a phenolic-functional carboxylic acid;

(B) a multi-isocyanate comprising:

- (1) between about 10 and 80 percent by weight of an aromatic multi-isocyanate, and
- (2) between about 90 and 20 percent by weight of an aliphatic multi-isocyanate;

(C) a volatile organic solvent for said condensation product and for said multi-isocyanate, and

(D) a mar-resisting agent of an organic compound physically incompatible in said coating composition and having an effective chain length of at least about 12 carbon atoms; the ratio of aromatic hydroxyl equivalents of said condensation product to the isocyanate equivalents of said multi-isocyanate being between about 1:1 and 1:1.7, said condensation product containing substantially no aliphatic hydroxyl groups, and said condensation product having a phenol functionality of at least 2.

4,365,040

AQUEOUS PLASTIC DISPERSIONS OF UNSATURATED DIACETYLACETIC ESTER

Herbert Eck, and Robert Singer, both of Burghausen, Fed. Rep. of Germany, assignors to Wacker-Chemie GmbH, Munich, Fed. Rep. of Germany

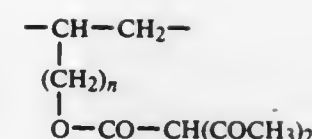
Filed October 1, 1980, Ser. No. 192,732
Claims priority, application Fed. Rep. of Germany, November 27, 1979, 2947768
Int. Cl.³ C08F 220/26, 220/10

U.S. Cl. 524—819

6 Claims

1. A strongly adherent aqueous plastic dispersion consisting essentially of from 20% to 70% by weight of copolymers of at least two olefinically unsaturated compounds selected from the group consisting of:

- (1) vinyl esters of alkenoic acids having from 1 to 20 carbon atoms,
- (2) (meth)acrylic acid esters with alkanols having from 1 to 20 carbon atoms,
- (3) α,β -alkenes having 2 to 6 carbon atoms,
- (4) α,β -alkenyl-aromatic hydrocarbons having 8 to 14 carbon atoms,
- (5) maleic and fumaric acid diesters with alkanols having from 1 to 20 carbon atoms,
- (6) α,β -unsaturated alkenoic acids having from 3 to 7 carbon atoms,
- (7) amides of said alkenoic acids,
- (8) nitriles of said alkenoic acids, and
- (9) vinyl halides, said copolymers containing from 0.2% to 7% by weight of diacetylacetic acid ester units having the formula:



wherein n is the integer 0 or 1, and from 0 to 5% by weight of polyfunctional monomers capable of cross-linking copolymers, in an aqueous dispersion.

4,365,041

RESIN COMPOSITION COMPRISING WATER-SOLUBLE POLYAMIDE AND VINYL ALCOHOL-BASED POLYMER

Takashi Okamoto, Osaka, and Osamu Doi, Jyoyo, both of Japan, assignors to Unitika Ltd., Hyogo, Japan

Filed April 27, 1981, Ser. No. 258,217
Claims priority, application Japan, April 26, 1980, 55-55944; May 22, 1980, 55-68649
Int. Cl.³ C08L 77/00

U.S. Cl. 525—58

21 Claims

1. A resin composition consisting essentially of a water-soluble polyamide and a vinyl alcohol-based polymer in a ratio of from about 0.5/100 to 100/0.5, wherein the water-soluble polyamide contains a sulfonic acid group, a salt of a sulfonic acid group or an ammonium salt type of nitrogen atom and further wherein the linking groups of the water-soluble polyamide are substantially essentially amido bonds.

4,365,042

COMPOSITIONS OF POLYPHENYLENE OXIDES WITH EPDM-SILICONE RUBBER

Glenn D. Cooper, and Arthur Katchman, both of Delmar, N.Y., assignors to General Electric Company, Pittsfield, Mass.

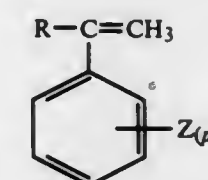
Filed December 23, 1980, Ser. No. 220,166
Int. Cl.³ C08L 83/10

U.S. Cl. 525—68

13 Claims

1. A composition comprising:

- (a) from about 1 to about 15 percent of a graft copolymer of a rubber interpolymers of a mixture of mono-olefins and a polyene with a silicone rubber;
- (b) from about 30 to about 99 percent by weight of a polyphenylene oxide resin; and
- (c) from 0 to about 70 percent by weight of a styrene resin having at least 25% polymer units derived from the compound having the formula:



wherein

R is hydrogen, (lower) alkyl or halogen,
Z is hydrogen, halogen, (lower) alkyl or vinyl, and
p is a whole integer from 1 to 5.

4,365,043

RESINOUS PARTICLES FOR COATING COMPOSITION AND ITS PRODUCTION

Sakuichi Konishi, Nara; Yukio Omori, Kobe, and Hiroyoshi Kataoka, Osaka, all of Japan, assignors to Nippon Paint Co., Ltd., Osaka, Japan

Filed March 14, 1977, Ser. No. 777,548

Claims priority, application Japan, March 12, 1976, 51-27935; March 12, 1976, 51-27936

Int. Cl.³ C08L 33/08, 61/28, 63/00, 67/00

U.S. Cl. 525—113

12 Claims

1. A process for preparing resinous particles for a coating composition which comprises the steps of

(1) treating

(A) an aqueous resin dispersion or solution, which comprises

(a) a resin having carboxyl groups or primary, secondary or tertiary amino groups and no material dispersibility or solubility in water, which resin has been rendered dispersible or soluble in water by at least partly neutralizing the carboxyl groups or the amino groups with a base or an acid, respectively, and

(b) a water-insoluble crosslinking agent which is cross-linkable with functional groups in the resin,

with

(B) an acidic substance or a basic substance as a powdering agent, said acidic substance being used when the resin is one having carboxyl groups, said basic substance being used when the resin is one having primary, secondary or tertiary amino groups,

under conditions which will deposit the resin in particulate form together with the crosslinking agent uniformly dispersed therein, and

(2) recovering the deposited resinous particles containing the crosslinking agent from the aqueous medium.

4,365,044

POLYPROPYLENE COMPOSITION FOR EXTRUSION COATING

Chia-Seng Liu, Newark, Del., assignor to Hercules Incorporated, Wilmington, Del.

Continuation-in-part of Ser. No. 264,160, May 12, 1981,

abandoned. This application July 30, 1981, Ser. No. 288,568

Int. Cl.³ C08L 23/06, 23/12, 25/16

U.S. Cl. 525—240

2 Claims

1. A propylene polymer composition having improved extrudability, comprising (a) a crystalline polypropylene having a melt flow rate at 230° C. of at least 3, (b) low density polyethylene having a density of 0.915 to 0.920, a melt index of 3 to 15 and a G_c value of at least 2.5×10^5 , and (c) a copolymer of vinyl toluene and alpha-methyl styrene, which has been hydrogenated to the point where at least 50% of its aromatic unsaturation has been reduced, and which has a drop softening point from about 100° to 160° C., component (b) being from 3 to 15 parts by weight per 100 parts of (a), component (c) being from 2 to 10 parts by weight per hundred parts of (a), and the total of (b) and (c) being 7 to 20 parts per hundred parts of (a).

4,365,045

CRYSTALLINE OLEFIN BLOCK POLYMERS

Abraham Schneider, Overbrook Hills; Habet M. Khelghatian, Springfield, both of Pa.; Louise D. Hague, Wilmington, Del., and James L. Jezl, Swarthmore, Pa., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Continuation-in-part of Ser. No. 90,173, Feb. 20, 1961, abandoned, which is a continuation-in-part of Ser. No. 816,714, May 29, 1959, abandoned. This application 1965, Ser. No. 424,819

Int. Cl.³ C08F 297/08

U.S. Cl. 525—247

10 Claims

1. A process for producing a block polymer which comprises contacting, under polymerizing conditions, propylene with a catalyst comprising a dispersion of solid particles of a

metal subhalide wherein said metal is selected from the group consisting of the metals of Groups IVa, Va and VIa of the Periodic Table according to Mendeleeff and an activator therefor selected from the group consisting of metal alkyls, metal hydrides, metal borohydrides, aryl metal halides, and alkyl metal halides wherein said metal is selected from the group consisting of aluminum, zinc, beryllium, chromium, magnesium, lithium, sodium, potassium, and lead, in an inert hydrocarbon liquid reaction medium, whereby said propylene is polymerized to form a polymeric block, then contacting a second monomeric composition selected from the group consisting of ethylene and mixtures thereof with propylene, with said catalyst system under polymerizing conditions whereby said second monomeric composition polymerizes in the presence of the previously formed polymeric block as a linear extension thereto, the polymerization of propylene being performed in the presence of sufficient hydrogen to give a melt index suitable for melt processing of the resulting block polymer and the polymerization of said second monomeric composition being performed in the substantial absence of added hydrogen, terminating the polymerization reaction and separating from the reaction mixture a solid, substantially crystalline block polymer which is predominantly insoluble in said reaction mixture at polymerization temperature and comprises molecules consisting essentially of a single homopolymer block linearly connected to a single polymer block selected from the group consisting of an interpolymer block and a homopolymer block derived from a monomer different from that of the first-mentioned homopolymer block, said block polymer consisting essentially of 99.8 to 40 weight percent of propylene and 0.2 to 60 weight percent of ethylene.

4,365,046

PROCESS TO CONTROL THE CURING REACTION BETWEEN A COPOLYESTER RESIN AND AN EPOXIDE COMPOUND, AND A COMPOSITION FORMED FOR THAT PROCESS

Patrick J. Pesata, Jr., Medina; Harlan W. Frerking, Jr., Alliance, and Nelson C. Bletso, Kent, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed 1981, Ser. No. 223,973

Int. Cl.³ C08L 63/00, 67/02

U.S. Cl. 525—438

29 Claims

1. A process to control the activation energy of the curing reaction between a copolyester resin and an epoxide compound, comprising: mixing with copolyester resin, from about 0.01 to about 10 weight percent per copolyester resin weight of an aromatic acid having at least 1 carboxylic acid group and having from 7 to 20 carbon atoms, such that the copolyester resin reaction with the epoxide compound requires a higher activation energy to induce curing of the copolyester resin after compounding with said epoxide compound and during heating of the copolyester resin-epoxide compound mixture; wherein said polymerization of the copolyester resin comprises an esterification stage, a condensation stage, a reactor compounding stage and a finishing stage; and wherein said mixing occurs during said reactor compounding stage or said finishing stage.

4,365,047

RESIN COMPOSITION FOR BONDING FOUNDRY SAND

Koue Ohkawa, Yokohama; Shin Fujii, Zama, and Takashi Seino, Yokosuka, all of Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

Filed May 30, 1980, Ser. No. 154,908

Claims priority, application Japan, June 7, 1979, 54-70620

Int. Cl.³ C08L 67/06

U.S. Cl. 525—447

7 Claims

1. A resin composition for binding foundry sand, said composition comprising

(A) 100 parts by weight of a binder comprising a normally solid, substantially tack-free, crystalline unsaturated polyester, and

(B) 0.1 to 10 parts by weight of a mixture of at least two of three types of radical polymerization catalysts, the first type being a radical polymerization catalyst which requires a temperature of at least 70° C. but below 90° C. to obtain a half-period value of 10 hours, the second type being a radical polymerization catalyst which requires a temperature of at least 90° C. but below 110° C. to obtain a half-period value of 10 hours and the third type being a radical polymerization catalyst which requires a temperature of at least 110° C. but not exceeding 130° C. to obtain a half-period value of 10 hours.

4,365,048

METHOD FOR POLYMERIZING α -OLEFIN

Haruo Ueno, Chiba; Takefumi Yano, Ichihara; Tokuji Inoue, Ichihara; Shigeru Ikai, Ichihara; Yoshiyuki Kai, Ichihara, and Michimasa Shimizu, Ichihara, all of Japan, assignors to UBE Industries, Ltd., Chiba, Japan

Filed May 14, 1981, Ser. No. 263,573

Claims priority, application Japan, May 22, 1980, 55-67159

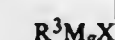
The portion of the term of this patent subsequent to October 27, 1988, has been disclaimed.

Int. Cl.³ C08F 4/02, 10/06

U.S. Cl. 526—128

24 Claims

1. A method for polymerizing an α -olefin which comprises bringing, in the presence of an organic acid ester, a feed containing at least one α -olefin having 3 or more carbon atoms into contact with a catalyst comprising (A) a solid catalytic ingredient which has been prepared in such a manner that (a) a Grignard compound of the formula (I):



wherein R^3 represents an alkyl radical having 1 to 8 carbon atoms and X represents a halogen atom, is reacted with a reaction product of an aluminium halide with an organic silicon compound of the formula (II):



wherein R^1 represents a member selected from the group consisting of alkyl radicals having 1 to 8 carbon atoms and a phenyl radical, R^2 represents an alkyl radical having 1 to 8 carbon atoms and n represents an integer of 1, 2 or 3, (b) the resultant solid reaction product is brought into a first contact with a titanium tetrahalide, (c) the resultant titanium-containing solid product is treated with an organic acid ester and, finally, (d) the treated solid product is brought into a second contact with a titanium tetrahalide; and (B) another catalytic ingredient consisting of at least one trialkyl aluminium of the formula (III):



wherein R^4 represents alkyl radical having 2 to 6 carbon atoms.

4,365,049

FLUOROALKYL ACRYLATE COPOLYMER AND COMPOSITION CONTAINING THE SAME

Takahiro Tsunoda; Tsuguo Yamaoka, both of Funabashi, and Sinji Tamaru, Suita, all of Japan, assignors to Daikin Kogyo Co., Ltd., Osaka, Japan

Filed March 23, 1981, Ser. No. 246,156

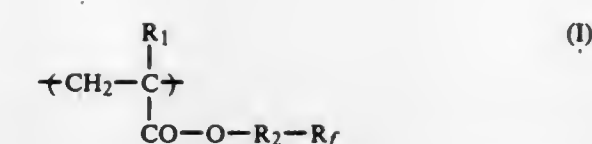
Claims priority, application Japan, March 31, 1980, 55-42704

Int. Cl.³ C08F 20/22

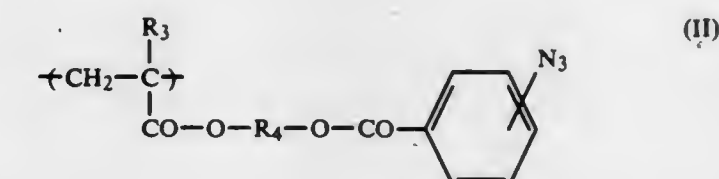
U.S. Cl. 526—245

3 Claims

1. A fluoroalkyl acrylate copolymer comprising at least 10% by mole of recurring units of the general formula (I):



wherein R_1 is hydrogen atom or methyl group, R_2 is a bivalent hydrocarbon group having 1 to 5 carbon atoms, and R_f is a C_2 to C_6 straight or branched perfluoroalkyl group or a C_2 to C_6 straight or branched fluoroalkyl group having hydrogen atoms of not less than one and of not more than half of the number of the carbon atoms, and at least 5% by mole of recurring units of the general formula (II):



wherein R_3 is hydrogen atom or methyl group, and R_4 is a bivalent hydrocarbon group or a mono-substituted bivalent hydrocarbon group with hydroxyl group or a halogen except fluorine having 1 to 5 carbon atoms.

4,365,050

AMINO-POLYSACCHARIDES AND COPOLYMERS THEREOF FOR CONTACT LENSES AND OPHTHALMIC COMPOSITIONS

Edward J. Ivani, 2360 E. 74 St., Brooklyn, N.Y. 11234

Filed July 15, 1981, Ser. No. 283,613

Int. Cl.³ C08L 5/08, 89/00

U.S. Cl. 527—312

7 Claims

1. A polymeric composition formed from D-glucosamine or derivatives thereof selected from the group consisting of N-acetyl-D-glucosamine, substituted N-acetyl-D-glucosamine, derivatives of N-acetyl-D-glucosamine and graft and block polymers of N-acetyl-D-glucosamine, and a compound selected from the group consisting of a silicone, collagen, acrylonitrile, acrylamide, methacrylate acids and esters, alkylamino-alkyl methacrylate and hydroxyalkyl methacrylate and pyrrolidone and derivatives of pyrrolidone.

4,365,051

POLYURETHANE PREPARED FROM DIAMINE AND PREPOLYMER

Daniel A. Chung, North Canton, and John P. Lawrence, Stow, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation of Ser. No. 124,162, Feb. 25, 1980, abandoned,

which is a division of Ser. No. 13,697, Feb. 21, 1979, Pat. No. 4,254,272. This application April 3, 1981, Ser. No. 250,976

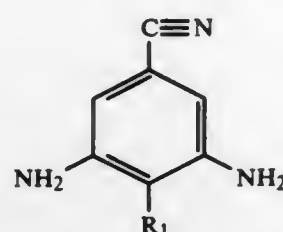
Int. Cl.³ C08G 18/32

U.S. Cl. 528—64

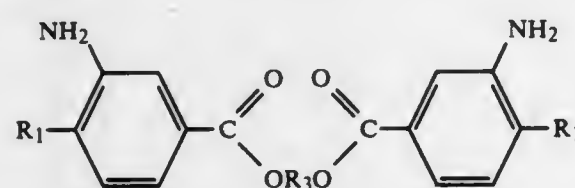
4 Claims

1. A polyurethane prepared by reacting at least one substituted aromatic diamine with an isocyanate terminated prepolymer prepared by reacting a polyisocyanate having an isocyanato functionality of 2 to 3, with a polyol comprised of about 80 to about 100 weight percent polymeric polyols selected from polyester polyols, polyether polyols and hydroxyl terminated unsaturated polymeric polyols and correspondingly, about 20 to about 0 weight percent monomeric hydrocarbon diols having 3 to 8 carbon atoms, where the ratio of isocyanato groups to hydroxyl groups of the polyol, or polyol mixture, is in the range of about 1.3/1 to about 5/1, and where the ratio of amino groups of said diamine to excess isocyanato groups of said hydroxyl groups is in the range of about 0.5/1 to about 1.1/1; characterized in that said substituted aromatic diamine is selected from at least one of the groups consisting of

- (I) cyclohexyl-3,5-diamino-4-tert-butylbenzoate and/or phenyl-3,5-diamino-4-tert-butylbenzoate;
(II) a 3,5-diamino-4-tert-alkylbenzonitrile of the formula



wherein R_1 is selected from butyl, tertiary amyl and tertiary hexyl radicals; and
(III) an alkylene bis(3-amino-4-tert-alkylbenzoate) of the following formula:



wherein R_1 is selected from tertiary butyl, tertiary amyl and tertiary hexyl radicals and R_3 is selected from straight chain saturated alkylene radicals containing 2-10 carbon atoms.

4,365,052

METHOD FOR THE PREPARATION OF TRANSPARENT CASTING RESINS

Ulrike Reeh, Munich, and Hans Denk, Gauting, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed April 16, 1981, Ser. No. 254,607

Claims priority, application Fed. Rep. of Germany, April 25, 1980, 3016103

Int. Cl.³ C08G 59/68

U.S. Cl. 528—92

5 Claims

1. A method for the manufacture of transparent casting resins prepared from aromatic diglycidyl ethers, carboxylic acid anhydrides, metal salts of carboxylic acids and auxiliary agents and additives, comprising forming an admixture of (a) a premixture comprising zinc octoate and a low-molecular weight acid ester, which premixture is liquid at room temperature, and (b) a liquid acid anhydride, and adding said admixture to a liquid aromatic diglycidyl ether.

4,365,053

ALKYLATED

ISOADIPOGUANAMINE-FORMALDEHYDE CROSSLINKING RESIN AND IMPROVED COATING COMPOSITIONS PRODUCED THEREFROM

Francis E. Schweitzer, Philadelphia, Pa., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed August 8, 1980, Ser. No. 176,551

Int. Cl.³ C08G 12/30

U.S. Cl. 528—258

6 Claims

1. A thermosetting crosslinking resin mixture for use with film-forming material selected from the group consisting of acrylic resins, polyester or alkyd resins, and epoxy resins, or mixtures of these, said resin mixture consisting essentially of the reaction product of:

- (1) an isoadipoguanamine mixture consisting essentially of:
(a) about 87-95 percent by weight, based on the weight of the isoadipoguanamine mixture, of 2-methylglutarguanamine,
(b) about 4-12 percent by weight, based on the weight of the isoadipoguanamine mixture, of 2-ethylsuccinoguanamine, and

- (c) about 1-2 percent by weight, based on the weight of the isoadipoguanamine mixture, of adipoguanamine;
(2) from 3-6 moles of formaldehyde per mole of said isoadipoguanamine mixture; and
(3) a stoichiometric excess of an aliphatic alcohol having 1-4 carbon atoms or of a mixture of such alcohols.

4,365,054

ETHYLENE GLYCOL TEREPHTHALATE PRODUCTION

Bernard D. Stabley, Jr., Chester, Va., assignor to The Firestone Tire & Rubber Company, Akron, Ohio

Filed August 11, 1975, Ser. No. 603,479

Int. Cl.³ C08G 63/04, 63/14, 63/34

U.S. Cl. 528—277

9 Claims

1. The method of producing an ester of ethylene glycol and terephthalic acid which comprises catalyzing the esterification of 1.2 to 2 mols of ethylene glycol with 1 mol of terephthalic acid under conditions ranging between 225° to 250° C. and a pressure of 10 to 40 psig, using as a catalyst 0.005 to 0.030 part of $M_2O(TiO_2)_n$ per hundred parts of the reactants, in which M is from the class consisting of lithium, potassium, sodium, rubidium and caesium, and n is 0.05 to 25.

4,365,055

PROCESS FOR PRODUCING SUBSTANTIALLY LINEAR CARBONATE POLYMER

Darold L. Madigan, Elk Grove Village, Ill., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed June 24, 1981, Ser. No. 276,753

Int. Cl.³ C08G 63/62

U.S. Cl. 528—371

22 Claims

1. A process for producing substantially linear carbonate polymer comprising:

- a. introducing carbonic dihalide to substantially anhydrous solution comprising inert organic solvent, at least one substituted or unsubstituted 1,3-propanediol and a catalytic amount of nitrogen-containing, hydrohalide salt-forming, thermally regenerable organic catalyst, while the temperature of said solution is in the range of from about 70° C. to about 225° C.; and
b. removing hydrogen halide from the vicinity of said solution.

4,365,056

PROCESS FOR PRODUCING 2-(C₁ TO C₃ ALKYL)-Δ²-OXAZOLINE COPOLYMERS

Paul Sunder-Plassmann, Marl, Fed. Rep. of Germany, assignor to Chemische Werke Hüls AG, Marl, Fed. Rep. of Germany

Filed September 11, 1981, Ser. No. 301,269

Claims priority, application Fed. Rep. of Germany, September 25, 1980, 3036119

Int. Cl.³ C08G 73/00

U.S. Cl. 528—403

9 Claims

1. In a process for preparing a linear or slightly branched 2-(C₁ to C₃ alkyl)-Δ²-oxazoline copolymer from a mixture of monomers more than 50 mole % of which is 2-(isopropyl- and/or n-propyl)-Δ²-oxazoline and less than 50 mole % of which is 2-(methyl- and/or ethyl)-Δ²-oxazoline, the copolymer having a viscosity number of 35 to 70 ml/g which is easily reproducible from batch to batch,

comprising polymerizing the monomers in the presence of a cation-active catalyst whose anion is slightly nucleophilic, the improvement wherein,

- (A) the monomers used as reagents contain less than 200 mg of water per liter of reagent and less than 0.003% by weight of basic nitrogen, the monomers being obtained by the following purification steps:
(i) fractional distillation thereof, optionally carried out after preaddition to the monomer reagent of an inert, organic solvent which acts as an entraining agent for impurities and which has a boiling point at least 15° C. lower at normal pressure than the monomer reagent, and optionally carried

out at reduced pressure, which method can be applied to all monomers, or

addition thereto of an inert, organic solvent which acts as an entraining agent for impurities and which has a boiling point at least 15° C. lower at normal pressure than the monomer reagent; followed by distillation to extensively remove this solvent; subsequently followed by addition to the resultant sump product of from 0.01 to 2 parts by weight, referred to 100 parts by volume of the monomer reagent, of an aromatic isocyanate boiling at above 100° C./7 mbar; and ensuing fractional distillation at reduced pressure, which method can only be applied to 2-isopropyl-Δ²-oxazoline monomer reagent;

- (ii) subsequent contact with silica gel or neutral aluminum oxide, and
(iii) optional drying above a molecular sieve having a pore width of 0.3 to 0.4 nm;
(B) the polymerization is discontinuous and is carried out in a stirring vessel provided with a reflux condenser adequately dimensioned to remove the heat of polymerization by evaporative cooling;
(C) the polymerization temperature is from 120 to 175° C., and the temperature following the conversion of 90 mole-% of the monomers does not exceed 165° C., and
(D) the polymerization is stopped after a conversion of 96 to 99.5 mole-% of monomers has been reached.

4,365,058

METHOD OF PREPARATION OF ESTERS OF ANTIBIOTICS SELECTED FROM THE GROUP CONSISTING OF POLYENE MACROLIDES AND OF N-SUBSTITUTED DERIVATIVES THEREOF

Leonard S. Falkowski, Gdansk; Barbara J. Stefanska; Elzbieta Troka, both of Gdansk-Oliwa; Jerzy J. Golik, Sopot, and Edward Borowski, Gdansk-Wrzeszcz, all of Poland, assignors to Politechnika Gdanska, Gdansk, Poland

Filed July 7, 1980, Ser. No. 166,598

Claims priority, application Poland, July 18, 1979, 217239

Int. Cl.³ C07H 17/08

U.S. Cl. 536—6.5

3 Claims

1. A method of esterifying polyene microlide antibiotics having a carboxyl group and selected from the group consisting of nystatin, aureofacin, candicidin, pimarin, amphotericin B and polyfungin and the N-substituted acetyl and N-penten-2-on-3-yl-2 derivatives of these antibiotics, which comprises the steps of reacting said antibiotic compound with an alcohol selected from the group consisting of one to five carbon aliphatic alcohols and monocyclic aryl alcohols; in at least one neutral organic solvent therefor; in the presence of a reaction promoter selected from the group consisting of dicyclohexyl carbodiimide and mixtures of dicyclohexyl carbodiimide with hydroxybenzotriazole; at temperatures up to 40° C. until completion, isolating said ester and then purifying same.

4,365,059

NITRATION OF CELLULOSE

Robert P. Baumann, Mine Hill; Marcel Blais, Newton, and Irwin Spiess, Pequannock, all of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed August 3, 1981, Ser. No. 289,438

Int. Cl.³ C08B 5/02

U.S. Cl. 536—35

7 Claims

1. A process for the production of nitrocellulose by the reaction of nitric acid and cellulose which comprises introducing into the reaction mixture containing concentrated nitric acid and cellulose, a mixture of nitric oxide and an oxygen containing gas to react with the water formed in the nitration reaction.

4,365,057

METHOD FOR DRYING POLYOLEFINS

Shinichi Saito; Kazuo Aikawa; Michio Orino; Kazuya Aoi, and Hideo Kusakabe, all of Ichihara, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

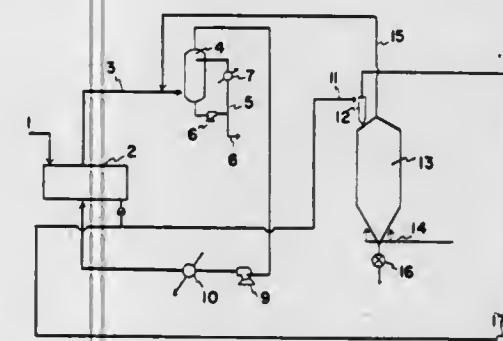
Filed March 27, 1979, Ser. No. 24,268

Claims priority, application Japan, June 29, 1978, 53-79382

Int. Cl.³ C08F 6/10

U.S. Cl. 528—503

2 Claims



1. A method for drying a poly(α-olefin), which comprises supplying nitrogen gas having a dew point of -10° C. or lower into a silo type through-flow drying apparatus from the lower part thereof and contacting a poly(α-olefin) having a content of hydrocarbon medium of 0.2 to 2% by weight with said nitrogen gas in counterflow in said drying apparatus, the amount of nitrogen gas supplied being 20 to 40 Nm³ per 1 ton of the poly(α-olefin), said drying in the silo type through-flow drying apparatus being carried out at a temperature of 70° to 130° C. and a retention time of the poly(α-olefin) of 0.5 to 20 hours.

4,365,060

ENTEROSOLUBLE CAPSULES

Yoshiro Onda; Hiroaki Muto, and Kazumasa Maruyama, all of Joetsu, Japan, assignors to Shin-Etsu Chemical Co. Ltd., Tokyo, Japan

Filed April 15, 1980, Ser. No. 140,478

Claims priority, application Japan, April 28, 1979, 54-52914; August 27, 1979, 54-108888

The portion of the term of this patent subsequent to October 7, 1997, has been disclaimed.

Int. Cl.³ C08B 3/16, 13/00

U.S. Cl. 536—65

3 Claims

1. An enterosoluble capsule for containing a medicament shaped with a mixed ester of a cellulose ether substituted with substituent groups selected from the class containing of alkyl groups and hydroxyalkyl groups esterified with acidic succinyl groups and aliphatic monovalent acyl groups wherein the average numbers of substitution of the acidic succinyl groups and the aliphatic monovalent acyl groups bonded to the cellulose ether are at least 0.1 and 0.05, respectively, per glucose unit.

4,365,061

INCLUSION COMPLEXES OF CYCLODEXTRINS AND STRONG INORGANIC OXY-ACIDS AND PROCESS FOR THEIR PREPARATION

Jozsef Szejtli; Zsuzsanna Budai; Gabriella Pap nee Imrenyi, and Andras Kerekcs, all of Budapest, Hungary, assignors to Chinoin Gyogyszer es Vegyeszeti Termek Gyara R.T., Budapest, Hungary

Filed October 16, 1981, Ser. No. 312,115

Claims priority, application Hungary, October 17, 1980, 2522 Int. Cl.³ C08G 59/00

U.S. Cl. 536—103

13 Claims

1. An inclusion complex of a cyclodextrin and a strong inorganic oxy-acid.

4,365,062

CEPHALOSPORIN DERIVATIVES

Daniel Farge, Thiais; Claude Moutonnier, Le Plessis Robinson; Pierre Le Roy, Thiais, and Jean-Francois Peyronel, Palaiseau, all of France, assignors to Rhone-Poulenc Industries, France

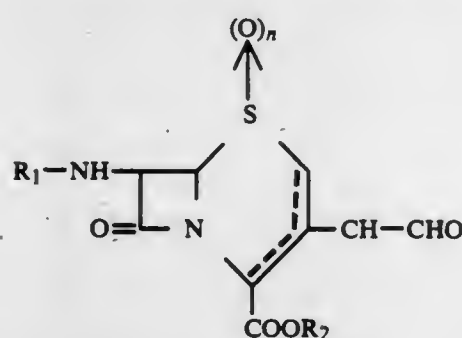
Filed May 21, 1980, Ser. No. 152,153

Claims priority, application France, May 23, 1979, 79 13097 Int. Cl.³ C07D 501/24

U.S. Cl. 544—22

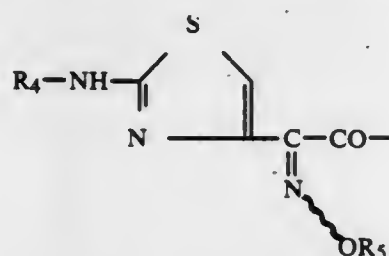
10 Claims

1. A cephalosporin derivative of the formula



in which n is 0 or 1,

(a) the symbol R₁ represents a radical of the formula



in the syn or anti form [in which R₄ is an amino protecting radical and R₅ is a hydrogen atom, an alkyl, vinyl or cyanomethyl radical or an oxime protecting group], a benzhydryl or trityl radical, an acyl radical of the formula

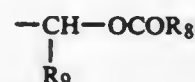


in which R₆ is a hydrogen atom or an alkyl radical [said alkyl being unsubstituted or substituted by one or more halogen atoms or by a phenyl or phenoxy radical] or phenyl, a radical of the formula



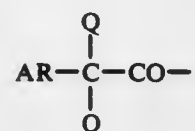
[in which R₇ is a branched unsubstituted alkyl radical or a straight or branched alkyl radical carrying one or more substituents [chosen from halogen atoms and cyano, trialkylsilyl, phenyl and substituted phenyl (the substituents being one or more alkoxy, nitro or phenyl radicals)], vinyl, allyl or quinolyl], or a nitrophenylthio radical or R₁NH= is replaced by a methyleneimino radical, in dialkylamino or phenyl group (said phenyl being unsubstituted or substituted by one or more methoxy or nitro

radicals) and the symbol R₂ represents an enzymatically easily removable radical of the formula



[in which R₈ represents an alkyl radical or the cyclohexyl radical and R₉ represents a hydrogen atom or an alkyl radical] or a carboxyl protecting radical chosen from methoxymethyl, tert.-butyl, benzhydryl, p-nitrobenzyl or p-methoxybenzyl, or

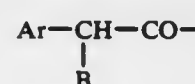
(b) the symbol R₁ represents an alkanoyl radical containing 1 to 8 carbon atoms, a substituted alkanoyl radical containing 2 to 8 carbon atoms (the substituents being chlorine or bromine atoms), an acyl radical of the formula



in which each Q is H or methyl and Ar represents a thien-2-yl, thien-3-yl, fur-2-yl, fur-3-yl, pyrrol-2-yl, or pyrrol-3-yl radical or a phenyl radical [said phenyl being unsubstituted or substituted by halogen atoms or by hydroxyl, alkyl (containing 1 to 3 carbon atoms) or alkoxy (containing 1 to 3 carbon atoms) radicals, of which at least one is situated in the meta- or in the para-position of the phenyl radical], an acyl radical of the formula



in which X is oxygen or sulphur and Ar is as hereinbefore defined, or Ar-X- represents pyrid-4-ylthio, an acyl radical of the formula



in which Ar is as hereinbefore defined and B represents an amino radical which is protected [by a benzyloxycarbonyl, alkoxy carbonyl, cyclopentyl-oxycarbonyl, cyclohexyloxycarbonyl, benzhydryloxycarbonyl, trityl or 2,2,2-trichloroethoxycarbonyl group], a sulphy radical, a hydroxyl radical or a carboxyl radical [said hydroxyl and carbonyl being unprotected or protected by esterification, respectively with an alkanic acid or an alcohol (containing 1 to 6 carbon atoms)] or a 5-amino-adipyl radical [in which the amino group is protected by an alkanoyl radical (containing 1 to 3 carbon atoms and unsubstituted or substituted by a chlorine atom) and in which the carboxyl group is protected by a benzhydryl, 2,2,2-trichloroethyl group] or R₁NH is replaced by a cyclic imide group of a dicarboxylic acid and the symbol R₂ represents a tert.-alkyl radical containing 4 to 6 carbon atoms, a tert.-alkenyl radical containing 6 or 7 carbon atoms, a tert.-alkynyl radical containing 6 or 7 carbon atoms, benzyl, methoxybenzyl, nitrobenzyl, 2,2,2-trichloroethyl benzhydryl, succinimidomethyl or phthalimidomethyl, the alkyl or acyl portions or radicals which have been referred to above being (unless stated to the contrary) straight or branched and containing 1 to 4 carbon atoms, and the product being in the 3-oxoethyl-bicyclooct-2-ene or 3-oxoethylbicyclooct-3-ene or 3-oxoethylidene-bicyclooctane form if n=0 and in the 3-oxoethyl-bicyclooct-2-ene or 3-oxoethylidene-bicyclooctane form if n=1, and the mixtures of their isomers.

4,365,063

ANTIHYPERTENSIVE AGENTS

Theodore S. Sulkowski, Wayne; James L. Bergey, Lansdale, and Albert A. Mascitti, Norristown, all of Pa., assignors to American Home Products Corporation, New York, N.Y.

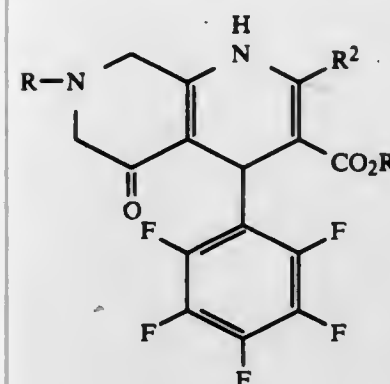
Filed August 31, 1981, Ser. No. 297,645

The portion of the term of this patent subsequent to March 23, 1999, has been disclaimed.

Int. Cl.³ C07D 471/02

U.S. Cl. 546—123

1. A compound of the formula:



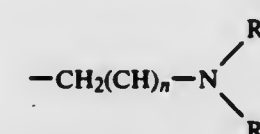
in which

R is hydrogen, alkyl of 1 to 6 carbon atoms or benzyl;

R² is alkyl of 1 to 6 carbon atoms;

and

R³ is alkyl of 1 to 6 carbon atoms, alkoxyalkyl in which each alkyl moiety has 1 to 6 carbon atoms, —CH₂CF₃, —CH₂CH₂CF₃ or



where R⁴ is hydrogen or alkyl of 1 to 6 carbon atoms and R⁵ is alkyl of 1 to 6 carbon atoms or arylalkyl of 7 to 10 carbon atoms and R⁴ and R⁵ taken with the nitrogen atom to which they are attached form a pyrrolidinyl, imidazolidinyl, piperidinyl, piperazinyl, 4-alkylpiperazinyl in which the alkyl group contains from 1 to 6 carbon atoms or morpholinyl heterocycle, and n is one of the integers 0, 1 or 2; or a pharmaceutically acceptable salt thereof.

4,365,064

1,2,4-OXADIAZOLIN-5-ONE DERIVATIVES, PROCESS FOR THEIR PREPARATION AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

Kalman Takacs; Ilona Kiss nee Ajzert; Antal Simay; Peter Literati Nagy; Maria Hetey nee Papp; Marian Ecsery nee Puskas, all of Budapest; Laszlo Szekeres; Gyula Papp, both of Szeged; Sandor Viragh, Budapest, and Eva Udvardy, Szeged, all of Hungary, assignors to Chinoin Gyogyszer es Vegyeszeti Termek Gyara Rt, Budapest, Hungary

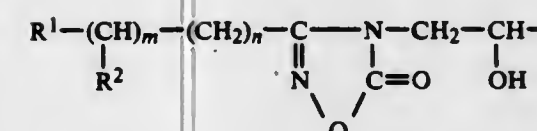
Filed October 14, 1980, Ser. No. 196,583

Claims priority, application Hungary, October 11, 1979, Cl 1973

Int. Cl.³ C07D 413/06; A61K 31/47

U.S. Cl. 546—148

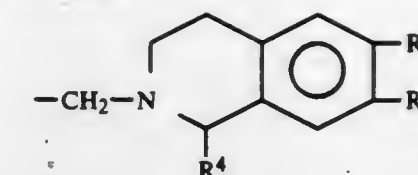
1. A compound of the formula (I)



3 Claims

(I) U.S. Cl. 548—228
1. Ethyl 2-(4-n-hexadecyloxyphenyl)-5-ethoxy-oxazoleacetate.
3. Sodium 2-(4-n-hexadecylaminophenyl)-5-ethoxy-4-oxazoleacetate.

-continued



4,365,065

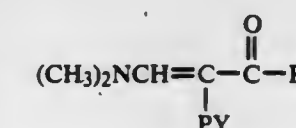
1-(PYRIDINYL)-2-(DIMETHYLAMINO)ETHENYL LOWER-ALKYL KETONES

George Y. Lesher, and Richard E. Phillon, both of Schodack, N.Y., assignors to Sterling Drug Inc., New York, N.Y. Division of Ser. No. 198,461, Oct. 20, 1980, Pat. No. 4,313,951, which is a continuation-in-part of Ser. No. 97,504, Nov. 26, 1979, abandoned. This application September 3, 1981, Ser. No. 299,292 Int. Cl.³ C07D 213/38, 213/50

U.S. Cl. 546—334

2 Claims

1. A 1-(pyridinyl)-2-(dimethylamino)ethenyl loweralkyl ketone having the formula



where R is lower-alkyl and PY is 4-, or 3- or 2-pyridinyl or 4-, 3- or 2-pyridinyl having one or two lower-alkyl substituents.

4,365,066

2-(4-N-HEXADECYL AMINO OR OXY PHENYL) 5-ETHOXY OXAZOLEACETIC ACID DERIVATIVES

Tsutomu Yamanaka, Nakatsu; Mitsuharu Sano, Shinyo-shitomimura, and Hiroshi Yasuda, Nakatsu, all of Japan, assignors to Yoshitomi Pharmaceutical Industries Ltd., Japan PCT No. PCT/JP80/00287, § 371 Date July 28, 1981, § 102(e) Date April 14, 1981, PCT Pub. No. WO81/01553, PCT Pub. Date June 11, 1981

PCT Filed November 25, 1980, Ser. No. 253,932

Claims priority, application Japan, November 28, 1979, 54/154714

Int. Cl.³ C07D 263/42; A61K 31/42

3 Claims

4,365,067

METHOD FOR PREPARING PHARMACOLOGICALLY ACTIVE CYANO GUANIDINE DERIVATIVE

Michitaro Fujimoto, Tondabayashi; Takaichi Fukui, Nara; Toshimitsu Mozai, Habikino, and Yoshikazu Funazo, Toyonaka, all of Japan, assignors to Fujimoto Pharmaceutical Corporation, Japan

Filed November 23, 1981, Ser. No. 324,017

Claims priority, application Japan, November 26, 1980, 55-166028

Int. Cl.³ C07D 233/64

U.S. Cl. 548—342

4 Claims

1. A method for preparing a cyanoguanidine derivative which comprises the steps of:

- reacting a 4-methyl-5-hydroxymethylimidazole or a salt thereof with a 2-fluoro-1-alkyl pyridinium salt, wherein alkyl is methyl or ethyl, to provide an intermediate product, and
- reacting said intermediate reaction product with N-cyano-N'-methyl-N''-(2-mercaptoethyl)-guanidine to yield N-cyano-N'-methyl-N''-[2-[(4-methyl-5-imidazolyl)-methylthio]-ethyl] guanidine.

4,365,068

CROSSLINKABLE BIS-IMIDYL DERIVATIVES

Roland Darms, Therwil; Vratislav Kvita, Muttentz, and Gerd Greber, Binningen, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 99,952, Dec. 3, 1979, Pat. No. 4,280,946, which is a division of Ser. No. 940,409, Sep. 7, 1978, Pat. No. 4,219,481, which is a division of Ser. No. 747,443, Dec. 6, 1976, Pat. No. 4,126,619. This application November 14, 1980, Ser. No. 206,923

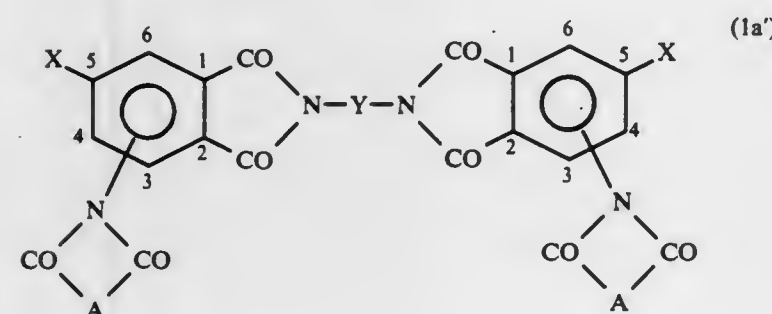
Claims priority, application Switzerland, December 19, 1975, 16510/75

Int. Cl.³ C07D 403/14

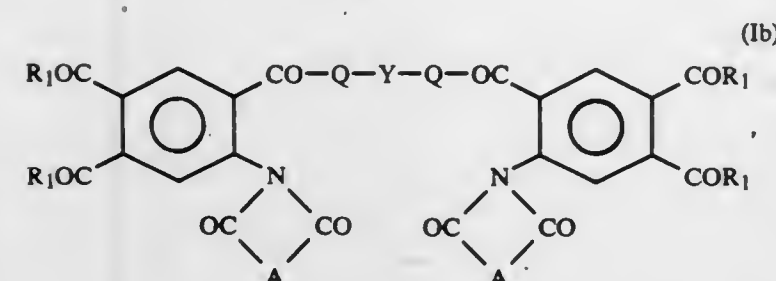
U.S. Cl. 548—435

7 Claims

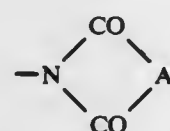
1. A crosslinkable compound of the formula



or

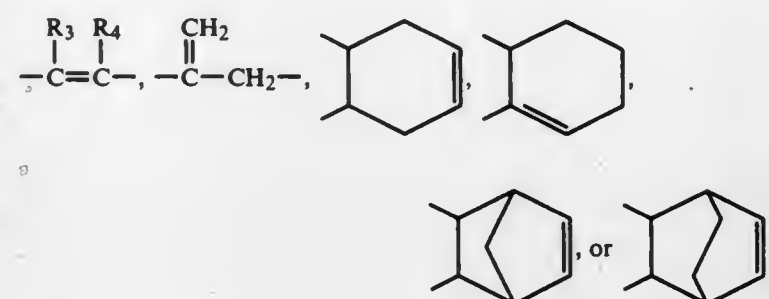


wherein the X s independently of one another represent hydrogen or, if the radical

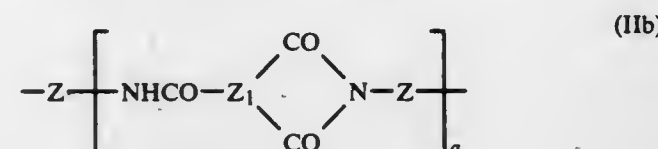


is in the 4-position of the benzene ring, also —COR₂, the R₂ s independently of one another represent hydroxyl, phenoxy, phenoxy substituted by one or two nitro groups, by one alkyl of 1 to 2 carbon atoms, by one alkoxy of 1 to 2 carbon atoms

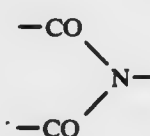
or by two or five halogen atoms; alkoxy of 1 to 18 carbon atoms or an O—M+ group, the R₁ s independently of one another have the same meaning as the R₂ s or two adjacent R₁ s together represent the —O— grouping, the A s independently of one another represent a radical of the formula



R₃ and R₄ independently of one another represent hydrogen, chlorine, bromine or methyl, M+ represents an alkali metal cation, a trialkylammonium cation having 3-24 carbon atoms, or the benzyltrimethylammonium or tetramethylammonium cation, Q represents —NH—, and Y represents a structural element of the formula



wherein a represents a number from 1-100, Z represents alkylene of 2 to 10 carbon atoms, 1,3-phenylene, 1,4-phenylene, the 4,4'-diphenylmethane group, the 4,4'-diphenylsulfone group or the 4,4'-diphenyl ether group, and Z₁ represents a benzenetriyl group, in which the



group is bound to ortho carbons of Z₁.

4,365,069

USE OF IMPROVED MIXED VANADIUM PHOSPHORUS OXIDE CATALYST IN OXIDATION PROCESSES

Noel J. Bremer, Kent; Dennis E. Dria, Cleveland Heights, and Andrew M. Weber, Bedford Heights, all of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed July 24, 1981, Ser. No. 286,434

Int. Cl.³ C07D 307/60

U.S. Cl. 549—260

10 Claims

1. A process for the production of maleic anhydride by the oxidation of 4 carbon atom hydrocarbons with molecular oxygen or an oxygen containing gas in the vapor phase at a reaction temperature of about 250° C. to about 600° C. in the presence of a catalyst containing the mixed oxides of vanadium and phosphorus, wherein said catalyst is prepared by

- introducing a pentavalent vanadium compound into an organic liquid reaction medium selected from alcohols and glycols capable of reducing at least a portion of the vanadium to a valence state of about +4 in the absence of corrosive reducing agents;
- introducing at least one pentavalent phosphorus compound into the reaction medium;
- effecting reduction of the vanadium prior or subsequent

to the addition of the phosphorus compound and reacting the vanadium with the phosphorus compound to form a catalyst precursor,

- removing from the reaction medium at least 1.5 moles of the organic liquid including organic oxidation byproducts per mole of vanadium reduced or reacted during the reduction or reaction;
- recovering the catalyst precursor from the reaction medium;
- drying the catalyst precursor; and
- calcining the catalyst precursor.

4,365,070

CHLOROCITRIC ACIDS

Robert W. Guthrie, Saddle Brook; Richard W. Kierstead, North Caldwell; Francis A. Mennona, Nutley, and Ann C. Sullivan, Cedar Grove, all of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

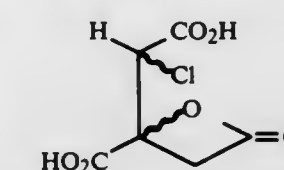
Continuation-in-part of Ser. No. 973,504, Dec. 26, 1978, Pat. No. 4,312,885. This application October 16, 1981, Ser. No. 312,041

Int. Cl.³ C07D 305/06

U.S. Cl. 549—263

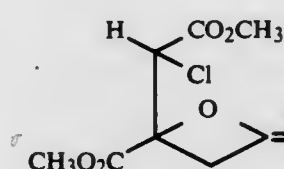
7 Claims

1. A chlorocitric acid β -lactone of the formula



and stereoisomers, optical antipodes and pharmaceutically acceptable salts thereof.

5. A (\pm)-threo-chlorocitric acid β -lactone dimethyl ester of the formula



4,365,071

PRODUCTION OF ANHYDROUS 1,4-DIOXANE

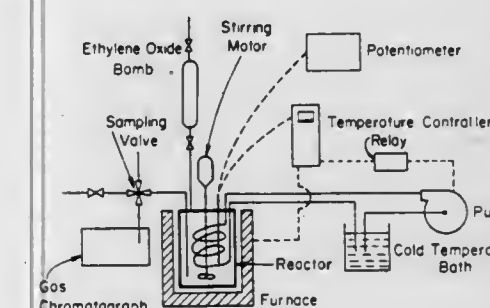
Jean Yamanis, Lexington, Ky., assignor to The University of Kentucky Research Foundation, Lexington, Ky.

Filed May 20, 1980, Ser. No. 151,593

Int. Cl.³ C07D 319/04

U.S. Cl. 549—377

13 Claims



Schematic of Experimental Set-up

1. A process for the preparation of 1,4-dioxane which comprises contacting ethylene oxide in the liquid phase with an effective amount of an acidic cation exchange resin at a first temperature and for a time sufficient to yield an ester intermediate reaction product of said ethylene oxide and said cation exchange resin, and thereafter heating said ester intermediate reaction product at a second temperature higher than said first

temperature and for a time period sufficient to dissociate said reaction product and thereby yield 1,4-dioxane.

2. A process for the preparation of 1,4-dioxane which comprises contacting ethylene oxide in the liquid phase with an effective amount of an acidic cation exchange resin at a temperature in the range of about —20° C. to 90° C. and for a time period of about 5 minutes to 200 minutes to yield an ester intermediate reaction product of said ethylene oxide and said cation exchange resin, thereafter heating said ester intermediate reaction product at a higher temperature of about 80° C. to 140° C. and for a time period of about 60 minutes to 300 minutes, and then recovering the 1,4-dioxane formed as a result of said heating.

4,365,072

BIPHENYL ALDEHYDES

Avinash C. Mehta, Belmont, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

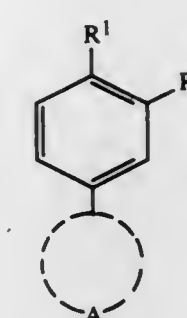
Filed October 22, 1981, Ser. No. 313,942

Int. Cl.³ C07D 304/06, 307/12; C07C 69/773

U.S. Cl. 549—415

13 Claims

1. A compound of the formula



wherein one of R¹ and R² is hydrogen and the other is —CHO and the cyclic moiety A is —2,5-; —2,3-; or —3,4-di-OR-1-phenyl moiety wherein R is hydrogen or a hydroxy-protecting group capable of removal so as to regenerate the hydroxy group.

2. A compound of claim 1 wherein R is a hydroxy-protecting group selected from the group consisting of lower alkyl having 1 to 6 carbon atoms, methoxymethyl, methylthiomethyl, phenacyl, p-bromophenacyl, 2-tetrahydrofuranyl, 2-tetrahydropyranyl, ethoxycarbonyl, 2,2,2-trichloroethoxycarbonyl, and acyl.

4,365,073

DERIVATIVES OF CYANO-SUBSTITUTED KETONES AND ALDEHYDES

Bart J. Bremmer, Ashland, Mass., and Robert L. Reiersen, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

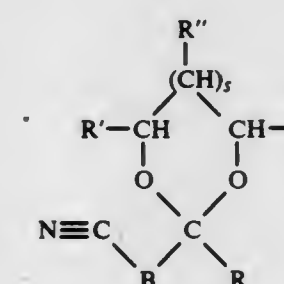
Filed October 20, 1980, Ser. No. 198,572

Int. Cl.³ C07D 317/10, 319/04

U.S. Cl. 549—451

8 Claims

1. A compound of the formula

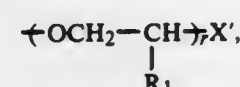


wherein

R is hydrogen, phenyl, or a monovalent radical of from 1 to 10 carbons selected from the group consisting of branched or linear alkyl and cyano-, hydroxy-, alkoxy-, acyloxy-, and organosiloxy-substituted derivatives thereof;

B is a divalent radical of from 2 to 10 carbons selected from the group consisting of branched or linear alkylene and $-(CH_2)_m-OCH_2CH(R_1)-n-$, where R_1 is hydrogen, methyl or ethyl, and m and n are integers equal to or greater than one;

R' independently each occurrence is selected from the group consisting of hydrogen and C_6H_4X , where q is an integer from 1 to 4, and X is hydroxy, acyloxy, organosiloxy or



where r is an integer from 1 to 4, X' is hydroxy, alkoxy, aralkoxy, acyloxy or organosiloxy, and R_1 is as previously defined;

R'' is hydrogen or X; and s is zero or one;

provided that if s is zero then in at least one occurrence R' is not hydrogen, or if s is one then in at least one occurrence at least one of either R' or R'' is not hydrogen.

4,365,074

OXYGEN-PERMEABLE CONTACT LENS COMPOSITIONS, METHODS AND ARTICLES OF MANUFACTURE

Nick N. Novicky, Wheeling, Ill., assignor to George F. Tsuetaki, Chicago, Ill.

Division of Ser. No. 172,839, Jul. 28, 1980, Pat. No. 4,314,068, which is a division of Ser. No. 6,725, Jan. 26, 1979, Pat. No.

4,216,303. This application 1982, Ser. No. 340,819

Int. Cl.³ C07F 7/08

U.S. Cl. 556-442

1 Claim

1. A new composition of matter, particularly adapted for use in the production of polymers for making contact lens materials, said composition comprising tris(trimethylsiloxy) acetoxysilane.

4,365,075

ω -ARYL-PGD COMPOUNDS

Douglas R. Morton, Jr., Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

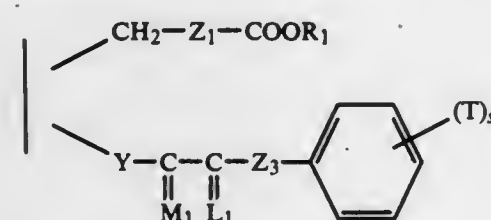
Division of Ser. No. 614,242, Sep. 17, 1975, Pat. No. 4,016,184. This application December 30, 1976, Ser. No. 756,100

Int. Cl.² C07C 69/76

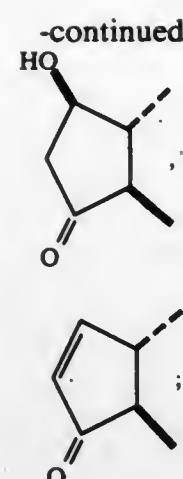
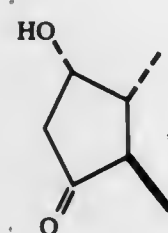
U.S. Cl. 560-51

142 Claims

1. A prostaglandin analog of the formula

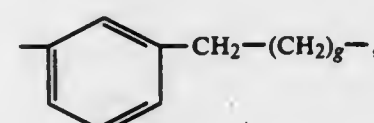


wherein D is

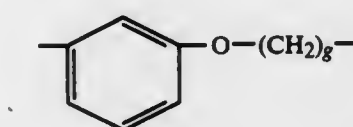


wherein Y is cis-CH=CH-, trans-CH=CH-, or -CH₂C-H₂-; wherein Z₁ is

1. cis-CH=CH-CH₂-(CH₂)_g-CF₂-
2. cis-CH=CH-CH₂-(CH₂)_g-CH₂-
3. cis-CH₂-CH=CH-(CH₂)_g-CH₂-
4. -(CH₂)₃-(CH₂)_g-CF₂-
5. -(CH₂)₃-(CH₂)_g-CH₂-
6. -CH₂-O-CH₂-(CH₂)_g-CH₂-
7. -(CH₂)₂-O-(CH₂)_g-CH₂-
8. -(CH₂)₃-O-(CH₂)_g-



(9)



(10)

wherein g is one, 2, or 3; wherein M₁ is



or

wherein R₅ and R₆ are hydrogen or methyl, with the proviso that one of R₅ and R₆ is methyl only when the other is hydrogen;

wherein L₁ is



or a mixture of



and

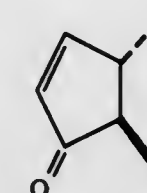
wherein R₃ and R₄ are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R₃ and R₄ is fluoro only when the other is hydrogen or fluoro;

wherein Z₃ is oxa or methylene;

wherein T is chloro, fluoro, trifluoromethyl, alkyl of 1 to 3 carbon atoms, inclusive, or alkoxy of 1 to 3 carbon atoms, inclusive, and s is 0, 1, 2, or 3, the various T's being the same or different, with the proviso that not more than two T's are other than alkyl, with the further proviso that Z₃ is oxa only when R₃ and R₄ are hydrogen or methyl, being the same or different; and

wherein R₁ is hydrogen, alkyl of one to 12 carbon atoms, inclusive, cycloalkyl of 3 to 10 carbon atoms, inclusive, aralkyl of 7 to 12 carbon atoms, inclusive, phenyl, phenyl substituted with one, two, or three chloro or alkyl of one to 3 carbon atoms, inclusive, or a pharmacologically acceptable cation; with the further proviso that

D is



only when Y is cis- or trans-CH=CH-.

4,365,076

PROCESS FOR THE PREPARATION OF CYCLOALKYLIDENEMETHYLPHENYLACETIC ACID DERIVATIVES

Atsuke Terada; Shigeru Tanaka, and Eiichi Misaka, all of Hiromachi, Japan, assignors to Sankyo Company Limited, Tokyo, Japan

Division of Ser. No. 929,937, Aug. 1, 1978, Pat. No. 4,254,274.

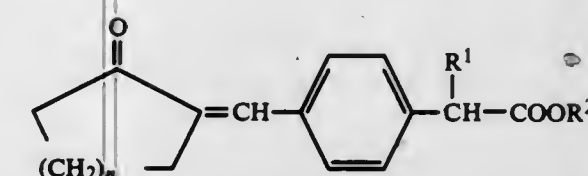
This application October 14, 1980, Ser. No. 197,229

Claims priority, application Japan, August 16, 1977, 52/98121 Int. Cl.³ C07C 69/76

U.S. Cl. 560-51

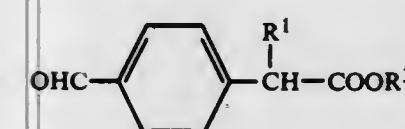
14 Claims

1. A process for the preparation of a compound having the formula



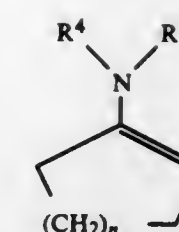
(I)

wherein R¹ is an alkyl group having from 1 to 4 carbon atoms, R² is hydrogen or an alkyl group having from 1 to 4 carbon atoms, and n is an integer from 1 to 3, which comprises reacting a compound having the formula



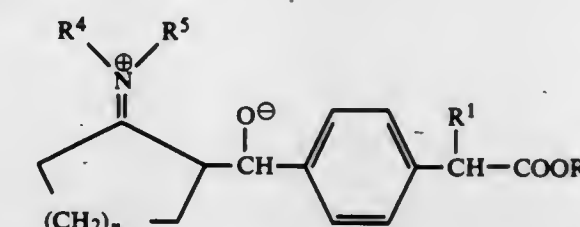
(II)

wherein R¹ is as defined above and R³ represents a lower alkyl group with a compound having the formula



(III)

wherein R⁴ and R⁵ represent a lower alkyl group or, together with the nitrogen atom to which they are attached, may jointly form a cyclic amino group optionally having a ring oxygen atom and n is as defined above to produce a compound having the formula



(IV)

wherein R¹, R³, R⁴, R⁵ and n are as defined above and hydrolyzing said compound (IV) to produce said compound of the formula (I).

4,365,077

11-DESOXY-16-ARYLOXY- ω -TETRAHYDROPROSTAGLANDINS

Jasjit S. Bindra, Groton; James F. Egler, Stonington; Michael R. Johnson, Gales Ferry, and Thomas K. Schaaf, Old Lyme, all of Conn., assignors to Pfizer Inc., New York, N.Y.

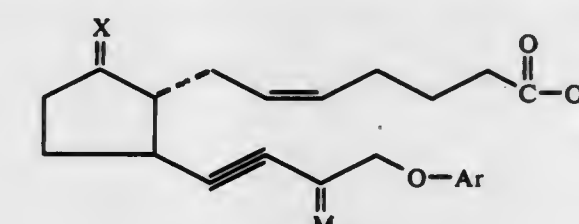
Division of Ser. No. 589,386, Jun. 23, 1975, abandoned. This application 1979, Ser. No. 13,899

Int. Cl.³ C07C 177/00

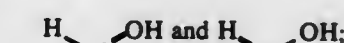
U.S. Cl. 560-53

12 Claims

1. The optically active compounds of the structure



their optical antipodes and the racemates thereof wherein X and M are selected from the group consisting of keto;



R' is selected from the group consisting of hydrogen, alkyl of from one to ten carbon atoms, aralkyl of from seven to nine carbon atoms, cycloalkyl of from three to eight carbon atoms, α -naphthyl, β -naphthyl, phenyl and monosubstituted phenyl wherein the phenyl substituent is selected from the group consisting of fluoro, chloro, bromo, trifluoromethyl, lower alkyl, lower alkoxy and phenyl; and Ar is selected from the group consisting of phenyl, α -naphthyl, β -naphthyl and monosubstituted phenyl wherein the substituent is selected from the group consisting of fluoro, chloro, bromo, lower alkyl, lower alkoxy, phenyl and trifluoromethyl.

having an average pore radius of from about 10 Å to about 300 Å, a surface area ranging from about 80 m²/g to about 350 m²/g and a pore volume of from about 0.3 cc/g to about 1.5 cc/g, said Group IIB, and IIA, when present, metal compound being present in an amount ranging from about two to about 35 mole percent, alumina in an amount ranging from about 15 to about 60 mole percent and aluminum phosphate in an amount ranging from about 2.5 to about 80 mole percent, wherein said unsaturated organic compound is passed over said catalyst at a liquid hourly space velocity of about 0.1 to about 20 while maintaining in the reaction zone a temperature of about 30° to about 350° C. and a hydrogen partial pressure of about 0 to about 1500 pounds per square inch gauge.

4,365,096

ALKYL-SUBSTITUTED BICYCLOALKYL ETHERS

Edward C. Y. Nieh, Austin, Tex., assignor to Texaco Inc., White Plains, N.Y.

Filed June 25, 1981, Ser. No. 277,369

Int. Cl.³ C07C 43/18

U.S. Cl. 568—665

6 Claims

1. Alkyl-substituted bicycloalkyl alkyl ethers of the formula



wherein R is selected from the group consisting of hydrogen and methyl, x is an integer ranging from 4 to 18, y and z are integers ranging from 0 to 16 whose sum must be 8 to 22 and the sum of x+y+z must be 20 to 36.

4,365,097

PROCESS FOR THE PREPARATION OF HALOGENATED ALIPHATIC ETHERS

Ross C. Terrell, Clark, and Kirsten Hansen, Berkeley Heights, both of N.J., assignors to Airco, Inc., Montvale, N.J.

Continuation-in-part of Ser. No. 63,302, Aug. 2, 1979,

abandoned. This application March 16, 1981, Ser. No. 244,384

Claims priority, application Canada, May 20, 1980, 352253; Italy, June 5, 1980, 22578 A/80; France, July 21, 1980, 80 16062; United Kingdom, July 24, 1980, 8024272; Fed. Rep. of Germany, July 31, 1980, 3029134

Int. Cl.³ C07C 41/01

U.S. Cl. 568—684

11 Claims

1. A process comprising reacting, in the liquid phase, a compound of the formula:



where

X or Br or Cl;

Y is Br or Cl; and

Z is Br, Cl, or F;

with a primary or secondary alkanol and an inorganic base, in the presence of a catalyst selected from the group consisting of copper, the salts of copper, silver, cobalt, rubidium, aluminum, manganese, nickel, molybdenum, chromium, antimony, and vanadium, the primary, secondary and tertiary alkanol amines and mixtures of any two or more thereof, and recovering an ether reaction product.

4,365,098

FLUORINATED DIPHENOLS AND METHOD FOR THEIR PREPARATION

Victor Mark, Evansville, and Charles V. Hedges, Mount Vernon, both of Ind., assignors to General Electric Company, Mount Vernon, Ind.

Filed December 31, 1980, Ser. No. 221,884

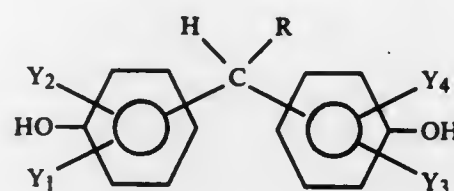
The portion of the term of this patent subsequent to November 9, 1999, has been disclaimed.

Int. Cl.³ C07C 39/16

U.S. Cl. 568—726

16 Claims

1. A fluorinated bisphenol having the general formula



wherein R is a fluorinated alkyl or fluorinated aryl radical, and Y₁, Y₂, Y₃ and Y₄ are each independently selected from the group consisting of hydrogen, alkyl radical, chlorine and bromine.

4,365,099

PROCESS FOR THE PRODUCTION OF BISPHENOLS

Gary R. Faler, Scotia, and Ashok K. Mendiratta, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

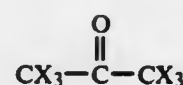
Filed May 12, 1981, Ser. No. 262,739

Int. Cl.³ C07C 39/16, 37/20

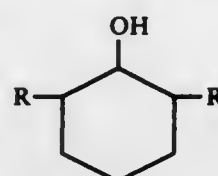
U.S. Cl. 568—726

14 Claims

1. In a method for the condensation of a carbonyl compound selected from the class consisting of, cycloheptanone, acetophenone, benzophenone and compounds of the general formula:



wherein X is independently selected from the class consisting of hydrogen, fluorine, monovalent alkyl groups, from 1 to 8 carbon atoms, aryl groups and alkaryl groups with a phenolic compound of the general formula:



wherein R is independently selected from the class consisting of hydrogen fluorine monovalent alkyl groups from 1 to 8 carbon atoms, aryl groups and alkaryl groups for the production of bis(hydroxyaryl) compounds, whereby at least two moles of said phenolic compound are caused to react with one mole of said carbonyl compound in the presence of a cationic exchange resin in a reaction zone; the improvement comprising pretreating said phenolic compound by contacting said phenolic compound with a chelating resin to remove impurities and thereafter mixing said phenolic compound with said carbonyl compound.

4,365,100

PROCESS FOR THE PREPARATION OF 1,2,3,4-TETRAHYDRO-9,10-ANTHRACENE-DIOL

Serge Y. DeLavarenne, Francheville-le-Haut, and Pierre Tellier, Sainte-Foy-les-Lyon, both of France, assignors to PCUK - Produits Chimiques Ugine Kuhlmann, Courbevoie, France

Filed June 26, 1979, Ser. No. 52,282

Claims priority, application France, June 29, 1978, 78 19465

Int. Cl.³ C07C 39/17

U.S. Cl. 568—733

10 Claims

1. A process for the preparation of 1,2,3,4-tetrahydro-9,10-anthracene-diol from 1,4,4a,9a-tetrahydroanthraquinone which comprises effecting a catalytic hydrogenation in the liquid phase of 1,4,4a,9a-tetrahydroanthraquinone to convert it into 1,2,3,4,4a,9a-hexahydro-9,10-anthracene-dione or into a mixture of 1,2,3,4-tetrahydro-9,10-anthracene-diol and 1,2,3,4,4a,9a-hexahydro-9,10-anthracene dione, and then effecting isomerization of the latter in the presence of an acid to give 1,2,3,4-tetrahydro-9,10-anthracene-diol.

4,365,101

PROCESS FOR PREPARING BENZOTRIFLUORIDE AND ITS DERIVATIVES

Tsuneo Nakagawa, Ibaraki; Uji Hiramatsu, Takatsuki, and Toshihide Honda, Toyonaka, all of Japan, assignors to Daikin Kogyo Co., Ltd., Osaka, Japan

Filed December 12, 1977, Ser. No. 859,755

Claims priority, application Japan, December 27, 1976, 51-159033

Int. Cl.³ C07C 17/20

U.S. Cl. 570—145

6 Claims

1. A process for preparing benzotrifluoride which comprises contacting benzotrichloride with hydrogen fluoride in the absence of any catalyst in the gaseous phase and in the presence of chlorine at an elevated temperature.

4,365,102

METHOD OF MANUFACTURING PERFLUOROMETHANE AND PERFLUOROETHANE
Maurice J. Couture, Parkersburg, W. Va., and Dan Hayashi, Shimizu, Japan, assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed September 29, 1980, Ser. No. 191,921

Int. Cl.³ C07C 17/24

U.S. Cl. 570—163

2 Claims

1. A method of manufacturing CF₄ and C₂F₆ which comprises heating tetrafluoroethylene and carbon dioxide at a mol ratio of TFE to CO₂ in the range of 3:1 to 1:10 at a temperature in the range of 1100° C. to 1300° C. and separating the resulting products.

4,365,103

PROCESS FOR THE PREPARATION OF BIS(1-PHENYLETHENYL) COMPOUNDS

Kuo Y. Chang, and Sterling C. Gatling, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed December 4, 1981, Ser. No. 327,322

Int. Cl.³ C07C 15/12

U.S. Cl. 585—320

9 Claims

1. A method for the preparation of bis(1-phenylethenyl)aromatic compounds, the steps of the method comprising providing a 1,1-diphenylethane, disproportionating the 1,1-diphenylethane in the presence of a Friedel-Craft's catalyst to form a bis(1-phenylethyl)aromatic compound and subsequently dehydrogenating the bis(1-phenylethyl)aromatic compound to a bis(1-phenylethenyl)aromatic compound.

4,365,104

PARA-SELECTIVE ZEOLITE CATALYSTS TREATED WITH SULFUR COMPOUNDS

Warren W. Kaeding, Westfield, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed June 26, 1981, Ser. No. 277,486

Int. Cl.³ C07C 2/68

U.S. Cl. 585—467

12 Claims

1. A process for converting aromatic compounds to a dialkyl benzene compound mixture highly enriched in the para-dialkylbenzene isomer, said process comprising contacting said aromatic compounds under conversion conditions with a modified zeolite based catalyst comprising a crystalline zeolite material characterized by a silica to alumina ratio of at least 12 and a constraint index of from about 1 to 12, said catalyst having been contacted with a sulfur-based treating agent selected from hydrogen sulfide and sulfur dioxide under para-selectivity enhancing conditions.

4,365,105

OLIGOMERIZING 1-OLEFINS WITH A HETEROGENEOUS CATALYST

Neal E. Morganson, McCandless Township, Allegheny County, and Paul G. Bercik, Penn Township, Westmoreland County, both of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed December 22, 1981, Ser. No. 333,305

Int. Cl.³ C07C 2/02

U.S. Cl. 585—525

13 Claims

1. The process for oligomerizing a 1-olefin having from three to about 18 carbon atoms and mixtures thereof which comprises contacting said 1-olefin in a reactor with a catalyst comprising a solid adsorbant in particulate form in the presence of boron trifluoride and between about 25 ppm and about one weight percent elemental oxygen based on the 1-olefin at a temperature between about -50° and about 150° C.

ELECTRICAL

4,365,106 EFFICIENT METHOD AND APPARATUS FOR CONVERTING SOLAR ENERGY TO ELECTRICAL ENERGY

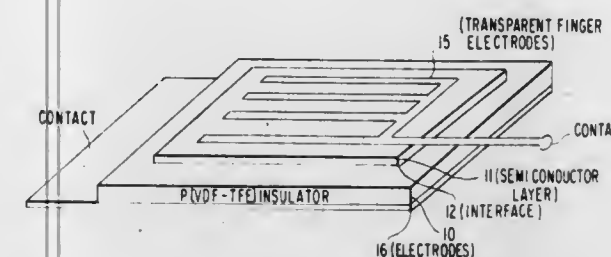
Charles F. Pulvari, 2014 Taylor St., NE., Washington, D.C. 20018

Continuation-in-part of Ser. No. 69,477, Aug. 24, 1979, Pat. No. 4,250,384. This application March 4, 1980, Ser. No. 127,171
The portion of the term of this patent subsequent to 1998, has been disclaimed.

Int. Cl.³ H01J 35/00

U.S. Cl. 136—206

15 Claims



1. In a method of converting incident solar energy to electrical energy comprising establishing an inversion layer in a semiconductor body by applying a bias potential to a pair of electrodes one of which is insulated from said semiconductor body, subjecting said inversion layer to one part of the incident solar energy radiation spectrum to generate the electron /e/-hole /h/ pairs, and collecting the mobile carriers, the improvement wherein the bias potential applied to said pair of electrodes is generated in situ by conversion of another portion of incident solar radiation spectrum.

9. Solar to electrical power generator comprising a semiconductor capacitor having a semiconductor body member and at least one pair of electrodes, a solar to electrical energy converter coupled to said semiconductor capacitor in such a way as to constitute a bias voltage source and create an inversion layer in said semiconductor body member such that when said semiconductor body member is irradiated it generates the /e/-/h/ pairs and collects the mobile carriers in said inversion layer and means for extracting the electrical power generated from said pair of electrodes.

4,365,107 AMORPHOUS FILM SOLAR CELL

Yutaka Yamauchi, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed 1981, Ser. No. 235,921

Claims priority, application Japan, 1980, 55-19951

Int. Cl.³ H01L 31/06

U.S. Cl. 136—258

2 Claims



1. An amorphous film solar cell of heterojunction type having a p-i-n construction, comprising a p type or n type amorphous semiconductor layer made of a group III-V material and at least an i (intrinsic) type semiconductor layer made of fluorinated or hydrogenated amorphous silicon semiconductor material.

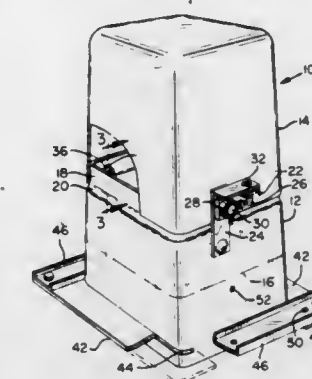
4,365,108 SECONDARY POWER PEDESTAL FOR ELECTRICAL EQUIPMENT

William L. Bright, 900 Portway Ave., Hood River, Oreg. 97031
Filed July 9, 1981, Ser. No. 281,916

Int. Cl.³ H05K 5/02

U.S. Cl. 174—50

5 Claims



1. A secondary power pedestal comprising
(a) a tubular housing having upper and lower ends and defining walls,
(b) an upper portion of said housing having access means into the interior of said housing,
(c) said housing having a bottom open end and having a lower portion thereof arranged to be buried in the ground for receiving underground electrical equipment,
(d) said wall means of said housing being substantially straight from said bottom open end to an upper portion thereof,
(e) flange means associated with said housing,
(f) horizontal slots in the lower portion of the walls of said housing arranged to receive said flange means in fitted relation,
(g) and fastening means for holding said flange means in said slots facilitating use of said flange means as a ground anchor on said lower portion of said housing.

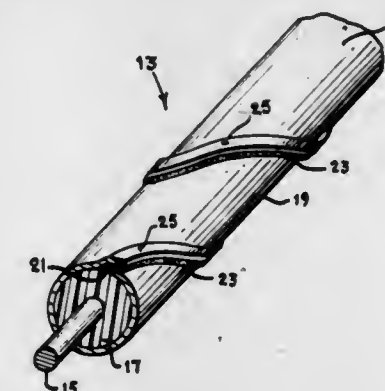
4,365,109 COAXIAL CABLE DESIGN

James P. O'Loughlin, Albuquerque, N. Mex., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Continuation-in-part of Ser. No. 115,513, Jan. 25, 1980, abandoned. This application November 5, 1981, Ser. No. 318,653
Int. Cl.³ H01B 7/26

U.S. Cl. 174—109

4 Claims



1. In a coaxial cable having a center conductor, an outer conductive sheath surrounding said center conductor, a dielectric material between said center conductor and said outer sheath, and said outer sheath and said center conductor each having an inductance, the improvement therein comprising means incorporated within said coaxial cable for controlling said inductance of said outer sheath such that said inductance

of said outer sheath is substantially equal to the mutual inductance between said outer sheath and said center conductor thereby substantially eliminating transient voltage on said outer sheath when said coaxial cable is pulsed.

4,365,110

MULTIPLE-DESTINATION CRYPTOSYSTEM FOR BROADCAST NETWORKS

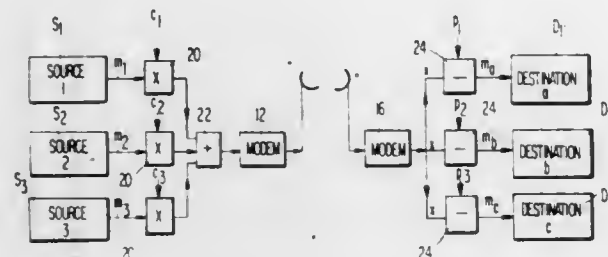
Lin-Nan Lee, Germantown, Md., and Shyue-Ching Lu, Taiwan, Taiwan, assignors to Communications Satellite Corporation, Washington, D.C.

Filed June 5, 1979, Ser. No. 45,703

Int. Cl.³ H04L 9/00

U.S. Cl. 178—22.10

9 Claims



1. A method of sending a plurality of messages in the form of a single transmission signal through a single transmitting station to a plurality of destinations through at least one receiving station comprising:

- multiplying each of said messages by an enciphering key corresponding to its intended destination;
- combining the products of said multiplication step into a cryptogram comprising said single transmission signal, said cryptogram being defined by

$$x = [\sum m_i c_i] \text{ mod } P,$$

where P is the product of a plurality of prime numbers p_i , c_i are the enciphering keys corresponding to respective destinations and are defined by $c_i = d_i (d_i^{-1} \text{ mod } p_i)$, d_i is defined by P/p_i , m_i are numbers representing said plurality of messages, $0 < m_i < p_i$ and $1 \leq i \leq n$; transmitting said cryptogram to said at least one receiving station; and dividing the received cryptogram by divisors corresponding to respective destinations to thereby recover the messages intended for each of said destinations.

4,365,111

CIPHER APPARATUS FOR MULTIPLEX PULSE CODE MODULATION SYSTEMS

Amos E. Joel, Jr., New York, N.Y., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 11, 1946, Ser. No. 675,903

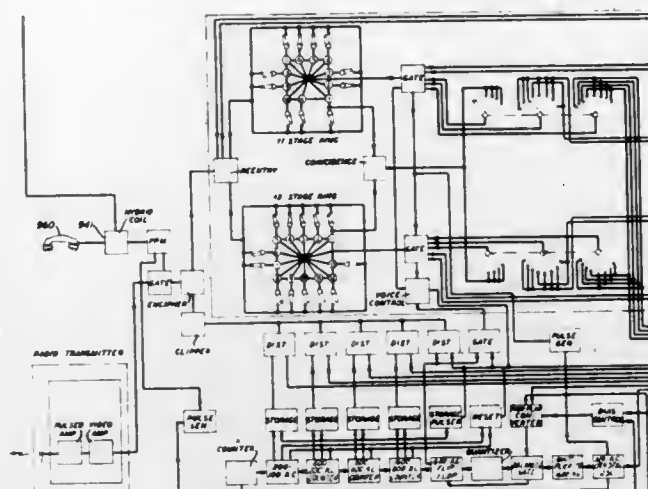
Int. Cl.³ H04L 9/00

U.S. Cl. 178—22.13

23 Claims

23. In a secret communication system, the combination of: a source of an intelligence signal wave and a source of a noise wave; means for combining said waves; means for periodically sampling said combined wave at predetermined intervals; means for developing from the samples thus obtained a first pulse train comprising sets of marks and spaces; means for randomly developing in accordance with the noise components accompanying said intelligence signal wave a second pulse train of marks and spaces; means for combining said first and second pulse trains to develop a third pulse train; means for transmitting and receiving said third pulse train; means for developing from said third pulse train a fourth pulse train substantially corresponding with said first pulse train, said means including synchronizing means responsive substantially

solely to the components of said third pulse train corresponding to said noise wave; and means for developing from said



fourth pulse train an output signal wave substantially corresponding with said intelligence signal wave.

4,365,112

SPEECH DETECTOR CIRCUIT FOR A TASI SYSTEM

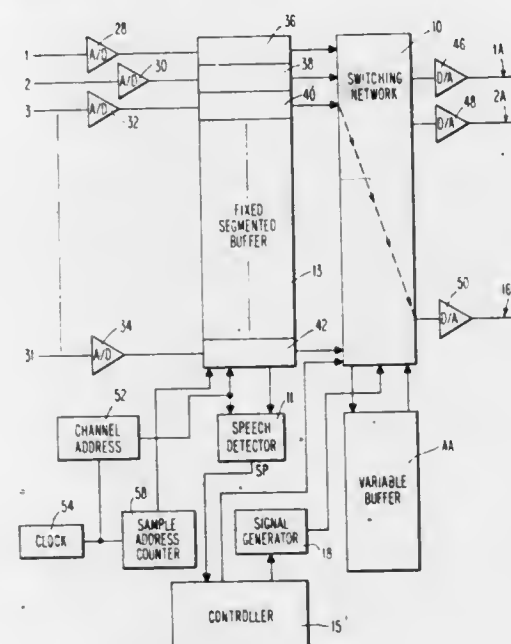
Peter G. Ruether, and John F. O'Neill, both of Boulder, Colo., assignors to Storage Technology Corporation, Louisville, Colo.

Filed March 17, 1980, Ser. No. 131,159

Int. Cl.³ H04J 6/02

U.S. Cl. 179—1 SC

9 Claims



1. A centralized circuit for determining whether input signals from a plurality of channels are speech, said circuit comprising:

- a sampling means associated with each of said input channels for continuously providing digital samples of the input signals on each of said channels;
- a memory means for storing said samples from each channel, said samples being stored at a first rate;
- a means for retrieving said samples on a selected channel at a second rate, greater than said first rate to produce a time compressed input signal for each channel;
- a first means for comparing the power of said time compressed input signal against a selected threshold whereby speech is determined to be present when said threshold is exceeded.

4,365,113

SPEAKER UNIT FOR AUTOMOTIVE VEHICLES

Hiroshi Soma; Makoto Iyobe; Takekazu Iijima, all of Tokyo, and Yutaka Moriyama, Tendo, all of Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

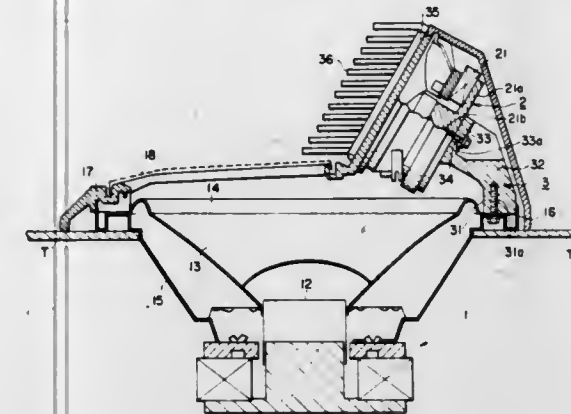
Filed September 12, 1980, Ser. No. 186,788

Claims priority, application Japan, 1980, 55-354[U]

Int. Cl.³ H04R 1/20

U.S. Cl. 179—1 E

9 Claims



5. A speaker unit for an automotive vehicle, comprising:

- a low-range speaker having a woofer frame to which an outer peripheral edge of a diaphragm of said low-range speaker is attached, said woofer frame being adapted to be flushly mounted to a rear parcel shelf of said automotive vehicle;
- a tweeter holder rigidly mounted upon a rear edge of said woofer frame, said holder being adapted to support a tweeter unit having a tweeter speaker having a central axis directed towards a passenger compartment of said vehicle, said tweeter speaker being positioned in said tweeter holder;
- a woofer grill frame detachably coupled around said low-range speaker; and
- a low-range grill member supported by said grill frame covering said diaphragm, said holder occupying an area outside an area confined by said low-range grill member.

4,365,114

AUTOMOTIVE LOUDSPEAKER HAVING VARIABLE SPEAKER ORIENTATION AND PARTICULAR ELECTRICAL CONNECTIONS

Hiroshi Soma, Tokyo, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed September 12, 1980, Ser. No. 186,792

Claims priority, application Japan, September 14, 1979, 54/127712[U]; September 14, 1979, 54/127713[U]; September 14, 1979, 54/127714[U]

Int. Cl.³ H04R 1/02, 1/20

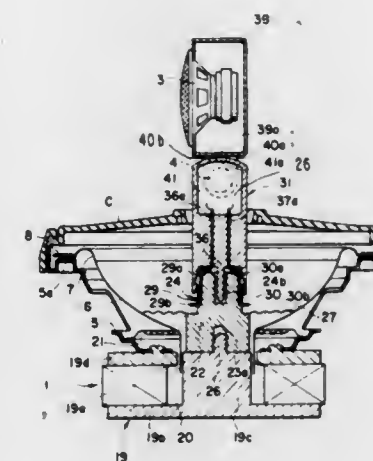
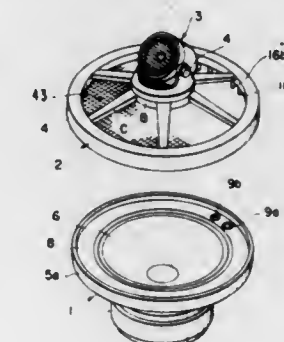
U.S. Cl. 179—1 VE

10 Claims

- 1. A speaker unit for automotive vehicles comprising:
- a low-range speaker and a medium- and high-range speaker;
- means for changing an angular orientation of a center axis of said medium- and high-range speaker in a vertical plane containing a center axis of said low-range speaker;
- a grill frame and a grill member mounted in said grill frame, an open surface of said low-range speaker being at least partly covered with said grill member, said grill frame being detachably engaged with the open surface of said low-range speaker;
- a first pair of terminals fixedly mounted upon an outer peripheral portion of a frame member of said low-range speaker;
- a second pair of terminals rigidly secured to said grill frame, said first and second pairs of terminals being adapted to be connected together when said grill frame is engaged with the open surface of said low-range speaker, said first pair of terminals being coupled to a voice coil bobbin of said

low-range speaker and said second pair of terminals being coupled to a voice coil bobbin of said medium- and high-range speaker.

- 8. A speaker unit for automotive vehicles comprising: a low-range speaker and a medium- and high-range speaker; means for changing an angular orientation of a center axis of said medium- and high-range speaker in a vertical plane containing a center axis of said low-range speaker;
- a grill frame and a grill member mounted in said grill frame, an open surface of said low-range speaker being at least partly covered with said grill member, said grill frame being detachably engaged with the open surface of said low-range speaker;
- mounting means for said medium- and high-range speaker, said mounting means comprising a first spacer having a smaller-diameter portion and a larger-diameter portion, said larger-diameter portion being rigidly secured to a pole of a magnetic circuit of said low-range speaker and at least a portion of said larger-diameter portion being sur-



- rounded by a voice coil bobbin of said low-range speaker, a damper member having an outer edge coupled to a diaphragm of said low-range speaker and having an inner edge coupled to said larger-diameter portion at the junction with said smaller-diameter portion, said smaller-diameter portion having an upper tapered surface, first and second conductors extending through portions of said smaller-diameter portion and forming contacts upon said upper surface;
- a second spacer having a lower cylindrical portion tapered to fittingly engage said upper surface of said first spacer, third and fourth conductors extending through a portion of said second spacer and forming contacts disposed to mate with said contacts formed by said first and second conductors;
- and means for tiltably mounting said medium- and high-range speaker upon an upper portion of said second spacer, a voice coil bobbin of said medium- and high-range speaker being coupled to said third and fourth conductors.

which a corresponding second pole or second zero occur, and said control means generating control signals to constrain impedance settings of said first and second impedance elements so that the first frequency does not substantially exceed said second frequency.

4,365,120

ILLUMINATED KEYBOARD

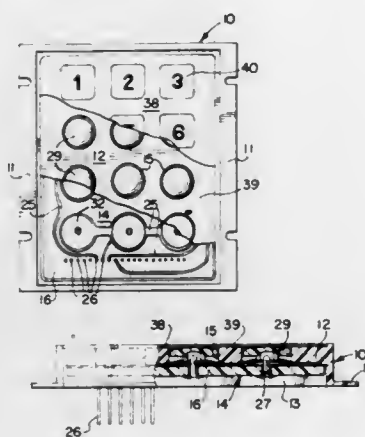
Walter R. Pounds, Lafayette, Colo., assignor to KB Denver, Inc., Frederick, Colo.

Filed April 13, 1981, Ser. No. 253,814

Int. Cl.³ H01H 13/70

U.S. Cl. 200—5 A

6 Claims



6. An illuminated keyboard assembly having a plurality of key-operated switches which comprises, a frame having a plurality of openings each of which slidably receives a key actuator of translucent material so that it can function as a light diffuser and means coacting with the key actuators to maintain said actuators in working relationship with the frame, and a printed circuit board and switch subassembly received by said frame, said subassembly including a printed circuit board and a plurality of switches one each being in registry with a key actuator, each said switch having electrically insulated conductive paths on said printed circuit board and domes of electrically conductive material coacting with the conductive paths to selectively electrically connect the conductive paths upon tripping of the dome by movement of the key actuator aligned therewith, said subassembly further including a light generating lamp secured to the printed circuit board and extending upwardly from the conductive paths, said dome having an opening therethrough and said actuator having a recess aligned with said opening such that when the dome is tripped the light generating lamp will project through the dome and into the recess of the actuator such that the light will diffuse throughout the actuator.

4,365,121

TURN DIRECTION DETECTOR FOR A STEERING SHAFT

Masayuki Morita, Tokoname; Kazuhisa Kubota, Ichinomiya, and Tasuku Nakano, Mizunami, all of Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi, Japan

Filed December 2, 1980, Ser. No. 212,226

Claims priority, application Japan, December 7, 1979, 54-168656[U]; 1980, 55-12809[U]

Int. Cl.³ H01H 3/16, 9/00; H01J 40/14

U.S. Cl. 200—61.27

19 Claims

1. A turn direction detector for detecting the direction of turning of a steering shaft of an automobile, said detector comprising:

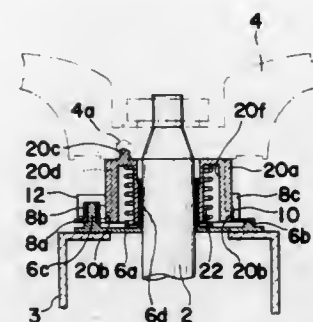
- a support member adapted to be fixedly connected to a housing of the steering shaft, said support member having an opening for rotatably receiving therethrough the steering shaft;
- a rotator member adapted to be fixedly connected to the

steering shaft to be rotatable therewith and to be rotatable with respect to said support member;

first switch means supported by said support member and capable of being in an actuated condition and a nonactuated condition;

second switch means supported by said support member and capable of being in an actuated condition and a nonactuated condition;

actuator means on said rotator member for, upon clockwise rotation of said rotator member, causing said first switch means to be in said actuated condition thereof, thereby



providing a detection of clockwise turning of the steering shaft, and for, upon counterclockwise rotation of said rotator member, causing said second switch means to be in said actuated condition thereof, thereby providing a detection of counterclockwise turning of the steering shaft; and

means, operable by said rotator member, for, upon said clockwise rotation of said rotator member, maintaining said second switch means in said nonactuated condition thereof, and for, upon said counterclockwise rotation of said rotator member, maintaining said first switch means in said nonactuated condition thereof.

4,365,122

MACHINE CONTROL DEVICE

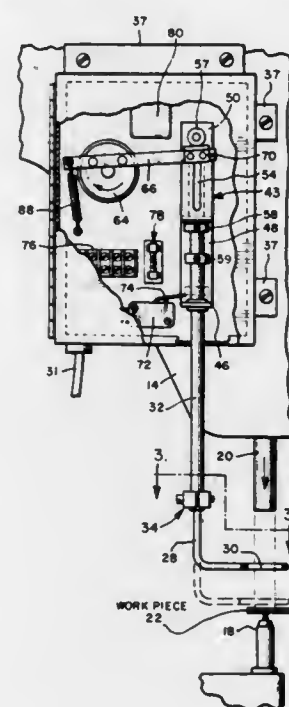
Russell C. Walton, 106 Center Ave., Libertyville, Ill. 60048

Filed June 1, 1979, Ser. No. 44,651

Int. Cl.³ H01H 3/16; F16D 9/00

U.S. Cl. 200—61.42

13 Claims



1. A machine control device comprising:

- a movable support rod;
- a sensor coupled to said movable support rod, said sensor and rod being movable by the force of gravity;
- a plate having means attached thereto for slidably retaining said support rod;
- a limit switch coupled to said plate;

means coupled to said rod for closing said limit switch;

means extending from said rod;

a movable arm having one end positioned in contact with and beneath said extending means;

means coupled to said plate and to said arm for biasing said arm in an upper position; and

rotary solenoid means coupled to said plate and to said arm for moving said arm beneath the extending means in a downward direction against the bias of said biasing means, said extending means being held in contact with the one end of said arm solely by the force of gravity when said arm is moved in the downward direction.

4,365,123

SNAP SWITCH AS WELL AS A METHOD FOR ITS MANUFACTURE

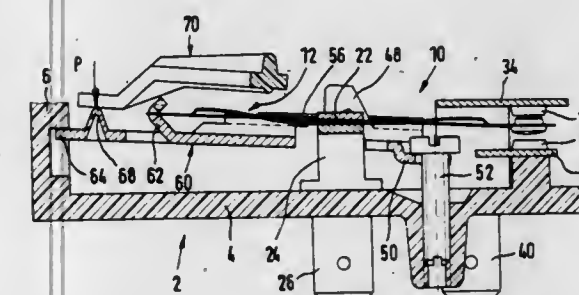
Helmut Baader, Birkenweg 6, D-8470 Nabburg, Fed. Rep. of Germany

Filed December 10, 1980, Ser. No. 214,949

Int. Cl.³ H01H 21/04

U.S. Cl. 200—67 DA

4 Claims



1. A snap switch comprising
 - a snap spring, which is fastened on a spring support and bears at least one switching contact spaced therefrom,
 - at least one contact stationary with respect to the spring support, on which the switching contact lies in the switching position of the snap spring,
 - a guide rod, which is pivotally mounted near the spring support and is connected with said snap spring at a distance from said spring support as well as from the switching contact, and exhibits a point of application for an actuating force,
 - at least one prestress spring, which acts on the guide rod and strives to keep this in stop position with prestress,
 - an adjusting member for adjusting the prestress of said prestress spring
- wherein said prestress spring is a leaf spring on the one hand fastened on said guide rod and on the other hand on a lever, said lever being mounted near the spring support in a stationary support and adapted to be swivel adjusted by means of said adjusting member.

4,365,124

PRESSURE SENSITIVE MACHINE SAFETY SWITCH

Charles E. Robinson, 208 Gardner Ave., Burlington, Wis. 53105

Filed November 10, 1980, Ser. No. 205,487

Int. Cl.³ H01H 35/34

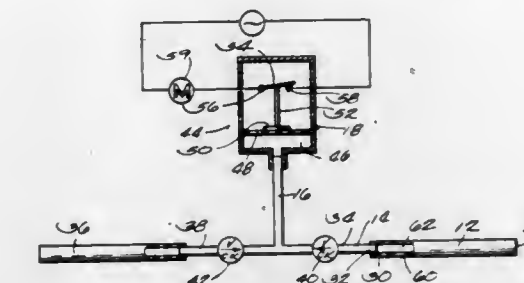
U.S. Cl. 200—81.5

5 Claims

1. In a fluid operated pressure sensitive safety switch for a machine comprising:

- A. sensor means with a first fluid filled interior cavity having a pressure sensitive wall which can be displaced by a slight pressure to reduce the volume of said first cavity;
- B. switch actuating means with a second fluid filled interior cavity having as one wall a pressure sensitive diaphragm which is displaced outward by an influx of fluid into said second cavity;
- C. fluid filled conduit means connecting said first cavity to said second cavity; and

D. disabling electrical switch means to disable said machine responsive to outward displacement of said diaphragm; the improvement wherein said safety switch further comprises:



E. check valve means in said conduit means allowing fluid to freely flow through said conduit toward said second cavity while restricting the flow of said fluid through said conduit toward said first cavity.

4,365,125

FLOW ACTUATING SWITCHING DEVICE

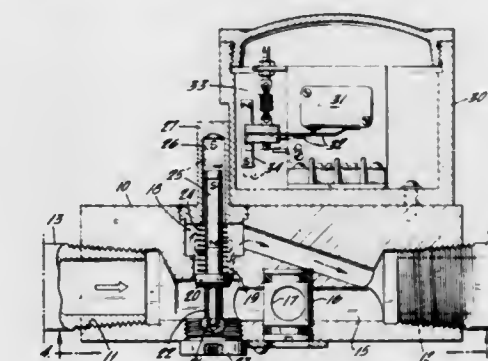
George D. Keller, Philadelphia, Pa., assignor to Beta, B.V., The Hague, Netherlands

Continuation of Ser. No. 146,139, May 2, 1980, abandoned. This application March 22, 1982, Ser. No. 360,203

Int. Cl.³ H01H 35/38

U.S. Cl. 200—81.9 M

5 Claims



1. A fluid actuated system for actuation of a switch, said system being responsive to flow of a fluid in a passageway, and comprising a housing through which said passageway extends, said passageway including inlet and outlet openings in opposed ends of said housing, said passageway including a portion which is substantially perpendicular to said inlet and outlet openings, a fluid actuated member mounted for movement along the perpendicularly extended portion of said passageway in response to fluid flow, a first elongated permanent magnet element moveable with said fluid actuated member, said permanent magnet element having poles displaced along the longitudinal axis thereof and being moveable by said fluid actuated member along said axis from a first position in the absence of fluid flow to a second position in response to a predetermined fluid flow, a second elongated permanent magnet element having poles displaced along the longitudinal axis thereof, means mounting the second elongated permanent element for movement along said second named longitudinal axis adjacent said first magnet element, said mounting means for the second magnet element limiting the movement of said second magnet element to a direction extending at least primarily along its longitudinal axis, the longitudinal axes of said first and second magnet elements being substantially parallel to each other, said magnet elements being polarized so that in a first position of the first element an end of one polarity on the first element is adjacent an end of the same polarity on the second element whereby the forces of magnetic repulsion bias the second element to one switch actuating position and in a second position of the first element the end of one polarity on the first element is intermediate the ends of the second element

whereby the forces of magnetic attraction and repulsion bias the second element to a second switch actuating position.

4,365,126 GAS CIRCUIT BREAKER

Masabumi Oshima; Haruo Honda, both of Hitachi, and Takeshi Takahashi, Hitachiota, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

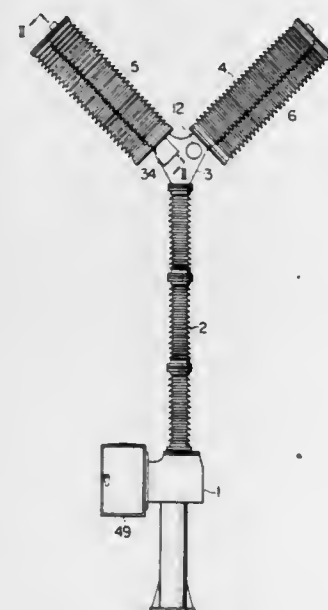
Filed November 27, 1979, Ser. No. 97,696

Claims priority, application Japan, December 1, 1978, 53-147940

Int. Cl.³ H01H 33/28

U.S. Cl. 200—144 AP

7 Claims



1. A gas circuit breaker comprising:
 - a swingable lever means for forming a portion of an operation force transmitting mechanism;
 - a mechanism housing means for housing the swingable lever means;
 - a center shaft means for supporting said lever means in said mechanism housing means;
 - a main interrupting unit supported by said mechanism housing means, the main interrupting unit including a moving contact connected to one end of said swingable lever means;
 - an operation means for exerting an operating force on said lever means so as to enable the lever means to open and close the main interrupting unit;
 - hollow bearing means for slidably supporting at least one end of the center shaft means, said hollow bearing means being securely engaged in an aperture provided in said mechanism housing means, said center shaft means being positioned in a hollow space of said hollow bearing means and having an engaging means at said one end for enabling an engagement with a force transmitting member; and
 - a gas filled in said mechanism housing means and said main interrupting unit for enabling an extinction of an arc in the circuit breaker; and
 - at least one end lid means removably attached to said hollow bearing means for sealing at least one end of said hollow space of said hollow bearing means.

4,365,127

VACUUM POWER INTERRUPTER

Shinzo Sakuma, Yokohama, and Junichi Warabi, Shimizu, both of Japan, assignors to Kabushiki Kaishi Meidensha and Kabushiki Kaisha GemVac, both of Tokyo, Japan

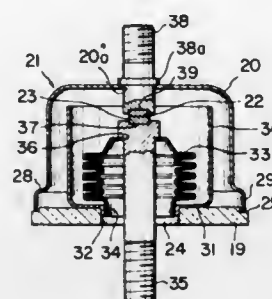
Filed November 20, 1980, Ser. No. 208,686

Claims priority, application Japan, November 26, 1979, 54-152582

Int. Cl.³ H01N 33/66

U.S. Cl. 200—144 B

9 Claims



1. A vacuum power interrupter constituted by a vacuum vessel comprising an insulating circular end plate of ceramic, and a bell shaped metal casing, having substantially the same coefficient of thermal expansion as that of ceramic, fitted over the outer periphery of said end plate and hermetically brazed thereto, the vacuum power interrupter comprising a stationary contact rod, having a stationary electrical contact on the one end thereof, supported by the bottom portion of said casing so that the one end thereof extends in the axial direction of said casing, a movable contact rod, having a movable electrical contact on the one end thereof, aligned with said stationary contact rod so that it is movable relative to said stationary contact rod, and a cylindrical arc-shield member disposed within the vacuum vessel so as to surround stationary and movable electrical contacts.

4,365,128

HIGH-VOLTAGE CIRCUIT BREAKER

Karl Mascher, Berlin, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

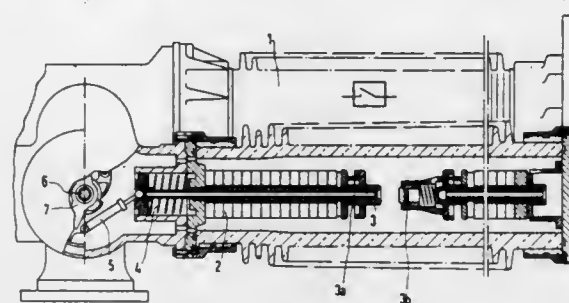
Filed December 2, 1980, Ser. No. 212,218

Claims priority, application Fed. Rep. of Germany, December 7, 1979, 2949753

Int. Cl.³ H01H 33/28

U.S. Cl. 200—148 F

5 Claims



1. In a high-voltage circuit breaker including a closing resistor which, during a closing operation of the breaker, is connected in parallel relationship with a main switching gap of the breaker by means of an auxiliary switching gap which closes before said main switching gap closes, and which is disconnected after said auxiliary switching gap closes by opening said auxiliary switching gap before said main switching gap opens, said auxiliary gap being open until said main switching gap is closed again; a movable, spring-loaded contact pin biased in the opening direction of said auxiliary switching gap; and a connecting rod coupled at one end to said auxiliary contact pin and at the other end to a rotatable crank drive of a drive unit of the circuit breaker, said crank drive being mounted on a rotating shaft; the improvement comprising said crank drive

including a gate aperture for forcibly guiding said other end of said connecting rod, said gate aperture comprising a first curved portion which is concentric with said rotating shaft on which said crank drive is mounted, and a linear portion disposed at one end of said curved portion located along the direction of rotation of said crank drive during said closing operation of said breaker, said linear portion being further disposed approximately radially outwardly with respect to said rotating shaft of said crank drive.

4,365,129

MODULAR SECTION INSULATOR SWITCH

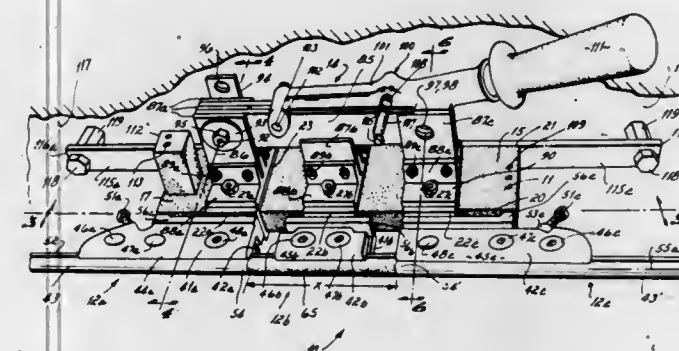
Kimball K. McKee, Covington, Ky., assignor to The Elreco Corporation, Cincinnati, Ohio

Filed December 8, 1980, Ser. No. 214,117

Int. Cl.³ H01H 21/54

U.S. Cl. 200—162

12 Claims



1. A trolley wire section insulator switch, said switch comprising a base, left hand, center and right hand trolley runners connected to said base, said center runner being spaced from both said left and right hand trolley runners, each of said left and right hand trolley runners comprising jaws adapted to receive an electrically conductive trolley wire in mounted relation therewith, and an electrically non-conductive trolley wire section mounted in said center trolley runner, said electrically non-conductive wire section serving as a support for a vehicle's trolley to ride against as said vehicle's trolley traverses said switch from said left hand trolley runner to said right hand trolley runner, and said electrically non-conductive trolley wire section being of a length sufficient to substantially span the gap between the respective inner ends of said left and right hand trolley runners, thereby providing an electrically non-conductive support for a vehicle's trolley across said gap for minimizing arcing between said switch and said trolley as said trolley traverses said switch.

4,365,130

VENTED MEMBRANE SWITCH WITH CONTAMINANT SCAVENGER

David A. Christensen, Crystal Lake, Ill., assignor to North American Phillips Corporation, New York, N.Y.

Continuation of Ser. No. 81,837, Oct. 4, 1979, abandoned. This application December 28, 1981, Ser. No. 334,495

Int. Cl.³ H01H 13/52, 9/02

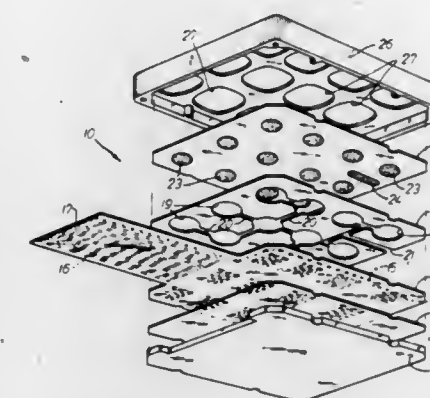
U.S. Cl. 200—306

5 Claims

1. In a membrane switch assembly of the type including an insulating substrate having attached to its inner surface first conductive contact portions of a plurality of switches; an insulating spacer layer overlying and secured to said substrate and having a plurality of apertures therein, each providing open access to the first conductive contact portion of one of said switches, and said spacer layer including a network of internal vent channels interconnecting and providing open communication between said apertures; and, a flexible membrane overlying and secured to said spacer layer and having attached to its inner surface second conductive contact por-

tions of said switches, each of said second conductive contact portions being disposed in alignment with one of said apertures and first conductive contact portions and spaced from the latter such that each of said switches is normally open; the improvement comprising:

- (a) an external vent channel in said spacer layer providing open communication between the atmosphere outside of the switch assembly and one of said internal vent channels;
- (b) said external vent channel angularly intersecting said internal vent channel and having a length of at least one inch;



- (c) said external vent channel being dimensioned to achieve pressure equilization between said internal vent channels and said external atmospheric pressure;
- (d) a contact contaminant scavenger material disposed said external vent channel; and
- (e) said first and second contact portions and said contact contaminants scavenger being materials which are reactant to the same contaminants such that said scavenger functions as a sacrificial material preventing undesirable reactant substances from reaching said contact portions.

4,365,131

MICROWAVE ICE PREVENTION SYSTEM

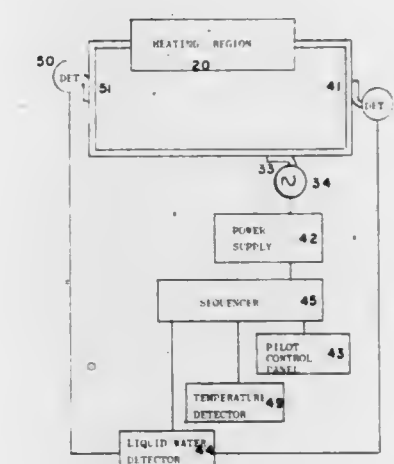
Robert J. Hansman, Jr., 1 Common La., Scituate, Mass. 02066

Filed June 27, 1980, Ser. No. 163,520

Int. Cl.³ H05B 6/64

U.S. Cl. 219—10.55 M

3 Claims



1. A method for the prevention of ice formation on exposed structures, comprising the steps of:
 - generating microwave electromagnetic energy at a frequency such that said energy is strongly absorbed by liquid water and weakly absorbed by said structure or by frozen water;
 - transmitting and distributing the microwave energy to a heating region in front of the structure to be protected; and
 - heating any incident supercooled water droplets to above

freezing by the absorption of microwave electromagnetic energy before impacting the structure and thus preventing icing.

4,365,132

WELDING APPARATUS FOR POLYGONAL CROSS-SECTIONED TUBING

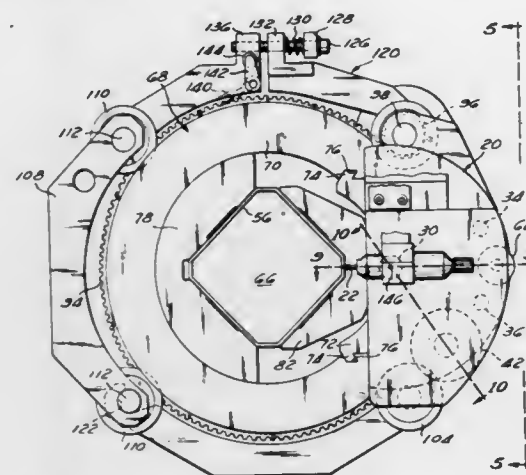
Gasparas Kazlauskas, 4455 Los Feliz, Apt. 1108, Los Angeles, Calif. 90027; Vytautas J. Jusonis, 5302 Clark Cir., Westminster, Calif. 92683; Max M. Westerberg, 4658 Brewster Dr., Tarzana, Calif. 91356, and John W. Meacham, 2028 Las Lunas St., Pasadena, Calif. 91107

Filed October 2, 1978, Ser. No. 947,357

Int. Cl.³ B23K 9/225, 9/02, 9/12, 37/02

U.S. Cl. 219—60 A

6 Claims



1. The welding apparatus for producing a weld on a workpiece, said welding apparatus comprising:

a housing having an internal opening, said workpiece to be located in said internal opening, said workpiece being tubular, said workpiece having a polygonal cross-sectional configuration;

a welding electrode assembly mounted by mounting means on said housing, said welding electrode assembly being movable on said housing around said internal opening, said mounting means comprises:

a driving assembly movably mounted on said housing, said welding electrode assembly being pivotally mounted on said driving assembly, said driving assembly to move said welding electrode assembly about the workpiece, said workpiece having an exterior surface, said welding electrode assembly including a welding electrode, said welding electrode having a longitudinal center axis, control means continuously maintaining said longitudinal center axis perpendicular to said exterior surface of said workpiece as said welding electrode moves around said workpiece, said driving assembly being composed of a plurality of separate connected members, locking means for securely connecting together said separate members in position around said housing, said locking means being releasable to disassociate said members from said housing, said connected members forming a totally enclosed area within which is located said housing, said connected members being hooked together through an engaging slot and shaft assembly; and

one of said separate connected members being formed of two in number of members, said two in number of members being connected together by a third member, one of said two in number of members being slidable on said third member toward and away from the other of said two in number of members, a biasing means located about said third member exerting a continuous bias upon said two in number of members tending to locate said two in number of members as close together as possible, a pivotable cam mounted on one of said two in number of members, said pivotal cam to be pivoted pushing against the other of said two in number of members causing said two in number of members to move apart against the bias of said biasing means thereby permit-

ting disassociation of said separate connected members from said housing.

4,365,133

METHOD OF AND APPARATUS FOR ELECTROEROSIVELY MACHINING A 3D CAVITY IN A WORKPIECE

Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

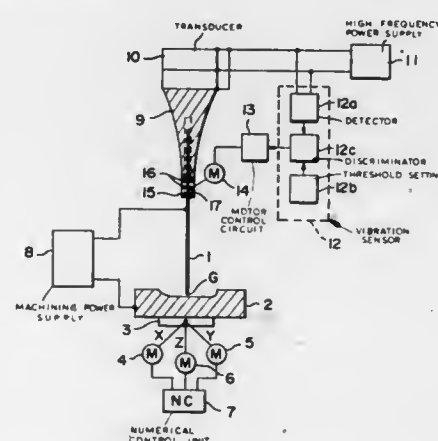
Filed September 25, 1980, Ser. No. 190,757

Claims priority, application Japan, September 26, 1979, 54-124651; September 28, 1979, 54-124152; September 29, 1979, 54-125842; November 29, 1979, 54-155108; December 18, 1979, 54-164205; 1980, 55-17563; March 7, 1980, 55-27971

Int. Cl.³ B23P 1/12

U.S. Cl. 219—69 M

40 Claims



1. A method of machining a cavity in a workpiece by electroerosion with a slender tool electrode having a machining surface contour which is of a configuration generally independent of the shape of the desired cavity, comprising the steps of: axially juxtaposing said slender tool electrode with the workpiece to position said machining surface contour in a spaced juxtaposition therewith across a machining gap flooded with a machining liquid; imparting high-frequency vibrations to said slender tool electrode to vibrationally fluctuate said machining surface contour and to dynamically enlarge the effective machining area thereof by a small size determined by the amplitude of said high-frequency vibrations;

applying a succession of electrical pulses between said vibrating slender tool electrode and the workpiece through the machining gap to effect localized electrical discharges jumping between the workpiece and said machining surface contour brought proximal thereto by vibrational fluctuations, thereby electroerosively removing material from the workpiece against said vibrationally fluctuating machining surface contour with the enlarged effective machining area; and

multi-axially displacing said vibrating slender tool electrode relatively over said workpiece along three coordinate axes including a pair of coordinate axes defining a plane substantially orthogonal to the longitudinal axis of said slender tool electrode and a coordinate axis substantially orthogonal to said plane while maintaining the average width of said machining gap substantially constant, thereby three-dimensionally machining said workpiece at least in part by said electrical discharges with said vibrationally fluctuating machining surface contour to form the desired cavity in the workpiece.

4,365,134

METHOD OF RESISTANCE WELDING

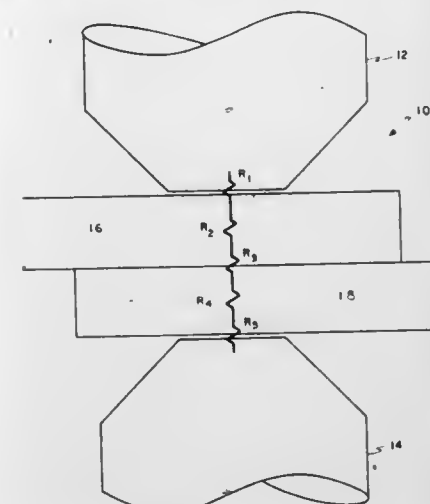
Thomas W. Eagar, Belmont, Mass.; Joseph G. Kaiser, Wallingford, Conn., and Gregory J. Dunn, Cambridge, Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed December 31, 1980, Ser. No. 221,591

Int. Cl.³ B23K 11/16, 11/34

U.S. Cl. 219—118

4 Claims



1. An improved method of resistance welding high strength low alloyed steel materials along a faying interface, the method comprising:

- measuring the bulk resistance of said materials;
- determining the optimal surface resistance for said materials so that when said materials are welded sufficient heat is generated at the faying interface while bulk heating of materials is minimized;
- treating the surface of said materials to produce a coating which increases the surface resistance to obtain said optimal surface resistance and
- resistance welding said treated materials.

4,365,135

SHAPING OF THERMAL INSULATION MATERIAL

Joseph A. McWilliams, Droitwich, England, assignor to Micro-pore International Ltd., England

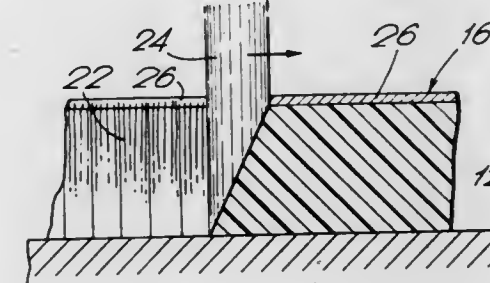
Filed December 10, 1980, Ser. No. 215,092

Claims priority, application United Kingdom, December 14, 1979, 7943116

Int. Cl.³ B23K 26/00

U.S. Cl. 219—121 LF

8 Claims



1. A method of shaping a block of microporous thermal insulation material comprising silica-aerogel particles while simultaneously forming a protective skin on said material, said method comprising cutting the desired shape from a workpiece using a laser beam, wherein the laser beam is directed at the workpiece so as to cut the workpiece and simultaneously to generate intense heat sufficient to fuse the silica-aerogel particles at the surface of the cut edge, thereby forming a thin, substantially continuous protective skin at the cut edge of the shaped block.

4,365,136

ZONE REFINEMENT OF INERTIA WELDED TUBULARS TO IMPART IMPROVED CORROSION RESISTANCE

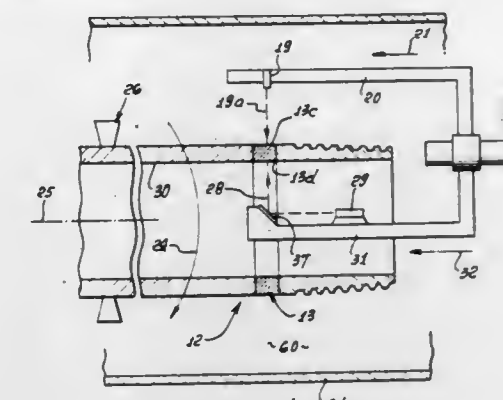
Theodore Gottlieb, Glendale, Calif., assignor to Hydrex Company, Los Angeles, Calif.

Filed 1981, Ser. No. 237,296

Int. Cl.³ B23K 27/00

U.S. Cl. 219—121 LE

20 Claims



1. In the method of fabricating an oil or gas well metallic tubular product, the steps that include,

- providing a steel tube and a pre-fabricated thread end and welding said thread end to the tube to form a weld,
- directing a laser beam at the surface of said weld to cause the beam to progressively and locally vaporize a thin film of the weld metal, and allowing the metal vapor to condense back onto the weld, thereby to form a corrosion resistant surface.

4,365,137

APPARATUS FOR ELECTRIC-ARC GAS-SHIELDED SURFACING BY DROPLETS WITH CONSUMABLE ELECTRODE

Nikolai M. Tarasov, ulitsa Chkalova, 7, kv. 30; Nikolai A. Varukha, ulitsa Kamenets-Podolskaya, 28, both of Kharkov; Rostislav L. Brontman, ulitsa Vutechicha, 5, kv. 92, Moscow; Boris A. Slesarev, pereulok Pletnevsky, 3, kv. 9, Kharkov; Anatoly M. Zhukov, ulitsa Geroev Truda, 38, kv. 223, Kharkov; Valery V. Mizik, pereulok Uriskogo, 2, kv. 9, Kharkov; Evgeny P. Rogachev, ulitsa Akademika Proskury, 5, kv. 26, Kharkov, and Nikolai I. Gurnov, ulitsa Geroev Truda, 4, kv. 8, Kharkov, all of U.S.S.R.

PCT No. PCT/SU79/00079, § 371 Date October 28, 1980, § 102(e) Date October 28, 1980, PCT Pub. No. WO80/01772, PCT Pub. Date September 4, 1980

PCT Filed August 30, 1979, Ser. No. 201,395

Claims priority, application U.S.S.R., 1979, 2725299; 1979, 2725300

Int. Cl.³ B23K 9/04

U.S. Cl. 219—137.31

12 Claims



1. An apparatus for electric-arc gas-shielded surfacing of an article by droplets with a consumable electrode having an electrode melting zone, comprising feeding means for feeding said consumable electrode to a surface of the article being

surfaced, and a body wherein there are mounted a nozzle having a cavity provided with an inlet pipe for supplying a shielding gas into the cavity of said nozzle, and having an opening adapted for directing said shielding gas into the electrode melting zone, a current contact tip introduced into said nozzle and provided with an aperture for the electrode to pass through, and drive means for translatory moving the current contact tip with acceleration relative to the nozzle in the direction of the surface of the article, said apparatus further comprising arrester means for stopping the movement of the current contact tip while the current contact tip is moving relative to the nozzle, and electrode holder means for clamping the electrode with the molten droplet and imparting to said electrode and the current contact tip an accelerating translatory motion relative to the nozzle, said electrode holder means having a sleeve rigidly connected to the current contact tip and said drive, and clamping members disposed within said sleeve, and pusher means connected to the electrode feeding means and mounted on the clamping members for pushing the clamping members.

4,365,138

HEATED INSTRUMENT-MOUNTING PLATE

Joachim Hess, Schröplerstrasse 37, 8070 Ingolstadt, Fed. Rep. of Germany

Continuation of Ser. No. 937,815, Aug. 29, 1978, abandoned.

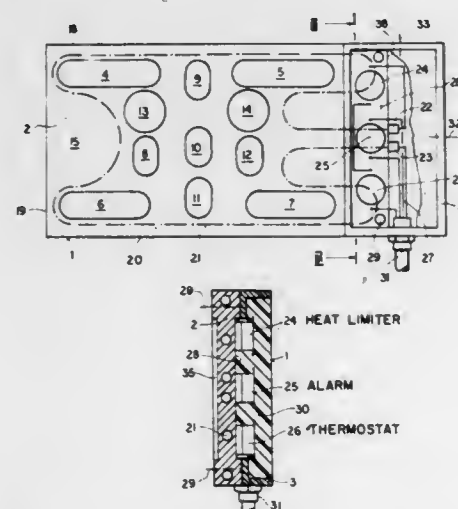
This application August 21, 1980, Ser. No. 179,979

Claims priority, application Fed. Rep. of Germany, August 31, 1977, 2739123

Int. Cl.³ H05B 1/03

U.S. Cl. 219—200

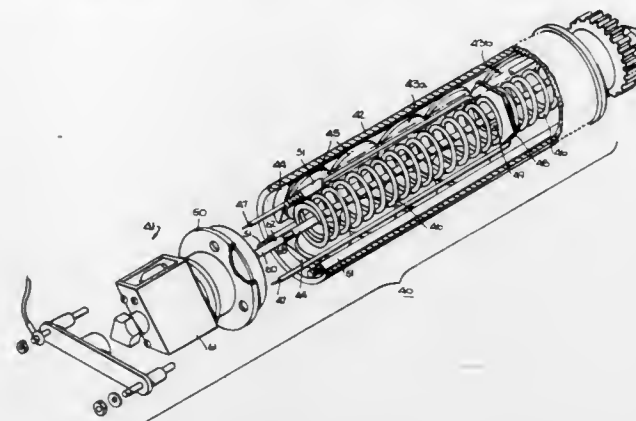
6 Claims



1. A device for mounting an instrument under thermally stabilized conditions on a support, comprising: a perforated plate of good thermal conductivity with parallel surfaces respectively engageable by an instrument and by a support connectable with said plate by fastening means traversing the perforations thereof; heating means in said plate forming a loop between said surfaces; temperature-sensing means on one of said surfaces disposed close to said heating means for controlling the operation thereof, said one of said surfaces being recessed adjacent an edge thereof to form a supporting base for said temperature-sensing means in close proximity to said heating means; and a housing secured to said plate, said temperature-sensing means being enclosed in said housing, the other of said surfaces being recessed opposite said base to provide an air space between a part of said plate forming said base and a support contacting said other of said surfaces in the vicinity of said housing.

4,365,139
HEATED FUSER ROLL
Hugh S. L. Dannatt, Bethel, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.
Filed October 9, 1981, Ser. No. 309,869
Int. Cl.³ G03G 5/00; H05B 1/02
U.S. Cl. 219—216

3 Claims



1. A heated fuser roll for use in a fuser apparatus for fixing toner images to a support surface, said fuser roll comprising:
a. a sleeve member;
b. two electrically connected heating units positioned within said sleeve member, each heating unit including a plurality of heating elements formed of a semiconducting ceramic material having a positive temperature coefficient of resistivity and exhibiting a Curie temperature transition point at which the resistance of said material increases with increasing temperature;
c. an insulating member positioned between said heating units for separating each of the units; and
d. thermally sensitive switching means to control power to said heating elements when starting said fuser from a cold state, the switching means adapted to electrically connect the heating units in series when power is first applied to said fuser and then electrically connect said units in parallel when said heating elements are heated to said Curie temperature.

4,365,140

THERMOSTATICALLY CONTROLLED DUAL TEMPERATURE ELECTRIC HAIR CURLING IRON

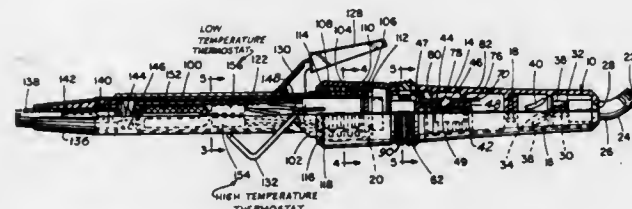
Eleanor A. Bast, West Chicago; Jean-Pierre DuBois, Lombard, and Robert T. MacLagen, Park Forest, all of, IL, assignors to Sunbeam Corporation, Chicago, Ill.

Filed July 14, 1980, Ser. No. 167,867

Int. Cl.³ H05B 1/02; A45D 1/04

U.S. Cl. 219—225

4 Claims



1. A curling iron comprising means for connection to a source of electric power, a handle, a barrel connected to said handle, a heater disposed in good heat transfer relation to said barrel, a first temperature controller connected in circuit with said heater and said connection means and disposed in good heat transfer relation to said barrel for controlling a flow of electric power from said connection means to said heater to regulate the temperature of said barrel to a first predetermined temperature, a second temperature controller connected in circuit with said heater and said connection means and disposed in

good heat transfer relation to said barrel for controlling a flow of electric power from said connection means to said heater to regulate the temperature of said barrel to a second predetermined temperature, which is substantially higher than said first predetermined temperature, switch means for disabling said first temperature controller and enabling said second temperature controller to effect a change in the temperature of said barrel, said switch means including a manually operable means mounted on said handle for moving said switch means from a first position wherein said first temperature controller is enabled to a second position wherein said first temperature controller is disabled and said second temperature controller is enabled, and biasing means normally urging said manually operable means and said switch means to a position in which said first temperature controller is enabled.

4,365,141

HAIR DRYER

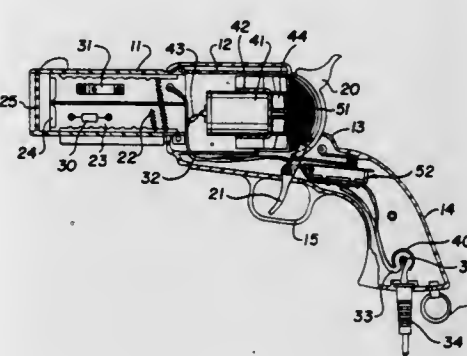
Richard V. Weiss, Dallas, Tex., assignor to Jerdon Industries, Inc., Richardson, Tex.

Filed 1981, Ser. No. 222,555

Int. Cl.³ A45D 20/10

U.S. Cl. 219—370

10 Claims



1. A hair dryer in the form of a hand gun comprising: a hand-gun shaped housing having a barrel provided with an open discharge end; an electrical heater in said housing; an electric motor in said housing; a fan connected with said motor to blow air through said barrel along said heater discharging said air from the open end of said barrel; an electrical switch connected with said heater and said motor; an electrical supply cord connected with said switch; a hammer connected with said switch for operating said switch between "off" position and a plurality of different dryer operating conditions; and a trigger operable with said hammer for releasably holding said hammer at a "safety off" position and disengageable from said hammer for releasing said hammer to operate said dryer.

4,365,142

ELECTRICAL UNIT FOR STOVES, FIREPLACES AND LIKE DEVICES

Arne Alin, Spanga, Sweden, assignor to Luftkonditionering AB, Trosa, Sweden

Filed October 9, 1980, Ser. No. 195,438

Claims priority, application Sweden, October 18, 1979, 7908663

Int. Cl.³ F24H 3/04

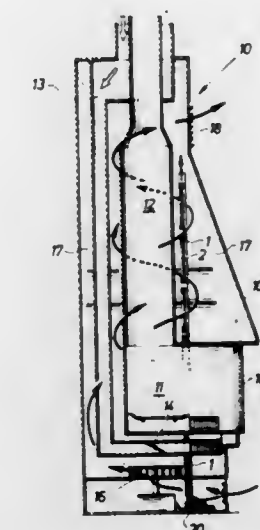
U.S. Cl. 219—374

11 Claims

1. In a solid fuel stove, fireplace or like device having a combustion system, and a warm-air circulation system arranged separately from said combustion system, said warm-air circulation system including a fan means for circulation of air to be heated,

the improvement in accordance with the invention of an electrical heating unit comprising:
at least one electrical heating element;

current-supply cables connected to said at least one electrical heating element;
an open-ended, hollow conduit-pipe element which protectively encloses said current-supply cables and which carries said at least one electrical heating element, said conduit-pipe element having upper and lower open ends; and



mounting means for so positioning said conduit-pipe element in the flow path of the hot air in said stove, fireplace or like device that cooling air for cooling said supply cables flows into the lower open end of said conduit-pipe element, as a result of induced convection as a result of action of said fan means, and departs at the upper open end of said conduit-pipe element, where it is mixed with heated air in said warm-air circulation system of said stove, fireplace or like device.

4,365,143

ASSEMBLY FOR PREPARING AND DISPENSING INFANTILE DIETARY FORMULATION

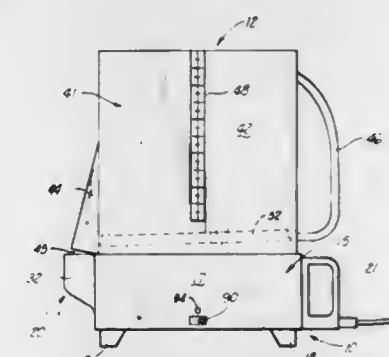
William X. Kerber, Jr., Rte. 3, Box 50-A, Tuttle, Okla. 73089

Filed December 22, 1980, Ser. No. 219,031

Int. Cl.³ F27D 11/00

U.S. Cl. 219—401

15 Claims



1. An apparatus for preparing and for dispensing infant formula comprising:

a steam basin subassembly including:
a reservoir for formula water containment;
heating means in said reservoir;
handle means for pouring hot, uncontaminated formula water out of said reservoir into a container means; and
pouring means for cooperating with said handle means in the pouring of heated formula water out of said reservoir into a container means;
container means having an open top and inverted over, and supported on, said steam basin subassembly and suitable for mixing formula therein;
sterilizing rack means removably positioned at least partially within said container means and over said steam basin subassembly;

lip means on said container means for directing condensed steam from said container means downwardly toward said steam basin subassembly and for pouring liquid from said container means during formula preparation; and trap means on said water reservoir for receiving steam from said steam directing means and for condensing the received steam at a location isolated from the water in the water reservoir.

4,365,144

APPARATUS FOR WELDING A JOINT BETWEEN PLASTIC PIPES

Fritz Reich, and Alfred Thalmann, both of Uhwiesen, Switzerland, assignors to Georg Fischer Aktiengesellschaft, Switzerland

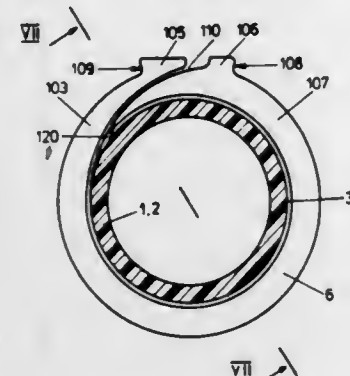
Filed March 10, 1981, Ser. No. 242,301

Claims priority, application Switzerland, March 10, 1980, 1850/80

Int. Cl.³ H05B 3/58

U.S. Cl. 219—535

5 Claims



1. An improved apparatus for welding together the abutting ends of two coaxially aligned plastic pipes, the apparatus being of the type including a heating mat having heating wire therein, said mat being wrappable around the pipes so as to encircle the abutment thereof with the ends of the mat substantially meeting at one side of the pipes, and a generally cylindrical, C-shaped sleeve of plastic material placeable around the mat with the ends thereof defining a slit, the sleeve being subjectable to clamping force in the direction of reduction of its circumference, the improvement wherein said mat and said sleeve include end portions which overlap each other when said mat and sleeve encircle said pipes.

4,365,145

RANDOM SIGNAL GENERATOR FOR THE MANUFACTURE OF SLUB OPEN END SPUN YARN

Zane Frentress, Stone Mountain, Ga., assignor to Milliken Research Corporation, Spartanburg, S.C.

Continuation of Ser. No. 99,461, Dec. 3, 1979, abandoned, and Ser. No. 939,843, Sep. 5, 1978, abandoned, which is a division of Ser. No. 899,191, Apr. 24, 1978, Pat. No. 4,160,359. This application April 20, 1981, Ser. No. 255,207

The portion of the term of this patent subsequent to July 10, 1996, has been disclaimed.

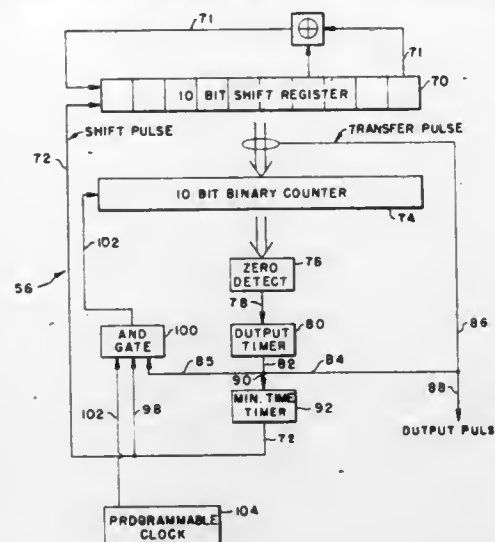
Int. Cl.³ G06M 3/02

U.S. Cl. 235—92 CT

2 Claims

1. Apparatus to provide a pre-selected number of random pulses per unit time comprising: a multi-bit shift register including a means to supply an input logic pulse to said shift register which includes a feed back pulse from at least one of the later stages of said shift register to the input of said shift register to provide a plurality of random pulses from said shift register, a digital counter operably associated with said shift register and being activated by a pulse from said shift register to count-down to a pre-selected value, detection means to detect when said counter has completed the countdown to its pre-selected value to provide an output pulse and a timer means operably associated with said detection means and receiving the output

pulse therefrom to transfer the contents of said shift register to said digital counter and to control the operation of a desired machine, said timer means including a minimum time timer



means to allow a clock pulse to be delivered to said counter to count down said counter to a pre-selected value when the minimum time timer has timed out.

4,365,146

ROTARY DRIVE ANTI-BACKLASH DEVICE

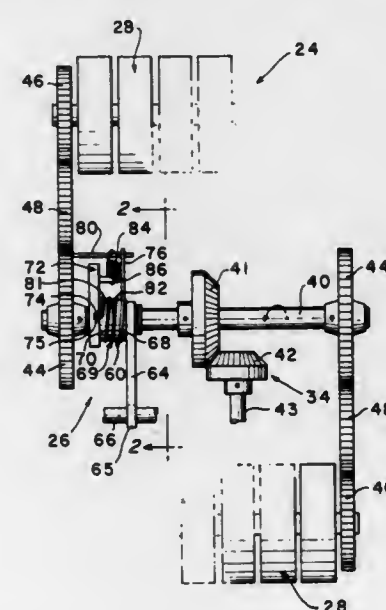
Bruno S. Smilgys, Hartford, Conn., assignor to Veeder Root Industries Inc., Hartford, Conn.

Filed October 8, 1981, Ser. No. 309,818

Int. Cl.³ G06C 25/00

U.S. Cl. 235—131 R

7 Claims



1. In a resettable fluid delivery register having a resettable rotary counter with a plurality of coaxial rotary counter wheels of ascending order, a rotary drive train connected to the lowest order counter wheel to rotate the counter for registering the amount of fluid delivered, and rotary drive anti-backlash means for removing inertia overtravel in the rotary drive train upon termination of a fluid delivery, the anti-backlash means comprising first rotary member means connected to be rotated in one angular direction thereof by the rotary drive train, second non-rotatable member means, a reverse bias follower rotatable coaxially with said first rotary member means, reverse bias spring means interconnecting the follower and one of said member means, and friction means interconnecting the follower and the other of said member means to restrain relative angular rotation thereof and thereby to bias the said first rotary member means in its reverse angular direction to its said one angular direction with the reverse bias spring means, the

improvement wherein the said other member means comprises a first annular friction drum coaxial with the follower, wherein the friction means comprises a coil spring having a first free end, a second end connected to said follower, and an intermediate helical coil spring section in frictional engagement with said first annular friction drum and extending generally helically from its said first free end in an angular direction to increase the frictional engagement of the coil spring section with the first annular friction drum with the reverse bias spring means, and wherein the said one member means comprises means engageable with the said free end of the coil spring to reduce the frictional engagement of the coil spring section with the first annular friction drum at a predetermined angular loading of the reverse bias spring means.

4,365,147

ROTARY DRIVE ANTI-OVERTRAVEL DEVICE

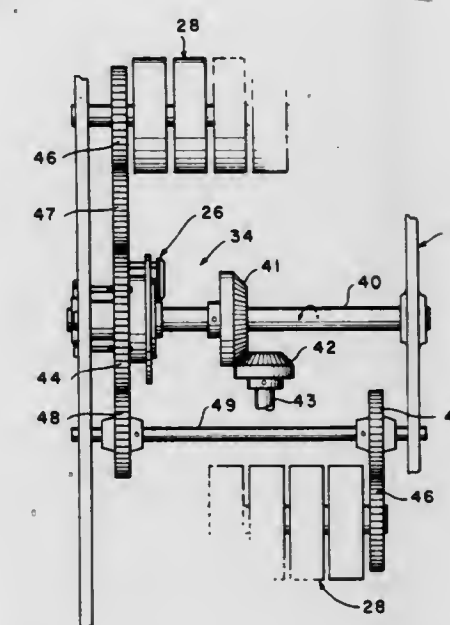
Phillip J. Lombardo, Simsbury, and Bruno S. Smilgys, Hartford, both of Conn., assignors to Veeder Root Industries, Inc., Hartford, Conn.

Filed October 8, 1981, Ser. No. 309,819

Int. Cl.³ G06C 25/00

U.S. Cl. 235—131 R

13 Claims



1. In a fluid delivery register comprising a rotary counter and a rotary drive train connected to rotate the counter for registering the amount of fluid delivered and having a rotary drive anti-overtravel device for preventing overtravel of the counter at the termination of a fluid delivery, the improvement wherein the rotary drive train comprises coaxial, relatively rotatable, rotary drive and driven members rotatable in one angular direction thereof during rotation of the counter to register the amount of fluid delivered and wherein the anti-overtravel device comprises a first fixed annular brake drum coaxial with the rotary drive and driven members, and a coil spring having first and second ends connected to said rotary drive and driven members respectively and an intermediate helical coil spring section mounted for coaxial frictional engagement with the annular brake drum and extending generally helically in an angular direction tending to increase the said frictional engagement with the annular brake drum upon rotation of the driven member in said one angular direction relative to the drive member, the drive member positively rotating the driven member in said one angular direction in first relative angular positions thereof and the helical coil spring engaging the brake drum to brake the driven member against rotation in said one angular direction in second relative angular positions of the drive and driven members having a predetermined limited relative angular displacement of the driven member in said one angular direction relative to the drive member from their said first relative angular positions.

4,365,148

DATA PROCESSING SYSTEM

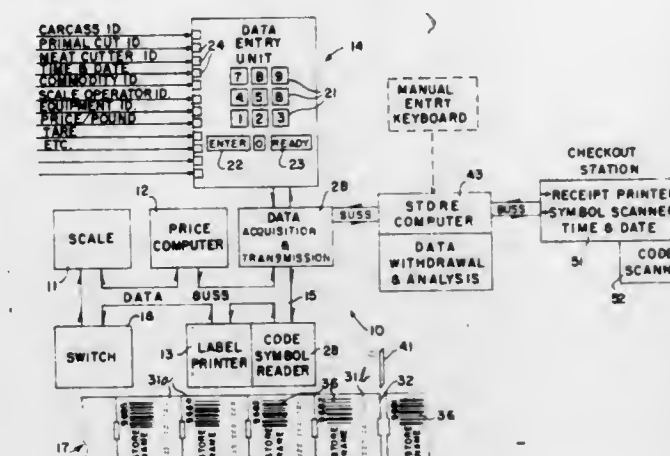
John A. Whitney, Fort Wayne, Ind., assignor to Franklin Electric Co., Inc., Bluffton, Ind.

Continuation-in-part of Ser. No. 105,149, Dec. 19, 1979, abandoned. This application June 4, 1981, Ser. No. 270,239

Int. Cl.³ G06K 15/02

U.S. Cl. 235—383

20 Claims



1. The method of processing a series of packages utilizing a plurality of labels having nonrepetitive machine readable symbols thereon, a computer-scale, a central computer, and a symbol scanner, comprising the steps of entering a plurality of package-related data, including the price, in the computer-scale, consecutively weighing said packages and for each package computing the total cost and printing at least the package cost and weight on a label associated with the package, responding to the package associated label and generating a signal identifying said symbol on said label, said plurality of data, said weight, said total cost and said identifying signal forming a group of package-related data, transmitting said group of package-related data to the central computer and storing said data in said central computer, and scanning said symbol and retrieving said total cost from said group of package-related data.

4,365,149

MORTAR FIRE CONTROL SYSTEM

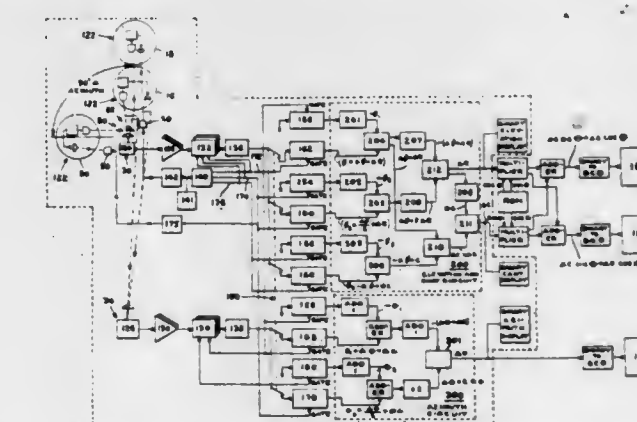
Gerald Falbel, Stamford, Conn., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed July 31, 1980, Ser. No. 174,093

Int. Cl.³ G06F 15/58; F41G 1/34, 3/00

U.S. Cl. 235—404

11 Claims



1. A mortar fire control system for indicating the angular orientation of a mortar barrel in any one predetermined plane of a three axis coordinate system, comprising: means for determining a reference angular orientation of said barrel in said plane; means for electrically storing said angular orientation of said reference;

means for electro-optically detecting a change of said barrel from said reference to a first angular orientation of said barrel in said plane;
 means for determining said first angular orientation;
 means for electrically storing said first angular orientation;
 means for electrically determining by complement subtraction circuits a difference in said reference to said first angular orientation; and
 means for displaying said difference.

4,365,150

GAIN STABILIZED MICROCHANNEL PLATES AND MCP TREATMENT METHOD

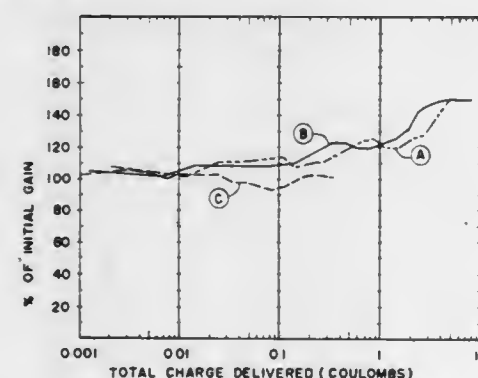
Roger S. Bateman, Beaverton, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Continuation of Ser. No. 904,058, May 8, 1978, abandoned. This application November 21, 1980, Ser. No. 208,910

Int. Cl.³ H01J 43/04

U.S. Cl. 250-207

3 Claims



1. In a microchannel plate comprising a multiplicity of elongate tubular channels formed of a lead-containing glass, each such channel including a secondary electron-emissive interior wall surface region, the improvement comprising the inclusion of cesium oxide in said region in an amount sufficient to increase the gain and improve the aging rate of said plate.

4,365,151

SENSOR FOR A DOCUMENT PROCESSOR

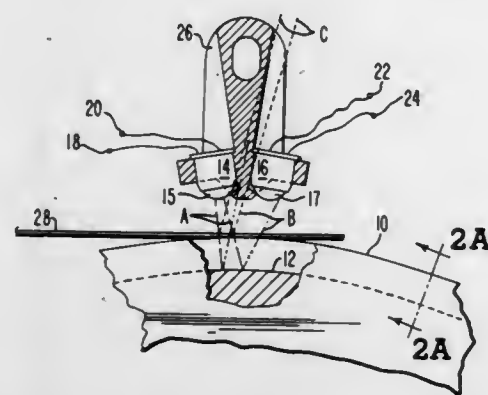
Harold A. Fasig, Plymouth, and Anthony Horak, Detroit, both of Mich., assignors to Burroughs Corporation, Detroit, Mich.

Filed September 2, 1980, Ser. No. 183,012

Int. Cl.³ G01V 9/04

U.S. Cl. 250-222 R

9 Claims



1. A system, in a document processing machine having a document track, for use in detecting the passage of documents along the track, comprising:

an alignment drum having a substantially cylindrical outer surface aligned along the track to aid in the transport of documents;
 said drum including a reflective substantially cylindrical surface recessed below said outer surface;
 a light source and a light sensor; and
 means, including a housing, supporting said light source and

said light sensor in positions to enable light from said light source to be reflected from said reflective surface of the drum over a path to energize the light sensor and cause the light sensor to provide an output indicative of the absence of a document from the path adjacent to the drum;
 the alignment of said outer surface of said drum relative to the housing enabling light to be reflected from the surface of a document present in the track, adjacent to the drum, over a path which substantially misses the sensor, causing the sensor to provide an output indicative of the presence of a document.

4,365,152

ENCODER FOR MACHINE CONTROL

Franc Gergek, 1905 - 2600 Don Mills Rd., Willowdale, Ontario, Canada (M2J 3B4)

Continuation of Ser. No. 198,465, Oct. 20, 1980, abandoned, which is a continuation-in-part of Ser. No. 25,583, Mar. 30, 1979.

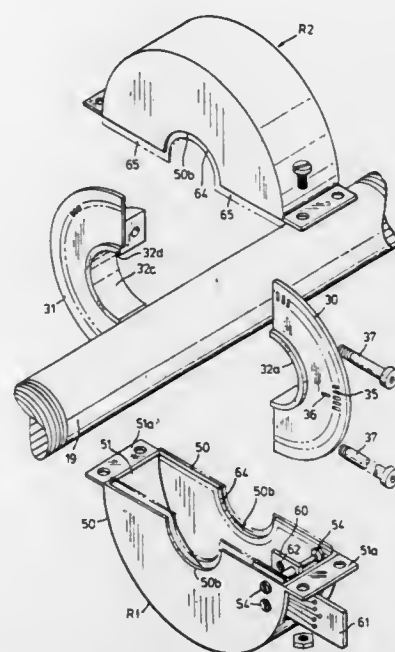
This application December 9, 1981, Ser. No. 329,044

Claims priority, application Canada, October 3, 1978, 312625; October 31, 1978, 315014

Int. Cl.³ G01D 5/34

U.S. Cl. 250-231 SE

12 Claims



1. An encoder attachment for a rotatable control shaft, comprising,

a pair of companion shells for surrounding the shaft in abutting relationship to form a casing,

each shell having spaced-apart sidewalls having edges for abutting the walls of the other shell and a connecting wall, each sidewall having a central recess extending inward from said edges to form an opening to accommodate the shaft and provide a clearance gap,

photocell means and light emitting means mounted in one of said shells,

a pair of optical disc segments for mounting on the shaft within the casing to form an optical sensing disc.

4,365,153

DETECTION OF CERTAIN MINERALS OF ZINC, TUNGSTEN, FLUORINE, MOLYBDENUM, MERCURY AND OTHER METALS USING PHOTOLUMINESCENCE

Harold O. Seigel, Don Mills, and John C. Robbins, Alliston, both of Canada, assignors to Scintrex Limited, Alliston, Canada

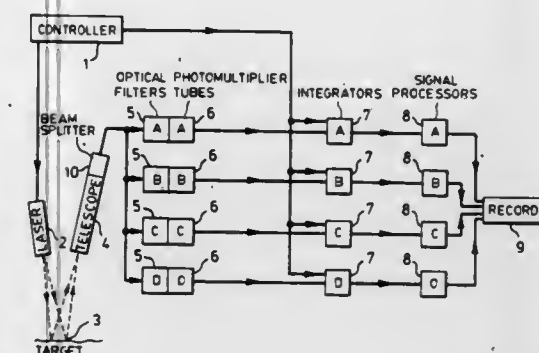
Filed June 16, 1980, Ser. No. 159,792

Claims priority, application United Kingdom, June 25, 1979, 7922000

Int. Cl.³ G01V 5/00

U.S. Cl. 250-253

26 Claims



1. A method of selectively rejecting the fluorescent response of the abundant photoluminescent rocks and substances which may occur at the surface of the earth, while detecting the fluorescent response of a non-uranyl mineral of economic significance selected from the group consisting of minerals of zinc, fluorine, tungsten, molybdenum, mercury and other elements having lifetimes of photoluminescence between 1 and 50 microseconds through consideration of their differences in photoluminescent lifetimes; said method comprising the steps of directing at the ground electromagnetic radiation having an intensity that varies with time and of a wavelength that causes photoluminescence of said mineral; selectively detecting photoluminescent emission from said mineral in a wavelength region which is characteristic of emission of photoluminescence of said mineral; and selectively detecting the presence of said mineral by measuring the time varying detected photoluminescence excited by said radiation and due to minerals selected from said group and having lifetimes of photoluminescence between 1 and 50 microseconds.

4,365,154

DETECTION OF IMPURITIES IN A FLUID CONTAINING FREE GAS USING NUCLEAR TECHNIQUES

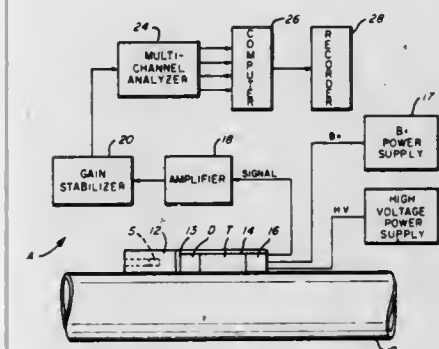
Dan M. Arnold, and Hans J. Paap, both of Houston, Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed March 6, 1980, Ser. No. 127,700

Int. Cl.³ G01V 5/00; G01T 1/169

U.S. Cl. 250-270

18 Claims



1. A method for analysis of a multiphase fluid, containing liquid and free gas, flowing in a conduit to determine the salt content of the fluid, comprising the steps of:

(a) bombarding the fluid with fast neutrons which are

slowed down and thereafter engage in thermal neutron capture reactions with materials in the fluid;
 (b) obtaining gamma ray energy spectra of the materials in response to the capture of thermal neutrons by the materials in the fluid;
 (c) obtaining a measure of the concentration of hydrogen in the fluid from the gamma ray energy spectra;
 (d) obtaining from the measure of hydrogen concentration the hydrogen index of the fluid;
 (e) obtaining a measure of the concentration of chlorine in the fluid from the gamma ray energy spectra;
 (f) obtaining a ratio of the concentration of chlorine to the concentration of hydrogen; and
 (g) obtaining from the concentration ratio of chlorine to hydrogen and the hydrogen index of the fluid a measure of the salt content of the fluid.

4,365,155

SCINTILLATOR WITH ZNWO₄ SINGLE CRYSTAL

Tetsu Oi, Tokyo; Kazumasa Takagi, Hinodemachi, and Tokumitsu Fukazawa, Tachikawa, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

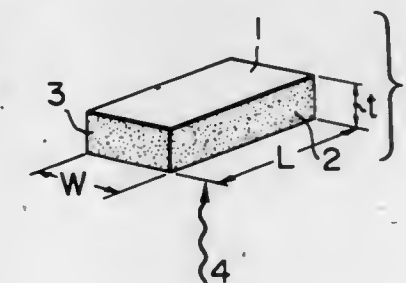
Filed March 20, 1980, Ser. No. 132,132

Claims priority, application Japan, March 28, 1979, 54-35463

Int. Cl.³ C09K 11/12

U.S. Cl. 378-49

14 Claims



8. A scintillation counter adapted for counting incident X-rays, comprising:

a housing having a window for receiving incident X-rays;
 a scintillator crystal formed of a zinc tungstate single crystal having an impurity content of not more than 50 ppm and a thickness of 2 to 4 mm and disposed in said housing adjacent to said window for receiving incident X-rays and emitting light rays of a maximum luminescence wavelength of 480 nm; and
 a photo-detector disposed adjacent to the rear surface of said scintillator crystal in the housing for detecting the light rays emitted from the scintillator crystal, thereby detecting the incident X-rays.

4,365,156

TUNABLE $\theta-2\theta$ DEVICE

Jene A. Golovchenko, Basking Ridge, and Richard A. Levesque, High Bridge, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed December 23, 1980, Ser. No. 220,010

Int. Cl.³ G01N 23/20; G01J 3/12, 3/18

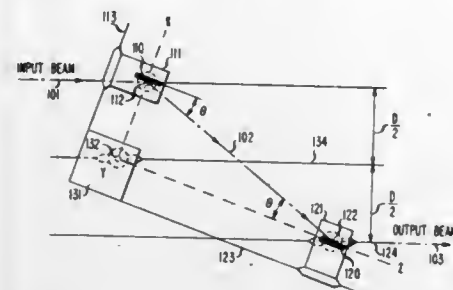
U.S. Cl. 378-84

11 Claims

1. A device comprising a first rotary member which directs at least a portion of an intercepted input beam of radiation so as to intercept a second rotary member,

CHARACTERIZED IN THAT said first and second rotary members are connected to a third rotary member by first and second sliding linear members, respectively, with said linear members located at right angles to one another, and with one of said rotary members capable of rotation about a fixable pivot point, and with the other two of said rotary members capable of rotation about pivot points which are capable of motion only along second and third

parallel linear axes, respectively, and with said fixable pivot point being located so that a first axis drawn through



said fixable pivot point and parallel to said second and third axes thereby forms three equally spaced axes.

4,365,157

FLUID ANALYZER UTILIZING A LASER BEAM

Eberhard Unsöld, Oberschleissheim; Gerhard Renner, Eichenau, and Reiner Wechsung, Cologne, all of Fed. Rep. of Germany, assignors to Gesellschaft für Strahlen- und Umweltforschung mbH, Munich, Fed. Rep. of Germany

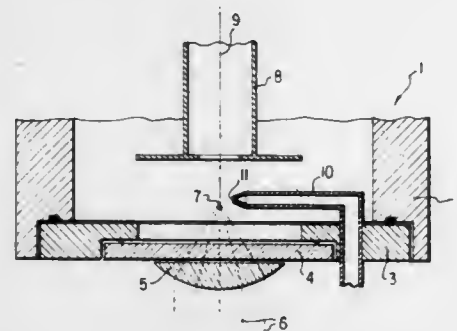
Continuation of Ser. No. 82,603, Oct. 9, 1979, abandoned. This application June 8, 1981, Ser. No. 271,376

Claims priority, application Fed. Rep. of Germany, October 9, 1978, 2844002

Int. Cl.³ B01D 59/44

U.S. Cl. 250—282

8 Claims



1. A method for studying a fluid comprising: forming a stream of such fluid in a vacuum chamber; exciting the stream by causing a pulsed laser beam to impinge thereon to produce photoionized ions of molecules of the fluid; and subjecting the resulting photoionized ions to a mass analysis operation in a time of flight mass spectrometer including a time of flight tube constituting the input portion of the spectrometer and enclosing an electric field free region, the tube being disposed in the vacuum chamber, said step of subjecting being carried out by causing the ions to pass through the field free region of the tube.

4,365,158

HELIUM LEAKAGE DETECTOR

Jacques Tallon, Annecy, France, assignor to Societe Anonyme Dite: Compagnie Industrielle des Telecommunications Citatel, Paris, France

Filed 1981, Ser. No. 233,236

Claims priority, application France, 1980, 80 02923

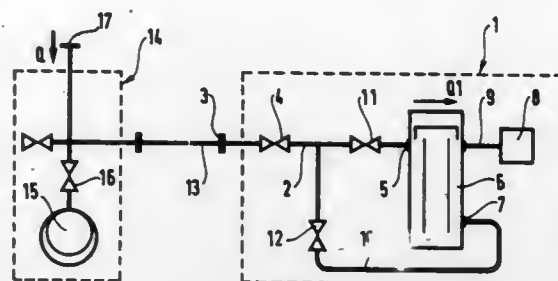
Int. Cl.³ B01D 59/44

U.S. Cl. 250—288

4 Claims

1. A helium leakage detector including an inlet pipe and a mass spectrometer, the improvement wherein said detector includes a molecular diffusion pump, said spectrometer includes a measuring spectrometric cell, and said cell is disposed in parallel with said molecular diffusion pump, an isolating valve within said inlet pipe upstream of said molecular diffusion pump, said molecular diffusion pump having an inlet and an outlet and whose outlet is short-circuited at the diffusion pump inlet by a short-circuit pipe, said short-circuit pipe con-

necting to said inlet pipe downstream of said isolating valve and upstream of said diffusion pump inlet, and a constriction being provided between the diffusion pump outlet and inlet



within the short-circuit pipe; whereby, the necessity of using a vane pump is avoided, allowing a recirculating loop of gas to be maintained within the system for some period of time for measuring purposes.

4,365,159

LITHIUM-6 FOIL NEUTRON DETECTOR

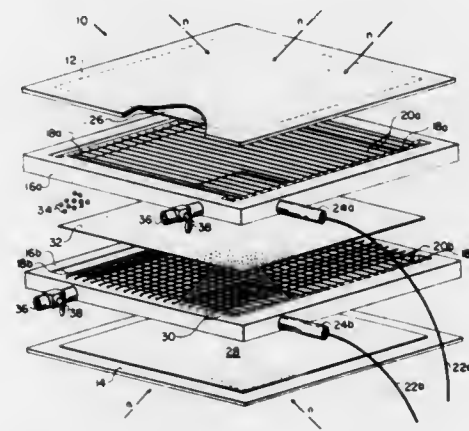
Charles A. Young, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed November 3, 1980, Ser. No. 203,006

Int. Cl.³ G01J 1/18; H01J 47/12

U.S. Cl. 250—385

15 Claims



1. Neutron detection apparatus comprising:
a selected number of flat surfaces of lithium-6 foil, each said flat surface of lithium-6 foil comprising a flat lithium-6 sheet, the thickness of each of said sheets being less than the range of a triton particle through lithium;
a gas mixture in contact with each of said flat lithium foil surfaces for selectively reacting to charged particles radiated from said lithium-6 foil, said gas mixture comprising a counting gas mixture which is readily ionized by triton particles passing through said counting gas mixture;
container means for sealing said lithium foil and said reacting gas mixture within a volume from which water vapor and atmospheric gases are excluded, said container means having walls which are transmissive to neutrons; and
monitoring means in contact with said gas mixture for detecting reactions in said gas mixture, and for providing an output which is proportional to the flux of neutrons through said apparatus.

4,365,160

BRIGHTNESS ENHANCEMENT OF POSITRON SOURCES

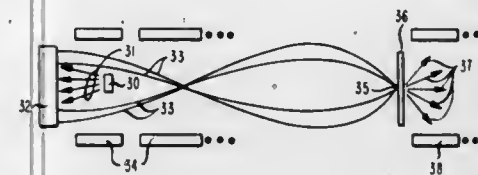
Allen P. Mills, Jr., New Providence, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed July 2, 1980, Ser. No. 165,379

Int. Cl.³ G21K 1/08

U.S. Cl. 250—396 R

18 Claims



18. Apparatus for producing quasi-monoenergetic positron pulses, the apparatus being adapted to being traversed by the positrons in a longitudinal direction from an entrance side to an exit side, the apparatus comprising
(a) means for maintaining a substantially uniform constant longitudinal magnetic field B_0 in a region of the apparatus comprising a drift region,
(b) means for maintaining a constant longitudinal magnetic field $B_m > B_0$ throughout a part of the drift region, thereby maintaining a magnetic mirror,
(c) an RF cavity, driven at the positron cyclotron resonance frequency, the cavity being located in the drift region at the exit side of the magnetic mirror, the cavity being adapted to impart only transverse energy to the positrons that pass through the cavity,
(d) electrical means for repelling positrons of longitudinal energy less than a predetermined energy ϵ_1 , the means being located in the drift region at the exit side of the RF cavity,
(e) means for applying a time-varying potential along an acceleration region, the acceleration region being located at the exit side of the electrical means for repelling charged particles, characterized in that the apparatus further comprises
(f) means for subjecting positrons in an interaction region to nonconservative forces.

4,365,161

DETECTOR FOR RESPONDING TO A TWO-DIMENSIONAL PATTERN OF X-RADIATION

Brian L. Dalton, London, and Robert J. Froggatt, Southall, both of England, assignors to EMI Limited, Hayes, England

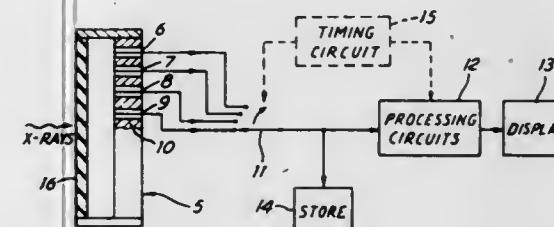
Filed August 6, 1980, Ser. No. 175,719

Claims priority, application United Kingdom, August 10, 1979, 7927968

Int. Cl.³ H05G 1/60; A61B 6/00; H01J 39/28

U.S. Cl. 378—99

7 Claims



1. A detector for responding to a two-dimensional pattern of X-radiation emergent from an object under examination to generate discrete electrical signals indicative of the amounts of radiation received at each of many locations distributed over the pattern, said detector comprising a substantially flat chamber, containing a noble gas, with an X-ray previous input window disposed to receive said pattern of radiation and a back-plate for said chamber disposed opposite said window and containing a respective electrical contact member for each

of said locations, the contact members being exposed to said gas and mutually insulated so as to create an array of capacitive probes each capable, when suitable operating potentials are applied to the chamber, of storing charge indicative of the amount of radiation at the appropriate location of said pattern, and said detector further including interrogation means for sequential interrogating said contact members to sense the charges stored thereby.

4,365,162

DEVICE FOR HOLDING X-RAY-SENSITIVE FILMS FOR ODONTOLOGICAL RADIOGRAPHS

Sven Jarby, Postfach 38, CH-9470 Buchs SG, Switzerland

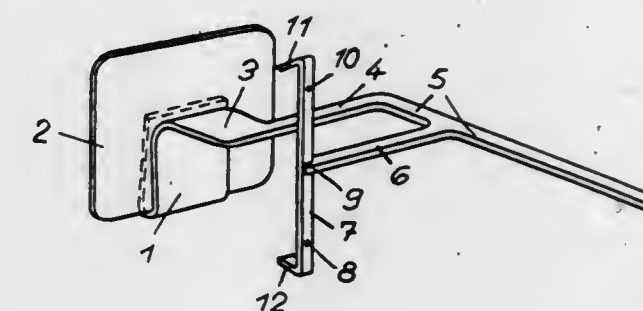
Filed 1980, Ser. No. 120,756

Claims priority, application Switzerland, March 9, 1979, 2292/79

Int. Cl.³ G03B 41/16

U.S. Cl. 378—170

9 Claims



1. Device for holding X-ray film during the taking of radiographs of patients' teeth with X-rays emanating from a cone of an X-ray source, comprising in combination:
a bite wing extending in a horizontal center plane perpendicularly to an X-ray film plane, for retention of said device by patients' teeth;
an X-ray film holder carried by said bite wing and including means for retaining X-ray film centered relative to said horizontal center plane and alternatively vertically offset from said horizontal center plane;
a guide rod connected laterally to said bite wing and extending in said horizontal center plane perpendicularly away from said X-ray plane, for guidance of said X-ray cone;
an aiming rod extending in a vertical center plane of said centered and said vertically offset X-ray film;
a transverse rod extending in said horizontal center plane from said guide rod to said aiming rod, for mounting said aiming rod at a distance from said bite wing;
first means at said aiming rod for aiming said X-ray cone at an intersection of said horizontal and vertical center planes on said centrally retained X-ray film in the taking of radiographs of at least the crowns of upper and lower teeth; and
second means on said aiming rod for aiming said X-ray cone at an intersection of horizontal and vertical center lines of said vertically offset X-ray film in the taking of radiographs of root portions of said teeth.

4,365,163

PATTERN INSPECTION TOOL - METHOD AND APPARATUS

Donald E. Davis, Wappingers Falls; Richard D. Moore; Philip M. Ryan, both of Hopewell Junction, and Edward V. Weber, Poughkeepsie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed December 19, 1980, Ser. No. 218,323

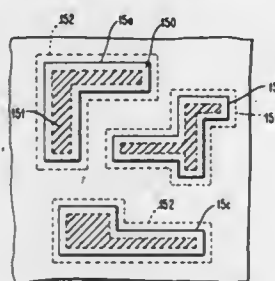
Int. Cl.³ H01J 37/00

U.S. Cl. 250—491.1

13 Claims

1. A method of positioning and inspecting a patterned workpiece comprising the steps of:
placing a patterned workpiece, provided with a multiplicity of patterns, to be inspected in an inspection apparatus,

directing a beam to scan a selected region overlying a first edge of a selected first pattern of said multiplicity of patterns on said workpiece, measuring and storing the signal created by the beam scanning said region, directing the beam to scan a second selected region overlying a second edge of said first pattern, said second edge being substantially parallel to said first edge, measuring and storing the signal created by the beam scanning said second region, directing the beam to scan a third selected region overlying a third edge of said first pattern, said third edge being at an angle with respect to said first and second edges, measuring and storing the signal created by the beam scanning said third region, directing the beam to scan a fourth selected region overlying a fourth edge of said first pattern,



said fourth edge being substantially parallel to said third edge, measuring and storing the signal created by the beam scanning said fourth region, and using said measured signals from said first, second, third and fourth regions to align the scanned edges of said first pattern to a predetermined inspection position, directing the beam to scan over the entire said first pattern, measuring the signals created by the beam scanning said first pattern, and comparing the measured signals from said first pattern to the information used to create the patterned workpiece to detect defects in said pattern, and directing the beam to scan the area surrounding said first pattern and comparing the measured signal from the area surrounding said one pattern to the information used to create the patterned workpiece to detect defects outside of said first pattern.

4,365,164

VITAL CONTACT ISOLATION CIRCUIT

Henry C. Sibley, Adams Basin, N.Y., assignor to General Signal Corporation, Stamford, Conn.

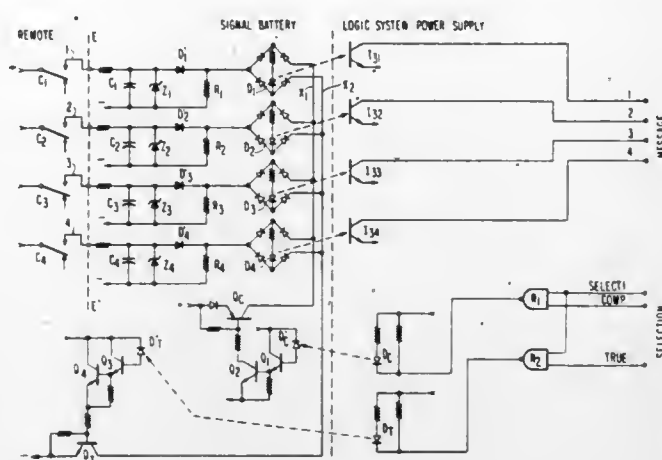
Filed 1981, Ser. No. 225,813
Int. Cl.³ G02B 27/00

U.S. Cl. 250—551

14 Claims

1. A coupling arrangement for coupling an indication of the state of a contact in the form of a dynamic signal without electrically connecting a representation of said dynamic signal to said contact or any circuit electrically connected thereto, said coupling arrangement comprising:
control means for generating two streams of alternate sequential control pulses,
a pair of control pulse responsive switches, each responsive to a different one of said stream of pulses,
a pair of conductors,
a pair of gating means each responsive to a different one of said switches for connecting one of said two conductors to one of two different potential sources in time coincidence with said two streams of optical pulses,
circuit means, including said contact and connected to said two different conductors, including isolator means for energizing an output of said isolator means in coincidence

with one or another of said control pulse streams depending on the condition of said contact, whereby when said contact is in one state, said output of said



isolator means is energized coincident with one stream of said pulses, and when said contact is in another state, said output of said isolator means is energized coincident with said other of said pulse stream.

4,365,165

LEVEL MEASUREMENT DEVICE

Ferruccio D. Vedova, Zugliano, Italy, assignor to CEDA S.p.A., Udine, Italy

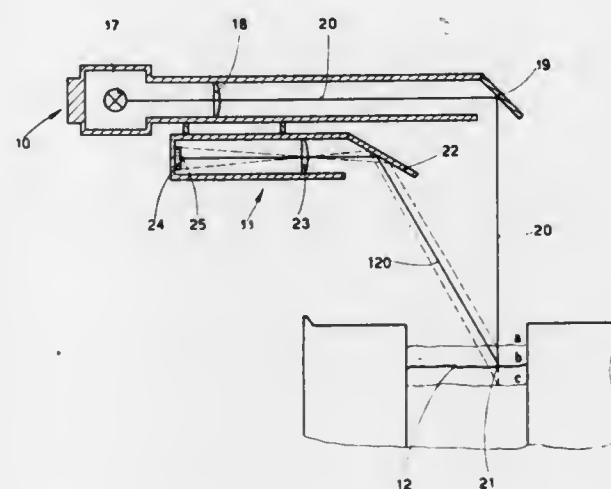
Filed December 18, 1979, Ser. No. 105,006

Claims priority, application Italy, December 20, 1978, 83526 A/78

Int. Cl.³ G01N 15/06

U.S. Cl. 250—577

9 Claims



1. A device for measuring the level of a surface, comprising:
a light generator spaced from said surface and including a light source for projecting a concentrated beam of light onto said surface along a first line, said beam of light illuminating a limited area of said surface; and
a light receiver spaced from said surface and including light sensitive means and means for focusing onto said light sensitive means the light diffused from said limited area of said surface along a second line arranged at an angle to said first line so as to produce an image of said limited area, said position of said image on said light sensitive means varying with changes in the level of said surface and said light sensitive means being responsive to the position of said image thereon, and including first means responsive to said light sensitive means for producing an output signal which indicates the position of said image on said light sensitive means.

4,365,166

WIND ENGINE WITH RADIAL FLOW WHEEL, PARTIALLY PROTECTED, WITH FIXED BLADES OF LARGE DIAMETER

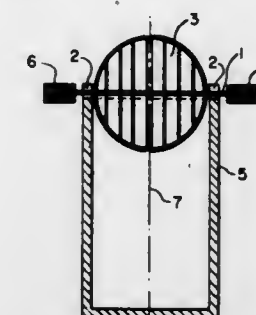
Adolfo Baccini, corso Italia 23, Firenze, Italy

Filed August 21, 1980, Ser. No. 180,116

Claims priority, application Italy, August 28, 1979, 9520 A/79
Int. Cl.³ F03D 3/04

U.S. Cl. 290—55

3 Claims



1. In a wind engine having a horizontal shaft, the improvement comprising:
a radial flow wheel with blades of large diameter fixed to said horizontal shaft;
a wall for shielding said blades during rotation thereof when said blades are in a position below said shaft;
said wheel having several blades each of which is fixed to said shaft;
said blades being fixed to said shaft to form a spoke wheel arrangement with a semi-circular profile arrangement;
wind braces connected said blades together to form a sturdy structure non-deformable under the pressure of a strong wind;
a cylindrical carrying construction for said shaft, said wall forming part of said carrying construction;
said wheel having means to permit it to rotate about its own vertical axis of symmetry at the top of said carrying construction whereby to bring about the condition of radial flow of the wind; and
at least one current generator mounted at each end of said shaft to transform the mechanical energy produced by said shaft into electrical energy.

4,365,167

SWITCHOVER SYSTEM FOR BINARY LOAD CONTROL

Günther Weimer, Gerlingen, and Henning Becker, Schönaich, both of Fed. Rep. of Germany, assignors to Centra-Bürkle GmbH & Co., Schönaich, Fed. Rep. of Germany

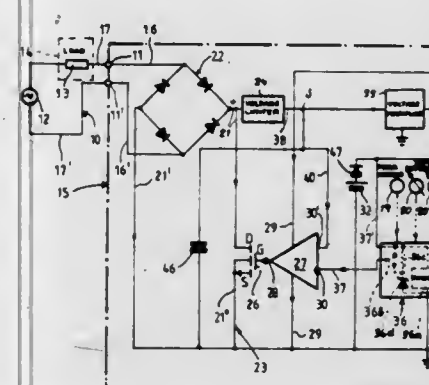
Filed June 23, 1981, Ser. No. 276,660

Claims priority, application Fed. Rep. of Germany, June 25, 1980, 3023753

Int. Cl.³ F23N 5/20; G05D 23/00

U.S. Cl. 307—66

10 Claims



1. A system for controlling the energization of a load-operating impedance element connected across a power supply, comprising:
a high-resistance d-c circuit branch in series with said impe-

dance element, said branch including a voltage limiter, a voltage multiplier with an input energized by said voltage limiter and a switching stage energized by said voltage multiplier, said switching stage having an output carrying a potential whose absolute magnitude is higher than that of the maximum output voltage of said voltage limiter in a first operational state and is lower than that of said maximum output voltage in a second operational state thereof; a differential amplifier having a first input connected to said voltage limiter in parallel with the input of said voltage multiplier and having a second input connected to the output of said switching stage for emitting a binary switchover signal depending on the operational state of said switching stage; command means connected to said switching stage for altering the operational state thereof in response to a control variable;

and variable-resistance means coupled to said differential amplifier and responsive to said switchover signal connected across said branch in series with said impedance element for providing a low-resistance current path in one operational state and a high-resistance current path in the other operational state of said switching stage, thereby causing said impedance element to be traversed by a relatively large load current in said one operational state and by a relatively small load current in said other operational state, the voltage drop across said low-resistance current path being sufficient to maintain the energization of said switching stage in said one operational state.

4,365,168

ELECTRICAL CIRCUIT ON PORCELAIN COATED METAL SUBSTRATES

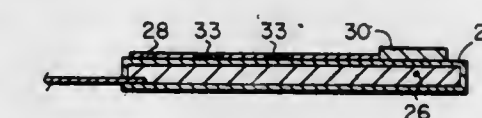
Guy J. Chaput, Carleton Place, and Edward M. Sich, Ottawa, both of Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed July 14, 1980, Ser. No. 167,734

Int. Cl.³ H01H 13/70

U.S. Cl. 307—115

5 Claims



1. A circuit board comprising an electrically conductive metal substrate having a porcelain layer on at least one of its surfaces, a printed electrical circuit on said porcelain layer, a conductive element carried by the porcelain layer and spaced from the metal substrate by the porcelain layer, the conductive element and the printed electrical circuit not being directly electrically connected together, and means to connect the conductive element to ground to provide one capacitive coupling from the printed circuit to the metal substrate and another capacitive coupling from the metal substrate to the conductive element and in series with said one capacitive coupling, the value of said one capacitive coupling being determined by the area of contact between the printed circuit and the porcelain layer and by the thickness of the porcelain layer.

4,365,169

RANDOM PULSE DETECTOR SYSTEM

Allen H. Weston, 515 Hobart Rd., Marshall, Mich. 49068

Filed June 3, 1981, Ser. No. 269,808

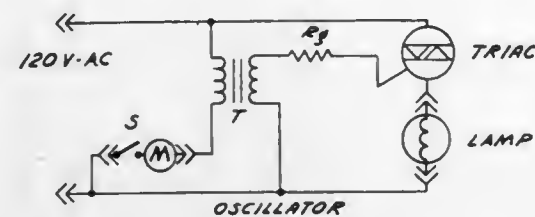
Int. Cl.³ H01H 3/34

U.S. Cl. 307—141.4

11 Claims

1. A system for automatically switching a light circuit on for limited periods at random times comprising, electrical means

for insertion anywhere in a current supply circuit, said electrical means having voltage pulse sensing triac means for energizing



ing said light circuit, and time limited triac energizing circuit means for maintaining said triac means and light circuit on.

4,365,170

SEMICONDUCTOR SWITCH

Shinji Okuhara, Fujisawa, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

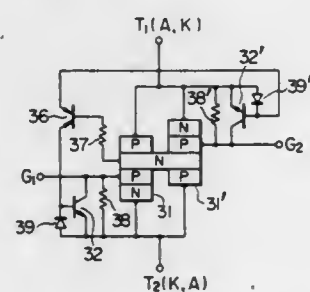
Filed September 19, 1980, Ser. No. 188,745

Claims priority, application Japan, September 21, 1979, 54-120860; September 21, 1979, 54-120861

Int. Cl.³ H03K 17/72

U.S. Cl. 307—252 A

2 Claims



1. A semiconductor switch comprising: a pair of anti-parallel PNPN switches each including a semiconductor PNPN structure having a common N-conductivity base region and at least three PN junctions; a first and a second transistor; a third transistor having two emitters and a base; and a resistor, an emitter and a collector of said first transistor being connected to a cathode and a P-conductivity base region, correspondingly and respectively, of one of said PNPN switch pair, an emitter and a collector of said second transistor being connected to a cathode and a P-conductivity base region, correspondingly and respectively, of the other PNPN switch, said two emitters of said third transistor being connected to bases of said first and second transistors, respectively, a base of said third transistor being connected to said common N-conductivity base region of said pair of anti-parallel PNPN switches through said resistor.

4,365,171

LOW LOSS SNUBBER CIRCUIT

William R. Archer, Ft. Wayne, Ind., assignor to General Electric Company, Fort Wayne, Ind.

Filed December 23, 1980, Ser. No. 219,735

Int. Cl.³ H03K 17/08, 17/64

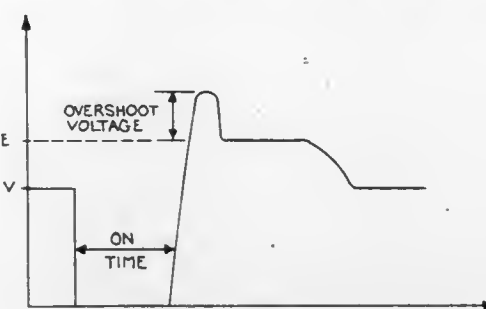
U.S. Cl. 307—253

3 Claims

1. A voltage snubber circuit for limiting voltage overshoot during turn-off in a relatively high-frequency power switching circuit of the type including a controllable switching element connected in series with a primary winding of a power transformer across a source of DC voltage, a clamp winding coupled to the primary winding and connected via a clamping diode across the DC source for limiting the voltage applied to the switching element during turn-off and a first capacitor-diode circuit connected across the primary winding for dissipating the energy in the primary winding leakage flux during turn-off, the improvement comprising;

a second capacitor-diode circuit connected across the clamp

winding for establishing current flow in the clamp winding at a voltage less than the source voltage; and means for interconnecting said first and said second capacitor-diode circuits whereby turn-on of the switching element



ment creates a current path through at least the capacitor portions of said first and said second capacitor-diode circuits in a direction to discharge the capacitor portions of said capacitor-diode circuits preparatory to turn-off of the switching element.

4,365,172

HIGH CURRENT STATIC MOS DRIVER CIRCUIT WITH LOW DC POWER DISSIPATION

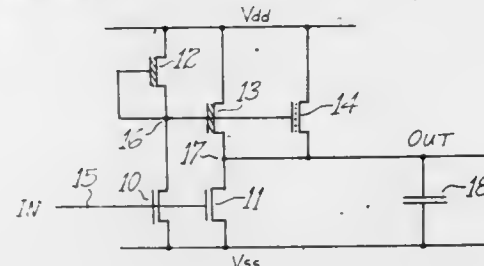
Cordell E. Prater, Johnson City, Tenn., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed 1980, Ser. No. 111,447

Int. Cl.³ H03K 3/26, 19/094

U.S. Cl. 307—270

8 Claims



1. A circuit comprising an input transistor, a first load transistor, and a second load transistor, each said transistor being an insulated-gate field-effect transistor having a current path and a control electrode and having a threshold voltage level for the control electrode at which the current path becomes conductive, the current paths of said first and second load transistors being connected in parallel, the control electrodes of the first and second load transistors being connected together, the current path of the input transistor being connected in series with the parallel current paths of the first and second load transistors, means applying a logic voltage to the control electrode of the input transistor and its complement to the control electrodes of both the first and second load transistors, a node between the current path of the input transistor and the current paths of the load transistors providing an output, the threshold voltage of the second load transistor having a magnitude less than that of the input transistor but more than that of said first load transistor, said first load transistor being a depletion mode transistor.

4,365,173

PHASE SHIFTER ADJUSTMENT APPARATUS

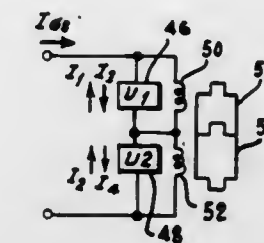
Richard G. Kilcup, Glen Burnie, Md., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed April 24, 1981, Ser. No. 256,881

Int. Cl.³ H01P 1/32

U.S. Cl. 307—412

12 Claims



1. In a microwave ferrite phase shifter unit, a phase shifter adjustment apparatus comprising in combination:

- a ferrite phase shifter means comprising first and second ferrite cores and first and second control coils, said first and second control coils respectively controlling the magnetic field intensity B within said first and second ferrite cores thereby controlling the phase shift therein, said first and second control coils varying the magnetic field intensity B according to the amount of current flowing in said first and second control coils, and
- a current source means operatively connected to said ferrite phase shifter means, said current source means controlling the polarity and amount of current flowing in said first and second control coils according to the polarity of the drive waveform which is applied to said ferrite phase shifter means.

4,365,174

PULSE COUNTER TYPE CIRCUIT FOR POWER-UP INDICATION

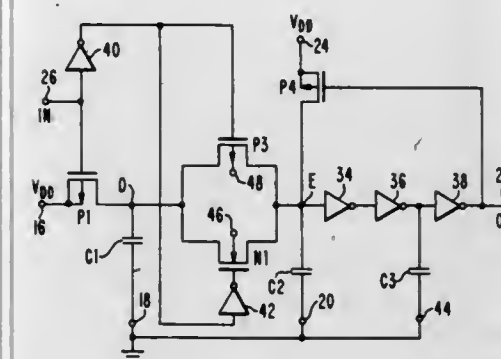
Nicholas Kucharewski, Lebanon, N.J., assignor to RCA Corporation, New York, N.Y.

Filed July 31, 1980, Ser. No. 174,184

Int. Cl.³ H03K 17/22, 17/284, 17/30, 5/153

U.S. Cl. 307—594

6 Claims



1. A pulse counter type power-up circuit providing an output indication delayed from the application of an operating potential to a power supply terminal comprising; input and output terminals; coupling means for continuously coupling said input terminal to said power supply terminal; a source of clock pulses; a first capacitor having a first capacitance value and a second capacitor having a second capacitance value substantially greater than said first capacitance value; first switch means having first and second terminals defining the ends of a conduction path and a control terminal for controlling the conduction of said conduction path, said first terminal being coupled to said input terminal, said

second terminal being coupled to said first capacitor, and said control terminal being coupled to said source of clock pulses and being responsive to a first level of said clock pulses for charging said first capacitor to a predetermined voltage level;

second switch means having first and second terminals defining the ends of a conduction path and a control terminal for controlling the conduction of said conduction path, said first terminal being coupled to said first capacitor, said second terminal being coupled to said second capacitor, and said control terminal being coupled to said source of clock pulses and being responsive to a second level of said clock pulses for transferring only a portion of the charge stored on said first capacitor to said second capacitor to thereby increase the voltage level developed across said capacitor by an incremental amount substantially less than said predetermined voltage level in response to each clock pulse; and

threshold detector means having an input coupled to said second capacitor and an output coupled to said output terminal and being responsive to the voltage developed across said second capacitor for providing an output indication at said output terminal when the voltage developed across said second capacitor increases above a predetermined threshold level.

4,365,175

FAST STARTING COLD SHIELD COOLING CIRCUIT FOR SUPERCONDUCTING GENERATORS

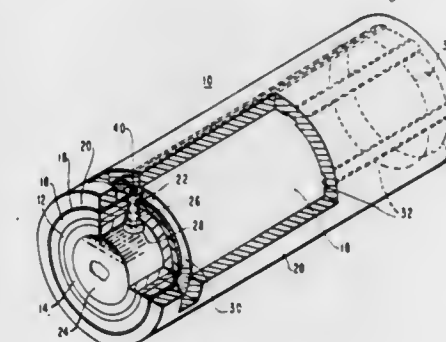
Phillip W. Eckels, Penn Hills, Pa., assignor to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed September 29, 1980, Ser. No. 191,564

Int. Cl.³ H02K 9/00

U.S. Cl. 310—53

12 Claims



1. A superconducting generator with an improved coolant flow reestablishment characteristic following a thermal transient, comprising:

- a rotor assembly adapted to be supercooled;
- a field winding rigidly attached to the rotor;
- field winding retaining means disposed cylindrically about the field winding;
- means for dissipating energy arising from a magnetic field, said dissipating means disposed cylindrically about the field winding retaining means;
- a fluid coolant;
- coolant sealing means disposed cylindrically about the dissipating means;
- a coolant reservoir located in the center of the rotor assembly;
- means for directing streams of coolant axially along the rotor assembly adjacent to the dissipating means, comprising an axial passage;
- means for directing coolant radially outward from an inlet orifice adjacent the coolant reservoir toward the axial directing means, comprising a radial passage;
- means for directing coolant radially inward from the axial directing means toward an outlet orifice adjacent the coolant reservoir, comprising a radial passage;
- fluidic means for inhibiting coolant flow from the outlet

orifice through said combination of directing means toward the inlet orifice; and
means for maintaining the coolant in the radially outward directing means at a lower temperature than the coolant in the radially inward directing means.

4,365,176

LIQUID COOLING SYSTEM FOR A HYDROGENERATOR ROTOR

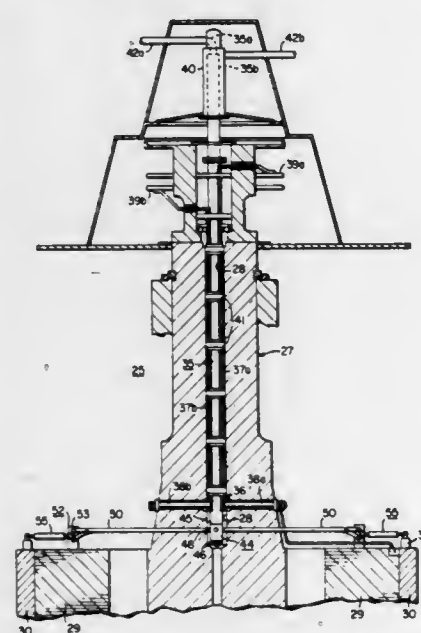
Richard D. Nathenson, Pittsburgh; Charles W. Pipich, Monroeville, both of Pa., and Joseph R. Kopnitsky, deceased, late of Trafford, Pa. (by Mary C. Kopnitsky, executrix), assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed March 31, 1981, Ser. No. 249,305

Int. Cl.³ H02K 9/00

U.S. Cl. 310—54

12 Claims



1. A liquid-cooling system for a dynamoelectric machine's rotor having a rotatably mounted shaft with a central bore therethrough; a rim mounted on said shaft; and a multiplicity of salient poles mounted about a periphery of said rim, each of said salient poles including a coil of conductor; said cooling system comprising:

- (A) a plurality of axial-coolant pipes including an intake pipe, and an outtake pipe concentrically disposed about said intake pipe;
- (B) a rotor inlet pipe connected to said intake pipe, and connectable at its other end to an external coolant supply system;
- (C) a rotor discharge pipe connected to said outtake pipe, and connectable to said external coolant supply system;
- (D) a manifold including a plurality of arcuate-shaped coolant pipes;
- (E) a plurality of radially-directed pipes which hydraulically connect to said manifold, a preselected number of said radially-directed pipes being connected to said manifold to carry coolant to said salient poles, an other preselected number of said radially-directed pipes connected to said manifold to carry coolant away from said salient poles;
- (F) a distribution block which is connected to said axial-coolant pipes and to said radially-directed pipes, said distribution block being disposed in said bore and including a base having pipe-connecting features and means for covering said base;
- (G) means for circulating coolant within each of said salient poles; and
- (H) means for connecting said manifold to said coolant circulating means.

4,365,177

GAS-COOLED ROTOR FOR A TURBO-GENERATOR

Kristian D. Madsen, Västerås, Sweden, assignor to ASEA Aktiebolag, Västerås, Sweden

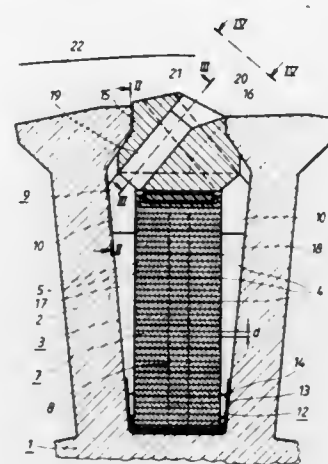
Filed March 17, 1981, Ser. No. 244,575

Claims priority, application Sweden, April 2, 1980, 8002528

Int. Cl.³ H02K 1/32

U.S. Cl. 310—61

10 Claims



1. A gas cooled rotor for a turbo-generator, said rotor including a plurality of winding slots comprising:

- a rotor winding containing a conductor bundle partially disposed in said winding slots, said conductor bundle being traversed by a plurality of substantially tangentially directed cooling channels;
- a slot wedge for retaining said conductor bundle in said slots, said slot wedge including a plurality of at least three inlet channels, and outlet channels for a cooling gas, said inlet channels communicating with said cooling channels at one side of said conductor bundle and having an opening at the rotor periphery in a direction of rotation for the rotor, said outlet channels communicating with said cooling channels at the other side of said conductor bundle and being evenly distributed among wedge portions located between said inlet channels, said inlet channels having projections in a radial plane crossing corresponding projections of said outlet channels;
- a radially outer electrical insulating spacing member, including a plurality of first spacing bodies between a first wall of said slot and said conductor bundle having first axial interspaces therebetween, each being connected to at least three of said inlet channels, and a plurality of second spacing bodies between a second wall of said slot and said conductor bundle having second axial interspaces in between, each of said second axial interspaces being connected to at least three of said outlet channels;
- a radially inner electrically insulating spacing member means comprising at least one bar having a substantially U-shaped cross-section for clamping a radial inner portion of said conductor bundle; said outer spacing member and inner spacing member means retain said conductor bundle in a tangential direction with said inner spacing means abutting said walls and
- a plurality of locking members for locking a number of conductors in said conductor bundle to each other.

4,365,178

LAMINATED ROTOR FOR A DYNAMOELECTRIC MACHINE WITH COOLANT PASSAGEWAYS THEREIN

Henry G. Lenz, Scotia, N.Y., assignor to General Electric Co., Schenectady, N.Y.

Filed June 8, 1981, Ser. No. 271,443

Int. Cl.³ H02K 9/00

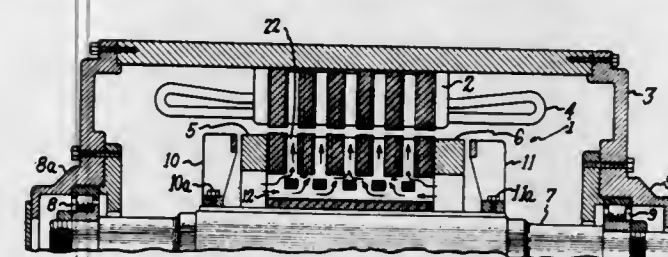
U.S. Cl. 310—61

4 Claims

1. A laminated rotor assembly for a dynamoelectric machine having cast axial conductors and radial ventilating ducts

extending between said conductors at axially spaced intervals, characterized

- (a) a plurality of substantially flat, annular main rotor laminae each formed with apertures therein to define, respectively, a plurality of conductor slots arcuately spaced adjacent to the periphery of the laminae and a plurality of axial coolant passageways arcuately spaced between the inner ends of said conductor slots and the inner diameter of the laminae,
- (b) a plurality of substantially flat, annular radial duct laminae each provided with apertures that define, respectively, a plurality of conductor slots arcuately spaced adjacent to the periphery of the laminae, a plurality of axial coolant passageways arcuately spaced between the inner ends of the conductor slots and the inner diameter of the laminae, and a plurality of radial coolant duct slots each extending from the periphery of the laminae to points between the inner ends of



the respective adjacent conductor slots and the maximum outer extent of the respective adjacent axial coolant passageways, said points being radially positioned between said outer extent of said axial coolant passageways and the outer extent of other axial coolant apertures in adjacent main rotor laminae thereby to place the inner ends of a majority of the radial duct slots in overlapping relationship with respective juxtaposed axial coolant passageways in adjacent main rotor laminae,

- (c) said pluralities of main rotor laminae and radial duct laminae being aligned with each other to place their respective conductor slots in alignment, and a plurality of cast electrical conductors being positioned, respectively, in each of said conductor slots and joined together at the opposite ends thereof, respectively, by a pair of cast annuli integral with said conductors, said cast conductors and annuli being effective to hold the laminated rotor assembly together.

4,365,179

PULSE MOTOR

Casimiro Mayo Magdaleno, Toledo, Spain, assignor to Federico Marne Blanco, Valladolid and Gonzalo de Onate Fernandez de Gamboa, Madrid, both of Spain, part interest to each

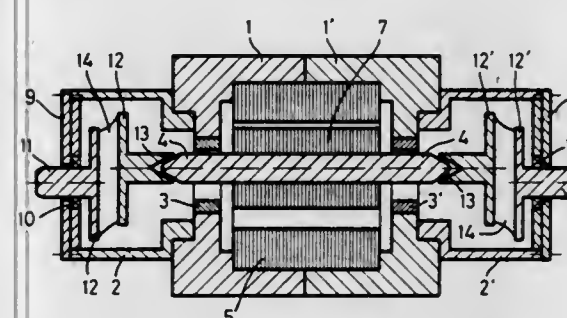
Filed October 21, 1981, Ser. No. 313,627

Claims priority, application Spain, October 21, 1980, 496,129

Int. Cl.³ H02K 7/00

U.S. Cl. 310—81

2 Claims



1. A pulse motor comprising a stator consisting of a core of magnetic plates activated by a coil, an upper part of said motor containing a semi-cylindrical cavity in which a cylindrical rotor is suspended on each end by a shaft, said stator, said coil, and said rotor being located in a chassis split into two halves which can be joined such that the outside of each of said semi-chassis has the end of the shaft of the rotor projecting from said

semi-chassis, said ends of said shaft terminating in a conical shape, said ends being supported in rolling sleeves engaged in said semi-chassis, the inner diameter of said rolling sleeves being larger than the diameter of the shaft of the rotor and each conical end of the shaft of the rotor being connected by elastic means for the conversion of movement consisting of first and second disks, each of said disks having a smooth face and a face with a centered cylindrical projection, said first disk located toward the interior of the motor having a conical bore adapted to receive the corresponding conical end of the shaft of the rotor, and said second disk located toward the outside of the motor and having a projecting semi-shaft of the motor, and a third disk being interposed between said disks consisting of an elastically deformable material, said third disk being adhered to the smooth sides of said first and second disks, said means for the conversion of movement being hidden in frames that may be solidly connected to each semi-chassis and adapted to receive, in the end opposite the one attached to the semi-chassis, cylinder heads including bearing means for said projecting semi-shafts of the motor, said bearing means presenting, in relation to said rotor of said motor and to said shaft, an eccentricity that is larger than the difference of diameters that exists between said shaft of said rotor and the inside of said rolling sleeves, in such a way that said shaft of said rotor is constantly forced into contact with the inner surface of said rolling sleeves.

4,365,180

STRIP WOUND DYNAMOELECTRIC MACHINE CORE

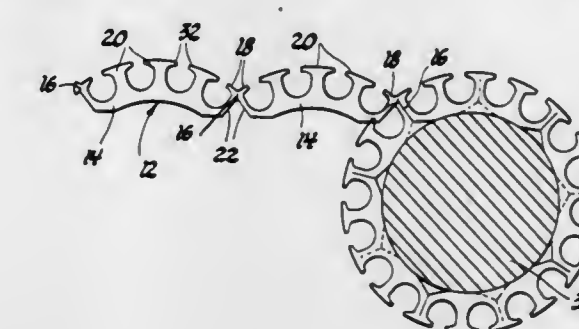
Joseph P. Licata, and Dennis J. Ricker, both of Dayton, Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed June 25, 1981, Ser. No. 277,275

Int. Cl.³ H02K 1/06, 15/02

U.S. Cl. 310—216

6 Claims



1. A wound core for a dynamoelectric machine comprising a strip of core material including a continuous array of pole teeth wound in helically overlapping and abutting relation about a longitudinal axis to provide a generally annular core of stacked helical laminations in which the pole teeth of successive laminations are longitudinally aligned to define core poles, the improvement wherein:

the strip of core material is formed in a series of arcuate segments connected end-to-end by integral portions of core material providing yieldable hinge joints between the ends of adjacent segments whereby such strip can be cut out from a sheet of core material with minimal material waste, the yieldable hinge joints each being generally located at the apex of an opening separating the ends of adjacent segments so that as the strip of core material is wound about said longitudinal axis, adjacent segments pivot relatively inward about the yieldable hinge joints thereby closing the opening separating the ends of adjacent segments so as to bring such segment ends into substantial juxtaposition, whereby stressing of the strip of core material is largely confined to the area of the yieldable hinge joints, tending to minimize the electrical losses associated with such stressing of the core material.

4,365,181 PIEZOELECTRIC VIBRATOR WITH DAMPING ELECTRODES

Takashi Yamamoto, Oshimizumachi, Japan, assignor to Murata Manufacturing Co., Ltd., Japan

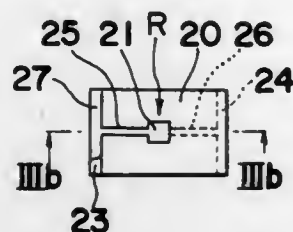
Filed July 10, 1980, Ser. No. 168,285

Claims priority, application Japan, July 18, 1979, 54-99913[U]; May 26, 1980, 55-72778[U]

Int. Cl.³ H01L 41/08

U.S. Cl. 310-320

17 Claims



1. A piezoelectric vibrator of the energy trapping type which operates in the thickness vibrational mode, comprising: an elongated ceramic piezoelectric plate having first and second opposed planar surfaces, and having opposite pairs of lengthwise and widthwise edges; a first electrode deposited approximately at a center portion on said first planar surface of said piezoelectric plate; a second electrode deposited approximately at a center portion on said second planar surface of said piezoelectric plate in face-to-face relation with said first electrode, said first and second electrodes adapted to receive an electrical signal which will cause said piezoelectric plate to vibrate primarily in the thickness vibrational mode; first damping means comprising a third electrode located along the entirety of a first one of said widthwise edges and a damping material deposited entirely along said third electrode; second damping means comprising a fourth electrode located along the entirety of said second widthwise edges and a damping material deposited entirely along said fourth electrode; the distance G between that edge of said first electrode which is closest to one of said lengthwise edges of said piezoelectric plate and said one of said lengthwise edges of said piezoelectric plate, and the thickness T of the piezoelectric plate as measured between said planar surfaces satisfying the relationship $0 \leq G/T \leq 15$; and said first and third electrodes being electrically connected to each other and said second and fourth electrodes being electrically connected to each other.

4,365,182 METHOD OF FABRICATING ACCELERATION RESISTANT CRYSTAL RESONATORS AND ACCELERATION RESISTANT CRYSTAL RESONATORS SO FORMED

Arthur Ballato, Long Branch, and John R. Vig, Colts Neck, both of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed October 14, 1980, Ser. No. 196,508

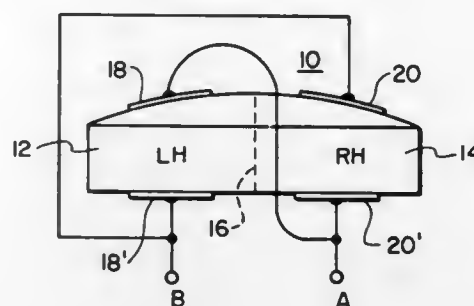
Int. Cl.³ H03H 9/205

U.S. Cl. 310-361

6 Claims

1. An acceleration resistant crystal resonator comprising a single quartz resonator plate optically twinned into a left-handed (LH) portion and a right-handed (RH) portion, a pair of electrodes deposited on the top and bottom surface of said left-handed portion and a pair of electrodes deposited on the top and bottom surface of said right-handed portion, said resonator plate being mounted and bonded to the support structure

of a hermetically sealed crystal resonator enclosure, and said pairs of electrodes being interconnected to each other and to



an oscillator circuit so that in-phase vibration of the two portions is assured.

4,365,183 PROJECTION TELEVISION TUBE AND PROCESS FOR FORMING SAME

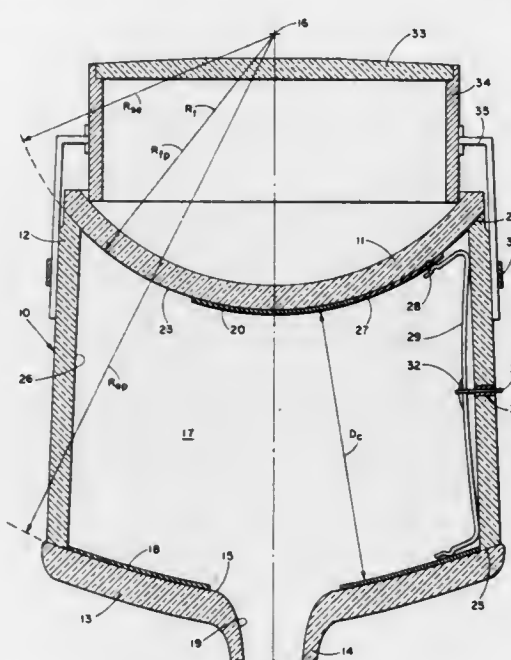
Henry E. Kloss, 174 Brattle St., Cambridge, Mass. 02138

Continuation of Ser. No. 875,222, Feb. 6, 1978. This application 1981, Ser. No. 234,913

Int. Cl.³ H01J 31/00, 29/24

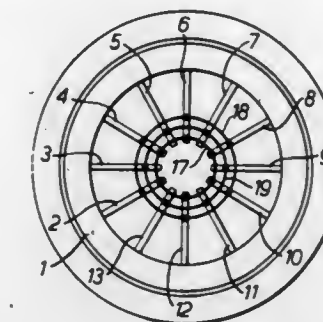
U.S. Cl. 313-478

8 Claims



1. An envelope for a projection television tube comprising: an end plate having an internal reflective surface lying on a spherical surface having a center of curvature located forwardly of the end plate along the projection axis of the tube and an end plate peripheral area including a sealing surface lying on a spherical surface concentric with said reflective surface; an electron beam target surface spaced forwardly of said end plate and lying on a spherical surface concentric with said reflective surface and located on the same side of said center of curvature as said reflective surface, said target surface intersecting the projection axis of the tube; a target support having a target support peripheral edge sealing area lying on a spherical surface that is concentric with said target surface, said target support being located between said target surface and said center of curvature, and intersecting the projection axis of the tube, said target support also comprising an imperforate face plate for the envelope; said target surface being secured to said target support; a hollow, cylindrical member of predetermined length extending between said end plate peripheral area and said peripheral edge sealing area of said target support, said cylindrical member having an axis of symmetry coextensive with said

- projection axis, and including opposite sealing end surfaces lying on spherical surfaces concentric with said reflective surface; said cylindrical member and said target support peripheral edge sealing area being joined along a joint interface surface area lying on a spherical surface that is concentric with said reflective and target surfaces; said cylindrical member and said end plate sealing surface also being joined along a joint interface surface area lying on a spherical surface that is concentric with said reflective and target surfaces; said end plate, target support and cylindrical member being respectively bonded together along their mutual joint interface surface areas in sealed relationship.



4,365,184 PHOSPHORS

Malcolm Highton, and Aron Vecht, both of London, England, assignors to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, England

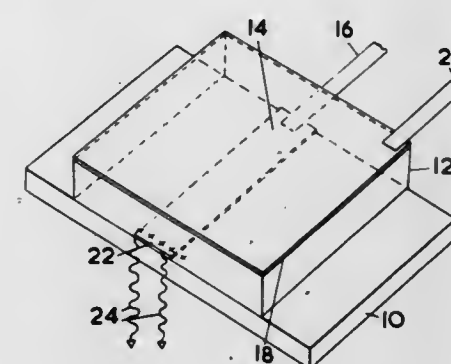
Continuation of Ser. No. 928,696, Jul. 27, 1978, abandoned, which is a continuation of Ser. No. 801,211, May 27, 1977, abandoned. This application March 10, 1980, Ser. No. 128,552

Claims priority, application United Kingdom, June 1, 1976, 22597/76

Int. Cl.³ H05B 33/10, 33/14

U.S. Cl. 313-503

13 Claims



1. A process for making a DC electroluminescent device including the steps of:
 - a. producing phosphor particles including a sulphide selected from the group consisting of strontium, calcium, barium and magnesium sulphide mixed with a dopant comprising cerium;
 - b. coating said phosphor particles with an element of group Ib of the Periodic Table to introduce said element into the extended surface of said particles;
 - c. embedding the coated particles in a matrix;
 - d. arranging the resulting particle bearing matrix as a phosphor layer in contact with two electrodes;
 - e. passing a forming direct electrical current between the two electrodes until the electrical resistance is increased in a localized and predetermined region of the phosphor layer.

4,365,185 MAGNETRON HAVING THREE ALTERNATELY CONNECTED STRAPS

Michael B. C. Brady, Maldon, and Michael L. Goddard, Birmingham, both of England, assignors to English Electric Valve Company Limited, Chelmsford, England

Filed July 14, 1980, Ser. No. 167,843

Claims priority, application United Kingdom, July 14, 1979, 7924590

Int. Cl.³ H01J 23/22

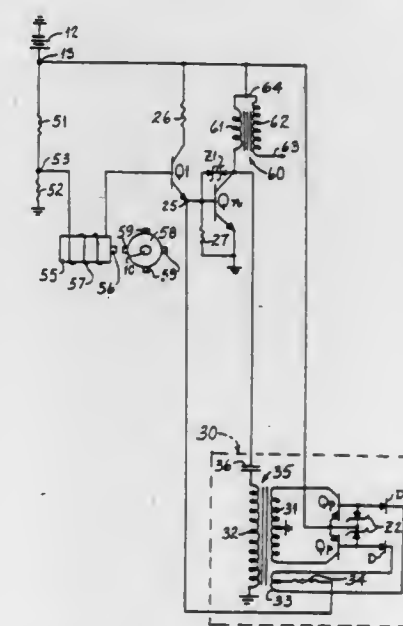
U.S. Cl. 315-39.69

3 Claims

1. A magnetron of the strapped anode type comprising an anode block having a plurality of radial vanes extending there-within and three strapping members each co-axial but at differ-

ent diameters from the center of said anode block, said middle strapping member being connected to alternate vanes and said

4,365,186 HIGH ENERGY MODULATION IGNITION SYSTEM Martin E. Gerry, 13452 Winthrop St., Santa Ana, Calif. 92705 Continuation-in-part of Ser. No. 46,569, Jun. 7, 1979, Pat. No. 4,292,569, and Ser. No. 923,828, Jul. 12, 1978, Pat. No. 4,216,412. This application December 3, 1980, Ser. No. 212,493 Int. Cl.³ H05B 37/02, 39/04, 41/36 U.S. Cl. 315-209 R 9 Claims



1. A method of starting fuel ignition in an internal combustion engine during compression stroke of a piston in said engine at a static timing angle in advance of top dead center position of said piston as stroboscopically measured, comprising in combination the steps of:
 - (a) electrically energizing an igniter at said static timing angle within the zone of non-detonation of said fuel, said static timing angle being within one degree from the boundary between the zones of detonation and non-detonation; and
 - (b) creating an electrical arc at the base of said igniter within the internal combustion engine wherein the magnitude of the length of said arc is directly related to the angular magnitude of the static timing angle, concurrently with step (a), the greater the angular magnitude the longer the length of arc capable of being created, and wherein the ignition voltage waveform amplitude is at a relatively constant level for any said static angle magnitude.

4,365,187

BRUSHLESS D.C. MOTOR

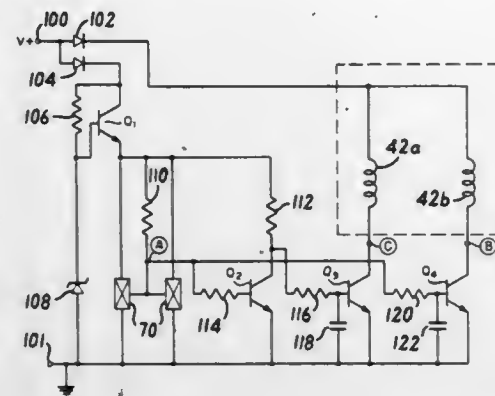
Wharton McDaniel; Fred A. Brown, both of Woodstock, and Donald Thompson, Kingston, all of N.Y., assignors to Rotron Incorporated, Woodstock, N.Y.

Filed May 15, 1980, Ser. No. 150,202

Int. Cl.³ H02K 29/00

U.S. Cl. 318—254

9 Claims



1. In combination, a D.C. brushless motor with stator windings and a permanent magnet rotor, semiconductor commutation circuit means for switching current to the windings of the stator in dependence on the angular position of the rotor, the permanent magnets of the rotor extending arcuately less than 180° and operative to impart rotary motion to the rotor upon commutated energization of the stator winding, the commutation circuit means including at least two Hall switching means for changing output states in response to a magnetic field, said Hall switching means being arcuately displaced and connected with winding activating switching means to energize at least one of the stator windings when only one of said Hall switching means changes output state in the presence of a magnetic field of one of said rotor magnets said two Hall switching means being connected in "or" fashion to the winding activating switching means to effect energization of one winding when either Hall switching means responds to the magnetic field of the one rotor magnet, whereby one winding is energized as one of the Hall switching means enters the magnetic field of the magnet and is de-energized when the other Hall switching means leaves the magnetic field of the one magnet, and whereby the effective arc of the rotor magnet is increased for commutation purposes.

4,365,188

CIRCUIT ARRANGEMENT FOR MONITORING AND CONTROLLING CLOSING AND OPENING MOVEMENTS

Arthur Walter, Waldkirch, Fed. Rep. of Germany, assignor to Erwin Sick GmbH Optik-Elektronik, Waldkirch, Fed. Rep. of Germany

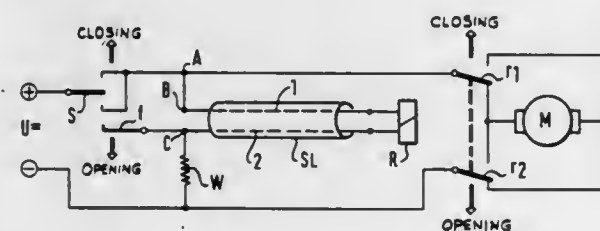
Filed August 13, 1980, Ser. No. 177,772

Claims priority, application Fed. Rep. of Germany, August 24, 1979, 2934401

Int. Cl.³ H02P 3/10, 3/20

U.S. Cl. 318—282

29 Claims



1. A control circuit for a reversible motorized drive used to produce closing and opening movements said control circuit comprising a feed circuit; switching means for connecting said feed circuit to said reversible motorized drive and having first and second positions corresponding respectively to said closing and opening movements; an energizing device for moving said switch means to said first position when energized and for moving said switch means to said second position when deenergized; selector switch means for selecting an opening or closing movement, said selector switch means being arranged to energize said energizing device from said feed circuit when closing movement is selected and to isolate said energizing device from said feed circuit when an opening movement is selected; a monitoring switch having first and second terminals, said monitoring switch being arranged to close when the closing movement is obstructed but being otherwise open; wherein said energizing device is connected between said first and second terminals and is short circuited on closing of said monitoring switch, and wherein a series monitoring circuit comprising said first terminal, said energizing device and said second terminal is operatively connected in parallel with said feed circuit by said selector switch means only when a closing movement is selected.

ing movement and said opening movement; an energizing device for moving said switch means to said first position when energized and for moving said switch means to said second position when deenergized; selector switch means for selecting an opening or closing movement, said selector switch means being arranged to energize said energizing device from said feed circuit when closing movement is selected and to isolate said energizing device from said feed circuit when an opening movement is selected; a monitoring switch having first and second terminals, said monitoring switch being arranged to close when the closing movement is obstructed but being otherwise open; wherein said energizing device is connected between said first and second terminals and is short circuited on closing of said monitoring switch, and wherein a series monitoring circuit comprising said first terminal, said energizing device and said second terminal is operatively connected in parallel with said feed circuit by said selector switch means only when a closing movement is selected.

4,365,189

CONTROL CIRCUIT FOR REVERSIBLE ELECTRIC MOTORS

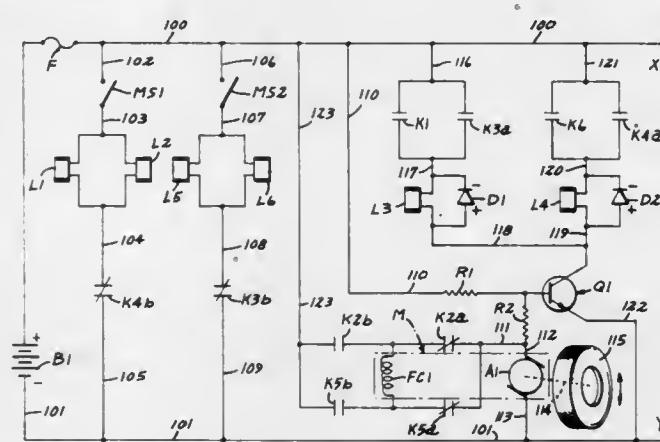
Raymond C. Hawkins, Minneapolis; Howard N. Seim, Columbia Heights, and Donald J. Haub, Champlin, all of Minn., assignors to Tennant Company, Minneapolis, Minn.

Filed August 20, 1979, Ser. No. 68,161

Int. Cl.³ B60K 1/02

U.S. Cl. 318—284

6 Claims



1. A circuit comprising, in combination, an electrically reversible DC motor having field and armature coils, means for reversing the flow of current through said field coil to reverse the direction of the motor, and a control circuit for sensing the rotation of said motor in a coasting state wherein said motor is rotating without voltage applied to said coils and for preventing the application of voltage to said field coil which would reverse the direction of said motor until said motor has slowed to a predetermined rotational velocity, said control circuit including detecting means connected in parallel with said armature coil for detecting voltage generated therein when said motor is in said coasting state, and preventing means responsive to said detecting means for preventing application of said reversing voltage to said motor while said detecting means is sensing said generated voltage.

4,365,190

AUTOMATIC VAR CONTROLLER

Henry J. Pasternack, Houston, and Garry C. Keffer, Rosenberg, both of Tex., assignors to ASI Systems, Inc., Stafford, Tex.

Filed March 19, 1981, Ser. No. 245,685

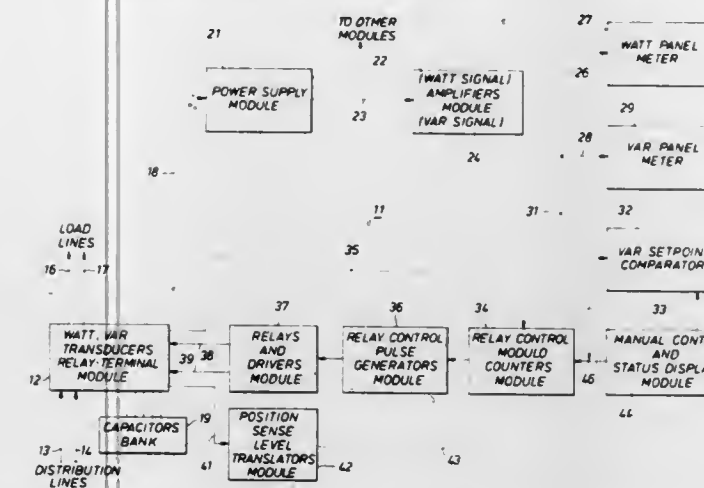
Int. Cl.³ G05F 1/70

U.S. Cl. 323—211

20 Claims

1. An automatic var controller for reducing the reactive power by compensating for inductive loads on electrical lines, comprising:

- transducer means connected to the lines and providing analog voltages representative of var magnitudes;
- readout means giving visual readouts of the actual var conditions on the lines;
- a set point comparator having as its input the analog voltage representative of var magnitude;
- said set point comparator having internal selected positive and negative var values and circuitry providing output binary signals indicative of a needed change in capacitance connected to the lines and for adding or removing capacitance in certain magnitudes;



- second readout means giving a visual readout of the status of capacitors connected to the lines and available for connection to the lines;
- relay control means receiving the binary signals from said set point comparator for selectively adding and removing capacitors on the lines in accordance with a preselected series or binary program; and
- programming means associated with said relay control means for storage of the predetermined sequence in the adding and removing capacitors on the lines.

4,365,191

METHOD AND APPARATUS FOR ELECTRICAL SURVEYS OF OFFSHORE METAL STRUCTURES WITH CORRECTION FOR DISTANCE

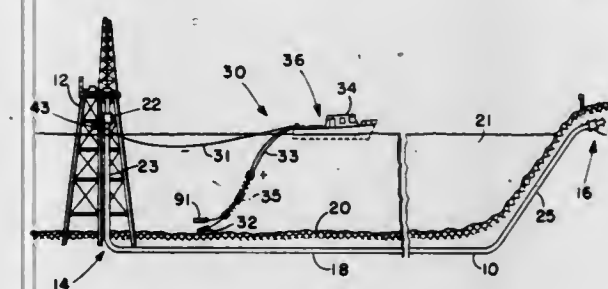
Clark P. Weldon; Stephen L. Wolfson, and Marvin L. Miller, all of Houston, Tex., assignors to Harco Corporation, Medina, Ohio

Filed 1980, Ser. No. 125,885

Int. Cl.³ G01R 31/02; G01V 3/15

U.S. Cl. 324—71 R

49 Claims



22. Apparatus for surveying a structure in an electrolyte, comprising sensing means for sensing at locations along the structure the electrical potential difference between the structure and the electrolyte, measuring means for measuring the approximate distances along the structure of a plurality of such locations relative to at least one of a reference position and a preceding such location to obtain information of the approximate position along the structure at which potential difference sensing has occurred, accurate measuring means for making an accurate measurement of distance along the structure of at least one of said sensing means and said measuring means relative to at least one of a reference position and a preceding

location, and correcting means for correcting such approximate distances based on information from such accurate distance measurements.

4,365,192

ISOTOPIC BROAD-BAND SURVEY METER

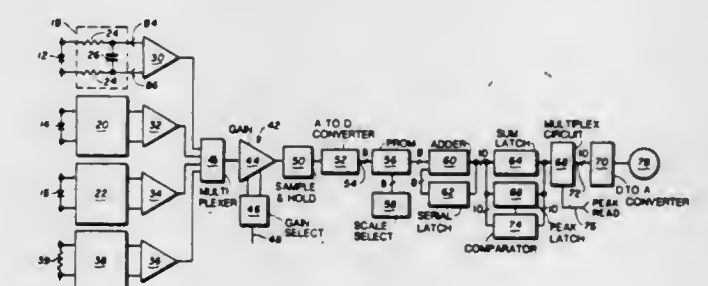
William J. Rankin, Edina, and Jerome P. Whitaker, Hopkins, both of Minn., assignors to Holaday Industries, Inc., Edina, Minn.

Filed August 27, 1980, Ser. No. 181,826

Int. Cl.³ G01N 31/02

U.S. Cl. 324—72

10 Claims



1. A circuit for providing an output indicative of voltage signals applied to at least one input port, said circuit comprising:

- a control input port connected to receive a control voltage signal;
- first switching means connected to each of said input ports and said control input ports to sequentially connect voltage signals from one of said ports to an output terminal;
- conversion means connected to the output terminal of said switching means to receive signals therefrom and convert received signals to a digital representation;
- an OR gate connected to receive the least significant output digits of said analog to digital conversion means and provide output signals representative of either a zero or non-zero output of said conversion means;
- a gated detector connected to receive the output of said OR gate and providing a first command when the control voltage signal received at said control input port produces a non-zero digital signal at the output terminal of said conversion means and producing a second command when said conversion means produces a zero output;
- second switching means connected to receive the commands provided by said detector means and provide a charging current of a first polarity when the output of said converter is non-zero and to provide a charging current of an opposite polarity when the output of said conversion means is zero; and
- correcting means connected to said second switching means to receive charging currents therefrom and produce an output voltage integrated from said charging currents and apply said voltage to the input to said analog to digital converter means to correct the output signal produced by said input ports in response to the control voltage at the control input port.

4,365,193

OVERVOLTAGE-PULSE ANALYZER

Adriano Bollero, Rivarolo Canavese; Bruno Carpinello, Turin; Giuseppe Galliano, Turin, and Roberto Pomponi, Turin, all of Italy, assignors to Csele - Centro Studi e Laboratori Telecomunicazioni S.p.A., Turin, Italy

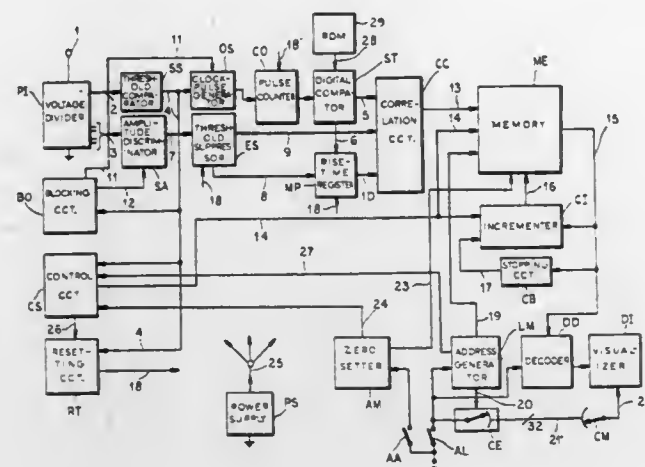
Filed August 1, 1980, Ser. No. 174,695

Claims priority, application Italy, August 2, 1979, 68599 A/79

Int. Cl.³ G01R 29/00, 19/16

U.S. Cl. 324-102

7 Claims



1. A system for measuring the characteristics of overvoltage pulses on a transmission line, comprising: voltage-sensing means coupled to said transmission line for detecting overvoltage pulses of absolute magnitude exceeding a predetermined sensitivity threshold and for distinguishing among a specified number *m* of discrete amplitude levels above said threshold;

timing means controlled by said voltage-sensing means for measuring an interval lasting from the instant of detection of an overvoltage pulse to at least the instant of attainment of the highest amplitude level reached thereby but not beyond the instant of disappearance of said overvoltage pulse, the intervals so measured being classified in a plurality of time periods represented by a specified number *n* of quantized duration signals;

memory means provided with *m* times *n* cells respectively assigned to different combinations of amplitude levels and quantized duration, said memory means having input connections to said voltage-sensing means and said timing means for addressing the assigned cell upon the disappearance of the detected overvoltage pulse;

incrementing means connected to said memory means for storing a progressively increasing numerical value in a cell so addressed, said numerical value representing the number of detected overvoltage pulses exhibiting the corresponding combination of amplitude levels and quantized duration;

indicator means connectable to any of said cells for reading out the contents thereof; and

clearing means connected to said memory means and operable to erase the contents of all said cells.

4,365,194

CONVERTIBLE MULTIRATE DIAL REGISTER FOR ENERGY CONSUMPTION METERS

Kenneth G. Halstead; Eugene C. Benbow, both of Raleigh, N.C., and Forrest E. Coyle, Penn Hills, Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed July 14, 1980, Ser. No. 167,953

Int. Cl.³ G01R 15/08, 11/64

U.S. Cl. 324-116

15 Claims

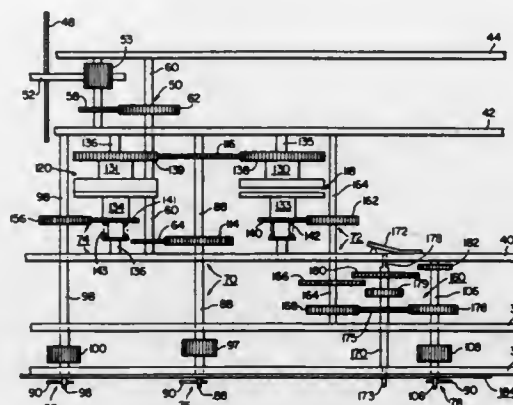
1. A convertible multirate dial register for meters having a rotatable measuring element responsive to the consumption of a quantity to be measured, said dial register comprising: a front plate having plural sets of clock dial indicia;

a first set of dial indicators associated with a first set of dial indicia on said front plate;

a first gear train continuously rotated in response to the rotation of said measuring element for driving said first set of dial indicators;

a second set of dial indicators associated with a second set of said dial indicia wherein said second set of indicia are separately mountable to said front plate;

a second gear train including a clutch mechanism operable between coupling and uncoupling states and having an input and an output with said clutch input being driven by said first gear train, and said second gear train further



including shiftable gear means having first and second operating positions so as to be driven in response to said clutch output at either of first or second fixed rates of rotation when in said first or second operating positions, respectively, and said shiftable gear means further being in driving relationship with said second set of dial indicators so that said second set of dial indicators is rotatable at the same rate as said first set of dial indicators are rotated when said shiftable gear means is in said first operating position and at a different rate of rotation from said first set of dial indicators when said shiftable gear means is in said second operating position.

4,365,195

COPLANAR WAVEGUIDE MOUNTING STRUCTURE AND TEST FIXTURE FOR MICROWAVE INTEGRATED CIRCUITS

Ronald E. Stegens, Brookerville, Md., assignor to Communications Satellite Corporation, Washington, D.C.

Filed December 27, 1979, Ser. No. 108,247

Int. Cl.³ G01R 31/02

U.S. Cl. 324-158 F

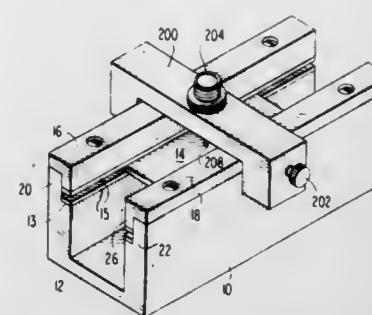
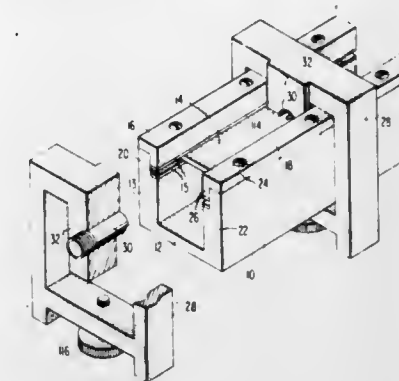
10 Claims

1. A microwave integrated circuit substrate holder and device for R.F. testing of such circuits comprising:

(a) a substrate carrier for holding at least one substrate,

(b) a first means operable to engage and slide relative to the

carrier and including means to establish electrical R.F. connection at two or more points on the substrate, and



(c) a second means operable to engage and slide relative to the carrier and including means for testing the performance of the substrate.

4,365,196

PROXIMITY SENSING TRANSDUCER WITH SIMULATION MEANS

Colin M. Finch, Box 553, Lavington, New South Wales, Australia (2641)

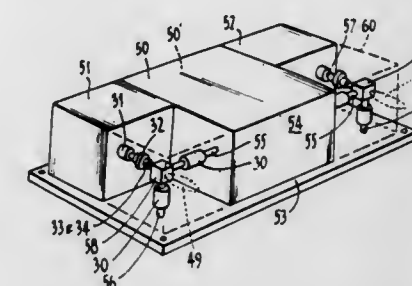
Filed December 12, 1978, Ser. No. 968,847

Claims priority, application Australia, December 14, 1977, PD2772

Int. Cl.³ G01B 7/14; G01R 35/00

U.S. Cl. 324-207

4 Claims



1. A transducer for detecting information as to an article in proximity thereof, comprising:

a field creating coil for creating a field, sensing means comprising a pick-up coil positioned to be within the field and responsive to changes in the field such that when the field is disturbed by the proximity of the article, the sensing means provides information as to the article, said field creating coil including two parts, one part being positioned around an elongate core and the other part being similarly positioned on another elongate core, the longitudinal axes of both of said cores being at right angles to one another, and wherein said pick-up coil is positioned around a further elongate core, said further core being at right angles to both of the other cores with all core axes intersecting, so that the pick-up coil is situated in a field strength minimum created by the interaction of the fields emanating from the parts of said field creating coil, and

a field disturbing coil having two parts, one part being

mounted co-axially with said pick-up coil at a position where the field has minimum strength when an article is not in proximity to the transducer and the other part being at a position other than where the field has minimum strength and wherein said parts of said field disturbing coil are electrically interconnected with a resistance and a switch so that when the switch is closed the field is redistributed and the voltage induced in the pick-up coil changes, thereby simulating the presence of an article.

4,365,197

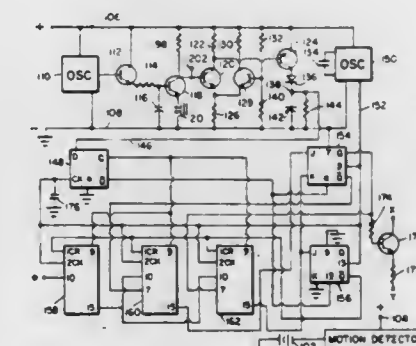
IDENTIFICATION OF PIPE MATERIAL IN WELLS
Lawrence A. Pyatt, 755 E. Date St., Brea, Calif. 92621, and Robert W. Thompson, 5210 Ensley Ct., Riverside, Calif. 92505

Continuation-in-part of Ser. No. 892,284, Mar. 31, 1978, abandoned. This application 1980, Ser. No. 119,171

Int. Cl.³ G01N 27/72, 27/82

U.S. Cl. 324-221

13 Claims



5. In an instrument whose purpose is to distinguish whether a given position is within a magnetic or non-magnetic but metallic section of pipe, in combination:

(a) a coil disposed in a non-magnetic, metallic enclosure and energizable to create a magnetic field;

(b) energizing means for energizing said coil sufficiently at a frequency to create a magnetic field on which the pipe can exercise the effect of causing circulating current to flow in said non-magnetic but metallic section;

(c) means for measuring change in at least one of the current through said coil and the voltage across said coil as an incident to the flow of such circulating currents while said coil is stationary;

(d) said coil being encased in a metallic but non-magnetic housing; and

(e) said energizing means being effective to energize said coil at a frequency between 275 Hz and 350 Hz.

4,365,198

METHOD AND APPARATUS FOR DETECTING, CLASSIFYING AND MARKING DEFECTS IN WORKPIECE WITH IMPROVED TIMING CONTROL

James M. Toth, Lyndhurst, Ohio, assignor to Republic Steel Corporation, Cleveland, Ohio

Filed March 6, 1980, Ser. No. 127,579

Int. Cl.³ G01N 27/72; G01R 33/00

U.S. Cl. 324-226

3 Claims

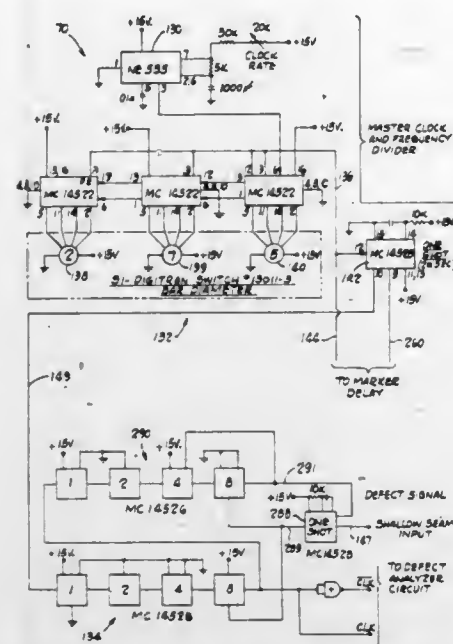
1. In a workpiece classifying and marking system including a test head for generating defect signals from a workpiece which both rotates and traverses past said test head, an improved timing control circuitry comprising:

(a) a single pulse generator for generating a series of regularly occurring pulses;

(b) means for receiving said regularly occurring pulses and producing a first series of output pulses with an adjustable frequency related to the speed of workpiece rotation and coupled to a workpiece marking control to coordinate workpiece marking with rotation; and

(c) divider means coupled to the first series of output pulses

for generating a second series of output pulses with a frequency greater than the frequency of workpiece rotation and coupled to a classifying circuit to coordinate



workpiece classification and workpiece rotation by categorizing the defect signals according to the position of the defect around the pipe circumference.

4,365,199

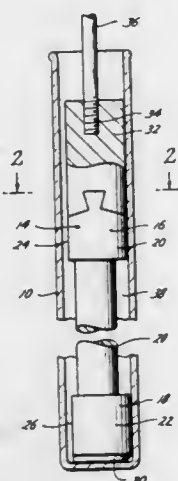
NUCLEAR MAGNETIC RESONANCE SAMPLE TUBE INSERT

Douglas S. McNair, Houston, Tex., assignor to Baylor College of Medicine, Houston, Tex.

Filed April 6, 1981, Ser. No. 251,642
Int. Cl.³ G01N 27/00

U.S. Cl. 324-318

7 Claims



1. An insert for insertion into a circularly cross-sectioned sample tube for use in nuclear magnetic resonance spectrometry comprising,

two spaced end plugs, said plugs having arcuate sides to be positioned in a heat exchange relationship adjacent the inner surface of sample tube when inserted therein, said end plugs having venting means for allowing the passage of fluids when the insert is moved into a sample tube having a sample, an elongate circular rod positioned between and connected to said end plugs, and said end plugs and rod being of beryllium oxide.

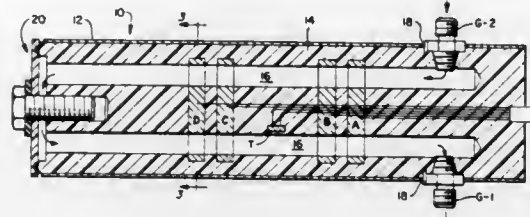
4,365,200 SELF ALARMING FOUR DOUBLE ELECTRODES CONDUCTIVITY CELL

Herbert Goldsmith, Rockville, Md., assignor to Chemed Corporation, Cincinnati, Ohio

Filed July 14, 1980, Ser. No. 167,896
Int. Cl.³ G01N 27/42

U.S. Cl. 324-449

10 Claims



1. A conductivity cell comprising a pair of voltage electrodes arranged within a pair of current electrodes, with all of said electrodes being arranged serially in the direction of flow through the cell, each of said electrodes comprises at least two flow openings, all four of said electrodes being arranged in said cell with their openings in such relation to each other so as to thereby define two flow passageways in said cell, means to connect said two passageways into flow communication with each other to thereby define a single "U" shaped flow passageway through said cell, said single "U" shaped passageway thereby having a functional length equal to about twice the length of said cell, said single "U" shaped passageway passing through each of said electrodes at least twice via said at least two openings in each of said electrodes, means to permit flow into and out of said cell, and said flow permitting means being located in said cell in spaced relation to said passageway connecting means to said electrodes.

4,365,201

FREQUENCY SYNTHESIZER

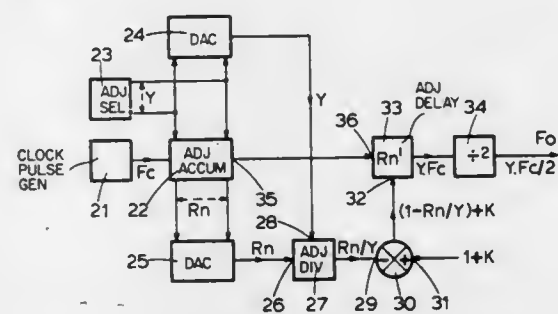
Richard I. H. Scott, Redhill, and Michael J. Underhill, Horsham, both of England, assignors to U.S. Philips Corporation, New York, N.Y.

Filed October 14, 1980, Ser. No. 196,406
Claims priority, application United Kingdom, October 30, 1979, 7937487

Int. Cl.³ H03L 7/18

U.S. Cl. 328-14

4 Claims



1. A frequency synthesizer of the type which selects pulses from a clock pulse source, of higher pulse frequency F_c than the required output frequency F_o , in order to provide said frequency F_o ; the synthesizer including an adjustable accumulator which, for each input clock pulse thereto, adds a preselected adjustable increment Y to the accumulated value in the accumulator and gives an output pulse each time an accumulated value C , in which C is equal to or greater than Y , is reached or exceeded, any excess being left as a residue R_n in the accumulator, characterized in that the synthesizer further comprises adjustable delay means coupled to said adjustable accumulator output for delaying each output pulse n from the accumulator, said delay means having a control input coupled to said accumulator for accessing the residue R_n therein,

whereby the amount each output pulse n from the accumulator is delayed is a function of the residue R_n in the accumulator immediately after that output pulse.

4,365,202

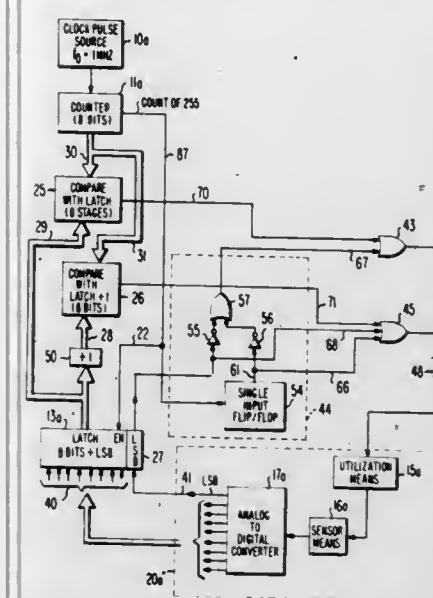
DUTY CYCLE GENERATOR WITH IMPROVED RESOLUTION

Joseph O. Sinniger, Pennington, N.J., assignor to RCA Corporation, New York, N.Y.

Filed August 25, 1980, Ser. No. 180,903
Int. Cl.³ H03K 5/05, 7/08

U.S. Cl. 328-58

9 Claims



1. A digitized duty cycle pulse generator comprising: means for generating a clock pulse signal having a repetition rate f_c ; counter means responsive to said clock pulse signal to cycle iteratively through a count of n ; storage means for storing a variable binary value m where $m < n$, where m can have a fractional value, and where m/n is the pulse duty cycle; and logic means comprising comparator means responsive to the instantaneous count l in said counter means and the value m in said storage means when m is not an integer to produce a first logic level signal when $l < m$ and a second logic level output signal when $l > m$ during first selected cycles of said counter means through said count of n ; said logic means and said comparator means being further responsive to the instantaneous count l in said counter means and the value $(m+1)$ when m is not an integer to produce said first logic level signal when $l < (m+1)$ and said second logic level signal when $l > (m+1)$ during second selected cycles of said counter means through said count of n , and where said first and second selected cycles of said counter means are interleaved in a predetermined pattern.

4,365,203

MULTI-FREQUENCY CLOCK GENERATOR WITH ERROR-FREE FREQUENCY SWITCHING

Donald V. DiMassimo, and John B. May, both of Liverpool, N.Y., assignors to General Electric Company, Schenectady, N.Y.

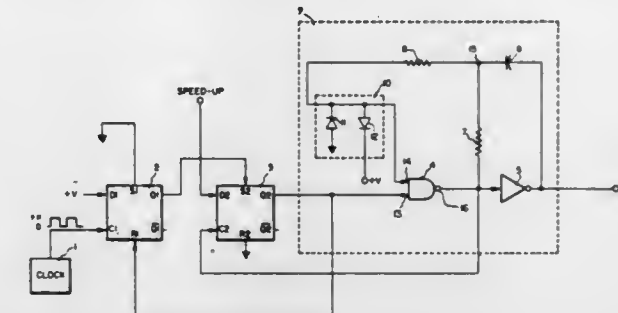
Filed 1981, Ser. No. 231,698
Int. Cl.³ H03L 7/00; H03K 5/00, 19/007
U.S. Cl. 328-63

6 Claims

1. A dual frequency clock generator selectively providing output clock signals at first and second frequencies, comprising: a source of input clock signals; a first bistable switching circuit including an input and an output, a reset means for establishing a predetermined logic state at the circuit output, and clock input means

coupled to said source of input clock signals for reproducing at the circuit output the logic level on the circuit input upon the occurrence of each positive voltage transition of said input clock signal;

a second bistable switching circuit substantially identical to said first circuit further including set means coupled to the output of said first circuit for setting the output of said second circuit to the logic level on the output of said first circuit, the output of said second circuit also being cou-



pled to said reset means of said circuit, and the input of said second circuit being provided with a frequency select signal for selecting said first or second frequencies; and an RC oscillator coupled to the output of said second circuit, said RC oscillator including means coupled to the clock input means of said second circuit for reproducing at the output of said second circuit said frequency select signal in response to which said clock generator produces an output clock signal at said first or second frequency.

4,365,204

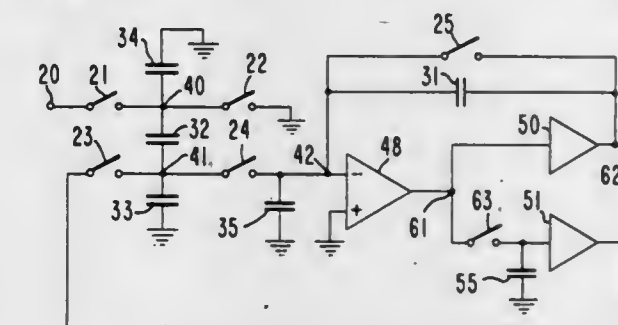
OFFSET COMPENSATION FOR SWITCHED CAPACITOR INTEGRATORS

Yusuf A. Haque, San Jose, Calif., assignor to American Microsystems, Inc., Santa Clara, Calif.

Filed September 8, 1980, Ser. No. 185,356
Int. Cl.³ G06G 7/18

U.S. Cl. 328-127

7 Claims



1. An integrator having an integrator input terminal for receiving an input voltage to be integrated and an integrator output terminal, comprising:

an operational amplifier having an inverting input terminal, a non-inverting input terminal connected to a reference potential, and an output terminal, said operational amplifier producing an offset output voltage on said output terminal;

a capacitor connected between the inverting input terminal and the output terminal of said operational amplifier; switched capacitor means connected between said inverting input terminal and said integrator input terminal; and means for eliminating the effect of said offset output voltage on said integrator output terminal, said means for eliminating comprising means for storing a stored voltage equal to said input voltage to be integrated minus said offset output voltage and means for applying said stored voltage to said inverting input terminal of said operational amplifier,

whereby said input voltage is integrated and said offset output voltage is not integrated.

4,365,205

DEMODULATOR FOR SIGNAL WHICH IS FREQUENCY MODULATED BY DIGITAL DATA

Jean P. Dehaene, Paris, France, assignor to Thomson-CSF, Paris, France

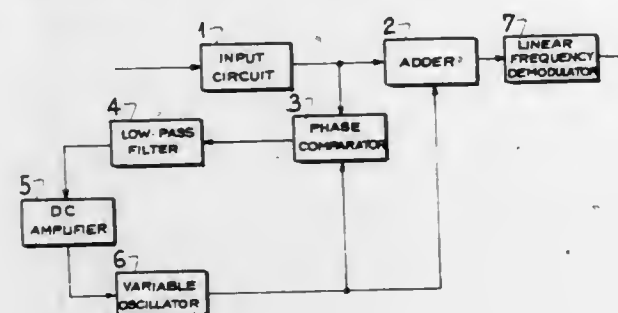
Filed December 9, 1980, Ser. No. 214,661

Claims priority, application France, December 27, 1979, 79 31804

Int. Cl.³ H03D 3/00

U.S. Cl. 329-122

2 Claims



1. A device for demodulating a modulated signal resulting from frequency modulation of a carrier by a digital data item and having a spectral line at the carrier frequency, wherein said device comprises:

- an adder circuit having a first input for receiving the modulated signal, a second input and an output, carrier recovery means for receiving the modulated signal and having one output coupled to the second input of the adder circuit;
- and a linear frequency demodulator having one input coupled to the output of the adder circuit.

4,365,206

DIFFERENTIAL AMPLIFIER

Karl H. Rehfeldt, Quickborn, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

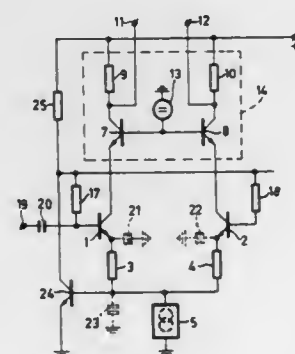
Filed October 31, 1980, Ser. No. 202,810

Claims priority, application Fed. Rep. of Germany, November 21, 1979, 2946952

Int. Cl.³ H03F 3/45

U.S. Cl. 330-260

4 Claims



1. A differential amplifier comprising:

- two transistors connected by means of their emitters, each of said transistors having an emitter resistor connected in series to a current source, the other side of said current source being connected to a ground terminal of a supply source, the bases of said transistors being connected by means of a current supply impedance to the positive terminal of said supply source, the control of said differential amplifier being effected by a signal applied to a base electrode of one of said two transistors;
- a network circuit, a symmetrical output signal being taken

from said network circuit which is connected to the collector-branches of said two transistors, and;

said differential amplifier further comprising a third transistor whose base is connected to the junction point of said emitter resistors of said two transistors, said third transistor being connected between the base branch of at least one of said two differentially connected transistors and the ground terminal of said supply source.

4,365,207

INTEGRATED HIGH FREQUENCY AMPLIFIER

Satoshi Fukuchi, Tachikawa, Japan, assignor to Hitachi Denshi Kabushiki Kaisha, Tokyo, Japan

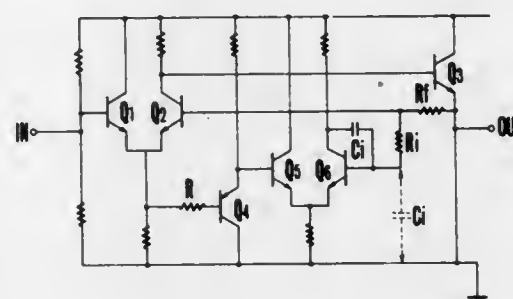
Filed 1981, Ser. No. 233,117

Claims priority, application Japan, 1980, 55-18819

Int. Cl.³ H03F 3/45; G06G 7/18

U.S. Cl. 330-260

5 Claims



1. A high frequency integrated amplifier comprising:

- a low pass band type feedback circuit coupled between input and output terminals of said high frequency amplifier, said feedback circuit including a first resistor and a capacitor which act as a Miller integrating circuit;
- said Miller integrating circuit comprises a differential amplifier;
- a first transistor operating as an emitter follower the emitter terminal of said first transistor being coupled to the base terminal of a second transistor, said second transistor being part of said differential amplifier;
- the base terminal of said first transistor being coupled through a second resistor to the emitter terminal of a third transistor, said third transistor being coupled to a feedback terminal of said high frequency amplifier.

4,365,208

GAIN-CONTROLLED AMPLIFIER USING A CONTROLLABLE ALTERNATING-CURRENT RESISTANCE

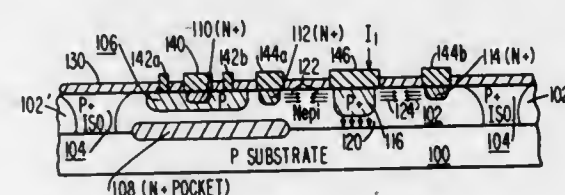
Jack R. Harford, Flemington, N.J., assignor to RCA Corporation, New York, N.Y.

Filed April 23, 1980, Ser. No. 143,033

Int. Cl.³ H03G 3/18; H03F 3/14, 3/45

U.S. Cl. 330-278

10 Claims



1. A controlled resistance system for use with a signal amplifier, comprising:

- a source of variable control current; and
- a vertical PNP transistor including a base-emitter junction which exhibits a resistance, the magnitude of which is controlled by said control current, said vertical PNP transistor including
- a semiconductor substrate of P type conductivity semi-

conductor material having a substantially planar surface;

- a first localized region of high resistivity N type semiconductor material located in said substrate adjacent to the surface thereof and exhibiting a given carrier lifetime characteristic;
- a second localized region of P+ type conductivity located in said high resistivity region adjacent to said surface, and coupled to receive control current from said source; wherein control current flow in said P+ type region injects a flow of carriers into said high resistivity region;
- a third localized region of N+ type conductivity located in said high resistivity region and separated from said second localized region by an intervening expanse of said high resistivity N type semiconductor material to establish a separation distance between said N+ type and P+ type regions which is at least as great as the penetration depth of said injected carriers at said given carrier lifetime,

wherein said base-emitter junction includes said N+ type region, said intervening expanse of N type material, and said P+ type region, and the resistance of said base-emitter junction is a function of the density of said injected carriers in said high resistivity region; and means for coupling said base-emitter junction of said vertical PNP transistor to said amplifier so that variations in the resistance exhibited by said base-emitter junction render the gain of said amplifier responsive to said resistance variations.

4,365,209

IMPEDANCE TRANSDUCER

Satoshi Yamauchi, Yokohama, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan

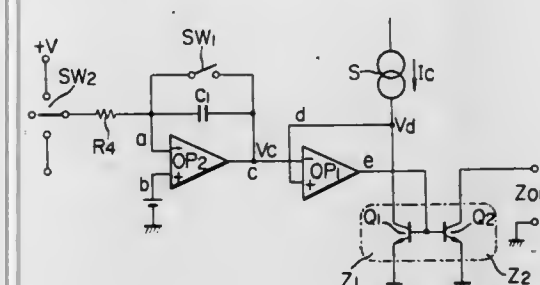
Filed March 19, 1980, Ser. No. 131,875

Claims priority, application Japan, March 23, 1979, 54-34093; March 23, 1979, 54-34094

Int. Cl.³ H03F 3/08

U.S. Cl. 330-308

11 Claims



1. A variable impedance circuit, comprising:

- first and second transistors mounted on a common thermally conductive substrate so that said transistors remain at substantially the same temperature, each transistor having two main electrodes and a control electrode means, said transistors exhibiting essentially the same electrical characteristics at said electrodes;
- a negative feedback amplifier having an input terminal and connected in circuit with said first transistor to vary the impedance between the main electrode means of said first transistor in a predetermined manner in accordance with an impedance control signal applied to said input terminal;
- a memory circuit coupled to said input terminal of said negative feedback amplifier for setting said impedance control signal at a desired value; and
- means for maintaining essentially the same electrical condition at each of said control electrode means, so that the impedance presented between the main electrodes of the second transistor is essentially equal to the impedance between the main electrodes of said first transistor.

4,365,210

DATA AND CLOCK RECOVERY SYSTEM HAVING A PHASE-LOCKED-LOOP AND WHICH CONTROLS DYNAMIC LOOP RESPONSE OF A DATA STREAM OF UNKNOWN DATA FORMAT

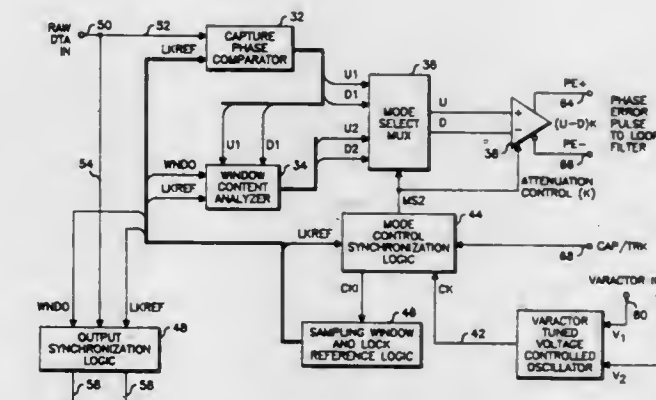
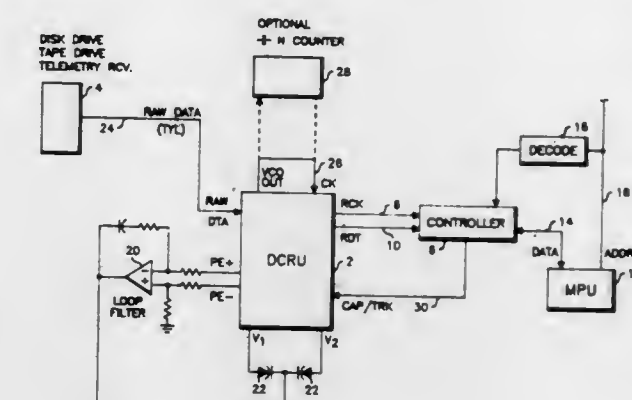
Wayne D. Harrington, and Stanley E. Groves, both of Round Rock, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed June 26, 1980, Ser. No. 163,380

Int. Cl.³ H03L 7/10; H03D 3/18

U.S. Cl. 331-1 A

16 Claims



1. A phase-locked-loop circuit for generating a reference signal which is in phase with an input signal, comprising:

- comparing means for receiving said reference signal and said input signal and for generating at an output an error signal indicative of the phase difference between said reference signal and said input signal;
- first means having an input coupled to the error signal from said comparing means for generating said reference signal, said first means being responsive to said error signal for bringing said reference signal into phase with said input signal;
- second means coupled between the output of said comparing means and the input of said first means for inhibiting said error signal if said input signal occurs either earlier or later than a predetermined interval of time; and
- third means coupled to said comparing means and to said second means for generating a window during which receipt of an input signal which is out of phase with said reference signal will result in the generation of said error signal, the duration of said window corresponding to said predetermined interval of time wherein said input signal is one of a plurality of input pulses, said reference signal is one of a plurality of reference pulses, said window corresponds to a first state of a window signal capable of alternately assuming first and second states and wherein said error signal corresponds to a plurality of error pulses one of which is generated each time out-of-phase input and reference pulses are received during said first state.

4,365,211

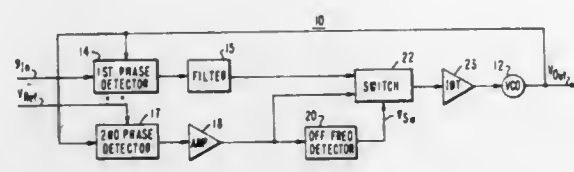
PHASE-LOCKED LOOP WITH INITIALIZATION LOOP
Ronald L. Lee, Reno, Nev., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed October 31, 1980, Ser. No. 202,554

Int. Cl.³ H03L 7/10

U.S. Cl. 331-11

15 Claims



1. A phase-locked loop producing an output signal having a frequency locked to the frequency of an input signal, comprising:

- means for producing the input signal;
- means for producing the output signal, said output signal having a variable frequency;
- first means for detecting a phase difference between said input signal and said output signal, said first phase detection means having a narrow bandwidth;
- means for producing a reference signal;
- second means for detecting a phase difference between said reference signal and said output signal, said second phase detection means having a wide bandwidth;
- control means responsive to said second phase detection means, said control means producing a switching signal representative of the frequency difference between said reference signal and said output signal;
- and switching means selectively connecting one of said first phase detection means and said second phase detection means to said means producing said output signal, said switching means being responsive to said switching signal such that when said frequency difference between said reference signal and said output signal is large said second phase detection means is connected to said means producing said output signal.

11. A phase-locked loop for recovering an informational signal from a received signal, comprising:

- means for producing a regenerated pilot tone;
- demodulation means responsive to both the received signal and said regenerated pilot tone, said demodulation means recovering both the informational signal and a recovered pilot tone from said received signal;
- first means for detecting a phase difference between said recovered pilot tone and a first reference signal;
- filtering means responsive to said first phase detection means;
- second means for detecting a phase difference between a second reference signal and said regenerated pilot tone, said second phase detection means having a wide bandwidth;
- control means responsive to said second phase detection means, said control means producing a switching signal representative of the frequency difference between said second reference signal and said regenerated pilot tone;
- and switching means selectively connecting one of said means for filtering and said second phase detection means to said means producing said regenerated pilot tone, said switching means responsive to said switching signal such that when said frequency difference between said second reference signal and said regenerated pilot tone is large said second phase detection means is connected to said means producing said regenerated pilot tone.

4,365,212

GATED OSCILLATOR INCLUDING INITIALIZATION APPARATUS FOR ENHANCING PERIODICITY

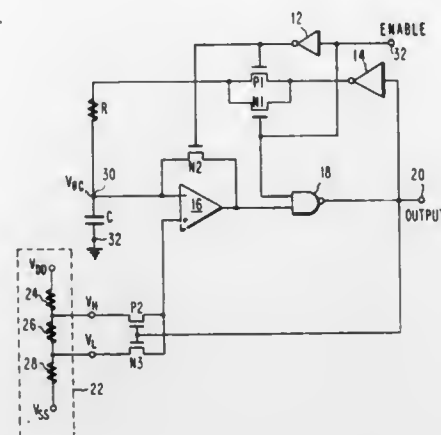
Carmine Gentile, Hightstown, and Nicholas Kucharewski, Lebanon, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed September 30, 1980, Ser. No. 192,364

Int. Cl.³ H03K 3/03

U.S. Cl. 331-111

4 Claims



1. An oscillator comprising:

- a capacitor;
- charging means for alternately charging said capacitor substantially to a first voltage level and discharging said capacitor substantially to a second voltage level;
- gating means for selectively enabling said charging means to charge and discharge said capacitor responsive to a first level of binary control signal so as to condition said oscillator to oscillate, and for selectively disabling said charging means responsive to a second level of said binary control signal so as to condition said oscillator not to oscillate;
- a differential amplifier having first and second input terminals and an output terminal, said first input terminal of said differential amplifier being connected to said capacitor, said second terminal of said differential amplifier being coupled for receiving alternate ones of said first and second voltage levels and said output terminal of said differential amplifier being coupled to said charging means; and
- initialization means responsive to said second level of said binary control signal for maintaining the potential on said capacitor at one of said first and second voltage levels; wherein said initialization means includes switch means responsive to said second level of said binary control signal for selectively connecting said first input terminal to said output terminal of said differential amplifier.

4,365,213

LOW FREQUENCY ASTABLE OSCILLATOR HAVING SWITCHABLE CURRENT SOURCES

Kenneth A. Hansen, Bedford, Tex., and Ronald H. Chapman, Wheaton, Ill., assignors to Motorola Inc., Schaumburg, Ill.

Filed October 16, 1980, Ser. No. 197,386

Int. Cl.³ H03K 3/282; H03B 5/36

U.S. Cl. 331-113 R

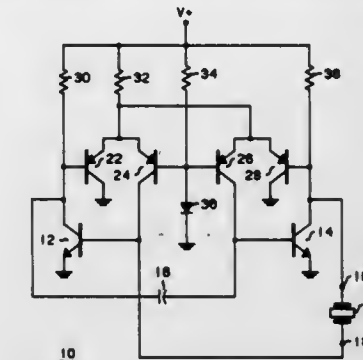
4 Claims

1. A low frequency oscillator of the astable type comprising:
- first switching transistor means having emitter, base and collector electrodes;
 - second switching transistor means having emitter, base and collector electrodes;
 - said emitter electrodes of said first and second switching transistor means coupled to a predetermined DC reference level;
 - the base electrode of the first transistor means adapted to be connected to the collector electrode of the second transistor means through a frequency determining element;
 - capacitive means cross-coupling the base electrode of the

second transistor means to the collector electrode of the first transistor means;

first switchable current source means coupled to the base electrode of said first switching transistor means to supply base drive to the first switching transistor means and to provide charging current to the frequency determining element;

second switchable current source means coupled to the base electrode of the second switching transistor means to supply base drive to the second switching transistor means



and to provide charging current to the cross-coupling capacitive means; and

said first and second switchable current source means respectively including first and second differential amplifier means, a first input of each of the respective differential amplifier means referenced to a reference voltage, a second input of the first differential amplifier means coupled to the collector electrode of the first switching transistor means, and a second input of the second differential amplifier means coupled to the collector electrode of the second switching transistor means.

4,365,214

SEMICONDUCTOR MOUNTING AND MATCHING ASSEMBLY

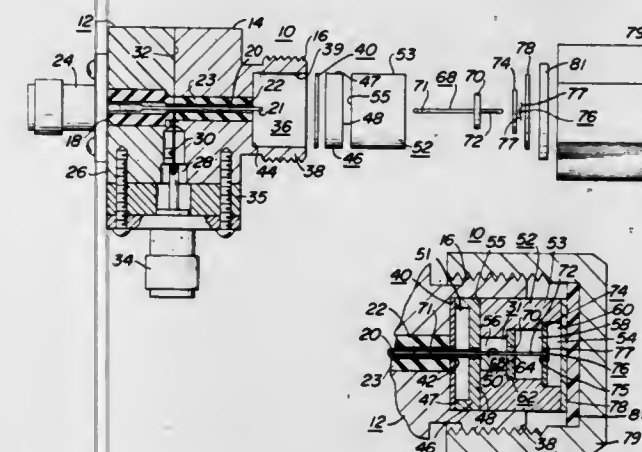
Robert W. Shillady, North Wales, Pa., assignor to American Electronic Laboratories, Inc., Colmar, Pa.

Filed September 24, 1980, Ser. No. 190,464

Int. Cl.³ H01P 5/08

U.S. Cl. 333-33

30 Claims



1. A semiconductor mounting and matching assembly comprising a radio-frequency transmission line operating principally in the TEM mode having a first end for receiving radio-frequency signals with a given first characteristic impedance, a second end with a second characteristic impedance, and a plurality of sections between its first and second ends having configurations and discontinuities providing reactive elements, a semiconductor device mounted at the second end of the transmission line having an impedance which differs from the first characteristic impedance of the transmission line and providing a load resistance terminating the transmission line at its second end, and a network which transforms the impedance

between the first and second ends of the transmission line and matches the load resistance of the semiconductor device to the first characteristic impedance comprising the reactive elements provided by the sections of the transmission line and the capacitive and inductive reactance properties provided respectively by the junction capacitance and connecting lead means of the semiconductor device at the second end of the transmission line, the reactive elements of the transmission line at its second end accommodating the reactance properties of the semiconductor device so that the network incorporates therein the reactance properties of the semiconductor device and such reactance properties are not an effective part of the load terminating the transmission line at its second end, whereby said assembly transmits radio-frequency signals from its input end to the semiconductor device at its second end with low reflection and attenuation over a wide-band of frequencies.

4,365,215

HIGH POWER COAXIAL POWER DIVIDER

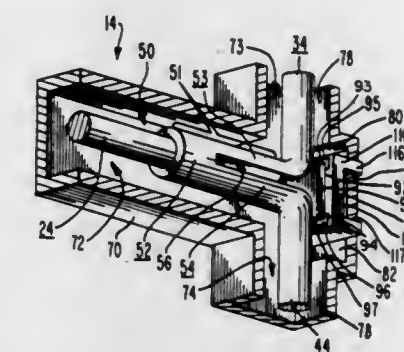
Norman R. Landry, Mount Laurel, N.J., assignor to RCA Corporation, New York, N.Y.

Filed 1981, Ser. No. 226,711

Int. Cl.³ H01P 5/12

U.S. Cl. 333-127

9 Claims



1. A coaxial transmission line coupling structure for connecting a common port to n branch ports where n is an integer greater than 1, said structure designed for operation over a predetermined frequency band, said structure comprising:

- an inner conductor system including a common leg and n branch legs extending from a common junction with said common leg;
- an n terminal resistance element for dissipating odd mode power and for isolating said n branch ports from each other, each of said n terminals connected to an associated branch leg at a distance from said common junction of approximately one quarter wavelength at a frequency in said band;
- an outer conductor enclosing said inner conductor system;
- a thermally conducting dielectric heat sink coupled between said resistance element and said outer conductor for conducting heat away from said resistance element; and
- said outer conductor and said heat sink being configured to form a region of a lower dielectric constant than said heat sink between said resistance element and said outer conductor to provide a lower capacitance between said resistance element and said outer conductor than would be provided in the absence of said lower dielectric constant region.

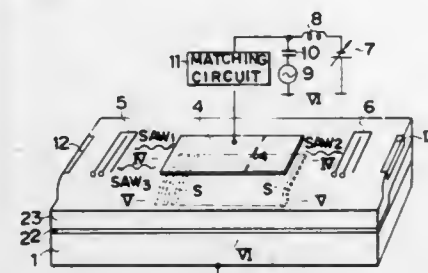
4,365,216

SURFACE-ACOUSTIC-WAVE DEVICE

Shoichi Minagawa, Takeshi Okamoto, and Takamasa Sakai, all of Toda, Japan, assignors to Clarion Co., Ltd., Tokyo, Japan
Filed 1981, Ser. No. 223,059

Claims priority, application Japan, 1980, 55-2601
Int. Cl.³ H03F 7/04; H03H 9/145
U.S. Cl. 333-153

11 Claims



1. A surface-acoustic-wave device which comprises: a laminate formed of a piezoelectric layer and a semiconductor layer;
- a plurality of metal strips disposed on a propagation path of surface acoustic wave in said laminate;
- a pumping electrode disposed on said piezoelectric layer and on said propagation path of surface acoustic wave; and
- a means for applying a pumping voltage to said pumping electrode;
- each of said metal strips having a portion extending to said semiconductor layer in a region out of said propagation path of surface acoustic wave.

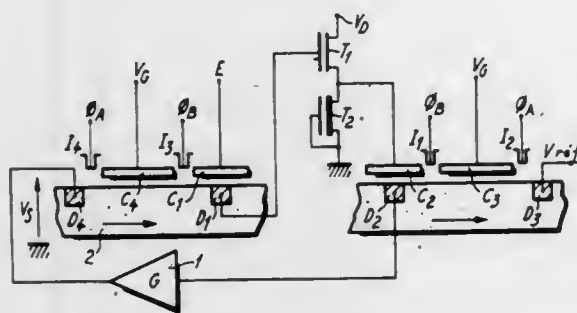
4,365,217

CHARGE-TRANSFER SWITCHED-CAPACITY FILTER

Jean L. Berger, and Jean L. Coutures, both of Paris, France, assignors to Thomson-CSF, Paris, France
Filed November 24, 1980, Ser. No. 210,141

Claims priority, application France, November 30, 1979; 79 29506
Int. Cl.³ H03H 19/00; G11C 27/02
U.S. Cl. 333-165

11 Claims



1. A charge-transfer switched-capacity filter, comprising an amplifier associated with a network of resistances and capacities in which each resistance is formed by two MOS switches in series and with a capacity between the common point of these switches and ground; said capacities are formed by MOS technology and said MOS switches are formed by control electrodes adjacent the MOS capacities and from which they are separated by an oxide layer; one plate of each capacity being formed by the semiconductor substrate on which it is integrated, and connection between two capacities whose plates are formed by the substrate are periodically connected by transfer of charges in the semiconductor substrate on which said two capacities are integrated, and results in the establishment of the same surface potential under said two capacities; the other external to the substrate plate of at least one of the capacities receiving input voltage of the filter, and of at least another of the capacities receiving a DC voltage taken for reference.

4,365,218

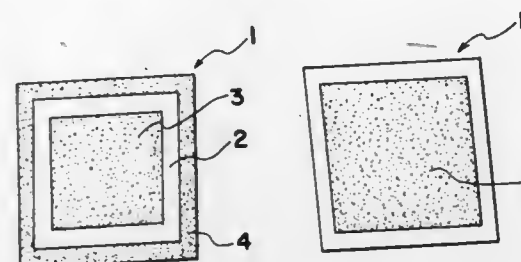
THREE TERMINAL TYPE PIEZOELECTRIC FILTER

Jiro Inoue, Kanazawa, Japan, assignor to Murata Manufacturing Co., Ltd., Japan

Filed 1981, Ser. No. 232,403
Claims priority, application Japan, 1980, 55-17263
Int. Cl.³ H03H 9/15, 9/54

U.S. Cl. 333-187

12 Claims



1. A piezoelectric filter of three terminal type which is especially adapted to vibrate primarily in an expansion mode, said filter comprising: a piezoelectric substrate having first and second opposed main surfaces;
- an input electrode and an output electrode respectively provided on said first main surface of said piezoelectric substrate; and
- a common electrode provided on said second main surface of said piezoelectric substrate, said common electrode confronting less than the entire said output electrode through said piezoelectric substrate whereby spurious edge mode vibrations which would otherwise be excited are suppressed.

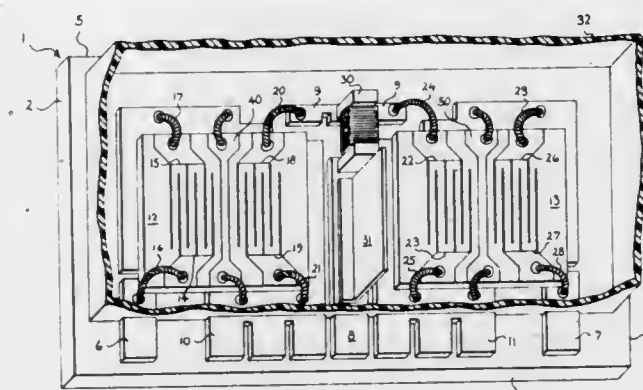
4,365,219

IN-LINE SURFACE ACOUSTIC WAVE FILTER ASSEMBLY MODULE AND METHOD OF MAKING SAME

Bernard D. Nathan, Liverpool, N.Y., assignor to General Electric Company, Lynchburg, Va.

Filed 1981, Ser. No. 238,758
Int. Cl.³ H03H 9/64, 9/05, 9/25
U.S. Cl. 333-193

10 Claims



4. A surface acoustic wave (SAW) filter assembly module including improved isolation means comprising:
 - a. an insulative substrate having oppositely disposed input and output ends and oppositely disposed terminal and non-terminal sides;
 - b. a plurality of discrete mutually isolated electrically conductive areas on a surface of said substrate including:
 1. a first area located adjacent the input end and said terminal side of said surface;
 2. a second area located adjacent the output end and said terminal side of said surface;
 3. a third area located between said first and second areas

and including a portion thereof adjacent said terminal side of said surface;

4. a fourth area located between said third area and said non-terminal side of said surface and including oppositely disposed input and output portions and an intermediate portion;
5. a fifth area located between said first and third areas and including a portion adjacent said terminal side of said surface;
6. a sixth area located between said second and third areas and including a portion adjacent said terminal side of said surface;
- c. first and second surface acoustic wave filter devices, each having input and output signal electrodes and input and output ground electrodes; said first device being positioned over and secured to each of said first and fifth areas; said second device being positioned over and secured to each of said second and sixth areas;
- d. means electrically connecting:
 1. said first area to said input signal electrode;
 2. said fifth area to said input ground electrode;
 3. said input portion of said fourth area to said output signal electrode;
 4. said fifth area to said output ground electrode of said first device;
- e. means electrically connecting:
 1. said sixth area to said input ground electrode;
 2. said output portion of said fourth area to said input signal electrode;
 3. said sixth area to said output ground electrode;
 4. said second area to said output signal electrode of said second device; and
- f. an electrically conductive shield electrically connected to said third area and positioned between said devices for blocking radiative signals therebetween.

4,365,220

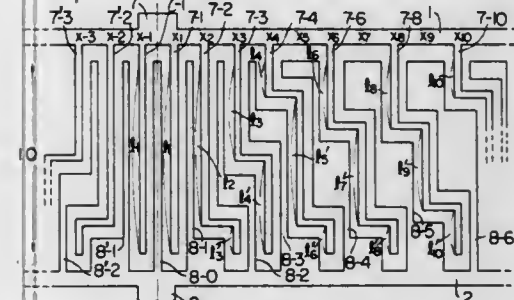
SURFACE WAVE CIRCUIT DEVICE

Mitsutaka Hikita, Kokubunji, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed March 20, 1981, Ser. No. 245,748
Claims priority, application Japan, March 24, 1980, 55-36072
Int. Cl.³ H03H 9/64, 9/25

U.S. Cl. 333-195

9 Claims



1. A surface wave circuit device having a plurality of stripes arranged along a surface wave propagating substrate in a direction normal to a direction of propagation of a surface wave, said stripes being arranged at a fixed spacing from one another along the direction of propagation of a surface wave, wherein each of said stripes has an effective length in the direction normal to said direction of propagation which effective length contributes to the propagation of said surface wave, said effective length for each said stripe being determined as a function of the distance of each said stripe along said direction of propagation from an input point of said surface wave to said plurality of stripes, and further wherein said stripes are arranged such that a total number of stripes in said direction of propagation is substantially constant for any cross-section of said surface wave circuit device taken in said normal direction.

4,365,221

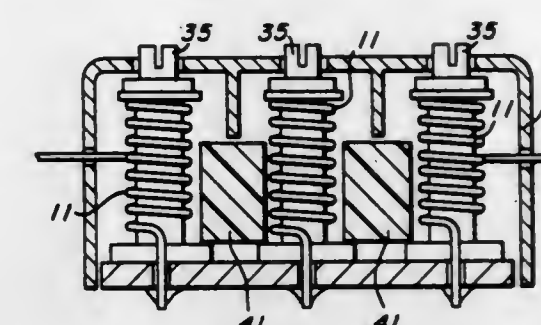
HELICAL RESONATOR FILTER WITH DIELECTRIC APERTURES

Peter Viztmuller, Thornhill, Canada, assignor to Motorola Canada Limited, Willowdale, Canada

Filed March 30, 1981, Ser. No. 248,911
Int. Cl.³ H01P 1/20, 7/00

U.S. Cl. 333-202

3 Claims



1. A helical resonator filter comprising: a plurality of conductive helical coils;
- a conductive shell having a plurality of cavities, each cavity including one of said helical coils and separated by conductive walls, the wall between adjacent cavities having an aperture for providing electromagnetic coupling between adjacent helical coils; and
- a dielectric member inserted in each of the apertures to increase the electromagnetic coupling between adjacent helical coils.

4,365,222

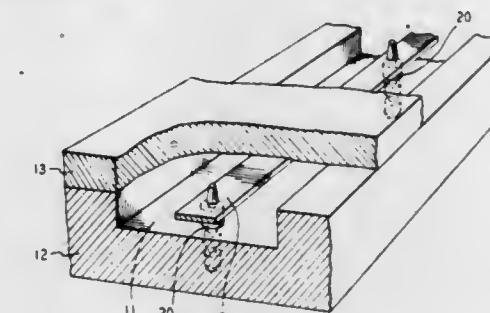
STRIPLINE SUPPORT ASSEMBLY

Norman R. Lampert, Lantana, Fla., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed April 6, 1981, Ser. No. 251,243
Int. Cl.³ H01P 3/08

U.S. Cl. 333-238

6 Claims



1. A stripline transmission assembly for conducting microwave energy propagating at a predetermined frequency, said assembly comprising:
 - a channel (11) having a flat bottom (16) with at least one blind hole (30) therein and parallel planar sidewalls (17,18) substantially perpendicular to said flat bottom;
 - a metallic conductor (10) of predetermined thickness and width disposed in a predetermined position in said channel and having at least one second hole which extends completely through said conductor thickness, the diameter at said second hole being substantially less than the width of said conductor;
 - at least one support post (20) which maintains said conductor at said predetermined position, each post extending from one of said holes completely through one of said second holes and ending at a location substantially aligned with the extending ends of said sidewalls, said post being fabricated from a dielectric material having a radio frequency loss characteristic close to that of air at said predetermined frequency; and
 - a planar cover (13) extending between the parallel sidewalls of said channel.

4,365,223

MAGNETIC CIRCUIT

Louis J. M. Fechant, Le Vesinet; Lucien Siffroi, Versailles, and Jean M. Anguille, St. Germain en Laye, all of France, assignors to La Telemecanique Electrique, France

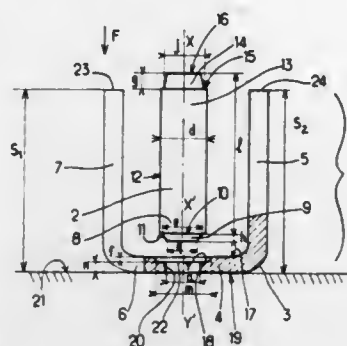
Filed April 7, 1981, Ser. No. 252,490

Claims priority, application France, April 10, 1980, 80 08036

Int. Cl.³ H01F 3/00

U.S. Cl. 335—281

4 Claims



1. A process for manufacturing an electro-magnet magnetic circuit comprising a U or L-shaped massive magnet yoke having a cross-piece and at least one arm substantially at right angles to the cross-piece, and a cylindrical elongated core mounted on said cross-piece and extending in a direction substantially parallel to said arm, said process comprising the steps of:

- shaping the said core with, at a first end thereof, a frusto-conical end portion having a larger base diameter which is smaller than the diameter of the core, whereby a plane transverse annular stop surface is formed between the cylindrical outer surface of the core and the base of the frusto-conical end portion, and with, at the opposite end of the said core, a further plane transverse surface,
- shaping the said cross-piece with a cavity having lower and upper substantially cylindrical coaxial portions, the lower portion having a depth larger than the height of the frusto-conical end portion and a diameter smaller than the said larger base diameter and larger than the smaller diameter of the said frusto-conical end portion and the upper portion opening at the inner surface of the cross-piece and having a diameter which is larger than the diameter of the core, a bearing annular plane surface portion, parallel to the said outer surface and located at a predetermined distance from the said outer surface, connecting the cylindrical surfaces of the said upper and lower portions of the cavity;
- positioning the yoke with the outer surface of the cross-piece lying on a plane support member and positioning the core in a direction substantially at right angles with the cross-piece and with the smaller base of said frusto-conical end portion substantially located in the plane of the said bearing annular surface portion and coaxially located with respect to the said cavity;
- translating the core in a direction substantially at right angles with the said outer surface of the cross-piece until the said stop surface of the core abuts against the said bearing surface portion of the cavity and simultaneously establishing an electric welding voltage across the core and the yoke for producing a local fusion and, consequently, a plastic deformation of the core at the said frusto-conical end portion and of the cross-piece at the said cavity;
- levelling of the end surface of the said arm remote from the cross-piece to form a plane polar surface substantially parallel to the said further plane polar surface of the core located at a predetermined distance from said further plane polar surface.

4,365,224

CORE LAMINATION FOR SHELL-TYPE CORES, PARTICULARLY FOR TRANSFORMERS

Bernhard Philberth, and Karl Philberth, both of Puchheim, Fed. Rep. of Germany, assignors to Wilfried Ernst Sawatsky, North Balwyn, Australia

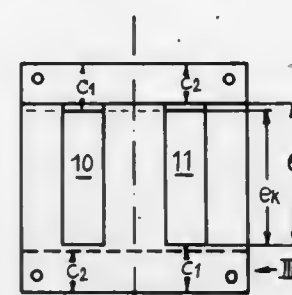
Filed 1979, Ser. No. 953,100

Claims priority, application Switzerland, October 25, 1977, 12939/77; Fed. Rep. of Germany, December 10, 1977, 2755218

Int. Cl.³ H01F 27/24

U.S. Cl. 336—212

9 Claims



1. Core laminations for shell-type cores, particularly for transformers, comprising a plurality of said laminations alternately reversed, each of said core laminations being of two-piece EI construction comprising an E-part and an I-part, two of said I-parts being obtained from the window stampings of two E-parts stamped simultaneously with the legs pointing toward one another and having a center leg of substantially uniform width, and two yokes connecting the ends of said legs, said yokes being provided with inside edges facing the windows and joints being provided between one side of the center leg and between one side of the outer legs and the adjacent yoke for interleaving with a winding, and the other yoke having no joints with the center leg and the two outer legs, wherein the width (c_1) of the jointless connecting yoke is greater than the width (c_2) of the parted yoke ($c_1 > c_2$), and greater than half the center leg width ($c_1 > f/2$) and the width (b) of the two outer legs is greater than half the center leg width ($b > f/2$) and wherein in said plurality of said laminations alternately reversed the inside edges of said parted yoke are spaced away from said winding in contrast to the inside edges of said jointlessly connecting yoke with the inside edges of said parted yoke spaced from the inside edges of said jointlessly connecting yoke and the jointlessly connecting yoke inner edges nearer the winding than the inside edges of said parted yoke and said joints are located inside the yokes of said shell-type core.

4,365,225

TIME DELAY RELAY WITH SPRING CLIPS

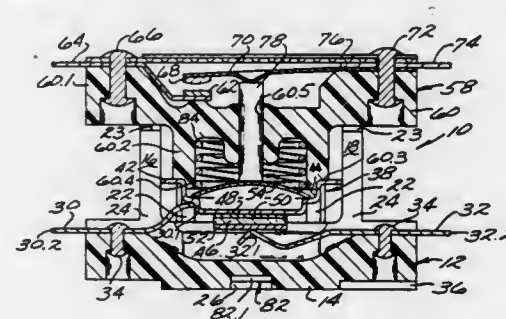
Donald A. Olsen, Millis, Mass., and Henry J. Boulanger, Cumberland, R.I., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed May 5, 1980, Ser. No. 146,979

Int. Cl.³ H01H 37/52

U.S. Cl. 337—88

5 Claims



1. A time delay relay comprising a housing having an open-ended chamber and having a pair of terminals extending from

the chamber, a resistance heater having a metal cup and having a resistor of a material of positive temperature coefficient of resistivity secured with one side in electrically and thermally conductive relation to the cup, the heater being disposed in the chamber with the cup electrically engaging one terminal and with the opposite side of the resistor electrically engaging the other terminal for electrically energizing the heater, and switch means secured to the housing having contact means moveable between open and closed circuit positions, having thermally responsive means moveable with snap action when heated to a selected temperature, and motion transfer means moveable in response to the thermally responsive means for moving the contact means between said circuit positions, characterized in that, the switch means has a portion fitted into the open end of the housing engaging the heater cup for holding the heater in selected heat-transfer relation to the thermally-responsive switch means, the switch portion having boss means on opposite exterior surfaces thereof, and a pair of resilient metal clips have respective first hooked ends extending into the open chamber end engaging the boss means and have opposite ends engaging the housing to hold the switch means and housing in said assembled relation for moving the contact means to one of said circuit positions with a selected delay after energizing the heater.

4,365,226

PLUG-IN TYPE FUSE

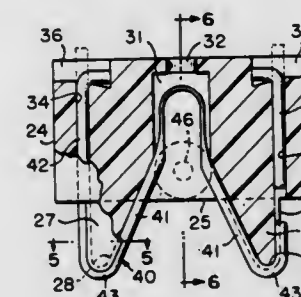
Leon G. Barry, and Willis E. Rieman, both of Shelby, N.C., assignors to Fasco Industries, Inc., Boca Raton, Fla.

Filed 1981, Ser. No. 237,253

Int. Cl.³ H01H 85/02

U.S. Cl. 337—198

8 Claims



1. A plug-in type fuse, comprising an electrically non-conductive housing having therein a recess, a continuous, substantially cylindrical one-piece wire fuse element secured to said housing, said wire element being bent intermediate its ends to form a central section thereof which extends into said recess and a pair of spaced leg sections which extend from said central section to the exterior of said housing for insertion into a matching female fuse receptacle, a portion of said central section of said element in said recess being non-cylindrical and reduced in cross sectional area as compared to the remaining portion of said element, and rigid support means projecting from said housing and having therein shallow grooves in which said spaced leg sections are seated to be supported thereby for insertion into said receptacle, said leg sections having at least portions thereof projecting from said grooves to make electrical contact with contacts in said female receptacle, when said leg sections are inserted thereinto.

4,365,227

METHOD AND APPARATUS FOR FUSING ELECTRICAL POWER EQUIPMENT ENCLOSED IN A TANK AND SURROUNDED BY INSULATING FLUID

Frank C. Trayer, 25690 LaLanne Ct., Los Altos Hills, Calif. 94002

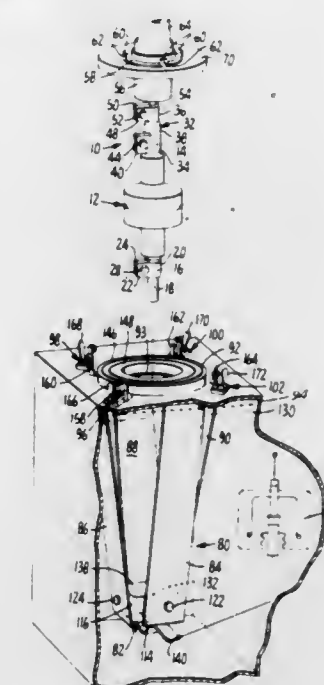
Continuation-in-part of Ser. No. 690,424, May 27, 1976, Pat. No. 4,170,000. This application September 27, 1979, Ser. No. 79,485

The portion of the term of this patent subsequent to October 2, 1996, has been disclaimed.

Int. Cl.³ H01H 85/22, 85/12

U.S. Cl. 337—202

11 Claims



1. The method of mounting fuse means having a first ferrule and a second ferrule in a tank containing electrical power equipment surrounded by insulating fluid, comprising the steps of: affixing to said first ferrule a conductor which passes through and is sealed to a cover for covering an opening in a wall of said tank; passing said fuse means through said opening and into said insulating fluid; and connecting said second ferrule to a connector suspended in and contacted by said insulating fluid while positioning said cover over said opening.

4,365,228

THERMOSTAT CONSTRUCTION HAVING A ONE PIECE PLUNGER WITH A WING-LIKE SECTION AND METHOD OF MAKING THE SAME

Paul M. Rowley, Bexley, Ohio, assignor to Robertshaw Controls Company, Richmond, Va.

Filed April 3, 1981, Ser. No. 250,576

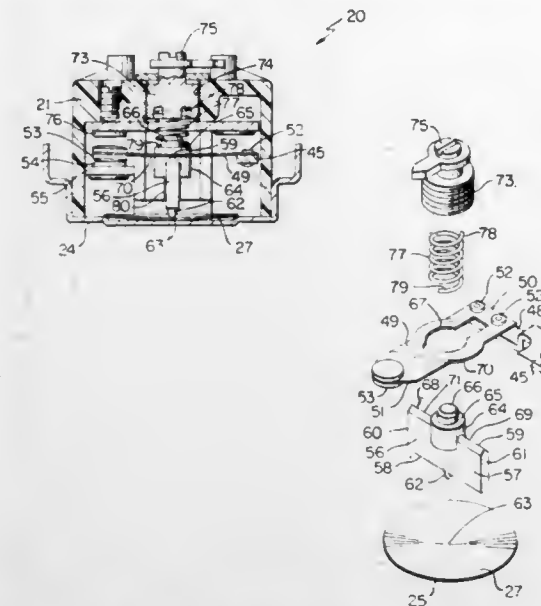
Int. Cl.³ H01H 37/18

U.S. Cl. 337—347

16 Claims

1. In a thermostat construction having a frame means carrying a fixed contact and a movable contact carried by a switch blade, a bimetallic snap disc carried by said frame means for controlling movement of said switch blade relative to said fixed contact in response to temperature setting means carried by said frame means for selecting the temperature of operation of said disc for moving said movable contact out of contact with said fixed contact, said blade having opening means passing therethrough, said temperature setting means comprising plunger means passing loosely through said opening means and engaging said snap disc, said temperature setting means having spring means operatively associated with said plunger means to urge said plunger means into engagement with said snap disc, said temperature setting means having adjusting means for adjusting the force of said spring means that urges said plunger

means into said engagement, the improvement wherein said plunger means comprises a one-piece member, said plunger means having a wing-like section provided with opposed ends, one end of said wing-like section being engageable with said



blade on opposite sides of said opening means thereof, said one end of said wing-like section having a post means extending substantially centrally therefrom and projecting through said opening means of said blade, said spring means having one end thereof bearing against said post means.

4,365,229

HIGH TEMPERATURE SENSOR

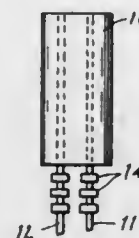
Richard D. Tokarz, West Richland, Wash., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed 1981, Ser. No. 229,421

Int. Cl.³ H01C 7/04

U.S. Cl. 338—25

9 Claims



1. A high temperature sensor for monitoring changes in temperature within a range of 1000–2000° K., comprising: first and second electrical conductors each having a melting point above the temperature range to be monitored; said conductors being within a length of metal oxide sheathed cable; and a mass of electrical insulating material separating the conductors, said mass of insulating material having a measurable resistivity change in relation to its temperature within the temperature range to be monitored.

4,365,230

LEAD SCREW TYPE VARIABLE RESISTOR

Steven Feldman, Seminole, Fla., assignor to AMP Incorporated, Harrisburg, Pa.

Filed August 24, 1981, Ser. No. 295,886

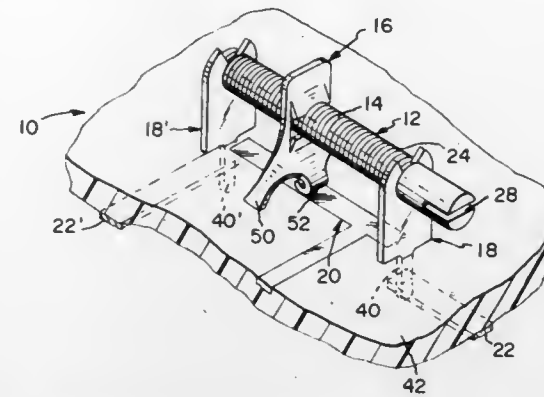
Int. Cl.³ H01C 10/40

U.S. Cl. 338—180

6 Claims

1. A variable resistor comprising: a lead screw with an integral resistance element; a pair of mounts which rotatably carry said lead screw, said mounts being fixed to a substrate, at least one said mount

providing electrical connection between said resistance element and a first circuit element; a slider operatively engaging said lead screw and movable in response to rotation of said screw, said slider being in contact with said resistance element;



a second circuit element in said substrate which said slider moves along in response to rotation of said lead screw, said slider remaining in electrical contact with said second circuit element, whereby, rotation of said lead screw will cause said slider to move along said resistance element, thereby varying the resistance between the first circuit element and the second circuit element.

4,365,231

VARIABLE RESISTOR DEVICE WITH LOCK MECHANISM

Matsuo Nishioka, Hirakata, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

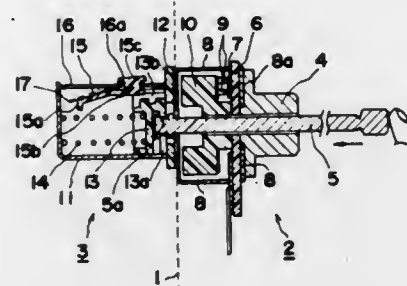
Filed May 13, 1981, Ser. No. 263,259

Claims priority, application Japan, May 16, 1980, 55-68020[U]

Int. Cl.³ H01C 10/32

U.S. Cl. 338—334

8 Claims



1. A variable resistor device with a lock mechanism comprising a resistor housing portion, an operating rod mounted rotatably and axially slidably in the housing portion, and a lock mechanism housing portion attached to one end of the resistor housing portion and provided with the lock mechanism for locking the operating rod, the lock mechanism housing portion comprising a box-shaped case, wherein:

the lock mechanism comprises a lock member axially movable in the case in response to the axial movement of the operating rod and a ratchet member rotatably provided on the case and having a pawl to be brought into contact with the lock member, the top surface of the lock member being provided close to one side thereof with an engagement projection having a V-shaped cutout remote from said one side for engagement with the pawl, the top surface of the lock member further being provided with a pawl passage around the engagement projection with its entrance end and exit end facing said one side, the exit end being positioned above the entrance end, whereby the pawl is guided through the pawl passage from the entrance end to the V-shaped cutout and from the cutout to

the exit end to lock and release the operating rod in response to the axial movement thereof.

4,365,232

EMERGENCY LIGHTING UNIT

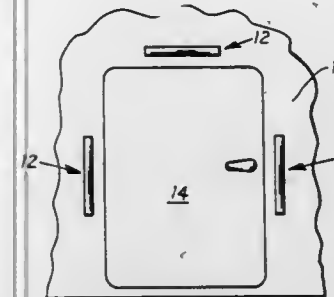
George R. Miller, Indianapolis, Ind., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed March 23, 1981, Ser. No. 246,781

Int. Cl.³ G08B 5/36, 21/00

U.S. Cl. 340—27 R

2 Claims



1. In an aircraft, at least one emergency lighting unit mounted to a bulkhead by standoff brackets to serve as an evacuation light and a handle, said lighting unit comprising, a casing formed by a flat metallic heat sink and a translucent cover, an electroluminescent lamp fixed to said translucent cover, alternating current means within said casing for illuminating said electroluminescent lamp, and circuit means for connecting said alternating current means to said electroluminescent lamp.

4,365,233

DIRECTION INDICATOR SYSTEMS FOR VEHICLES

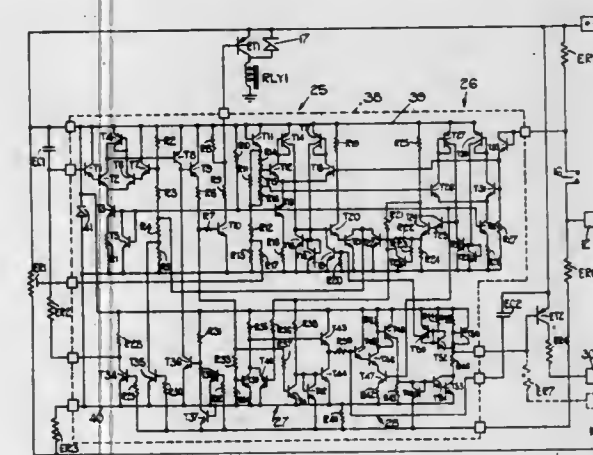
Raymond P. Halmshaw, Redditch, England, assignor to Lucas Industries Limited, Birmingham, England

Filed April 20, 1981, Ser. No. 255,938

Int. Cl.³ B60Q 1/34

U.S. Cl. 340—73

11 Claims



1. A road vehicle direction indicator system for a vehicle unit, said system comprising two sets of direction indicator lamps for respective sides of the vehicle unit, a selector switch operable to select the operation of one or the other of said sets of lamps, an electromagnetic relay having a pair of contacts connected in series with said selector switch so that when the contacts are closed electric current will be supplied to the selected set of lamps, an oscillator for driving said relay, said oscillator including a capacitor, a charge/discharge circuit for the capacitor, first switch means operable to modify the operation of the charge/discharge circuit, a control input for said first switch means, a reference voltage source, second switch means operable to change the output of the reference voltage

source, a control input for said second switch means, and a comparator for comparing the capacitor voltage and the reference voltage, said comparator providing a signal to control the energization of said relay when the capacitor and reference voltages at the inputs of the comparator become substantially equal, said control inputs being electrically connected to said relay contacts so that the operation of the charge/discharge circuit is modified and the output of the reference voltage source changed, only when the relay contacts change their state.

4,365,234

SEGMENTATION SYSTEM AND METHOD FOR OPTICAL CHARACTER SCANNING

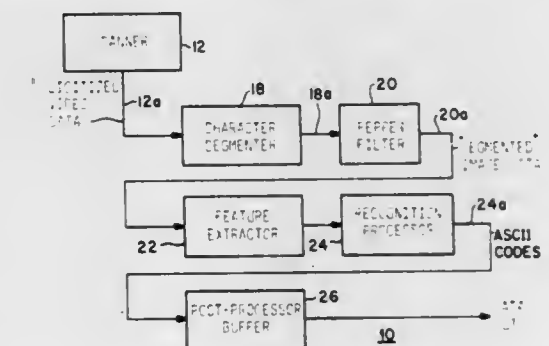
Ernest G. Henrichon, Jr., Bedford, N.H., assignor to Hendrix Electronics, Inc., Manchester, N.H.

Filed October 20, 1980, Ser. No. 198,303

Int. Cl.³ G06K 9/34

U.S. Cl. 340—146.3 SY

18 Claims



1. System for detecting an intercharacter boundary for a digital representation of a string of two or more characters extending in a first (X) direction against a background, said characters having a first (B) characteristic and said background having a second (W) characteristic, said digital representation including a bit for each pixel of an m row by n column array of pixels, each row of said array having m pixels in said X direction, and each column of said array having n pixels in a second (Y) direction, where said bits have a first binary value for pixels representative of said first (B) characteristic and have a second binary value for pixels representative of said second (W) characteristic, comprising:

A. means for generating a serpentine value (SV) signal for each of said n columns of pixels in said array, wherein the SV signal for the ith column, SV(i) is representative of the number of adjacent ith and i+1th column pixel pairs having one or more predetermined patterns in composite regions which include said ith and i+1th columns and which are contiguous to simple regions in the i-dth and i+e+1th columns, where d and e are integers greater than or equal to 1,

wherein each composite region is a contiguous group of pixels in two or more adjacent columns bounded above and below by pixels having said W characteristic and wherein at least one pixel having said B characteristic in each row of said composite region has a boundary point in common with a pixel having said B characteristic in each adjacent row of said composite region, and

wherein each simple region is a contiguous group of pixels in a column having said B characteristic and bounded above and below by pixels having said W characteristic,

B. means for processing the succession of said SV signals to generate a boundary signal representative of a boundary column, column N, where N is an index representative of the position of said boundary column in said array, said column N being on a predetermined side of the nominal boundary between two of said characters.

4,365,235

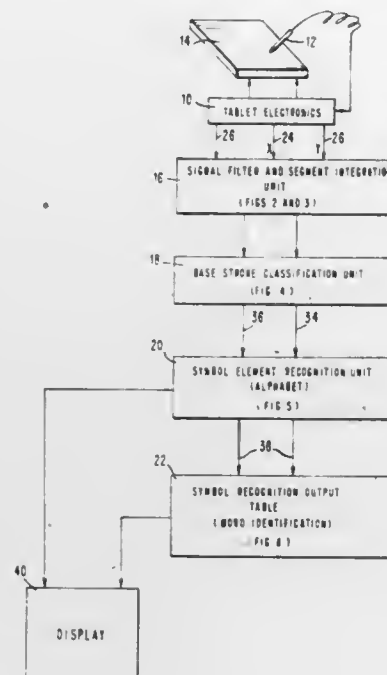
CHINESE/KANJI ON-LINE RECOGNITION SYSTEM
 Evon C. Greanias, Chappaqua, and Ernesto F. Yhap, New York,
 both of N.Y., assignors to International Business Machines
 Corporation, Armonk, N.Y.

Filed December 31, 1980, Ser. No. 221,863

Int. Cl.³ G06K 9/62

U.S. Cl. 340—146.3 AC

10 Claims



1. An on-line Chinese symbol recognition system with an extendable vocabulary comprising:
 an on-line tablet device that collects pen position signals as the Chinese symbol is written,
 signal filter and segment integration means for receiving pen coordinate signals and pen up/down signals from said tablet device to define segments of strokes which correspond to continuous motion of a pen on a tablet in a fixed direction,
 base stroke classifying means, connected to the output of said signal filter and segment integration means, to classify the motion of the pen between pen down and pen up occurrences into one of a predetermined number of base stroke categories, including means for determining if the stroke has crossed a prior stroke,
 symbol element recognition means, connected to the output of said base stroke classification unit, for analyzing the base stroke and crossing information to detect the occurrence of members of a predefined set of symbol elements, each of said symbol elements being graphically descriptive of portions of the shapes of Chinese symbols,
 a symbol recognition output table, connected to the output of said symbol element recognition means, which contains a list of all the Chinese symbols in the system's vocabulary, each symbol in the list having associated with it all of the symbol element sequences that correspond to it, and
 recognition table readout means which accepts the sequence of symbol elements for a given input symbol, searches the recognition output table to determine the identity of the symbol that is associated with that sequence of symbol elements, and sends the symbol identity code to the desired output device.

4,365,236

DIGITAL DISPLAY CIRCUIT DISPLAYABLE IN ANALOG FASHION

Osamu Maida, Tokyo, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

Division of Ser. No. 907,210, May 18, 1978, abandoned. This application August 8, 1980, Ser. No. 176,579

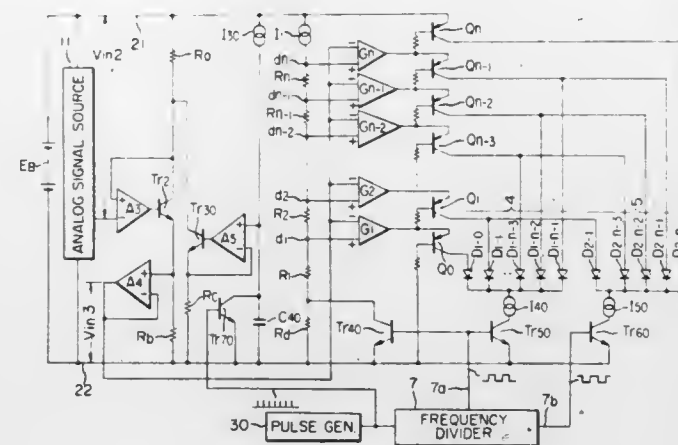
Claims priority, application Japan, May 20, 1977, 52-57554; July 7, 1977, 52-81273

The portion of the term of this patent subsequent to April 14, 1998, has been disclaimed.

Int. Cl.³ H03K 13/175

U.S. Cl. 340—347 AD

7 Claims



1. A digital display circuit for indicating an analog signal voltage comprising:
 means for generating a plurality of reference voltages quantized at a predetermined voltage width;
 first modulating means for periodically modulating said analog signal so that the modulated analog signal in one period may have a section where the amplitude continuously varies as time advanced;
 second modulating means for periodically modulating every each of the reference voltages in synchronization with said first modulating means so that each of the modulated reference voltages may alternatively have two amplitudes of a higher level and a lower level, the voltage difference between said higher and lower levels being substantially equal to the difference between the highest and lowest reference voltages;
 a plurality of comparators corresponding to each of said plurality of reference voltages for comparing said modulated analog signal voltage with each of said modulated reference voltages and for producing outputs in accordance with the respective compared results;
 selecting means connected to said comparators and having output terminals equal in number to said comparators for generating a drive signal at only one of said output terminals, which is fixed in the relation between the modulated analog signal voltage and the modulated reference voltages;
 a pair of display means each consisting of display elements which are connected to respective output terminals of said selecting means and successively arranged in such a sequence that the order in arrangement of the display element sequence in respective one of said display means pair corresponds to that in amplitude of the reference voltages, and also the element corresponding to the highest reference voltage in one of said display means pair being positioned adjacent to the element corresponding to the lowest reference voltage in the order of said display means pair; and
 driving means for alternately rendering said pair of display means operative so that said one of the display means pair may be operative while said modulated reference voltages are in the lower level and said the other of the display means pair may be operative while said modulated reference voltages are in the higher level,

one of said display elements which is associated with said drive-signal generated output terminal of the selecting means and also with said operative display means being energized.

4,365,237

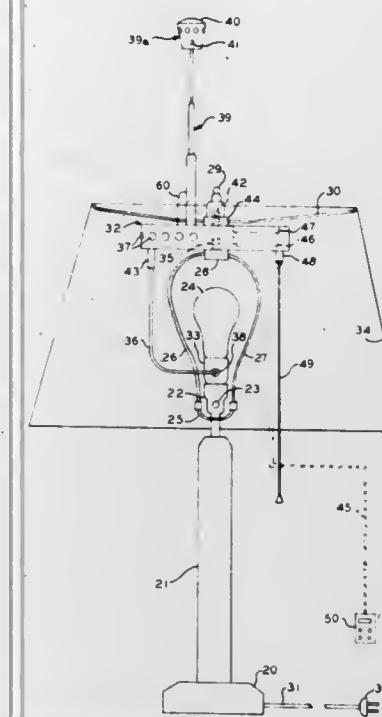
SECURITY AUDIO VISUAL EMERGENCY SYSTEM
 Webster B. Knight, 3020 Eton Cove, Memphis, Tenn. 38134

Filed July 22, 1980, Ser. No. 171,145

Int. Cl.³ G08B 17/06

U.S. Cl. 340—521

16 Claims



1. A lamp for use in a building comprising a base having one end for placement on a building floor or on a supporting surface vertically spaced from the floor;
 a first lamp socket being supported by said base;
 coupling means for coupling said socket to a building power supply;
 a module assembly having a second lamp socket for receiving a lamp bulb and a threaded male end; said male end being threaded into said first lamp socket;
 an extensible elongated probe having a first end and a second end being mounted at said first end on said module assembly for vertical extension of said second end;
 a sensor for providing a sensing signal upon sensing of at least one of smoke, heat, intrusion or radio wave emergency signal, being attached to said probe second end;
 first means for electrically coupling said sensor to said module assembly to provide an electrical path for said sensing signal;
 second means provided in said module assembly and responsive to said sensing signal for intermittently flashing a bulb mounted in said second socket upon reception of said sensor sensing signal.

4,365,238

VISUAL SIGNALLING APPARATUS

Adam Kollin, 28 E. Iroquois, Pontiac, Mich. 48053

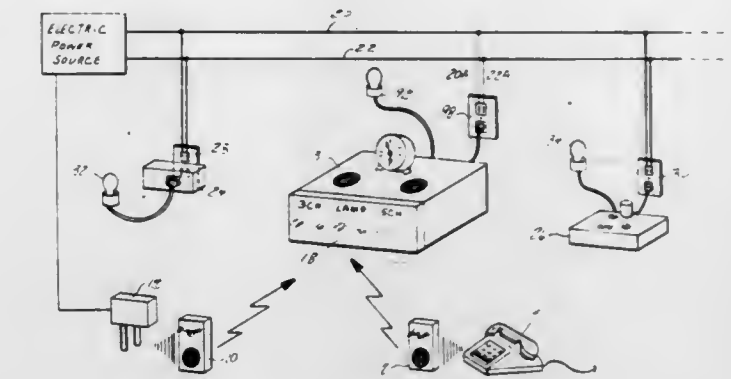
Continuation-in-part of Ser. No. 46,797, Jun. 8, 1979, abandoned. This application November 3, 1980, Ser. No. 203,227 Int. Cl.³ H04B 3/54; G01K 11/00

U.S. Cl. 340—521

8 Claims

1. A visual signalling apparatus for hearing impaired persons adapted for use in a building having illuminating means, a source of electrical power and electrical power conductors for supplying electrical power from said source to said illuminating means, said visual signalling apparatus comprising:
 a plurality of means for sensing audible sounds resulting from the occurrence of a one of a plurality of predetermined events, each of said sensing means being associated

with a different one of said predetermined sound producing events, each of said sensing means producing a distinct first output signal upon sensing said audible sounds resulting from the occurrence of said associated predetermined event;
 a central logic unit;
 means for transmitting said first output signal from said sensing means to said central logic unit; and
 means adapted to be connected to said illuminating means, for controlling the state of said illuminating means;
 said central logic unit including means for receiving said first output signal from said transmitting means and means for identifying which of said plurality of sensing means transmitted said first output signal;



said central logic unit including means for transmitting a distinct second output signal to said controlling means for each of said first output signals received from said sensing means, said distinct second output signal specifying one of a plurality of predetermined sequences of changes of state, each preassigned to one of said plurality of predetermined events, of said illuminating means so as to indicate the occurrence of one of said predetermined events;
 said controlling means changing the state of said illuminating means according to said predetermined specific sequence in response to said second output signal from said central logic unit.

4,365,239

INTRUSION WARNING SYSTEM

Ronald W. Mongeon, San Jose, Calif., assignor to Stellar Systems, Inc., San Jose, Calif.

Filed November 20, 1980, Ser. No. 208,779

Int. Cl.³ G08B 13/12

U.S. Cl. 340—564

14 Claims



14. Apparatus for detecting the intrusion of a fence comprising: a length of shielded electrical cable, including at least one center conductor surrounded by a dielectric material, mounted on a fence to be protected; first circuit means, connected to said cable, for sensing the change in the electric field signal generated by stressing of the cable dielectric by the flexing of same due to movement of the fence and for producing an electrical signal corresponding to same; an AM detector connected to the output of said first circuit means for detecting the peaks of the produced electrical signal; second circuit means for producing an output signal whenever the detected signal

has a duration greater than a predetermined value; third circuit means responsive to output signals from said second circuit means for producing an alarm when said second circuit means produces output signals for a predetermined portion of a preset time period whose duration is greater than said predetermined value, whereby protection against intrusion by climbing over the fence is provided; forth circuit means for producing an output signal whenever the detected signal has a duration less than said predetermined value; count selector circuit means for counting the output signals from said forth circuit means and for producing an output signal whenever said count selection circuit means reaches a predetermined count; and an alarm circuit, responsive to an output signal from said count selector circuit means, for providing an alarm, whereby protection against intrusion by cutting through the fence is provided.

4,365,240

ATTITUDE CHANGE ALARM

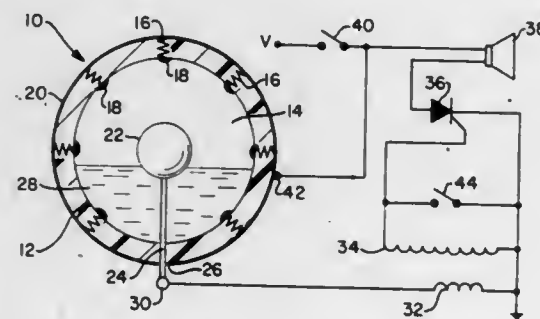
Joseph J. Scarpino, III, 748 Lakewood Blvd., Akron, Ohio 44314, and David A. Scarpino, 682 W. Paige Ave., Barberton, Ohio 44213

Continuation of Ser. No. 26,531, Apr. 3, 1979, Pat. No. 4,284,984. This application March 25, 1981, Ser. No. 247,342. The portion of the term of this patent subsequent to August 18, 1998, has been disclaimed.

Int. Cl.³ B60R 25/10; G08B 13/00

U.S. Cl. 340—571

16 Claims



1. An apparatus for sensing changes in attitude or motion, comprising:
 - a casing having a wall defining a hollow interior;
 - a plurality of resistive elements in common communication with said interior through said wall;
 - a conductive fluid maintained within said hollow interior and in selective current conducting engagement with certain of said resistive elements; and
 - circuit means interconnected between said fluid and said resistive elements for producing an output signal upon a change in said current-conducting engagement of said fluid with said resistive elements.

4,365,241

DEVICE FOR INDICATING THE CHARGING STATE OF A BATTERY

Mitsuharu Morishita, Himeji, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 74,025, Sep. 10, 1979, abandoned. This application July 31, 1981, Ser. No. 288,869

Claims priority, application Japan, September 12, 1978, 53-125741

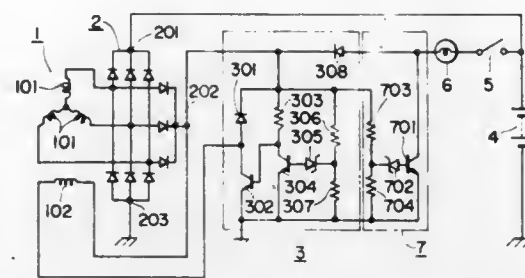
Int. Cl.³ G08B 21/00; H02J 7/14

U.S. Cl. 340—636

14 Claims

6. A device for indicating the charging state of a battery comprising:
 - a single indicating means in series with a diode and said battery;
 - means for activating said single indicating means in response to the battery voltage being below a first predetermined value; and
 - means for sensing the battery voltage and for activating the single indicating means in response to the voltage of the

battery being above a second predetermined value greater than said first predetermined value to indicate that the battery voltage is above the second predetermined value.



said means for sensing and activating being connected to said battery exclusively at the junction of said diode and said single indicating means under normal operating conditions.

4,365,242

DRIVING TECHNIQUE FOR MATRIX LIQUID CRYSTAL DISPLAY PANEL FOR DISPLAYING CHARACTERS AND A CURSOR

Shuhei Yasuda, Yutaka Ishii, and Tomio Wada, all of Nara, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

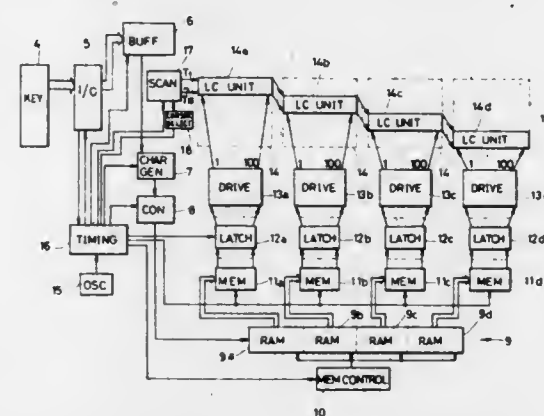
Filed 1981, Ser. No. 237,702

Claims priority, application Japan, 1980, 55-23003

Int. Cl.³ G09G 3/36

U.S. Cl. 340—709

3 Claims



1. A method for driving a liquid crystal display panel comprising signal lines, scanning lines and pixels at the crossings of the both lines and possessing the dependency of the brightness of its respective pixels on the effective value of applied voltage thereto, said scanning lines being scanned in a line sequential scanning fashion for displaying at least two rows of characters, numbers or symbols as well as a cursor line, said method comprising the following steps of:

scanning said scanning lines in the line sequential scanning fashion two rows by two rows of characters, numbers or symbols; and driving the cursor line on one of said two rows and skipping the cursor on the other row of said two rows during said line sequential scanning.

4,365,243

INTERFACE DEVICE FOR THE ENTRY OF DATA INTO AN INSTRUMENT OF SMALL VOLUME RESPONSIVE TO BODY MOVEMENT

Jean-Felix Perotto, Hauterive, and Christian Pignat, Neuchatel, both of Switzerland, assignors to Societe Suisse pour l'Industrie Horlogere Management Services S.A., Bienne, Switzerland

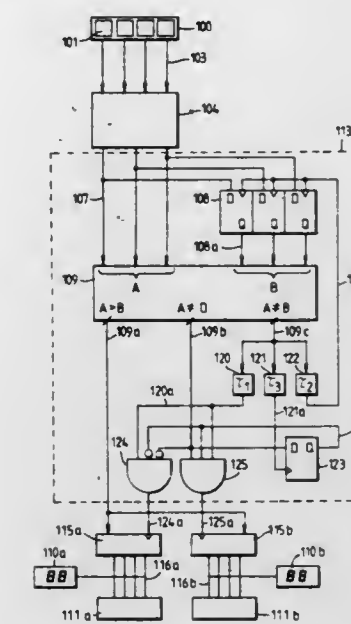
Filed December 16, 1980, Ser. No. 217,079

Claims priority, application Switzerland, December 20, 1979, 11299/79

Int. Cl.³ G09G 3/00

U.S. Cl. 340—712

13 Claims



1. An interface device for the entry of data into an instrument of small volume such as a timepiece comprising a static touch responsive sensor arranged to be manually actuable with each position of a finger corresponding to at least one symbol which may take the form of a number, letter or special sign, said sensor being formed by the juxtaposition of N electrodes adapted to provide at least N-1 coded information items representative of the position of the finger on the sensor and wherein are provided a sense/speed detecting means, coupled to the sensor for receiving signals therefrom and interpreting the signals to detect the sense and the speed of movement of the finger over the sensor, generating means for generating signals representative data to be selected or modified coupled to a display means for displaying symbols representative of the data on a composite display device comprising at least a first and a second displays, said generating means being coupled to said sense/speed detecting means for receiving signals therefrom for modifying the data controlling symbols appearing on said first display if the finger is moved over said sensor at a speed less than a predetermined speed and on said second display if the finger is moved over said sensor at a speed greater than said predetermined speed.

4,365,244

ARRANGEMENT FOR DISPLAYING IMAGES USING LIGHT EMITTING DIODES

Klaus Gillesen, Untergruppenbach; Heinz Rinderle, Heilbronn; Werner Schairer, Weinsberg; Martin Siegle, Weinstadt, all of Fed. Rep. of Germany, and Christoph Malinowski, Bridge-water, N.J., assignors to Licentia Patent-Verwaltungs-GmbH, Frankfurt am Main, Fed. Rep. of Germany

Filed March 25, 1981, Ser. No. 247,596

Claims priority, application Fed. Rep. of Germany, April 3, 1980, 3012995

Int. Cl.³ G09G 3/32

U.S. Cl. 340—782

3 Claims

1. An arrangement for displaying images using light-emitting diodes comprising two types of modules, of which a first type of module has a matrix-type wiring with the same number of

horizontal and column lines, each horizontal line being connected to one and only one column line and, with the exception of those crossing points at which the crossing horizontal and column lines are connected together, one light-emitting diode being arranged at each crossing point between a column line and a horizontal line, one connection of each said light-emitting diode being connected respectively with the horizontal line present at the crossing point and the other connection being connected in each case to the column line present at the crossing point; and a second type of module has matrix wiring with the same number of horizontal lines as column lines, which number is the same as in the first type of module; one light-emitting diode in each case being arranged at each crossing point between horizontal and column lines of the second



type of module, one connection being connected in each case to the horizontal line present at the crossing point and the other connection being connected respectively to the column line present at the crossing point; the arrangement being formed like a square matrix comprising the two types of module with the modules of a diagonal of the matrix comprising modules of the first type and the remaining elements of the matrix comprising modules of the second type, each module of a horizontal line being connected to its adjacent module(s) in the horizontal line and each module of a column being connected to its adjacent module(s) in the column line such that each horizontal line and each column line of a module is connected respectively to the same horizontal or column line respectively if its adjacent module.

4,365,245

DISPLAY MODULE FOR TRAVELING PATTERN SIGNS

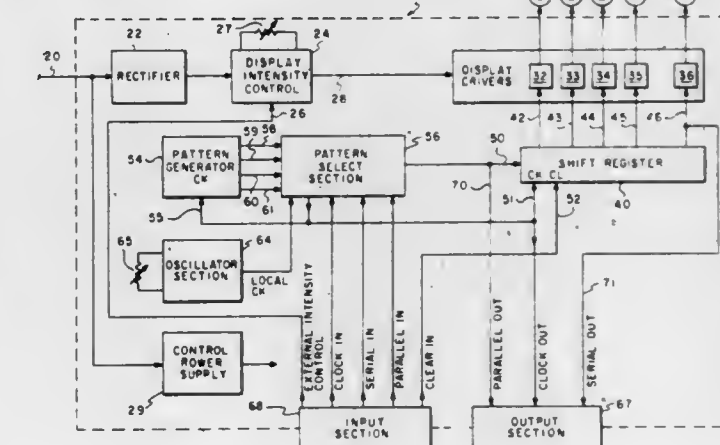
Gustavo T. Colmenero, 2624 Walnut La., Plano, Tex. 75075

Filed June 5, 1978, Ser. No. 912,211

Int. Cl.³ G09G 3/00

U.S. Cl. 340—792

6 Claims



1. A display module for interconnection with modules of the same kind, each having a set of lights associated therewith, to form a display system, said module comprising:
 - means responsive to control signals for controlling the inten-

sity of each of a plurality of lights in a set associated therewith;
means for generating said control signals capable of driving said controlling means so as to display a time-varying intensity pattern in the associated set of lights;
input means for deriving said control signals for said controlling means from an external source, including from another module of the same kind; and
parallel output means for driving a like module so as to synchronously display the same pattern.

4,365,246

ROSARY DEVICE

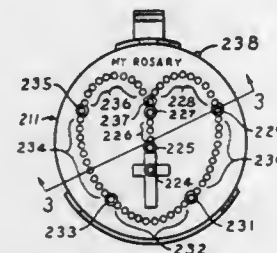
Lowell E. Dewolf, 666 San Mario Dr., Solana Beach, Calif. 92075; James J. Scrudato, 2796 N. Dalenurst Pl., Simi Valley, Calif. 93065, and Robert S. Wallace, 823 S. Longwood Ave., Los Angeles, Calif. 90005, assignors to Lowell E. Dewolf; James J. Scrudato and Robert S. Wallace, all of Solana Beach, Calif.

Filed May 18, 1981, Ser. No. 265,042

Int. Cl.³ G08B 5/36

U.S. Cl. 340—802

12 Claims



1. A Rosary device, comprising

- a casing sized to be hand held, the casing having wall structure,
- electrically energizable means having terminals proximate said wall structure, said terminals defining a loop,
- and control means for controllably electrically energizing said (b) means so that said terminals are successively and controllably illuminated,
- certain of said terminals having a first characteristic indicative of a Hail Mary prayer, and others of said terminals having a second characteristic indicative of an Our Father prayer.

4,365,247

END STATION DIGITAL TRANSMISSION LINK RELIEFING SYSTEM

Gilbert L. Bargeton, Paris, and Claude P. Beynie, La Varenne, both of France, assignors to Societe Anonyme de Telecommunications, Paris, France

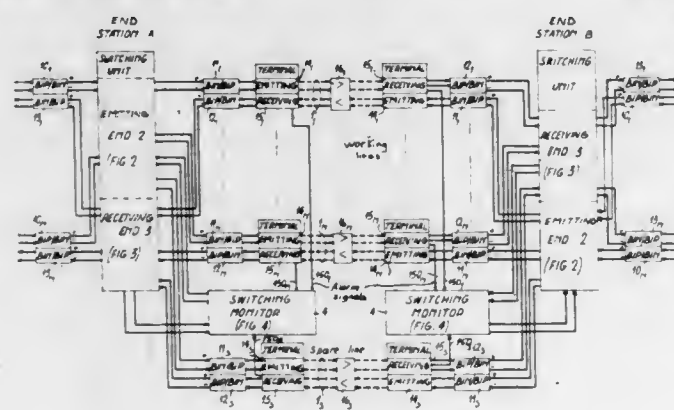
Filed 1981, Ser. No. 223,091

Claims priority, application France, 1980, 80 00621

Int. Cl.³ H04B 3/46; H04Q 9/00

U.S. Cl. 340—825.01

7 Claims



1. An end station for a system for relieving a plurality of

bidirectional digital data transmission working lines connected between two of the end stations of a digital transmission system including a plurality of bidirectional digital transmission spare lines connected between said end stations, said end station comprising:

- means for detecting transmission faults on each of said working lines,
- means for selecting a free spare line in response to the detection of transmission faults on a working line,
- means for emitting digital order signals to the other end station,
- means for receiving digital order signals from said other end station,

first and second switching means for connecting said order signal emitting and receiving means to a selected free spare line such that said order signal emitting and receiving means of said end stations exchange first order signals therebetween in response to the detection of a transmission fault on said working line, and for connecting the emitting and receiving ends of said faulty working line to said selected free spare line in response to said first order signals from said other end station,

third switching means for connecting said order signal emitting means to said faulty working line such that said order signal emitting means transmits second order signals on said faulty working line in response to said first order signals from said other end station,

fourth switching means for connecting said order signal receiving means to said working line in response to the transmission fault no longer being detected by the detecting means and said working line being repaired;

said transmission fault detecting means controlling said first, second, third and fourth switching means in response to said second order signals received in said order signal receiving means such that emitting and receiving ends of said repaired working line are connected to said working line and are disconnected from said selected spare line; said order signal receiving means holding a connection to said selected spare line from a time at the start of exchange of said first order signals and up to just before the transmission fault on said working line is no longer being detected by the detecting means such that said order signal receiving means can receive order signals from said other end station on said selected spare line in response to a transmission fault which relates to another working line and which is detected in said other end station.

4,365,248

DIGITAL TRANSMISSION LINK RELIEF TRIGGERING SYSTEM

Gilbert L. Bargeton, Paris, and Claude P. Beynie, La Varenne, both of France, assignors to Societe Anonyme de Telecommunications, Paris, France

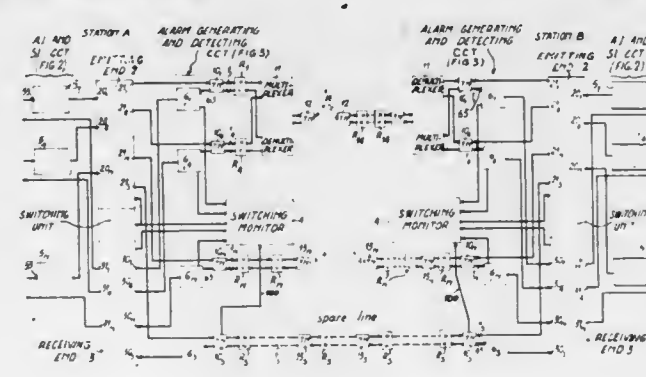
Filed 1981, Ser. No. 223,092

Claims priority, application France, 1980, 80 00622

Int. Cl.³ H04B 3/46; H04Q 9/00; G06F 11/00

U.S. Cl. 340—825.01

12 Claims



1. An end station for triggering relief of a working line in a

bidirectional digital transmission link of a digital transmission system, the link having a plurality of bidirectional digital transmission working lines and a plurality of bidirectional digital transmission spare lines, the link being interconnected between two of the end stations, said end station comprising:

- first detecting means for detecting a first digital alarm indication signal derived from outside of said link,
- first replacing means controlled by said first detecting means for replacing a first detected outside alarm indication signal by a first digital switching inhibition signal, said end station normally transmitting the first digital switching inhibition signal through said working line and transmitting the first digital switching inhibition signal on a spare line when said working line has failed and been relieved,
- second detecting means for detecting a second digital alarm indication signal derived from another end station or any intermediary station on said working line, said second means triggering switch-over from said working line to a spare line in said end station,
- third detecting means for detecting a second digital switching inhibition signal delivered from said first replacing means of another end station on said working line, and
- second replacing means controlled by said third detecting means for replacing said second switching inhibition signal by a second alarm indication signal, as derived from outside of said link and coupled to the end station via the link.

4,365,249

LINE MONITORING DEVICE IN TWO-WAY DATA COMMUNICATION SYSTEM

Toshio Tabata, Tokyo, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

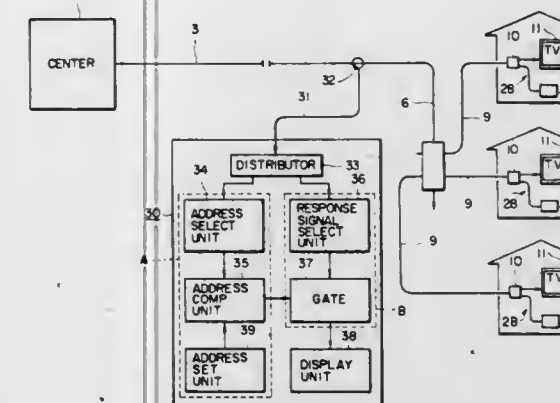
Filed September 29, 1980, Ser. No. 191,782

Claims priority, application Japan, September 29, 1979, 54-125992

Int. Cl.³ H04Q 9/00; H04B 1/00; H04N 7/00

U.S. Cl. 340—825.3

7 Claims



1. A line monitoring device for use in a two-way data communications system for carrying out data communications between a central facility and a plurality of terminal units comprising:

- an address detection section for comparing a digital address included in a polling down-signal from said central facility with a pre-stored digital address;
- a response signal detecting section for detecting up-signals from said terminal units; and
- a display section operating in response to said address detection section and said response signal detecting section to display the level of an up-signal from a terminal unit whose address coincides with said pre-stored address.

4,365,250

GARAGE DOOR OPERATION CONTROL APPARATUS

Shigeru Matsuoka; Takeshi Tokunaga; Seiji Yonekura; Mituo Suzuki, and Kenji Nakamura, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

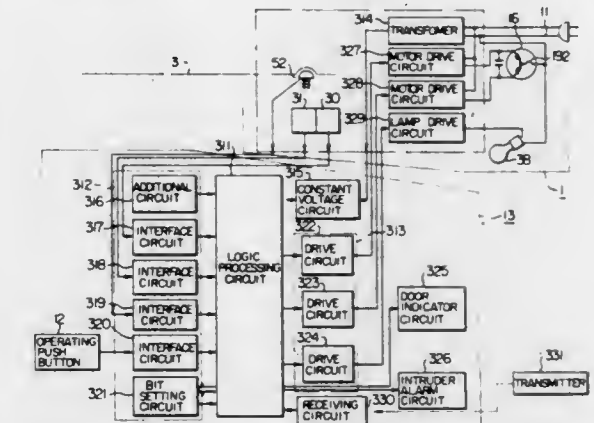
Filed April 15, 1980, Ser. No. 140,672

Claims priority, application Japan, April 19, 1979, 54-48402

Int. Cl.³ G06F 7/04; G08C 19/00

U.S. Cl. 340—825.32

14 Claims



11. In a garage door operation control apparatus comprising door operating means for operating a main door of a garage to effect opening and closing thereof, command means for selectively ordering the operation of said main door, main detector means for detecting the operating condition of said main door, auxiliary detector means for detecting at least one abnormal condition including a garage window open, an auxiliary door open, a fire in the garage and generation of a special gas, alarm means, and electrical control means electrically connected to said door operating means, said command means, said main detector means, said auxiliary detector means and said alarm means to effect control of said door operating means and said alarm means; the improvement wherein said electrical control means includes signal processing means for controlling said alarm means by logically analyzing electrical signals produced from said main detector means and said auxiliary detector means, including means for actuating said alarm means only in response to simultaneous application thereto of an electrical signal indicating the closed condition of said main door as derived from said main detector means and an electrical signal indicating an abnormal condition from said auxiliary detector means.

4,365,251

ELECTRICALLY DRIVEN METER TOTALIZING DEVICE

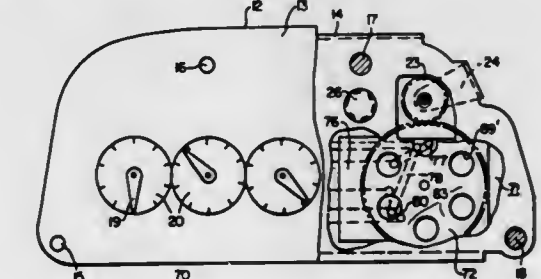
Robert C. Miller, Penn Hills Township, Allegheny County, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed December 4, 1980, Ser. No. 213,692

Int. Cl.³ H04Q 9/00; G08C 19/16

U.S. Cl. 340—870.02

8 Claims



1. An electrically driven meter totalizing device responsive to pulse signals comprising:
a dial register assembly including a front plate, a back plate, a gear train, a plurality of dial indicators, and a rotatable

input, said gear train being carried for rotation between said front plate and said back plate and coupling said dial indicators adjacent said front plate, said rotatable input being carried adjacent said back plate and being in driving relationship with said gear train;

circuit means including a plurality of outputs, said outputs being discretely energized in a repeating sequence and in response to said pulse signals;

an electromagnetic drive system including a rotor mounted for rotation on said back plate and being in driving relationship with said rotatable input, said rotor having an armature including at least three radially disposed evenly spaced equal magnetic segments, said magnetic segments being rotatable along a circular reference axis, said electromagnetic drive system further including a stator attached to said back plate, said stator having a plurality of electromagnetic pole pieces and further having a plurality of coil windings, each of said coil windings carried on one of said pole pieces and connected to one of the outputs of said circuit means for producing magnetic fluxes from the pole piece ends, said pole piece ends being adjacent said circular reference axis and defining magnetic poles, said pole pieces fixedly spaced in a magnetically rotatable attractive relationship with said magnetic segments so that immediately after the fluxes produced from the ends of one of said pole pieces attracts at least one of said magnetic segments, causing rotation of said armature, the ends of the pole piece that will next produce fluxes will be disposed to attract at least another one of said magnetic segments.

4,365,252

CORRECTION METHOD FOR TRANSVERSE DEFOCUSING OF PARABOLIC ANTENNA

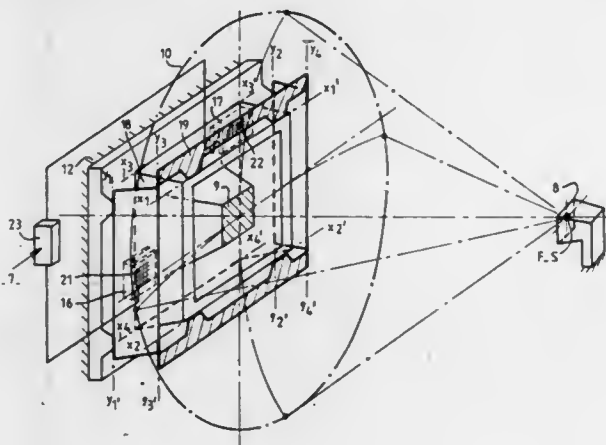
Bernard Hubert, Le Cannet, France, assignor to Societe Nationale Industrielle Aerospatiale, Paris, France
Filed December 3, 1980, Ser. No. 212,663

Claims priority, application France, December 18, 1979, 79 30957

Int. Cl.³ H01Q 3/12, 19/12

U.S. Cl. 343—761

8 Claims



1. A method of correcting transverse defocalization of a paraboloid when the latter must be orientated with respect to the source into which the focus initially merges, consisting of: securing said paraboloid to a first platform perpendicular to the symmetrical axis through said focus; articulating said first platform transversely by means of two double hinges articulated in parallel to a second platform; articulating said second platform on its lateral sides and orthogonally by means of two double hinges articulated in parallel to the fixed portion; orienting said double hinges jointly substantially in the direction of said paraboloid focus initially merged into the source; providing means for moving said platforms;

servo-controlling said moving means by a pointing error detecting system; whereby the transverse defocalization of the paraboloid is corrected permanently by constantly maintaining its focus in the immediate proximity of the source.

4,365,253

ANTENNA FEEDER SYSTEM FOR A TRACKING ANTENNA

Günter Mörz, Ludwigsburg, Fed. Rep. of Germany, assignor to Licentia Patent-Verwaltungs-GmbH, Frankfurt am Main, Fed. Rep. of Germany

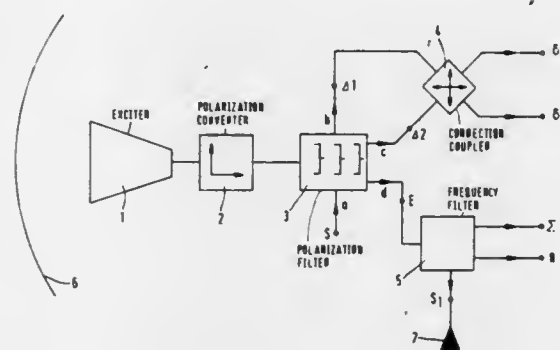
Filed May 29, 1981, Ser. No. 268,377

Claims priority, application Fed. Rep. of Germany, May 30, 1980, 3020514

Int. Cl.³ H01Q 13/00

U.S. Cl. 343—786

9 Claims



1. In a feeder system associated with an antenna for transmitting circularly polarized signals and for receiving a circularly polarized beacon signal, which system includes an exciter having an aperture whose cross section is symmetrical to at least one major axis of the aperture, the exciter being arranged to excite higher modes of the beacon signal as a function of deviations of the axis of the beacon signal from the major axes of the antenna radiation pattern, and means for coupling the higher modes to produce deviation signals providing information for positioning the antenna in order to eliminate such deviations, the improvement wherein:

said system further comprises a polarization converter containing amplitude and phase compensating components disposed behind said exciter and connected between said exciter and said coupling means for conducting electromagnetic signals therebetween;

said coupling means are included in a polarization filter (ortho-mode-transducer) connected to said converter for receiving and transmitting signals with mutually orthogonal polarization directions; and

said polarization filter is provided with a first waveguide branch having a first port for transmitting and for receiving communication signals associated to one polarization direction and an additional port for deviation signals and a second waveguide branch having a second port for transmitting and for receiving communication signals associated to the other orthogonal polarization direction and also an additional port for deviation signals.

4,365,254

TWO-COLOR RECORDING PAPER AND METHOD AND RECORDING APPARATUS UTILIZING THE TWO-COLOR RECORDING PAPER

Masaru Ozawa, Yuji Ooba, and Toshio Shimizu, all of Yokosuka, Japan, assignors to Nippon Telegraph and Telephone Public Corp., Tokyo, Japan

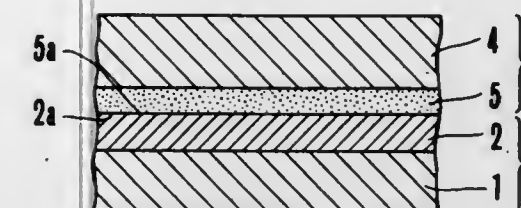
Division of Ser. No. 181,896, Aug. 27, 1980, Pat. No. 4,328,977.

This application December 28, 1981, Ser. No. 335,083

Int. Cl.³ G01D 15/10, 15/34

U.S. Cl. 346—1.1

9 Claims



1. A recording method utilizing two-color recording paper comprising the steps of:

feeding two-color recording paper, said paper comprising an ink film having a thin film base and an ink layer of a first hue coated on the film base, said ink layer containing a mixture of a colored material such as dye with a thermoplastic material which is solid at ordinary temperature and becomes fluid at high temperature, and a thermosensitive recording paper having a substrate, and a coloring layer coated on the substrate and containing a developer which colors in a second hue different from the hue of said ink, said ink film and said thermosensitive recording paper being overlapped separately with an ink surface of said ink film and a coloring surface of said thermosensitive recording paper facing each other;

melting ink of said ink film by a first thermal head at a first position on the paper path, to transfer the melted ink onto the coloring surface of said thermosensitive recording paper;

peeling said ink film from said thermosensitive recording paper at a second position on the recording paper path, to produce a transferred image in the first hue on said thermosensitive recording paper; and

coloring the coloring layer of said thermosensitive recording paper by a second thermal head at a third position on the paper path, to produce an image in the second hue on said thermosensitive recording paper.

4,365,255

INK JET PRINTER

Masanori Horike, Yokohama; Koichiro Jinnai, Kawasaki; Kyuhachiro Iwasaki, Fujisawa, and Yutaka Kodama, Tokyo, all of Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

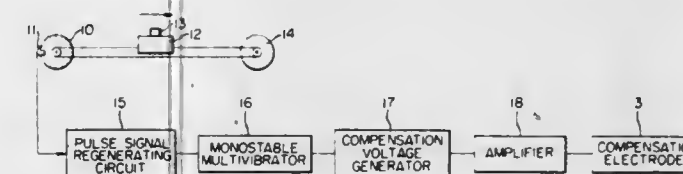
Continuation of Ser. No. 23,320, Mar. 23, 1979, abandoned. This application November 28, 1980, Ser. No. 211,200

Claims priority, application Japan, April 7, 1978, 53-41041

Int. Cl.³ G01D 15/18

U.S. Cl. 346—75

1 Claim



1. An ink jet printer, comprising: an ink jet nozzle disposed for movement in parallel with a recording surface;

a charging electrode for charging ink droplets formed by the ejection of ink through said ink jet nozzle;

a pair of electrostatic deflection electrodes for producing an electric field which may deflect the ink droplets in the direction perpendicular to the direction of the movement of said ink jet nozzle depending upon the total charge on each ink droplet;

a pair of electrostatic compensation electrodes disposed orthogonal to said deflection electrodes for producing an electric field in the direction in which said ink jet nozzle is moved;

a printing-scanning speed detecting device for sensing the relative speed between said recording surface and said ink jet nozzle; and

a compensation voltage generating circuit responsive to the output of said speed detecting device for applying to said compensation electrodes a D.C. compensation electrode drive signal proportional to the relative speed between said recording surface and said ink jet nozzle, said circuit comprising:

a pulse generating means for generating pulses at a rate corresponding to said relative speed;

integrating means coupled to said pulse generating means for integrating said pulses to provide an output signal having a level corresponding to said relative speed;

a variable gain amplifier coupled to said integrating means and responsive to said output signal for providing a D.C. compensation electrode drive signal having a voltage level proportional to the level of said output signal, said compensation electrode drive signal being coupled to said compensation electrodes; and

setting means for setting the gain of said amplifier in accordance with a desired inclination angle of characters to be printed by said ink droplets on said recording surface,

whereby the inclination of characters to be printed is varied in accordance with the relative speed between said recording surface and said ink jet nozzle to render the angle of inclination of characters printed on said recording surface by said ink drops substantially independent of said relative speed, without mechanical tilting or rotation of any of said electrodes.

4,365,256

METHOD FOR ACCURATE CONTROL OF A LIGHT BEAM IN PHOTOTYPESETTING AND OTHER APPLICATIONS

Eero Byckling, Kimmeltie 13A 12, 02100 Espoo 10, Finland
Teknik ApS, Herning, Denmark

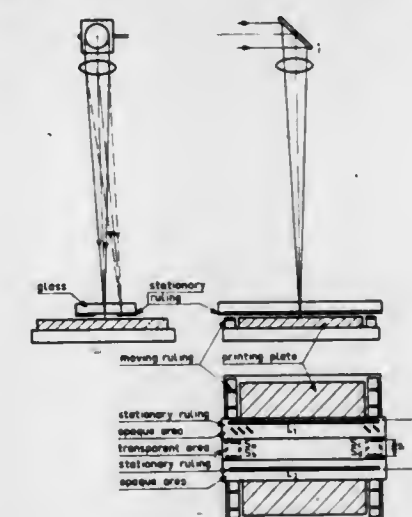
Filed 1981, Ser. No. 237,772

Claims priority, application Finland, 1980, 800543

Int. Cl.³ B41B 17/14; G06K 15/12

U.S. Cl. 346—108

12 Claims



11. Apparatus for controlling a light beam to write picture

elements on an image surface comprising means for writing a sufficient number of adjacent stripes, one stripe at a time, to fill the image surface, including means for deflecting the light beam across the stripe, having therein means for causing said light beam to deflect in a plurality of strokes having lengths approximately equal to the width of the stripe and means for simultaneously moving the light beam along the length of the stripe at a velocity lower than that provided thereto in said strokes,

means for measuring two-dimensional position coordinates of the beam on the image surface, including a plurality of rulings situated in the vicinity of the writing area of the image surface, as a function of signals, which themselves are functions of positions of indicia in said rulings, and means for deflecting the light beam along a ruling while writing on the surface and for providing said signals to said means for measuring two-dimensional position coordinates;

said means for deflecting including means for deflecting said beam across said ruling indicia, for registering the resulting signal, and for modulating the beam during said strokes responsive thereto so as to cause the writing to be positioned correctly on the image surface.

4,365,257

STRETCHED-FILM OPTICAL RECORDING DISC

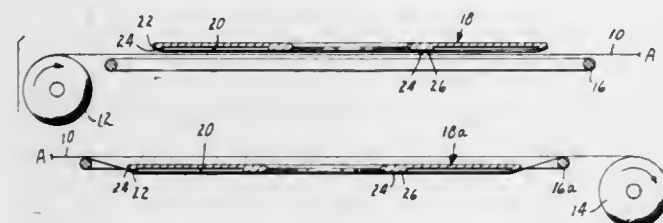
Sten R. Gerfast, Mendota Heights, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed March 5, 1981, Ser. No. 241,000

Int. Cl.³ G01D 15/34

U.S. Cl. 346—135.1

9 Claims



1. An optical recording disc comprising a rigid, dimensionally-stable support, a thin, strong, tough plastic film which is tautly secured to said support to provide a broad, generally circular, flat area which is normally not in contact with the support, and a thin, uniform, optically-recordable coating substantially covering said broad out-of-contact area of the plastic film, which coating is substantially free from particles greater than 0.05 micrometer and has a Light-Scattering Value as herein defined of less than 5%.

4,365,258

OPTICAL DISC UNIT, FABRICATION METHOD AND COOPERATING WRITE AND/OR READ APPARATUS

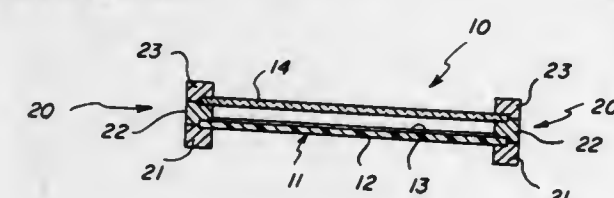
Frederick F. Geyer, and Eric M. Leonard, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 18, 1981, Ser. No. 264,313

Int. Cl.³ G01D 15/32

U.S. Cl. 346—137

27 Claims



1. An optical disc-unit adapted for the optical writing and/or reading of high density information, said unit comprising:

- (a) an optical disc including a flexible, disc-shaped support carrying a record layer;
- (b) a disc cover opposing said record layer and comprising a flexible, disc-shaped sheet which is substantially transparent to writing and/or reading wavelengths and which is generally coextensive with said optical disc; and
- (c) annular retaining means, engaging said support and said sheet substantially continuously around annular peripheral regions, for positioning the sheet and record portions of said layer in spaced relation.

4,365,259

RADIANT ENERGY SENSOR WITH REDUCED OPTICAL REFLECTION AND BLOOMING

Dieter K. Schroder, Pittsburgh, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

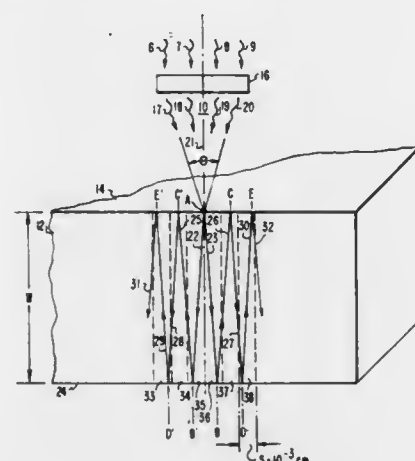
Continuation of Ser. No. 962,833, Nov. 21, 1978, abandoned.

This application October 30, 1980, Ser. No. 202,050

Int. Cl.³ H01L 27/14

U.S. Cl. 357—30

16 Claims



1. A sensor for converting radiant energy having a wavelength greater than 3 micrometers into electrical signals and for suppressing optical crosstalk comprising: a crystalline substrate having a semiconductor first surface suitable for receiving radiant energy; said substrate including a plurality of detectors for generating electronic charge in response to the passing of radiant energy through said first surface; and means for absorbing a portion of said radiant energy passing through said first surface and propagating beyond a predetermined distance in said crystalline substrate below said first surface; said means for absorbing including a heavily doped layer of impurities to provide substantial optical absorption in said layer by the mechanism of free carrier absorption.

4,365,260

SEMICONDUCTOR LIGHT EMITTING DEVICE WITH QUANTUM WELL ACTIVE REGION OF INDIRECT BANDGAP SEMICONDUCTOR MATERIAL

Nick Holonyak, Jr., Urbana, Ill., assignor to University of Illinois Foundation, Urbana, Ill.

Division of Ser. No. 951,515, Oct. 13, 1978, Pat. No. 4,270,094.

This application December 8, 1980, Ser. No. 214,894

Int. Cl.³ H01L 33/00

U.S. Cl. 357—17

12 Claims

1. A semiconductor light emitter heterostructure device, comprising: first and second relatively wide bandgap semiconductor regions of opposite conductivity types; and an active region disposed between said first and second

regions, said active region comprising a quantum well active layer of a relatively narrow bandgap indirect band-

barrier regions and said well regions beneath said first and second phase electrodes; and

the P-type conductivity dopant impurity of each of said relatively shallow P-type conductivity regions having a Gaussian distribution with a peak lying within 500 Å–2000 Å from said first surface of said substrate, the N-type conductivity dopant impurity of said N-type conductivity buried channel layer having a Gaussian distribution with a peak lying within 3000 Å–10,000 Å from said first surface, and the P-type conductivity dopant impurity of said enhanced relatively deep P-type conductivity layer having a Gaussian distribution with a peak lying within 5000 Å–15,000 Å from said first surface.

4,365,262

SEMICONDUCTOR IMAGE SENSOR

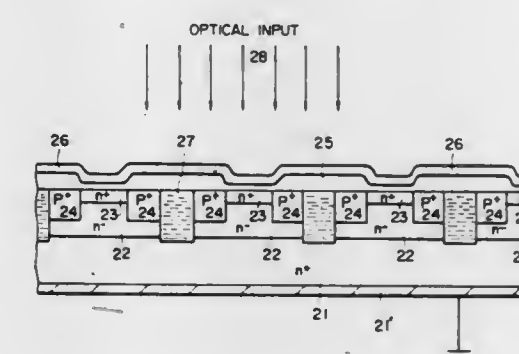
Junichi Nishizawa, Sendai, Japan, assignor to Handotai Kenkyu Shinkokai, Sendai, Japan

Filed November 26, 1980, Ser. No. 210,712

Int. Cl.³ H01L 27/14, 31/00

U.S. Cl. 357—31

11 Claims



CO-PLANAR BARRIER-TYPE CHARGE COUPLED DEVICE WITH ENHANCED STORAGE CAPACITY AND DECREASED LEAKAGE CURRENT

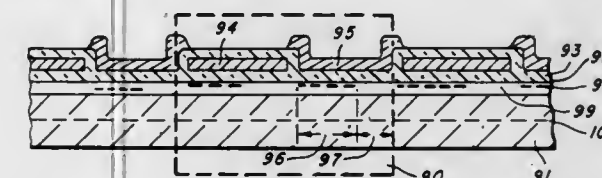
Pallab K. Chatterjee, Dallas, and Aloysius F. Tasch, Jr., Richardson, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed August 26, 1977, Ser. No. 828,079

Int. Cl.³ H01L 29/78; G11C 19/28, 11/34

U.S. Cl. 357—24

4 Claims



1. A charge coupled device comprising: a substrate of semiconductor material having a dopant impurity of P-type conductivity, said substrate having a first surface; a body of insulating material disposed on said first surface of said substrate; means defining a buried channel layer having a dopant impurity of N-type conductivity in said substrate lying adjacent to said first surface of said substrate and providing a charge transfer channel; first and second spaced apart phase electrodes overlying said channel in transverse relation thereto and arranged with respect to said body of insulating material so as to provide a layer of insulating material of uniform thickness between each of said phase electrodes and said first surface of said substrate; spaced relatively shallow regions having a dopant impurity of P-type conductivity lying within said buried channel layer of N-type conductivity near said first surface of said substrate, each of said relatively shallow P-type conductivity regions extending beneath a corresponding one of said first and second phase electrodes and being respectively aligned adjacent one edge thereof but terminating short of the opposite edge of the electrode corresponding thereto; said substrate under each of said first and second phase electrodes being divided into a barrier region including a respective shallow P-type conductivity region therein and an adjacent well region, said buried channel layer of N-type conductivity extending through said barrier regions and said well regions; an enhanced relatively deep layer having a dopant impurity of P-type conductivity and of greater concentration than the P-type conductivity dopant impurity in the semiconductor material of said substrate disposed within said substrate at a depth spaced from said first surface and extending through said

1. A semiconductor image sensor comprising: a low resistance semiconductor electrode region of a first electrical conductivity type; a plurality of high resistivity channel regions formed on said electrode region; low resistivity semiconductor storage regions of said first electrical conductivity type formed on corresponding ones of said channel regions; gate means for forming controllable potential barriers in corresponding ones of said channel regions; an insulating film formed on said low resistivity semiconductor storage regions; electrically conductive line electrodes formed on said insulating film; and electrically conductive control lines connected to corresponding ones of said gate means, said line electrodes, insulating film and semiconductor storage regions forming storage capacitors and optical input windows.

4,365,263

SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE COMPOSED OF INSULATED GATE FIELD-EFFECT TRANSISTOR

Hiroto Kawagoe, Hinode, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 634,772, Nov. 24, 1975, abandoned.

This application April 18, 1980, Ser. No. 141,574

Claims priority, application Japan, September 4, 1975, 50/107350

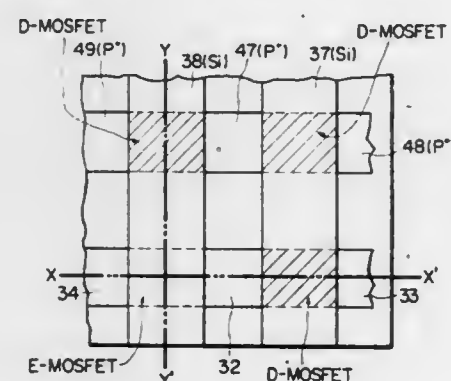
Int. Cl.³ H01L 27/04

U.S. Cl. 357—45

6 Claims

1. A semiconductor integrated circuit matrix device having a plurality of insulated gate field effect transistors arrayed along rows and columns comprising:

- a semiconductor substrate having a first conductivity type;
- a plurality of semiconductor regions having a second conductivity type opposite to said first conductivity type formed in said semiconductor substrate and arrayed along said each row;
- gate insulating films each formed on the surface of the portion of said semiconductor substrate between said adjacent semiconductor regions in each row, all of said gate insulating films in respective rows having substantially equal thickness;
- a field insulating film formed on the surface of said semiconductor substrate, defining said semiconductor regions and said gate insulating films the thickness of said field insulating film being greater than that of said gate insulating film;
- a plurality of conductive strips formed along said respective columns, each conductive strip being arranged on said gate insulating films in each column thereby defining



respective insulated gate field effect transistors at all of those respective portions of said gate insulating films crossed over by said conductive strips; and

- ion-implanted regions having said second conductivity type formed in selected ones of said portions overlaid by said gate insulating films, and a portion of said ion-implanted regions being self-aligned by said field insulating film, whereby said ion-implanted regions act as the channel regions of depletion type field effect transistors, respectively, while the others of said portions overlaid by said gate insulating films act as the channel regions of enhancement type field effect transistors, respectively, and; wherein each of said conductive strips is coupled to receive first and second signal voltage levels, so that each of said enhancements type field effect type transistors is turned on and off by said first and second signal voltage levels, respectively, and each of said depletion type field effect transistors is normally on irrespective of said signal voltage levels.

4,365,264

SEMICONDUCTOR DEVICE WITH HIGH DENSITY LOW TEMPERATURE DEPOSITED $\text{Si}_3\text{N}_4\text{H}_2\text{O}_2$ PASSIVATING LAYER

Kiichiro Mukai; Seiki Harada; Shin-ichi Muramatsu, all of Hachioji; Atsushi Hiraiwa, Kokubunji; Shigeru Takahashi, Hachioji; Katsuhisa Usami, Hinodemachi; Seiichi Iwata, Sayama; Satoru Ito, Hinodemachi, and Takeo Yoshimi, Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan Continuation of Ser. No. 62,118, Jul. 30, 1979, abandoned. This application May 19, 1981, Ser. No. 265,167

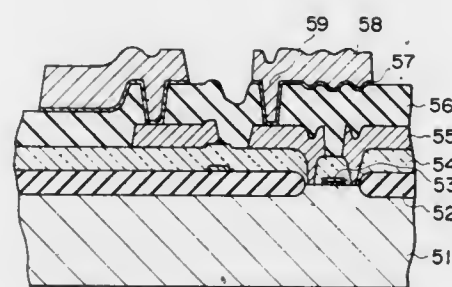
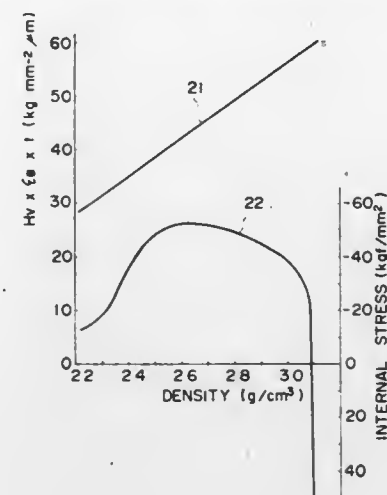
Claims priority, application Japan, July 31, 1978, 53-92633 Int. Cl.³ H01L 29/34

U.S. Cl. 357-54

5 Claims

1. A semiconductor device comprising a passivation layer which is disposed on a semiconductor body having at least one circuit element therein and which is made of a silicon nitride material consisting essentially of 61-70 weight-% of Si, 25-37 weight-% of N, 0.8-5.9 weight-% of H and up to 0.6 weight-% of O and having a density of 2.9-3.05 gr/cm³, wherein said

semiconductor body includes a silicon dioxide film which is disposed on a semiconductor wafer and which has an opening at a predetermined position, an inorganic insulating film of phosphosilicate glass or the silicon nitride material which is disposed on said silicon dioxide film and which has openings at predetermined positions, and an interconnecting conductor layer of predetermined pattern which extends on said inorganic insulating film and which connects with predetermined



regions in said wafer via said openings of said inorganic insulating film and said opening of said silicon dioxide film, wherein said passivation layer has a metal layer of predetermined pattern which extends on said passivation layer and which connects with said interconnecting conductor layer via an opening existent at a predetermined position of said passivation layer, and wherein said metal layer is extended over an active region of said semiconductor wafer and is used as a bonding pad.

4,365,265

COLOR TEMPERATURE CONTROL CIRCUIT

Kaoru Tsujita, Katano; Sigeki Tobitoka, Gifu, and Ikuo Monden, Ota, all of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

Filed June 19, 1981, Ser. No. 275,296

Claims priority, application Japan, June 20, 1980, 55-87100[U]

Int. Cl.³ H04N 9/535

U.S. Cl. 358-29

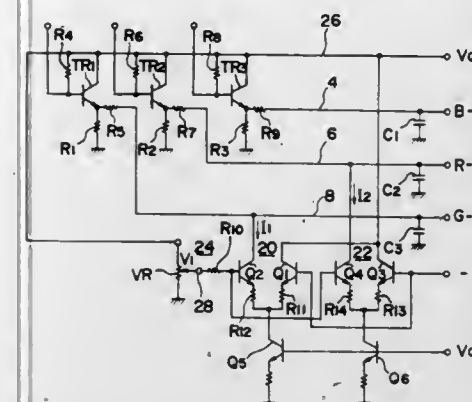
7 Claims

1. A color temperature control circuit for use in a color television receiver for changing the ratio of blue, red and green chrominance signals obtained from a chrominance signal demodulator in relation to a luminance signal obtained from a video amplifier, said color temperature control circuit comprising:

- a reference voltage generator for generating a predetermined reference voltage;
- a first differential amplifier connected to said chrominance signal demodulator for defining a first current path for said green chrominance signal to ground, said first differential amplifier also connected to said reference voltage generator and said video amplifier for comparing said luminance signal with said reference voltage such that

when said luminance signal drops below said reference voltage, said first current path actuates to conduct said green chrominance signal to ground with a conductivity determined by the degree of said voltage drop of luminance signal below said reference voltage to reduce the green chrominance signal level; and

- a second differential amplifier connected to said chrominance signal demodulator for defining a second current path for said red chrominance signal to ground, said second



ond differential amplifier also connected to said reference voltage generator and said video amplifier for comparing said luminance signal with said reference voltage such that when said luminance signal drops below said reference voltage, said second current path actuates to conduct said red chrominance signal to ground with a conductivity determined by the degree of said voltage drop of luminance signal below said reference voltage to reduce the red chrominance signal level.

4,365,266

HORIZONTAL AND VERTICAL IMAGE DETAIL PROCESSING OF A COLOR TELEVISION SIGNAL

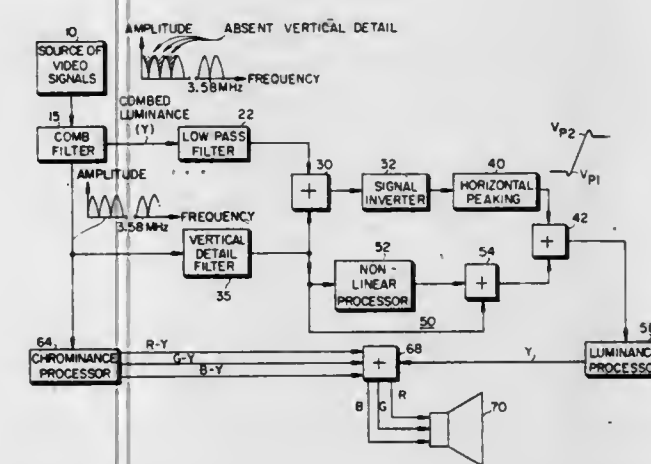
William A. Lagoni, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed April 20, 1981, Ser. No. 255,375

Int. Cl.³ H04N 9/535

U.S. Cl. 358-37

13 Claims



1. Video signal processing apparatus in a television receiver system for processing a video signal containing image representative luminance and chrominance components disposed within a frequency spectrum of said video signal in frequency interleaved relation, said system including comb filter means for providing at a first output a combed luminance signal with amplitude peaks at integral multiples of an image line scanning frequency and amplitude nulls at odd multiples of one-half said line frequency, and for providing at a second output a combed signal with amplitude peaks at odd multiples of one-half said line frequency and amplitude nulls at integral multiples of said line frequency, and wherein signals provided at said second output include signal frequencies representative of luminance

vertical image detail information absent from said combed luminance signal at said first output, said apparatus comprising: means coupled to said second output of said comb filter means for selectively passing said signal frequencies corresponding to vertical detail information, exclusive of signal frequencies occupying the band of chrominance signal frequencies, to thereby derive a vertical detail component from said second output of said comb filter means;

- first means for combining combed luminance signals from said first output of said comb filter means with a given magnitude of said vertical detail component to produce a restored luminance signal;
- first signal translating means responsive to said restored luminance signal for peaking horizontal image detail information of said restored luminance signal, to provide a horizontally peaked luminance signal at an output;
- second signal translating means responsive to said vertical detail component for developing a vertical detail peaking component at an output;
- second means for combining signal outputs from said first and second signal translating means to produce a horizontally and vertically peaked luminance signal at an output; and
- luminance signal utilization means for receiving output signals from said second combining means.

4,365,267

PASSIVE DATA MONITOR FOR USE WITH POLLING PATTERN GENERATOR IN CATV SYSTEM

Youchiro Tsuda, Saitama, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

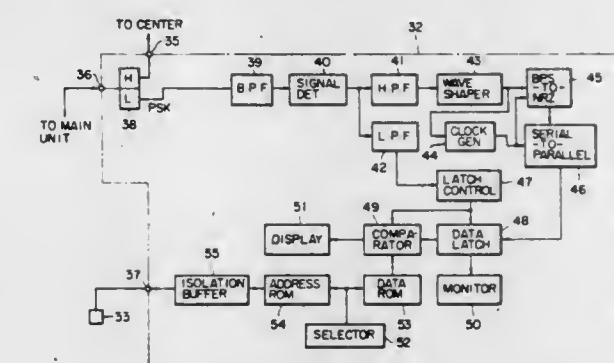
Filed May 27, 1981, Ser. No. 267,508

Claims priority, application Japan, May 30, 1980, 55-73584

Int. Cl.³ H04N 7/10

U.S. Cl. 358-84

4 Claims



1. A passive data monitor for a CATV system having a single center and a number of terminal units connected to said center for transmitting television programs through cables to said terminal units, each of said terminal units having address setting means capable of arbitrarily setting address number therein, said passive data monitor comprising: means for receiving a polling pattern signal having an address code for calling a corresponding terminal unit and a command code for requesting a designated answer from the called terminal unit; and means for comparing an up data signal outputted from said terminal unit in response to said code with said designated answer requested by said command code and for judging an operational state of said terminal unit from a resultant comparison output.

4,365,268

VIDEO PLANTER GUIDANCE AID

David T. Allen, and Keith R. Baker, both of Waterloo, Iowa, assignors to Deere & Company, Moline, Ill.

Filed September 12, 1980, Ser. No. 186,458

Int. Cl.³ H04N 7/18

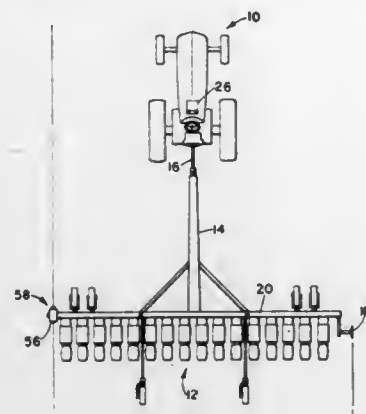
U.S. Cl. 358-93

20 Claims

1. A guidance aid for assisting an operator in guiding a

motorized vehicle pulling an implement pivotally attached thereto for movement about a vertically extending pivot axis, the guidance aid comprising:

- means attached to the implement for creating a mark in a terrain surface;
- a video camera pivotally mounted on the implement for



converting an image of the mark to electrical image signals indicative thereof;

display means mounted on the vehicle and coupled to the camera for displaying to the operator an image corresponding to the electrical image signals; and

control means for automatically aiming the camera in a fixed predetermined direction with respect to the vehicle.

4,365,269

X-RAY DIAGNOSTIC INSTALLATION COMPRISING A SOLID STATE IMAGE CONVERTER

Joerg Haendle, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

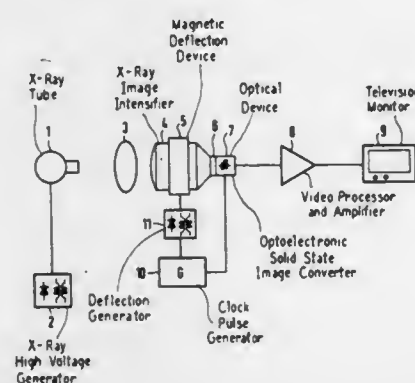
Filed June 12, 1981, Ser. No. 273,198

Claims priority, application Fed. Rep. of Germany, July 11, 1980, 3026359

Int. Cl.³ H04N 5/32

U.S. Cl. 358—111

2 Claims



1. An x-ray diagnostic installation comprising: an image intensifier television chain which exhibits an x-ray image intensifier, a television pickup device with an optoelectronic image converter and a monitor, and in which the transmission proceeds according to the interlaced method, a clock pulse generator for defining a scanning rate, the image converter (7) being a solid state image converter controlled for scanning in accordance with said scanning rate, and a deflection device (5) for effecting a deflection of an output image of the x-ray image intensifier (4) synchronously with the scanning rate of said clock pulse generator (10), and operable for periodically effecting a slight displacement of the x-ray image intensifier output image such that the displacement proceeds in a vertical and in a horizontal direction by half the spacing of the image elements of the image converter (7), and means whereby successive fields are displayed on the monitor (9) with a periodic displacement

ment corresponding to the periodic displacement of the output images of the x-ray image intensifier.

4,365,270

DUAL STANDARD VERTICAL DEFLECTION SYSTEM

Ernst A. O. Rutishauser, Widen, Switzerland, assignor to RCA Corporation, New York, N.Y.

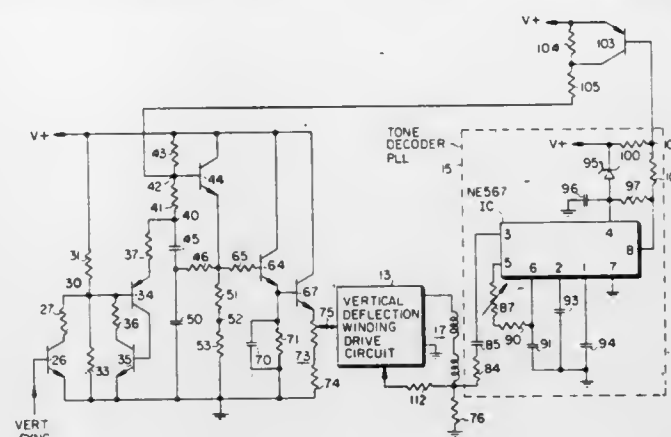
Filed March 31, 1980, Ser. No. 135,557

Claims priority, application United Kingdom, August 23, 1979, 7929379

Int. Cl.³ H04N 5/02

U.S. Cl. 358—140

4 Claims



1. In an image display system for alternatively (1) displaying images in response to composite video signals having a first field frequency and inclusive of vertical synchronizing pulses having a first repetition rate corresponding to said first field frequency, and (2) displaying images in response to composite video signals having a second field frequency, higher than said first field frequency, and inclusive of vertical synchronizing pulses having a second repetition rate corresponding to said second field frequency; a vertical deflection system comprising:

a vertical deflection winding;

means, subject to synchronization by the vertical synchronizing pulses of composite video signals applies to said image display system, comprising oscillator means incorporating a capacitor and charging impedance therefor, for developing vertical scanning current waves for passage through said deflection winding; said current waves having a fundamental frequency corresponding to the repetition rate of the vertical synchronizing pulses effecting synchronization of said developing means; said developing means having a free running frequency lower than said first repetition rate in the absence of said synchronizing pulses;

identifying means, responsive to the field frequency of said current waves for developing an output voltage of a first level when said current waves have said first field frequency, and an output voltage of a second level, different from said first level, when said current waves have said second field frequency;

a switching device, responsive to the output voltage of said identifying means, and exhibiting a first switching state when said output voltage is at said first level, and exhibiting a second switching state when said output voltage is at said second level; and

means responsive to the switching state of said switching device, for altering said capacitor charging impedance of said developing means, in dependence upon said switching state, in such manner that the amplitude of the current waves developed during synchronization of said developing means by pulses of said first repetition rate substantially matches the amplitude of the current waves developed during synchronization of said developing means by pulses of said second repetition rate; said altering means also simultaneously increasing the free running frequency of said developing means to improve synchronization of

said developing means by synchronizing pulses of said second repetition rate.

4,365,271

TELEVISION CAMERA HAVING A BEAM CURRENT CONTROL CIRCUIT

Hendrik Blom, Breda, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 958,318, Nov. 11, 1978, abandoned.

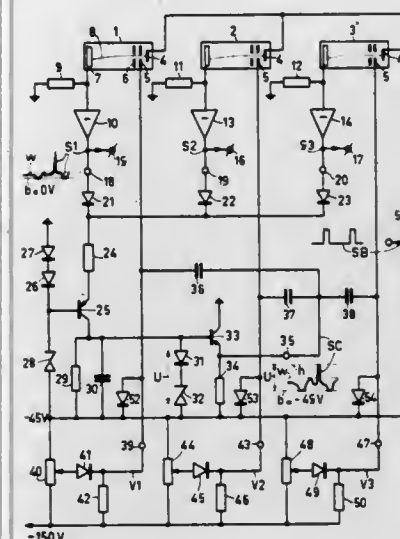
This application September 26, 1980, Ser. No. 191,099

Claims priority, application Netherlands, December 8, 1977, 7713571

Int. Cl.³ H04N 5/19

U.S. Cl. 358—219

4 Claims



1. A television camera comprising at least one pick-up tube and a control circuit for the intensity control of an electron beam present in the pick-up tube, the electron beam being generated by an electron gun comprising at least a cathode and a control electrode, an output, carrying a picture signal, of the pick-up tube being connected for beam current intensity control to a control input of the control circuit, an output of which, carrying a control signal, being connected to the control electrode in the pick-up tube, the control circuit comprising a setting stage, for an adjustment of the beam current intensity, and a control stage for an automatic control thereof, wherein the control stage comprises, provided between the control input of the control circuit and the output of the control stage, a video frequency picture signal amplifier suitable for processing the picture signal generated by the pick-up tube, said amplifier having an amplitude limiter therein, the output of the control stage being connected through a coupling capacitor to the output of the setting stage and at the same time to the control electrode of the pick-up tube.

4,365,272

TELEVISION CAMERA APPARATUS HAVING AUTOMATIC GAIN-SELECTING UNIT

Kiyotake Nagai, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed 1981, Ser. No. 227,325

Claims priority, application Japan, 1980, 55-6466

Int. Cl.³ H04N 5/26

U.S. Cl. 358—228

5 Claims

1. A television camera apparatus comprising:

a lens device including a servo-controlled lens-iris and means for producing a variable value signal according to the iris value of said lens-iris;

pick-up means adapted to receive the light passed through said lens device for generating a video signal in response to said light;

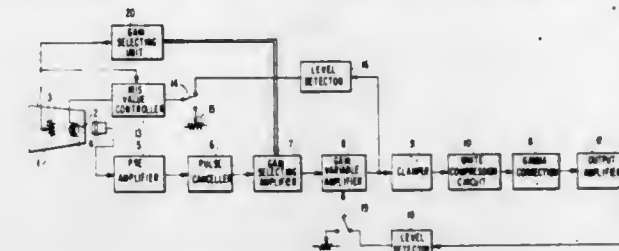
a gain-selecting amplifier for amplifying said video signal;

means for detecting a signal level of the video signal amplified by said gain-selecting amplifier;

means for controlling the iris value of said lens-iris in re-

sponse to the signal level detected by said detecting means;

means for determining whether said iris value signal lies within a range of predetermined levels corresponding to a predetermined range of iris values to produce an output



when said iris value signal falls outside of said range of predetermined levels; and

means for selecting the gain of said gain-selecting amplifier according to the output of said determining means such that said iris value signal goes back within said range of predetermined levels.

4,365,273

PICTURE DATA COMPRESSING METHOD

Mitsuhiko Yamada, and Toshiaki Nakade, both of Kyoto, Japan, assignors to Dainippon Screen Seizo Kabushiki Kaisha, Kyoto, Japan

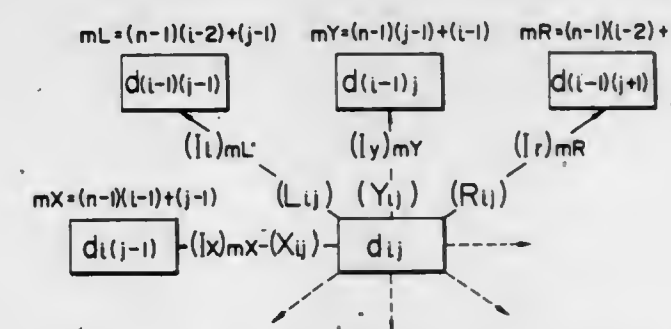
Filed October 29, 1980, Ser. No. 201,732

Claims priority, application Japan, November 5, 1979, 54-142904

Int. Cl.³ H04N 7/12

U.S. Cl. 358—260

5 Claims



1. A method for compressing picture data, wherein an original picture is scanned photoelectrically to obtain analog picture signals which are converted in an analog-digital converter into picture data to be transmitted or stored in a memory, comprising the steps of:

- comparing each of a matrix of picture data having addresses with an adjacent picture data in horizontal, vertical, right upper diagonal and left upper diagonal directions to obtain comparison results; and
- skipping either each picture data or its adjacent picture data according to the comparison results when the two picture data have the same value, to obtain compressed data consisting of representative data which cannot be skipped.

4,365,274

ONE-DIMENSIONAL IMAGE SENSOR

Mutsuo Takenouchi, and Shigeru Sadamatsu, both of Ebina, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed April 16, 1980, Ser. No. 140,910

Claims priority, application Japan, April 24, 1979, 54-49701

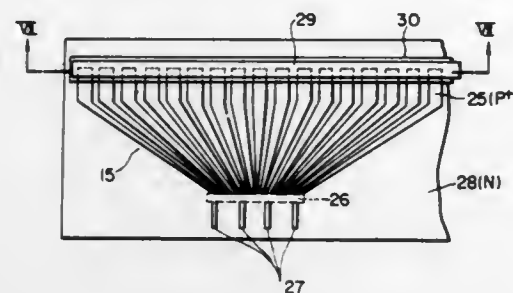
Int. Cl.³ H04N 1/10

U.S. Cl. 358—293

11 Claims

1. A one-dimensional image sensor comprising: integrated drive circuit elements formed in a relatively small region of a semiconductor monocrystalline substrate; lead electrodes ex-

tending in a divergent manner from said drive circuit elements in a surface of said substrate, said lead electrodes each having a picture element size belt-shaped electrode at an end portion



thereof; a photoconductive non-crystalline film formed on said substrate in a predetermined region so as to cover said belt-shaped electrodes; and a light transmissive electrode layer provided on said photoconductive non-crystalline film.

4,365,275

METHOD FOR PRODUCING IMAGES ON RADIATION SENSITIVE RECORDING MEDIUMS

Richard M. Berman, and Ernest B. Feldgus, both of Dresher, Pa., assignors to Delta Scan, Inc., Willow Grove, Pa.

Filed May 8, 1981, Ser. No. 261,957

Int. Cl.³ H04M 1/40

U.S. Cl. 358—283

12 Claims



1. A method of producing a desired image on a radiation sensitive recording medium, said method comprising: providing radiation means operable to produce radiation at a predetermined location from said radiation means; mounting a radiation sensitive recording medium and said radiation means to provide relative movement between said recording medium and said radiation means so that respective portions of said recording medium are presented at said predetermined location from said radiation means; operating said radiation means as said radiation means and said recording medium move relative to one another to expose said recording medium with radiation in a pattern of dot areas to produce an image, at least one of said dot areas including at least one subdot area having a density which is below a predetermined value; and thereafter manipulating at least one portion of said at least one subdot area of said at least one dot areas so as to modify the size of said at least one dot area to thereby produce the desired image.

4,365,276

COPY MAGNIFICATION CHANGE APPARATUS IN MAGNETIC COPYING MACHINE

Norio Kokaji, and Kunio Kinoshita, both of Tokyo, Japan, assignors to Iwatsu Electric Co., Ltd., Tokyo, Japan

Filed March 25, 1980, Ser. No. 133,861

Claims priority, application Japan, March 26, 1979, 54-035359

Int. Cl.³ H04N 1/28; G03G 19/00

U.S. Cl. 358—301

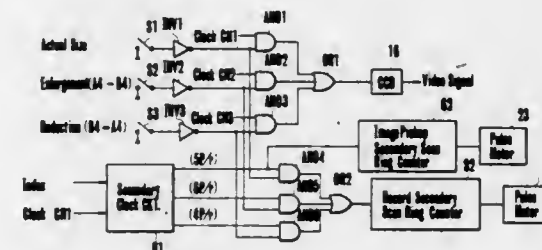
6 Claims

1. A copy magnification change apparatus in a magnetic copying machine in which light from a document is converted

into an electrical video signal by photoelectric converting means, said video signal being supplied to a magnetic head, which is moved along the axial direction of a magnetic recording drum to form a magnetic latent image on said magnetic recording drum, said copy magnification change apparatus comprising:

(a) a first clock pulse generating means for generating in accordance with the rotation of said magnetic recording drum, an index pulse representing one revolution of said magnetic recording drum, a first train of clock pulses for an actual size copy operation, each representing a position of the periphery of said magnetic recording drum during one revolution of said magnetic recording drum, and a second train of clock pulses each representing a position of the periphery of said magnetic recording drum during one revolution of said recording drum, the pulse interval of said second train of clock pulses being longer than that of said first train of clock pulses, and a third train of clock pulses each representing a position of the periphery of said magnetic recording drum during one revolution of said recording drum, the pulse interval of said third train of clock pulses being shorter than that of said first train of clock pulses;

(b) said photoelectric converting means being coupled to one of said first, second and third trains of clock pulses to read out said electrical video signal;



(c) a second clock pulse generating means for generating, on the basis of said index pulse, a fourth train of clock pulses having a pulse number for actual size copy operating to control a movement length of said magnetic head, a fifth train of clock pulses whose pulse number is larger than that of said fourth train of clock pulses, a sixth train of clock pulses whose pulse number is smaller than that of said fourth train of clock pulses;

(d) a drive source for moving said magnetic head along the axial direction of said magnetic recording drum for every one line read-out of said photoelectric converting means and for controlling the movement length of said magnetic head on the basis of pulse number;

(e) a selecting means for selectively outputting said first train of clock pulses from said first clock pulse generating means and said fourth train of clock pulses from said second clock pulse generating means in actual-size copy operation, said second train of clock pulses from said first clock pulse generating means and said fifth train of clock pulses from said second clock pulse generating means in enlargement copy operations and said third train of clock pulses from said first clock pulse generating means and said sixth train of clock pulses from said second clock pulse generating means in reduction copy operation.

4,365,277

DEVICE FOR DETECTING THE POSITION OF A TAPE IN A MAGNETIC TAPE RECORDING AND/OR REPRODUCING APPARATUS

Yasuomi Namiki, Yokohama, Japan, assignor to Victor Company of Japan, Ltd., Yokohama, Japan

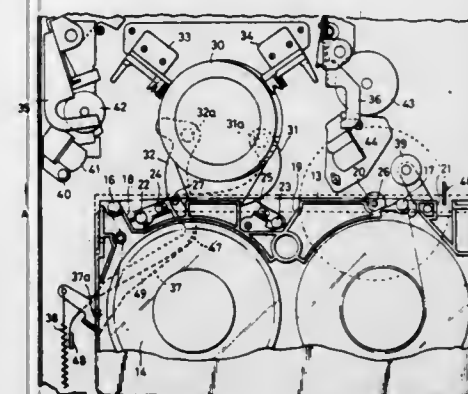
Filed December 27, 1979, Ser. No. 106,883

Claims priority, application Japan, December 28, 1978, 53-163752

Int. Cl.³ G11B 15/60, 15/43, 15/44, 15/52

U.S. Cl. 360—72.1

8 Claims



1. A device for detecting the position of a magnetic tape in a recording/reproducing apparatus including drawing out means for drawing the tape out from a tape cassette, the tape having a layer of magnetic material on a side facing outwardly from said cassette, said device comprising:

means for transporting said tape within said cassette during a fast forward or rewind mode, said tape being drawn outside said cassette by the drawing out means during operation in either a recording or reproducing mode; tape guide pole means for making contact with a side of said tape which is opposite the side having the magnetic layer thereon, said tape guide pole means entering into the tape cassette when it is placed in an operational position, and for making contact with said opposite side of the tape; tension arm means having said tape guide pole means thereon, said tension arm means being located at a first position where the tape guide pole means contacts the tape within the cassette during the fast forward or rewind mode and moving to a second position so that the tape guide pole means contacts the tape drawn out from the cassette during the recording or reproducing mode, said tape guide pole means acting as a tension pole when the tension arm means is at said second position; and detection heads embedded in a side of said tape guide pole means for making contact with said opposite side of said tape for detecting a tape position designating signal recorded on said magnetic layer, and said detection head being operative during said fast forward, rewind, recording and reproducing modes, said tape guide pole means having an inclined top guide part for guiding and directing said magnetic tape to make contact with the detection head when said cassette is placed in the operating position of said recording reproducing apparatus.

4,365,278

DEVICE FOR DETECTING NON-RECORDED PORTIONS ON MAGNETIC TAPE

Yoshiyuki Takizawa, Takashi Kashiwazaki, Koji Shimoda, and Kazumi Kuriyama, all of Tokorozawa, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed August 29, 1980, Ser. No. 182,744

Claims priority, application Japan, August 31, 1979, 54/111863

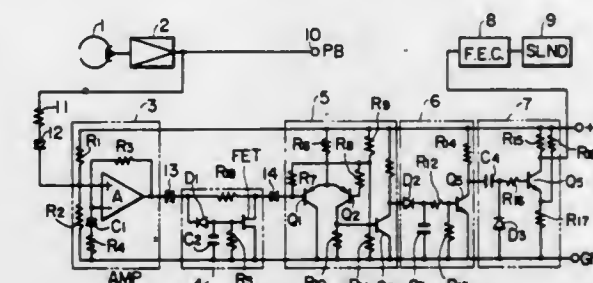
Int. Cl.³ G11B 15/18, 17/00

U.S. Cl. 360—73

10 Claims

1. A device for detecting non-recorded portions on a magnetic tape and for operating a solenoid for controlling the running speed of the tape comprising: an amplifying circuit for

amplifying a signal from a playback head in a tape recorder, said signal from said playback head having different amplitudes for recorded and non-recorded portions on said magnetic tape; a malfunction preventing circuit having an input coupled to an output of said amplifying circuit, said malfunction preventing circuit passing an output signal from said amplifying circuit to an output terminal of said malfunction preventing



circuit when said output signal has an amplitude level above a predetermined level for a predetermined period of time, and said malfunction preventing circuit comprising means for varying an impedance between said output terminal and a reference terminal in response to the amplitude of said output signal; and means for operating said solenoid in response to a signal produced on said output terminal of said malfunction preventing circuit.

4,365,279

MAGNETIC RECORDING AND REPRODUCING APPARATUS WITH DEVICE FOR TRACKING CONTROL OF ROTARY MAGNETIC HEADS

Hideo Kinjo, Yokohama, Japan, assignor to Victor Company of Japan, Ltd., Yokohama, Japan

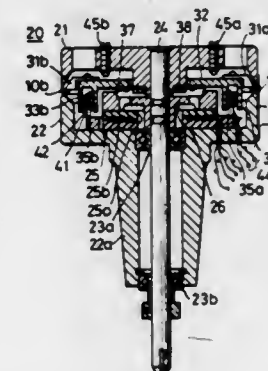
Filed August 18, 1980, Ser. No. 178,852

Claims priority, application Japan, August 21, 1979, 54-106451; August 22, 1979, 54-106862

Int. Cl.³ G11B 21/18, 21/10, 5/52

U.S. Cl. 360—109

7 Claims



1. A magnetic recording and reproducing apparatus comprising: a rotary swinging member rotating unitarily with a rotary shaft, said rotary swinging member having integrally therewith a pair of arcuate yoke parts at positions which are opposed in a diametric direction of a rotating plane of the rotary swinging member about a rotation center thereof, said yoke parts having U-shaped cross sections and accordingly having respective grooves therealong; permanent magnets respectively fixed to said pair of yoke parts in a state where their opposite polarities are opposed, said permanent magnets being respectively fixed to inner wall surfaces of said grooves; a pair of rotary magnetic heads supported on the rotary swinging member at positions opposed in a diametric direction of a rotating plane of the rotary swinging mem-

ber about a rotation center thereof in a state where tips of said heads project outwards from outer surface of the yoke parts;
 fulcrum means for supporting said rotary swinging member in a freely swinging manner and acting as a fulcrum for swinging, said fulcrum being in a direction perpendicular, at a rotation center, to a line connecting said pair of rotary magnetic heads; and
 a control coil of cylindrical shape disposed at a position where said control coil exists in a magnetic field formed by the permanent magnet rotating with the rotary swinging member, said control coil being inserted relatively in said grooves, said control coil being supplied with a control signal;
 said rotary swinging member swinging in response to the control signal with said fulcrum means as a fulcrum for swinging.

4,365,280

ESCUTCHEON SIMULATIVE OF A RADIO FOR DISGUIISING ELECTRONIC APPARATUS

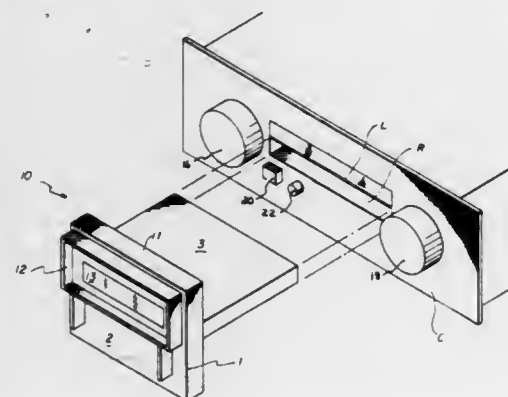
Stephen M. Crosetti, and Michael A. Crosetti, both of Oakland, Calif., assignors to Bicro, Incorporated, Oakland, Calif.

Filed August 4, 1980, Ser. No. 174,863

Int. Cl.³ G11B 1/00; F41H 3/00

U.S. Cl. 360-137

13 Claims



1. An escutcheon for disguising the appearance of electronic apparatus to conceal its identity from observation, said electronic apparatus having exposed functional indicia and operator controls from which its identity can be determined by observation, the escutcheon comprising:
 a face plate configured and dimensioned so that, when anchored to the electronic apparatus, it covers against observation of functional indicia and operator controls from which the identity of said electronic apparatus can be determined; indicia disposed on the face plate so as to be exposed for observation when said face plate is anchored to the electronic apparatus, said indicia representing a radio tuning dial indicator;
 and anchor means attached to the face plate for removably anchoring said face plate to the electronic apparatus to cover against observation of functional indicia and operator controls from which the identity of said electronic apparatus can be determined by observation, whereby the appearance of said electronic apparatus is disguised as a radio to conceal its identity from observation.

4,365,281

PROTECTION CIRCUIT FOR SWITCHING TRANSISTORS SERIALLY CONNECTED BETWEEN A D.C. VOLTAGE SOURCE

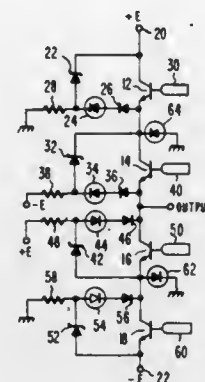
Richard H. Baker, Bedford, Mass., assignor to Reliance Electric Company, Cleveland, Ohio

Filed June 18, 1980, Ser. No. 160,828

Int. Cl.³ H02H 9/04

U.S. Cl. 361-91

22 Claims



1. A bipolar nonlinear switching amplifier, comprising:
 first through fourth like conductivity transistor switch means having a main current conduction path connected serially, each having a base, collector, and emitter electrodes;
 a source of voltage E_1 being applied to a first end of said serial combination, a second source of voltage E_2 being applied to a remaining end of said serial combination;
 an output terminal connected to the common connection of said second and third transistor switch means;
 diode means coupled to a common connection of the emitter and collector of the first and second transistor switch means and the third and fourth transistor switch means;
 voltage sensing means for each respective transistor of the first and second transistor switch means and the third and fourth transistor switch means, responsive to a voltage V_{ce} developed between the emitter and collector electrodes of a respective transistor, each said sensing means providing a first control signal whenever said voltage V_{ce} is less than a predetermined value and providing a second control signal whenever said voltage V_{ce} is equal to or greater than said predetermined voltage;
 logic controller means, operable for selectively providing a drive signal to the base electrode of each transistor switch means rendering it substantially conductive upon a concurrent condition of:
 (a) a first control signal being provided for a respective transistor and
 (b) conduction through one other of said first through fourth transistor switch means providing a voltage at said output terminal about equal to either E_1 or E_2 .

4,365,282

OVERVOLTAGE PROTECTOR USING VARISTOR INITIATED ARC

John P. Brainard, Albuquerque, N. Mex., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed 1980, Ser. No. 121,566

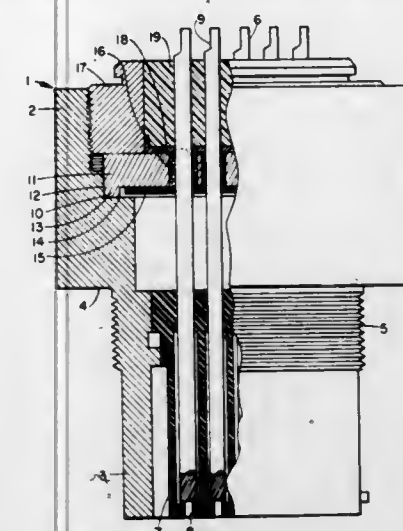
Int. Cl.³ H02H 9/04

U.S. Cl. 361-127

11 Claims

1. An electrical overvoltage protection device comprising first electrically conductive means for carrying an electric signal subject to overvoltage; second electrically conductive means spaced from said first means a minimum distance X for dissipating the overvoltage; insulator means forming with said first and second conductive means an enclosure; and means within the enclosure for conducting the overvoltage consisting of at least one element of non-electroded varistor material in

essentially only point or line contact with and providing a first high impedance current path between said conductive means, said material including no element having a minimum cross-



sectional dimension less than $0.2X$, and an arc-sustaining gas providing a secondary lower impedance current path between said conductive means when initiated by arcs that form at said point or line contacts.

4,365,283

CORONA DISCHARGE POLING PROCESS

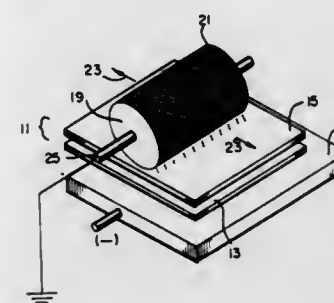
Peter F. Radice, King of Prussia, Pa., assignor to Pennwalt Corporation, Philadelphia, Pa.

Filed October 16, 1980, Ser. No. 197,466

Int. Cl.³ H01F 1/02

U.S. Cl. 361-233

18 Claims



1. A process for poling polymer pellicles to impart piezoelectric activity to the pellicles comprising subjecting a multi-layer of pellicles of which at least one is a PES pellicle and at least one other of which is a companion pellicle to a corona discharge between a pair of electrodes of which at least one such electrode has a textured surface.

4,365,284

RESISTOR MODULE

Katsuo Tanaka, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed April 11, 1980, Ser. No. 139,167

Claims priority, application Japan, April 27, 1979, 54-52122

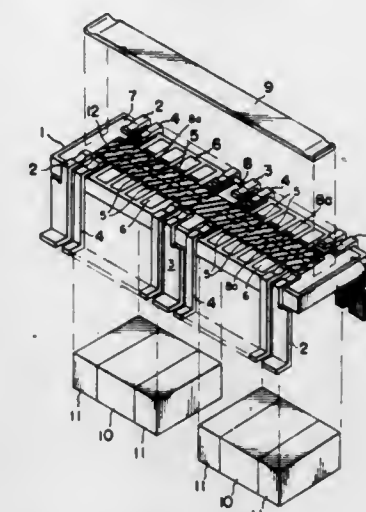
Int. Cl.³ H01C 1/14

U.S. Cl. 361-395

5 Claims

1. A resistor module for use with printed circuit boards to increase the element density thereof and to make probing of the module for measuring easy comprising:
 a plurality of resistors formed on one surface of an insulated substrate, a connecting conductor pattern, and leads also formed on said insulated substrate for external connection of the resistors;
 the plurality of resistors each being connected at one end to an external connection lead and connected together at the other end to a common terminal of the connecting conductor pattern;
 an insulating layer provided over the ends of the resistors

and being substantially wider than the common terminal connection of the conductor pattern so that said insulating layer completely covers the common terminal connection and also overlaps the common ends of the plurality of resistors connected said common terminal; and
 a conductor bar of a width greater than that of the common terminal and yet not as wide as said insulating layer pro-



vided on the insulating layer to be connected with a power source pattern or grounding pattern of the printed circuit board, the conductor bar thus providing a wide probing contact surface substantially wider than the common terminal along the entire length of the module to permit easy measuring of the individual resistors by a probe having fixed, spaced contacts.

4,365,285

VEHICULAR SEAT BELT APPARATUS (LITE-A-BELT)

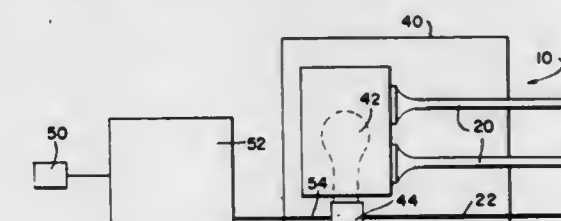
Larry G. Brundage, 481 45th Pl., NE., Salem, Ore. 97301

Filed March 20, 1981, Ser. No. 245,825

Int. Cl.³ B60R 21/10; F21V 33/00; F21L 15/20

U.S. Cl. 362-32

6 Claims



1. Improved vehicular seat belts comprising a pair of seat belt elements forming a safety seat belt apparatus for a vehicle,
 a light source means selectively energized to emit light,
 a fiber optic cord means disposed along a length of at least one of said seat belt elements and receiving emitted light from said light source and displaying said light onto terminal or buckle members of said seat belt elements, and
 switch means for selectively energizing said light source.

4,365,286

AUDIO-FREQUENCY POWERLINE CARRIER CONTROL SYSTEM WITH A CURRENT SUPERVISORY DEVICE

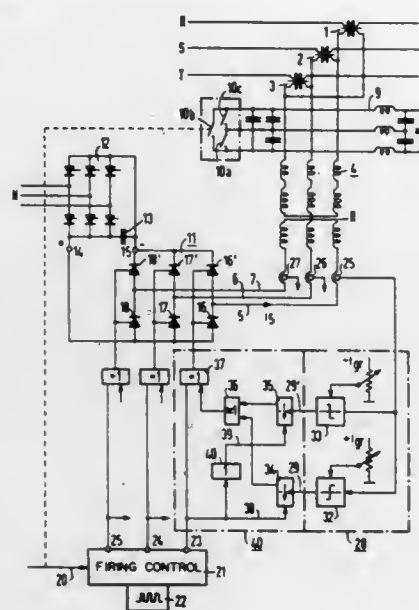
Karl Klausecker, Erlangen, and Manfred Müller, Nuremberg, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany
Filed March 3, 1981, Ser. No. 239,976

Claims priority, application Fed. Rep. of Germany, March 5, 1980, 3008480

Int. Cl.³ H02H 7/122

U.S. Cl. 363—58

8 Claims



1. In an audio-frequency powerline carrier control system to be connected to an N-phase alternating current powerline, comprising:

an audio-frequency signal transmitter comprising a controllable inverter with three-phase outputs having an impressed d-c input voltage;

a plurality of current transformers, in a delta configuration, each coupled to a respective phase output of said inverter to feed the transmitted audio-frequency signal in series into the alternating current powerline;

filter circuits in parallel with the current transformers;

an ignition control connected to the inverter and a pulse generator to form ignition control pulses for the inverter to cause the inverter to produce, during a predetermined transmission period, audio-frequency phase voltages at its respective phase outputs, said control including an intervention input for limiting the peak current in order to decrease the voltage time area of the audio-frequency phase voltage in response to an intervention command; monitoring means determining the phase currents between the inverter and filter circuit adapted to provide an intervention command if a predetermined current limit for the peak current is reached, the improvement comprising:

the monitoring means including a monitoring device connected to each phase output for detecting when the associated inverter phase output current exceeds a threshold current of predetermined magnitude to thereby deliver separate intervention commands for each phase when the phase current exceeds the limit, independently of the other phase currents; and

intervention control means, one for each phase, connected to a corresponding one of the monitoring devices for intervening in the control of the respective inverter phase in response to an intervention command from a respective monitoring device, said intervention control means adapted to apply a d-c voltage component to the respective inverter output phase by decreasing the voltage-time area of the inverter phase output voltage half-cycle whose polarity corresponds to the sign of the peak, as compared to the average voltage-time area of such a half-cycle in the case of non-intervention.

4,365,287

SWITCHING DEVICE

Leslie J. Kettle, Chelmsford, and Barry P. Newton, Boreham, both of England, assignors to English Electric Valve Company Limited, Chelmsford, England

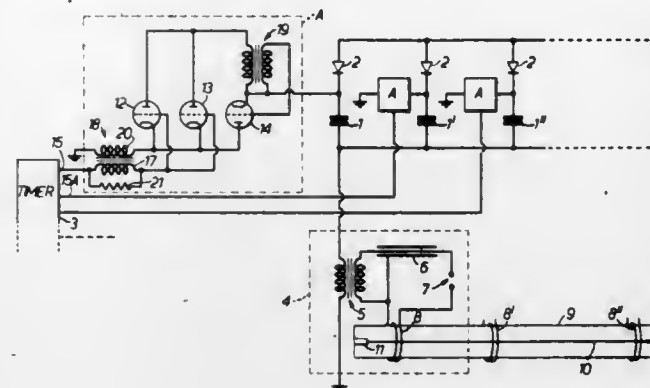
Filed September 8, 1980, Ser. No. 185,383

Claims priority, application United Kingdom, September 7, 1979, 7931073

Int. Cl.³ H03K 3/53

U.S. Cl. 363—94

4 Claims



1. A switch device comprising:

two switches connected in parallel in a first electric path; a timing device for feeding at a required time a switching impulse along a second electric path to said switches thereby switching at least one of them to a conductive state so that current flows along the first path;

and a transformer having a primary in said first path and a secondary in said second path;

said transformer, said switches and said timing device being interconnected for causing the current flow created by switching of one of said switches to induce a further switching impulse or to reinforce the first-recited switching impulse thereby switching or assisting the switching of the other switch to a conductive state.

4,365,288

ELECTRIC POWER CONVERTER FOR RECREATIONAL VEHICLE

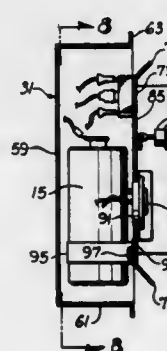
John K. Robe, Newport Beach, and Robert M. Keranen, Tustin, both of Calif., assignors to Carr-Griff, Fullerton, Calif., a part interest

Filed March 2, 1979, Ser. No. 16,928

Int. Cl.³ H05K 7/20

U.S. Cl. 363—141

12 Claims



1. A converter adapted to be mounted within an opening in a wall wherein the wall at least partially defines a structure having an interior, said converter comprising:

a receptacle adapted to be received within the opening in the wall, said receptacle having a rear wall;

a cover plate;

means for attaching said cover plate to said receptacle to permit said cover plate to be opened to provide an opening in the receptacle through which access to the interior

of said receptacle can be obtained, said cover plate being adapted to be exposed in the interior of the structure whereby access can be obtained to the interior of the receptacle from the interior of the structure;

vent opening means in said cover plate whereby ventilation air from the interior of the structure can pass through the receptacle;

a base mounting plate on said receptacle;

a plurality of circuit elements including a step-down transformer mounted on said base mounting plate, at least a major portion of said transformer being within the interior of said receptacle between said base mounting plate and said rear wall of said receptacle; and

means for releasably mounting said base mounting plate on said receptacle whereby with said cover plate opened said base mounting plate can be removed from said receptacle through the opening in said receptacle to facilitate repair and testing of said plurality of circuit elements.

4,365,289

METHOD AND CONTROL SYSTEM FOR CONTROLLING APPARATUS

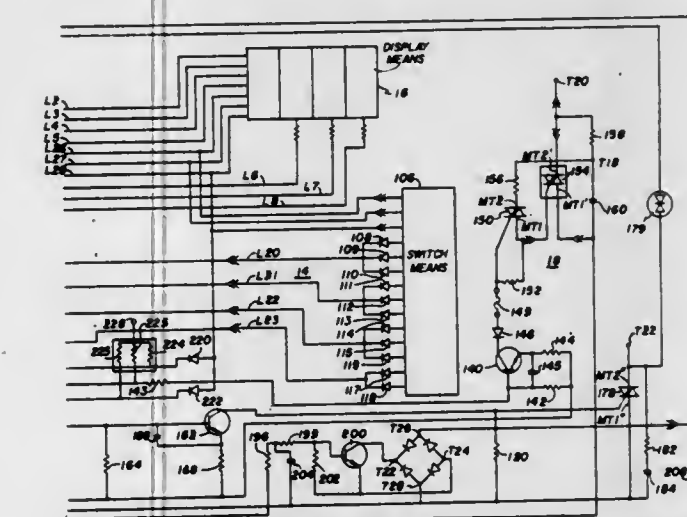
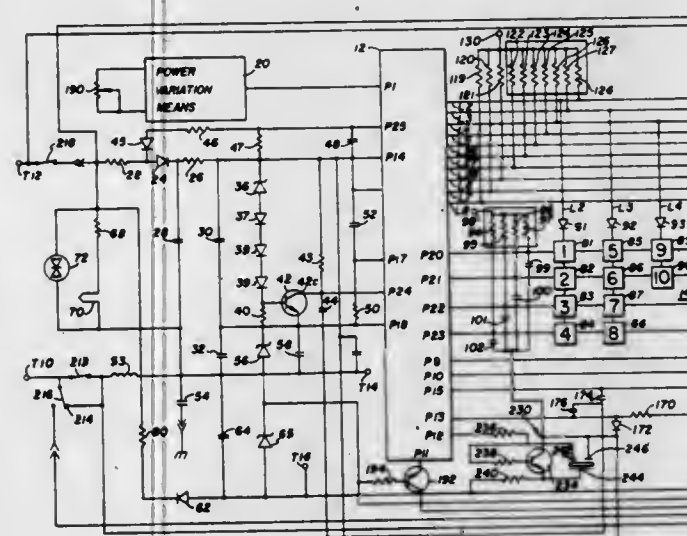
James E. Small, Indianapolis, and Mark E. David, New Palestine, both of Ind., assignors to Emhart Industries, Inc., Indianapolis, Ind.

Filed 1980, Ser. No. 118,470

Int. Cl.³ G06F 15/46; G05B 19/10

U.S. Cl. 364—143

21 Claims



1. A control system for an apparatus having at least one machine function and a cycle of operation associated therewith, comprising:

a central control element for controlling said machine function,

first means for inputting a selection of one of a plurality of fixed periods to said central control element for causing

said control element to activate said machine function for said cycle of operation in response to said one period; manually operable switch means for determining a variable period for said cycle of operation independently of said central control element; and

second means for inputting said variable period from said means for determining and into said central control element,

said central control element having information stored therein, said information including said plurality of fixed periods for selection through said first means for inputting and an instruction repertoire for causing said control element to control said machine function in response to either one of said fixed periods or said variable period.

4,365,290

COMPUTER SYSTEM WITH POWER CONTROL CIRCUIT

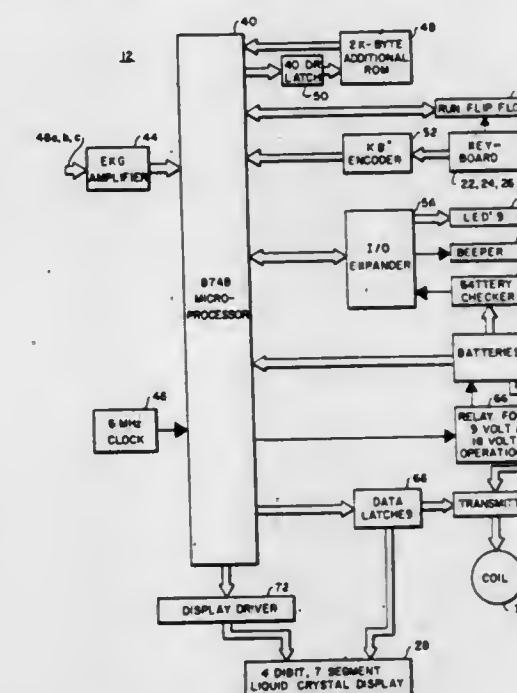
George E. Nelms, Edina; Thomas C. Barthel, Becker, and William J. Bergland, Fridley, all of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed March 12, 1979, Ser. No. 19,625

Int. Cl.³ G06F 01/04; A61N 01/36

U.S. Cl. 364—200

22 Claims



1. A computer system energized by a depletable energy source coupled to selectively energize the elements of said computer system, said computer system operable in an off/rest mode, a power down mode, and an operating mode, comprising:

(a) data input means for entering data into said computer system;

(b) decoding means coupled to said data input means and operable in the power down mode for decoding data received from said data input means and for providing a data available manifestation indicative of the availability of decoded data;

(c) actuatable means for providing upon actuation a transition manifestation;

(d) memory means for storing a program;

(e) processor means energized in its operating mode for executing the program to process the decoded data derived from said decoding means; and

(f) power control means coupled to said actuatable means and to said depletable energy source for variously energizing the elements of said computer system in its off/rest mode at a low power level, its power down mode at an intermediate power level, and its operating mode at a high power level, said power control means comprising a storage element continuously energized by said depletable

energy source and responsive to the transition manifestation of said actuable means to dispose said computer system from its off/rest mode to its power down mode wherein said decoding means is energized by said depletable energy source, said power control means coupled to said decoding means and responsive to the data available manifestation to dispose said computer system from its power down to its operating mode, wherein said processor means is energized to execute the stored program.

4,365,291

SYSTEM FOR BIDIRECTIONAL TRANSMISSION OF INTERLOCKED SIGNALS

Vittorio Zanchi, Milan, and Tiziano Maccianti, Pregnana Milanese, both of Italy, assignors to Honeywell Information Systems Italia, Milan, Italy

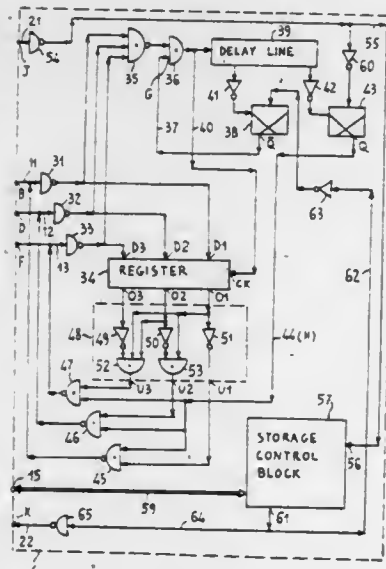
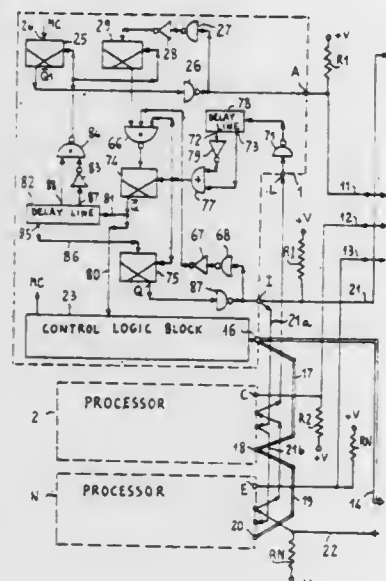
Filed May 3, 1979, Ser. No. 35,861

Claims priority, application Italy, May 5, 1978, 23037 A/78

Int. Cl.³ G06F 13/00

U.S. Cl. 364-200

2 Claims



1. In a digital data processing system comprising first and second units of a data processing system, wherein the units communicate with each other by transferring data over communication lines linking together the two units and wherein when communication of data between the units is to occur, said first unit generates a communication initiation signal; an improved interface circuit for providing a dialogue between said units to control communication between said units, comprising in combination:

- first and second communication lines extending between said two units;
- first and second line drivers disposed respectively in said first and second units, each of said line drivers having an

input terminal and an output terminal, the output terminal of each of said line drivers being coupled to a respective end of said first communication line to provide that said first communication line assumes a first binary state when both of said line drivers deliver on the output terminals thereof signals representing the same one of a binary state and assumes a second binary state when either one of said signals delivered by said line drivers does not represent said one binary state;

first and second bistable elements disposed respectively in said first and second units;

means for coupling said first bistable element to said first line driver to supply a signal to the input terminal of said first line driver representative of the binary state of said first bistable element;

means for coupling said second bistable element to said second line driver to supply a signal to the input terminal of said second line driver representative of the binary state of said second bistable element;

said first and second bistable elements in the initial mode of said interface circuit operating in respective first and second predetermined binary states to cause said first driver to deliver a signal which does not represent said one binary state and said second line driver to deliver a signal which represents said one binary state;

first and second detecting means disposed respectively in said first and second units, each of said detecting means being coupled to sense the binary state of said first communication line and to generate an output signal representing the binary state sensed thereby;

means for applying said communication initiation signal to said first bistable element to transfer said first bistable element from said first predetermined binary state to the other binary state when said communication initiation signal occurs, to represent a request by said first unit to communicate with said second unit;

said second detecting means being coupled to said second bistable element to provide for the output signal of said second detecting means to transfer said second bistable element from said second predetermined binary state to the other binary state when the binary state of said first communication line changes from said second binary state to said first binary state, to represent acknowledgment of the receipt by said second unit of said request to communicate;

said first bistable element being coupled to receive a first kind output signal generated by said first detecting means when said first communication line changes from said first binary state to said second binary state, said first bistable element changing from said other binary state thereof to said first predetermined binary state upon the occurrence of said first kind output signal;

a third line driver disposed in said first unit, said third line driver having an input terminal and an output terminal, the output terminal of said third line driver being coupled to one end of said second communication line, said third line driver being coupled to receive said first kind output signal and responsive to said first kind output signal to cause said second communication line to assume a first binary state thereof for initiating the communication requested by said first unit; and

a third detecting means disposed in said second unit, said third detecting means being coupled to sense the binary state of said second communication line and to generate an output signal representing the binary state sensed thereby, said third detecting means being coupled to said second bistable element to provide for the output signal of said third detecting means to transfer said second bistable element from said other binary state thereof to said second predetermined binary state when said communication line changes to said first binary state thereof.

4,365,292

ARRAY PROCESSOR ARCHITECTURE CONNECTION NETWORK

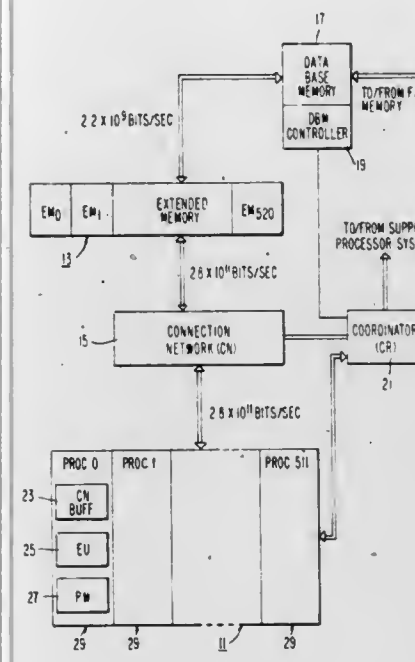
George H. Barnes; Stephen F. Lundstrom, both of Wayne, and Philip E. Shafer, Holmes, all of Pa., assignors to Burroughs Corporation, Detroit, Mich.

Filed November 26, 1979, Ser. No. 97,419

Int. Cl.³ G06F 13/06

U.S. Cl. 364-200

5 Claims



1. A connection network for use between a parallel array of processors and a parallel array of memory modules for establishing non-conflicting data communications paths between requested memory modules and requesting processors, said connection network comprising:

a plurality of switching elements interposed between said parallel array of processors and said parallel array of memory modules in an Omega networking architecture wherein each switching element includes:

a first and a second processor side port;

a first and a second memory module side port;

control logic means for providing data connections between said first and second processor ports and said first and second memory module ports, said control logic means including:

strobe means for examining data arriving at said first and second processor side ports to indicate when said arriving data describes a request for connection from a requesting processor to a requested memory module, each said request for connection from a requesting processor of said parallel array of processors being independent as to synchronism with requests for connection from other requesting processors of said last mentioned array; and

connection means associated with said strobe means for examining requesting data arriving at said first and said second processor ports for providing a data connection therefrom to said first and said second memory module ports in response thereto when said data connection so provided does not conflict with a pre-established data connection currently in use whereby non-conflicting data communications paths are established between requesting processors and requested memory modules.

4,365,293

SERIAL COMMUNICATIONS BUS FOR REMOTE TERMINALS

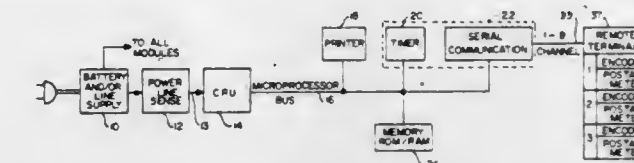
Earl B. Holtz, Huntington, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

Filed March 28, 1980, Ser. No. 134,739

Int. Cl.³ G06F 3/04

U.S. Cl. 364-200

8 Claims



1. A postage data processing system including a plurality of remote postage data entry stations, said system comprising:

(a) main processing means for maintaining a record of postage data;

(b) a serial data bus, the data bus including a plurality of first status lines for initiating communication, each of the status lines being operatively connected to a different entry station and a plurality of shared data lines for data transfer between each of the entry stations and the main processing means, each entry station being operatively connected to and sharing the data lines; and

(c) communication means operatively connected between the main processing means and said data bus for allowing said main processing means to communicate over said data bus with only one of said plurality of data entry stations at a given time, said communication means including controller means communicating with the first status lines for assigning the priority of each of said plurality of data entry stations attempting to communicate over said data bus on a rotating basis and for selecting the data entry station having the highest priority for communication with the main processing means over said data lines, the communication means further including common driving circuit means associated with each of the shared data lines, the entry stations being free of individual driving circuitry associated with the data lines.

4,365,294

MODULAR TERMINAL SYSTEM USING A COMMON BUS

Richard A. Stokken, Attleboro, Mass., assignor to Nizdorf Computer Corporation, Burlington, Mass.

Filed April 10, 1980, Ser. No. 138,957

Int. Cl.³ G06F 15/16, 13/00

U.S. Cl. 364-200

67 Claims

1. A modular data processing system having a plurality of discrete functional modules, said system comprising:

a first central processing unit (CPU) (22) on one circuit board;

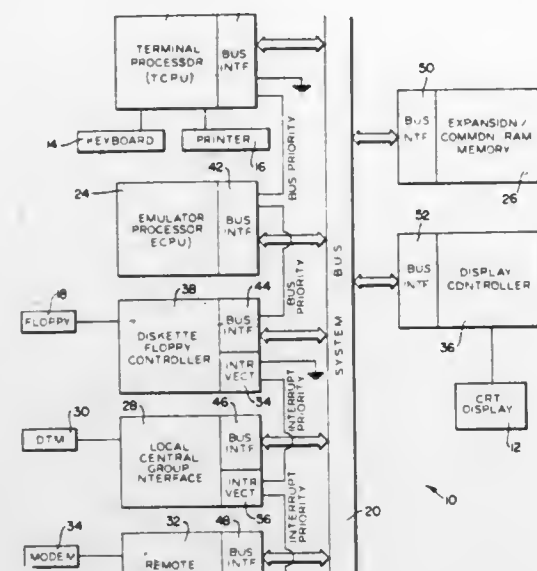
at least one slave module (24, 26, 28, 32, 36) on another circuit board;

a system bus (20) to which the circuit boards of the first CPU and slave module are pluggably connected, operative to provide a communication link between the CPU and slave module;

CPU bus interface means (40) on said one circuit board for supplying address, data, and command signals over the bus to the slave module;

slave module bus interface means (171) on said another circuit board for supplying an operation acknowledge signal to the CPU over the bus after a predetermined delay time associated with the time necessary for the slave module to complete a particular command operation; and

bus time out means (110) in the CPU on said one circuit board for detecting when the operation acknowledge



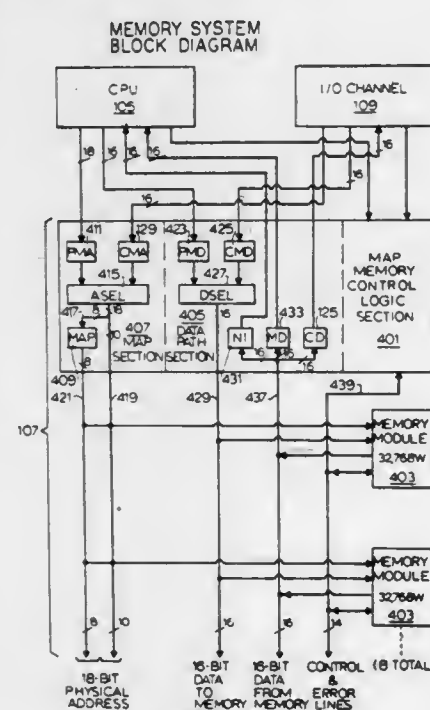
signal has not been received from the slave module over the bus within a predetermined period of time.

4,365,295 MULTIPROCESSOR SYSTEM

James A. Katzman, San Jose; Joel F. Bartlett, Palo Alto; Richard M. Bixler, Sunnyvale; William H. Davidow, Atherton; John A. Despotakis, Pleasanton; Peter J. Graziano; Michael D. Green, both of Los Altos; David A. Greig; Steven J. Hayashi, both of Cupertino; David R. Mackie, Ben Lomond; Dennis L. McEvoy, Scotts Valley; James G. Treybig, and Steven W. Wierenga, both of Sunnyvale, all of Calif., assignors to Tandem Computers Incorporated, Cupertino, Calif.
Division of Ser. No. 721,043, Sep. 7, 1976, Pat. No. 4,228,496.
This application May 6, 1980, Ser. No. 147,309
Int. Cl.³ G06F 13/00

U.S. Cl. 364-200

7 Claims



1. A memory system for providing complete isolation of user data, system data, user code and system code without the need for protection limit registers or protection keys in a multiprocessor system of the kind in which separate processor modules operate concurrently and cooperatively for system control and for application processing of user programs and wherein each

processor module comprises a central processing unit, an input/output channel and a main read-write memory, said memory system comprising physical memory including physical address means for accessing words of the physical memory with a unique physical address,

logical address means for organizing the physical memory into a logical memory space and dividing the logical memory space into a logical user data area, a logical system data area, a logical user code area and a logical system code area, each of the four logical areas being logically separate and distinct from the other logical areas by means of a logical address which corresponds to a physical address,

port means for permitting a central processing unit and an input/output channel to access the physical memory by use of the logical addresses, and

map means comprising a user data section, a system data section, a user code section, and a system code section, each of said sections being separate, for translating each logical address into a physical address, the sections of the map means being operatively associated only with the corresponding area of the logical memory space, thereby making each area of the logical memory space inaccessible from other areas of the logical memory space.

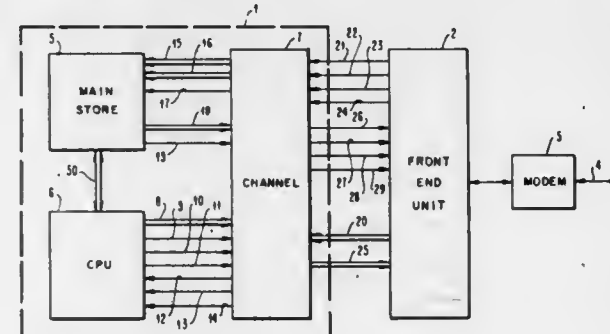
4,365,296 SYSTEM FOR CONTROLLING THE DURATION OF THE TIME INTERVAL BETWEEN BLOCKS OF DATA IN A COMPUTER-TO-COMPUTER COMMUNICATION SYSTEM

Siegfried W. Ulmer, Cagnes, France, assignor to International Business Machines Corp., Armonk, N. Y.
Filed September 15, 1980, Ser. No. 187,122
Claims priority, application France, September 28, 1979, 79 24578

U.S. Cl. 364-200

Int. Cl.³ G06F 3/00

4 Claims



1. In a communication system of the type that comprises a computer connected to a transmission medium through a front-end communication unit and which transmits data blocks separated from each other by an interval, a system for controlling the duration of said interval, characterized in that it comprises: transfer means located in the computer for sending a first data block to the front-end unit, means located in the front-end unit for sending said first data block over the transmission medium, end means located in the front-end unit for sending to the computer a first end indication that said first data block has been transmitted, means located in the computer for sending to the front-end unit, in response to said first indication, a command specifying the duration of the time interval which is to separate the transmission of said first data block from that of a next data block, timing means located in the front-end unit, and means located in the front-end unit for decoding said command and activating said timing means to cause same to determine a time interval whose duration is equal to that specified by said command, said end means being caused

to send to the computer a second end indication when the time interval determined by said timing means has expired, and said transfer means being responsive to said second end indication

for sending a second data block to the front-end unit, in order that said second block may be sent over the transmission medium by said front-end unit.

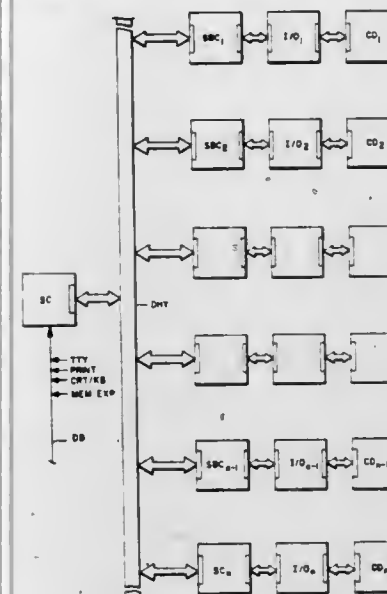
4,365,297 INDUSTRIAL CONTROL SYSTEM WITH DISTRIBUTED COMPUTER IMPLEMENTED LOGIC

James S. Grisham, Jr., Arlington, Tex., assignor to Forney Engineering Company, Carrollton, Tex.

Filed December 29, 1980, Ser. No. 221,328
Int. Cl.³ G06F 9/40, 7/00, 15/16, 15/46

U.S. Cl. 364-200

8 Claims



1. A computer system for setting a plurality of output signals in accordance with input data and logic functions operating upon said data in accordance with interconnections directed by the user of said computer system comprising:

a first memory having a set of logic input locations for storing input data and a set of logic output locations to store output data,

program storage means containing program instructions including an applications set of instructions and a patch panel set of instructions,

computer means to obtain and execute said instructions in a repeated program sequence alternately cycling through said patch panel set of instructions and said applications set of instructions,

said applications set of instructions causing said computer means to carry out a multiplicity of logic functions on the data stored in said logic input locations and to store data in said logic output locations in accordance with said data in said logic input locations and the logic functions performed on the data in said logic input locations, each of said logic functions having at least one input location assigned exclusively thereto and one logic output location assigned exclusively thereto,

a plurality of I/O ports for receiving input data and for storing output data to set output conditions at said I/O ports,

a patch panel memory having a plurality of memory locations, each memory location having a FROM section and a TO section adapted to store addresses of said I/O ports, said logic input locations, and said logic output locations, whereby the user of the system can specify connections by the addresses stored in said patch panel memory from said I/O ports to the inputs of said logic functions, from the outputs of said logic functions to said I/O ports, and from the output of said logic functions to the inputs of said logic functions,

said patch panel set of instructions causing said computer

means to read out the addresses stored in sequential memory locations of said patch panel memory in sequence and to read the data selected by the addresses stored in the FROM sections and to store data in accordance therewith at the addresses selected by the corresponding TO sections;

whereby said computer means by alternately cycling through said patch panel set of instructions and said applications set of instructions will perform logic functions on the input data at said I/O ports in accordance with the interconnections of said logic functions specified by the user in said patch panel memory and store data at said I/O ports in accordance with the logic functions performed on said input data.

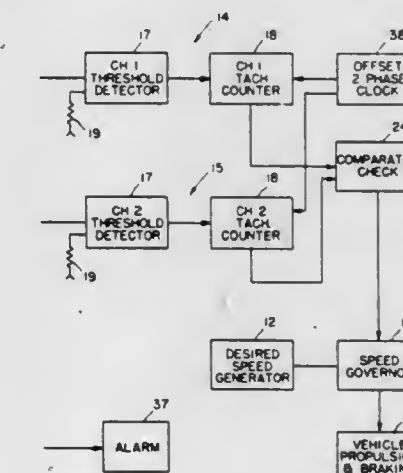
4,365,298 SPEED CONTROL SYSTEMS FOR GOVERNING THE SPEED OF A VEHICLE

Henry C. Sibley, Adams Basin, and David B. Rutherford, Jr., Rochester, both of N.Y., assignors to General Signal Corporation, Stamford, Conn.

Filed May 5, 1980, Ser. No. 146,884
Int. Cl.³ B60K 31/00; G05D 13/62

U.S. Cl. 364-426

10 Claims



1. A speed control system for governing the speed of a vehicle comprising tachometer signal generating means for generating a tachometer signal having a frequency characteristic of the actual speed of the vehicle, desired speed signal generating means for generating a signal indicative of a desired speed for the vehicle, and vehicle control means governed jointly by the tachometer signal generating means and the desired speed signal generating means for governing the speed of the vehicle, wherein improved tachometer signal checking means comprises:

(a) first and second parallel connected channel means responsive to the tachometer signal for checking that tachometer pulses are enough above a threshold detector value to assure accurate calculation of the actual speed of the vehicle when counting the tachometer pulses,

(b) each of the channel means comprising in series operational amplifier means, threshold detector means, and tachometer pulse counting means for counting tachometer pulse outputs of each of the channels,

(c) biasing means for each of the threshold detector means for requiring a minimum amplitude tachometer pulse input to each threshold detector means to deliver an output to the pulse counting means of the associated channel,

(d) tachometer pulse attenuating means for acting on tachometer pulse inputs in each of the channels for periodically testing that attenuated tachometer pulses are at least above the threshold setting of the threshold detector for the associated channel,

(e) attenuation enabling means for selectively rendering the

attenuating means effective for the respective channels during predetermined intervals, and
(f) comparator check means for checking that the substantially same number of tachometer pulses is counted by both channels before permitting the count of the tachometer pulses to normally generate an output enabling continued progress of the vehicle.

4,365,299

METHOD AND APPARATUS FOR CONTROLLING AIR/FUEL RATIO IN INTERNAL COMBUSTION ENGINES

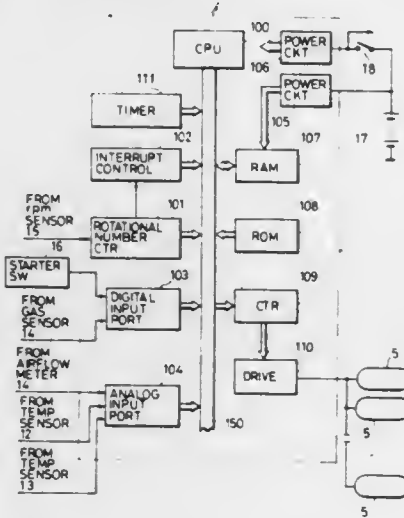
Toshio Kondo, Anjo; Akio Kobayashi; Tomomi Eino, both of Kariya, and Masahiko Tajima, Takahama, all of Japan, assignors to Nippondenso Company, Limited, Kariya, Japan
Filed August 26, 1980, Ser. No. 181,342

Claims priority, application Japan, October 10, 1979, 54-131062

Int. Cl.³ F02B 3/04; F02M 7/20

U.S. Cl. 364—431.06

11 Claims



7. Apparatus for controlling the air/fuel ratio of an air/fuel mixture supplied to an internal combustion engine, comprising:
(a) an airflow meter for producing an output signal indicative of the flow rate of the intake air supplied to said engine;
(b) an intake air temperature sensor for producing an output signal indicative of the temperature of the intake air of said engine;
(c) a coolant temperature sensor for producing an output signal indicative of the temperature of the coolant of said engine;
(d) a gas sensor for producing an output signal indicative of the concentration of a given gas in the exhaust gases of said engine;
(e) a rotational speed sensor for producing an output signal indicative of the engine rpm;
(f) fuel injection valves for supplying said engine with fuel in accordance with a driving current; and
(g) controlling means for producing said driving current in accordance with the output signals of said airflow meter, intake air temperature sensor, coolant temperature sensor, gas sensor, and rotational speed sensor, said controlling means including a storage device in which data of correction factors are prestored, said controlling means producing said driving current by: (1) selecting a first correction factor from a plurality of predetermined first correction factors prestored in said storage device, in accordance with the output signals of said intake air temperature and said coolant temperature, (2) determining a second correction factor in accordance with said output signal of said gas sensor, (3) determining third correction factors, each of said third correction factors for a different engine operational condition, some of said third correction factors for engine operational conditions in a given region, in which said engine has been operated, being varied to be in-

creased or decreased in accordance with the value of said second correction factor, remaining third correction factors being maintained unchanged, (4) detecting the state of the variation of said third correction factors, (5) modifying all of said third correction factors stored in said storage device in accordance with the result of the detection of the state of the variation of said third correction factors, (6) producing a pulse train signal in accordance with the output signals of said airflow meter, said rotational speed sensor and with said first, second and third correction factors, and (7) producing said driving current in response to said pulse train signal.

4,365,300

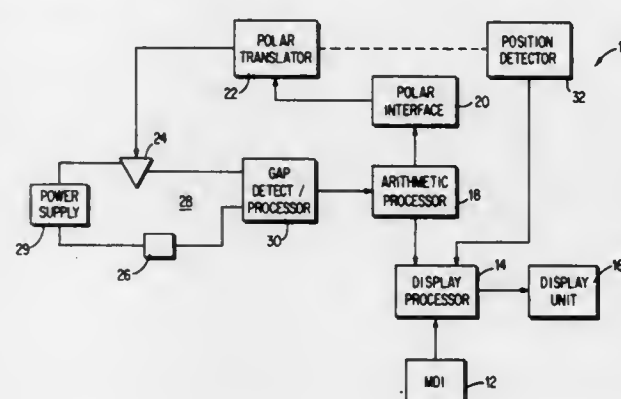
METHOD AND APPARATUS FOR VECTOR MACHINE CONTROL

Lars Johanson, Cedar Grove; Phil Haft, Fairlawn; Frank Bonavita, Carlstadt; George Feldstein, Cresskill; Steve Greenberg, Oradell, all of N.J., and Kevin Brady, Pearl River, N.Y., assignors to Eltec Pulsitron, West Caldwell, N.J.
Filed August 29, 1980, Ser. No. 182,592

Int. Cl.³ G06F 15/46; B23P 1/08

U.S. Cl. 364—474

17 Claims



14. A method for electric discharge machining utilizing a tool and a table capable of supporting a workpiece, said tool and said workpiece defining an axis having an axial direction, comprising the steps of:
relatively displacing said tool and said workpiece in said axial direction to a first position;
relatively displacing said tool and said workpiece in a first plane perpendicular to said axial direction from said first position along a desired vector angle through a distance equal to a desired vector magnitude, and relatively displacing said tool and said workpiece in a reverse manner so as to return to said first position;
relatively displacing said tool and said workpiece in said axial direction from said first position to a second position; and
relatively displacing said tool and said workpiece in a second plane perpendicular to said axial direction from said second position along a desired vector angle through a distance equal to a desired vector magnitude, and relatively displacing said tool and said workpiece in a reverse manner so as to return to said second position.

4,365,301

POSITIONAL REFERENCE SYSTEM FOR ULTRAPRECISION MACHINING

Jones B. Arnold, Knoxville; Robert R. Bursleson, Clinton, and Robert M. Pardue, Knoxville, all of Tenn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed September 12, 1980, Ser. No. 186,869

Int. Cl.³ G06F 15/46; G01B 11/02

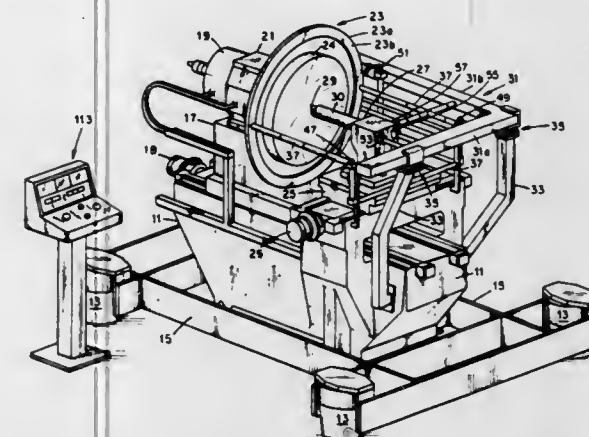
U.S. Cl. 364—475

7 Claims

1. In an automatic controlled machining system including a spindle, means for rotating said spindle, a cutting tool holder

for holding a cutting tool, a cross slide means for moving the cutting tool holder reversably along an x axis and an axial slide means for moving one of the spindle and the cross slide means reversably along a y axis, a positional reference system comprising:

- a metering bar assembly including X and Y coordinate reflective reference surfaces disposed parallel to the X and Y axis slides of said machining system;
- a mounting plate carried by said spindle for supporting a workpiece thereon to be rotated about an axis parallel to said Y axis;
- a plurality of interferometers for monitoring the displacement of said tool holder and said mounting plate carried by said spindle at predetermined points thereon relative to



the points of contact of said tool with said workpiece with reference to said X and Y coordinates of said metering bar assembly; and

a control means responsive to the outputs of said plurality of interferometers and workpiece machining contour description data in the form of X and Y axis components of programmed displacement of the cutting tool relative to the centerline of rotation of said spindle for generating x and y axis error signals and applying said signals to the cross slide means and the axial slide means, respectively, so that the cutting tool is positioned relative to the workpiece according to the workpiece description data with positional reference of the tool holder and the workpiece to said metering bar assembly.

4,365,302

HIGH ACCURACY AC ELECTRIC ENERGY METERING SYSTEM

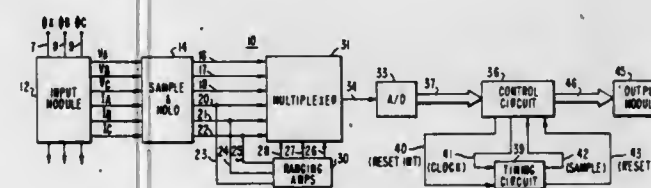
Robert T. Elms, Monroeville, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed 1981, Ser. No. 224,871

Int. Cl.³ G01R 21/06

U.S. Cl. 364—483

21 Claims



1. An improved AC electric energy metering system for calculating a plurality of indicia of an AC electric energy quantity delivered by an electric utility system, said metering system comprising:

signal sample means including inputs and outputs, said inputs receiving line voltages and currents determining the magnitude of the AC electric energy quantity, said outputs producing sample values representative of the instantaneous magnitudes of said line voltages and currents when said signal sample means is rendered to a sampling state; sample timer means producing a sample signal having first and second states, said first state occurring at randomly

varying intervals and rendering said signal sample means to said sampling state at randomly occurring sampling times;

analog-to-digital converter means producing binary signal representations of each of said sample values;
control means calculating the plurality of indicia of said AC electric energy quantity from said binary signal representations of each of said sample values, said control means producing a reset interval signal composed of pulses, said pulses resetting said sample timer means;
means resetting said control means when a pulse of said reset interval signal is input to said sample timer means while said sample signal is in said second state;
output means producing data output signals representative of said plurality of indicia of said AC electric energy quantity.

4,365,303

METHOD AND APPARATUS FOR DETERMINING THE NATURE OF AN UNKNOWN CHEMICAL SUBSTANCE

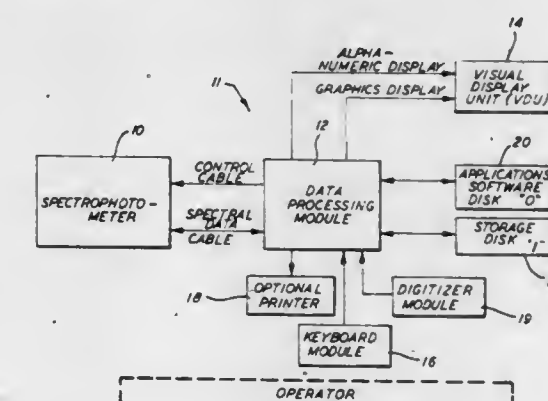
Robert W. Hannah, Newtown; John P. Coates, Easton; Abraham Savitzky, Wilton, all of Conn.; Michael A. Ford, Maidenhead, and Harry V. Carter, Beaconsfield, both of England, assignors to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed 1980, Ser. No. 119,237

Int. Cl.³ G06F 15/20; G01N 21/22

U.S. Cl. 364—498

31 Claims



1. Apparatus for determining the nature of an unknown substance comprising, in combination:
means for entering a peak table of the spectrum of an unknown substance into computing apparatus;
means for adjusting said peak table to a first preselected standardized format; said means for adjusting said peak table including means for deleting from the peak table all of the peaks having a transmittance greater than a preselected threshold;
means for comparing the so standardized peak table of the unknown with a first library of chemical structural units contained in memory in said computing apparatus;
means for making a list of the possible chemical structural units most closely corresponding to said unknown substance;
means for readjusting said peak table to a second preselected standardized format; said means for readjusting said peak table including means for deleting from the peak table all peaks having a transmittance greater than a second preselected threshold;
means for forming a file for said unknown substance including data corresponding to said readjusted peak table and to said list of possible chemical structural units;
means for comparing the file of said unknown substance with a second library containing files of known substances contained in memory in said computing apparatus, each known substance having a file containing data corresponding to its respective peak table in said second standardized format and to its respective chemical structural unit; and

means for outputting a list of known substances which most closely correspond to said unknown substance.

4,365,304

METHOD AND APPARATUS FOR ON-LINE DATA ENHANCEMENT

Smil Ruhman, Rehovot, and Zvi Orbach, Kiryat Ono, both of Israel, assignors to Yeda Research & Development Co., Ltd., Rehovot, Israel

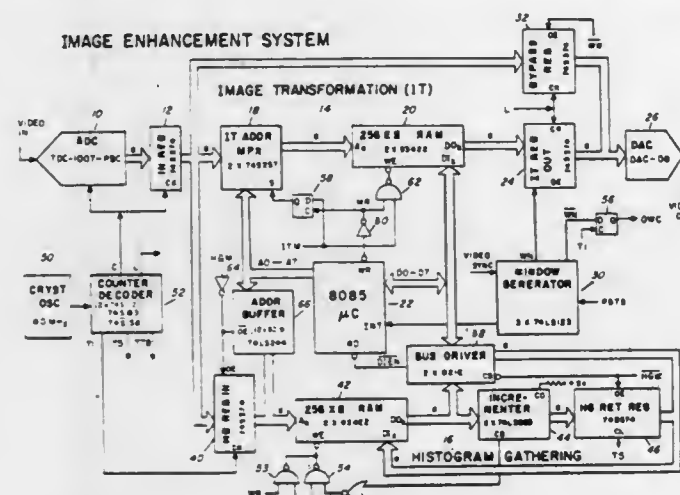
Filed July 16, 1980, Ser. No. 169,490

Claims priority, application Israel, August 27, 1979, 58119

Int. Cl.³ G06F 15/36; H04N 3/00

U.S. Cl. 364—515

19 Claims



1. Apparatus for on-line data enhancement comprising:
means for receiving input data;
means for gathering a histogram of said input data;
means for providing a histogram transformation function operative to convert said input data to output data having a desired one of a plurality of selectable output histograms, said plurality of selectable output histograms including non-flat histograms; and
a look up table for applying said histogram transformation function to said input data.

4,365,305

VECTOR GENERATOR FOR COMPUTER GRAPHICS

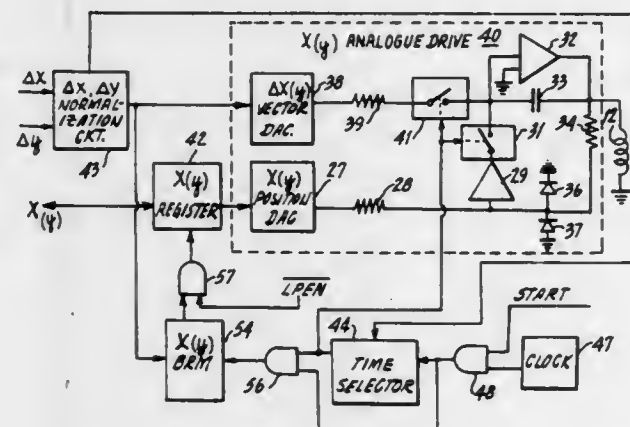
John B. MacDonald, West Windsor Township, Mercer County; John K. Patberg, Cranford Township, Union County, both of N.J., and Jaan Raamot, Broomfield, Colo., assignors to Western Electric Company, Inc., New York, N.Y.

Filed 1981, Ser. No. 222,429

Int. Cl.³ G06F 3/14

U.S. Cl. 364—521

7 Claims



4. A vector generator for use with a computer graphics system of the type wherein a vector is drawn by applying analogue deflexion signals to a display device to deflect an image-writing beam across the face of the display device, and wherein the vector is defined by first digital words defining the

planar coordinates of the starting point of the vector and second digital words defining the displacement of the vector from said starting point, which generator comprises:

- means for receiving the first digital words, storing them in respective registers and for converting said words into first analogue signals to deflect the image-writing beam to the starting point of a vector to be drawn;
- means for receiving the second digital words and for normalizing said second words to values representative of a normalized drawing rate by multiplying them by a normalization factor N;
- means for converting the normalized values of the second digital words into second analogue voltages to deflect the image-writing beam at the normalized rate from the starting position towards the end point of the vector to be drawn;
- means for generating a pulse train wherein the number of pulses generated follow the relationship $P = K/N$

where:

P is the number of pulses generated;

K is a constant; and

N is the normalization factor;

- means for initiating the drawing of a vector and for terminating the drawing after a time interval selected such that the desired displacement is achieved; and
- means for providing digital representations of the coordinates of the instantaneous position of the image-writing beam as the beam is moved from the starting point of the vector toward the end point thereof, said digital representations means including respective binary rate multipliers for each coordinate, each binary rate multiplier having a first input coupled to the pulse generating means for receiving input pulses therefrom, a second input coupled to means (b) for receiving therefrom a normalized second digital word, and an output coupled to one of the registers of means (a) to output pulses thereto in accordance with the following relationship:
 $P_o = P_i M / 2^n$

where:

P_o is the number of output pulses;

P_i is the number of input pulses;

M is the value of the normalized second digital word fed to the binary rate multiplier; and
n is the number of bits in said normalized second digital word.

4,365,306

METHOD AND APPARATUS FOR REMOTELY MONITORING AND EVALUATING PILE DRIVING HAMMERS

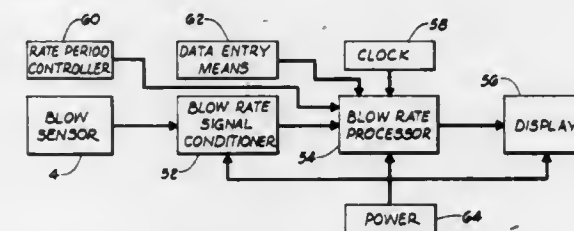
Horace F. House, Houston, Tex.; Marvin L. Peterson, and Norman W. Hein, Jr., both of Ponca City, Okla., assignors to Conoco Inc., Ponca City, Okla.

Filed June 30, 1980, Ser. No. 164,636

Int. Cl.³ G06M 3/06; G06F 7/00

U.S. Cl. 364—551

11 Claims



1. An apparatus for remotely monitoring and evaluating the rate at which a pile driving hammer strikes a pile located in a liquid, said apparatus comprising:
sensing means comprising a hydrophone, disposed in the liquid remotely from the pile driving hammer and the pile, for sensing a pressure wave generated by the pile driving

hammer striking the pile and for generating an analog electrical striking signal proportional to the sensed pressure wave;
electrical signal conditioning means for converting the analog electrical signal to a digital electrical striking signal being electrically connected to said hydrophone;
clock means for providing an electrical timing signal;
integrated circuit computer means, responsive to the digital electrical striking signal and the electrical timing signal, for computing a first value indicating the rate at which the pile driving hammer strikes the pile during a predetermined time period;
switch means, connected to said computer means, for effectively altering the predetermined time period so that said computer means computes a second value indicating the number of hammer strikes which occurred during the effectively altered time period; and
display means for displaying the computed first and second values.

4,365,307

TEMPERATURE PATTERN MEASURING DEVICE

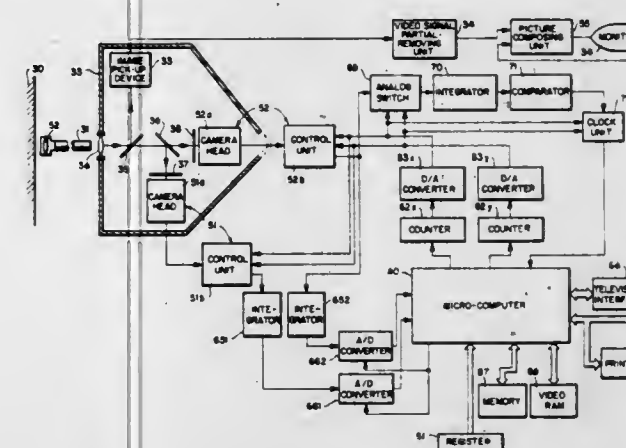
Masso Tatsuaki; Shin Nemoto, both of Osaka; Yutaka Katayama, Wakayama; Michio Okada, Wakayama, and Kazuyuki Hotta, Wakayama, all of Japan, assignors to Sumitomo Kinzoku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed 1981, Ser. No. 238,357

Int. Cl.³ G01J 5/18

U.S. Cl. 364—557

11 Claims



1. A temperature pattern measuring device for obtaining the surface temperature distribution of an object to be measured, comprising:
a two-dimensional image pickup means;
first and second optical filters provided along a light path extending from said object to said image pickup means, said filters arranged to select two different optical wavelength components of light from said object to be measured;
an arithmetic means operatively connected to said image pickup means for determining the temperature on the surface of said object to be measured based on the ratio of the magnitude of said two different wavelength components of light;
an additional image pickup means for obtaining a two-dimensional video image of said object to be measured;
a combining means for combining outputs of said arithmetic means and said additional image pickup means and a monitor means operatively connected to said combining means, said arithmetic means controlling said image pickup means and said combining means such that a composite display comprising a two-dimensional video image of said object to be measured and a graphical representation of the temperature distribution pattern of said object to be measured is produced on said monitor.

4,365,308

METHOD FOR THE TIME CORRECTION OF A DIGITAL SWITCHING SIGNAL

Jürgen Heitmann, Seeheim, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

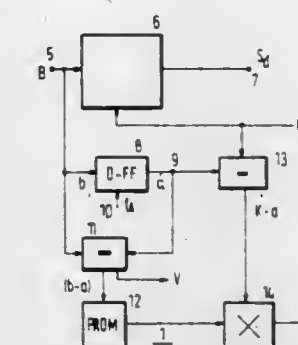
Filed July 2, 1981, Ser. No. 279,746

Claims priority, application Fed. Rep. of Germany, July 17, 1980, 3027053

Int. Cl.³ H03K 5/08; H03N 5/22; G06G 7/30

U.S. Cl. 364—577

3 Claims



1. A method for the time-correction of a digital switching signal which can occur only at discrete times as a consequence of the scanning process by which the digital signal to be switched is derived and which is therefore delayed relative to its desired time of occurrence, the method comprising deriving a time correction signal whose value is dependent upon the amount by which the digital switching signal is delayed relative to the desired time, and generating a plurality of control signals at the scanning frequency of the digital signal, the control signals collectively constituting the time-corrected switching signal and having values determined by the value of the time correction signal, the control signals being effective to produce a progressive switching of the digital signal over a plurality of scanning periods.

4,365,309

DIGITAL DIFFERENTIAL ANALYZING PROCESSOR

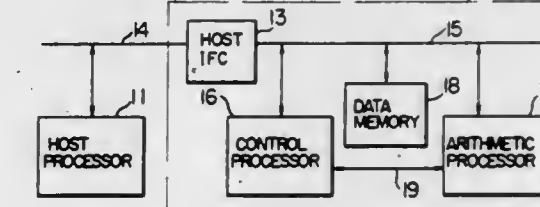
Atomi Noguchi, Hitachi; Jushi Ide, Mito; Hiroshi Kuwahara, and Yoshihiro Miyazaki, both of Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed October 3, 1980, Ser. No. 193,445

Int. Cl.³ G06F 7/64

U.S. Cl. 364—702

5 Claims



1. A digital differential analyzer (DDA) connected through a first direct memory access (DMA) bus to a host processor so as to receive a parameter defining an operation, and to carry out differential analysis as a digital operation, comprising:
(a) a host interface circuit for controlling data transfers with the host processor;
(b) a second DMA bus connected to said host interface circuit;
(c) an arithmetic processor connected to said second DMA bus for receiving parameters and data via said host interface circuit and said second DMA bus from said host processor under the control of a control processor, to carry out a prescribed DDA operation for outputting an end signal to said control processor;

- (d) said control processor being connected to said second DMA bus for carrying out control operations concerning said host processor and the DDA operation via said host interface circuit, and for carrying out start control, end control, control of the number of times of DDA operations, control of the operation of an execution sequence, control of the change in an operation parameter and control of the collection of interim results of operations for said arithmetic processor;
- (e) control signal lines used for the start and end control of the DDA operation which said control processor performs with the arithmetic processor, said control signal lines connecting said control processor and said arithmetic processor; and
- (f) a data memory connected to said DMA bus for storing interim results of the operation of the arithmetic processor by said control processor and being placed in a read/write condition by said host processor and said control processor.

4,365,310

OPTICAL HOMODYNE PROCESSOR

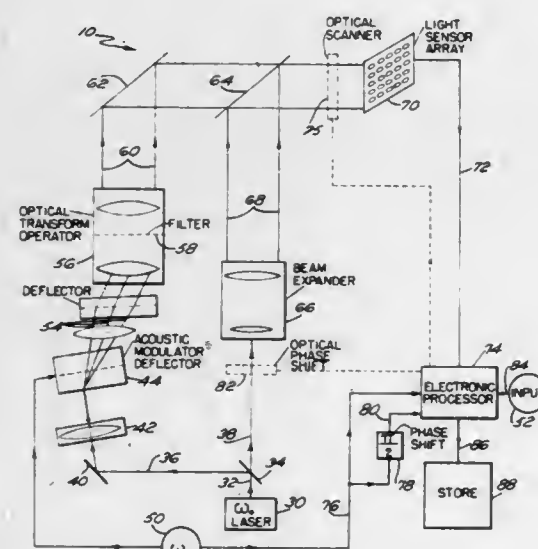
Eugene L. Green, New London, Conn., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed October 1, 1980, Ser. No. 192,750

Int. Cl.³ G06G 7/295, 9/00

U.S. Cl. 364—822

10 Claims



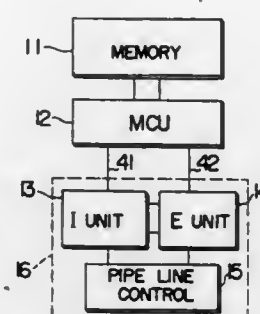
1. An optical homodyne processor for performing complex transform operations on input functions which comprises:
 - laser means for generating a beam of light to be used as a reference beam and as an argument of the input functions;
 - a subcarrier frequency source generating frequencies substantially lower than the frequency of the laser beam;
 - acoustic modulator deflector means for obtaining a plurality of arguments of the input functions using said subcarrier frequency source and said beam of light as the output of the acoustic modulator deflector;
 - optical transform operator means for operating on the output of said acoustic modulator deflector means so as to accomplish spatial modulation of the output of said acoustic modulator deflector means and to obtain optical readout thereof;
 - a matrix of a plurality of light sensors for reading the optical readout of said optical transform operator means combined with the reference beam;
 - electronic processor means for multiplying the input functions with the output of said matrix of a plurality of light sensors and integrating the result to obtain an output thereof;
 - storage means for storing the output of said electronic processor.

4,365,311
CONTROL OF INSTRUCTION PIPELINE IN DATA PROCESSING SYSTEM
 Yasushi Fukunaga, and Tadaaki Bandoh, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
 Filed August 31, 1978, Ser. No. 938,346
 Claims priority, application Japan, September 7, 1977, 52-106702

Int. Cl.³ G06F 9/28

U.S. Cl. 364—900

10 Claims



1. A control of an instruction pipeline in a data processing system in which said instruction pipeline is provided with a plurality of segments and each instruction is executed in a plurality of steps by said segments such that each segment executes one or more of the steps allotted thereto relating to a given one instruction during one operation cycle, while a different segment parallelly executes different steps allotted thereto relating to a different one instruction in the same operational cycle,

said control comprising: means provided for use exclusively by each of said segments for supplying clock signals to control the timing in execution of the respective steps allotted to said each segment,

said supplying means comprising means for adjusting, depending on a time period required for said each segment to complete each of the allotted steps, one-cycle period of the clock signal used for controlling the timing in execution of said each allotted step independently of the timing in parallel execution of the different steps by the different segment and means for controlling one-cycle period of at least one clock signal supplied to at least one of said segments so that said segments complete the respective steps allotted to them substantially at the same time in said one operation cycle.

4,365,312

SEQUENCE CONTROLLER

Nobumasa Nakano; Noboru Takahashi, and Masao Aoki, all of Nagoya, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed August 30, 1979, Ser. No. 71,415

Claims priority, application Japan, August 30, 1978, 53-105934

Int. Cl.³ G06F 15/16, 13/00

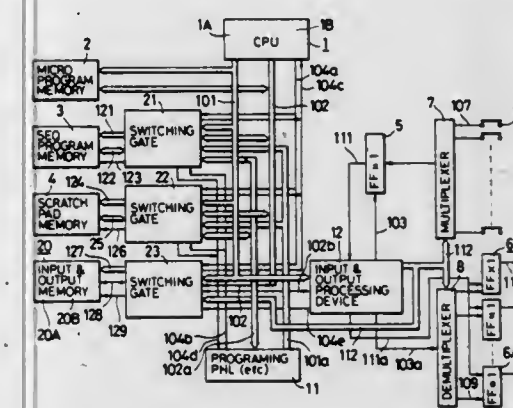
U.S. Cl. 364—900

7 Claims

1. A sequence controller comprising:
 - a first memory for storing data representing a series of predetermined sequence control steps;
 - a first processing unit for reading out the data representing the series of sequence control steps stored in the first memory and for controlling execution of the sequence control steps;
 - a second memory for temporarily storing data for execution of sequence control steps when execution of said steps is being performed by the first processing unit;
 - a second processing unit comprising at least one of means for reading and displaying at least portions of the data stored in the first memory, means for converting externally supplied sequence control information data into a predetermined format and writing the data in the format into the

- first memory, and means for reading and displaying the temporarily stored data in the second memory;
- a third memory having an input memory portion and an output memory portion, the output memory portion storing output information data from the first processing unit produced in response to execution by the first processing unit of the sequence control steps and the input memory portion storing information representing parameters of an externally controlled process;
- means for operating the externally controlled process in response to the output information data stored in the third memory;
- a third processing unit, said third processing unit comprising means for determining when the first processing unit is not accessing the third memory, means for sequentially reading out the output information data stored in the output memory portion and transferring the output information data to the means for operating the externally controlled process, and means for sequentially writing data representing the parameters of the externally controlled process into the input memory portion, the reading and trans-

with said first medium and being operative to display position data representing a relative position of said first medium and at least another display register associated with said second medium and being operative to display position data representing a relative position of said second medium; means for supplying position data to be displayed by respective ones of said display registers; a plurality of register selector means associated with respective ones of said display registers and thus associated with respective ones of said media, each register selector means being selectively operative to select its associated display register; at least one cue selector means associated with a respective one of said record media and selectively operative to initiate a cue address generating operation; and control means responsive to the operation of one of said register selec-



ferring means and the writing means being operative when and only when the determining means indicates that the first processing unit is not accessing the third memory unit;

- first, second and third switching gates coupled to the first, second and third memories, respectively, the first and second switching gates being responsive only to read/write requests supplied randomly from the first and second processing units for transferring data between the first and second memories and the first and second processing units, and said third switching gate being responsive only to read/write requests supplied from the first processing device and the third processing device for transferring data between the third memory and the first and third processing devices, respectively; and
- first and second read/write control lines coupled to the first and second processing units, respectively, and to the first, second and third switching gates for selectively coupling the first and second processing units to the first, second and third memories; the first and second read/write lines operating independently of one another.

4,365,313

CUE CONTROL APPARATUS

William A. Menezes, Mountain View, and Douglas D. Kuper, Campbell, both of Calif., assignors to Sony Corporation, Tokyo, Japan

Filed April 11, 1980, Ser. No. 139,691

Int. Cl.³ H04N 5/76

U.S. Cl. 364—900

22 Claims

1. Cue address generating means for use in signal editing apparatus of the type wherein signals recorded on a first record medium are transferred to a second record medium when preselected positions of said media are reached, said cue address generating means generating a cue address representing the position of one of said record media adapted to be accessed by signal recording/playback means, and comprising a plurality of display registers, at least one display register associated

tor means and to said at least one cue selector means for (a) retrieving the position data displayed in a first display register associated with said first medium when the operated register selector means also is associated with said first medium and retrieving the position data displayed in a second display register associated with said second medium when the operated register selector means also is associated with said second medium, (b) subtracting the retrieved position data from the position data displayed in the display register selected by the operated register selector means to produce a difference signal, and (c) mathematically combining said difference signal with the position data displayed in a third display register to produce said cue address, said third display register being associated with the same record medium as that with which said selectively operated cue selector means is associated.

4,365,314

ELECTRONIC ACCOUNTING MACHINE WITH SPLIT DISPLAY

Guido Badagnani, Fiorano Can., and Costanzo Zino, Borgomanero, both of Italy, assignors to Ing. C. Olivetti & C., S.p.A., Ivrea, Italy

Continuation of Ser. No. 941,932, Sep. 13, 1978, abandoned. This application August 29, 1980, Ser. No. 182,772

Claims priority, application Italy, September 23, 1977, 69098 A/77

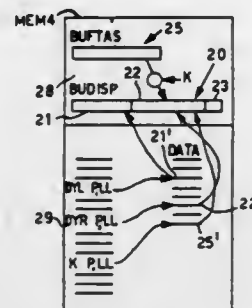
Int. Cl.³ G06F 3/14

U.S. Cl. 364—900

6 Claims

1. A program controlled electronic accounting machine comprising a processor for controlling the machine functions by executing corresponding program instructions, a keyboard for manually entering data and messages to be processed by said processor, an alphanumeric line display having a maximum capacity of a line of characters and conditionable by said processor for selectively displaying operator guiding messages generated by said processor according to said program, and reply messages entered by said keyboard, each guiding message including a permanent part indicating the current pro-

gram executed by the machine and a temporary part indicating the data required by the running of the current program, said line display including two different portions, one of which being conditionable to display said permanent part, the other portion being conditionable to display said temporary part of the guiding message, storing means controlled by said processor for normally storing said permanent and said temporary parts, output means conditionable periodically by said processor for connecting said storing means to said display for displaying the information stored in said storing means, and buffer



means adapted to receive said reply message entered by said keyboard, said buffer means being controlled by said processor according to a predetermined instruction for transferring said reply message from said buffer means to said storing means as to replace said temporary part of the message, whereby said output means enables said line display to display the reply message alternately with said temporary part of the guiding message in one of said display portions, while the other display portion displays the permanent part of the guiding message for the whole time said program execution lasts.

4,365,315

SYSTEM FOR MULTILINGUAL COMMUNICATION OF COMPUTER-SPECIFIED AURAL OR VISUAL CONTROL MESSAGES IN AN OPERATOR-DESIGNATED LANGUAGE

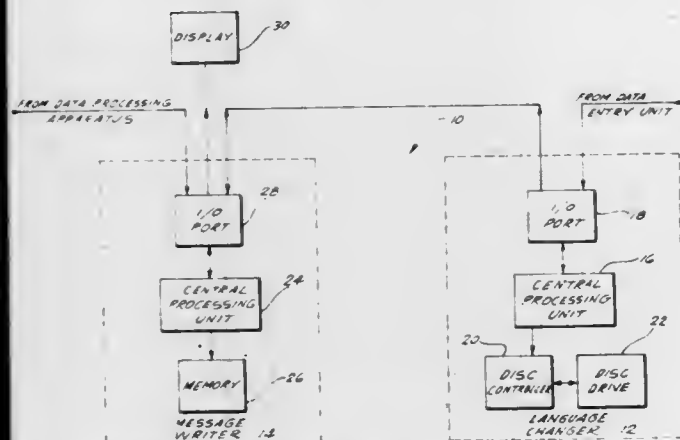
Donald J. Jamnik, Wauwatosa, Wis., assignor to Kearney & Trecker Corporation, Milwaukee, Wis.

Filed September 8, 1980, Ser. No. 185,240

Int. Cl.³ G06F 15/46, 15/38, 15/16, 3/16

U.S. Cl. 364-900

6 Claims



6. A method for communicating a message from a computer controlled system to an operator in an operator designated language comprising the steps of:

- providing a plurality of message address tables each cross referencing a particular message code generated by the computer controlled system in response to a particular computer controlled system condition to the address of a stored message in an operator designated language which is indicative of this condition;
- providing a plurality of message storage tables each containing a set of messages each in a particular language and each stored at a unique address;
- extracting a selected one of said message address tables

whose addresses represent the storage locations of messages in a language designated by an operator; extracting a message from a particular one of said message storage tables which is located at the address determined from said selected message address table in accordance with the message code from said computer controlled system; and communicating said extracted message to the operator.

4,365,316

MULTIFUNCTION TERMINAL CIRCUIT

Hiroshi Iwahashi, Yokohama, and Masamichi Asano, Musashino, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

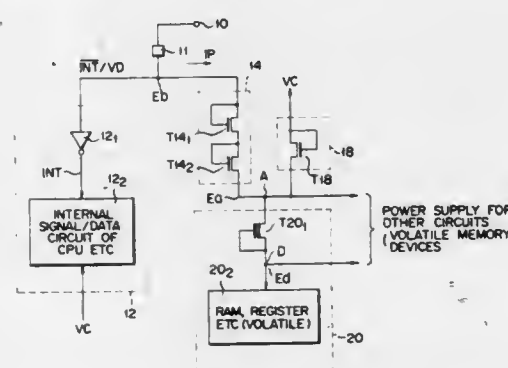
Filed 1980, Ser. No. 124,772

Claims priority, application Japan, 1979, 54-23204

Int. Cl.³ G11C 11/40, 7/00

U.S. Cl. 365-72

13 Claims



1. A multifunction terminal circuit, comprising:
 - a. an optional circuit;
 - b. a signal terminal connected to said optional circuit as an input terminal for said optional circuit;
 - c. unidirectional conductor means also connected to said signal terminal for unidirectionally passing both signals and supply power applied to said signal terminal; and
 - d. circuit means, having a coupling node coupled to said signal terminal through said unidirectional conductor means, for setting the conduction state of said unidirectional conductor means in accordance with a potential difference between said signal terminal and said coupling node;

wherein, when said unidirectional conductor means is rendered conductive, said signal terminal operates as an input terminal to said circuit means for either signals or supply power being applied to said signal terminal, and when said unidirectional conductor means is rendered non-conductive, said signal terminal operates as an input terminal to said optional circuit for signals being applied to said signal terminal.

4,365,317

SUPERCONDUCTIVE LATCH CIRCUIT

Tushar R. Gheewala, Yorktown Heights, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed August 6, 1980, Ser. No. 175,566

Int. Cl.³ G11C 11/44

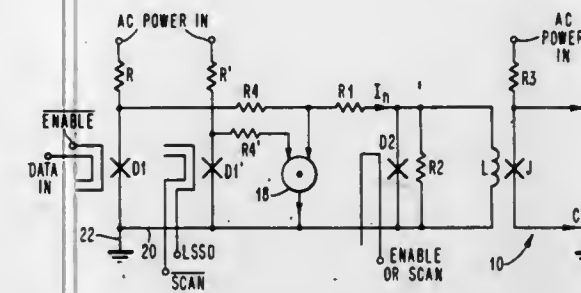
U.S. Cl. 365-162

23 Claims

1. A superconductive latch circuit for storing data therein, comprising in combination:

- a superconducting storage loop comprising a series connection of a single controllable superconducting switch and an inductance, said switch having at least two states wherein a first state thereof is characterized by a zero voltage across it and a second state thereof is characterized by a non-zero voltage across said switch, said loop being able to support a circulating current therein representative of said data when said switch is in said first state, first control means for controlling the state of said switch, supplying means for supplying current from a power source

to said storage loop, said supply means being comprised of a second controllable superconducting switch capable of having at least first and second states and being connected in a series connection with said power source, said second switch being in parallel with said storage loop, and electrical means between said series connection and said storage loop for electrically connecting said power source to said storage loop, said second switch allowing transfer of



current from said power supply to said storage loop when it is in its second state and preventing said transfer when it is in its first state, second control means for applying said data as a control signal to said second switch to affect the state of said second switch, wherein data stored in said loop is not lost when said current diminishes to zero or is changed in polarity.

4,365,318

TWO SPEED RECIRCULATING MEMORY SYSTEM USING PARTIALLY GOOD COMPONENTS

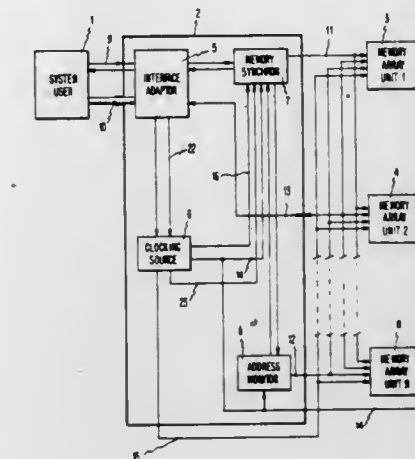
Frederick J. Aichelmann, Jr., and Bruce E. Bachman, both of Hopewell Junction, N.Y., assignors to International Business Machines Corp., Armonk, N.Y.

Filed September 15, 1980, Ser. No. 187,254

Int. Cl.³ G11C 7/00, 21/00

U.S. Cl. 365-200

8 Claims



1. In a two speed recirculating memory system utilizing rows of partially good components and a row of spare components, one of said spare components being substituted for a respective partially good component when the defective portion thereof is being addressed by an address signal, said signal comprising first bits representing component address and second bits representing portion address,

all portions of said spare components, when addressed, being driven at a fast clock rate, addressed portions of said partially good components being driven at said fast clock rate and unaddressed portions of said partially good components being driven at a slow clock rate, means for detecting when a defective portion address is being invoked either solely in the current address or solely in the next pending address and for producing an inhibit signal upon that event, said inhibit signal preventing the next memory fetch until resynchronization has been

achieved between the last accessed and the unaccessed recirculating memory components, said means for detecting comprising means for comparing said component address bits of said current and pending addresses and for producing a first signal when said component address bits of said current and pending addresses are the same, means responsive to said portion bits of said current address and for producing a second signal when said portion bits represent a defective portion, means responsive to said portion bits of said pending address and for producing a third signal when said portion bits represent a defective portion and means responsive to said first, second and third signals for producing said inhibit signal.

4,365,319

SEMICONDUCTOR MEMORY DEVICE

Yoshihiro Takemae, Yokohama, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

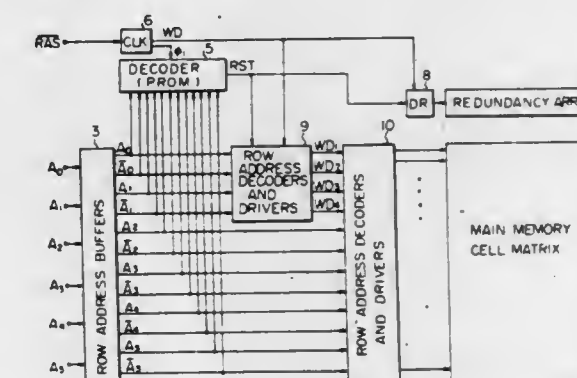
Filed November 12, 1980, Ser. No. 206,272

Claims priority, application Japan, November 13, 1979, 54-157393[U]

Int. Cl.³ G11C 7/00

U.S. Cl. 365-200

10 Claims



1. A semiconductor memory device comprising:
 - a main memory cell matrix having a plurality of sub memory cell matrices, each sub memory cell matrix having a plurality of memory cell arrays;
 - a redundancy memory cell array incorporated into said main memory cell matrix;
 - a first decoder means having a plurality of inputs for receiving a first sub-part of a first address information having n bits and a first clock signal and having a plurality of outputs, for selecting one memory cell array parallel to said redundancy memory cell array and within each said sub memory cell matrix, in accordance with said first sub-part, of said first address information, said outputs of said first decoder means triggered by said first clock signal;
 - a second decoder means having a plurality of inputs for receiving a second sub-part of said first address information having m bits and said outputs of said first decoder means and having a plurality of output drivers, for selecting one of said sub memory cell matrices within said main memory cell matrix, in accordance with said second sub-part of said first address information, said output drivers of said second decoder means triggered by said outputs of said first decoder means and select one memory cell array within said memory cell matrix;
 - a third decoder means having a plurality of inputs for receiving said first address information having n+m bits and an output operatively connected to said redundancy memory cell array and to said first decoder means for selecting said redundancy memory cell array and disabling said second decoder means, in accordance with said first address information, said output drivers of said second decoder means being

disabled when said third decoder means selects said redundancy memory cell array; and
 a fourth decoder means having a plurality of inputs for receiving a second address information, for selecting one memory cell array perpendicular to said redundancy memory cell array within said main memory cell matrix and said redundancy memory array, in accordance with said second address information.

4,365,320

DEVICE FOR DETERMINING THE INSTANT OF RECEPTION OF AN ACOUSTIC WAVE

Claude Beauducel, Henouville, and Jacques Cretin, Le Chesnay, both of France, assignors to Institut Français du Pétrole, Rueil-Malmaison and Compagnie Générale de Géophysique, Massy, both of France

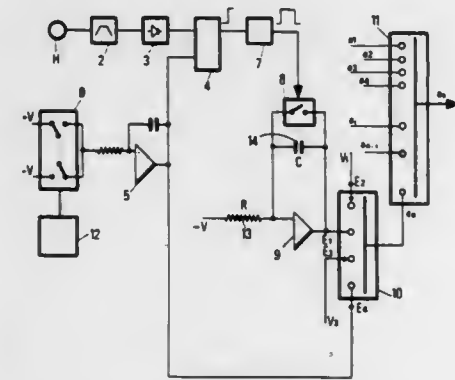
Filed September 5, 1980, Ser. No. 184,496

Claims priority, application France, September 5, 1979, 79 22364

Int. Cl.³ G01V 1/28, 1/38

U.S. Cl. 367—21

12 Claims



1. A device for transmitting data, from a sensor adapted for receiving an acoustic signal, to a recording and processing system, said data being representative of the time of receipt of the acoustic signal by the sensor, comprising:

transmission means for intermittently and sequentially transmitting data from said sensor to said recording and processing system;
 voltage generating means for generating a voltage linearly varying over time;
 selecting means associated with said voltage generating means for detecting at least two discrete values of the voltage generated by said voltage generating means, at successive time instants separated by an interval of time ΔT greater than the intervals of time separating two successive transmissions of data from said sensor to said recording and processing system, said transmission means being adapted for transmitting data corresponding to said discrete voltage values, and to said time interval ΔT , to said recording and processing system; and
 said recording and processing system being adapted to calculate the initial instant of time at which the acoustic signal is received by the sensor, by determining from the data transmitted, the slope of a straight graphical line connecting the two discrete voltage values separated by a time interval ΔT , and calculating the initial instant of time from said slope.

4,365,321

SONIC LOGGING TOOL

Robert J. von Bose, Arlington, Tex., assignor to WPC, Inc., Midland, Tex.

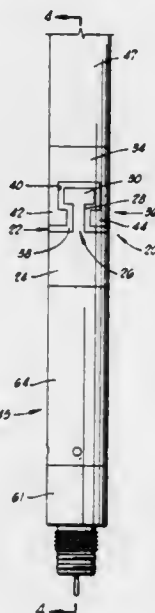
Filed July 3, 1980, Ser. No. 165,553

Int. Cl.³ G01V 1/40

U.S. Cl. 367—25

1. A logging tool, comprising:

pressure wave generating means for generating and transmitting pressure waves;
 receiver means for receiving a portion of the transmitted pressure waves;
 connecting means for mechanically connecting said pressure wave generating means with said receiver means, said connecting means including:
 a first coupling section having said pressure wave generating means associated therewith and having a first interlocking end, said first interlocking end including:
 a first T-shaped protuberance extending longitudinally from said first coupling section; and
 a second T-shaped protuberance extending longitudinally from said first coupling section and spaced from said first T-shaped protuberance so that a first T-shaped opening and a second T-shaped opening are defined between said first and second T-shaped protuberances; and
 a second coupling section having said receiver means



associated therewith and having a second interlocking end coupled in spaced relation with the first interlocking end of said first coupling section for preventing longitudinal separation of said first coupling section from said second coupling section, said coupled first and second interlocking ends defining a channel therebetween, said second interlocking end including:

a third T-shaped protuberance extending longitudinally from said second coupling section and into said first T-shaped opening; and
 a fourth T-shaped protuberance extending longitudinally from said second coupling section and into said second T-shaped opening; and
 damping means for damping the transmitted pressure waves attempting to pass from said pressure wave generating means to said receiver means through said connecting means, said damping means being disposed within the channel defined between the first and second interlocking ends so that said first and second interlocking ends are maintained in said spaced relation.

4,365,322

APPARATUS AND METHOD FOR DETERMINING THE POSITION OF A GAS-SATURATED POROUS ROCK IN THE VICINITY OF A DEEP BOREHOLE IN THE EARTH

Bernard Widrow, 860 Lathrop Dr., Stanford, Calif. 94305

Filed April 18, 1980, Ser. No. 141,270

Int. Cl.³ G01V 1/40, 1/20, 1/28

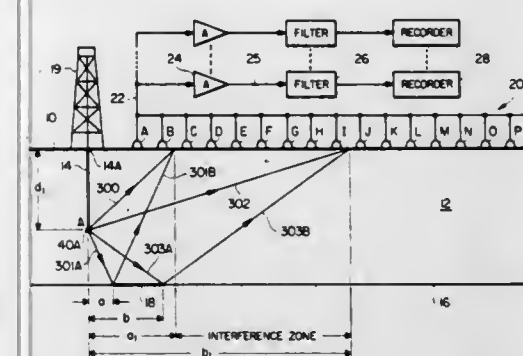
U.S. Cl. 367—32

5 Claims

1. Apparatus for determining while drilling in the earth with a drill bit the position of a gas-saturated porous rock in the vicinity of the borehole, said drill bit serving to generate seismic waves of selected characteristics as it drills the borehole in the earth comprising:

mic waves of selected characteristics as it drills the borehole in the earth comprising:

- (a) a plurality of seismic wave sensors positioned in the earth near the surface thereof, at a plurality of known positions with respect to said borehole;
- (b) said seismic wave sensors adapted to receive the seismic waves generated by said drill bit which travel directly to the sensors and in certain positions both seismic waves which travel directly from the drill bit and seismic waves from the drill bit which are reflected from the gas-saturated porous rock to produce an electrical signal facsimile at each location corresponding to the received seismic waves whereby to generate an interference signal when the sensor receives both direct and reflected seismic waves, said interference signals serving to indicate a gas-saturated porous rock formation, and means including frequency selection means connected to receive the electrical signal facsimile at each location of a selected harmonic at the rate of rotation of said drill bit and provide said interference output signals.



saturated porous rock to produce an electrical signal facsimile at each location corresponding to the received seismic waves whereby to generate an interference signal when the sensor receives both direct and reflected seismic waves, said interference signals serving to indicate a gas-saturated porous rock formation, and means including frequency selection means connected to receive the electrical signal facsimile at each location of a selected harmonic at the rate of rotation of said drill bit and provide said interference output signals.

4,365,323

OPTIC READ UNIT FOR SCANNING A RECORD CARRIER HAVING A RADIATION-REFLECTING INFORMATION STRUCTURE

Jacobus P. J. Heemskerk; Kornelis A. Immink, and Carel A. J. Simons, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

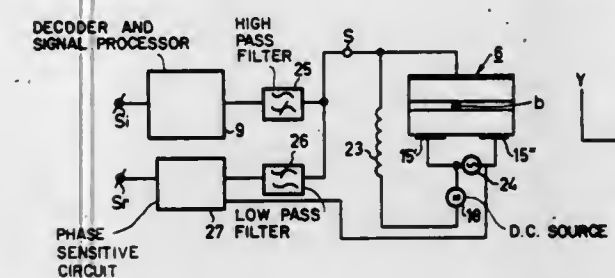
Continuation of Ser. No. 924,858, Jul. 17, 1978, which is a continuation of Ser. No. 735,120, Oct. 22, 1976, abandoned. This application March 17, 1980, Ser. No. 130,906

Claims priority, application Netherlands, August 2, 1976, 7608561

Int. Cl.³ G11B 7/00

U.S. Cl. 369—44

22 Claims



1. An optical read unit for reading information from a record carrier having a radiation reflective information structure composed of a plurality of generally parallel tracks in which the information is stored in optically detectable form, said optical read unit comprising a semiconductor diode laser having two opposed, reflective end faces defining a resonant laser cavity therebetween, said diode laser producing a read beam of radiation for scanning said tracks upon relative movement between said read unit and said record carrier, means for focusing said read beam to a spot on the information structure so as to modulate said read beam in dependence on the stored information, said focussing means including a hemisymmetrical

objective system having a first and second simple lens with aspherical surface, means for periodically changing the position at which said beam is focussed to said spot relative to the track to be read so as to produce corresponding, periodic modulation of said read beam, said focussing means being arranged to direct the modulated radiation reflected by said information structure back to said diode laser so as to produce changes in a detectable property of said diode laser in dependence on the modulation of said reflected radiation, and means responsive to said property changes for deriving therefrom an information signal representative of the stored information and a further signal representative of deviations of the position at which said spot is focussed from a desired position.

4,365,324

ECCENTRICITY CONTROL DEVICE

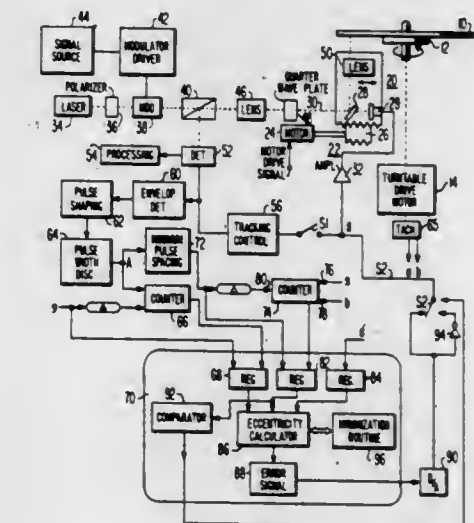
Theodore D. Michaelis, Marlton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed November 19, 1980, Ser. No. 208,439

Int. Cl.³ G11B 21/10, 7/00

U.S. Cl. 369—44

7 Claims



1. In an information recording and playback system for use with a record medium having information stored along successive, elongated tracks on a surface thereof, an apparatus comprising:

means for supporting said record medium;
 means for detecting variations in a given parameter on said surface of said record medium;
 means for establishing relative motion between said supporting means and said detecting means such that said detecting means initially scans said record medium surface in a first predetermined manner;
 means for counting variations in said given parameter detected by said detecting means, said variations being representative of said detecting means sensing said successive tracks as said detecting means scans across said successive tracks;
 means for generating pulses responsive to the relative motion established between said supporting means and said detecting means;
 the number of variations counted by said counting means between first and second pulses generated by said generating means being representative of the eccentricity of said detecting means with respect to said record medium as said detecting means scans the surface of said record medium;
 means responsive to said counting means, for generating an error signal; said error signal being applied to said means for establishing relative motion to affect the manner in which said detecting means scans said record medium surface, whereby said error signal affects said means for establishing relative motion such that the eccentricity of said detecting means with respect to said record medium is reduced;

second means for detecting a positional deviation between a first position of said supporting means corresponding to the position of said supporting means when said first pulse is generated by said pulse generating means and a second position of said supporting means corresponding to the position of said supporting means when a first frequency rate of variations is detected by said detecting means; means for adjusting said error signal generating means to vary the phase of said error signal in response to said second detecting means; means for inverting the polarity of the error signal being generated by said error signal generating means; and means for switchably connecting said inverting means in a signal path connecting said means for generating an error signal to said means for establishing relative motion.

4,365,325

STYLUS FOR TRACKING A STEREOPHONIC OR QUADRAPHONIC SOUND GROOVE

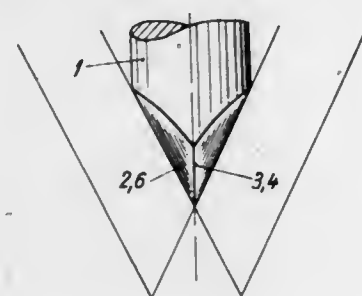
Aalt-Jouk Van Den Hul, Hertog-Goverktade 10, Delft, Netherlands

Division of Ser. No. 41,666, May 23, 1979, abandoned, which is a continuation-in-part of Ser. No. 818,903, Jul. 25, 1977, abandoned. This application May 29, 1981, Ser. No. 268,436 Claims priority, application Switzerland, August 27, 1976, 010938/76; March 23, 1977, 003852/77

Int. Cl.³ G11B 3/44

U.S. Cl. 369—173

6 Claims



1. A method for forming a stylus for tracking the sound groove of a stereophonic or quadraphonic record, comprising the steps of:

- providing a stylus having a longitudinal axis and having a mounting part and a taper,
- forming a pair of convex curved continuous surfaces in said taper which intersect along a continuous arc disposed in both surfaces, said surfaces being discontinuous relative to each other along the arc of intersection wherealong they form a sharp edge having a substantially constant angle of intersection and being symmetrical about a plane including said longitudinal axis and said arc, said axis passing through the midpoint on said arc where the arc is tangent to a plane normal to said axis, and
- rounding said taper along said sharp edge in a direction normal to said arc with a radius of curvature in the range of 4 to 10 microns wherein, as the stylus tracks the record groove and the actual points that the stylus contacts the groove move around the stylus and define an angle β , this angle β is maintained small.

4,365,326

RECORD PLAYER

Mitsuo Ohsawa, Kanagawa, and Hiroshi Nakazawa, Saitama, both of Japan, assignors to Sony Corporation, Tokyo, Japan Filed 1981, Ser. No. 224,920

Claims priority, application Japan, 1980, 55-6226

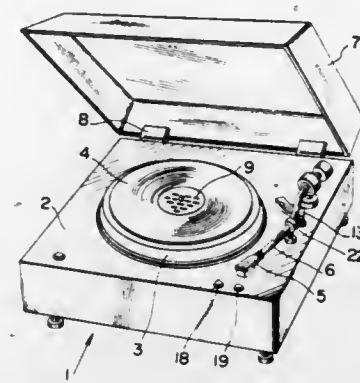
Int. Cl.³ G11B 19/22

U.S. Cl. 369—268

6 Claims

1. A record player, comprising: a turntable on which a record disk is mounted, marker means on said turntable representative of a plurality of angular positions thereof, a rotary

drive means for rotating said turntable with a constant speed, a brake means for stopping the rotation of said turntable, a pick-up means for detecting record signals from said record disk, a vertically movable tone arm, a position detecting means coupled with said turntable to detect the rotational position thereof by sensing said marker means, a stop means for initiating a stopping of play of the record disk, start means for initiating



ing a start of play of the record disk, the position detecting means including storage means for storing a marker corresponding to a starting angular position of the turntable when the start means is activated, and said brake means being responsive to an output from said stop means and an output from said position detecting means so as to stop said turntable at said starting angular position.

4,365,327

METHOD OF AND MEANS FOR SPREAD-SPECTRUM TRANSMISSION

Giancarlo Pirani, Turin, Italy, assignor to CseIt, Centro Studi e Laboratori Telecomunicazioni S.p.A., Turin, Italy

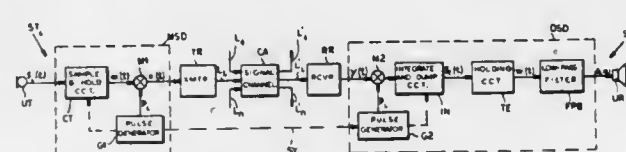
Filed December 12, 1980, Ser. No. 215,793

Claims priority, application Italy, December 13, 1979, 69390 A/79

Int. Cl.³ H04J 13/00

U.S. Cl. 370—18

9 Claims



1. A method of sending signals from a plurality of transmitting stations to respective receiving stations over a common channel, comprising the steps of:

- periodically sampling an outgoing analog signal at a given transmitting station, at intervals not exceeding the reciprocal of twice the bandwidth of said outgoing signal, and storing the resulting samples for periods equaling said intervals to produce a stepped wave;
- multiplying said stepped wave at the given transmitting station with a sequence of bipolar binary pulses individual thereto and essentially uncorrelated with pulse sequences employed at other transmitting stations using said common channel, thereby producing a distorted wave;
- conveying said distorted wave via said signal link to the associated receiving station;
- multiplying the incoming distorted wave at the associated receiving station with a synchronized replica of said individual sequence to re-establish the wave of step (b) possibly encumbered by interfering signals from other users of said common channel;
- integrating the re-established stepped wave over intervals equaling the sampling intervals of step (a) to provide discrete signal with amplitudes proportional to those of the steps of the re-established wave;

- storing said discrete signals for periods equaling said sampling intervals to produce a delayed counterpart of the re-established stepped wave substantially purged of interfering signals and with a low-frequency component conforming to said outgoing analog signal; and
- isolating said low-frequency component.

4,365,328

DEVICE FOR SWITCHING DIGITAL DATA

Philippe M. F. Merriaux, and Jean-Yves Nicolas, both of Colombes, France, assignors to Thomson-CSF Telephone, Paris, France

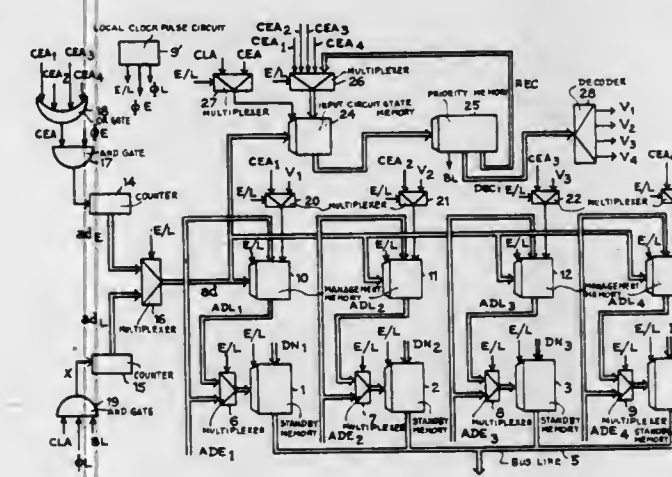
Filed 1981, Ser. No. 228,502

Claims priority, application France, 1980, 80 02088

Int. Cl.³ H04J 3/00

U.S. Cl. 370—60

6 Claims



1. A device for switching digital data emitted by "n" input circuits to an output circuit, comprising on the one hand "n" live memories designated as standby memories for storing respectively the digital data emitted by said input circuits at write addresses provided respectively by said input circuits, an output bus line connected to the outputs of said standby memories and to said output circuit, and on the other hand a standby-memory read management circuit which in turn comprises:

- "n" live memories designated as management memories for storing respectively the write addresses of said standby memories, said management memories being provided with outputs connected respectively to read address inputs of said standby memories;
- a read/write sequential addressing circuit which is common to said management memories, said circuit being write-incremented at the time of each writing by one of said input circuits into one of said standby memories and being read-incremented at the time of each reading of one of said standby memories by said output circuit;
- a circuit for establishing reading priority of said standby memories and for read-blocking of said sequential addressing circuit in the event of simultaneous emission by a number of said input circuits;
- a circuit for enabling one out of "n" of said management memories, the enabling operation being performed at the time of writing of said management memories by the particular input circuit which is associated with the enabled management memory and at the time of reading of said management memories by said circuit for establishing priority and blocking.

4,365,329

PROCESS AND DEVICE FOR PHASING A LOCAL CLOCK

Maurice Sauvanet, Paris, France, assignor to Thomson-CSF, Paris, France

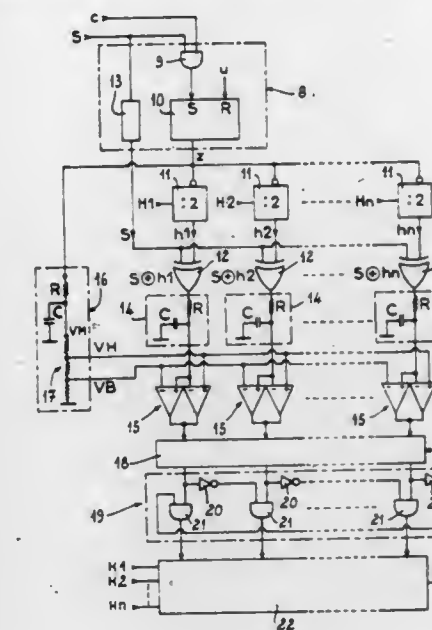
Filed July 25, 1980, Ser. No. 172,192

Claims priority, application France, July 27, 1979, 79 19425

Int. Cl.³ H04J 3/06; H04L 7/04

U.S. Cl. 370—100

15 Claims



1. A process for phasing a local clock, in which the most favorable clock signal is selected among n available signals of the same frequency having equal successive phase shifts, by comparison with a synchronization burst, wherein a logic phase comparison is effected between (a) signals obtained by the division of frequency by 'of each of the n available clock phases and (b) the bits of the synchronization burst to obtain a comparison signal, wherein the comparison signal obtained is averaged over several bits of this synchronization burst, and wherein one of the n signals is selected which has a phase shift close to π , the improvement comprising selecting the most favorable clock phase as being the one represented by a voltage level which is located within an interval or "window" centered substantially on a value equal to half of the maximum probable value VM of the voltage forming the comparison signal, which maximum value would be obtained for the maximum phase shift 2π .

4,365,330

CHANNEL ZERO SWITCHING ARRANGEMENTS FOR DIGITAL TELECOMMUNICATION EXCHANGES

Geoffrey Chopping, Poole; Robert V. Moberly, Broadstone, and Alexander S. Philip, Wimborne, all of England, assignors to The Plessey Company plc, Ilford, England

Filed August 6, 1980, Ser. No. 175,718

Claims priority, application United Kingdom, August 10, 1979, 7927860

Int. Cl.³ H04J 3/06

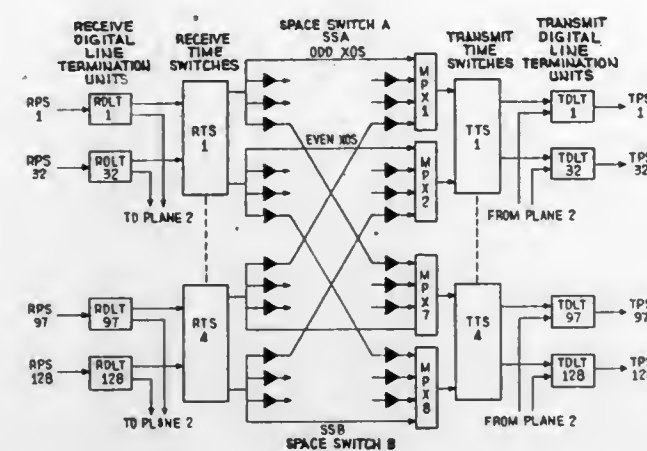
U.S. Cl. 370—100

5 Claims

1. A method of switching the incoming channel used to carry synchronisation patterns of a multi-channel time division multiplex pulse code modulated line transmission system to any one of the outgoing channels of a multi-channel time division multiplex pulse code modulated line transmission system in a telecommunications exchange using a digital switching network comprising the steps of

- amending the pattern in a predetermined manner in the said incoming channel received at the exchange,
- switching the said incoming channel carrying the amended pattern across the exchange switching network to a selected outgoing channel and

(c) transmitting the amended pattern in the selected outgoing channel if that channel is not a channel used to carry



synchronisation patterns for the outgoing line transmission system.

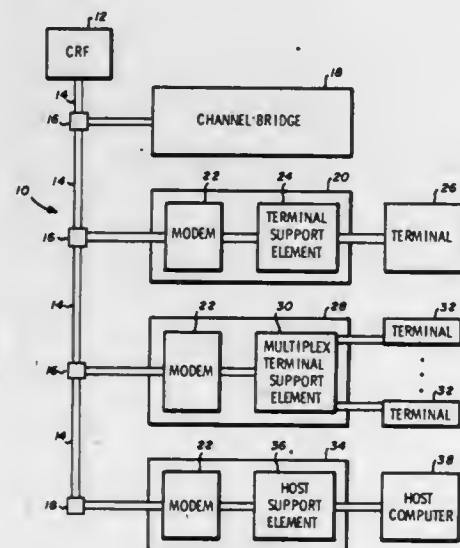
4,365,331
MULTIPLE CHANNEL DATA COMMUNICATION
SYSTEM

Kenneth J. Biba; San Francisco, and Jose J. Picazo, Jr., San Jose, both of Calif., assignors to Sytek Corporation, Sunnyvale, Calif.

Filed July 7, 1980, Ser. No. 166,384
Int. Cl.³ H04J 1/10

U.S. Cl. 370—124

13 Claims



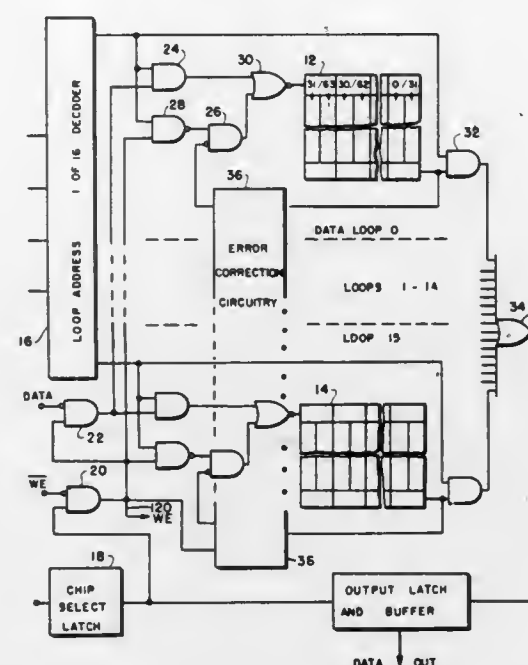
1. A data communication system comprising:
 - a coaxial cable;
 - a plurality of MODEM's connected to the cable including means for selecting the transmit and receive frequency bandwidths of each of the MODEM's;
 - means connected to the MODEM's for supplying data to and receiving data from each of the MODEM's;
 - a central retransmission facility connected at the head end of the cable whereby a signal transmitted by at least one of the MODEM's is received by the central retransmission facility and translated to the receive frequency bandwidth of the MODEM which transmitted said signal; and
 - a channel bridge connected to the cable including two or more MODEM's each of said MODEM's having different transmit frequency bandwidths and different receive frequency bandwidths and including means for transferring a signal received by one of said MODEM's to another of said MODEM's whereby the MODEM's connected to the cable which are transmitting and receiving in different frequency bandwidths may receive signals from and transmit signals to each other.

4,365,332
METHOD AND CIRCUITRY FOR CORRECTING
ERRORS IN RECIRCULATING MEMORIES
Rex Rice, Menlo Park, Calif., assignor to Fairchild Camera and
Instrument Corp., Mountain View, Calif.

Int. Cl.³ G06F 11/10; G11C 29/00

U.S. Cl. 371-13

16 Claims



1. A method for detecting and correcting bit errors in binary data circulating from the output terminal into the input terminal of a first recirculating memory, said method including the steps of:

sampling the data bits circulating from the first memory and storing said bits in a second recirculating memory operating in synchronization with the first memory;
 comparing the state of each stored bit circulating from the second memory with the next bit occupying the corresponding location in the first memory as the next corresponding bit circulates from said first memory;
 generating an error detection signal whenever the state of said stored bit differs from that of the next corresponding bit;
 reversing the state of the next corresponding bit in response to said error detection signal; and
 inserting said reversed state next corresponding bit into the data circulating from the first memory at the next recirculating bit location of the next corresponding bit.

4,365,333
TEST SIGNAL GENERATOR

Steven J. Mulvey, East Greenbush, N.Y., assignor to National Railroad Passenger Corporation, Washington, D.C.

Filed September 22, 1980, Ser. No. 189,395
Int. Cl.³ B60T 8/12

U.S. Cl. 371-27

6 Claims

1. A test signal generator for generating signals simulating the signals obtained from the axles of a railroad car, to permit testing of a railroad car brake controller, said generator comprising:

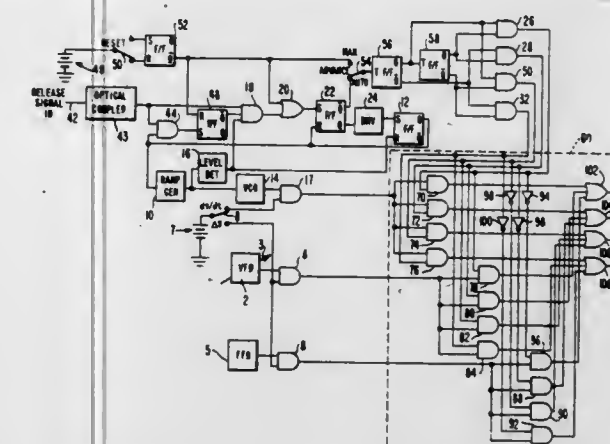
(b) a voltage ramp generator for sequentially applying to said voltage controlled oscillator an input voltage changing at a first rate and then an input voltage changing at a second rate to cause the frequency of the output signal from said voltage controlled oscillator sequentially to decrease at a first rate simulating the signals obtained from an axle of a railroad car during normal braking and then to decrease at a second rate simulating the signals obtained from an axle of a railroad car during abnormal braking either with slipping or just prior to slipping;

DECEMBER 21, 1982

ELECTRICAL

1157

- (c) a voltage level detector for detecting the voltage level of the voltage ramp generator output applied as an input voltage to said voltage controlled oscillator;
- (d) input means for receiving from a railroad car brake controller a control signal indicative of sensing by the controller of a railroad car axle signal indicating normal braking of the railroad car;
- (e) manual initiating means for initiating operation of said voltage ramp generator;
- (f) first control means coupled to said input means and to said voltage level detector and, after said voltage level detector has detected a voltage ramp generator output voltage level at which said voltage ramp generator changes from applying to said voltage controlled oscillator an input voltage changing at the first rate to applying to said voltage controlled oscillator an input voltage changing at the second rate, responsive to receipt of a control signal by said input means for initiating operation of said voltage ramp generator;
- (g) a plurality of output lines, each adapted for connection to an input circuit of a railroad car brake controller;



- (h) a multiplexer coupled to said output lines;
- (i) a variable frequency oscillator including means for controlling the output frequency thereof;
- (j) a fixed frequency oscillator;
- (k) second control means coupled to said variable frequency oscillator, said fixed frequency oscillator, said voltage controlled oscillator, and said multiplexer, and capable of alternatively assuming a first position in which the outputs of said variable frequency oscillator and said fixed frequency oscillator are applied to said multiplexer for application of said variable frequency oscillator output to a first one of said plurality of output lines and application of said fixed frequency oscillator output to the other ones of said plurality of output lines, and a second position in which the output of said voltage controlled oscillator is applied to said multiplexer for application to said first one of said plurality of output lines; and
- (l) means for sequencing said multiplexer to select different ones of said output lines as said first one of said plurality of output lines.

4,365,334

ELECTRICAL TESTING APPARATUS AND METHODS
Anthony J. Smith, Penn, and Timothy J. Sheppard, Pinner, both
of England, assignors to Racal Automation Limited, Brack-
nell, England

Filed 1981, Ser. No. 232,665
Claims priority, application United Kingdom, 1980, 8006607
Int. Cl.³ G01R 31/28

U.S. Cl. 371-27

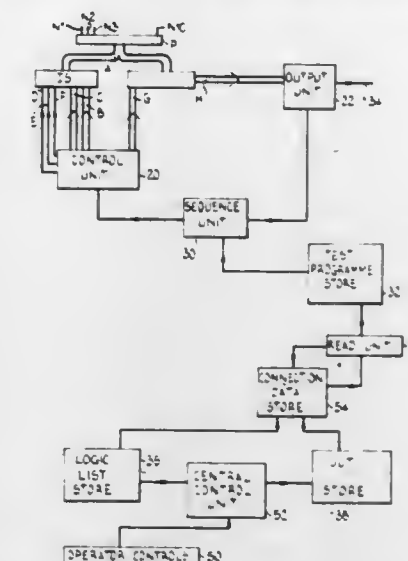
10 Claims

1. A system for generating test data for testing any one of a plurality of logic circuits, comprising

- a store storing for each of the basic logic circuit types data in the form of a respective list of logic states each logic state identifying one or more particular terminals of the logic circuit to which specified data inputs are to be applied;

plied and one or more particular terminals at which specified data outputs are to be produced if the logic circuit is operating correctly,

means generating connection information relating to a particular logic circuit (of one of the basic types) to be tested



and specifying any external conditions applied to that circuit by means of its terminals, and
modifying means operative to modify the logic states in the stored list for that logic circuit in dependence on the connection information whereby to produce the said test data.

4,365,335
GAS DISCHARGE LASER DEVICE

Theodorus F. Lamboo, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

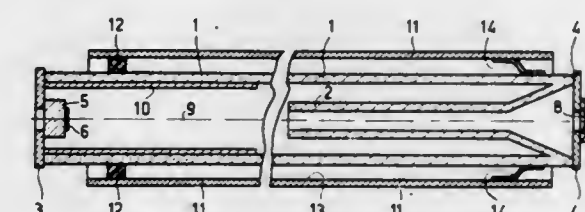
Continuation of Ser. No. 834,244, Sep. 19, 1977, abandoned. This application September 4, 1980. Ser. No. 183,866

Claims priority, application Netherlands, July 28, 1977,
7708349

Int. Cl.³ H01S 3/04, 3/03

U.S. Cl. 372-34

11 Claims



1. A gas discharge laser device comprising a tubular glass envelope, a laser tube coaxial with the tubular envelope, a pair of spaced apart laser mirrors sealing opposite ends of the tubular envelope and disposed to form an optical resonator having an optical axis which coincides with the axis of the laser tube, a metal sheath at least partly surrounding and coaxial with the tubular envelope, and means including a slack resilient element having a low coefficient of elasticity for supporting the metal sheath around the tubular glass envelope in good heat transfer relationship therewith so as to provide a substantially uniform heat transfer from the glass envelope to the metal sheath sufficient to substantially prevent the occurrence of varying temperature gradients along substantially the entire length of the laser tube such that a thermally induced deformation of the metal sheath exerts a negligible mechanical influence on the laser tube.

- (g) adjusting the patient's position with respect to the irradiation portal so that it is proper for effective treatment; and
(h) continuing radiation therapy to deliver the desired dosage of radiation to the patient."

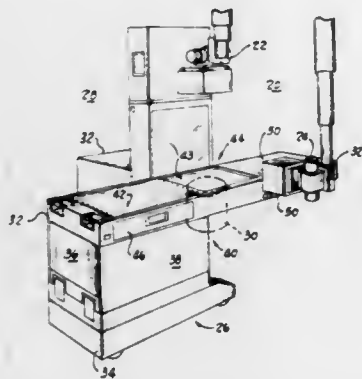
4,365,342

X-RAY FILM CHANGER FOR THE SERIAL RADIOGRAPHY

Tamas A. Vepy, Mississauga, Canada, assignor to Picker International, Inc., Cleveland, Ohio
Division of Ser. No. 818,823, Jul. 25, 1977, abandoned, which is a division of Ser. No. 617,102, Sep. 26, 1975, Pat. No. 4,082,956.
This application 1980, Ser. No. 114,697
Int. Cl.³ G03F 41/16

U.S. Cl. 378-173

6 Claims



1. A film changer in a radiographic system for taking a series of radiographs of a specimen comprising:

- a housing structure, having an exposure station for receiving and exposing a plurality of unexposed X-ray film sheets sequentially,
 - a supply magazine carried by the structure near the station, the supply magazine being for storing a plurality of film packs each containing an unexposed X-ray film sheet,
 - a receiving magazine carried by the structure near the station for sequentially receiving the plurality of film sheets after they have been exposed,
 - a transport system for transporting the plurality of film sheets in sequence from the supply magazine to the exposure station, and from the exposure station to the receiving magazine, and
 - drive means for providing to said transport system harmonic drive motion having a preselectable dwell time between drive motions, said drive means including:
 - a transmission, having an input shaft and an output shaft, for providing a harmonic output motion on said output shaft in response to rotation of said input shaft,
 - a prime mover for rotating said input shaft
- and,
- mechanism for selectively controlling the dwell time between harmonic output motions of the output shaft.

4,365,343

COUNTERWEIGHTED X-RAY TUBE

John K. Grady, Lincoln; David B. Rice, Cambridge, and Paul G. Rice, Lincoln, all of Mass., assignors to XRE Corporation, Concord, Mass.

Filed November 4, 1980, Ser. No. 203,963

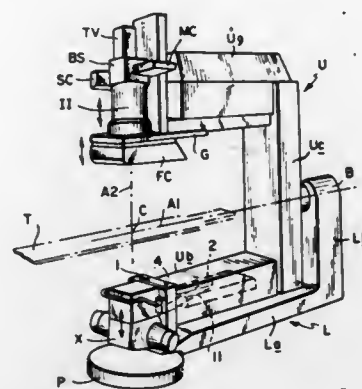
Int. Cl.³ G03B 41/16

U.S. Cl. 378-181

8 Claims

1. Radiological apparatus comprising:
a support; and
radiation source means and radiation receptor means at spaced positions on the support for examination of a subject at a location therebetween, the source and receptor means having a common radiation axis extending through

the subject location, and each means being mounted on the support to move along the radiation axis;
wherein the support includes
an arm extending to one radiation means toward the radiation axis;
means on the arm guiding the radiation means along the radiation axis;



fulcrum means on the arm;
a lever pivoted on the fulcrum means and pivotally attached at one end to the radiation means; and
a counterweight guided on the arm and engaging the other end of the lever to counterbalance the radiation means.

4,365,344

STAND FOR AN X-RAY IMAGE DETECTION APPARATUS WHICH IS INSERTABLE BENEATH THE PATIENT SUPPORT OF AN X-RAY EXAMINATION APPARATUS

Hans-Peter Dornheim, Bubenreuth, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

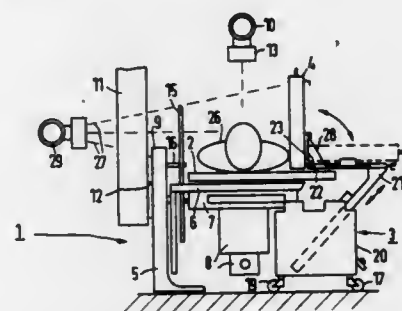
Filed 1981, Ser. No. 225,311

Claims priority, application Fed. Rep. of Germany, 1980, 3003976

Int. Cl.³ G03B 41/16

U.S. Cl. 378-189

14 Claims



1. A stand for an x-ray image detection apparatus which is insertable beneath a patient support platform of an x-ray examination apparatus, said stand comprising: a stand carriage (20) which can be transported on the floor in a two-dimensional fashion, a lifting carriage (21) which is height-adjustable on the stand carriage, said lifting carriage comprising a support-mounting (23) which is pivotal through 90° about a horizontal axis on the lifting carriage, and image detection apparatus (4) fastened to said support-mounting (23) so as to be tiltable from a position with a horizontal image plane into a position with a vertical image plane, wherein the improvement comprises: said lifting carriage (21) having an essentially angled configuration including a horizontal leg (34) having a free end carrying said support mounting (23) so that the image detection apparatus (4) is pivotally mounted at the free end of the horizontal leg (34); the stand carriage (20), the lifting carriage (21) and the support-mounting (23) being arranged so as to be beneath the image detection apparatus (4); and coupling means (48, 49, 50) connected with the stand carriage (20) and capable of being

brought into engagement with an x-ray examination apparatus for the defined positioning of the image detection apparatus (4) relative to an x-ray examination apparatus (1).

4,365,345

SERVO OPERATED FLUOROSCOPIC TABLE

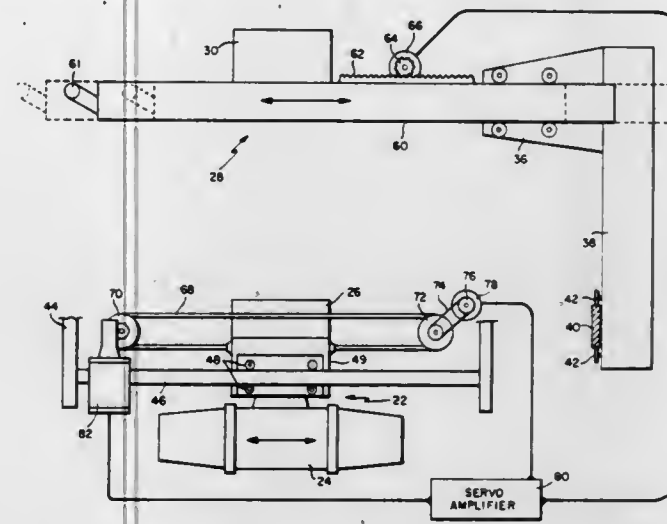
James R. Craig, Glenview, and Steven F. Nerge, Elgin, both of Ill., assignors to The Machlett Laboratories, Incorporated, Stamford, Conn.

Continuation of Ser. No. 962,726, Nov. 21, 1978. This application October 30, 1980, Ser. No. 202,095

Int. Cl.³ A61B 6/08

U.S. Cl. 378-190

3 Claims



1. A fluoroscopic apparatus comprising:
a fluoroscopic table having a base and a patient-supporting surface
a radiation source means within the base and disposed for directing through said surface a beam of radiation having a central axis substantially normal to said surface;
a fluoroscopic receptor means spaced from the base and disposed for receiving said beam when aligned with the source means and producing corresponding fluoroscopic images, said receptor means being movable translationally along said patient supporting surface;
source support means for supporting the source means independent of the receptor means and translationally movable with respect to said patient-supporting surface while maintaining said beam substantially normal to said surface; and
servo means connected to the source means and the receptor means for automatically maintaining the source means translationally in registration alignment with the receptor means while maintaining said axis of said beam substantially normal to said surface to produce a sequence of fluoroscopic images.

4,365,346

BUILT-IN LINEARITY TESTING ARRANGEMENT FOR AN FM RADIO SYSTEM

Abram Froese, North Vancouver; Larry Y. Onotera, Surrey, and Alvin Liebelt, Vancouver, all of Canada, assignors to AEL Microtel, Ltd., Burnaby, Canada

Filed March 2, 1981, Ser. No. 239,770

Int. Cl.³ H04B 1/00, 17/00

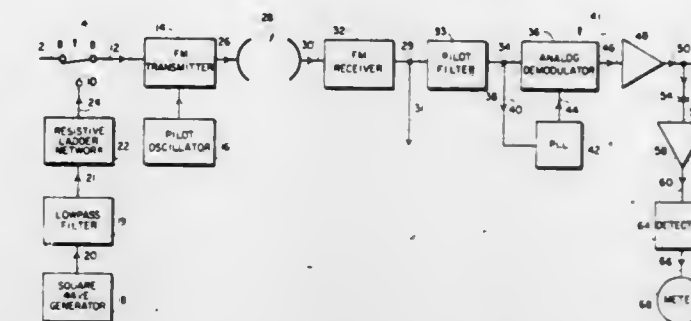
U.S. Cl. 455-42

5 Claims

1. In a radio system, including a transmitter and a receiver, which employs frequency modulation, apparatus or providing a built-in system linearity test arrangement comprising:
a transmitter having a baseband input terminal or accepting information and test square wave signals to be conditioned for radio transmission to said receiver;
a pilot frequency oscillator having an output terminal connected to another input terminal of said transmitter;
means for selectively applying said test signal to said baseband input terminal, said test signal being adjusted to

provide a predetermined deviation of said frequency modulation transmitter;

an FM receiver adapted to receive the signals conditioned for transmission, and to process said received signals so as to substantially recover and provide at an output port thereof the transmitted pilot and test signals, said receiver also providing at said output port, as a result of interaction between the pilot and square-wave test signals because of



system non-linearity, an AC signal which may be superimposed thereon;
means connected to the output port of said receiver for detecting said superimposed AC signal and providing a signal representative of the amplitude thereof at an output terminal; and
means for measuring the amplitude of said representative signal.

4,365,347

CHANNEL SELECTING SYSTEM FOR USE IN A MULTI-CHANNEL MOBILE COMMUNICATION SYSTEM

Shigeru Otsuka, and Tomokazu Kai, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

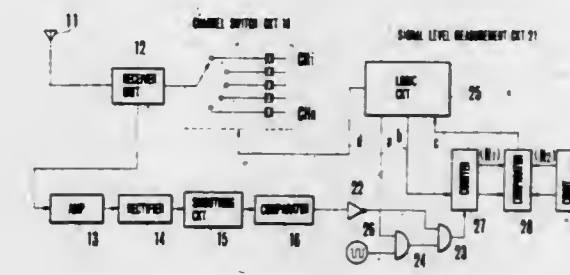
Filed 1981, Ser. No. 228,544

Claims priority, application Japan, 1980, 55-10752

Int. Cl.³ H04B 1/16, 15/00

U.S. Cl. 455-179

5 Claims



1. A channel selecting system for use in a multi-channel mobile communication system comprising receiver means for receiving radio wave signals on a plurality of channels, and field strength measuring means for sequentially measuring the received field strength associated with each channel, said field strength measuring means comprising:
means for totaling time segments in which the field strength is lower than a predetermined level determined by the selecting system, within a measurement time span for each channel, said totaling means including pulse train generator means for generating pulses which are counted by the totaling means during said time segments in which the field strength is lower than said predetermined level;
means for setting a reference time length which is less than the measurement time span;
comparing means for comparing the length of time of the totaled time segments with said reference time length and generating a signal when said totaled time length is greater than or equal to said reference time length;
switching means coupled to said comparing means for switching said communication system from one of said plurality of channels to another one of said plurality of channels upon

the occurrence of at least one of said signal generated by said comparing means, and the elapsing of said measurement time span;

whereby the selecting system selects the channel with the highest relative field strength as measured by the selecting system.

4,365,348

TUNING VOLTAGE GENERATING APPARATUS OF VOLTAGE SYNTHESIZER TYPE

Isao Fujimoto, Katano, Japan, assignor to Sanyo Electric Co., Ltd., Moriguchi, Japan

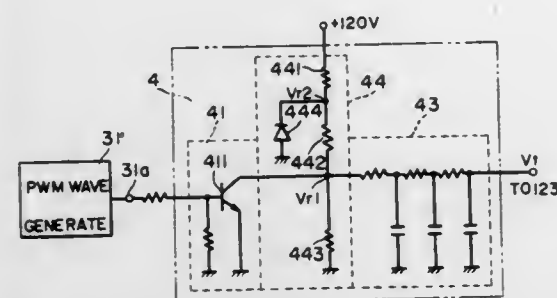
Filed December 10, 1980, Ser. No. 214,872

Claims priority, application Japan, December 17, 1979, 54-1751491[U]; 1980, 55-14950

Int. Cl.³ H04B 1/26

U.S. Cl. 455—180

10 Claims



6. A tuning voltage generating apparatus of a voltage synthesizer type for supplying a tuning voltage to a tuner employing a variable reactance element as a tuning element, comprising:

- input pulse signal providing means for providing an input pulse signal having information encoded therein corresponding to a frequency to be received,
- first reference voltage generating means including a voltage dividing means for generating a first reference voltage having a first level by dividing an output of a constant voltage source by said voltage dividing means,
- voltage converting means responsive to said input pulse signal and said first reference voltage for voltage converting said input pulse signal into an output pulse signal using said first reference voltage,
- low-pass filter means for converting the voltage converted pulse signal from said voltage converting means into a direct current tuning voltage for application to said tuner, an upper limit of said tuning voltage being determined by said voltage dividing means, and
- lower limit determining means comprising a reference voltage generating circuit for determining a lower limit of the tuning voltage from said low-pass filter means.

4,365,349

RADIO RECEIVER HAVING PHASE LOCKED LOOP AND AUTOMATIC FREQUENCY CONTROL LOOP FOR STABLY MAINTAINING LOCAL OSCILLATOR FREQUENCY OF VOLTAGE-CONTROLLED LOCAL OSCILLATOR

Minoru Ogita, and Shigenobu Kimura, both of Hamamatsu, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Shizuoka, Japan

Filed 1981, Ser. No. 227,535

Claims priority, application Japan, 1980, 55-11272[U]; 1980, 55-11273[U]; July 24, 1980, 55-101793

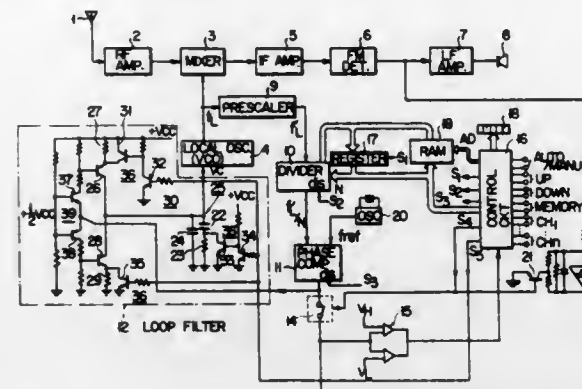
Int. Cl.³ H04B 1/10, 1/16

U.S. Cl. 455—192

5 Claims

1. In a radio receiver comprising a voltage-controlled oscillator which serves as a local oscillation to produce a local

oscillator signal having a local oscillator frequency, said voltage-controlled oscillator being controlled by a phase locked loop in a first control mode when a broadcast signal is selected by said receiver and being controlled by an automatic frequency control loop in a second control mode to maintain the tuning of said receiver in said broadcast signal after said phase locked loop control, and means for switching over said first and second control modes, said phase locked loop and said



automatic frequency control loop having a common loop filter coupled to said voltage-controlled oscillator to control the local oscillator frequency,

said loop filter including means for changing transfer characteristics thereof in response to a switching operation of said switching means between the phase locked loop control mode and the automatic frequency control loop control mode.

4,365,350

LOW FREQUENCY CONVERTER WITH DIODE PAIR MIXER

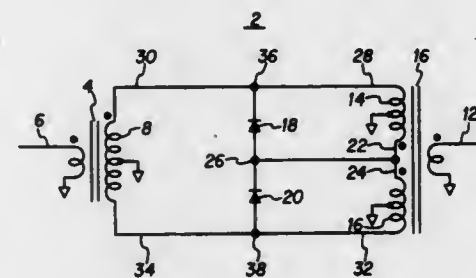
Ben R. Hallford, Wylie, Tex., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed March 13, 1981, Ser. No. 243,326

Int. Cl.³ H04B 1/26

U.S. Cl. 455—330

4 Claims



1. A frequency converter comprising, in combination:
 - a first transformer having a primary winding and a secondary winding;
 - a dual transformer having a primary winding and a pair of secondary windings; and
 - a diode mixer bridge having a pair of diodes interconnecting said secondary windings and connected in series across said secondary winding of said first transformer for heterodyne modulation product signal generation, wherein one end of the first secondary winding of said dual transformer and one end of the second secondary winding of said dual transformer are connected in common to a point between said diodes.

DESIGN PATENTS

GRANTED DEC. 21, 1982

ERRATA

For
CLASS

D07-309

See
PATENT NO.

267,325

DESIGNS

DECEMBER 21, 1982

267,284

BABY GARMENT

Elizabeth Andrews, 2 Bisbee St., Camden, Me. 04843
Filed December 3, 1979, Ser. No. 99,335
Term of patent 14 years
Int. Cl. D2-02

U.S. Cl. D2-33

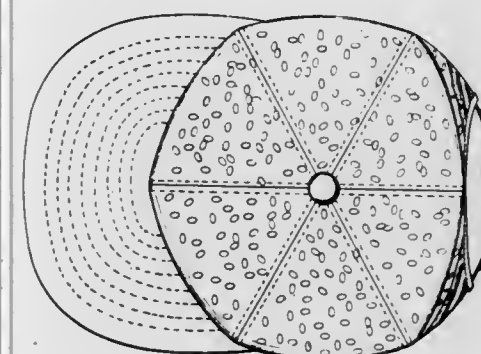


267,285

CAP

Charles J. Lipschutz, Louisville, Ky., assignor to Louisville Manufacturing Co., Inc., Louisville, Ky.
Continuation-in-part of Ser. No. 946,955, Sep. 29, 1978, abandoned. This application 1980, Ser. No. 113,134
Term of patent 14 years
Int. Cl. D2-03

U.S. Cl. D2-248

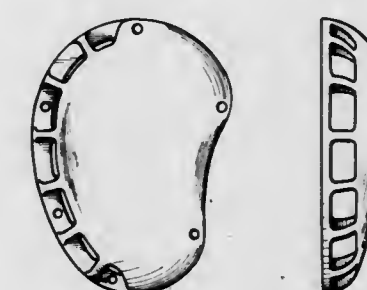


267,286

EAR PROTECTOR

Wolf Anderie, Strasbourg, France, assignor to ADIDAS Fabrique de Chaussures de Sport, Landersheim, France
Filed April 14, 1980, Ser. No. 139,679
Claims priority, application France, October 22, 1979, 79 364
Term of patent 14 years
Int. Cl. D02-03

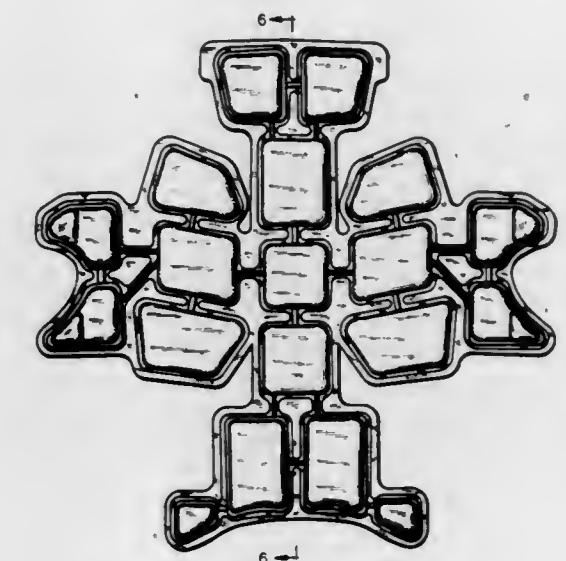
U.S. Cl. D2-259



267,287

PNEUMATIC LINER FOR PROTECTIVE HEADGEAR
Elwyn R. Gooding, Ann Arbor, Mich., assignor to The Regents of the University of Michigan, Ann Arbor, Mich.
Filed September 11, 1980, Ser. No. 186,717
Term of patent 14 years
Int. Cl. D02-03

U.S. Cl. D2-260



267,288

SHOE SOLE

Howard F. Davis, 45 W. 132nd St., New York, N.Y. 10037
Filed December 9, 1980, Ser. No. 214,487
Term of patent 14 years
Int. Cl. D2-04

U.S. Cl. D2-320



267,289
NECKTIE KNOT SUPPORT

John Najarian, 27 Dorotockeys La., Old Tappen, N.J. 07675
Filed October 24, 1980, Ser. No. 200,593
Term of patent 14 years
Int. Cl. D02-07

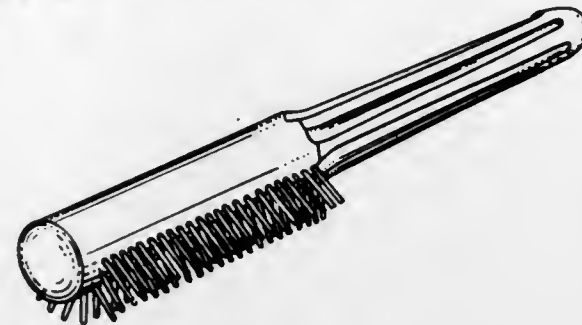
U.S. Cl. D2-401



267,292
HAIR BRUSH

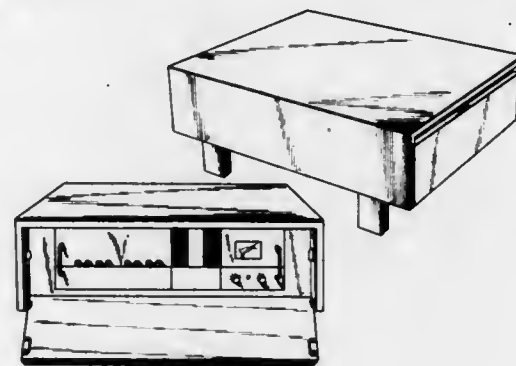
Salvatore J. Megna, 3721 Fair Oaks Blvd., Sacramento, Calif. 95825
Filed November 23, 1979, Ser. No. 96,667
Term of patent 14 years
Int. Cl. D04-02

U.S. Cl. D4-35



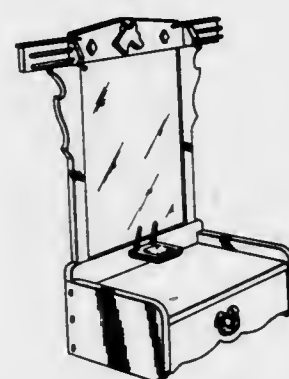
267,293
COMBINED TABLE, RADIO RECEIVER AND SPEAKER
Marcel Georgi, 517 Saraguay, Pierr Feonts, P.Q., Canada
Filed August 10, 1978, Ser. No. 932,755
Term of patent 7 years
Int. Cl. D06-03

U.S. Cl. D6-4



267,294
COMBINED VALET WALL RACK AND DRAWER UNIT
David Nusz, 2025 W. Mark, Layton, Utah 84041
Continuation-in-part of Ser. No. 974,128, Dec. 26, 1978, Pat. No. Des. 257,303, which is a continuation-in-part of Ser. No. 67,837, Aug. 2, 1979, Pat. No. Des. 260,586. This application September 12, 1980, Ser. No. 186,523
Term of patent 14 years
Int. Cl. D06-04

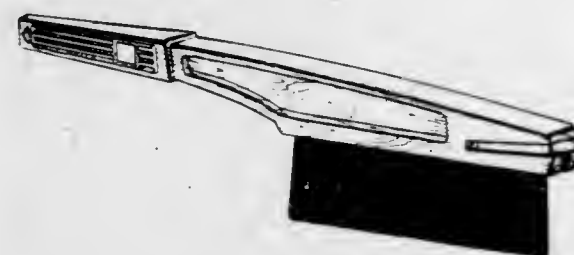
U.S. Cl. D6-123



267,291
WINDSHIELD CLEANING BRUSH

Evan L. Hopkins, 428 Peyton, Emporia, Kans. 66801, and Donald W. Cartner, 8809 E. 59th St., Kansas City, Mo. 64133
Continuation-in-part of Ser. No. 949,108, Oct. 6, 1978. This application April 7, 1980, Ser. No. 137,769
Term of patent 14 years
Int. Cl. D4-01

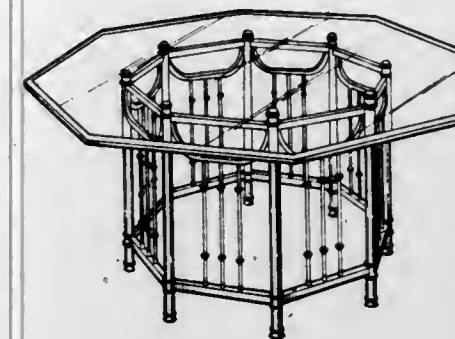
U.S. Cl. D4-12



267,295
OCTAGONAL TABLE

David Blumenthal, Atlanta, Ga., assignor to Erwin-Lambeth, Inc., Thomasville, N.C.
Filed March 31, 1980, Ser. No. 135,517
Term of patent 14 years
Int. Cl. D06-03

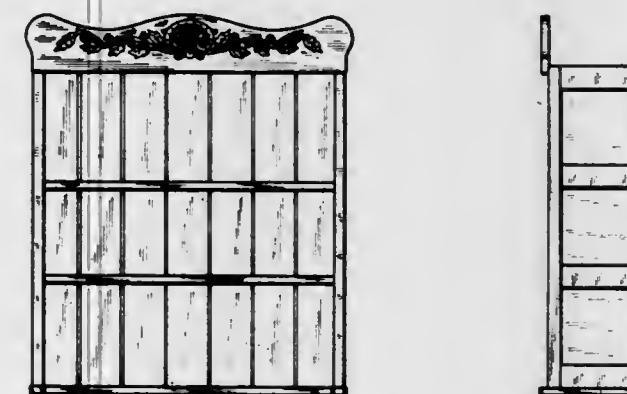
U.S. Cl. D6-146



267,296
HUTCH

Henry W. Mower, Stevens Point, Wis.; Allen Seymour, Clayton, Ohio; Jerome P. Koziatek, Hinckley, Ohio, and Joseph G. Lendvay, Ravenna, Ohio, assignors to Questor Corporation, Toledo, Ohio
Filed October 16, 1980, Ser. No. 197,766
Term of patent 14 years
Int. Cl. D06-04

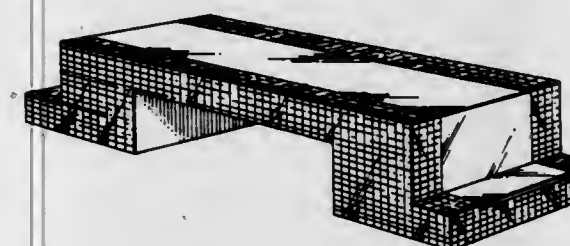
U.S. Cl. D6-153



267,297
COFFEE TABLE

Bruce N. Lee, 19 Columbia Ave., Trenton, N.J. 08618
Filed December 4, 1980, Ser. No. 213,133
Term of patent 14 years
Int. Cl. D06-03

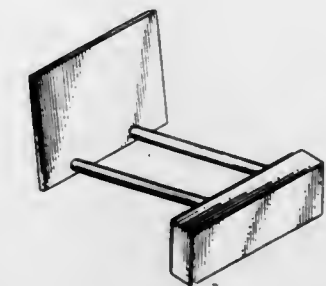
U.S. Cl. D6-177



267,298
BOOK HOLDER

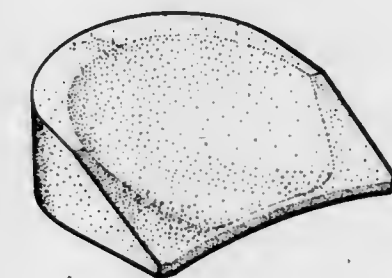
Milton Fischer, 145 E. 15th St., New York, N.Y. 10001
Filed October 22, 1980, Ser. No. 199,486
Term of patent 14 years
Int. Cl. D06-04

U.S. Cl. D6-184



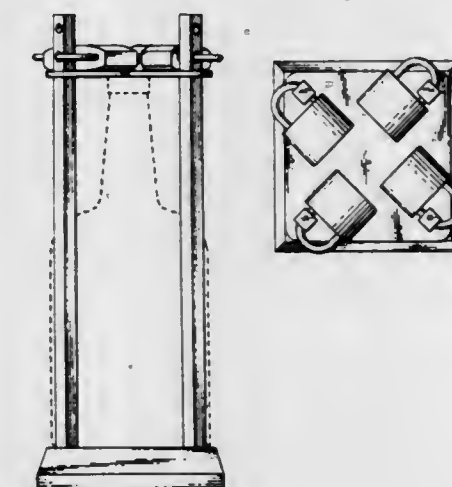
267,299
PRENATAL SUPPORT PILLOW
Richard G. Lund, III, 7564 Major Ave. North, Brooklyn Park, Minn. 55443
Filed October 27, 1980, Ser. No. 201,162
Term of patent 14 years
Int. Cl. D06-09

U.S. Cl. D6-201



267,300
BOTTLE HOLDER
Hans Eriksson, Nygatan 11, and Sylve Roundahl, Drevstagatan 3, both of 681 00 Kristinehamn, Sweden
Filed August 20, 1980, Ser. No. 179,723
Claims priority, application Sweden, March 3, 1980, 80-446
Term of patent 14 years
Int. Cl. D07-06

U.S. Cl. D7-70



267,301

NUT CRACKER MECHANISM

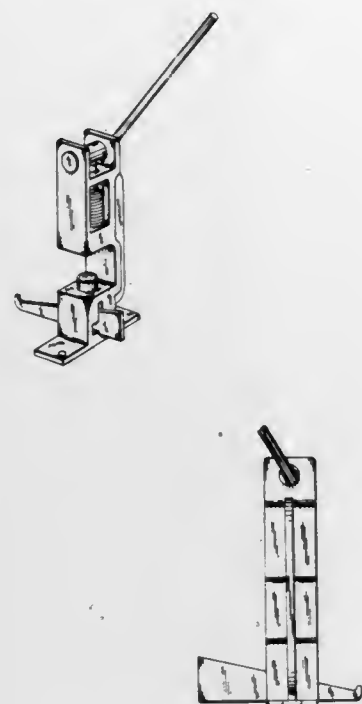
Lawrence F. Hunt, Box #3, Hartford, Iowa 50118

Filed April 2, 1981, Ser. No. 250,255

Term of patent 14 years

Int. Cl. D7-06

U.S. Cl. D7-98



267,303

ROTATOR PRIMARILY FOR A BARBECUE SPIT

Clement S. Wan, Hong Kong, Hong Kong, assignor to Landman

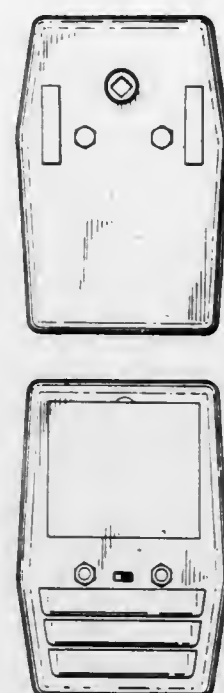
Limited, Hong Kong, Hong Kong

Filed September 13, 1979, Ser. No. 74,937

Term of patent 14 years

Int. Cl. D7-02

U.S. Cl. D7-402



267,304

ROTATOR PRIMARILY FOR A BARBECUE SPIT

Clement S. Wan, Hong Kong, Hong Kong, assignor to Landman

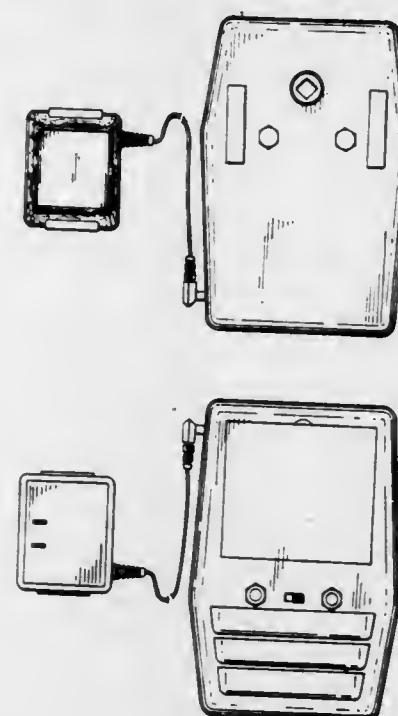
Limited, Hong Kong, Hong Kong

Filed September 13, 1979, Ser. No. 74,938

Term of patent 14 years

Int. Cl. D7-02

U.S. Cl. D7-402



267,302

MICROWAVE OVEN

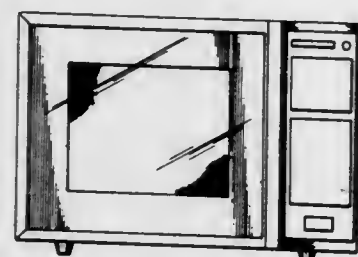
Yoshio Suganoya; Takao Miyake, and Masayoshi Kawai, all of Osaka, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed 1980, Ser. No. 110,786

Term of patent 14 years

Int. Cl. D7-02

U.S. Cl. D7-351



267,305

FERTILIZER APPLICATOR

Bernard J. Lempa, Jr., Houston, Tex., assignor to Lempa Mfg.

Inc., Cuero, Tex.

Filed June 19, 1980, Ser. No. 161,047

Term of patent 14 years

Int. Cl. D8-05

U.S. Cl. D8-02



267,307

CAN RETRIEVER

Jack Lowdon, Richmond, Va., assignor to Reynolds Metals

Company, Richmond, Va.

Filed November 20, 1980, Ser. No. 208,800

Term of patent 14 years

Int. Cl. D8-05

U.S. Cl. D8-14



267,308

TRUSS POST CAP

George E. France, 901 W. James St., Geneva, Ill. 60134

Continuation-in-part of Ser. No. 734,713, Oct. 22, 1976, Pat. No.

Des. 250,391, which is a division of Ser. No. 487,129, Jul. 10,

1974, Pat. No. Des. 242,037, which is a continuation-in-part of

Ser. No. 249,760, May 2, 1972, abandoned. This application

November 28, 1978, Ser. No. 964,254

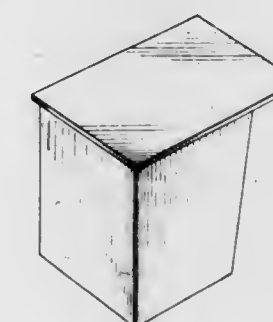
The portion of the term of this patent subsequent to December

28, 1992, has been disclaimed.

Term of patent 14 years

Int. Cl. D8-08

U.S. Cl. D8-380



267,306

SPADE

Egil Hyggen, Oslo, Norway, assignor to Elkem-Spigerverket,

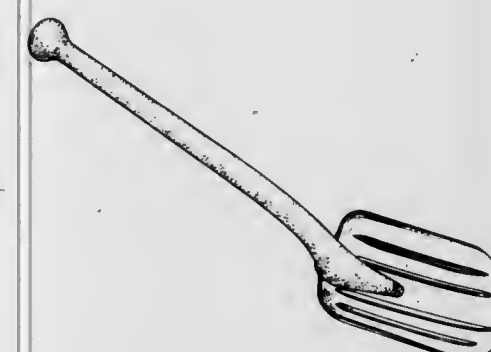
A/S, Oslo, Norway

Filed November 5, 1979, Ser. No. 91,106

Term of patent 14 years

Int. Cl. D8-01

U.S. Cl. D8-10



267,309

SCISSORS

Erkki O. Linden, Billnäs, Finland, assignor to Oy. Fiskars Ab,

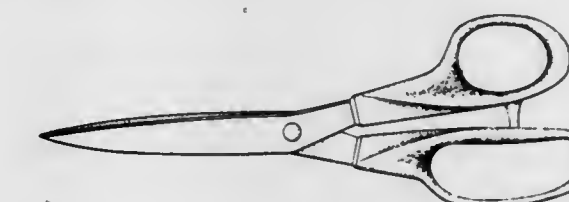
Helsinki, Finland

Filed 1980, Ser. No. 126,149

Term of patent 14 years

Int. Cl. D8-03

U.S. Cl. D8-57



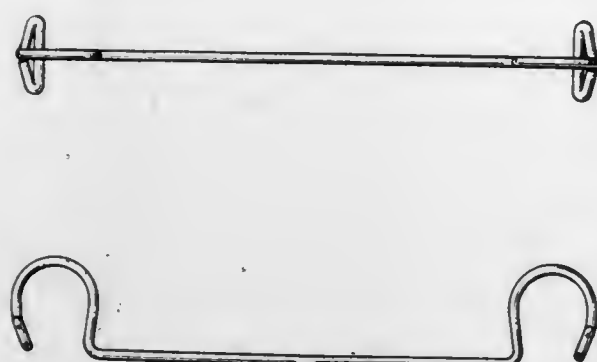
267,310

SNAP-ON FILE HANDLE

Isak Benis, 525 N. Kings Rd., Los Angeles, Calif. 90048
Filed June 9, 1980, Ser. No. 157,270

Term of patent 14 years
Int. Cl. D8—05

U.S. Cl. D8—94



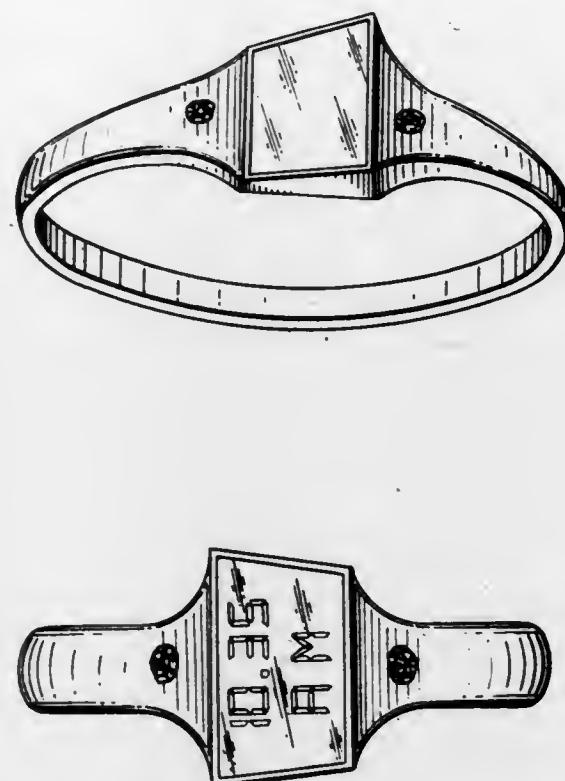
267,312

DIGITAL TIME-INDICATING FINGER RING

Neil A. Funk, Box 1607, Fort Nelson, British Columbia V0C 1R0, Canada

Filed August 25, 1980, Ser. No. 181,207
Term of patent 14 years
Int. Cl. D10—02; D11—01

U.S. Cl. D10—31



267,311

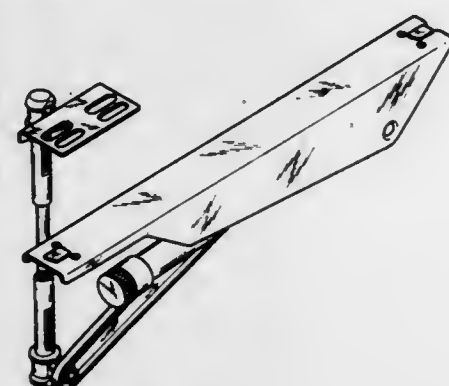
TEMPERATURE RESPONSIVE CONTROL UNIT FOR WINDOWS OF GREENHOUSES AND THE LIKE

Albert Cole, Keswick, England, assignor to Thermoform Limited, Cockersmouth, England

Filed October 22, 1980, Ser. No. 199,634
Claims priority, application United Kingdom, May 2, 1980, 994760

Term of patent 14 years
Int. Cl. D8—09

U.S. Cl. D8—330



267,313

JEWELRY FINDING

W. Allen Northcutt, III, Crestwood, Ky., assignor to J. J. B. Hilliard, W. L. Lyons, Inc., Louisville, Ky.

Filed March 2, 1981, Ser. No. 239,632
Term of patent 14 years
Int. Cl. D11—01

U.S. Cl. D11—1



267,314

AQUATIC RECREATION VEHICLE

Theodore D. Beatty, 20911 Skimmer La., Huntington Beach, Calif. 92646, and James J. Beatty, 5573 Rainier St., Ventura, Calif. 93003

Filed April 11, 1980, Ser. No. 139,692
Term of patent 14 years
Int. Cl. D12—06

U.S. Cl. D12—300



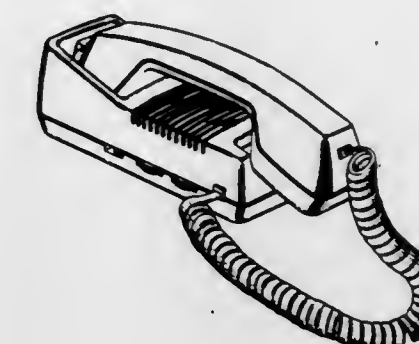
267,316

CAR TELEPHONE SET

Hisao Fukushima, and Junji Hirooka, both of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan
Filed July 14, 1980, Ser. No. 168,590

Claims priority, application Japan, 1980, 55/001064
Term of patent 14 years
Int. Cl. D14—03

U.S. Cl. D14—53



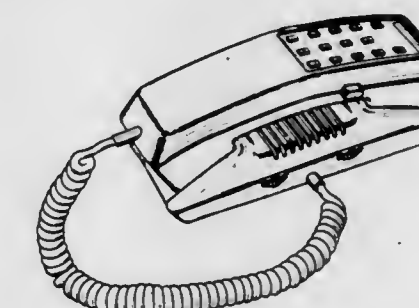
267,317

TELEPHONE SET

Hisao Fukushima, and Junji Hirooka, both of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan
Filed October 8, 1980, Ser. No. 195,340

Claims priority, application Japan, April 11, 1980, 55-013995
Term of patent 14 years
Int. Cl. D14—03

U.S. Cl. D14—53



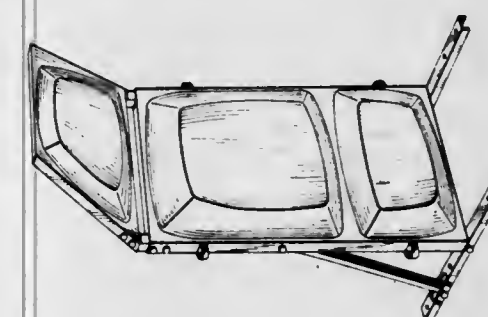
267,315

CONCERT SHELL

Robert A. Eade, #2 Heather Court, Woodbury, Conn. 06798, and Peter V. C. Quintance, 1650 Jones, San Francisco, Calif. 94109

Filed June 29, 1979, Ser. No. 53,527
Term of patent 14 years
Int. Cl. D14—99

U.S. Cl. D14—33



267,318

PORTABLE WIRELESS TELEPHONE SET

Hisao Fukushima, and Junji Hirooka, both of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan
Filed October 22, 1980, Ser. No. 199,422

Claims priority, application Japan, April 25, 1980, 55/016172
Term of patent 14 years
Int. Cl. D14—03

U.S. Cl. D14—53



267,319

CLOCK RADIO RECEIVER

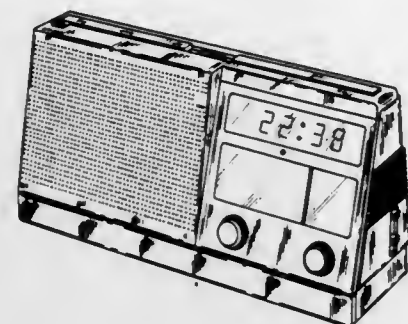
Peter H. J. Van De Ven, Valkenswaard, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed September 22, 1980, Ser. No. 189,964

Claims priority, application United Kingdom, March 25, 1980, 80/994197

Term of patent 14 years
Int. Cl. D14—03; D10—01

U.S. Cl. D14—73



267,320

BLADE PLOUGH

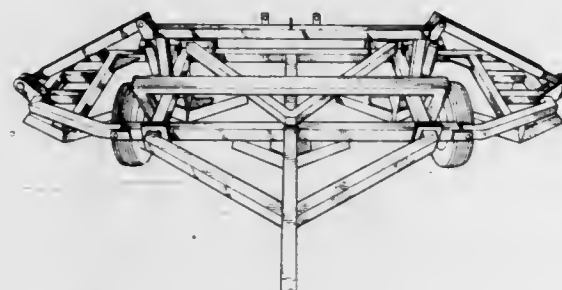
Darrell C. Symonds, 106-116 Dowd St., Welshpool, Western Australia, Australia (6106)

Filed November 7, 1979, Ser. No. 92,108

Claims priority, application Australia, May 8, 1979, 77779

Term of patent 14 years
Int. Cl. D15—99

U.S. Cl. D15—11



267,321

SEWING MACHINE

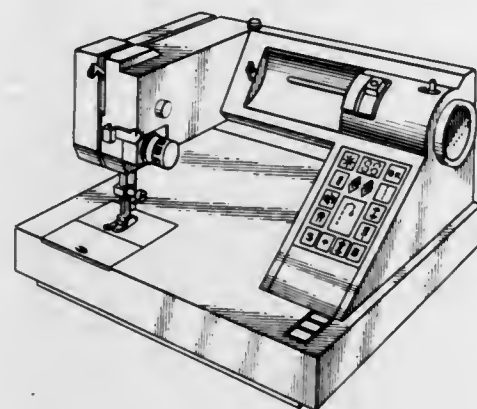
Giuliano Molineri, Moncalieri, Italy, assignor to NECCHI Societa per Azioni, Pavia, Italy

Filed August 9, 1979, Ser. No. 65,199

Claims priority, application Italy, 1979, 32301 B/79

Term of patent 14 years
Int. Cl. D15—06

U.S. Cl. D15—69



267,322

SEWING MACHINE

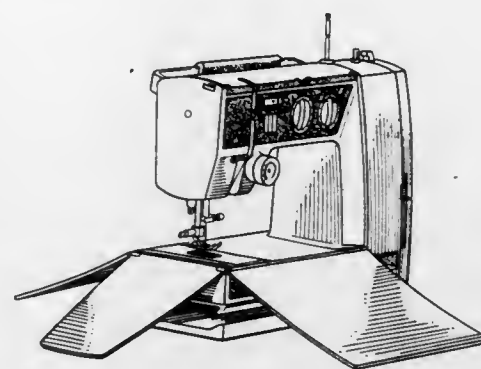
Olindo Baruffa, Thonex, and Antonio Jimenez, Meyrin-Geneva, both of Switzerland, assignors to Mefina S.A., Fribourg, Switzerland

Filed July 25, 1980, Ser. No. 172,436

Claims priority, application Switzerland, 1980, 110933

Term of patent 14 years
Int. Cl. D15—06

U.S. Cl. D15—70



267,323

ELECTRIC REFRIGERATOR

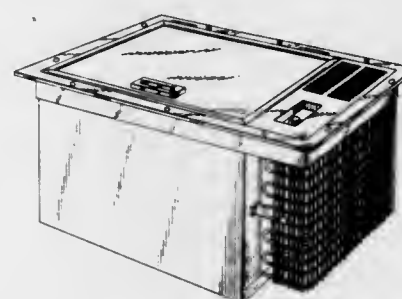
Kazuyuki Ogiwara, Maebashi, Japan, assignor to Sawafuji Electric Co., Ltd., Japan

Filed 1980, Ser. No. 125,834

Claims priority, application Japan, September 11, 1979, 54-38414

Term of patent 14 years
Int. Cl. D15—07

U.S. Cl. D15—83



267,324

ELECTRIC REFRIGERATOR AND WARMER

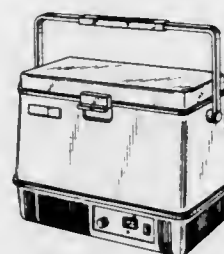
Kenji Norimatsu, Ota, and Masuo Noji, Nitta, both of Japan, assignors to Sawafuji Electric Co., Ltd., Japan

Filed September 22, 1980, Ser. No. 189,863

Claims priority, application Japan, April 9, 1980, 55-13954

Term of patent 14 years
Int. Cl. D15—07

U.S. Cl. D15—83



267,325

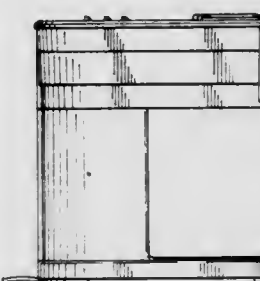
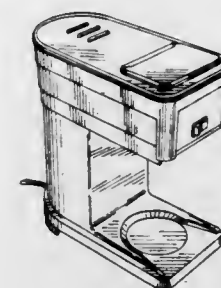
COFFEE MAKER

John D. Zimmerman, Springfield, Ill., and Joseph R. Paradis, Holden, Mass., assignors to Bunn-O-Matic Corporation, Springfield, Ill.

Filed 1981, Ser. No. 226,513

Term of patent 14 years
Int. Cl. D07—02; D15—08

U.S. Cl. D7—309



267,327

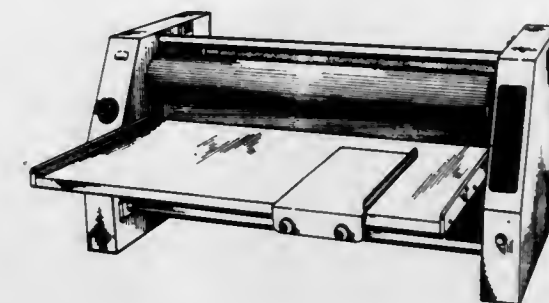
LAMINATING APPARATUS

Myron W. Shaffer, Irving, Tex., assignor to Thermo-Seal, Inc., Fort Worth, Tex.

Filed November 10, 1980, Ser. No. 205,238

Term of patent 14 years
Int. Cl. D15—99

U.S. Cl. D15—146



267,328

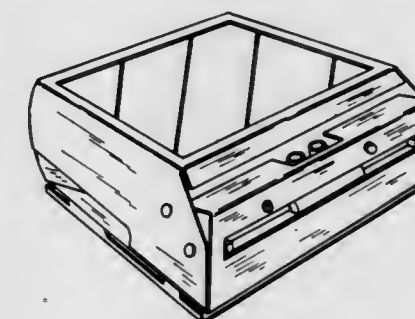
DESK DRAWER MICROFICHE READER

Steven R. Runyan, Los Altos Hills; William T. Link, Berkeley, and Stephen Hobson, Palo Alto, all of Calif., assignors to Datagraphix, Inc., San Diego, Calif.

Filed March 4, 1980, Ser. No. 127,265

Term of patent 14 years
Int. Cl. D16—03

U.S. Cl. D16—18



267,329

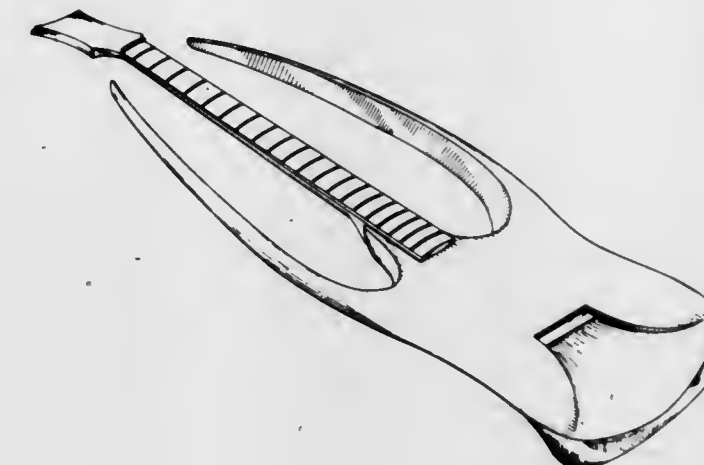
GUITAR

Tallie B. Cooper, 881 E. 36th Ave., Gary, Ind. 46409

Filed April 11, 1980, Ser. No. 139,195

Term of patent 14 years
Int. Cl. D17—03

U.S. Cl. D17—14



267,326

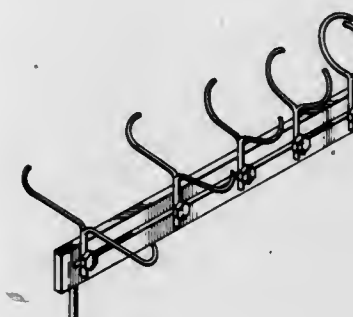
STRIP MATERIAL FOLDER

Jerry W. Lanier, Carrollton, Ga., assignor to Southwire Company, Carrollton, Ga.

Filed December 24, 1980, Ser. No. 219,627

Term of patent 14 years
Int. Cl. D15—99

U.S. Cl. D15—145



267,330

PRINTING CARTRIDGE

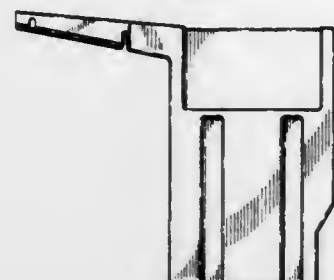
William R. Worrell, Hopkins, Minn., assignor to Kroy Industries Inc., St. Paul, Minn.

Filed October 20, 1980, Ser. No. 198,960

Term of patent 14 years

Int. Cl. D18—01

U.S. Cl. D18—12



267,332

PENCIL HOLDING CONTAINER

Rino Pirovano, Piazza Castello 11, and Rino Boschet, Via Giordano Bruno 7, both of Milano, Italy

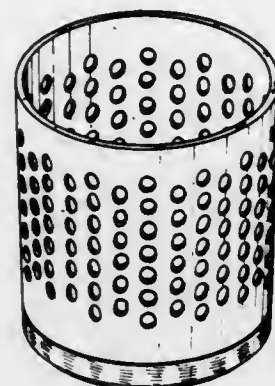
Filed August 22, 1980, Ser. No. 180,494

Claims priority, application Italy, March 24, 1980, 21268/80[U]

Term of patent 14 years

Int. Cl. D19—02

U.S. Cl. D19—85



267,331

PLASTIC MOUNT FOR STAMPING DIE

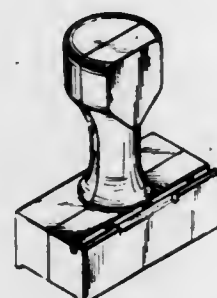
Edwin W. Goldstein, Scarsdale, N.Y., assignor to Crown Marking Equipment Co., Philadelphia, Pa.

Filed 1981, Ser. No. 225,976

Term of patent 14 years

Int. Cl. D19—02

U.S. Cl. D18—15



267,333

TOY ALLIGATOR

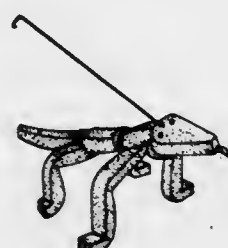
John J. Sassak, 36855 Schoolcraft, Livonia, Mich. 48150

Filed October 27, 1980, Ser. No. 200,671

Term of patent 14 years

Int. Cl. D21—01

U.S. Cl. D21—157



267,334

NOVELTY EYE GLASSES

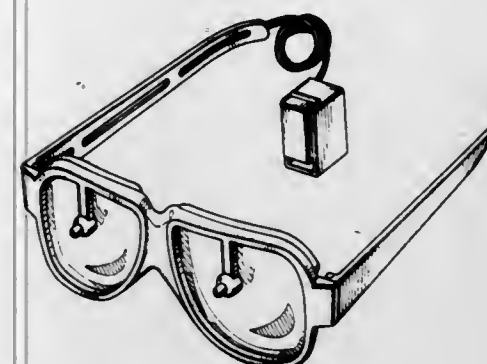
Peter D. Pook, Bloomington, Minn., and Donald A. Rosenwinkel, Tinley Park, Ill., assignors to Leisure Dynamics, Inc., Minneapolis, Minn.

Filed March 13, 1980, Ser. No. 124,978

Term of patent 14 years

Int. Cl. D21—01

U.S. Cl. D21—240



267,335

STORM WATER OUTLET

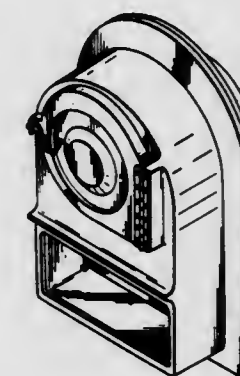
Edwin Axel, 8707 Carlisle Rd., Wyndmoor, Pa. 19118, and Philip N. Altomare, 1804 Gravers Rd., Norristown, Pa. 19401

Filed March 6, 1980, Ser. No. 127,926

Term of patent 14 years

Int. Cl. D23—01

U.S. Cl. D23—1



267,336

LAVATORY

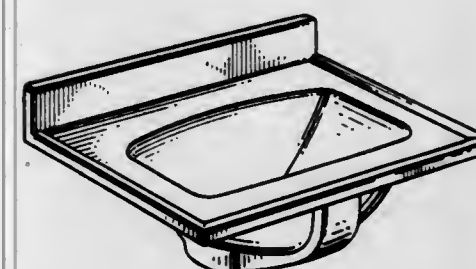
John Fortunato, Alhambra, Calif., assignor to Empire-Fortunato, Ltd., South El Monte, Calif.

Filed August 8, 1980, Ser. No. 176,597

Term of patent 14 years

Int. Cl. D23—02

U.S. Cl. D23—58



267,337

STOVE

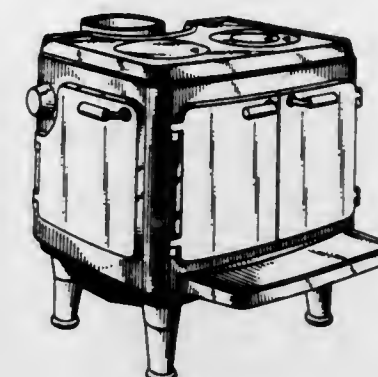
C. Robert Cawley, Jr., Box 431, R.D. #1, Barto, Pa. 19504

Filed October 15, 1980, Ser. No. 197,263

Term of patent 3½ years

Int. Cl. D23—03

U.S. Cl. D23—97



267,338

AIR CONDITIONING UNIT

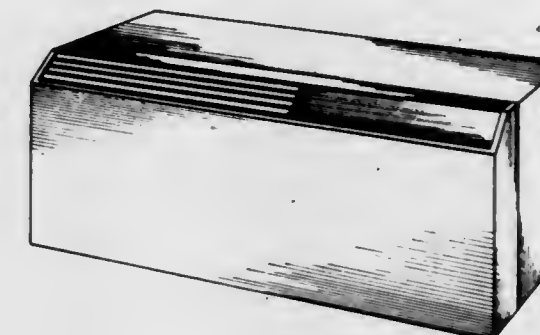
Theodore S. Bolton, Liverpool; Richard D. Lang, Chittenango, and Walter W. Hoyle, Fayetteville, all of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed May 19, 1980, Ser. No. 151,056

Term of patent 14 years

Int. Cl. D23—04

U.S. Cl. D23—141



267,339

COMBINED AIR CONDITIONING UNIT AND DUCT SYSTEM

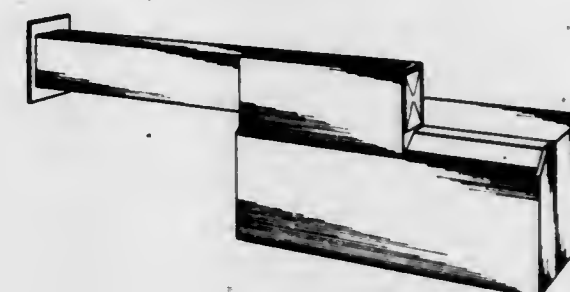
Theodore S. Bolton, Liverpool; Richard D. Lang, Chittenango, and John S. Burris, Cazenovia, all of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed May 19, 1980, Ser. No. 151,057

Term of patent 14 years

Int. Cl. D23—04

U.S. Cl. D23—141



267,340

DENTAL OPERATORY UNIT

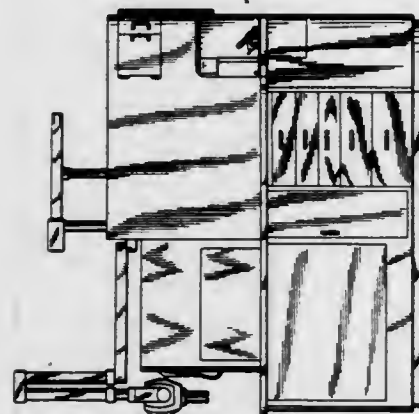
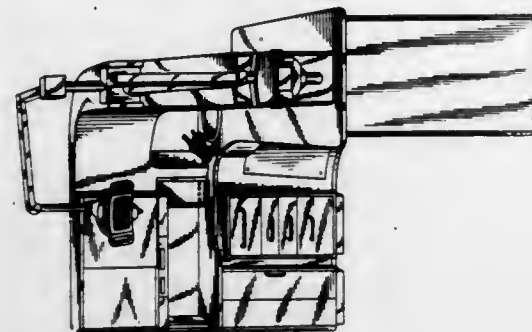
Tony Watanabe, Redondo Beach, Calif., assignor to Belmont Equipment Corp., Somerset, N.J.

Filed March 6, 1980, Ser. No. 127,781

Term of patent 14 years

Int. Cl. D24—01

U.S. Cl. D24—4



267,341

BLOOD PRESSURE MEASURING INSTRUMENT OR SIMILAR ARTICLE

Alfred Kern, Bachern; Rido Busse, Elchingen, and Reinhold Rapp, Ulm-Donau, all of Fed. Rep. of Germany, assignors to Ebanches S.A., Neuchatel, Switzerland

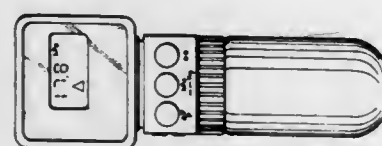
Filed June 23, 1980, Ser. No. 161,743

Claims priority, application Fed. Rep. of Germany, 1980, DMA/000 026

Term of patent 14 years

Int. Cl. D24—02

U.S. Cl. D24—21



267,342

SPECIMEN COLLECTOR FOR A COMMODEOR SIMILAR ARTICLE

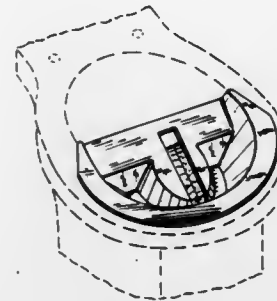
Rodney Laible, Omaha, Nebr., assignor to Daniel Brown, Omaha, Nebr., a part interest

Filed September 2, 1980, Ser. No. 183,232

Term of patent 14 years

Int. Cl. D24—02, 04

U.S. Cl. D24—57



267,343

ANKLE HOLDER

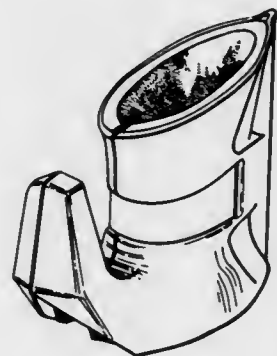
Jack V. Miller, and Ruth E. Miller, both of Sierra Madre, Calif., assignors to Gravity Guidance, Incorporated, Pasadena, Calif.

Filed November 3, 1980, Ser. No. 203,707

Term of patent 14 years

Int. Cl. D24—04

U.S. Cl. D24—64



267,344

CONTACT LENS STERILIZER UNIT

Staffan Sundström, and Tore Herlestam, both of Helsingborg, Sweden, assignors to Sharp Corporation, Osaka, Japan

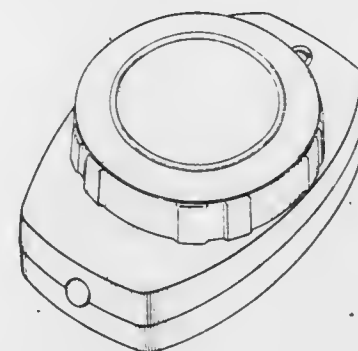
Filed July 30, 1980, Ser. No. 173,827

Claims priority, application Sweden, 1980, 800253

Term of patent 14 years

Int. Cl. D24—02

U.S. Cl. D24—9



267,345

BALCONY RAILING FOR BUILDINGS OR THE LIKE

Brad Walsh, Waterloo, Canada, assignor to Balcorn Ltd., Kitchener, Canada

Filed April 2, 1980, Ser. No. 136,726

Claims priority, application Canada, 1980, 20-02-80-6

Term of patent 14 years

Int. Cl. D25—02

U.S. Cl. D25—38



267,347

RAIL FOR BALCONY RAILING AND THE LIKE

Brad Walsh, Waterloo, Canada, assignor to Balcorn Ltd., Kitchener, Canada

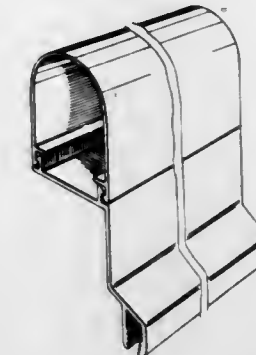
Filed April 2, 1980, Ser. No. 136,724

Claims priority, application Canada, 1980, 20-02-80-7

Term of patent 14 years

Int. Cl. D25—01

U.S. Cl. D25—74



267,348

BASE RAIL FOR BALCONY RAILING AND THE LIKE

Brad Walsh, Waterloo, Canada, assignor to Balcorn Ltd., Kitchener, Canada

Filed April 2, 1980, Ser. No. 136,725

Claims priority, application Canada, 1980, 20-02-80-8

Term of patent 14 years

Int. Cl. D25—01

U.S. Cl. D25—74



267,346

STOREFRONT

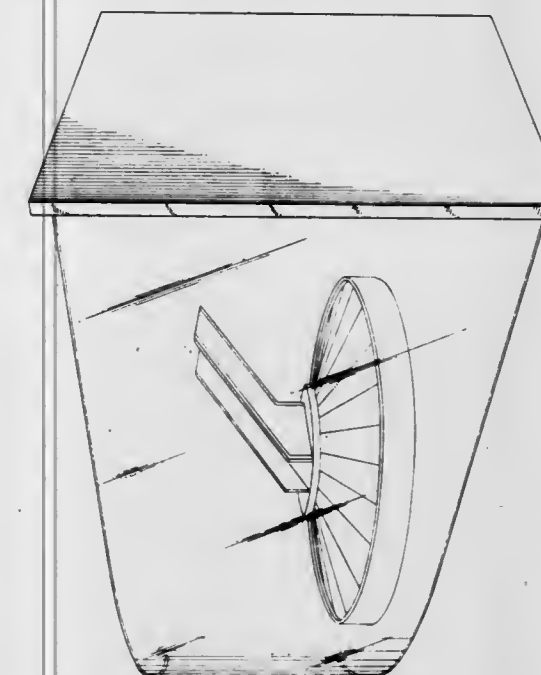
Donald Pelavin, 20936 Ramita Trail, Boca Raton, Fla. 33433

Filed April 14, 1980, Ser. No. 140,360

Term of patent 14 years

Int. Cl. D25—02

U.S. Cl. D25—59



267,349

CAR LIGHT

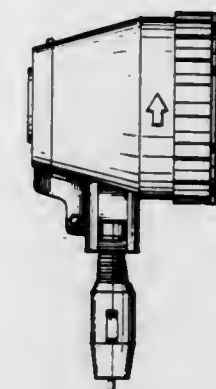
Takehiro Asano, Tokyo, Japan, assignor to Dai Chi Shoji Co., Ltd., Tokyo, Japan

Filed 1980, Ser. No. 116,399

Term of patent 14 years

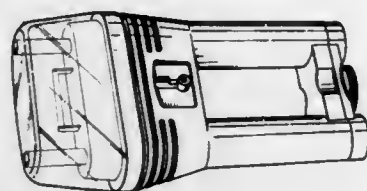
Int. Cl. D26—02

U.S. Cl. D26—37



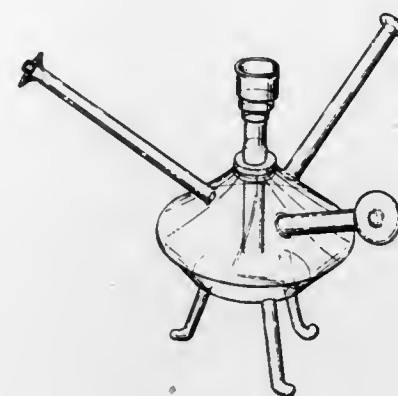
267,350
FLASHLIGHT

Robert G. Simmons, 350 The West Mall, Etobicoke, Ontario, Canada (M9C 1E6)
S. Franklin Sher, 609 Lochnor, Danville, Calif. 94526
Filed April 30, 1980, Ser. No. 145,786
Filed May 1, 1980, Ser. No. 145,724
Claims priority, application Canada, July 11, 1979, 07-11-79-9
Term of patent 14 years
Int. Cl. D26—02
U.S. Cl. D26—48



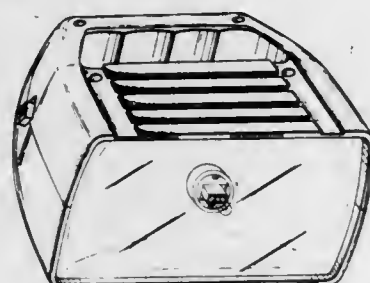
267,353
PIPE

S. Franklin Sher, 609 Lochnor, Danville, Calif. 94526
Filed May 1, 1980, Ser. No. 145,724
Term of patent 14 years
Int. Cl. D27—02
U.S. Cl. D27—03



267,351
ELECTRIC LIGHT

Yoshikazu Suzuki, Yokohama, Japan, assignor to Ushio Denki Kabushiki Kaisha, Tokyo, Japan
Filed June 20, 1980, Ser. No. 161,566
Term of patent 14 years
Int. Cl. D26—02
U.S. Cl. D26—50



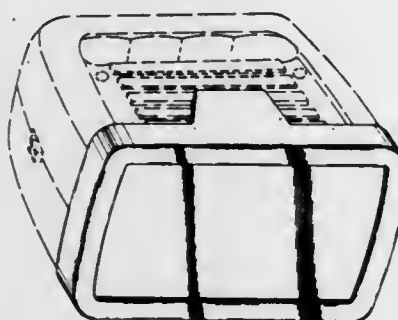
267,354
COMB

Walter Tihonovich, 1330 Pine, Pueblo, Colo. 81004
Filed 1980, Ser. No. 121,392
Term of patent 14 years
Int. Cl. D28—03
U.S. Cl. D28—21



267,352
COMBINED COVER AND STAND FOR ELECTRIC LIGHT

Yoshikazu Suzuki, Yokohama, Japan, assignor to Ushio Denki Kabushiki Kaisha, Tokyo, Japan
Filed June 20, 1980, Ser. No. 161,567
Term of patent 14 years
Int. Cl. D26—99
U.S. Cl. D26—118



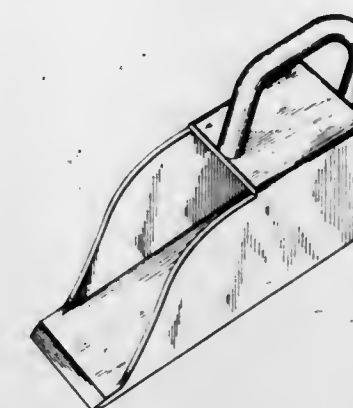
267,355
BIRD FEEDER

Morton L. Blasbalg, 26 Sandro Dr., Warwick, R.I. 02886
Filed December 22, 1980, Ser. No. 218,797
Term of patent 14 years
Int. Cl. D30—03
U.S. Cl. D30—15

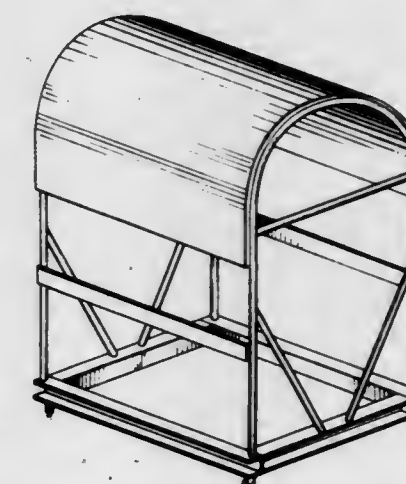


267,357
GUTTER CLEANING TOOL

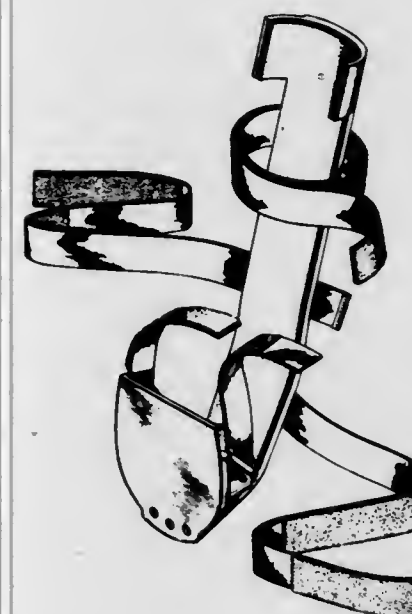
Alan G. Hillstrom, 18405 Tamarack Dr., Brookfield, Wis. 53005
Filed August 4, 1980, Ser. No. 175,359
Term of patent 14 years
Int. Cl. D7—05
U.S. Cl. 32—46



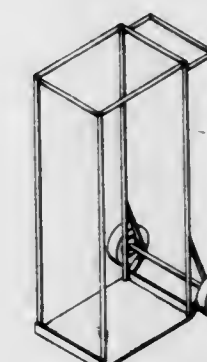
267,358
MOBIL HORSE FOR TRANSPORTING LEATHER
Hugh F. Carville, 110 S. Williams St., Johnstown, N.Y. 12095
Filed 1981, Ser. No. 234,395
Term of patent 14 years
Int. Cl. D12—02
U.S. Cl. D34—17



267,356
LEG SPLINT FOR HORSES
John S. Kimzey, P.O. Box 1001, Woodland, Calif. 95695
Filed November 3, 1980, Ser. No. 203,454
Term of patent 14 years
Int. Cl. D30—01
U.S. Cl. D30—34



267,359
WOOD CART
Roger E. Mustard, Rte. 2, Box 154, Nickelsville, Va. 24271
Filed April 23, 1981, Ser. No. 256,708
Term of patent 14 years
Int. Cl. D12—02
U.S. Cl. D34—26



267,360

DUST FREE LOADING APPARATUS

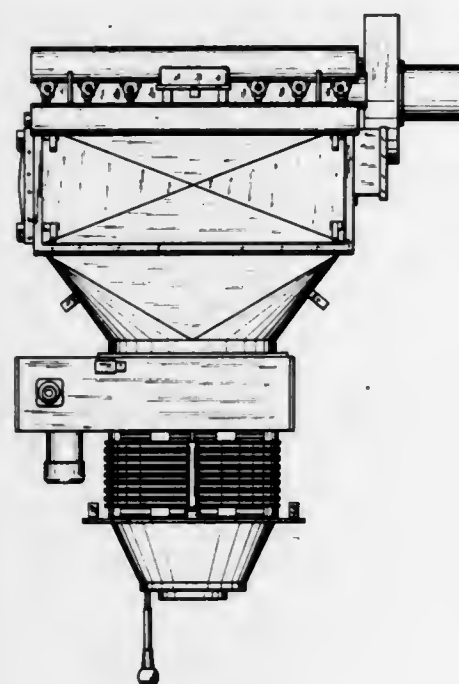
Ron Pair, 24112 Harper Ave., St. Clair Shores, Mich. 48080

Filed May 23, 1980, Ser. No. 152,787

Term of patent 14 years

Int. Cl. D12-05

U.S. Cl. D34-28



267,361

EMBOSSED PAPER TOWELING

Galyn A. Schulz, Appleton, Wis., assignor to American Can Company, Greenwich, Conn.

Filed 1981, Ser. No. 232,215

Term of patent 14 years

Int. Cl. D05-06

U.S. Cl. D59-2 B

**LIST OF PATENTEES**

TO WHOM

PATENTS WERE ISSUED ON THE 21ST DAY OF DECEMBER, 1982

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- A. B. Dick Company: See—
Zabiak, Daniel M., 4,365,035, Cl. 524-283.000.
- A. W. Anderberg Manufacturing Co.: See—
Taylor, George A., 4,364,201, Cl. 49-248.000.
- AB Asea-Atom: See—
Vesterlund, Gunnar, 4,364,781, Cl. 148-6.300.
- AB Bonnierforetagen: See—
Fogelberg, Ernst R., 4,364,994, Cl. 428-316.600.
- AB Volvo Penta: See—
Brandt, Lennart H.; Hultmark, Ingvar O.; Petersson, Lars H.; and Soderbaum, Carl U., 4,364,711, Cl. 416-142.000.
- Larkin, Mark E., 4,364,387, Cl. 128-214.000.
- Abe, Tokuji: See—
Imada, Kiyoshi; Abe, Tokuji; and Ueno, Susumu, 4,364,970, Cl. 427-40.000.
- Abel, William A.: See—
Massey, Lester G.; Brabets, Robert I.; and Abel, William A., 4,364,740, Cl. 44-1.000.
- Abthoff, Jorg: See—
Fricker, Ludwig; and Abthoff, Jorg, 4,364,339, Cl. 123-41.420.
- ACF Industries, Incorporated: See—
Meyer, Danny S., 4,364,542, Cl. 251-214.000.
- Acheson Industries, Inc.: See—
Levine, Walter E., 4,364,719, Cl. 425-78.000.
- Ackermann, Jakob: See—
Bitzer, Diethelm; Kramis, Jost; and Ackermann, Jakob, 4,364,746, Cl. 51-298.000.
- Acosta, George M.: See—
Rosen, Jonathan J.; Acosta, George M.; and Bowman, Christopher J., 4,364,126, Cl. 3-1.500.
- Adachi, Toneyuki; and Nakamura, Hiroshi, to Dainippon Ink & Chemicals, Inc. Glass fiber-reinforced polyarylene sulfide resin composition. 4,365,037, Cl. 524-449.000.
- Adair, Paul C.: See—
Crutchfield, E. Bryant; Wright, Richard F.; Adair, Paul C.; Harris, Seth O.; Shackle, Dale R.; and Williams, Dennis L., 4,365,018, Cl. 430-139.000.
- Adamson, Lee E., to Beatrice Foods Co. Horizontal ice cream cone dispenser. 4,364,491, Cl. 221-267.000.
- Adell, Lars. Double acting cone coupling. 4,364,687, Cl. 403-370.000.
- Advanced Glass Systems Corp.: See—
Smith, W. Novis, Jr.; and Bolton, Nelson P., 4,364,786, Cl. 156-99.000.
- Advanced Semiconductor Materials Die Bonding Inc.: See—
Ott, James D., 4,364,707, Cl. 414-744.00B.
- AE Development Corporation: See—
Prussin, Samuel B., 4,364,515, Cl. 239-8.000.
- AEL Microtel, Ltd.: See—
Froese, Abram; Onotera, Larry Y.; and Liebelt, Alvin, 4,365,346, Cl. 455-42.000.
- Agency of Industrial Science & Technology: See—
Maeda, Yuji, 4,364,593, Cl. 294-106.000.
- Tabata, Hideyo; Kuwahara, Yoshitaka; Machida, Michihide; Kume, Shyoichi; Iga, Takeo; Saitoh, Kazuo; and Tomura, Shinji, 4,365,022, Cl. 501-97.000.
- Agfa-Gevaert AG: See—
Biedermann, Ernst; and Rapp, Heinz, 4,364,147, Cl. 15-404.000.
- Agfa-Gevaert Aktiengesellschaft: See—
Hocker, Jürgen; and Ranz, Erwin, 4,365,012, Cl. 430-19.000.
- Ahlgren, David W.: See—
Munster, Arnold M.; and Ahlgren, David W., 4,364,963, Cl. 426-283.000.
- Ahrens, Norbert; and Klockenbusch, Heinrich, to Krupp Polysius AG. Storage and mixing silo for bulk material. 4,364,665, Cl. 366-106.000.
- Aichelmann, Frederick J., Jr.; and Bachman, Bruce E., to International Business Machines Corp. Two speed recirculating memory system using partially good components. 4,365,318, Cl. 365-200.000.
- Aikawa, Kazuo: See—
Saito, Shinichi; Aikawa, Kazuo; Orino, Michio; Aoi, Kazuya; and Kusakabe, Hideo, 4,365,057, Cl. 528-503.000.
- Airco, Inc.: See—
Terrell, Ross C.; and Hansen, Kirsten, 4,365,097, Cl. 568-684.000.
- Airesman, Charles: See—
Stern, Harry; and Airesman, Charles, 4,364,279, Cl. 73-862.660.
- Aisin Kako Kabushiki Kaisha: See—
Yamamoto, Yasunobu; Sakabe, Toshiaki; and Hamada, Eizi, 4,364,997, Cl. 428-372.000.
- Aisin Seiki Kabushiki Kaisha: See—
Kawabata, Yasuhiro; and Aoki, Kongo, 4,364,301, Cl. 91-20.000.
- Tani, Akira; and Yamazaki, Takeo, 4,364,284, Cl. 74-540.000.
- Toyoda, Minoru, 4,364,250, Cl. 70-456.00R.
- Yamamoto, Yasunobu; Sakabe, Toshiaki; and Hamada, Eizi, 4,364,997, Cl. 428-372.000.
- Aizawa, Hideo: See—
Ikeda, Hideo; and Aizawa, Hideo, 4,364,578, Cl. 280-95.00R.
- Aizawa, Hiroshi: See—
Senuma, Michio; Shimada, Fumio; Shigeta, Yoshihiro; Saito, Syuichi; Aizawa, Hiroshi; Ohniwa, Takehiko; and Canon Denshi Kabushiki Kaisha, 4,364,654, Cl. 354-234.000.
- Akagami, Akira: See—
Ohno, Akira; Katayama, Shitomi; Senaha, Susumu; Kyo, Suizo; and Akagami, Akira, 4,364,637, Cl. 350-288.000.
- Akagawa, Masaki: See—
Hayashi, Yukichi; Tamura, Masauki; Sugimoto, Osamu; Takizawa, Masayoshi; Nishioka, Tatsujiro; Akagawa, Masaki; and Yokohda, Yutaka, 4,364,404, Cl. 133-4.00A.
- Akahane, Ryozo: See—
Shimazoe, Michitaka; Matsuoka, Yoshitaka; Akahane, Ryozo; Shimizu, Yasushi; Nemoto, Hideyuki; and Tanabe, Masanori, 4,364,276, Cl. 73-721.000.
- Akers, Roy, to Bell & Howell Company. Conveyor arrangement for mail sorting machines. 4,364,554, Cl. 271-272.000.
- Akzona Incorporated: See—
Brucher, Walter; Hense, Karl H.; and Modtler, Reiner, 4,364,983, Cl. 428-85.000.
- Albert Obrist AG: See—
Obrist, Albert, 4,364,218, Cl. 53-331.500.
- Albertazzi, Gastone, to Finike Italiana Marposs, S.p.A. Apparatus for checking the cage of a constant velocity joint. 4,364,181, Cl. 33-174.00L.
- Alcan Aluminum Corporation: See—
Gailey, J. Lynn; and Wollam, Carl A., 4,364,215, Cl. 52-488.000.
- Alexandron, Amiad: See—
Manor, Shalom; Bar-Guri, Moshe; Alexandron, Amiad; and Kreisel, Moshe, 4,364,914, Cl. 423-399.000.
- Alexeff, Victor, to Nestier Canada Inc. Container lid. 4,364,489, Cl. 220-334.000.
- Alfa Romeo S.p.A.: See—
Garcea, Giampaolo, 4,364,338, Cl. 123-41.100.
- Alin, Arne, to Luftkonditioning AB. Electrical unit for stoves, fireplaces and like devices. 4,365,142, Cl. 219-374.000.
- Aliprandini, Pino. Bath for the galvanoplastic deposition of a yellow-gold tinted metallic alloy. 4,364,804, Cl. 204-44.000.
- Allegany Technology, Inc.: See—
Stern, Harry; and Airesman, Charles, 4,364,279, Cl. 73-862.660.
- Allen, David T.; and Baker, Keith R., to Deere & Company. Video planter guidance aid. 4,365,268, Cl. 358-93.000.
- Allen & Hanburs Limited: See—
Cook, Peter B.; and Hunt, John H., 4,364,923, Cl. 424-46.000.
- Allis-Chalmers Corporation: See—
Dunseith, S. Michael, 4,364,749, Cl. 55-73.000.
- Alpkvist, Jan A., to Forenade Farbikerverken. Method and apparatus for dosing an air-fuel mixture in burners having evaporating tubes. 4,364,724, Cl. 431-11.000.
- Aluminum Company of America: See—
Goodboy, Kenneth P., 4,364,858, Cl. 252-463.000.
- American Cyanamid Company: See—
Katz, Daniel S.; and Olson, Kenneth E., 4,364,913, Cl. 423-365.000.
- American Electronic Laboratories, Inc.: See—
Shillady, Robert W., 4,365,214, Cl. 333-33.000.
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- Christison, Alexander: See—
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- Fringeli, Werner, 4,364,845, Cl. 252-301.220.
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- Muntwyler, Rene; and Menasse, Raphael, 4,364,949, Cl. 424-263.000.
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- Clark, Keith E.: See—
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- Clark, Samuel K., Sr. Assembly for poison baiting rodents, 4,364,194, Cl. 43-131.000.
- Clarke, John P.; and Schumacher, Ernest W., to Virginia Chemicals Inc. Refrigerant suction line filter/filter-drier and method for the construction thereof, 4,364,756, Cl. 55-316.000.
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- Clements, Jack T.; and Mace, Robert E., to Standard Havens, Inc. Self tensioning cap for bag filters, 4,364,758, Cl. 55-365.000.
- Clerk, Robert C. Liquid reservoir, 4,364,131, Cl. 4-495.000.
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- Coan, Michael H.: See—
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- Bernard, Herve; and Vigie, Jean-Claude, 4,365,011, Cl. 429-193.000.
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- Compagnie Generale des Etablissements Michelin: See—
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- Conner, Algie J.: See—
Hutchings, Leroi E.; and Conner, Algie J., 4,364,819, Cl. 208-96.000.
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Nakhle, George D.; Bell, Cecil R.; Edwards, Arthur R.; Lathery, Willie M.; and Patel Navin D., 4,364,320, Cl. 112-262.200.
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- Cook, Peter B.; and Hunt, John H., to Allen & Hanburs Limited. Chemical compounds, 4,364,923, Cl. 424-46.000.
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- Cooper Industries, Inc.: See—
Subramaniam, Anand, 4,364,364, Cl. 123-527.000.
- Cooper, Kenneth W.; and Shaffer, Jacob E., Jr., to Borg-Warner Corporation. Microcomputer control for inverter-driven heat pump, 4,364,237, Cl. 62-160.000.
- Copley, George A., to Donaldson Company, Inc. Self-cleaning pulsed air cleaner, 4,364,751, Cl. 55-96.000.
- Cordier, Jean; Demange, Michel; and Idier, Jean, to Societe Francaise d'Electrometallurgie SOFREM. Product for the desulphurization of cast irons and steels, 4,364,771, Cl. 75-58.000.
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- Cornelius, Gail; and Olson, Lloyd C., to R. M. Wade & Co. Irrigation control system, 4,364,524, Cl. 239-720.000.
- Corning Glass Works: See—
Levin, Philip S., 4,364,888, Cl. 264-177.00R.
- Cornwell, Philip W.: See—
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- Costa, Richard A., to BMI, Inc. Rebuilt coke oven heating chamber and method of making the same, 4,364,798, Cl. 202-267.00R.
- Costanza, Albert J.: See—
Senyek, Michael L.; and Costanza, Albert J., 4,365,027, Cl. 523-332.000.
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- Coventry Climax Limited: See—
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- Coyle, Forrest E.: See—
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- Coyle, Peter J.: See—
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- Crago, Terill M., to Standun, Inc. Pulse liquid feeder system of the type used in lubrications systems and the like having broken line and flow rate detection, 4,364,452, Cl. 184-7.00E.
- Craig, James R.; and Nerge, Steven F., to Machlett Laboratories, Incorporated, The. Servo operated fluoroscopic table, 4,365,345, Cl. 378-190.000.
- Crane, Norman W., to Thames Water Authority. Sewer cleaning shoe with dam and jet nozzles, 4,364,141, Cl. 15-104.06R.
- Cranin, A. Norman: See—
Sher, Jay H.; and Cranin, A. Norman, 4,364,381, Cl. 128-92.00E.
- Crawford, George H.; Downing, Edward J.; and Schlemmer, Roy G., to Minnesota Mining and Manufacturing Company. Metal/metal oxide coatings, 4,364,995, Cl. 428-336.000.
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- Crosby, Lawton H., to Morley Furniture Spring Corporation. Seat base assembly, 4,364,547, Cl. 267-110.000.
- Croset, Michel; and Velasco, Gonzalo, to Thomson-CSF. Device for inserting a sensor into the exhaust conduits of an internal combustion engine and a fuel-control system using such a device, 4,364,226, Cl. 60-276.000.
- Crosetti, Michael A.: See—
Crosetti, Stephen M.; and Crosetti, Michael A., 4,365,280, Cl. 360-137.000.
- Crosetti, Stephen M.; and Crosetti, Michael A., to Bicro, Incorporated. Escutcheon simulative of a radio for disguising electronic apparatus, 4,365,280, Cl. 360-137.000.
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- Crowder, Billy L.; and Reisman, Arnold, to International Business Machines Corporation. Semiconductor integrated circuit interconnections, 4,364,166, Cl. 29-571.000.
- Crutchfield, E. Bryant; Wright, Richard F.; Adair, Paul C.; Harris, Seth O.; Shackle, Dale R.; and Williams, Dennis L., to Mead Corporation, The. Imaging element and an imaging technique, 4,365,018, Cl. 430-139.000.
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- Pira, Franco; and Ponte, Giovanni, 4,365,116, Cl. 179-84.00T.
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- Cuellar, Edward A.: See—
Marks, Tobin J.; Cuellar, Edward A.; Miller, Steven S.; and Weitz, Eric, 4,364,870, Cl. 260-429.100.
- Cummins Engine Company, Inc.: See—
Stang, John H., 4,364,233, Cl. 60-712.000.
- Curt G. Joa, Inc.: See—
Radzins, Edmund, 4,364,787, Cl. 156-164.000.
- Curtis, William A. Telephone hold circuit, 4,365,117, Cl. 179-99.00H.
- Curtiss, John S., Jr., to Instrumental Products. Dispenser for roll of tickets in strip form, 4,364,501, Cl. 225-13.000.
- Cutter Laboratories, Inc.: See—
Mitra, Gautam; Coan, Michael H.; and Wada, Shohachi, 4,364,861, Cl. 260-112.00B.
- Cutts, William H. Method for applying sizing to warp yarns, 4,364,157, Cl. 28-179.000.
- Cywinski, Norbert F., to El Paso Products Company. Production of dimethyl esters, 4,365,080, Cl. 560-204.000.
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- Daicel Chemical Industries Ltd.: See—
Takahashi, Shigeyuki; Yamamoto, Shozo; and Tsukane, Nagayoshi, 4,365,002, Cl. 428-483.000.
- Daigo, Hiromiki: See—
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- Daikin Kogyo Co., Ltd.: See—
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- Tsunoda, Takahiro; Yamaoka, Tsuguo; and Tamaru, Sinji, 4,365,049, Cl. 526-245.000.
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Mass, Manfred; and Walter, Gunter, 4,364,980, Cl. 428-35.000.
- Daimler-Benz Aktiengesellschaft: See—
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- Kuus, Olaf; and Relovsky, Jakob, 4,364,498, Cl. 224-42.45R.
- Dainippon Ink & Chemicals, Inc.: See—
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- Dainippon Pharmaceutical Co., Ltd.: See—
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Edelman, Robert; McMahon, Paul E.; and Daumit, Gene P., 4,364,993, Cl. 428-288.000.

David, Constant V. Windmill. 4,364,708, Cl. 416-132.00B.

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Katzman, James A.; Bartlett, Joel F.; Bixler, Richard M.; Davidow, William H.; Despotakis, John A.; Graziano, Peter J.; Green, Michael D.; Greig, David A.; Hayashi, Steven J.; Mackie, David R.; McEvoy, Dennis L.; Treybig, James G.; and Wierenga, Steven W., 4,365,295, Cl. 364-200.000.

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D'Elia, Ronald, 4,364,475, Cl. 206-425.000.

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Buschulte, Winfried, 4,364,725, Cl. 431-116.000.

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Diamond, Julius, to William H. Rorer, Inc. Ethynylbenzene compounds and derivatives thereof. 4,365,093, Cl. 564-307.000.

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Dittmar, Wilfried: See—
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Dluhosch, Kurt; to Fichtel & Sachs AG. Carburetor control arrangement for internal combustion engine. 4,364,352, Cl. 123-376.000.

Dr. Karl Thomae Gesellschaft mit beschränkter Haftung: See—
Wetzel, Bernd; Woitun, Eberhard; Reuter, Wolfgang; Maier, Roland; Lechner, Uwe; and Goeth, Hanns, 4,364,944, Cl. 424-246.000.

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Don Fell Limited: See—
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Pierce, William S.; Wisman, Craig B.; and Donachy, James H., 4,364,127, Cl. 3-1.500.

Donaldson Company, Inc.: See—
Copley, George A., 4,364,751, Cl. 55-96.000.

Donato, Guido A.; Hammond, Edwin E.; and Mullowney, Robert A., to Drexel Industries, Inc. Temperature regulation system for electric vehicles. 4,364,444, Cl. 180-65.00R.

Donley, William B., to General Motors Corporation. Programming an IGFET read-only-memory. 4,364,167, Cl. 29-576.00B.

Donley, William B.: See—
Dickman, John E.; and Donley, William B., 4,364,165, Cl. 29-571.000.

Donnelly Mirrors, Inc.: See—
Morgan, Cleon; Pluta, Richard; and Thomas, John F., Jr., 4,364,214, Cl. 52-311.000.

Morgan, Cleon; Thomas, John F., Jr.; and Meyer, Raymond A., 4,364,595, Cl. 296-84.00R.

Dornheim, Hans-Peter, to Siemens Aktiengesellschaft. Stand for an x-ray image detection apparatus which is insertable beneath the patient support of an x-ray examination apparatus. 4,365,344, Cl. 378-189.000.

Doryokuro Kakunenryo Kaihatsu Jigyodan: See—
Ohtsuka, Katsuyuki; Ohuchi, Jin; and Takahashi, Yoshiharu, 4,364,859, Cl. 252-643.000.

Doucet, Marcel, to Societe Generale de Canalisation Sogecan. Process and an apparatus for the extrusion of plastic pipes with composite walls. 4,364,882, Cl. 264-45.900.

Douchy, Michel; Tranchant, Jean-Louis; and Jehan, Michel, to Vallourec. Manufacture of a composite tubular product. 4,364,770, Cl. 75-53.000.

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Bremmer, Bart J.; and Reiersen, Robert L., 4,365,073, Cl. 549-451.000.

Chang, Kuo Y.; and Gatling, Sterling C., 4,365,103, Cl. 585-320.000.

Lee, John M.; and Bauman, William C., 4,364,909, Cl. 423-157.000.

Pawloski, Chester E.; and Ginter, Sally P., 4,365,026, Cl. 521-168.000.

Svatek, Katherine H.; Wilson, David A.; and Griffin, Freddie, Jr., 4,364,871, Cl. 260-439.00R.

Downing, Edward J.: See—
Crawford, George H.; Downing, Edward J.; and Schlemmer, Roy G., 4,364,995, Cl. 428-336.000.

Dowzall, Martin E., to Letraset Corporation. Indicia alignment device. 4,364,184, Cl. 33-447.000.

Drabek, Jozef; and Boger, Manfred, to Ciba-Geigy Corporation. Imino ether sulfide derivatives and use as insecticides. 4,364,959, Cl. 424-298.000.

Drägerwerk Aktiengesellschaft: See—
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Dreesen, Peter; and Kiessling, Klaus, to Mannesmann-Demag AG. Grab bucket suspended from hoisting installation. 4,364,704, Cl. 414-624.000.

Dresser Industries, Inc.: See—
Dilg, Walter C., 4,364,482, Cl. 213-8.000.

Drexel Industries, Inc.: See—
Donato, Guido A.; Hammond, Edwin E.; and Mullowney, Robert A., 4,364,444, Cl. 180-65.00R.

Dria, Dennis E.: See—
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Droste, Gunter: See—
Niehaus, Hermann; Droste, Gunter; and Stapel, Wilhelm, 4,364,319, Cl. 112-238.000.

Drumare, Huguette. Safety device against overpressures. 4,364,487, Cl. 220-89.00A.

Drysdale, Aleide, to Brunswick Mining and Smelting Corporation Limited. Diamond drill skid pad. 4,364,539, Cl. 248-647.000.

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Darlington, William B.; and Dubois, Donald W., 4,364,815, Cl. 204-283.000.

DuBois, Jean-Pierre: See—
Bast, Eleanor A.; DuBois, Jean-Pierre; and MacLagen, Robert T., 4,365,140, Cl. 219-225.000.

Dudley, Irving C.: See—
Cassagnas, Andre J.; and Dudley, Irving C., 4,364,176, Cl. 33-18.00R.

Dumortier, Robert. Manhole cover assembly. 4,364,689, Cl. 404-25.000.

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Haughton, Geoffrey J. S.; and Bimpson, Malcolm, 4,364,734, Cl. 441-37.000.

Dunlop Tire & Rubber Corporation: See—
Mills, Anthony M.; and Egan, Daniel C., 4,364,426, Cl. 152-209.00R.

Dunn, Gregory J.: See—
Eagar, Thomas W.; Kaiser, Joseph G.; and Dunn, Gregory J., 4,365,134, Cl. 219-118.000.

Dunseith, S. Michael, to Allis-Chalmers Corporation. Method and apparatus for sealing the inlet of a filter compartment to isolate the compartment within a baghouse installation. 4,364,749, Cl. 55-73.000.

Du Pont de Nemours, E. I., and Company: See—
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Durable Packaging Corporation: See—
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Duracell International Inc.: See—
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Durametallic Corporation: See—
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DuRoss, Robert M.: See—
Longrod, Scott J.; and DuRoss, Robert M., 4,364,682, Cl. 400-477.000.

Dussourd, Jules L.; and Luthi, Oscar, to Ingersoll-Rand Company. System for drying wet, porous webs. 4,364,185, Cl. 34-122.000.

Dutton, Edward I. Composition board. 4,364,979, Cl. 428-2.000.

Duwell, Ronald A.; and Sabotka, Jeffery A. Simulated golf board game. 4,364,569, Cl. 273-245.000.

Dwyer, Robert M.; and Skiba, Edwin J., to Massey-Ferguson Inc. Compound master brake cylinder. 4,364,231, Cl. 60-577.000.

Dynacraft Machine Company Limited: See—
Futehally, Rashid, 4,364,459, Cl. 192-0.033.

Dyson, David V.: See—
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E.C.H. Will (GmbH & Co.): See—
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Barnes, Robert L., 4,364,907, Cl. 423-22.000.

Daly, Robert C.; and Guild, John R., 4,365,019, Cl. 430-190.000.

Detty, Michael R.; Murray, Bruce J.; and Perlstein, Jerome H., 4,365,016, Cl. 430-83.000.

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Geyer, Frederick F.; and Leonard, Eric M., 4,365,258, Cl. 346-137.000.

Eaton Corporation: See—
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Terwilliger, Gerald L., 4,364,367, Cl. 123-564.000.

Ebauches, S.A.: See—
Fluck, Josef, 4,364,671, Cl. 368-221.000.

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Eberle, Gunter. Two part stand with receptacles for test tubes. 4,364,904, Cl. 422-104.000.

Eccardt, Curtis J., to Emerson Electric Co. Horizontal power band saw. 4,364,294, Cl. 83-796.000.

Eccardt, Curtis J., to Emerson Electric Co. Portable workbench. 4,364,548, Cl. 269-139.000.

Eck, Herbert; and Singer, Robert, to Wacker-Chemie GmbH. Aqueous plastic dispersions of unsaturated diacetylacetic ester. 4,365,040, Cl. 524-819.000.

Eckels, Phillip W., to Electric Power Research Institute, Inc. Fast starting cold shield cooling circuit for superconducting generators. 4,365,175, Cl. 310-53.000.

Eckert, Konrad, to Robert Bosch GmbH. Fuel injection system. 4,364,361, Cl. 112-453.000.

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Lankenau, Henry G., 4,364,794, Cl. 159-17.00P.

Ecsery nee Puskas, Marian: See—
Takacs, Kalman; Kiss nee Ajertz, Ilona; Simay, Antal; Literati Nagy, Peter; Hettye nee Papp, Maria; Ecsery nee Puskas, Marian; Szekeres, Laszlo; Papp, Gyula; Viragh, Sandor; and Udvardy, Eva, 4,365,064, Cl. 546-148.000.

Edelman, Robert; McMahon, Paul E.; and Daumit, Gene P., to Celanese Corporation. Sized carbon fibers, and thermoplastic polyester based composite structures employing the same. 4,364,993, Cl. 428-288.000.

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Eduardovich, Pukhalsky M.: See—
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Bindra, Jasjit S.; Eggler, James F.; Johnson, Michael R.; and Schaa, Thomas K., 4,365,077, Cl. 560-53.000.

Egyt Gyogyszervegyezeti Gyar: See—
Szantay, Csaba; Novak, Lajos; Toth, Miklos; Jakab, Jozsef; Kis-tamas, Attila; and Ujvari, Istvan, 4,364,931, Cl. 424-84.000.

- Eheim, Franz; and Hofer, Gerald, to Robert Bosch GmbH. Fuel injection system functioning with pump/nozzles. 4,364,360, Cl. 123-450.000.
- Ehrendag, Dag E.: See—
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- Eidetic Images, Inc.: See—
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- Eino, Tomomi: See—
Kondo, Toshio; Kobayashi, Akio; Eino, Tomomi; and Tajima, Masahiko, 4,365,299, Cl. 364-431.060.
- Eisenhuth, Karlheinz: See—
Fabian, Peter; Eisenhuth, Karlheinz; Jedlitschka, Ernst; and Krebs, Helmut, 4,364,811, Cl. 204-220.000.
- Eiswerth, James E.; Lievestro, Louis; Haubert, Richard C.; and Maclin, Harvey M., to General Electric Company. Method of fabricating a hollow article. 4,364,160, Cl. 29-156.80H.
- Ekens, Georg. Articles of furniture. 4,364,606, Cl. 297-337.000.
- El Paso Products Company: See—
Cywinski, Norbert F., 4,365,080, Cl. 560-204.000.
- Elas Trust Reg.: See—
Waldmeier, Othmar E., 4,364,472, Cl. 206-45.340.
- Electric Furnace Company, The: See—
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- Electric Power Research Institute, Inc.: See—
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- Electricite de France (Service National): See—
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- Electrolux Corporation: See—
Bowerman, Leonard E., 4,364,146, Cl. 15-323.000.
- Elioform AG: See—
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- Eller, J. David. Hydraulic turbine system with siphon action. 4,364,228, Cl. 60-398.000.
- Elliott Brothers (London) Limited: See—
Ellis, Stafford M., 4,364,636, Cl. 350-174.000.
- Elliott, Herbert J. Sulphur pelletizing. 4,364,774, Cl. 106-287.130.
- Ellis, Stafford M., to Elliott Brothers (London) Limited. Helmet mounted sight with fixed display and pivotal arm. 4,364,636, Cl. 350-174.000.
- Elms, Robert T., to Westinghouse Electric Corp. High accuracy AC electric energy metering system. 4,365,302, Cl. 364-483.000.
- Elreco Corporation, The: See—
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- Elsner, Uwe: See—
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- Eltec Pulsitron: See—
Johanson, Lars; Haft, Phil; Bonavita, Frank; Feldstein, George; Greenberg, Steve; and Brady, Kevin, 4,365,300, Cl. 364-474.000.
- Emden, Bernard V.: See—
Barto, Robert M., Jr.; Lopata, Ira; and Emden, Bernard V., 4,364,529, Cl. 242-195.000.
- Emerson Electric Co.: See—
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Tuggle, Lloyd H.; Loyd, Ronald C.; and Walker, Lee R., 4,364,435, Cl. 172-15.000.
- Emhart Industries, Inc.: See—
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- EMI Limited: See—
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- Emmanuilovna, Erdman M.: See—
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- Emmerich nee Giesche, Monika. Orthopedic device to prevent distortion of infant's feet. 4,364,135, Cl. 5-443.000.
- Emultec Limited: See—
McBride, Alistair D.; and Ripley, Ian S., 4,364,776, Cl. 134-10.000.
- Endo, Hiroyoshi: See—
Kiyoki, Mamoru; Endo, Hiroyoshi; Naruchi, Tatsuyuki; and Hashimoto, Yoshinobu, 4,364,941, Cl. 424-236.000.
- Endo, Takuro; Tomita, Yukio; Okamoto, Yukio; Imaoka, Hiroshi; and Sakiyama, Michio, to Hitachi Shipbuilding & Engineering Company Limited. Rotary transfer press. 4,364,257, Cl. 72-405.000.
- Energy Research Corporation: See—
Baker, Bernard S., 4,365,006, Cl. 429-17.000.
Maru, Hansraj C.; and Patel, Pinakin S., 4,365,007, Cl. 429-19.000.
- Enga, Bernard E., to Johnson, Matthey & Co., Limited. Heat treatment of foodstuff. 4,364,727, Cl. 432-1.000.
- Engineering Inventions, Inc.: See—
John, Raymond; Apfelbaum, Jerome G.; and Moore, Robert L., 4,364,308, Cl. 99-351.000.
- Engineering Management Services Limited: See—
Smith, Michael V. B., 4,364,242, Cl. 62-99.000.
- English Electric Valve Company Limited: See—
Brady, Michael B. C.; and Goddard, Michael L., 4,365,185, Cl. 315-39.690.
- Kettle, Leslie J.; and Newton, Barry P., 4,365,287, Cl. 363-94.000.
- Envirotech Corporation: See—
Guttman, Murray M., 4,364,827, Cl. 210-225.000.
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- Epstein, Ronald A.: See—
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- Eremin, Viktor I.: See—
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- Erholm, Gary W. Ground-raking, rock-gathering attachments for tractors. 4,364,434, Cl. 171-63.000.
- Erickson, Terrence J.: See—
Smith, Byron D.; and Erickson, Terrence J., 4,364,370, Cl. 123-575.000.
- Erickson Tool Company: See—
Miles, Wilbur N., 4,364,694, Cl. 408-139.000.
- Erner, William E. Synthetic liquid fuel and fuel mixtures for oil-burning devices. 4,364,743, Cl. 44-66.000.
- Ernest, Ivan; Gosteli, Jacques; and Woodward, Robert B., to Ciba-Geigy Corporation. Bicyclic unsaturated thia-aza compounds and 4-acylthio azetidinone intermediates. 4,364,865, Cl. 260-239.00A.
- Ernst Leitz Wetzlar GmbH: See—
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- Erwin Sick GmbH Optik-Elektronik: See—
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- Esparza, Carlos, Jr.: See—
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- Espenschied, Wilton F., to Mobil Oil Corporation. Separation of thiol-sulfate from Stretford solution. 4,364,918, Cl. 423-573.00R.
- Etablissements Montabert S.A.: See—
Montabert, Roger, 4,364,540, Cl. 248-654.000.
- Etheridge, Robert E.; and Lewis, Philip L. Hopper cleaner attachment. 4,364,517, Cl. 239-171.000.
- Ethyl Corporation: See—
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- Etudes et Realisations Industrielles de Bersac (E.R.I.B.): See—
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- Euler, Richard W., to Bendix Corporation, The. Retaining ring. 4,364,615, Cl. 308-236.000.
- Exxon Research & Engineering Co.: See—
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Oswald, Alexis A.; and Barnum, Harry W., 4,365,030, Cl. 523-508.000.
Younghouse, Lawrence B., 4,364,375, Cl. 126-444.000.
- Fabian, Peter; Eisenhuth, Karlheinz; Jedlitschka, Ernst; and Krebs, Helmut, to Heraeus Elektroden GmbH. Electrodes for electrolytic cells. 4,364,811, Cl. 204-220.000.
- Fahrig, Robert J.; and Hinrichs, Lansing M., to Standard Oil Company (Indiana). Fluid catalytic cracking apparatus having riser reactor and improved means associated with the riser reactor for separating cracked product and entrained particulate catalyst. 4,364,905, Cl. 422-144.000.
- Fairchild Camera and Instrument Corp.: See—
Rice, Rex, 4,365,332, Cl. 371-13.000.
- Falbel, Gerald, to United States of America, Army. Mortar fire control system. 4,365,149, Cl. 235-404.000.
- Faler, Gary R.; and Mendiratta, Ashok K., to General Electric Company. Process for the production of bisphenols. 4,365,099, Cl. 568-726.000.
- Falkowski, Leonard S.; Stefanska, Barbara J.; Troka, Elzbieta; Golik, Jerzy J.; and Borowski, Edward, to Politechnika Gdanska. Method of preparation of esters of antibiotics selected from the group consisting of polyene macrolides and of N-substituted derivatives thereof. 4,365,058, Cl. 536-6.500.
- Faltus, Arthur V. Turnover conveyor. 4,364,631, Cl. 198-405.000.
- Fan, Fu-Ren F.: See—
Bard, Allen J.; Fan, Fu-Ren F.; and Reichman, Benjamin, 4,365,010, Cl. 429-111.000.
- Farge, Daniel; Moutonnier, Claude; Le Roy, Pierre; and Peyronel, Jean-Francois, to Rhone-Poulenc Industries. Cephalosporin derivatives. 4,365,062, Cl. 544-22.000.
- Farkas, Daniel S.; and Zabor, Eric R., to Owens-Illinois, Inc. Automatic stop routine for a glassware forming machine. 4,364,764, Cl. 65-29.000.
- Fasco Industries, Inc.: See—
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- Fasig, Harold A.; and Horak, Anthony, to Burroughs Corporation. Sensor for a document processor. 4,365,151, Cl. 250-222.00R.
- Faure, Jean-Louis, to ASA S.A. Machine for producing self-twisting yarns. 4,364,225, Cl. 57-291.000.
- Fechant, Louis J. M.; Siffroi, Lucien; and Anguille, Jean M., to La Telemecanique Electrique. Magnetic circuit. 4,365,223, Cl. 335-281.000.
- Feinbloom, William. Adjustable frame apparatus for telescopic spectacles. 4,364,645, Cl. 351-204.000.
- Feldgus, Ernest B.: See—
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- Feldmaier, Douglas A.: See—
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- Feldman, Steven, to AMP Incorporated. Lead screw type variable resistor. 4,365,230, Cl. 338-180.000.
- Feldstein, George: See—
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- Felix Schoeller, Jr. GmbH & Co.: See—
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- Feltham, John: See—
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- Fenn, Michael A. F.: See—
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- Ferguson, Archibald E.: See—
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- Ferri, Hans. Filter assembly. 4,364,755, Cl. 55-290.000.
- Feutrel, Claude, to Commissariat a l'Energie Atomique. Anti-fly-off device. 4,364,901, Cl. 376-438.000.
- Feutrel, Claude, to Commissariat a l'Energie Atomique. Device for fixing a spring to a spacing grid for fuel elements of nuclear reactors. 4,364,902, Cl. 376-441.000.
- Fiala, Ernst, to Volkswagenwerk Aktiengesellschaft. Anti-knocking apparatus for an internal combustion engine. 4,364,353, Cl. 123-425.000.
- Fiat-Allis Macchine Movimento Terra, S.p.A.: See—
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- Fiber Associates, Inc.: See—
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- Fichtel & Sachs AG: See—
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- Filbert, Janice R.: See—
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- Finch, Colin M. Proximity sensing transducer with simulation means. 4,365,196, Cl. 324-207.000.
- Finike Italiana Marpos, S.p.A.: See—
Albertazzi, Gastone, 4,364,181, Cl. 33-174.00L.
- Possati, Mario; Golinelli, Guido; and Selli, Narciso, 4,364,177, Cl. 33-147.00K.
- Finney, Roy P. Penile erectile system. 4,364,379, Cl. 128-79.000.
- Firestone Tire & Rubber Company, The: See—
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- Firmenich SA: See—
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- Fischer, Jochen: See—
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- Fisher, Edmund A.; and Platou, John S., to Cameron Iron Works, Inc. Remote connection apparatus. 4,364,433, Cl. 166-339.000.
- Fisher, John A. Rock and roll recreational toy. 4,364,579, Cl. 280-206.000.
- Fisher, Stanton E. Unitized animal food system product. 4,364,925, Cl. 424-50.000.
- Fitch, Richard A.; and Roe, Joseph T. Electrostatic precipitator apparatus having an improved ion generating means. 4,364,752, Cl. 55-138.000.
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Baron, Gerard, 4,364,197, Cl. 47-56.000.
- Fleetwood Systems, Inc.: See—
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- Theodore, Ares N.; and Pett, Robert A., 4,364,783, Cl. 156-69.000.
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- Forney Engineering Company: See—
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- Frentzel, Richard L., to Celotex Corporation, The. Polyoxalkylene/unsaturated diester reaction product for cellular foam stabilization. 4,365,024, Cl. 521-114.000.
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- Froggatt, Robert J.: See—
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- Frueh, John J. Brake release automotive fuel control assembly. 4,364,458, Cl. 192-3.00T.
- Frushour, Bruce G., to Monsanto Company. Wet melting point analysis. 4,364,675, Cl. 374-16.000.
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- Fuji Jukogyo Kabushiki Kaisha: See—
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- Fuji Oil Company, Limited: See—
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- Fuji Photo Film Co., Ltd.: See—
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- Fuji Xerox Co., Ltd.: See—
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- Fujimoto, Michitaro; Fukui, Takaichi; Mozai, Toshimitsu; and Funazo, Yoshikazu, to Fujimoto Pharmaceutical Corporation. Method for preparing pharmacologically active cyanoguanidine derivative. 4,365,067, Cl. 548-342.000.
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Takaya, Takao; Masugi, Takashi; Takasugi, Hisashi; and Kochi, Hiromu, 4,364,943, Cl. 424-246.000.
- Fujitsu Limited: See—
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- Fukaya, Koichi: See—
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- Fukazawa, Tokuumi: See—
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- Fukuchi, Satoshi, to Hitachi Denshi Kabushiki Kaisha. Integrated high frequency amplifier. 4,365,207, Cl. 330-260.000.
- Fukuda, Shuzo; and Ohkubo, Yutaka, to Nippon Kokan Kabushiki Kaisha. Apparatus for continuous dip-plating on one-side of steel strip. 4,364,328, Cl. 118-411.000.
- Fukui, Hishao: See—
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- Gailey, J. Lynn; and Wollam, Carl A., to Alcan Aluminum Corporation. Suspended ceiling assembly and stabilizer bar therefor. 4,364,215, Cl. 52-488.000.
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- Galliano, Giuseppe: See—
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- Garcea, Giampaolo, to Alfa Romeo S.p.A. Circuit of the coolant in internal combustion engines for improving engine operation after cold starting. 4,364,338, Cl. 123-41.100.
- Gardner, Chester S.; and Streight, William E., to Caterpillar Tractor Co. Surface roughness gauge and method. 4,364,663, Cl. 356-371.000.
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- Garlaschi, Eufemia. Latching device for the punch-carrier plate of a press for moulding screws, rivets and like articles. 4,364,256, Cl. 72-356.000.
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- Garner, Frederick, to Marconi Company Limited, The. Optical sights. 4,364,628, Cl. 350-500.000.
- Gatling, Sterling C.: See—
Chang, Kuo Y.; and Gatling, Sterling C., 4,365,103, Cl. 585-320.000.
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- Gautier, Jean-Claude C.: See—
Boileau, Sylvie L.; N'Guyen, Thanh-Dung; and Gautier, Jean-Claude C., 4,365,094, Cl. 568-14.000.
- Gebhard, Paul C. Window glazing system. 4,364,209, Cl. 52-208.000.
- Gebr. Happich GmbH: See—
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- Geeting, Marvin D., to States Engineering Corporation. Hole cleaning device for augers. 4,364,441, Cl. 175-84.000.
- Geisendorfer, Charles E. Vehicle protective deflector having visual enhancement and illuminating means. 4,364,596, Cl. 296-91.000.
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- Gemmel, John F. Hockey stick practice weight. 4,364,560, Cl. 273-1.00B.
- Gendron, Rejean. Fuel vaporizer for internal combustion engine. 4,364,365, Cl. 123-557.000.
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- Georg Fischer Aktiengesellschaft: See—
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- Gerhold, Clarence G., to UOP Inc. Exhaust emissions control system. 4,364,356, Cl. 123-440.000.
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- Gerry, Martin E. High energy modulation ignition system. 4,365,186, Cl. 315-209.00R.
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- Godsey, Ernest E., to Burr-Brown Research Corp. Electronic device package. 4,364,618, Cl. 339-17.0LC.
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- Goldsmith, Herbert, to Chemed Corporation. Self alarming four double electrodes conductivity cell. 4,365,200, Cl. 324-449.000.
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- Goodwin, Walter A., to Cawm-Crete International Limited. Fire door construction. 4,364,987, Cl. 428-192.000.
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- Chung, Daniel A.; and Lawrence, John P., 4,365,051, Cl. 528-64.000.
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- Massey, Fred L.; and Callander, Douglas D., 4,365,031, Cl. 524-88.000.
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Schneider, Abraham; Khelghatian, Habet M.; Hague, Louise D.; and Jezi, James L., 4,365,045, Cl. 525-247.000.
- Hahn, Norbert, to Rite-Hite Corporation. Releasable locking device. 4,364,137, Cl. 14-71.300.
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- Haines, Daniel W., to University of South Carolina. The. Construction material for stringed musical instruments. 4,364,990, Cl. 428-218.000.
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- Hallam, Delbert W. Roping training aid. 4,364,570, Cl. 273-338.000.
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- Halmshaw, Raymond P., to Lucas Industries Limited. Direction indicator systems for vehicles. 4,365,233, Cl. 340-73.000.
- Halpern, Yuval; and Mott, Donna M., to Borg-Warner Corporation. Flame-retardant polymer compositions containing metal or amine salts. 4,365,033, Cl. 524-118.000.
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- Haque, Yusuf A., to American Microsystems, Inc. Offset compensation for switched capacitor integrators. 4,365,204, Cl. 328-127.000.
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- Hardy, Raymond S. Hitch pin. 4,364,698, Cl. 411-351.000.
- Harford, Jack R., to RCA Corporation. Gain-controlled amplifier using a controllable alternating-current resistance. 4,365,208, Cl. 330-278.000.
- Hargreaves, Neil G., to Lever Brothers Company. Cocobutter replacement fat compositions. 4,364,868, Cl. 260-410.700.
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- Harris, Seth O.: See—
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- Harwell, Kenneth E., to Cook Paint and Varnish Company. Process for the preparation of methacrylamide from methylmethacrylate. 4,365,092, Cl. 564-135.000.
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- Hashimoto Forming Kogyo Co., Ltd.: See—
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- Hashimoto, Mitsuru: See—
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- Hattori, Mitsuhiro; Fujii, Tomoo; and Kono, Hiroya, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Swash plate type compressor. 4,364,306, Cl. 92-71.000.
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- Hauber, Peter. Safety vehicle sun roof lock and support apparatus. 4,364,600, Cl. 296-218.000.
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- Haughton, Geoffrey J. S.; and Bimpson, Malcolm, to Dunlop Limited. Inflatable marine craft having improved towing characteristics. 4,364,734, Cl. 441-37.000.
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- Hawkins, Raymond C.; Seim, Howard N.; and Haub, Donald J., to Tennant Company. Control circuit for reversible electric motors. 4,365,189, Cl. 318-284.000.
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- Hayashi, Dan: See—
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- Hayashi, Yukichi; Tamura, Masauki; Sugimoto, Osamu; Takizawa, Masayoshi; Nishioka, Tatsujiro; Akagawa, Masaki; and Yokohda, Yutaka, to Kabushiki Kaisha Nippon Coicno. Inventory device in automatic vending machine. 4,364,404, Cl. 133-4.00A.
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- Heald, Anthony F.; and Wildonger, Richard A., to ICI Americas Inc. Pyrazolo[3,4-b]pyridine compounds. 4,364,948, Cl. 424-256.000.
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- Heckrotte, John R., Sr., to Cactus Technology Corp.. Method for making a key for driving tamper-proof bolt. 4,364,287, Cl. 76-101.00D.
- Hedges, Charles V.: See—
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- Heemskerk, Jacobus P. J.; Immink, Kornelis A.; and Simons, Carel A. J., to U.S. Philips Corporation. Optic read unit for scanning a record carrier having a radiation-reflecting information structure. 4,365,323, Cl. 369-44.000.
- Hein, Norman W., Jr.: See—
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- Heinzel, Alfred; and Stadler, Heinz, to Siemens Aktiengesellschaft. Device for pneumatically scanning the level of liquid in a container. 4,364,270, Cl. 73-298.000.
- Heitmann, Jürgen, to Robert Bosch GmbH. Method for the time correction of a digital switching signal. 4,365,308, Cl. 364-577.000.
- Heldor Associates, Inc.: See—
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- Helwig, Michael W., Jr.: See—
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- Helzer, James A., to Unicover Corporation. Adjustable plate holder. 4,364,537, Cl. 248-448.000.
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- Hendrix Electronics, Inc.: See—
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- Henis, Jay M. S.: See—
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- Hennessey, John M.: See—
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- Henrichon, Ernest G., Jr., to Hendrix Electronics, Inc. Segmentation system and method for optical character scanning. 4,365,234, Cl. 340-146.35Y.
- Hense, Karl H.: See—
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- Hepp, Dennis G.: See—
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- Heracus Elektroden GmbH: See—
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- Herberts GmbH: See—
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- Patzschke, Hans-Peter; and Gobel, Armin, 4,364,860, Cl. 525-127.000.
- Hercules Incorporated: See—
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- Hershey, Lowell E., to Durametallic Corporation. Tapered seal seat between stationary insert and gland. 4,364,571, Cl. 277-86.000.
- Hess, Joachim. Heated instrument-mounting plate. 4,365,138, Cl. 219-200.000.
- Hesselink, Frans T.: See—
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- Hetra, Andrew A., Jr.; and Jacob, Charles W., to United States Steel Corporation. Apparatus for co-ordinating indexing movement of a conveyor with pivoting of a kickout arm adjacent the delivery end thereof. 4,364,468, Cl. 198-489.000.
- Hetyey nee Papp, Maria: See—
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- Hetz, G. Brian, to Dayco Corporation. Pulley and method of making same. 4,364,736, Cl. 474-168.000.
- Heubner, Ulrich: See—
von Ropenack, Adolf; Stock, Gunter; and Heubner, Ulrich, 4,364,807, Cl. 204-114.000.
- Higton, Malcolm; and Vecht, Aron, to United Kingdom of Great Britain and Northern Ireland. The Secretary of State for Defence in Her Britannic Majesty's Government of the. Phosphors. 4,365,184, Cl. 313-503.000.
- Higuchi, Noboru; Yano, Teruo; and Ohnishi, Masahiro, to NGK Insulators, Ltd. Ceramic honeycomb filter. 4,364,760, Cl. 55-523.000.
- Hikita, Mitsutaka, to Hitachi, Ltd. Surface wave circuit device. 4,365,220, Cl. 333-195.000.
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- Hilliard, David R. Mud saver valve. 4,364,407, Cl. 137-71.000.
- Hinrichs, Lansing M.: See—
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- Hiraike, Fumiaki, to Konishiroku Photo Industry Co., Ltd. Exposure ascertaining device for cameras. 4,364,651, Cl. 354-31.000.
- Hiraiwa, Atsushi: See—
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- Hiramatsu, Uji: See—
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- Hirohata, Michio: See—
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- Hirose, Ryusho: See—
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- Hirsch, Gerhard, to E. C. H. Will (GmbH & Co.). Rotary knife holder with means for damping its natural frequency oscillations. 4,364,293, Cl. 83-674.000.
- Hitachi Denshi Kabushiki Kaisha: See—
Fukuchi, Satoshi, 4,365,207, Cl. 330-260.000.
- Hitachi, Ltd.: See—
Fukunaga, Yasushi; and Bandoh, Tadaaki, 4,365,311, Cl. 364-900.000.
- Hikita, Mitsutaka, 4,365,220, Cl. 333-195.000.
- Ishioaka, Sachio; Maruyama, Eiichi; Imamura, Yoshinori; Matsubara, Hirokazu; and Horigome; Shinkichi, 4,365,013, Cl. 430-57.000.
- Karino, Kimiji, 4,364,355, Cl. 123-438.000.
- Kawagoe, Hiroto, 4,365,263, Cl. 357-45.000.
- Koike, Norio; Baji, Toru; Tsukada, Toshihisa; and Yamamoto, Hideaki, 4,364,973, Cl. 427-75.000.
- Kosuge, Tokuo; Atago, Takeshi; and Karino, Kimiji, 4,364,354, Cl. 123-437.000.
- Matsuoka, Shigeru; Tokunaga, Takeshi; Yonekura, Seiji; Suzuki, Mituo; and Nakamura, Kenji, 4,365,250, Cl. 340-825.320.
- Matsuyama, Shigeru; and Sasaki, Ken, 4,364,168, Cl. 29-592.00R.
- Mukai, Kiichiro; Harada, Seiki; Muramatsu, Shin-ichi; Hiraiwa, Atsushi; Takahashi, Shigeru; Usami, Katsuhisa; Iwata, Seiichi; Ito, Satoru; and Yoshimi, Takeo, 4,365,264, Cl. 357-54.000.
- Noguchi, Atomi; Ide, Jushi; Kuwahara, Hiroshi; and Miyazaki, Yoshihiro, 4,365,309, Cl. 364-702.000.
- Ohtsu, Eiichi; and Shibata, Takanori, 4,364,428, Cl. 165-11.00R.
- Oi, Tetsu; Takagi, Kazumasa; and Fukazawa, Tokumi, 4,365,155, Cl. 378-49.000.
- Okuhara, Shinji, 4,365,170, Cl. 307-252.00A.
- Oshima, Masabumi; Honda, Haruo; and Takahashi, Takeshi, 4,365,126, Cl. 200-144.0AP.
- Shibuya, Yoshimichi; Takahashi, Masami; and Ishibashi, Tadashi, 4,364,672, Cl. 368-240.000.
- Shimazoe, Michitaka; Matsuoka, Yoshitaka; Akahane, Ryozo; Shimizu, Yasushi; Nemoto, Hideyuki; and Tanabe, Masanori, 4,364,276, Cl. 73-721.000.
- Hitachi Maxell, Ltd.: See—
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- Hitachi Shipbuilding & Engineering Company Limited: See—
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- Hjellum, Jerry: See—
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- Hocker, Jürgen; and Ranz, Erwin, to Agfa-Gevaert Aktiengesellschaft. Light sensitive recording material. 4,365,012, Cl. 430-19.000.
- Hodogaya Chemical Co., Ltd.: See—
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- Hoek, Gijbert T. Production of immunogenic products and treatment of allergic reactions therewith. 4,364,938, Cl. 424-88.000.
- Hoell, John W.: See—
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- Hofer, Gerald: See—
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Parkison, Richard G.; and Hofstetter, Edward G., Jr., 4,364,523, Cl. 239-533.140.
Hogami, Toshihiko: See—
Umamura, Sumio; Ohdan, Kyoji; Sakai, Fumihiko; Suzuki, Kenichi; Bando, Yasuo; Hogami, Toshihiko; and Fuginaga, Masataka, 4,364,844, Cl. 252-435.000.
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Holley, John M., Jr.; and Oliff, James R., to Mead Corporation, The. Article carrier with dispensing feature, 4,364,509, Cl. 229-17.00B.
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Holonyak, Nick, Jr., to University of Illinois Foundation. Semiconductor light emitting device with quantum well active region of indirect bandgap semiconductor material, 4,365,260, Cl. 357-17.000.
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Tomar, Julius, 4,364,565, Cl. 273-60.00R.
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Takahashi, Noriyuki; Sakaguchi, Takumi; and Tajima, Yasutomo, 4,364,582, Cl. 280-698.000.
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Otsuka, Kazuo; Narasaka, Shin; and Hasegawa, Shumpei, 4,364,359, Cl. 123-440.000.
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Zanchi, Vittorio; and Maccianti, Tiziano, 4,365,291, Cl. 364-200.000.
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Leonatti, John A., 4,364,757, Cl. 55-357.000.
Horak, Anthony: See—
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Horsewell, Henry G.; and Luke, John A., to British-American Tobacco Company Limited. Smoke filtration, 4,364,403, Cl. 131-332.000.
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Howse, Jeanette W. Method for making a breast prosthesis, 4,364,880, Cl. 264-28.000.
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Thomas, David L.; Pope, William S.; and Huckabay, William B., 4,364,446, Cl. 181-120.000.
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Bass, C. Joe; and Peterson, Elmer R., 4,364,432, Cl. 166-290.000.
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Brandt, Lennart H.; Hultmark, Ingvar O.; Petersson, Lars H.; and Soderbaum, Carl U., 4,364,711, Cl. 416-142.000.
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Hunter, R. Scott: See—
Lang, John; and Hunter, R. Scott, 4,364,490, Cl. 220-407.000.
Huntley, Ted R., to Minnesota Mining and Manufacturing Company. Connector for flat cable, 4,364,622, Cl. 339-97.00R.
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Gottlieb, Theodore, 4,365,136, Cl. 219-121.0LE.
Hyllberg, Bruce E., to American Roller Company. Impression roller with adjustable electrical characteristics and method of making the same, 4,364,313, Cl. 101-401.100.
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Muns-Magem, Joaquin; and Ibanez-Pi, Juan, 4,364,247, Cl. 66-163.000.
ICI Americas Inc.: See—
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Ikeda, Hideo; and Aizawa, Hideo, to Nissan Motor Co., Ltd. Lateral drag link type steering linkage for a vehicle, 4,364,578, Cl. 280-95.00R.
Ikeda, Joe N.: See—
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Imamura, Yoshinori: See—
Ishioka, Sachio; Maruyama, Eiichi; Imamura, Yoshinori; Matsubara, Hirokazu; and Horigome, Shinkichi, 4,365,013, Cl. 430-57.000.
Imaoka, Hiroshi: See—
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Imed Corporation: See—
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Inayat-Khan, Gayan, to Mattel, Inc. Interconnection system for printed circuit board devices, 4,364,619, Cl. 339-17.00F.
Indian Head Inc.: See—
Wozniak, Glenn A.; Rady, Robert R.; and Pate, Harold T., 4,364,292, Cl. 83-605.000.
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Inoue, Jiro, to Murata Manufacturing Co., Ltd. Three terminal type piezoelectric filter, 4,365,218, Cl. 333-187.000.
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International Business Machines Corp.: See—
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Crowder, Billy L.; and Reisman, Arnold, 4,364,166, Cl. 29-571.000.
Davis, Donald E.; Moore, Richard D.; Ryan, Philip M.; and Weber, Edward V., 4,365,163, Cl. 250-491.100.
Gheewala, Tushar R., 4,365,317, Cl. 365-162.000.
Greenias, Evon C.; and Yhap, Ernesto F., 4,365,235, Cl. 340-146.3AC.
Shakib, Iraj D.; and Yosmali, Krikor, 4,364,683, Cl. 400-637.000.
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International Minerals & Chemical Luxembourg Societe Anonyme: See—
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Internationale Octrooi Maatschappij "Octropa" BV: See—
Beun, Jacobus H.; and van Duijn, Jan, 4,364,718, Cl. 417-500.000.
Inventor Invest AB: See—
Persson, Nils C., 4,364,130, Cl. 4-449.000.
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Irwin, Lawrence F. Pipe cleanout tool, 4,364,140, Cl. 15-104.3SN.
Ishibashi, Tadashi: See—
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Ishida, Hikaru: See—
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Ito, Massao: See—
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Ito, Satoru: See—
Mukai, Kiichiro; Harada, Seiki; Muramatsu, Shin-ichi; Hiraiwa, Atsushi; Takahashi, Shigeru; Usami, Katsuhisa; Iwata, Seichi; Ito, Satoru; and Yoshimi, Takeo, 4,365,264, Cl. 357-54.000.
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Itoh, Hiroshi: See—
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Itoh, Kiyoshi; Kamoshita, Tetuo; Sakai, Teruo; and Kawasaki, Harumi, to Asahi Kogaku Kogyo Kabushiki Kaisha. Counterbalance mechanism for laser knife device, 4,364,535, Cl. 248-123.100.
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Ivory, David J.; and Kirby, Raymond L., Jr., to Monarch Marking Systems, Inc. Web feeding method and apparatus for a printer, 4,364,503, Cl. 226-45.000.
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Iwata, Seichi: See—
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J. I. Case Company: See—
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Shumaker, John F., 4,364,705, Cl. 414-713.000.
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Jakab, Jozsef: See—
Szantay, Csaba; Novak, Lajos; Toth, Miklos; Jakab, Jozsef; Kis-tamas, Attila; and Ujvari, Istvan, 4,364,931, Cl. 424-84.000.
Jakobsen, Jakob S.: See—
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James W. Gardner Enterprises, Inc.: See—
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Jamnik, Donald J., to Kearney & Trecker Corporation. System for multilingual communication of computer-specified aural or visual control messages in an operator-designated language, 4,365,315, Cl. 364-900.000.
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Janz, Joachim, to Gebr. Happich GmbH. Device for attaching an insertion part to a base surface, 4,364,685, Cl. 403-108.000.

- Jarai, Miklos: See—
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- Jarby, Sven. Device for holding X-ray-sensitive films for odontological radiographs. 4,365,162, Cl. 378-170.000.
- Jean, Ming T.; and Liou, Ming T. Separate 3-cylinder system of brake fluid for automobile safety. 4,364,611, Cl. 303-84.00R.
- Jedlitschka, Ernst: See—
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- Jehan, Michel: See—
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- Jekkel nee Bokany, Antonia: See—
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- Jenkins, Jon A.; and Schwan, Herbert A., to Imed Corporation. Apparatus for converting a pump to a controller. 4,364,386, Cl. 128-214.00E.
- Jenkner, Erwin. Frame for a reciprocable circular saw. 4,364,291, Cl. 83-100.000.
- Jeno's, Inc.: See—
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- Jensen, Arthur S.: See—
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- Jerdon Industries, Inc.: See—
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- Jerominek, Joseph L.: See—
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- Jezl, James L.: See—
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- Jirak, Thomas L.: See—
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- Jobst Institute, Inc.: See—
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- Joel, Amos E., Jr., to Bell Telephone Laboratories, Incorporated. Cipher apparatus for multiplex pulse code modulation systems. 4,365,111, Cl. 178-22.130.
- Johanson, Lars; Haft, Phil; Bonavita, Frank; Feldstein, George; Greenberg, Steve; and Brady, Kevin, to Eltee Pulsitron. Method and apparatus for vector machine control. 4,365,300, Cl. 364-474.000.
- John Lysaght (Australia) Limited: See—
Barrett, Richard C., 4,364,327, Cl. 118-102.000.
- John, Raymond; Apfelbaum, Jerome G.; and Moore, Robert L., to Engineering Inventions, Inc.; and Multisensors Inc., a part interest. Apparatus for preparing food. 4,364,308, Cl. 99-351.000.
- Johns Hopkins University, The: See—
Lam, Wing-Chee, 4,365,341, Cl. 378-65.000.
- Johnson, Carl B., to Pontiac Furniture, Inc. Reclining chair. 4,364,603, Cl. 297-84.000.
- Johnson & Johnson Products, Inc.: See—
Gander, Robert J.; Buck, Carl J.; and Sipos, Tibor, 4,364,924, Cl. 424-49.000.
- Sipos, Tibor; and Motkowski, Henry F., Jr., 4,364,927, Cl. 424-56.000.
- Johnson, Joseph N. Tripod torch handle. 4,364,372, Cl. 126-39.00R.
- Johnson, Marvin M.: See—
McDaniel, Max P.; and Johnson, Marvin M., 4,364,839, Cl. 252-430.000.
- McDaniel, Max P.; and Johnson, Marvin M., 4,364,840, Cl. 252-430.000.
- McDaniel, Max P.; and Johnson, Marvin M., 4,364,841, Cl. 252-430.000.
- McDaniel, Max P.; and Johnson, Marvin M., 4,364,842, Cl. 252-430.000.
- McDaniel, Max P.; and Johnson, Marvin M., 4,364,854, Cl. 252-437.000.
- McDaniel, Max P.; and Johnson, Marvin M., 4,364,855, Cl. 252-437.000.
- Johnson, Matthey & Co., Limited: See—
Broadhurst, Richard C., 4,364,173, Cl. 29-882.000.
- Enga, Bernard E., 4,364,727, Cl. 432-1.000.
- Johnson, Michael R.: See—
Bindra, Jasjit S.; Egger, James F.; Johnson, Michael R.; and Schaaf, Thomas K., 4,365,077, Cl. 560-53.000.
- Johnson, William M.; and Calhoon, Kelly L., to Celotex Corporation. The Removable-tilt-out window construction. 4,364,199, Cl. 49-181.000.
- Johnston, William J.: See—
Berg, Morris; Schaefer, Carl F.; and Johnston, William J., 4,364,761, Cl. 55-523.000.
- Jones, Catherine C.: See—
Jones, John F.; and Jones, Catherine C., 4,364,145, Cl. 15-236.00R.
- Jones, James S. Fluid flow control device. 4,364,409, Cl. 137-486.000.
- Jones, John F.; and Jones, Catherine C. Scraping tool. 4,364,145, Cl. 15-236.00R.
- Jones, Lynn L., to United States of America, Energy. Latin square three dimensional gage master. 4,364,182, Cl. 33-174.00H.
- Jones, Robert L.; Otey, Milton G.; and Perkins, Roy W., to United States of America, Energy. Method for selectively removing fluorine and fluorine-containing contaminants from gaseous UF₆. 4,364,906, Cl. 423-19.000.
- Junkin, James E.: See—
Schmid, Bruce K.; and Junkin, James E., 4,364,818, Cl. 208-10.000.
- Jusionis, Vytautas J.: See—
Kazlauskas, Gasparas; Jusionis, Vytautas J.; Westerberg, Max M.; and Meacham, John W., 4,365,132, Cl. 219-60.00A.
- Jyoko, Keizou: See—
Kawano, Kenji; Fukaya, Koichi; and Jyoko, Keizou, 4,364,169, Cl. 29-596.000.
- Kabushiki Kaisha GemVac: See—
Sakuma, Shinzo; and Warabi, Junichi, 4,365,127, Cl. 200-144.00B.
- Kabushiki Kaisha Komatsu Seisakusho: See—
Sato, Yoshito; and Matsumoto, Minoru, 4,364,443, Cl. 180-9.500.
- Yamamoto, Teiji; and Yamazaki, Tsukasa, 4,364,572, Cl. 277-92.000.
- Kabushiki Kaisha Morita Seisakusho: See—
Nishikawa, Kazuo; and Hozumi, Kazuo, 4,365,340, Cl. 378-039.000.
- Kabushiki Kaisha Nippon Coicno: See—
Hayashi, Yukichi; Tamura, Masauki; Sugimoto, Osamu; Takizawa, Masayoshi; Nishioka, Tatsujiro; Akagawa, Masaki; and Yokohda, Yutaka, 4,364,404, Cl. 133-4.00A.
- Kabushiki Kaisha Sato: See—
Sato, Yo, 4,364,312, Cl. 101-110.000.
- Kabushiki Kaisha Tokai Rika Denki Seisakusho: See—
Morita, Masayuki; Kubota, Kazuhisa; and Nakano, Tasuku, 4,365,121, Cl. 200-61.270.
- Kabushiki Kaisha Toyoda Jidoshokki Seisakusho: See—
Hattori, Mitsuhiro; Fujii, Tomoo; and Kono, Hiroya, 4,364,306, Cl. 92-71.000.
- Kabushiki Kaishi Meidensha: See—
Sakuma, Shinzo; and Warabi, Junichi, 4,365,127, Cl. 200-144.00B.
- Kadowaki, Koju; Sarumaru, Kohei; and Shibano, Takeshi, to Mitsubishi Petrochemical Company Limited. Production of acrylic acid. 4,365,087, Cl. 562-534.000.
- Kaeding, Warren W., to Mobil Oil Corporation. Para-selective zeolite catalysts treated with sulfur compounds. 4,365,104, Cl. 585-467.000.
- Kaesgen, Hans-Hartmut: See—
Plamper, Gerhard R.; Fortlage, Paul R.; and Kaesgen, Hans-Hartmut, 4,364,735, Cl. 474-14.000.
- Kai, Tomokazu: See—
Otsuka, Shigeru; and Kai, Tomokazu, 4,365,347, Cl. 455-179.000.
- Kai, Yoshiyuki: See—
Ueno, Haruo; Yano, Takefumi; Inoue, Tokuji; Ikai, Shigeru; Kai, Yoshiyuki; and Shimizu, Michimasa, 4,365,048, Cl. 526-128.000.
- Kaiser, Joseph G.: See—
Eagar, Thomas W.; Kaiser, Joseph G.; and Dunn, Gregory J., 4,365,134, Cl. 219-118.000.
- Kaiser, Klaus-Peter: See—
Vierteil, Lothar; and Kaiser, Klaus-Peter, 4,364,597, Cl. 296-97.00H.
- Kalamazoo Conveyor Company: See—
Burns, Donald L.; Harbour, John M.; and Lister, James J., 4,364,831, Cl. 210-298.000.
- Kalnin, Ilmar L.; Breckenridge, George J., Jr.; DiEdwardo, Andrew H.; and Rhodes, John M., to Celanese Corporation. Process for the production of stabilized acrylic fibers which are particularly suited for thermal conversion to carbon fibers. 4,364,916, Cl. 423-447.600.
- Kamgar, Avid; and Sinha, Ashok K., to Bell Telephone Laboratories, Incorporated. Fabrication of semiconductor devices including double annealing steps for radiation hardening. 4,364,779, Cl. 148-1.500.
- Kamihama, Kiyoshi: See—
Ookubo, Takao; Baba, Yuko; and Kamiham, Kiyoshi, 4,364,608, Cl. 301-37.05S.
- Kamikawa, Yoshiyuki: See—
Nishihara, Masao; Fukui, Yoshinori; Kitamura, Yoshio; Kamikawa, Yoshiyuki; and Azuma, Haruki, 4,364,251, Cl. 72-58.000.
- Kamoshita, Tetuo: See—
Ito, Kiyoshi; Kamoshita, Tetuo; Sakai, Teruo; and Kawasaki, Harumi, 4,364,535, Cl. 248-123.100.
- Kanai, Tamaki; Yamaguchi, Takashi; Yoshikawa, Hirofumi; Suzuki, Kenji; and Ohta, Yoshikatsu, to Teijin Limited. Process for producing easily adherable polyester film. 4,364,885, Cl. 264-134.000.
- Kanbayashi Seisakujo Company, Ltd.: See—
Nagata, Masayuki; and Miyazawa, Shozo, 4,365,115, Cl. 179-15.55T.
- Kaneko, Kazuo: See—
Motohashi, Katsuchi; Obara, Toshio; Kaneko, Kazuo; and Yamaguchi, Masahiko, 4,364,999, Cl. 428-411.000.
- Kao Soap Co., Ltd.: See—
Ito, Osamu; and Nishizawa, Kazunori, 4,364,992, Cl. 428-283.000.
- Tokuyama, Mitsuru; Ohki, Kenji; Sagae, Masayuki; and Tsujii, Kaoru, 4,364,985, Cl. 428-149.000.
- Karger, Eva R.: See—
Bartels-Keith, James R.; and Karger, Eva R., 4,365,085, Cl. 560-251.000.
- Karino, Kimiji, to Hitachi, Ltd. Electronically controlled fuel supply apparatus for internal combustion engine. 4,364,355, Cl. 123-438.000.
- Karino, Kimiji: See—
Kosuge, Tokuo; Atago, Takeshi; and Karino, Kimiji, 4,364,354, Cl. 123-437.000.

- Kashiwazaki, Takashi: See—
Takizawa, Yoshiyuki; Kashiwazaki, Takashi; Shimoda, Koji; and Kuriyama, Kazumi, 4,365,278, Cl. 360-73.000.
- Kassai Kabushikikaisha: See—
Kassai, Kenzo, 4,364,576, Cl. 280-87.02W.
- Kassai, Kenzo, to Kassai Kabushikikaisha. Baby walker. 4,364,576, Cl. 280-87.02W.
- Katae, Hiromi: See—
Yokogawa, Kanae; Yamamoto, Takeshi; Takase, Yoshiyuki; Katae, Hiromi; and Kawata, Shigeo, 4,364,926, Cl. 424-50.000.
- Kataoka, Hiroyoshi: See—
Konishi, Sakuichi; Omori, Yukio; and Kataoka, Hiroyoshi, 4,365,043, Cl. 525-113.000.
- Kataoka, Kenji: See—
Okamoto, Kouichi; Sakuyama, Masaki; and Kataoka, Kenji, 4,364,241, Cl. 62-505.000.
- Katayama, Shitomi: See—
Ohno, Akira; Katayama, Shitomi; Senaha, Susumu; Kyo, Suizo; and Akagami, Akira, 4,364,637, Cl. 350-288.000.
- Katayama, Tsutomu: See—
Teranishi, Susumu; Kawasaki, Yoichi; Katayama, Tsutomu; and Taniguchi, Hitoshi, 4,364,862, Cl. 260-112.00R.
- Katayama, Yoshinori; and Tuchiya, Yoshimasa, to Nissan Motor Co., Ltd. Vehicle sun roof construction. 4,364,601, Cl. 296-221.000.
- Katayama, Yutaka: See—
Tatsuwaki, Masao; Nemoto, Shin; Katayama, Yutaka; Okada, Michio; and Hotta, Kazuyuki, 4,365,307, Cl. 364-557.000.
- Katchman, Arthur: See—
Cooper, Glenn D.; and Katchman, Arthur, 4,365,038, Cl. 260-29.15B.
- Cooper, Glenn D.; and Katchman, Arthur, 4,365,042, Cl. 525-68.000.
- Kato, Akira: See—
Andoh, Haruo; Kitaoka, Susumu; Sueyoshi, Toshinobu; Ishida, Hikaru; and Kato, Akira, 4,364,988, Cl. 428-212.000.
- Kato, Hisakatsu: See—
Yamada, Koichi; Harato, Takuo; Kato, Hisakatsu; and Shiozaki, Yasumi, 4,364,919, Cl. 423-629.000.
- Kato, Masashi. Waterwheel system for aeration. 4,364,826, Cl. 210-150.000.
- Katsuragawa Electric Co., Ltd.: See—
Noda, Nobutaka, 4,364,659, Cl. 355-14.00D.
- Katz, Daniel S.; and Olson, Kenneth E., to American Cyanamid Company. H₂CO Manufacture by adiabatic air oxidation of HCN. 4,364,913, Cl. 423-365.000.
- Katzman, James A.; Bartlett, Joel F.; Bixler, Richard M.; Davidow, William H.; Despotakis, John A.; Graziano, Peter J.; Green, Michael D.; Greig, David A.; Hayashi, Steven J.; Mackie, David R.; McEvoy, Dennis L.; Treibig, James G.; and Wierenga, Steven W., to Tandem Computers Incorporated. Multiprocessor system. 4,365,295, Cl. 364-200.000.
- Kaufman, Benjamin J., to Texaco Inc. Process for preparing a haze-free detergent and corrosion inhibiting additive for motor fuels. 4,364,846, Cl. 252-392.000.
- Kawabata, Yasuhiro; and Aoki, Kongo, to Aisin Seiki Kabushiki Kaisha. Vacuum actuator. 4,364,301, Cl. 91-20.000.
- Kawagoe, Hiroto, to Hitachi, Ltd. Semiconductor integrated circuit device composed of insulated gate field-effect transistor. 4,365,263, Cl. 357-45.000.
- Kawamura, Masaharu; Sakurada, Nobuaki; Shinoda, Nobuhiko; Ito, Tadashi; Ito, Fumio; and Murakami, Hiroyasu, to Canon Kabushiki Kaisha. Control device for a camera. 4,364,647, Cl. 354-23.00D.
- Kawano, Kenji; Fukaya, Koichi; and Jyoko, Keizou, to Nippondenso Co., Ltd. Method of producing a stator iron core. 4,364,169, Cl. 29-596.000.
- Kawasaki, Harumi: See—
Itoh, Kiyoshi; Kamoshita, Tetuo; Sakai, Teruo; and Kawasaki, Harumi, 4,364,535, Cl. 248-123.100.
- Kawasaki, Yoichi: See—
Teranishi, Susumu; Kawasaki, Yoichi; Katayama, Tsutomu; and Taniguchi, Hitoshi, 4,364,862, Cl. 260-112.00R.
- Kawata, Shigeo: See—
Yokogawa, Kanae; Yamamoto, Takeshi; Takase, Yoshiyuki; Katae, Hiromi; and Kawata, Shigeo, 4,364,926, Cl. 424-50.000.
- Kazlauskas, Gasparas; Jusionis, Vytautas J.; Westerberg, Max M.; and Meacham, John W. Welding apparatus for polygonal cross-sectioned tubing. 4,365,132, Cl. 219-60.00A.
- KB Denver, Inc.: See—
Pounds, Walter R., 4,365,120, Cl. 200-5.00A.
- Kearney & Trecker Corporation: See—
Jamnik, Donald J., 4,365,315, Cl. 364-900.000.
- Keffer, Garry C.: See—
Pasternack, Henry J.; and Keffer, Garry C., 4,365,190, Cl. 323-211.000.
- Keiper Automobiltechnik GmbH & Co. KG: See—
Kluting, Bernd, 4,364,536, Cl. 248-429.000.
- Keller, Arnold, to Waldemar Link GmbH & Co. Instrument for holding and inserting the tibia plate for an endo-knee prosthesis having sliding surfaces. 4,364,389, Cl. 128-303.00R.
- Keller, George D., to Beta, B.V. Flow actuating switching device. 4,365,125, Cl. 200-81.90M.
- Kelly, Steven M. Method of forming an electrical connector. 4,364,172, Cl. 29-858.000.
- Kemp, James M.; and Phillips, Robert N., to Atwood Vacuum Machine Company. Apparatus for mounting a transmission selector. 4,364,450, Cl. 180-336.000.
- Kenan, Richard P.: See—
Verber, Carl M.; and Kenan, Richard P., 4,364,633, Cl. 350-96.140.
- Kennedy, Arthur E., to National Gypsum Company. Gypsum wall-board and method for producing same. 4,364,795, Cl. 162-158.000.
- Kennerly, John M.; Lindner, Gordon M.; and Rowe, John C., to United States of America, Energy. Flowmeter for determining average rate of flow of liquid in a conduit. 4,364,269, Cl. 73-223.000.
- Keranen, Robert M.: See—
Robe, John K.; and Keranen, Robert M., 4,365,288, Cl. 363-141.000.
- Kerber, William X., Jr. Assembly for preparing and dispensing infantile dietary formulation. 4,365,143, Cl. 219-401.000.
- Kerekes, Andras: See—
Szejtli, Jozsef; Budai, Zsuzsanna; Pap nee Imrenyi, Gabriella; and Kerekes, Andras, 4,365,061, Cl. 536-103.000.
- Keritsis, Gus D., to Philip Morris Incorporated. Method for selective denitration of tobacco. 4,364,401, Cl. 131-297.000.
- Kernforschungsanlage Julich GmbH: See—
Forster, Siegfried; Kleemann, Manfred; and Sack, Berthold, 4,364,726, Cl. 431-215.000.
- Hemmerich, Johann, 4,364,235, Cl. 62-55.500.
- Kertesz, Ferenc: See—
Sack, Wieland; Anthonen, Reiner; and Kertesz, Ferenc, 4,364,971, Cl. 427-44.000.
- Kesling, Haven S., Jr.: See—
Hsu, Chao-Yang; and Kesling, Haven S., Jr., 4,365,079, Cl. 560-191.000.
- Kettering Medical Center: See—
Cobb, Carl W. E., 4,364,200, Cl. 49-192.000.
- Kettle, Leslie J.; and Newton, Barry P., to English Electric Valve Company Limited. Switching device. 4,365,287, Cl. 363-94.000.
- Keyes, Richard M., to Beatrice Foods Co. Machine for mixing and cooling batches of dry powder ingredients and water. 4,364,666, Cl. 366-142.000.
- Khadzhai, Yaroslav I.: See—
Yasnitsky, Boris G.; Tsukanova, Galina M.; Oridoroga, Valentin A.; Shalimov, Alexandr A.; Furmanov, Jury A.; Silchenko, Valery P.; Shalimov, Sergei A.; Khadzhai, Yaroslav I.; Obolentseva, Galina V.; and Vorobiev, Nikolai E., 4,364,393, Cl. 128-335.500.
- Khelghatian, Habet M.: See—
Schneider, Abraham; Khelghatian, Habet M.; Hague, Louise D.; and Jezl, James L., 4,365,045, Cl. 525-247.000.
- Khromov, Vyacheslav I.: See—
Gorbakov, Vasily M.; Spirin, Evgeny T.; Shakhov, Vladimir V.; Vagin, Viktor V.; Khromov, Vyacheslav I.; Bogushev, Zimel A.; Eremin, Viktor I.; Vainzof, Kaletta M.; and Podkhvatilin, Evgeny R., 4,364,309, Cl. 99-352.000.
- Kidde, Inc.: See—
Brunelle, Rene J., 4,364,604, Cl. 297-163.000.
- Kidde, Inc. (Presto Lock Company Division): See—
Remington, Richard C., 4,364,150, Cl. 16-126.000.
- Kiekert GmbH & Co. Kommanditgesellschaft: See—
Kleefeldt, Frank, 4,364,249, Cl. 70-264.000.
- Kierstead, Richard W.: See—
Guthrie, Robert W.; Kierstead, Richard W.; Mennona, Francis A.; and Sullivan, Ann C., 4,365,070, Cl. 549-263.000.
- Kiessling, Klaus: See—
Dreesen, Peter; and Kiessling, Klaus, 4,364,704, Cl. 414-624.000.
- Kilcup, Richard G., to United States of America, Air Force. Phase shifter adjustment apparatus. 4,365,173, Cl. 307-412.000.
- Kim, Kee W., to Daniel Industries, Inc. Valve seat with sediment guard. 4,364,544, Cl. 251-328.000.
- Kimbrel, Henry E.: See—
Kraft, George R.; Cole, Albert V.; and Kimbrel, Henry E., 4,364,465, Cl. 198-452.000.
- Kimura, Hiroshi, to Yamaha Hatsudoki Kabushiki Kaisha. Vehicular engine. 4,364,340, Cl. 123-55.00R.
- Kimura, Hiroyuki: See—
Mamiya, Toshiharu; Yamada, Tateo; Hirohata, Michio; Ogawa, Yukio; and Kimura, Hiroyuki, 4,364,649, Cl. 354-25.000.
- Kimura, Kaoru; and Sakabe, Kazuyuki, to Toagosei Chemical Industry Co., Ltd. Novel 2-cyanoacrylate, process for producing same and curable composition comprising same. 4,364,876, Cl. 260-465.400.
- Kimura, Shigenobu: See—
Ogita, Minoru; and Kimura, Shigenobu, 4,365,349, Cl. 455-192.000.
- Kincheloe, David W., to King Instrument Corporation. Splicer assembly for a tape cassette loader. 4,364,791, Cl. 156-506.000.
- King Instrument Corporation: See—
Kincheloe, David W., 4,364,791, Cl. 156-506.000.
- Kinjo, Hisao, to Victor Company of Japan, Ltd. Magnetic recording and reproducing apparatus with device for tracking control of rotary magnetic heads. 4,365,279, Cl. 360-109.000.
- Kinoshita, Kunio: See—
Kokaji, Norio; and Kinoshita, Kunio, 4,365,276, Cl. 358-301.000.
- Kinsley, John P., to Seaquist Valve Company, division of Pittway Corporation. Child resistant closure. 4,364,484, Cl. 215-220.000.
- Kirby, Raymond L., Jr.: See—
Ivory, David J.; and Kirby, Raymond L., Jr., 4,364,503, Cl. 226-45.000.
- Kis-tamas, Attila: See—
Szantay, Csaba; Novak, Lajos; Toth, Miklos; Jakab, Jozsef; Kis-tamas, Attila; and Ujvari, Istvan, 4,364,931, Cl. 424-84.000.
- Kisanuki, Toru: See—
Yuasa, Yoshio; Kisanuki, Toru; and Shirai, Susumu, 4,364,662, Cl. 356-225.000.

- Kiss nee Ajzert, Ilona: See—
Takacs, Kalman; Kiss nee Ajzert, Ilona; Simay, Antal; Literati Nagy, Peter; Hetey nee Papp, Maria; Ecsery nee Puskas, Marian; Szekeres, Laszlo; Papp, Gyula; Viragh, Sandor; and Udvary, Eva, 4,365,064, Cl. 546-148.000.
- Kitahara, Nobuko: See—
Kitajima, Nobuo; Ishihara, Shunichi; Nishigaki, Yuji; and Kitahara, Nobuko, 4,365,015, Cl. 430-62.000.
- Kitai, Kiyoshi; and Takazawa, Yuzuru, to Seiko Koki Kabushiki Kaisha. Safety device of auto-focusing point adjusting camera. 4,364,648, Cl. 354-25.000.
- Kitajima, Nobuo; Ishihara, Shunichi; Nishigaki, Yuji; and Kitahara, Nobuko, to Canon Kabushiki Kaisha. Photosensitive member for electrophotography composed of a photoconductive amorphous silicon. 4,365,015, Cl. 430-62.000.
- Kitamura, Yoshio: See—
Nishihara, Masao; Fukui, Yoshinori; Kitamura, Yoshio; Kamikawa, Yoshiyuki; and Azuma, Haruki, 4,364,251, Cl. 72-58.000.
- Kitaoaka, Susumu: See—
Andoh, Haruo; Kitaoaka, Susumu; Sueyoshi, Toshinobu; Ishida, Hikaru; and Kato, Akira, 4,364,988, Cl. 428-212.000.
- Kiyoki, Mamoru; Endo, Hiroyoshi; Naruchi, Tatsuyuki; and Hashimoto, Yoshinobu, to Teijin Limited; and Teijin Pharmaceutical Co., Ltd. Method for regulating bone metabolism of warm-blooded animals, and pharmaceutical compositions thereof. 4,364,941, Cl. 424-236.000.
- Klauecker, Karl; and Muller, Manfred, to Siemens Aktiengesellschaft. Audio-frequency powerline carrier control system with a current supervisory device. 4,365,286, Cl. 363-58.000.
- Kleefeldt, Frank, to Kiekert GmbH & Co. Kommanditgesellschaft. Central door-lock system for motor vehicles. 4,364,249, Cl. 70-264.000.
- Kleemann, Manfred: See—
Forster, Siegfried; Kleemann, Manfred; and Sack, Berthold, 4,364,726, Cl. 431-215.000.
- Klessing, Klaus; and Chatterjee, Shyam S., to Willmar Schwabe, Firma. 2-O- and 5-O-Substituted 1,4:3,6-dianhydrohexitol mononitrates and pharmaceutical composition. 4,364,953, Cl. 424-266.000.
- Kleve, Mary, to Ned Strongin Associates, Inc. Doll with closing eyes. 4,364,195, Cl. 46-135.00R.
- Klieger, Erich: See—
Speck, Ulrich; Blaszkiewicz, Peter; Seidelmann, Dieter; and Klieger, Erich, 4,364,921, Cl. 424-5.000.
- Kloedenbusch, Heinrich: See—
Ahrens, Norbert; and Kloedenbusch, Heinrich, 4,364,665, Cl. 366-106.000.
- Kloss, Henry E. Projection television tube and process for forming same. 4,365,183, Cl. 313-478.000.
- Kluting, Bernd, to Keiper Automobiltechnik GmbH & Co. KG. Device for adjusting a vehicle seat. 4,364,536, Cl. 248-429.000.
- Knapp, Julius Z., to Schering Corporation. Injectable fluid container and method. 4,364,485, Cl. 215-232.000.
- Knight, Webster B. Security audio visual emergency system. 4,365,237, Cl. 340-521.000.
- Knight, William; and Marriott, David G., to Coventry Climax Limited. Industrial truck. 4,364,449, Cl. 180-271.000.
- Knitter, Kathy A.; and Villa, Jose L., to Diamond Shamrock Corporation. Carbonaceous materials in oil slurries. 4,364,742, Cl. 44-51.000.
- Knoski, Jerry L. Attachable airfoil with movable control surface. 4,364,531, Cl. 244-3.270.
- Knudson, Gary A. Panel forming apparatus. 4,364,253, Cl. 72-187.000.
- Kobayashi, Akio: See—
Kondo, Toshio; Kobayashi, Akio; Eino, Tomomi; and Tajima, Masahiko, 4,365,299, Cl. 364-431.060.
- Kobayashi, Nobuyuki; and Itoh, Hiroshi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Method of controlling the idling speed of an engine. 4,364,350, Cl. 123-339.000.
- Kobayashi, Nobuyuki: See—
Itoh, Hiroshi; and Kobayashi, Nobuyuki, 4,364,348, Cl. 123-339.000.
- Kobe Steel, Limited: See—
Nishihara, Masao; Fukui, Yoshinori; Kitamura, Yoshio; Kamikawa, Yoshiyuki; and Azuma, Haruki, 4,364,251, Cl. 72-58.000.
- Kobylinski, Lee S., to TRW Inc. Well servicing apparatus. 4,364,545, Cl. 254-284.000.
- Kochi, Hiromu: See—
Takaya, Takao; Masugi, Takashi; Takasugi, Hisashi; and Kochi, Hiromu, 4,364,943, Cl. 424-246.000.
- Kochs Adler AG: See—
Schneider, Gerhard; Ludwig, Rolf; and Fischer, Jochen, 4,364,317, Cl. 112-132.000.
- Schneider, Gerhard; Ludwig, Rolf; and Fischer, Jochen, 4,364,318, Cl. 112-147.000.
- Kodama, Yutaka: See—
Horike, Masanori; Jinnai, Koichiro; Iwasaki, Kyuhachiro; and Kodama, Yutaka, 4,365,255, Cl. 346-75.000.
- Kohno, Tadashi; Shimizu, Takahiko; Takahashi, Kenji; Fukui, Hishao; Okubo, Akio; and Masuda, Noriaki, to Pentel Kabushiki Kaisha. Writing instrument. 4,364,684, Cl. 401-264.000.
- Koike, Norio; Baji, Toru; Tsukada, Toshihisa; and Yamamoto, Hideaki, to Hitachi, Ltd. Method for fabricating a solid-state imaging device using photoconductive film. 4,364,973, Cl. 427-75.000.
- Koivu, Albert H.: See—
Reizer, Robert F.; Koivu, Albert H.; and Cohen, Leslie J., 4,365,029, Cl. 523-437.000.
- Koizumi, Chie, to Osaka Rasengan Kogyo Kabushiki Kaisha. Method for the manufacture of diaphragm bellows. 4,364,252, Cl. 72-59.000.
- Kokaji, Norio; and Kinoshita, Kunio, to Iwatsu Electric Co., Ltd. Copy magnification change apparatus in magnetic copying machine. 4,365,276, Cl. 358-301.000.
- Koller, Ernst. Structural unit in the form of a profiled bar. 4,364,216, Cl. 52-731.000.
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- Kontz, Robert F., to Owens-Illinois, Inc. Method for making a multi-layered blown plastic container. 4,364,896, Cl. 264-513.000.
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- Kume, Tsutomu: See—
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- Kung, Patrick C.; and Goldstein, Gideon, to Ortho Pharmaceutical Corporation. Monoclonal antibody to a human prothymocyte antigen and methods of preparing same. 4,364,935, Cl. 424-85.000.
- Kung, Patrick C.; and Goldstein, Gideon, to Ortho Pharmaceutical Corporation. Monoclonal antibody to a human monocyte antigen and methods of preparing same. 4,364,936, Cl. 424-85.000.
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- Lampert, Norman R., to Bell Telephone Laboratories, Incorporated. Stripline support assembly. 4,365,222, Cl. 333-238.000.
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- Landa, Ben Zion, to Savin Corporation. Multiple-blade pickoff for electrophotographic copier. 4,364,657, Cl. 355-3.0SH.
- Landa, Ben Zion, to Savin Corporation. Process and apparatus for transferring developed electrostatic images to a carrier sheet, improved carrier sheet for use in the process and method of making the same. 4,364,661, Cl. 355-3.0SH.
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- Matumoto, Shiyouchi: See—
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- Reizer, Robert F.; Koivu, Albert H.; and Cohen, Leslie J., 4,365,029, Cl. 523-437.000.
- McEvoy, Dennis L.: See—
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- McKee, Kimball K., to Elreco Corporation. The. Modular section insulator switch. 4,365,129, Cl. 200-162.000.
- McKellin, Wilbur H.; Mageli, Orville L.; and D'Angelo, Antonio J., to Pennwalt Corporation. Polyperoxy compounds. 4,365,086, Cl. 562-512.000.
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- McNair, Douglas S., to Baylor College of Medicine. Nuclear magnetic resonance sample tube insert. 4,365,199, Cl. 324-318.000.
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- McVicker, Harry J., to Sperry Corporation. Combination castor and jack means apparatus. 4,364,148, Cl. 16-32.000.
- McWilliams, Joseph A., to Micropore International Ltd. Shaping of thermal insulation material. 4,365,135, Cl. 219-121.0LF.
- Meacham, John W.: See—
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- Holley, John M., Jr.; and Oliff, James R., 4,364,509, Cl. 229-17.00B.
- Meckel, Bernd: See—
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- Medtronic, Inc.: See—
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- Citron, Paul; Hepp, Dennis G.; and Jirak, Thomas L., 4,364,397, Cl. 128-710.000.
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- Meier, James, to Norlin Industries, Inc. Keyboard spring return mechanism. 4,364,297, Cl. 84-440.000.
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- Melendez, Ricardo. Skate sandals. 4,364,187, Cl. 36-15.000.
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- Menezes, William A.; and Kuper, Douglas D., to Sony Corporation. Cue control apparatus. 4,365,313, Cl. 364-900.000.
- Menk, Hermann: See—
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- Mennen, Ulrich. Internal fixation device for bone fractures. 4,364,382, Cl. 128-92.00D.
- Mennona, Francis A.: See—
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- Meyer, Geerd-J.; and Lambrecht, Richard M., to United States of America, Energy. Method for the preparation of radon-211. 4,364,898, Cl. 376-190.000.
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- Meyers, George, to Garber Company, The. Feeding device. 4,364,504, Cl. 226-76.000.
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- Miles, Wilbur N., to Erickson Tool Company. Tap holder. 4,364,694, Cl. 408-139.000.
- Miller, David H.: See—
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- Miller, George R., to United States of America, Navy. Emergency lighting unit. 4,365,232, Cl. 340-27.00R.
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- Miller, Robert C., to Westinghouse Electric Corp. Electrically driven meter totalizing device. 4,365,251, Cl. 340-870.020.
- Miller, Steven S.: See—
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- Greenway, John M.; and Stokes, Jimmy L., 4,364,156, Cl. 26-2.00R.
- Mills, Allen P., Jr., to Bell Telephone Laboratories, Incorporated. Brightness enhancement of positron sources. 4,365,160, Cl. 250-396.00R.
- Mills, Anthony M.; and Egan, Daniel C., to Dunlop Tire & Rubber Corporation. Motorcycle tire tread. 4,364,426, Cl. 152-209.00R.
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- Minagawa, Shoichi; Okamoto, Takeshi; and Sakai, Takamasa, to Clarion Co., Ltd. Surface-acoustic-wave device. 4,365,216, Cl. 333-153.000.
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- Mink, Robert I.; and Epstein, Ronald A., to Stauffer Chemical Company. Catalyst for polymerizing olefins. 4,364,853, Cl. 252-429.00B.
- Minnesota Mining and Manufacturing Company: See—
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- Fleming, Peter B.; Licht, Richard R.; and Peisert, Joseph C., 4,364,210, Cl. 52-221.000.
- Gerfast, Sten R., 4,365,257, Cl. 346-135.100.
- Huntley, Ted R., 4,364,622, Cl. 339-97.00R.
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- Minster Machine Company, The: See—
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- Mitra, Gautam; Coan, Michael H.; and Wada, Shohachi, to Cutter Laboratories, Inc. Blood-coagulation-promoting products and methods of preparing them. 4,364,861, Cl. 260-112.00B.
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- Nakano, Nobumasa; Takahashi, Noboru; and Aoki, Masao, 4,365,312, Cl. 364-900.000.
- Okamoto, Kouichi; Sakuyama, Masaki; and Kataoka, Kenji, 4,364,241, Cl. 62-505.000.
- Mitsubishi Petrochemical Company Limited: See—
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- Mitsui Kinzoku Kogyo Kabushiki Kaisha: See—
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- Mitsui Toatsu Chemicals, Incorporated: See—
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- Ono, Hiroshi; Fujii, Hidetsugu; and Inoue, Shigeru, 4,365,089, Cl. 564-67.000.
- Mittelstaedt, Paul O.: See—
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- Miyagi, Hideo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Method of adjusting idle speed of an internal combustion engine. 4,364,347, Cl. 123-339.000.
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- Miyagi, Hideo; and Nakano, Jiro, to Toyota Jidosha Kogyo Kabushiki Kaisha. Electronically controlling, fuel injection method for internal combustion engine. 4,364,363, Cl. 123-492.000.
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- Miyazaki, Yoshihiro: See—
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- Miyazawa, Shozo: See—
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- Mizik, Valery V.: See—
Tarasov, Nikolai M.; Varukha, Nikolai A.; Brontman, Rostislav L.; Slesarev, Boris A.; Zhukov, Anatoly M.; Mizik, Valery V.; Rogachev, Evgeny P.; and Gurnov, Nikolai I., 4,365,137, Cl. 219-137.310.
- Mizuno, Hiroshige; and Kurishita, Akiyoshi, to NGK Insulators, Ltd. Continuous extrusion method of manufacturing ceramic honeycomb structures with the aid of screw type vacuum extruding machine. 4,364,881, Cl. 264-40.700.
- Moberly, Robert V.: See—
Chopping, Geoffrey; Moberly, Robert V.; and Philip, Alexander S., 4,365,330, Cl. 370-100.000.
- Mobil Oil Corporation: See—
Espenscheid, Wilton F., 4,364,918, Cl. 423-573.00R.
- Kaeding, Warren W., 4,365,104, Cl. 585-467.000.
- Young, Lewis B., 4,365,083, Cl. 560-247.000.
- Young, Lewis B., 4,365,084, Cl. 560-247.000.
- Modtler, Reiner: See—
Brucher, Walter; Hense, Karl H.; and Modtler, Reiner, 4,364,983, Cl. 428-85.000.
- Mogami, Satoshi, to Nippon Kogaku K.K. Wide angle zoom lens. 4,364,641, Cl. 350-426.000.
- Moiseevich, Shutov G.: See—
Prokofievna, Skripchik L.; Moiseevich, Shutov G.; Emmanuilovna, Erdman M.; Eduardovich, Pukhalsky M.; Ivanovich, Lezhen V.; Ignatievich, Shevchenko A.; and Vladimirovich, Vrublevsky E., 4,364,976, Cl. 427-382.000.
- Mojden, Wallace W., to Fleetwood Systems, Inc. Can end separator-conveyor. 4,364,466, Cl. 198-459.000.
- Moll, Hans; and Flesche, Klaus, to M.A.N. Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Truck, especially a large capacity vehicle or tractor semi-trailer combination. 4,364,599, Cl. 296-190.000.
- Momiyama, Kikuo, to Canon Kabushiki Kaisha. Large aperture ratio photographic lens. 4,364,643, Cl. 350-464.000.
- Momobayashi, Tatuya: See—
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- Monarch Marking Systems, Inc.: See—
Ivory, David J.; and Kirby, Raymond L., Jr., 4,364,503, Cl. 226-45.000.
- Monden, Ikuo: See—
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- Monforts, A.: See—
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- Mongeon, Ronald W., to Stellar Systems, Inc. Intrusion warning system. 4,365,239, Cl. 340-564.000.
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Brooks, Albert A.; Henis, Jay M. S.; and Tripodi, Mary K., 4,364,759, Cl. 55-487.000.
- Frushour, Bruce G., 4,364,675, Cl. 374-16.000.
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- Montgomery Elevator Company: See—
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- Moon, John D., to Minnesota Mining and Manufacturing Company. Pressure-sensitive adhesive copolymers of acrylic acid ester and N-vinyl pyrrolidone. 4,364,972, Cl. 427-54.100.
- Moore, Ernest P.: See—
Chung, Li-Jin W.; Moore, Ernest P.; Porter, Glendon R.; and Rizzo, Joseph F., 4,365,119, Cl. 179-170.200.
- Moore, Richard D.: See—
Davis, Donald E.; Moore, Richard D.; Ryan, Philip M.; and Weber, Edward V., 4,365,163, Cl. 250-491.100.
- Moore, Robert L.: See—
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- Moran, Eric, to P.V. Trim Limited. Method of making laterally curved decorative trim strip assembly. 4,364,789, Cl. 156-214.000.
- Morgan, Cleon; Pluta, Richard; and Thomas, John F., Jr., to Donnelly Mirrors, Inc. Decorative panel assembly for vehicles. 4,364,214, Cl. 52-311.000.
- Morgan, Cleon; Thomas, John F., Jr.; and Meyer, Raymond A., to Donnelly Mirrors, Inc. Vehicle window assembly. 4,364,595, Cl. 296-84.00R.
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- Morishawa, Kunio; and Kyushima, Tatsuo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Automatic transmission. 4,364,285, Cl. 74-606.00R.
- Morishita, Mitsuharu, to Mitsubishi Denki Kabushiki Kaisha. Device for indicating the charging state of a battery. 4,365,241, Cl. 340-636.000.
- Morita, Masayuki; Kubota, Kazuhisa; and Nakano, Tasuku, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Turn direction detector for a steering shaft. 4,365,121, Cl. 200-61.270.
- Moriwaki, Takeshi; and Tsunekawa, Shinichi, to Tokyo Shibaura Denki Kabushiki Kaisha. Method and apparatus for stabilizing the pressure of a gas in a closed body. 4,364,617, Cl. 316-24.000.
- Moriyama, Yutaka: See—
Soma, Hiroshi; Iyobe, Makoto; Iijima, Takekazu; and Moriyama, Yutaka, 4,365,113, Cl. 179-1.00E.
- Morley Furniture Spring Corporation: See—
Crosby, Lawton H., 4,364,547, Cl. 267-110.000.
- Morrison, Thomas R. Zone heat control. 4,364,512, Cl. 236-9.00A.
- Morton, Douglas R., Jr., to Upjohn Company, The. ω-Aryl-PGD compounds. 4,365,075, Cl. 560-51.000.
- Morz, Gunter, to Licentia Patent-Verwaltungs-GmbH. Antenna feeder system for a tracking antenna. 4,365,253, Cl. 343-786.000.
- Moss, Theron C.; Mullan, Richard; Boring, Earl; Hjellum, Jerry; and Christison, Alexander, to SECO Industries, Inc. Duster head and method of making same. 4,364,144, Cl. 15-229.0AC.
- Mostek Corporation: See—
Mulholland, Wayne A.; Martin, Robert J.; Wilson, David S.; and Esparza, Carlos, Jr., 4,364,620, Cl. 339-17.0CF.
- Motkowski, Henry F., Jr.: See—
Sipos, Tibor; and Motkowski, Henry F., Jr., 4,364,927, Cl. 424-56.000.
- Motohashi, Katsuchi; Obara, Toshio; Kaneko, Kazuo; and Yamaguchi, Masahiko, to Hodogaya Chemical Co., Ltd. Heat sensitive record sheet. 4,364,999, Cl. 428-411.000.
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- Motorola Inc.: See—
Hansen, Kenneth A.; and Chapman, Ronald H., 4,365,213, Cl. 331-113.00R.
- Harrington, Wayne D.; and Groves, Stanley E., 4,365,210, Cl. 331-1.00A.
- Mott, Donna M.: See—
Halpern, Yuval; and Mott, Donna M., 4,365,033, Cl. 524-118.000.
- Mottu, Pierre, executor: See—
Winter, Max, deceased; and Mottu, Pierre, executor, 4,364,400, Cl. 131-277.000.
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Farge, Daniel; Moutonnier, Claude; Le Roy, Pierre; and Peyronel, Jean-Francois, 4,365,062, Cl. 544-22.000.
- Moyle, LaMont E., to Rexham Corporation. Snack food packaging material. 4,364,989, Cl. 428-216.000.

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- MTD Products Inc.: See—
Plamper, Gerhard R.; Fortlage, Paul R.; and Kaesgen, Hans-Hartmut, 4,364,735, Cl. 474-14.000.
- Muchel, Franz: See—
Lang, Walter H.; and Muchel, Franz, 4,364,629, Cl. 350-516.000.
- Mukai, Kiichiro; Harada, Seiki; Muramatsu, Shin-ichi; Hiraiwa, Atsushi; Takahashi, Shigeru; Usami, Katsuhisa; Iwata, Seiichi; Ito, Satoru; and Yoshimi, Takeo, to Hitachi, Ltd. Semiconductor device with high density low temperature deposited $\text{Si}_3\text{N}_4\text{H}_2\text{O}_2$ passivating layer. 4,365,264, Cl. 357-54.000.
- Mulholland, Wayne A.; Martin, Robert J.; Wilson, David S.; and Esparza, Carlos, Jr., to Mostek Corporation. Socket for housing a plurality of integrated circuits. 4,364,620, Cl. 339-17.0CF.
- Mullan, Richard: See—
Moss, Theron C.; Mullan, Richard; Boring, Earl; Hjellum, Jerry; and Christison, Alexander, 4,364,144, Cl. 15-229.0AC.
- Muller, Hanns P.; Wagner, Kuno; Blahak, Johannes; and Menk, Hermann, to Metzeler Kautschuk GmbH. Molded bodies of vulcanized rubber having a vulcanized-on layer of varnish. 4,365,000, Cl. 428-423.900.
- Muller, Manfred: See—
Klauecker, Karl; and Muller, Manfred, 4,365,286, Cl. 363-58.000.
- Muller, Wolfgang: See—
Diehl, Erwin; Muller, Wolfgang; and Stroh, Artur, 4,364,978, Cl. 427-433.000.
- Muller, Wolfgang H. E.; and Hofmann, Peter, to Chemische Werke Huls A.G. Process for producing alkyl esters of saturated aliphatic carboxylic acids. 4,364,869, Cl. 260-410.90R.
- Mullowney, Robert A.: See—
Donato, Guido A.; Hammond, Edwin E.; and Mullowney, Robert A., 4,364,444, Cl. 180-65.00R.
- Multisensors Inc.: See—
John, Raymond; Apfelbaum, Jerome G.; and Moore, Robert L., 4,364,308, Cl. 99-351.000.
- Mulvey, Steven J., to National Railroad Passenger Corporation. Test signal generator. 4,365,333, Cl. 371-27.000.
- Mummert, Thomas A., to Jobst Institute, Inc. Artificial foot. 4,364,128, Cl. 3-6.100.
- Muns-Magem, Joaquin; and Ibanez-Pi, Juan. Yarn condition sensing device. 4,364,247, Cl. 66-163.000.
- Munter, Arnold M.; and Ahlgren, David W., to Jen's, Inc. Food preparation process. 4,364,963, Cl. 426-283.000.
- Muntwyler, Rene; and Menasse, Raphael, to Ciba-Geigy Corporation. Hydroxyphenyl ketones. 4,364,949, Cl. 424-263.000.
- Murai, Keiichi; Tanaka, Naoto; and Kondo, Hideyo, to Canon Kabushiki Kaisha. Electrophotographic device. 4,364,329, Cl. 118-652.000.
- Murakami, Hiroyasu: See—
Kawamura, Masaharu; Sakurada, Nobuaki; Shinoda, Nobuhiko; Ito, Tadashi; Ito, Fumio; and Murakami, Hiroyasu, 4,364,647, Cl. 354-23.00D.
- Muramatsu, Shin-ichi: See—
Mukai, Kiichiro; Harada, Seiki; Muramatsu, Shin-ichi; Hiraiwa, Atsushi; Takahashi, Shigeru; Usami, Katsuhisa; Iwata, Seiichi; Ito, Satoru; and Yoshimi, Takeo, 4,365,264, Cl. 357-54.000.
- Muranaka, Shigeo; and Onoda, Michio, to Nissan Motor Company, Ltd. Vibration sensor for an automotive vehicle engine. 4,364,259, Cl. 73-35.000.
- Murata Manufacturing Co., Ltd.: See—
Inoue, Jiro, 4,365,218, Cl. 333-187.000.
- Yamamoto, Takashi, 4,365,181, Cl. 310-320.000.
- Murch, Robert M.; and Wood, Louis L., to W. R. Grace & Co. Flexible polyurethane foams from polymethylene polyphenyl isocyanate containing prepolymers. 4,365,025, Cl. 521-159.000.
- Murray, Bruce J.: See—
Detty, Michael R.; Murray, Bruce J.; and Perlstein, Jerome H., 4,365,016, Cl. 430-83.000.
- Detty, Michael R.; Murray, Bruce J.; and Perlstein, Jerome H., 4,365,017, Cl. 430-83.000.
- Muto, Hiroaki: See—
Onda, Yoshiro; Muto, Hiroaki; and Maruyama, Kazumasa, 4,365,060, Cl. 536-65.000.
- N.E.R.G. Enterprises, Inc.: See—
Askwith, Herbert; and Sage, Larry, 4,364,261, Cl. 73-40.000.
- Nabisco, Inc.: See—
Kraft, George R.; Cole, Albert V.; and Kimbrel, Henry E., 4,364,465, Cl. 198-452.000.
- Nagai, Kiyotake, to Nippon Electric Co., Ltd. Television camera apparatus having automatic gain-selecting unit. 4,365,272, Cl. 358-228.000.
- Nagasawa, Mitsuru: See—
Fujimoto, Teruo; Nagasawa, Mitsuru; and Ohno, Syotaro, 4,365,023, Cl. 521-32.000.
- Nagata, Masayuki; and Miyazawa, Shozo, to Kanbayashi Seisakujo Company, Ltd. Time-axis compression-expansion devices for sound signals. 4,365,115, Cl. 179-15.55T.
- Nakada, Akira; Okamoto, Eisaku; and Yoshida, Kiyoshi, to Nippon Gakki Seizo Kabushiki Kaisha. Electronic musical instrument having system for judging player's performance. 4,364,299, Cl. 84-478.000.
- Nakade, Toshiaki: See—
Yamada, Mitsuhiro; and Nakade, Toshiaki, 4,365,273, Cl. 358-260.000.
- Nakagawa, Tsuneo; Hiramatsu, Uji; and Honda, Toshihide, to Daikin Kogyo Co., Ltd. Process for preparing benzotrifluoride and its derivatives. 4,365,101, Cl. 570-145.000.
- Nakagawa, Yasuhiko: See—
Tsutsumi, Saburo; and Nakagawa, Yasuhiko, 4,364,345, Cl. 123-198.00F.
- Nakahama, Kazuo: See—
Asai, Mitsuko; Nakahama, Kazuo; and Izawa, Motowo, 4,364,866, Cl. 260-239.30P.
- Nakajima, Tsuneo: See—
Nakamura, Yukinobu; Nakajima, Tsuneo; Atsumi, Toru; and Sakai, Kunitaka, 4,364,429, Cl. 165-28.000.
- Nakamura, Hiroshi: See—
Adachi, Tuneyuki; and Nakamura, Hiroshi, 4,365,037, Cl. 524-449.000.
- Nakamura, Kenji: See—
Matsuoka, Shigeru; Tokunaga, Takeshi; Yonekura, Seiji; Suzuki, Mituo; and Nakamura, Kenji, 4,365,250, Cl. 340-825.320.
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- Nakano, Jiro: See—
Miyagi, Hideo; and Nakano, Jiro, 4,364,363, Cl. 123-492.000.
- Nakano, Nobumasa; Takahashi, Noboru; and Aoki, Masao, to Mitsubishi Denki Kabushiki Kaisha. Sequence controller. 4,365,312, Cl. 364-900.000.
- Nakano, Tasuku: See—
Morita, Masayuki; Kubota, Kazuhisa; and Nakano, Tasuku, 4,365,121, Cl. 200-61.270.
- Nakano Vinegar Co., Ltd.: See—
Kunimatsu, Yoshio; Okumura, Hajime; Masai, Hiroshi; Yamada, Koki; and Yamada, Mikio, 4,364,960, Cl. 426-17.000.
- Nakauchi, Kenji: See—
Terashita, Takaaki; Shiota, Kazuo; and Nakauchi, Kenji, 4,364,650, Cl. 354-31.000.
- Nakazawa, Hiroshi: See—
Ohsawa, Mitsuo; and Nakazawa, Hiroshi, 4,365,326, Cl. 369-268.000.
- Nakhle, George D.; Bell, Cecil R.; Edwards, Arthur R.; Lathery, Willie M.; and Patel Navin D., to Consolidated Foods Corporation. Garment toe closing system. 4,364,320, Cl. 112-262.200.
- Namiki, Yasuomi, to Victor Company Of Japan, Ltd. Device for detecting the position of a tape in a magnetic tape recording and/or reproducing apparatus. 4,365,277, Cl. 360-72.100.
- Narasaka, Shin: See—
Otsuka, Kazuo; Narasaka, Shin; and Hasegawa, Shumpei, 4,364,359, Cl. 123-440.000.
- Narducy, Kenneth W.: See—
Arbri, Francis W.; Raden, Daniel S.; and Narducy, Kenneth W., 4,364,850, Cl. 252-426.000.
- Naruchi, Tatsuyuki: See—
Kiyoki, Mamoru; Endo, Hiroyoshi; Naruchi, Tatsuyuki; and Hashimoto, Yoshinobu, 4,364,941, Cl. 424-236.000.
- Nathan, Bernard D., to General Electric Company. In-line surface acoustic wave filter assembly module and method of making same. 4,365,219, Cl. 333-193.000.
- Nathenson, Richard D.; Pipich, Charles W.; and Kopnitsky, Joseph R., deceased (by Kopnitsky, Mary C., executrix), to Westinghouse Electric Corp. Liquid cooling system for a hydrogenerator rotor. 4,365,176, Cl. 310-54.000.
- National Gypsum Company: See—
Kennedy, Arthur E., 4,364,795, Cl. 162-158.000.
- Pearson, Robert J.; and Buerger, Rodney G., 4,364,212, Cl. 52-281.000.
- National Iranian Oil Company: See—
Saidi, Ali M.; and Hesselink, Frans T., 4,364,431, Cl. 166-275.000.
- National Railroad Passenger Corporation: See—
Mulvey, Steven J., 4,365,333, Cl. 371-27.000.
- National Research Development Corporation: See—
Froome, Keith D., 4,364,271, Cl. 73-432.00R.
- National Semiconductor Corporation: See—
Bernardi, Carl E., 4,364,977, Cl. 427-429.000.
- Natrass, Peter J., to Bulk Lift International, Inc. End wall closure for bulk material transport bag. 4,364,424, Cl. 150-1.000.
- Naturin-Werk Becker & Co.: See—
Wittern, Hans-Dieter; and Geyer, Fred, 4,364,511, Cl. 229-63.000.
- Ned Strongin Associates, Inc.: See—
Kleve, Mary, 4,364,195, Cl. 46-135.00R.
- Neiss, Edward S.; and Loe, Bernard, to USV Pharmaceutical Corporation. Compositions for treating acne. 4,364,940, Cl. 424-230.000.
- Neles Oy: See—
Polon, Juhani, 4,364,415, Cl. 137-625.320.
- Nelms, George E.; Barthel, Thomas C.; and Bergland, William J., to Medtronic, Inc. Computer system with power control circuit. 4,365,290, Cl. 364-200.000.
- Nelson-Harkins Industries, Inc.: See—
Harkins, Thomas G.; and Peterson, Robert D., 4,364,616, Cl. 312-223.000.
- Nelson Irrigation Corporation: See—
Kreitzberg, Jeffrey P., 4,364,519, Cl. 239-230.000.
- Nemoto, Hideyuki: See—
Shimazoe, Michitaka; Matsuoka, Yoshitaka; Akahane, Ryozo; Shimizu, Yasushi; Nemoto, Hideyuki; and Tanabe, Masanori, 4,364,276, Cl. 73-721.000.

- Nemoto, Shin: See—
Tatsuwa, Masao; Nemoto, Shin; Katayama, Yutaka; Okada, Michio; and Hotta, Kazuyuki, 4,365,307, Cl. 364-557.000.
- Nerge, Steven F.: See—
Craig, James R.; and Nerge, Steven F., 4,365,345, Cl. 378-190.000.
- Nestier Canada Inc.: See—
Alexeeff, Victor, 4,364,489, Cl. 220-334.000.
- Netti, Thomas J. Storm unit for existing window. 4,364,198, Cl. 49-62.000.
- Neuhierl, Hermann. Game apparatus with toy vehicles. 4,364,566, Cl. 273-86.00B.
- Newton, Barry P.: See—
Kettle, Leslie J.; and Newton, Barry P., 4,365,287, Cl. 363-94.000.
- NGK Insulators, Ltd.: See—
Higuchi, Noboru; Yano, Teruo; and Ohnishi, Masahiro, 4,364,760, Cl. 55-523.000.
- Mizuno, Hiroshige; and Kurishita, Akiyoshi, 4,364,881, Cl. 264-40.700.
- N'Guyen, Thanh-Dung: See—
Boileau, Sylvie L.; N'Guyen, Thanh-Dung; and Gautier, Jean-Claude C., 4,365,094, Cl. 568-14.000.
- NHK Spring Co., Ltd.: See—
Ohno, Akira; Katayama, Shitomi; Senaha, Susumu; Kyo, Suizo; and Akagami, Akira, 4,364,637, Cl. 350-288.000.
- Nichols, James M.: See—
Arp, George F.; and Nichols, James M., 4,364,211, Cl. 52-245.000.
- Nicolas, Jean-Yves: See—
Merriault, Philippe M. F.; and Nicolas, Jean-Yves, 4,365,328, Cl. 370-60.000.
- Nidola, Antonio; and Martelli, Gian N., to Oronzio de Nora Impianti Elettrochimici S.p.A. Deposition of catalytic electrodes on ion-exchange membranes. 4,364,803, Cl. 204-30.000.
- Nieh, Edward C. Y., to Texaco Inc. Alkyl-substituted bicycloalkyl ethers. 4,365,096, Cl. 568-665.000.
- Niehaus, Hermann; Droste, Gunter; and Stapel, Wilhelm, to Durkoppwerke GmbH. Controlled thread clamp device for needle threads. 4,364,319, Cl. 112-238.000.
- Nielsen, Leif: See—
Huelle, Zbigniew R.; Nielsen, Leif; and Jakobsen, Jakob S., 4,364,238, Cl. 62-217.000.
- Niemann, Roy A., to Canadian General Electric Company Limited. Method for fabricating isolated phase bus. 4,364,171, Cl. 29-828.000.
- Niemand, Larry A.; Helwig, Michael W., Jr.; and Connare, Thomas J., to Titanium Metals Corporation of America. Rail wheel alloy. 4,364,772, Cl. 75-126.00R.
- Nihon Sanmo Dyeing Co., Ltd.: See—
Tomibe, Shinji; Gombiuchi, Reizo; and Takahashi, Kiyofumi, 4,364,739, Cl. 8-654.000.
- Niimi, Yukihide: See—
Yoshida, Seietsu; Niimi, Yukihide; Ito, Masao; Sawada, Hiroshi; and Demura, Takayuki, 4,364,227, Cl. 60-276.000.
- Nijssen, Wilhelmus P. M.: See—
Zwanenburg, Dirk J.; Nijssen, Wilhelmus P. M.; and van der Staak, Casper G. I., 4,364,986, Cl. 428-156.000.
- Nilsson, Peter; and Aslund, Christer, to Granges Nyby AB. Process for the after-treatment of powder-metallurgically produced extruded tubes. 4,364,162, Cl. 419-26.000.
- Nilsson, Sven W., to SKF Nova AB. Screw and nut mechanism. 4,364,282, Cl. 74-424.80A.
- Nippon Electric Co., Ltd.: See—
Nagai, Kiyotake, 4,365,272, Cl. 358-228.000.
- Otsuka, Shigeru; and Kai, Tomokazu, 4,365,347, Cl. 455-179.000.
- Nippon Gakki Seizo Kabushiki Kaisha: See—
Nakada, Akira; Okamoto, Eisaku; and Yoshida, Kiyoshi, 4,364,299, Cl. 84-478.000.
- Ogita, Minoru; and Kimura, Shigenobu, 4,365,349, Cl. 455-192.000.
- Nippon Kogaku K.K.: See—
Maida, Osamu, 4,365,236, Cl. 340-347.0AD.
- Mogami, Satoshi, 4,364,641, Cl. 350-426.000.
- Nohda, Masao, 4,364,646, Cl. 351-208.000.
- Nippon Kokan Kabushiki Kaisha: See—
Fukuda, Shuzo; and Ohkubo, Yutaka, 4,364,328, Cl. 118-411.000.
- Nippon Paint Co., Ltd.: See—
Konishi, Sakuichi; Omori, Yukio; and Kataoka, Hiroyoshi, 4,365,043, Cl. 525-113.000.
- Nippon Shokubai Kagaku Kogyo Co. Ltd.: See—
Shimizu, Noboru; Yoshida, Hiroshi; Daigo, Hiromiki; Matumoto, Shiyueichi; and Uchino, Hiroyoshi, 4,365,081, Cl. 560-209.000.
- Nippon Soken, Inc.: See—
Nomura, Etsuji; Sasaya, Hideaki; and Miyazaki, Toshikuni, 4,364,369, Cl. 123-569.000.
- Nippon Telegraph and Telephone Public Corp.: See—
Ozawa, Masaru; Ooba, Yuji; and Shimizu, Toshio, 4,365,254, Cl. 346-1.100.
- Nippon Zoki Pharmaceutical Co., Ltd.: See—
Toyomaki, Yoshio, 4,364,947, Cl. 424-256.000.
- Nipponden Co., Ltd.: See—
Kawano, Kenji; Fukaya, Koichi; and Jyoko, Keizou, 4,364,169, Cl. 29-596.000.
- Kondo, Toshio; Kobayashi, Akio; Eino, Tomomi; and Tajima, Masahiko, 4,365,299, Cl. 364-431.060.
- Tsuzuki, Yoshihiko; Hirabayashi, Yuji; Shirasaki, Shinji; Matsuyama, Masahiro; and Okazaki, Hiroshi, 4,364,513, Cl. 236-49.000.
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- Nishigaki, Yuji: See—
Kitajima, Nobuo; Ishihara, Shunichi; Nishigaki, Yuji; and Kitahara, Nobuko, 4,365,015, Cl. 430-62.000.
- Nishihara, Masao; Fukui, Yoshinori; Kitamura, Yoshio; Kamikawa, Yoshiyuki; and Azuma, Haruki, to Kobe Steel, Limited. Method and apparatus for cold-working annular workpieces. 4,364,251, Cl. 72-58.000.
- Nishikawa, Kazuo; and Hozumi, Kazuo, to Kabushiki Kaisha Morita Seisakusho. Dental radiographic apparatus for photographing entire jaws and taking cephalogram. 4,365,340, Cl. 378-039.000.
- Nishioka, Matsuo, to Matsushita Electric Industrial Co., Ltd. Variable resistor device with lock mechanism. 4,365,231, Cl. 338-334.000.
- Nishioka, Tatsujiro: See—
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- Nishizawa, Junichi, to Handotai Kenkyu Shinkokai. Semiconductor image sensor. 4,365,262, Cl. 357-31.000.
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- Nissan Motor Co., Ltd.: See—
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- Tsutsumi, Saburo; and Nakagawa, Yasuhiko, 4,364,345, Cl. 123-198.00F.
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- Nitschke, Norman C.: See—
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- Nizdorf Computer Corporation: See—
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- Northern Telecom Limited: See—
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- Salama, Amir, 4,364,801, Cl. 204-15.000.
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- NSK-Warner K.K.: See—
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- Nuffer, Daniel E.: See—
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- Nunan, Craig S.: See—
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- Nutrisearch Company: See—
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- Oakley, Francis R.: See—
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- Obolentseva, Galina V.: See—
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- Oda, Goro, to Tokyo Shibaura Denki Kabushiki Kaisha. Apparatus for and method of cleaning a photo-sensitive body with cleaning blade brought gradually into contact with body. 4,364,660, Cl. 355-15.000.
- Ogan, Robert M., to Telex Computer Products, Inc. Reinkable ribbon cartridge. 4,364,678, Cl. 400-202.200.
- Ogawa, Hisashi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Webbing guide device. 4,364,583, Cl. 280-802.000.
- Ogawa, Yukio: See—
Mamiya, Toshiharu; Yamada, Tateo; Hirohata, Michio; Ogawa, Yukio; and Kimura, Hiroyuki, 4,364,649, Cl. 354-25.000.
- Ogita, Minoru; and Kimura, Shigenobu, to Nippon Gakki Seizo Kabushiki Kaisha. Radio receiver having phase locked loop and automatic frequency control loop for stably maintaining local oscillator frequency of voltage-controlled local oscillator. 4,365,349, Cl. 455-192.000.
- Ohdan, Kyoji: See—
Umemura, Sumio; Ohdan, Kyoji; Sakai, Fumihiko; Suzuki, Kenichi; Bando, Yasuo; Hogami, Toshihiko; and Fuginaga, Masataka, 4,364,844, Cl. 252-435.000.
- Ohkawa, Koue; Fujii, Shin; and Seino, Takashi, to Mitsui Toatsu Chemicals, Inc. Resin composition for bonding foundry sand. 4,365,047, Cl. 525-447.000.
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- Ohkubo, Kiyokazu: See—
Iizuka, Yoshitoku; and Ohkubo, Kiyokazu, 4,364,445, Cl. 180-70.00R.
- Ohkubo, Yutaka: See—
Fukuda, Shuzo; and Ohkubo, Yutaka, 4,364,328, Cl. 118-411.000.
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Higuchi, Noboru; Yano, Teruo; and Ohnishi, Masahiro, 4,364,760, Cl. 55-523.000.
- Ohniwa, Takehiko: See—
Senuma, Michio; Shimada, Fumio; Shigeta, Yoshihiro; Saito, Syuichi; Aizawa, Hiroshi; Ohniwa, Takehiko; and Canon Denshi Kabushiki Kaisha, 4,364,654, Cl. 354-234.000.
- Ohno, Akira; Katayama, Shitomi; Senaha, Susumu; Kyo, Suizo; and Akagami, Akira, to NHK Spring Co., Ltd.; and Yokohama Kiko Co., Ltd. Highly reflective plastic reflector with crystalline inorganic film coating. 4,364,637, Cl. 350-288.000.
- Ohno, Mutsuyuki, to Cho-Jirushi Plastics Industry Co., Ltd. Glass stand. 4,364,480, Cl. 211-85.000.
- Ohno, Syotaro: See—
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- Ohsawa, Mitsu; and Nakazawa, Hiroshi, to Sony Corporation. Record player. 4,365,326, Cl. 369-268.000.
- Ohta, Masafumi: See—
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Kanai, Tamaki; Yamaguchi, Takashi; Yoshikawa, Hirofumi; Suzuki, Kenji; and Ohta, Yoshikatsu, 4,364,885, Cl. 264-134.000.
- Ohtsu, Eiichi; and Shibata, Takanori, to Hitachi, Ltd. Automatic air-conditioning apparatus. 4,364,428, Cl. 165-11.00R.
- Ohtsuka, Katsuyuki; Ohuchi, Jin; and Takahashi, Yoshiharu, to Doryokuro Kakumenryo Kaihatsu Jigyodan. Method for producing oxide powder. 4,364,859, Cl. 252-643.000.
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- Oi, Tetsu; Takagi, Kazumasa; and Fukazawa, Tokumitsu, to Hitachi, Ltd. Scintillator with ZnWO₄ single crystal. 4,365,155, Cl. 378-49.000.
- Oja, Viktor; and Wikstrom, Sigvard, to Memoteknik AB. Heat transfer meter. 4,364,676, Cl. 374-44.000.
- Okada, Michio: See—
Tatsuwaki, Masao; Nemoto, Shin; Katayama, Yutaka; Okada, Michio; and Hotta, Kazuyuki, 4,365,307, Cl. 364-557.000.
- Okamoto, Eisaku: See—
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- Okamoto, Kouichi; Sakuyama, Masaki; and Kataoka, Kenji, to Mitsubishi Denki Kabushiki Kaisha. Device for draining cooling liquid from rotary electric machine with liquid cooled rotor. 4,364,241, Cl. 62-505.000.
- Okamoto, Takashi; and Doi, Osamu, to Unitika Ltd. Resin composition comprising water-soluble polyamide and vinyl alcohol-based polymer. 4,365,041, Cl. 525-58.000.
- Okamoto, Takeshi: See—
Minagawa, Shoichi; Okamoto, Takeshi; and Sakai, Takamasa, 4,365,216, Cl. 333-153.000.
- Okamoto, Yukio: See—
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- Okawa, Masahisa: See—
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- Okazaki, Hiroshi: See—
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- Okinoshima, Hiroshige: See—
Sato, Yasuhiko; Inomata, Hiroshi; and Okinoshima, Hiroshige, 4,364,809, Cl. 204-159.130.
- Okubo, Akio: See—
Kohno, Tadashi; Shimizu, Takahiko; Takahashi, Kenji; Fukui, Hishao; Okubo, Akio; and Masuda, Noriaki, 4,364,684, Cl. 401-264.000.
- Okuhara, Shinji, to Hitachi, Ltd. Semiconductor switch. 4,365,170, Cl. 307-252.00A.
- Okumura, Hajime: See—
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- Okuyama, Takeshi: See—
Mayumi, Masakatsu; Okuyama, Takeshi; and Mitooka, Kenji, 4,364,894, Cl. 264-334.000.
- Oliff, James R.: See—
Holley, John M., Jr.; and Oliff, James R., 4,364,509, Cl. 229-17.00B.
- O'Loughlin, James P., to United States of America, Air Force. Coaxial cable design. 4,365,109, Cl. 174-109.000.
- Olsen, Donald A.; and Boulanger, Henry J., to Texas Instruments Incorporated. Time delay relay with spring clips. 4,365,225, Cl. 337-88.000.
- Olson, Kenneth E.: See—
Katz, Daniel S.; and Olson, Kenneth E., 4,364,913, Cl. 423-365.000.
- Olson, Lloyd C.: See—
Cornelius, Gail; and Olson, Lloyd C., 4,364,524, Cl. 239-720.000.
- Olympus Optical Co., Ltd.: See—
Hayasaka, Toshimi, 4,364,630, Cl. 350-518.000.
- Terada, Katumi, 4,364,653, Cl. 354-203.000.
- Omnitech Inc.: See—
Laliberte, Albert J.; and Jerominek, Joseph L., 4,364,878, Cl. 264-2.200.
- Omori, Yukio: See—
Konishi, Sakuichi; Omori, Yukio; and Kataoka, Hiroyoshi, 4,365,043, Cl. 525-113.000.
- Onda, Yoshiro; Muto, Hiroaki; and Maruyama, Kazumasa, to Shin-Etsu Chemical Co. Ltd. Enterosoluble capsules. 4,365,060, Cl. 536-65.000.
- O'Neal, Russell D.; Leffert, Charles B.; Teichmann, Theodor; and Teitel, Robert J., to Texas Gas Transmission Corporation. Multi-step chemical and radiation process for the production of gas. 4,364,897, Cl. 376-148.000.
- O'Neill, John F.: See—
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- Onoda, Michio: See—
Muranaka, Shigeo; and Onoda, Michio, 4,364,259, Cl. 73-35.000.
- Onotera, Larry Y.: See—
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- Ooba, Yuji: See—
Ozawa, Masaru; Ooba, Yuji; and Shimizu, Toshio, 4,365,254, Cl. 346-1.100.
- Ookubo, Takao; Baba, Yuko; and Kamihama, Kiyoshi, to Nissan Motor Co., Ltd.; and Hashimoto Forming Kogyo Co., Ltd. Wheel cover for a vehicle. 4,364,608, Cl. 301-37.05S.
- Orbach, Zvi: See—
Ruhman, Smil; and Orbach, Zvi, 4,365,304, Cl. 364-515.000.
- Oridoroga, Valentin A.: See—
Yasnitsky, Boris G.; Tsukanova, Galina M.; Oridoroga, Valentin A.; Shalimov, Alexandr A.; Furmanov, Yuri A.; Silchenko, Valery P.; Shalimov, Sergei A.; Khadzhai, Yaroslav I.; Obolentseva, Galina V.; and Vorobiev, Nikolai E., 4,364,393, Cl. 128-335.500.
- Orino, Michio: See—
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- Oronzio de Nora Impianti Elettrochimici S.p.A.: See—
Nidola, Antonio; and Martelli, Gian N., 4,364,803, Cl. 204-30.000.

- Ortho Pharmaceutical Corporation: See—
Kung, Patrick C.; and Goldstein, Gideon, 4,364,932, Cl. 424-85.000.
- Kung, Patrick C.; and Goldstein, Gideon, 4,364,933, Cl. 424-85.000.
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- Osaka Rasenkan Kogyo Kabushiki Kaisha: See—
Koizumi, Chie, 4,364,252, Cl. 72-59.000.
- Oshima, Harumi, to Tokico Ltd. Retraction spring for disc brake pads. 4,364,455, Cl. 188-1.110.
- Oshima, Masabumi; Honda, Haruo; and Takahashi, Takeshi, to Hitachi, Ltd. Gas circuit breaker. 4,365,126, Cl. 200-144.0AP.
- Ostrum, James V.: See—
Weller, Kenneth G.; and Ostrum, James V., 4,364,476, Cl. 206-508.000.
- Oswald, Alexis A.; and Barnum, Harry W., to Exxon Research and Engineering Co. Overtreated higher dialkyl dimethyl ammonium clay gellants. 4,365,030, Cl. 523-508.000.
- Otey, Milton G.: See—
Jones, Robert L.; Otey, Milton G.; and Perkins, Roy W., 4,364,906, Cl. 423-19.000.
- Otsuka, Kazuo; Narasaka, Shin; and Hasegawa, Shumpei, to Honda Motor Co., Ltd. Control system for internal combustion engines, having function of detecting abnormalities in engine speed signal detecting system. 4,364,359, Cl. 123-440.000.
- Otsuka, Shigeru; and Kai, Tomokazu, to Nippon Electric Co., Ltd. Channel selecting system for use in a multi-channel mobile communication system. 4,365,347, Cl. 455-179.000.
- Ott, Clyde E. Status record system. 4,364,586, Cl. 283-55.000.
- Ott, James D., to Advanced Semiconductor Materials Die Bonding Inc. Object transport apparatus. 4,364,707, Cl. 414-744.00B.
- Otte, Gary, to Nissen Corporation. Emergency shut-off switch and frame assemblies for exercise apparatus. 4,364,556, Cl. 272-69.000.
- Owen, George, Jr.: See—
White, John M.; and Owen, George, Jr., 4,364,562, Cl. 273-26.00A.
- Owens-Corning Fiberglass Corporation: See—
Shannon, Richard F., 4,364,883, Cl. 264-60.000.
- Sullivan, Timothy A.; and Whitfield, James, Jr., 4,364,762, Cl. 65-2.000.
- Owens-Illinois, Inc.: See—
Farkas, Daniel S.; and Zabor, Eric R., 4,364,764, Cl. 65-29.000.
- Kontz, Robert F., 4,364,896, Cl. 264-513.000.
- Pirooz, Perry P., 4,365,021, Cl. 501-15.000.
- Oy Wartsila AB: See—
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- Ozawa, Masaru; Ooba, Yuji; and Shimizu, Toshio, to Nippon Telegraph and Telephone Public Corp. Two-color recording paper and method and recording apparatus utilizing the two-color recording paper. 4,365,254, Cl. 346-1.100.
- P.V. Trim Limited: See—
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- Paap, Hans J.: See—
Arnold, Dan M.; and Paap, Hans J., 4,365,154, Cl. 250-270.000.
- Pabst, Manfred: See—
Van Wersch, Kurt; and Pabst, Manfred, 4,364,784, Cl. 156-78.000.
- Pader, Morton, to Lever Brothers Company. Shampoo compositions comprising saccharides. 4,364,837, Cl. 252-173.000.
- Pagano, Victor H.; and Hennessey, John M., to United States of America, Army. Composite cored combat vehicle armor. 4,364,300, Cl. 89-36.00A.
- Pai, Yang-Kuang. Rotary parking structure for passenger cars. 4,364,703, Cl. 414-250.000.
- Paladino, Anthony, to Timberland Equipment Limited. Apparatus for planting seedlings. 4,364,316, Cl. 111-3.000.
- PAMCO Industries Corp.: See—
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- Pangle, Randy L. Body squeeze. 4,364,142, Cl. 15-117.000.
- Pap nee Imrenyi, Gabriella: See—
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- Papp, Gyula: See—
Takacs, Kalman; Kiss nee Ajzert, Ilona; Simay, Antal; Literati Nagy, Peter; Hetey nee Papp, Maria; Ecsery nee Puskas, Marian; Szekeres, Laszlo; Papp, Gyula; Viragh, Sandor; and Udvary, Eva, 4,365,064, Cl. 546-148.000.
- Pardue, Robert M.: See—
Arnold, Jones B.; Burlison, Robert R.; and Pardue, Robert M., 4,365,301, Cl. 364-475.000.
- Parker, Russell A. Photographic darkroom control system with timing means. 4,364,655, Cl. 354-299.000.
- Parkison, Richard G.; and Hofstetter, Edward G., Jr., to American Standard Inc. Flow control technique. 4,364,523, Cl. 239-533.140.
- Paro, Daniel, to Oy Wartsila AB. Lubrication system. 4,364,307, Cl. 92-157.000.
- Partridge, Alan H., to Duracell International Inc. Situ metal plating of the cathode terminal surface of an electrochemical cell. 4,364,800, Cl. 204-15.000.
- Pasternack, Adalbert: See—
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- Pasternack, Henry J.; and Keffer, Garry C., to ASI Systems, Inc. Automatic var controller. 4,365,190, Cl. 323-211.000.
- Patberg, John K.: See—
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- Pate, Harold T.: See—
Wozniak, Glenn A.; Rady, Robert R.; and Pate, Harold T., 4,364,292, Cl. 83-605.000.
- Patel Navin D.: See—
Nakhle, George D.; Bell, Cecil R.; Edwards, Arthur R.; Lathery, Willie M.; and Patel Navin D., 4,364,320, Cl. 112-262.200.
- Patel, Pinakin S.: See—
Maru, Hansraj C.; and Patel, Pinakin S., 4,365,007, Cl. 429-19.000.
- Pattison, Ian C., to Warner-Lambert Company. Diphenylpropanamines, compositions thereof and use thereof. 4,364,954, Cl. 424-267.000.
- Patzschke, Hans-Peter; and Gobel, Armin, to Herberts Gesellschaft mit beschränkter Haftung. Cathodically depositable aqueous electro-dipping lacquer coating composition. 4,364,860, Cl. 525-127.000.
- Pavlovich, John M.; and Nunan, Craig S., to General Electric Company. Tomographic apparatus and method for reconstructing planar slices from non-absorbed and non-scattered radiation. 4,365,339, Cl. 378-015.000.
- Pawloski, Chester E.; and Ginter, Sally P., to Dow Chemical Company, The. (Halo)(hydroxy)-substituted phosphites and phosphorates as flame retardants in polyurethane foams. 4,365,026, Cl. 521-168.000.
- Payton, Jay O.: See—
Payton, Kenneth J.; and Payton, Jay O., 4,364,411, Cl. 137-513.500.
- Payton, Kenneth J.; and Payton, Jay O. Liquid line thermal barrier. 4,364,411, Cl. 137-513.500.
- PCUK - Produits Chimiques Ugine Kuhlmann: See—
DeLavarenne, Serge Y.; and Tellier, Pierre, 4,365,100, Cl. 568-733.000.
- Peabody Process Systems, Inc.: See—
Willett, Howard P.; and Bakke, Even, 4,364,910, Cl. 423-242.000.
- Pearl, David R., to Gerber Garment Technology, Inc. Cutting apparatus with consumable marker. 4,364,330, Cl. 118-697.000.
- Pearson, Robert J.; and Buerger, Rodney G., to National Gypsum Company. Fire-resistant metal stud. 4,364,212, Cl. 52-281.000.
- Pedersen, S. Erik: See—
Teng, Harry H. I.; and Pedersen, S. Erik, 4,364,856, Cl. 252-437.000.
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Byrd, Norman R.; and Peek, Daniel C., 4,364,991, Cl. 428-265.000.
- Peiseler, Franz F. Apparatus for machining a number of workpieces with one tool. 4,364,204, Cl. 51-52.00R.
- Peisert, Joseph C.: See—
Fleming, Peter B.; Licht, Richard R.; and Peisert, Joseph C., 4,364,210, Cl. 52-221.000.
- Pellman, Marguerite, executrix: See—
Cork, Dale J.; and Pellman, Russell, deceased, 4,364,975, Cl. 427-294.000.
- Pellman, Russell, deceased: See—
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- Pennwalt Corporation: See—
McKellin, Wilbur H.; Mageli, Orville L.; and D'Angelo, Antonio J., 4,365,086, Cl. 562-512.000.
- Radice, Peter F., 4,365,283, Cl. 361-233.000.
- Pentel Kabushiki Kaisha: See—
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- Perfection Manufacturing Company, The: See—
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- Perkin-Elmer Corporation, The: See—
Bersin, Richard L.; and Clouser, William H., 4,364,413, Cl. 137-624.200.
- Hannah, Robert W.; Coates, John P.; Savitzky, Abraham; Ford, Michael A.; and Carter, Harry V., 4,365,303, Cl. 364-498.000.
- Perkins, Roy W.: See—
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- Perlstein, Jerome H.: See—
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- Persson, Nils C., to Inventor Invest AB. Container for decomposable material such as excrement. 4,364,130, Cl. 4-449.000.
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- Peters, Kenneth D.: See—
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- Peterson, Elmer R.: See—
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- Petersson, Lars H.: See—
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- Pulvari, Charles F. Efficient method and apparatus for converting solar energy to electrical energy. 4,365,106, Cl. 136-206.000.
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Eheim, Franz; and Hofer, Gerald, 4,364,360, Cl. 123-450.000.
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- Roellinghoff, Jürgen: See—
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- Roethlein, Richard J.: See—
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- Rogachev, Evgeny P.: See—
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Traut, G. Robert, 4,364,884, Cl. 264-118.000.
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- Rogers, Douglas K., to Diamond Shamrock Corporation. Gas electrode shutdown procedure. 4,364,806, Cl. 204-98.000.
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- Rothwell, Kenneth G.: See—
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- Rotron Incorporated: See—
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- Rouxel, Jean J.: See—
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- Rudolph, Siegfried, to Schreiber-Klaranlagen Dr. Ing. Aug. Schreiber GmbH & Co. KG. Bottom suspension arrangement for a liquid screw conveyor assembly. 4,364,469, Cl. 198-616.000.
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- Rufkahr, Ben R.: See—
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- Ruhman, Smil; and Orbach, Zvi, to Yeda Research & Development Co., Ltd. Method and apparatus for on-line data enhancement. 4,365,304, Cl. 364-515.000.
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- Rundell, Herbert A., to Texaco Inc. Sensitive heavy duty dynamic torque measurement coupling unit and meter. 4,364,277, Cl. 73-862.340.
- Rushworth, Norman, to Plastex (Bradford) Limited. Faller bars. 4,364,154, Cl. 19-129.00R.
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- Rutherford, David B., Jr.: See—
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- Rutishauser Data AG: See—
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- Rutishauser, Ernst A. O., to RCA Corporation. Dual standard vertical deflection system. 4,365,270, Cl. 358-140.000.
- Rutishauser, Thomas, to Rutishauser Data AG. Transportation device for sheet-like recording carriers. 4,364,551, Cl. 271-121.000.
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- Sack, Wieland; Anthonen, Reiner; and Kertesz, Ferenc, to Felix Schöeller, Jr. GmbH & Co. Waterproof photographic paper and method of producing same. 4,364,971, Cl. 427-44.000.
- Sadamatsu, Shigeru: See—
Takenouchi, Mutsuo; and Sadamatsu, Shigeru, 4,365,274, Cl. 358-293.000.
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Tokuyama, Mitsuru; Ohki, Kenji; Sagae, Masayuki; and Tsujii, Kaoru, 4,364,985, Cl. 428-149.000.
- Sage, Larry: See—
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- Saggese, Vincent A. Slotted concrete pipe. 4,364,891, Cl. 264-263.000.
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- Saito, Tetsuo, to Tokico Ltd. Vehicle height adjusting apparatus. 4,364,574, Cl. 280-6.00R.
- Saitoh, Kazuo: See—
Tabata, Hideyo; Kuwahara, Yoshitaka; Machida, Michihide; Kume, Shyoichi; Iga, Takeo; Saitoh, Kazuo; and Tomura, Shinji, 4,365,022, Cl. 501-97.000.
- Sakabe, Kazuyuki: See—
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- Sakaguchi, Takumi: See—
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- Sakai, Fumihiko: See—
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- Sakai, Kiyoshi; Hashimoto, Mitsuru; Ohta, Masafumi; and Sasaki, Masao, to Ricoh Company, Limited. Electrophotographic photoconductor. 4,365,014, Cl. 430-59.000.
- Sakai, Kunitaka: See—
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- Sakai, Takamasa: See—
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- Sakai, Teruo: See—
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- Sakiyama, Michio: See—
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- Sakuma, Shinzo; and Warabi, Junichi, to Kabushiki Kaishi Meidensha; and Kabushiki Kaisha GemVac. Vacuum power interrupter. 4,365,127, Cl. 200-144.00B.
- Sakurada, Nobuaki: See—
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- Sakuyama, Masaki: See—
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- Salama, Amir, to Northern Telecom Limited. Method of an apparatus for selectively surface-treating preselected areas on a body. 4,364,801, Cl. 204-15.000.
- Sam, Doris L. Combination sun shade and article carry-all. 4,364,123, Cl. 2-209.100.
- Samford, Travis L. Safety joint. 4,364,587, Cl. 285-3.000.
- Sando Iron Works Co., Ltd.: See—
Sando, Yoshikazu; and Ishidoshiro, Hiroshi, 4,364,248, Cl. 68-5.00E.
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- Sankoorikal, Varghese L.; and Holmes, Keith D., Jr., to Burroughs Wellcome Co. High pressure liquid chromatographic system. 4,364,263, Cl. 73-61.10C.
- Sankyo Company Limited: See—
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- Sano, Mitsuharu: See—
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- Santilli, Donald S., to Chevron Research Company. Fibrous clay mixtures. 4,364,857, Cl. 252-455.00R.
- Sanyo Electric Co., Ltd.: See—
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- Tsujita, Kaoru; Tobioka, Sigeki; and Monden, Ikuo, 4,365,265, Cl. 358-29.000.
- Sanzey, Emile: See—
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- Sardo, Alberto, to Xeda International S.A. Automatic machine for sorting out round, oval or flat fruit in accordance with their diameter. 4,364,479, Cl. 209-668.000.
- Sarumaru, Kohei: See—
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- Sasaki, Toshio: See—
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- Sasaya, Hideaki: See—
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- Sasmor, Ernest J.; and Rothwell, Kenneth G., to Purdue Frederick Company, The. Germicidal colloidal lubricating gels and method of producing the same. 4,364,929, Cl. 424-80.000.
- Sassi, Carlo; and Vicini, Antonio, to Industrie Pirelli S.p.A. Individual gauge for the microclimate index. 4,364,398, Cl. 128-736.000.
- Sato, Isao: See—
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- Sato, Yasuhiko; Inomata, Hiroshi; and Okinoshima, Hiroshige, to Shin-Etsu Chemical Co., Ltd. Method for preparing cured rubbery products of organopolysiloxanes. 4,364,809, Cl. 204-159.130.
- Sato, Yo, to Kabushiki Kaisha Sato. Bar code printing device. 4,364,312, Cl. 101-110.000.
- Sato, Yoshio; and Matsumoto, Minoru, to Kabushiki Kaisha Komatsu Seisakusho. Suspension apparatus for track-type vehicles. 4,364,443, Cl. 180-9.500.
- Saussine, Lucien: See—
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- Sauvanet, Maurice, to Thomson-CSF. Process and device for phasing a local clock. 4,365,329, Cl. 370-100.000.
- Savin Corporation: See—
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- Savino, Dominick J. Variable closure surgical stapling apparatus with retractable anvil. 4,364,507, Cl. 227-83.000.
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- Schaaf, Thomas K.: See—
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- Schering Aktiengesellschaft: See—
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- Speck, Ulrich; Blaszkiewicz, Peter; Seidelmann, Dieter; and Klieger, Erich, 4,364,921, Cl. 424-5.000.
- Schering Corporation: See—
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- Leibowitz, Paul; and Weinstein, Marvin J., 4,364,863, Cl. 260-112.00R.
- Schiler, Frederick S.; and Young, Gary D., to Portage Machine Company. Statically balanced inspection probe assembly. 4,364,179, Cl. 33-174.00L.
- Schilling, Walter W., to MacMillan Bloedel Limited. Rotating disc splitter. 4,364,423, Cl. 144-366.000.
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- Schippers, Heinz; Branscheid, Werner; Lenk, Erich; and Hardt, Udo, to Barmag Barmer Maschinenfabrik AG. Exhaust gas turbocharger. 4,364,717, Cl. 417-407.000.
- Schjeldahl, Gilmore T., to Cathedryne Corporation. Surgical pumping operation. 4,364,716, Cl. 417-394.000.
- Schlemmer, Roy G.: See—
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- Schlumberger, Stephanie F.; and Rayburn, Donald H. Ski lift for children. 4,364,575, Cl. 280-19.000.
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Schmidt, Hans, to Componentes Electronicos, S.A. Methods for mounting connection wires on a solid electrolyte capacitor. 4,364,163, Cl. 29-570.000.

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Shapcott, Nigel G., 4,364,580, Cl. 280-266.000.

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Schwan, Herbert A.: See—

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Scintrex Limited: See—

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Longrod, Scott J.; and DuRoss, Robert M., 4,364,682, Cl. 400-477.000.

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Seibold, Herbert: See—

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Seidemann, Dieter: See—

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Senaha, Susumu: See—

Ohno, Akira; Katayama, Shitomi; Senaha, Susumu; Kyo, Suizo; and Akagami, Akira, 4,364,637, Cl. 350-288.000.

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Senyek, Michael L.; and Costanza, Albert J., to Goodyear Tire & Rubber Company, The. Removal of acrylonitrile from latex with oximes. 4,365,027, Cl. 523-332.000.

Serati, Ronald A., to Perfection Manufacturing Company, The. Work control apparatus in an exerciser. 4,364,557, Cl. 272-73.000.

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Leep, Gus W.; and Root, Morris J., 4,365,028, Cl. 523-402.000.

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Hammill, S. Scott, 4,364,623, Cl. 339-126.00RS.

Shacket, Sheldon R. Method of operating ferrous toy. 4,364,196, Cl. 46-242.000.

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Shafer, Philip E.: See—

Barnes, George H.; Lundstrom, Stephen F.; and Shafer, Philip E., 4,365,292, Cl. 364-200.000.

Shaffer, Jacob E., Jr.: See—

Cooper, Kenneth W.; and Shaffer, Jacob E., Jr., 4,364,237, Cl. 62-160.000.

Shakhov, Vladimir V.: See—

Gorbatov, Vasily M.; Spirin, Evgeny T.; Shakhov, Vladimir V.; Vagin, Viktor V.; Khromov, Vyacheslav I.; Bogushev, Zimel A.; Eremin, Viktor I.; Vainzof, Kaletta M.; and Podkhvatilin, Evgeny R., 4,364,309, Cl. 99-352.000.

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Weller, Kenneth G.; and Ostrum, James V., 4,364,476, Cl. 206-508.000.

Shannon, Richard F., to Owens-Corning Fiberglass Corporation. Ceramic products and method of drying same. 4,364,883, Cl. 264-60.000.

Shapcott, Nigel G., to School of Bioengineering and Biophysics of the University of Dundee, The. Wheelchair. 4,364,580, Cl. 280-266.000.

Sharp, Joseph F.; Sutter, Ormond S.; and Cornwell, Philip W., to Lok Products Company. Locking device for grid system. 4,364,686, Cl. 403-347.000.

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Yamauchi, Yutaka, 4,365,107, Cl. 136-258.000.

Yasuda, Shuhei; Ishii, Yutaka; and Wada, Tomio, 4,365,242, Cl. 340-709.000.

Sharpe, Donald E., to Automation Industries, Inc. Ultrasonic inspection with back echo monitoring. 4,364,274, Cl. 73-615.000.

Shaw, Robert F. Surgical instrument having self-regulating dielectric heating of its cutting edge and method of using the same. 4,364,390, Cl. 128-303.100.

Sheinbaum, Itzhak. Flowing geothermal wells and heat recovery systems. 4,364,232, Cl. 60-641.200.

Shell Internationale Research Maatschappij B.V.: See—

Saidi, Ali M.; and Hesselink, Frans T., 4,364,431, Cl. 166-275.000.

Shelley, Lawrence E., to Goodyear Tire & Rubber Company, The. Process for charging dry terephthalic acid into a reactor. 4,365,078, Cl. 560-94.000.

Sheppard, Timothy J.: See—

Smith, Anthony J.; and Sheppard, Timothy J., 4,365,334, Cl. 371-27.000.

Sher, Jay H.; and Cranin, A. Norman. Surgical clamp and drill-guiding instrument. 4,364,381, Cl. 128-92.00E.

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Pompei, Arturo; Raymond, John M.; and Sherotsky, George D., 4,364,533, Cl. 244-129.300.

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Kadowaki, Koju; Sarumaru, Kohei; and Shibano, Takeshi, 4,365,087, Cl. 562-534.000.

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Shiber, Samuel, to Timetz, Ltd. Automotive energy managing transmission. 4,364,229, Cl. 60-414.000.

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Shields, Michael P. Ski pole. 4,364,585, Cl. 280-814.000.

Shiga, Akinobu; Fukui, Yoshiharu; Sasaki, Toshio; Okawa, Masahisa; Matsu-Ura, Hideaki; and Yamada, Yasuharu, to Sumitomo Chemical Company, Limited. Process for producing olefin polymers. 4,364,851, Cl. 252-429.00B.

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Shikata, Makoto; and Matsui, Fujio, to Fuji Jukogyo Kabushiki Kaisha; and Nissan Motor Co., Ltd. Air-fuel ratio control system. 4,364,358, Cl. 123-440.000.

Shillady, Robert W., to American Electronic Laboratories, Inc. Semiconductor mounting and matching assembly. 4,365,214, Cl. 333-33.000.

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Shimizu, Hirokazu: See—

Sugino, Takashi; Shimizu, Hirokazu; Wada, Masaru; and Itoh, Kunio, 4,365,336, Cl. 372-45.000.

Shimizu, Michimasa: See—

Ueno, Haruo; Yano, Tetsufumi; Inoue, Tokuji; Ikai, Shigeru; Kai, Yoshiyuki; and Shimizu, Michimasa, 4,365,048, Cl. 526-128.000.

Shimizu, Noboru; Yoshida, Hiroshi; Daigo, Hiromiki; Matumoto, Shiyouchi; and Uchino, Hiroyoshi, to Nippon Shokubai Kagaku Kogyo Co. Ltd. Process for producing 2-hydroxyalkyl acrylates or methacrylates. 4,365,081, Cl. 560-209.000.

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Kohno, Tadashi; Shimizu, Takahiko; Takahashi, Kenji; Fukui, Hishao; Okubo, Akio; and Masuda, Noriaki, 4,364,684, Cl. 401-264.000.

Shimizu, Toshio: See—

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Shimizu, Yasushi: See—

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Takizawa, Yoshiyuki; Kashiwazaki, Takashi; Shimoda, Koji; and Kuriyama, Kazumi, 4,365,278, Cl. 360-73.000.

Shin-Etsu Chemical Co., Ltd.: See—

Imada, Kiyoshi; Abe, Tokuji; and Ueno, Susumu, 4,364,970, Cl. 427-40.000.

Onda, Yoshiro; Muto, Hiroaki; and Maruyama, Kazumasa, 4,365,060, Cl. 536-65.000.

Sato, Yasuhiko; Inomata, Hiroshi; and Okinoshima, Hiroshige, 4,364,809, Cl. 204-159.130.

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Shiohara, Masakazu, to Yamaha Hatsudoki Kabushiki Kaisha. Exhaust timing control device for a two-cycle engine. 4,364,346, Cl. 123-323.000.

Shiota, Kazuo: See—

Terashita, Takaaki; Shiota, Kazuo; and Nakauchi, Kenji, 4,364,650, Cl. 354-31.000.

Shiozaki, Yasumi: See—

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Shirai, Susumu: See—

Yuasa, Yoshio; Kisanuki, Toru; and Shirai, Susumu, 4,364,662, Cl. 356-225.000.

Shirasaki, Shinji: See—

Tsuzuki, Yoshihiko; Hirabayashi, Yuzi; Shirasaki, Shinji; Matsuyama, Masahiro; and Okazaki, Hiroshi, 4,364,513, Cl. 236-49.000.

Shirley, Roger D.: See—

Lower, Ralph C.; and Shirley, Roger D., 4,364,236, Cl. 62-77.000.

Shive, Stewart S., Jr., to Filbert, Janice R. Smock gathering apparatus. 4,364,494, Cl. 223-28.000.

Shoup, Kenneth E. Foldable implement frame and hitch. 4,364,581, Cl. 280-411.00A.

Shumaker, John F., to J. I. Case Company. Loader mechanism. 4,364,705, Cl. 414-713.000.

SIA, Schweizer Schmirgel- u. Schliel-Industrie AG: See—

Bitzer, Diethelm; Kramis, Jost; and Ackermann, Jakob, 4,364,746, Cl. 51-298.000.

Sibley, Henry C., to General Signal Corporation. Vital contact isolation circuit. 4,365,164, Cl. 250-551.000.

Sibley, Henry C.; and Rutherford, David B., Jr., to General Signal Corporation. Speed control systems for governing the speed of a vehicle. 4,365,298, Cl. 364-426.000.

Sich, Edward M.: See—

Chaput, Guy J.; and Sich, Edward M., 4,365,168, Cl. 307-115.000.

Siegle, Martin: See—

Gillesen, Klaus; Rinderle, Heinz; Schairer, Werner; Siegle, Martin; and Malinowski, Christoph, 4,365,244, Cl. 340-782.000.

Siemens Aktiengesellschaft: See—

Dornheim, Hans-Peter, 4,365,344, Cl. 378-189.000.

Haendle, Joerg, 4,365,269, Cl. 358-111.000.

Heinzl, Alfred; and Stadler, Heinz, 4,364,270, Cl. 73-298.000.

Klauecker, Karl; and Muller, Manfred, 4,365,286, Cl. 363-58.000.

Kruger, Hans; and Walter, Karl-Heinz, 4,364,640, Cl. 350-345.000.

Mascher, Karl, 4,365,128, Cl. 200-148.00F.

Reeh, Ulrike; and Denk, Hans, 4,365,052, Cl. 528-92.000.

Siffroi, Lucien: See—

Fechant, Louis J. M.; Siffroi, Lucien; and Anguille, Jean M., 4,365,223, Cl. 335-281.000.

SIG - Schweizerische Industrie-Gesellschaft: See—

Tuns, Heinz-Joseph, 4,364,478, Cl. 206-605.000.

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Eck, Herbert; and Singer, Robert, 4,365,040, Cl. 524-819.000.

Sinha, Ashok K.: See—

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Sinniger, Joseph O., to RCA Corporation. Duty cycle generator with improved resolution. 4,365,202, Cl. 328-58.000.

Sipido, Victor, to Janssen Pharmaceutica N.V. 2,3-Dihydro-imidazo (2,1-b)benzothiazoles compositions useful as anti-parkinsonism agents. 4,364,942, Cl. 424-245.000.

Sipos, Tibor; and Motkowski, Henry F., Jr., to Johnson & Johnson Products, Inc. Sulfonated naphthalene formaldehyde condensation polymers as dental plaque barriers. 4,364,927, Cl. 424-56.000.

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Gander, Robert J.; Buck, Carl J.; and Sipos, Tibor, 4,364,924, Cl. 424-49.000.

Skala, Stephen F. Self starting of internal combustion engines based on reactor. 4,364,336, Cl. 123-1.00A.

SKF Nova AB: See—

Nilsson, Sven W., 4,364,282, Cl. 74-424.80A.

Skiba, Edwin J.: See—

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- Slesarev, Boris A.: See—
Tarasov, Nikolai M.; Varukha, Nikolai A.; Brontman, Rostislav L.; Slesarev, Boris A.; Zhukov, Anatoly M.; Mizik, Valery V.; Rogachev, Evgeny P.; and Gurnov, Nikolai I., 4,365,137, Cl. 219-137.310.
- Small, James E.; and David, Mark E., to Emhart Industries, Inc. Method and control system for controlling apparatus. 4,365,289, Cl. 364-143.000.
- Smilgys, Bruno S., to Veeder Root Industries Inc. Rotary drive anti-backlash device. 4,365,146, Cl. 235-131.00R.
- Smilgys, Bruno S.: See—
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- Smith, Anthony J.; and Sheppard, Timothy J., to Racal Automation Limited. Electrical testing apparatus and methods. 4,365,334, Cl. 371-27.000.
- Smith, Byron D.; and Erickson, Terrence J. Method and apparatus for supplying fluid to an internal combustion engine. 4,364,370, Cl. 123-575.000.
- Smith, Frederic W., to Walker Scientific, Inc. Magnetic field hemostasis. 4,364,377, Cl. 128-1.500.
- Smith, Michael V. B., to Engineering Management Services Limited. Method of refrigeration and a refrigeration system. 4,364,242, Cl. 62-99.000.
- Smith, Stephen W.: See—
Seaholm, Reuel A.; and Smith, Stephen W., 4,364,203, Cl. 49-409.000.
- Smith, W. Novis, Jr.; and Bolton, Nelson P., to Advanced Glass Systems Corp. Process for making safety glass laminates subject to nonsymmetrical thermal stress. 4,364,786, Cl. 156-99.000.
- Smith, William V. Integrally constructed poultry nesting housing for automatically collecting eggs. 4,364,332, Cl. 119-48.000.
- Snow, Robert E., to International Minerals & Chemical Corp. Flotation of phosphate ores containing dolomite. 4,364,824, Cl. 209-167.000.
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Bargeton, Gilbert L.; and Beynie, Claude P., 4,365,247, Cl. 340-825.010.
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- Societe d'Etudes Industrielles de Villejuif, Seiv Automation: See—
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- Societe Francaise d'Electrometallurgie SOFREM: See—
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- Societe Generale de Canalisations Sogecan: See—
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- Societe Nationale Industrielle Aerospatiale: See—
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- Societe Suisse pour l'Industrie Horlogere Management Services S.A.: See—
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- Perotto, Jean-Felix; and Piguot, Christian, 4,365,243, Cl. 340-712.000.
- Soderbaum, Carl U.: See—
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- Soetaert, Guy: See—
Debret, Alain; and Soetaert, Guy, 4,364,149, Cl. 16-87.00R.
- Solvay & Cie: See—
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- Soma, Hiroshi; Iyobe, Makoto; Iijima, Takekazu; and Moriyama, Yutaka, to Pioneer Electronic Corporation. Speaker unit for automotive vehicles. 4,365,113, Cl. 179-1.00E.
- Soma, Hiroshi, to Pioneer Electronic Corporation. Automotive loud-speaker having variable speaker orientation and particular electrical connections. 4,365,114, Cl. 179-1.0VE.
- Sony Corporation: See—
Menezes, William A.; and Kuper, Douglas D., 4,365,313, Cl. 364-900.000.
- Ohsawa, Mitsuo; and Nakazawa, Hiroshi, 4,365,326, Cl. 369-268.000.
- Sorensen, Eugene R.: See—
Louis, Paul R.; Sorensen, Eugene R.; and Ballard, Thomas R., 4,364,723, Cl. 425-384.000.
- Sorensen, Ronald J., to Belden Corporation. Wire stripper apparatus. 4,364,289, Cl. 81-9.510.
- Sowden, Terence D. Method for connecting together a plurality of webs of flexible material. 4,364,737, Cl. 493-346.000.
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- Speck, Ulrich; Blaszkiewicz, Peter; Seidelmann, Dieter; and Klieger, Erich, to Schering, Aktiengesellschaft. Novel triiodinated isophthalic acid diamides as nonionic X-ray contrast media. 4,364,921, Cl. 424-5.000.
- Sperry Corporation: See—
McVicker, Harry J., 4,364,148, Cl. 16-32.000.
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- SPS Technologies, Inc.: See—
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- Stabley, Bernard D., Jr., to Firestone Tire & Rubber Company, The. Ethylene glycol terephthalate production. 4,365,054, Cl. 528-277.000.
- Stading, Russell C., to Marison Company, The. Method of fabricating a high pressure tank. 4,364,161, Cl. 29-407.000.
- Stadler, Donald A.: See—
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- Stafford, David F., to Marinkonsult Hans Lundberg AG. Energy dissipating ball tee. 4,364,563, Cl. 273-26.00R.
- Stamp, Donald F., to Electric Furnace Company, The. Continuous strip preheat furnace and method of operation. 4,364,728, Cl. 432-8.000.
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- Standard Oil Company, The: See—
Bremer, Noel J.; Dria, Dennis E.; and Weber, Andrew M., 4,365,069, Cl. 549-260.000.
- Teng, Harry H. I.; and Pedersen, S. Erik, 4,364,856, Cl. 252-437.000.
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- Schneider, Abraham; Khelghatian, Habet M.; Hague, Louise D.; and Jezl, James L., 4,365,045, Cl. 525-247.000.
- Weil, Thomas A., 4,364,745, Cl. 48-209.000.
- Standun, Inc.: See—
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- Stang, John H., to Cummins Engine Company, Inc. Fluid engine. 4,364,233, Cl. 60-712.000.
- Stankowitz, James L. Texture applicator. 4,364,521, Cl. 239-346.000.
- Stapel, Wilhelm: See—
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- Star Seimitsu Kabushiki Kaisha: See—
Maeda, Katsumi, 4,364,680, Cl. 400-220.100.
- Stark, Virgil, to North American Construction Utility Corp. Apparatus for collecting solar energy at high altitudes and on floating structures. 4,364,532, Cl. 244-30.000.
- Starkovich, John A., to United States of America, Army. Aqueous oxidative scrubber systems for removal of mercury. 4,364,775, Cl. 134-3.000.
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- Stauffer Chemical Company: See—
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- Steiger, Emile. Method and apparatus for contacting work surfaces with liquids. 4,364,799, Cl. 204-15.000.
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Mongeon, Ronald W., 4,365,239, Cl. 340-564.000.
- Sterling Drug Inc.: See—
Leshner, George Y.; and Philion, Richard E., 4,365,065, Cl. 546-334.000.
- Stern, Harry; and Airesman, Charles, to Allegany Technology, Inc. Shear beam load cell system. 4,364,279, Cl. 73-862.660.

- Stevenson, William D., to Vickers Limited. Vertical stressed mooring tether in a floating oil platform. 4,364,323, Cl. 114-265.000.
- Stewart, Lamar H.: See—
Beck, Boyd R.; Stewart, Lamar H.; Tapp, Steven; Anderson, Don L., Jr.; and Nuffer, Daniel E., 4,364,797, Cl. 202-181.000.
- Stich, Willi L. Musical instrument sound pickup and method of assembly thereof. 4,364,295, Cl. 84-1.150.
- Stief, Horst. Slide-screen for back projection. 4,364,635, Cl. 350-125.000.
- Stiefel, Peter: See—
Wissmann, Michael; and Stiefel, Peter, 4,364,362, Cl. 123-454.000.
- Stil Sun Oil, Inc.: See—
Beck, Boyd R.; Stewart, Lamar H.; Tapp, Steven; Anderson, Don L., Jr.; and Nuffer, Daniel E., 4,364,797, Cl. 202-181.000.
- Stock, Gunter: See—
von Ropenack, Adolf; Stock, Gunter; and Heubner, Ulrich, 4,364,807, Cl. 204-114.000.
- Stocken, Richard A., to Nizdorf Computer Corporation. Modular terminal system using a common bus. 4,365,294, Cl. 364-200.000.
- Stokes, Jimmy L.: See—
Greenway, John M.; and Stokes, Jimmy L., 4,364,156, Cl. 26-2.00R.
- Stolle Corporation, The: See—
Byrd, James I., 4,364,255, Cl. 72-345.000.
- Storage Technology Corporation: See—
Ruether, Peter G.; and O'Neill, John F., 4,365,112, Cl. 179-1.0SC.
- Strassel, Albert, to Chimiques Ugine Kuhlmann. Process for the manufacture of polyvinylidene fluoride-incompatible polymer laminates. 4,364,886, Cl. 264-171.000.
- Straus, Josef: See—
Sinclair, William J.; Straus, Josef; and Garel-Jones, Philip M., 4,364,639, Cl. 350-331.00R.
- Streight, William E.: See—
Gardner, Chester S.; and Streight, William E., 4,364,663, Cl. 356-371.000.
- Stroh, Artur: See—
Diehl, Erwin; Muller, Wolfgang; and Stroh, Artur, 4,364,978, Cl. 427-433.000.
- Stromberg, Per S. Plastics fish box. 4,364,477, Cl. 206-511.000.
- Stroppel, Karl-Gunter: See—
Schulz, Siegfried; Stroppel, Karl-Gunter; and Meckel, Bernd, 4,364,240, Cl. 62-476.000.
- Strother, Charles M.; and Kudva, Balakrishna V., to Wisconsin Alumni Research Foundation. Detachable balloon catheter. 4,364,392, Cl. 128-325.000.
- Subramaniam, Anand, to Cooper Industries, Inc. Air-fuel ratio controller. 4,364,364, Cl. 123-527.000.
- Suematsu, Toshio: See—
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- Sueyoshi, Toshinobu: See—
Andoh, Haruo; Kitaoka, Susumu; Sueyoshi, Toshinobu; Ishida, Hikaru; and Kato, Akira, 4,364,988, Cl. 428-212.000.
- Sugimoto, Osamu: See—
Hayashi, Yukichi; Tamura, Masauki; Sugimoto, Osamu; Takizawa, Masayoshi; Nishioka, Tatsujiro; Akagawa, Masaki; and Yokohda, Yutaka, 4,364,404, Cl. 133-4.00A.
- Sugino, Takashi; Shimizu, Hirokazu; Wada, Masaru; and Itoh, Kunio, to Matsushita Electric Industrial Co., Ltd. Terraced substrate semiconductor laser. 4,365,336, Cl. 372-45.000.
- Sugiyama, Hiroshige, to Toyo Boseki Kabushiki Kaisha. Synthetic fibers having down/feather-like characteristics and suitable for wadding. 4,364,996, Cl. 428-369.000.
- Sulkowski, Theodore S.; Bergey, James L.; and Mascitti, Albert A., to American Home Products Corporation. Antihypertensive agents. 4,365,063, Cl. 546-123.000.
- Sullivan, Ann C.: See—
Guthrie, Robert W.; Kierstead, Richard W.; Mennona, Francis A.; and Sullivan, Ann C., 4,365,070, Cl. 549-263.000.
- Sullivan, Timothy A.; and Whitfield, James, Jr., to Owens-Corning Fiberglass Corporation. Mineral fiber forming. 4,364,762, Cl. 65-2.000.
- Sulzer Morat GmbH: See—
Kunde, Klaus, 4,364,243, Cl. 66-9.00B.
- Leins, Eberhard; Walter, Manfred; and Gaiser, Willi, 4,364,245, Cl. 66-78.000.
- Leins, Eberhard; Walter, Manfred; and Gaiser, Willi, 4,364,246, Cl. 66-145.00R.
- Sumida, Kunio A. Air operated reciprocating tool. 4,364,303, Cl. 91-329.000.
- Sumitomo Aluminium Smelting Company, Limited: See—
Yamada, Koichi; Harato, Takuo; Kato, Hisakatsu; and Shiozaki, Yasumi, 4,364,919, Cl. 423-629.000.
- Sumitomo Chemical Company, Limited: See—
Saito, Shinichi; Aikawa, Kazuo; Orino, Michio; Aoi, Kazuya; and Kusakabe, Hideo, 4,365,057, Cl. 528-503.000.
- Shiga, Akinobu; Fukui, Yoshiharu; Sasaki, Toshio; Okawa, Masahisa; Matsu-Ura, Hideaki; and Yamada, Yasuharu, 4,364,851, Cl. 252-429.00B.
- Takenaka Masaaki; Takahashi, Tsutomu; and Momobayashi, Tatsu, 4,365,091, Cl. 564-127.000.
- Sumitomo Kinzoku Kogyo Kabushiki Kaisha: See—
Tatsuwaki, Masao; Nemoto, Shin; Katayama, Yutaka; Okada, Michio; and Hotta, Kazuyuki, 4,365,307, Cl. 364-557.000.
- Sunbeam Corporation: See—
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- Sundeen, Arthur R.: See—
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- Sunder-Plassmann, Paul, to Chemische Werke Huls AG. Process for producing 2-(C₁ to C₃ alkyl)-Δ²-oxazoline copolymers. 4,365,056, Cl. 528-403.000.
- Sutter, Ormond S.: See—
Sharp, Joseph F.; Sutter, Ormond S.; and Cornwell, Philip W., 4,364,686, Cl. 403-347.000.
- Suzuki, Kenichi: See—
Umemura, Sumio; Ohdan, Kyoji; Sakai, Fumihiko; Suzuki, Kenichi; Bando, Yasuo; Hogami, Toshihiko; and Fuginaga, Masataka, 4,364,844, Cl. 252-435.000.
- Suzuki, Kenji: See—
Kanai, Tamaki; Yamaguchi, Takashi; Yoshikawa, Hirofumi; Suzuki, Kenji; and Ohta, Yoshikatsu, 4,364,885, Cl. 264-134.000.
- Suzuki, Mituo: See—
Matsuoka, Shigeru; Tokunaga, Takeshi; Yonekura, Seiji; Suzuki, Mituo; and Nakamura, Kenji, 4,365,250, Cl. 340-825.320.
- Svatek, Katherine H.; Wilson, David A.; and Griffin, Freddie, Jr., to Dow Chemical Company, The. Process for making aminopolycarboxylic acid chelates of iron. 4,364,871, Cl. 260-439.00R.
- Svenska Rayon AB: See—
Treiber, Erich E.; Ehrengard, Dag E.; and Lidbrandt, Owe S., 4,364,890, Cl. 264-191.000.
- Sweco, Incorporated: See—
LaMar, Stephen R., 4,364,275, Cl. 73-649.000.
- Swift, Harold E.: See—
Marcelin, George; Vogel, Roger F.; and Swift, Harold E., 4,365,095, Cl. 568-462.000.
- Syaroto, Louis W.; and Zimmerman, Sanford S. Edge finishing machine. 4,364,696, Cl. 409-138.000.
- Synowicki, Walter. Jewelry clasp. 4,364,155, Cl. 24-217.00R.
- Sytek Corporation: See—
Biba, Kenneth J.; and Picazo, Jose J., Jr., 4,365,331, Cl. 370-124.000.
- Szantay, Csaba; Novak, Lajos; Toth, Miklos; Jakab, Jozsef; Kis-tamas, Attila; and Ujvari, Istvan, to Egyt Gyogyszervegyeszeti Gyar. Composite insect attractant for male white-line dart moths and a process for preparing the active ingredients thereof. 4,364,931, Cl. 424-84.000.
- Szarka, David D., to Halliburton Company. Anchor positioner assembly. 4,364,430, Cl. 166-214.000.
- Szejtli, Jozsef; Budai, Zsuzsanna; Pap nee Imrenyi, Gabriella; and Kerekes, Andras, to Chinoiin Gyogyszer es Vegyeszeti Termekek Gyara R.T. Inclusion complexes of cyclodextrins and strong inorganic oxy-acids and process for their preparation. 4,365,061, Cl. 536-103.000.
- Szekeres, Laszlo: See—
Takacs, Kalman; Kiss nee Ajzert, Ilona; Simay, Antal; Literati Nagy, Peter; Hetey nee Papp, Maria; Ecsery nee Puskas, Marian; Szekeres, Laszlo; Papp, Gyula; Viragh, Sandor; and Udvardy, Eva, 4,365,064, Cl. 546-148.000.
- Szuchy, Nicholas C.: See—
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- Szvoboda, Gyorgy: See—
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- Tabata, Hideyo; Kuwahara, Yoshitaka; Machida, Michihide; Kume, Shoyichi; Iga, Takeo; Saitoh, Kazuo; and Tomura, Shinji, to Agency of Industrial Science & Technology, and Ministry of International Trade & Industry. Method for manufacture of high-strength sintered article of substances having β-silicon nitride type crystal structure. 4,365,022, Cl. 501-97.000.
- Tabata, Toshio, to Pioneer Electronic Corporation. Line monitoring device in two-way data communication system. 4,365,249, Cl. 340-825.300.
- Taddei, Franco, to Casper S.p.A. Lower pair kinematic assembly with hydrostatic bearing. 4,364,612, Cl. 308-5.00R.
- Tajima, Masahiko: See—
Kondo, Toshio; Kobayashi, Akio; Eino, Tomomi; and Tajima, Masahiko, 4,365,299, Cl. 364-431.060.
- Tajima, Yasutomo: See—
Takahashi, Noriyuki; Sakaguchi, Takumi; and Tajima, Yasutomo, 4,364,582, Cl. 280-698.000.
- Takacs, Kalman; Kiss nee Ajzert, Ilona; Simay, Antal; Literati Nagy, Peter; Hetey nee Papp, Maria; Ecsery nee Puskas, Marian; Szekeres, Laszlo; Papp, Gyula; Viragh, Sandor; and Udvardy, Eva, to Chinoiin Gyogyszer es Vegyeszeti Termekek Gyara Rt. 1,2,4-Oxadiazolin-5-one derivatives, process for their preparation and pharmaceutical compositions containing them. 4,365,064, Cl. 546-148.000.
- Takagi, Kazumasa: See—
Oi, Tetsu; Takagi, Kazumasa; and Fukazawa, Tokummi, 4,365,155, Cl. 378-49.000.
- Takahashi, Kenji: See—
Kohno, Tadashi; Shimizu, Takahiko; Takahashi, Kenji; Fukui, Hishao; Okubo, Akio; and Masuda, Noriaki, 4,364,684, Cl. 401-264.000.
- Takahashi, Kiyofumi: See—
Tomibe, Shinji; Gomibuchi, Reizo; and Takahashi, Kiyofumi, 4,364,739, Cl. 8-654.000.
- Takahashi, Masami: See—
Shibuya, Yoshimichi; Takahashi, Masami; and Ishibashi, Tadashi, 4,364,672, Cl. 368-240.000.

- Takahashi, Noboru: See—
Nakano, Nobumasa; Takahashi, Noboru; and Aoki, Masao, 4,365,312, Cl. 364-900.000.
- Takahashi, Noriyuki; Sakaguchi, Takumi; and Tajima, Yasutomo, to Honda Giken Kogyo Kabushiki Kaisha & Showa Mfg. Co., Ltd. Vehicle body suspension system. 4,364,582, Cl. 280-698.000.
- Takahashi, Shigeru: See—
Mukai, Kiichiro; Harada, Seiki; Muramatsu, Shin-ichi; Hiraiwa, Atsushi; Takahashi, Shigeru; Usami, Katsuhisa; Iwata, Seiichi; Ito, Satoru; and Yoshimi, Takeo, 4,365,264, Cl. 357-54.000.
- Takahashi, Shigeyuki; Yamamoto, Shozo; and Tsukane, Nagayoshi, to Daicel Chemical Industries Ltd. Coated plastic films. 4,365,002, Cl. 428-483.000.
- Takahashi, Takeshi: See—
Oshima, Masabumi; Honda, Haruo; and Takahashi, Takeshi, 4,365,126, Cl. 200-144.0AP.
- Takahashi, Tsutomu: See—
Takenaka Masaaki; Takahashi, Tsutomu; and Momobayashi, Tatsu, 4,365,091, Cl. 564-127.000.
- Takahashi, Yoshiharu: See—
Ohtsuka, Katsuyuki; Ohuchi, Jin; and Takahashi, Yoshiharu, 4,364,859, Cl. 252-643.000.
- Takase, Yoshiyuki: See—
Yokogawa, Kanae; Yamamoto, Takeshi; Takase, Yoshiyuki; Katae, Hiroshi; and Kawata, Shigeo, 4,364,926, Cl. 424-50.000.
- Takasugi, Hisashi: See—
Takaya, Takao; Masugi, Takashi; Takasugi, Hisashi; and Kochi, Hiromu, 4,364,943, Cl. 424-246.000.
- Takaya, Takao; Masugi, Takashi; Takasugi, Hisashi; and Kochi, Hiromu, to Fujisawa Pharmaceutical Co., Ltd. Syn-isomer of 7-[2-alkoxyimino-2-(2-amino-alkanoylethylamino)-haloalkanoylethylamino-thiazol-4-yl] acetamides-3-[hexanoyl-, or phenylalkanoylethyl-oxymethyl or benzothiazolylthiomethyl]-3-cephem-4-carboxylic acid, 4,364,943, Cl. 424-246.000.
- Takazawa, Yuzuru: See—
Kitai, Kiyoshi; and Takazawa, Yuzuru, 4,364,648, Cl. 354-25.000.
- Takeda Chemical Industries, Ltd.: See—
Asai, Mitsuko; Nakahama, Kazuo; and Izawa, Motowo, 4,364,866, Cl. 260-239.30P.
- Takemae, Yoshihiro, to Fujitsu Limited. Semiconductor memory device. 4,365,319, Cl. 365-200.000.
- Takemura, Yukio: See—
Seto, Susumu; Tokuhara, Mitsuhiro; Takemura, Yukio; Yamada, Yu; and Kuwayama, Takeshi, 4,364,658, Cl. 355-8.000.
- Takenaka Masaaki; Takahashi, Tsutomu; and Momobayashi, Tatsu, to Sumitomo Chemical Company, Limited. Method for the production of acrylamide. 4,365,091, Cl. 564-127.000.
- Takenouchi, Mutsuo; and Sadamatsu, Shigeru, to Fuji Xerox Co., Ltd. One-dimensional image sensor. 4,365,274, Cl. 358-293.000.
- Takeuchi, Hirosato; Degawa, Fumito; and Mikiya, Toshio, to Nitto Kohki Co. Solar collector system. 4,364,373, Cl. 126-418.000.
- Takizawa, Masayoshi: See—
Hayashi, Yukichi; Tamura, Masauki; Sugimoto, Osamu; Takizawa, Masayoshi; Nishioka, Tatsujiro; Akagawa, Masaki; and Yokohda, Yutaka, 4,364,404, Cl. 133-4.00A.
- Takizawa, Yoshiyuki; Kashiwazaki, Takashi; Shimoda, Koji; and Kuriyama, Kazumi, to Pioneer Electronic Corporation. Device for detecting non-recorded portions on magnetic tape. 4,365,278, Cl. 360-73.000.
- Tallon, Jacques, to Societe Anonyme Dite: Compagnie Industrielle des Telecommunications Citalcatel. Helium leakage detector. 4,365,158, Cl. 250-288.000.
- Tamaru, Shinji: See—
Tsunoda, Takahiro; Yamaoka, Tsuguo; and Tamaru, Shinji, 4,365,049, Cl. 526-245.000.
- Tamburini, Pierluigi, to Gilardini S.p.A. Seat for vehicles. 4,364,607, Cl. 297-452.000.
- Tamura, Masauki: See—
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- Tanabe, Masanori: See—
Shimazoe, Michitaka; Matsuoka, Yoshitaka; Akahane, Ryozi; Shimizu, Yasushi; Nemoto, Hideyuki; and Tanabe, Masanori, 4,364,276, Cl. 73-721.000.
- Tanaka, Katsuo, to Fujitsu Limited. Resistor module. 4,365,284, Cl. 361-395.000.
- Tanaka, Kazuo; and Hirose, Ryusho, to Canon Kabushiki Kaisha. Zoom element focusable zoom lens. 4,364,642, Cl. 350-429.000.
- Tanaka, Naoto: See—
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- Tanaka, Shigeru: See—
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- Tandem Computers Incorporated: See—
Katzman, James A.; Bartlett, Joel F.; Bixler, Richard M.; Davidow, William H.; Despotakis, John A.; Graziano, Peter J.; Green, Michael D.; Greig, David A.; Hayashi, Steven J.; Mackie, David R.; McEvoy, Dennis L.; Treymbig, James G.; and Wierenga, Steven W., 4,365,295, Cl. 364-200.000.
- Tani, Akira; and Yamazaki, Takeo, to Toyota Jidosha Kogyo Kabushiki Kaisha; and Aisin Seiki Kabushiki Kaisha. Parking brake releasing system with cable attaching bush. 4,364,284, Cl. 74-540.000.
- Taniguchi, Hitoshi: See—
Teranishi, Susumu; Kawasaki, Yoichi; Katayama, Tsutomu; and Taniguchi, Hitoshi, 4,364,862, Cl. 260-112.00R.
- Tapco Products Company, Inc.: See—
Chubb, Arthur B.; and Rhoades, James J., 4,364,254, Cl. 72-319.000.
- Tapp, Steven: See—
Beck, Boyd R.; Stewart, Lamar H.; Tapp, Steven; Anderson, Don L., Jr.; and Nuffer, Daniel E., 4,364,797, Cl. 202-181.000.
- Tarasov, Nikolai M.; Varukha, Nikolai A.; Brontman, Rostislav L.; Slesarev, Boris A.; Zhukov, Anatoly M.; Mizik, Valery V.; Rogachev, Evgeny P.; and Gurnov, Nikolai I. Apparatus for electric-arc gas-shielded surfacing by droplets with consumable electrode. 4,365,137, Cl. 219-137.310.
- Tasch, Aloysius F., Jr.: See—
Chatterjee, Pallab K.; and Tasch, Aloysius F., Jr., 4,365,261, Cl. 357-24.000.
- Tateyama, Masayuki; and Hosotani, Takashi, to Nissan Motor Company, Limited. Steering mechanism. 4,364,577, Cl. 280-93.000.
- Tatsuwaki, Masao; Nemoto, Shin; Katayama, Yutaka; Okada, Michio; and Hotta, Kazuyuki, to Sumitomo Kinzoku Kogyo Kabushiki Kaisha. Temperature pattern measuring device. 4,365,307, Cl. 364-557.000.
- Tauber, George. Parking indicator token strip. 4,364,461, Cl. 194-4.00D.
- Taylor, George A., to A. W. Anderberg Manufacturing Co. Full-opening window linkage assembly. 4,364,201, Cl. 49-248.000.
- Teichmann, Paul: See—
Bencke, Wolfgang; Teichmann, Paul; and Schubert, Wolfgang, 4,364,151, Cl. 19-0.200.
- Bencke, Wolfgang; Jager, Walter; and Teichmann, Paul, 4,364,153, Cl. 19-107.000.
- Teichmann, Theodor: See—
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- Teijin Limited: See—
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- Kiyoki, Mamoru; Endo, Hiroyoshi; Naruchi, Tatsuyuki; and Hashimoto, Yoshinobu, 4,364,941, Cl. 424-236.000.
- Teijin Pharmaceutical Co., Ltd.: See—
Kiyoki, Mamoru; Endo, Hiroyoshi; Naruchi, Tatsuyuki; and Hashimoto, Yoshinobu, 4,364,941, Cl. 424-236.000.
- Teitel, Robert J.: See—
O'Neal, Russell D.; Leffert, Charles B.; Teichmann, Theodor; and Teitel, Robert J., 4,364,897, Cl. 376-148.000.
- Tektronix, Inc.: See—
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- Telefonaktiebolaget L M Ericsson: See—
Lindman, Borje L.; and Branden, Leif, 4,365,118, Cl. 179-159.000.
- Telex Computer Products, Inc.: See—
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- Tellier, Pierre: See—
DeLavarenne, Serge Y.; and Tellier, Pierre, 4,365,100, Cl. 568-733.000.
- Temme, Helmut, to Gewerkschaft Eisenhutte Westfalen. Scraper-chain conveyor. 4,364,470, Cl. 198-735.000.
- Teng, Harry H. I.; and Pedersen, S. Erik, to Standard Oil Company, The. Mixed metal phosphorus oxide coated catalysts for the oxidative dehydrogenation of carboxylic acids. 4,364,856, Cl. 252-437.000.
- Tennant Company: See—
Hawkins, Raymond C.; Seim, Howard N.; and Haub, Donald J., 4,365,189, Cl. 318-284.000.
- Terada, Atsuke; Tanaka, Shigeru; and Misaka, Eiichi, to Sankyo Company Limited. Process for the preparation of cycloalkylenemethylphenylacetic acid derivatives. 4,365,076, Cl. 560-51.000.
- Terada, Katumi, to Olympus Optical Company Ltd. Film suction mechanism for a camera. 4,364,653, Cl. 354-203.000.
- Teranishi, Susumu; Kawasaki, Yoichi; Katayama, Tsutomu; and Taniguchi, Hitoshi, to Fuji Oil Company, Limited. Method for preparing fibrous protein products. 4,364,862, Cl. 260-112.00R.
- Terashita, Takaaki; Shiota, Kazuo; and Nakauchi, Kenji, to Fuji Photo Film Co., Ltd. Exposure control method and device. 4,364,650, Cl. 354-31.000.
- Terrell, Ross C.; and Hansen, Kirsten, to Airco, Inc. Process for the preparation of halogenated aliphatic ethers. 4,365,097, Cl. 568-684.000.
- Terwilliger, Gerald L., to Eaton Corporation. Induction system for supercharged engine. 4,364,366, Cl. 123-564.000.
- Terwilliger, Gerald L., to Eaton Corporation. Linkage mechanism for supercharger system. 4,364,367, Cl. 123-564.000.
- Tesch, Bernhard. Watch cases with pushbuttons. 4,364,674, Cl. 368-319.000.
- Tesmann, Holger: See—
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- Tessier, Jean: See—
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- Tetra Pak International AB: See—
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- Texaco Inc.: See—
Arnold, Dan M.; and Paap, Hans J., 4,365,154, Cl. 250-270.000.
- Crouch, William B.; Richter, George N.; Marion, Charles P.; Reynolds, Blake; Brent, Albert; and Child, Edward T., 4,364,744, Cl. 48-86.00R.
- Kaufman, Benjamin J., 4,364,846, Cl. 252-392.000.

- Nieh, Edward C. Y., 4,365,096, Cl. 568-665.000.
- Rundell, Herbert A., 4,364,277, Cl. 73-862.340.
- Woodie, Robert A.; and Gillespie, Ronald G., 4,364,262, Cl. 73-53.000.
- Texas Gas Transmission Corporation: See—
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- Texas Instruments Incorporated: See—
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- Olsen, Donald A.; and Boulanger, Henry J., 4,365,225, Cl. 337-88.000.
- Prater, Cordell E., 4,365,172, Cl. 307-270.000.
- Th. Goldschmidt AG: See—
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- Thalmann, Alfred: See—
Reich, Fritz; and Thalmann, Alfred, 4,365,144, Cl. 219-535.000.
- Thames Water Authority: See—
Crane, Norman W., 4,364,141, Cl. 15-104.06R.
- Theodore, Ares N.; and Pett, Robert A., to Ford Motor Company. Ultrasonic end-capping of beta"-alumina tubes. 4,364,783, Cl. 156-69.000.
- Theysohn, Friedrich, to Friedrich Theysohn, Firma. Dual worm extruder having wear resistant bore walls. 4,364,664, Cl. 366-84.000.
- Thibault, Gilbert: See—
Tiedemann, Herman H.; Thibault, Gilbert; and Laberge, Joseph G. J., 4,364,917, Cl. 423-474.000.
- Thoenig, Marcel; and Wattenhofer, Jean-Pierre, to Ebauches, S.A. Chronographic watch. 4,364,669, Cl. 368-111.000.
- Thomas, David L.; Pope, William S.; and Huckabay, William B., to Battelle Memorial Institute. Generating pulses. 4,364,446, Cl. 181-120.000.
- Thomas, John F., Jr.: See—
Morgan, Cleon; Pluta, Richard; and Thomas, John F., Jr., 4,364,214, Cl. 52-311.000.
- Morgan, Cleon; Thomas, John F., Jr.; and Meyer, Raymond A., 4,364,595, Cl. 296-84.00R.
- Thominet, Michel; and Perrot, Jacques, to Societe d'Etudes Scientifiques et Industrielles de l'ile de France, N-(1-Methyl-2-pyrrolidinylmethyl)-2,3-dimethoxy-5-methylsulfamoyl benzamide and its derivatives. 4,364,867, Cl. 548-567.000.
- Thompson, Donald: See—
McDaniel, Wharton; Brown, Fred A.; and Thompson, Donald, 4,365,187, Cl. 318-254.000.
- Thompson, Robert W.: See—
Pyatt, Lawrence A.; and Thompson, Robert W., 4,365,197, Cl. 324-221.000.
- Thompson, Steven R., to Garlock, Inc. Band seal clamp. 4,364,588, Cl. 285-419.000.
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- Timberland Equipment Limited: See—
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- Timetz, Ltd.: See—
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- Moriwaki, Takeshi; and Tsunekawa, Shinichi, 4,364,617, Cl. 316-24.000.
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- Tomibe, Shinji; Gomibuchi, Reizo; and Takahashi, Kiyofumi, to Nihon Sanmo Dyeing Co., Ltd. Method of making electrically conducting fiber. 4,364,739, Cl. 8-654.000.
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- Touche, Bernard, to B. R. Choiniere Ltee. Cattle feeder. 4,364,333, Cl. 119-52.00R.
- Town, Michael H.: See—
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- Ogawa, Hisashi, 4,364,583, Cl. 280-802.000.
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- Truck Repair Service, Inc.: See—
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- Truszkowski, Donald T.: See—
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- Trutzschler GmbH & Co. KG: See—
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- Rauschen, Rudolf; and Schellen, Ludwig, 4,364,152, Cl. 19-105.000.
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- Kobylnski, Lee S., 4,364,545, Cl. 254-284.000.
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- Tsuetaki, George F.: See—
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- Tsuzuki, Yoshihiko; Hirabayashi, Yuzi; Shirasaki, Shinji; Matsuyama, Masahiro; and Okazaki, Hiroshi, to Nippondenso Co., Ltd. Air-conditioning control apparatus for automotive vehicles. 4,364,513, Cl. 236-49.000.
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- Tuichenhagen, Jurgen; Roiner, Franz; and Grosserhede, Josef, to Prof. Dipl.-KFM. Franz Poiner. Method for enzymatically decomposing a low molecular weight material. 4,364,962, Cl. 426-41.000.
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- Udvardy, Eva: See—
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- Starkovich, John A., 4,364,775, Cl. 134-3.000.
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- Brainard, John P., 4,365,282, Cl. 361-127.000.
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- Miller, George R., 4,365,232, Cl. 340-27.00R.
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- Blom, Hendrik, 4,365,271, Cl. 358-219.000.
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- Lamboo, Theodorus F., 4,365,335, Cl. 372-34.000.
- Rehfeldt, Karl H., 4,365,206, Cl. 330-260.000.
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- United Technologies Corporation: See—
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- Unitika Ltd.: See—
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- University of Kentucky Research Foundation, The: See—
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- Cheh, Albert M., 4,364,835, Cl. 210-752.000.
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- University of Virginia Alumni Patents Foundation: See—
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- Castillo, Carmen; and Hayes, John C., 4,364,848, Cl. 252-417.000.
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- O'Brien, Dennis E., 4,364,821, Cl. 208-325.000.
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- USV Pharmaceutical Corporation: See—
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- Utility Products, Inc.: See—
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- Vagin, Viktor V.: See—
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- Vedova, Ferruccio D., to CEDA S.p.A. Level measurement device. 4,365,165, Cl. 250-577.000.
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- Velasco, Gonzalo: See—
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- Victor Company of Japan, Ltd.: See—
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- Namiki, Yasuomi, 4,365,277, Cl. 360-72.100.
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- Viertel, Lothar, to Gebr. Happich GmbH. Swivel bearing and reinforcement for sun visor. 4,364,598, Cl. 296-97.00K.
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- Yamada, Yu: See—
Seto, Susumu; Tokuhara, Mitsuhiko; Takemura, Yukio; Yamada, Yu; and Kuwayama, Takeshi, 4,364,658, Cl. 355-8.000.
- Yamaguchi, Takashi: See—
Kanai, Tamaki; Yamaguchi, Takashi; Yoshikawa, Hirofumi; Suzuki, Kenji; and Ohta, Yoshikatsu, 4,364,885, Cl. 264-134.000.
- Yamaguchi, Masahiko: See—
Motohashi, Katsuchi; Obara, Toshio; Kaneko, Kazuo; and Yamaguchi, Masahiko, 4,364,999, Cl. 428-411.000.
- Yamaha Hatsudoki Kabushiki Kaisha: See—
Ikuma, Katsumi, 4,364,448, Cl. 180-206.000.
- Kimura, Hiroshi, 4,364,340, Cl. 123-55.00R.
- Shiohara, Masakazu, 4,364,346, Cl. 123-323.000.
- Yoshida, Keisuke, 4,364,447, Cl. 180-182.000.
- Yamamoto, Hideaki: See—
Koike, Norio; Baji, Toru; Tsukada, Toshihisa; and Yamamoto, Hideaki, 4,364,973, Cl. 427-75.000.
- Yamamoto, Shozo: See—
Takahashi, Shigeyuki; Yamamoto, Shozo; and Tsukane, Nagayoshi, 4,365,002, Cl. 428-483.000.
- Yamamoto, Takashi, to Murata Manufacturing Co., Ltd. Piezoelectric vibrator with damping electrodes, 4,365,181, Cl. 310-320.000.
- Yamamoto, Takeshi: See—
Yokogawa, Kanai; Yamamoto, Takeshi; Takase, Yoshiyuki; Katae, Hiromi; and Kawata, Shigeo, 4,364,926, Cl. 424-50.000.

- Yamamoto, Teiji; and Yamazaki, Tsukasa, to Kabushiki Kaisha Komatsu Seisakusho. Seal assembly with load ring. 4,364,572, Cl. 277-92.000.
- Yamamoto, Yasunobu; Sakabe, Toshiaki; and Hamada, Eizi, to Aisin Seiki Kabushiki Kaisha; and Aisin Kako Kabushiki Kaisha. Clutch facing material and method for manufacturing the same. 4,364,997, Cl. 428-372.000.
- Yamanaka, Tsutomu; Sano, Mitsuharu; and Yasuda, Hiroshi, to Yoshitomi Pharmaceutical Industries Ltd. 2(4-n-Hexadecyl amino or oxy phenyl) 5 ethoxy oxazoleacetic acid derivatives. 4,365,066, Cl. 548-228.000.
- Yamanis, Jean, to University of Kentucky Research Foundation, The. Production of anhydrous 1,4-dioxane. 4,365,071, Cl. 549-377.000.
- Yamaoka, Tsuguo: See—
Tsunoda, Takahiro; Yamaoka, Tsuguo; and Tamaru, Sinji, 4,365,049, Cl. 526-245.000.
- Yamauchi, Satoshi, to Ricoh Co., Ltd. Impedance transducer. 4,365,209, Cl. 330-308.000.
- Yamauchi, Yutaka, to Sharp Kabushiki Kaisha. Amorphous film solar cell. 4,365,107, Cl. 136-258.000.
- Yamazaki, Takeo: See—
Tani, Akira; and Yamazaki, Takeo, 4,364,284, Cl. 74-540.000.
- Yamazaki, Tsukasa: See—
Yamamoto, Teiji; and Yamazaki, Tsukasa, 4,364,572, Cl. 277-92.000.
- Yanagawa, Nobuyuki, to Ricoh Company, Ltd. Electrophotographic copying machine. 4,364,656, Cl. 355-3.0CH.
- Yanagihara, Hideo, to NSK-Warner K.K. Retractor for seat belt provided with buffer means against webbing taking up force. 4,364,528, Cl. 242-107.700.
- Yano, Takefumi: See—
Ueno, Haruo; Yano, Takefumi; Inoue, Tokuji; Ikai, Shigeru; Kai, Yoshiyuki; and Shimizu, Michimasa, 4,365,048, Cl. 526-128.000.
- Yano, Teruo: See—
Higuchi, Noboru; Yano, Teruo; and Ohnishi, Masahiro, 4,364,760, Cl. 55-523.000.
- Yasnitsky, Boris G.; Tsukanova, Galina M.; Oridoroga, Valentin A.; Shalimov, Alexandr A.; Furmanov, Jury A.; Silchenko, Valery P.; Shalimov, Sergei A.; Khadzhai, Yaroslav I.; Obolentseva, Galina V.; and Vorobiev, Nikolai E. Absorbable surgical suture material based on monocarboxycellulose and method for producing the same. 4,364,393, Cl. 128-335.500.
- Yasuda, Hiroshi: See—
Yamanaka, Tsutomu; Sano, Mitsuharu; and Yasuda, Hiroshi, 4,365,066, Cl. 548-228.000.
- Yasuda, Shuhei; Ishii, Yutaka; and Wada, Tomio, to Sharp Kabushiki Kaisha. Driving technique for matrix liquid crystal display panel for displaying characters and a cursor. 4,365,242, Cl. 340-709.000.
- Yeda Research & Development Co., Ltd.: See—
Ruhman, Smil; and Orbach, Zvi, 4,365,304, Cl. 364-515.000.
- Yhap, Ernesto F.: See—
Greanias, Evon C.; and Yhap, Ernesto F., 4,365,235, Cl. 340-146.3AC.
- Yokogawa, Kanae; Yamamoto, Takeshi; Takase, Yoshiyuki; Katae, Hiromi; and Kawata, Shigeo, to Dainippon Pharmaceutical Co., Ltd. Novel alkaline protease M3 method for the preparation thereof and dental caries-prophylactic composition containing the same. 4,364,926, Cl. 424-50.000.
- Yokohama Kiko Co., Ltd.: See—
Ohno, Akira; Katayama, Shitomi; Senaha, Susumu; Kyo, Suizo; and Akagami, Akira, 4,364,637, Cl. 350-288.000.
- Yokohda, Yutaka: See—
Hayashi, Yukichi; Tamura, Masauki; Sugimoto, Osamu; Takizawa, Masayoshi; Nishioka, Tatsujiro; Akagawa, Masaki; and Yokohda, Yutaka, 4,364,404, Cl. 133-4.00A.
- Yonekura, Seiji: See—
Matsuoka, Shigeru; Tokunaga, Takeshi; Yonekura, Seiji; Suzuki, Mituo; and Nakamura, Kenji, 4,365,250, Cl. 340-825.320.
- Yonkers, Ronald C., to BRS, Inc. Outer sole for athletic shoe. 4,364,190, Cl. 36-32.00R.
- Yoshida, Hiroshi: See—
Shimizu, Noboru; Yoshida, Hiroshi; Daigo, Hiromiki; Matumoto, Shiyouchi; and Uchino, Hiroyoshi, 4,365,081, Cl. 560-209.000.
- Yoshida, Keisuke, to Yamaha Hatsudoki Kabushiki Kaisha. Steering system for snowmobile steerable skis. 4,364,447, Cl. 180-182.000.
- Yoshida, Kiyoshi: See—
Nakada, Akira; Okamoto, Eisaku; and Yoshida, Kiyoshi, 4,364,299, Cl. 84-478.000.
- Yoshida, Seietsu; Niimi, Yukihide; Ito, Massao; Sawada, Hiroshi; and Demura, Takayuki, to Toyota Jidosha Kogyo Kabushiki Kaisha; and Nippondenso Co., Ltd. Feedback control apparatus for internal combustion engine. 4,364,227, Cl. 60-276.000.
- Yoshikawa, Hirofumi: See—
Kanai, Tamaki; Yamaguchi, Takashi; Yoshikawa, Hirofumi; Suzuki, Kenji; and Ohta, Yoshiakitsu, 4,364,885, Cl. 264-134.000.
- Yoshimi, Takeo: See—
Mukai, Kiichiro; Harada, Seiki; Muramatsu, Shin-ichi; Hiraiwa, Atsushi; Takahashi, Shigeru; Usami, Katsuhisa; Iwata, Seiichi; Ito, Satoru; and Yoshimi, Takeo, 4,365,264, Cl. 357-54.000.
- Yoshino, Masatsugu: See—
Yosizato, Akihiko; Morifuji, Yoshinori; Kondo, Kunio; and Yoshino, Masatsugu, 4,365,032, Cl. 524-99.000.
- Yoshitomi Pharmaceutical Industries Ltd.: See—
Yamanaka, Tsutomu; Sano, Mitsuharu; and Yasuda, Hiroshi, 4,365,066, Cl. 548-228.000.
- Yosizato, Akihiko; Morifuji, Yoshinori; Kondo, Kunio; and Yoshino, Masatsugu, to Asahi Kasei Kogyo Kabushiki Kaisha. Monoester compound of 2,2-alkylidene bis(4,6-di-substituted phenol). 4,365,032, Cl. 524-99.000.
- Yosmali, Krikor: See—
Shakib, Iraj D.; and Yosmali, Krikor, 4,364,683, Cl. 400-637.000.
- Young, Charles A., to United States of America, Navy. Lithium-6 foil neutron detector. 4,365,159, Cl. 250-385.000.
- Young, Gary D.: See—
Schiler, Frederick S.; and Young, Gary D., 4,364,179, Cl. 33-174.00L.
- Young, Lewis B., to Mobil Oil Corporation. Preparation of alkyl carboxylates. 4,365,083, Cl. 560-247.000.
- Young, Lewis B., to Mobil Oil Corporation. Preparation of alkyl carboxylates. 4,365,084, Cl. 560-247.000.
- Younghouse, Lawrence B., to Exxon Research and Engineering Co. Thermal solar energy collector. 4,364,375, Cl. 126-444.000.
- Yuasa, Yoshio; Kisanuki, Toru; and Shirai, Susumu, to Minolta Camera Kabushiki Kaisha. Dual mode camera exposure meters. 4,364,662, Cl. 356-225.000.
- Zabiak, Daniel M., to A. B. Dick Company. Pigmented jet printing ink. 4,365,035, Cl. 524-283.000.
- Zabor, Eric R.: See—
Farkas, Daniel S.; and Zabor, Eric R., 4,364,764, Cl. 65-29.000.
- Zabotto, Arlette: See—
Griat, Jacqueline; Zabotto, Arlette; and Koulbanis, Constantin, 4,364,930, Cl. 424-81.000.
- Zahid, Abdus: See—
Jacobellis, A. A.; and Zahid, Abdus, 4,364,416, Cl. 138-30.000.
- Zahnradfabrik Friedrichshafen Aktiengesellschaft: See—
Hortner, Hans-Dieter; Maier, Wolfgang; and Seibold, Herbert, 4,364,278, Cl. 73-862.360.
- Zanchi, Vittorio; and Maccianti, Tiziano, to Honeywell Information Systems Italia. System for bidirectional transmission of interlocked signals. 4,365,291, Cl. 364-200.000.
- Zavatsky, Robert J., to Barnes Group Inc. Vehicle window operating mechanism. 4,364,202, Cl. 49-352.000.
- Zhukov, Anatoly M.: See—
Tarasov, Nikolai M.; Varukha, Nikolai A.; Brontman, Rostislav L.; Slesarev, Boris A.; Zhukov, Anatoly M.; Mizik, Valery V.; Rogachev, Evgeny P.; and Gurnov, Nikolai I., 4,365,137, Cl. 219-137.310.
- Ziche, Horst, to Henkel Kommanditgesellschaft auf Aktien. Process for the removal of alkali metal halides from cellulose ethers soluble in cold water and use of the purified products in washing and cleansing agent compositions. 4,364,836, Cl. 252-135.000.
- Zimmerli, Paul. Device for supporting parcels on a parcel rack of a two-wheeled vehicle. 4,364,497, Cl. 224-40.000.
- Zimmerman, Sanford S.: See—
Syarto, Louis W.; and Zimmerman, Sanford S., 4,364,696, Cl. 409-138.000.
- Zimmermann, Bernard, to Uniscrew Limited. Process to supercharge and control a single screw compressor. 4,364,714, Cl. 417-53.000.
- Zink, Rudolf; and Loew, Peter, to Ciba-Geigy Corporation. Crystalline bromide or iodide salts of triazole dyes for polyacrylonitrile. 4,364,738, Cl. 8-634.000.
- Zino, Costanzo: See—
Badagnani, Guido; and Zino, Costanzo, 4,365,314, Cl. 364-900.000.
- Zompolas, Thomas, to PAMCO Industries Corp. Redundant vacuum system for aircraft instruments. 4,364,268, Cl. 73-178.00R.
- Zullo, Antonio: See—
Manservigi, Renato; and Zullo, Antonio, 4,364,464, Cl. 198-419.000.
- Zwanenburg, Dirk J.; Nijssen, Wilhelmus P. M.; and van der Staak, Casper G. I., to U.S. Philips Corporation. Dye-containing layer of a film-forming polymeric binder and the use thereof in an information recording element. 4,364,986, Cl. 428-156.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 21ST DAY OF DECEMBER, 1982

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- Bates, Charles L., Jr. Controlled pressure drop valve. Re. 31,105, Cl. 137-625.300.
- Coulter Electronics, Inc.: See—
Ginsberg, Guenter; Horne, Thomas; and Kreiselman, Robert L., Re. 31,108, Cl. 422-64.000.
- Deere & Company: See—
Kass, John J.; and Johannsen, Donald O., Re. 31,107, Cl. 417-222.000.
- Forster, Friedrich M. O.; and Kalisch, Alfons. Single magnetic stray field sensor whose signals are differently attenuated in two channels and then compared. Re. 31,109, Cl. 324-240.000.
- Ginsberg, Guenter; Horne, Thomas; and Kreiselman, Robert L., to Coulter Electronics, Inc. Apparatus for monitoring chemical reactions and employing moving photometer means. Re. 31,108, Cl. 422-64.000.
- Hoen, Cuyler: See—
Pufpaff, Frederick J.; and Hoen, Cuyler, Re. 31,106, Cl. 403-353.000.
- Horne, Thomas: See—
Ginsberg, Guenter; Horne, Thomas; and Kreiselman, Robert L., Re. 31,108, Cl. 422-64.000.
- Johannsen, Donald O.: See—
Kass, John J.; and Johannsen, Donald O., Re. 31,107, Cl. 417-222.000.
- Kalisch, Alfons: See—
Forster, Friedrich M. O.; and Kalisch, Alfons, Re. 31,109, Cl. 324-240.000.
- Kass, John J.; and Johannsen, Donald O., to Deere & Company. Feed-back shaft extending between swashplate and displacement control valve. Re. 31,107, Cl. 417-222.000.
- Kreiselman, Robert L.: See—
Ginsberg, Guenter; Horne, Thomas; and Kreiselman, Robert L., Re. 31,108, Cl. 422-64.000.
- Pufpaff, Frederick J.; and Hoen, Cuyler, to Simmons Fastener Corporation. Quarter turn industrial fastener. Re. 31,106, Cl. 403-353.000.
- Simmons Fastener Corporation: See—
Pufpaff, Frederick J.; and Hoen, Cuyler, Re. 31,106, Cl. 403-353.000.

LIST OF DESIGN PATENTEES

- ADIDAS Fabrique de Chaussures de Sport: See—
Anderie, Wolf, 267,286, Cl. D2-259.000.
- Altomare, Philip N.: See—
Axel, Edwin; and Altomare, Philip N., 267,335, Cl. D23-1.000.
- American Can Company: See—
Schulz, Galya A., 267,361, Cl. D59-2.00B.
- Anderie, Wolf, to ADIDAS Fabrique de Chaussures de Sport. Ear protector. 267,286, 12-21-82, Cl. D2-259.000.
- Andrews, Elizabeth. Baby garment. 267,284, 12-21-82, Cl. D2-33.000.
- Asano, Takehiro, to Dai Chi Shoji Co., Ltd. Car light. 267,349, 12-21-82, Cl. D26-37.000.
- Axel, Edwin; and Altomare, Philip N. Storm water outlet. 267,335, 12-21-82, Cl. D23-1.000.
- Balcorail Ltd.: See—
Walsh, Brad, 267,345, Cl. D25-38.000.
- Walsh, Brad, 267,347, Cl. D25-74.000.
- Walsh, Brad, 267,348, Cl. D25-74.000.
- Baruffa, Olindo; and Jimenez, Antonio, to Mefina S.A. Sewing machine. 267,322, 12-21-82, Cl. D15-70.000.
- Beatty, James J.: See—
Beatty, Theodore D.; and Beatty, James J., 267,314, Cl. D12-300.000.
- Beatty, Theodore D.; and Beatty, James J. Aquatic recreation vehicle. 267,314, 12-21-82, Cl. D12-300.000.
- Belmont Equipment Corp.: See—
Watanabe, Tony, 267,340, Cl. D24-4.000.
- Benis, Isak. Snap-on file handle. 267,310, 12-21-82, Cl. D8-94.000.
- Blasbalg, Morton L. Bird feeder. 267,355, 12-21-82, Cl. D30-15.000.
- Blumenthal, David, to Erwin-Lambeth, Inc. Octagonal table. 267,295, 12-21-82, Cl. D6-146.000.
- Bolton, Theodore S.; Lang, Richard D.; and Hoyle, Walter W., to Carrier Corporation. Air conditioning unit. 267,338, 12-21-82, Cl. D23-141.000.
- Bolton, Theodore S.; Lang, Richard D.; and Burris, John S., to Carrier Corporation. Combined air conditioning unit and duct system. 267,339, 12-21-82, Cl. D23-141.000.
- Boschet, Rino: See—
Pirovano, Rino; and Boschet, Rino, 267,332, Cl. D19-85.000.
- Brown, Daniel: See—
Laible, Rodney, 267,342, Cl. D24-57.000.
- Bunn-O-Matic Corporation: See—
Zimmerman, John D.; and Paradis, Joseph R., 267,325, Cl. D7-309.000.
- Burris, John S.: See—
Bolton, Theodore S.; Lang, Richard D.; and Burris, John S., 267,339, Cl. D23-141.000.
- Busse, Rido: See—
Kern, Alfred; Busse, Rido; and Rapp, Reinhold, 267,341, Cl. D24-21.000.
- Carrier Corporation: See—
Bolton, Theodore S.; Lang, Richard D.; and Hoyle, Walter W., 267,338, Cl. D23-141.000.
- Bolton, Theodore S.; Lang, Richard D.; and Burris, John S., 267,339, Cl. D23-141.000.
- Cartner, Donald W.: See—
Hopkins, Evan L.; and Cartner, Donald W., 267,291, Cl. D4-12.000.
- Carville, Hugh F. Mobil horse for transporting leather. 267,358, 12-21-82, Cl. D34-17.000.
- Cawley, C. Robert, Jr. Stove. 267,337, 12-21-82, Cl. D23-97.000.
- Cole, Albert, to Thermoforce Limited. Temperature responsive control unit for windows of greenhouses and the like. 267,311, 12-21-82, Cl. D8-330.000.
- Cooper, Tallie B. Guitar. 267,329, 12-21-82, Cl. D17-14.000.
- Crown Marking Equipment Co.: See—
Goldstein, Edwin W., 267,331, Cl. D18-15.000.
- Dai Chi Shoji Co., Ltd.: See—
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- Datagraphix, Inc.: See—
Runyan, Steven R.; Link, William T.; and Hobson, Stephen, 267,328, Cl. D16-18.000.
- Davis, Howard F. Shoe sole. 267,288, 12-21-82, Cl. D2-320.000.
- Eade, Robert A.; and Quaintance, Peter V. C. Concert shell. 267,315, 12-21-82, Cl. D14-33.000.
- Ebauches S.A.: See—
Kern, Alfred; Busse, Rido; and Rapp, Reinhold, 267,341, Cl. D24-21.000.
- Elkem-Spigerverket, A/S: See—
Hyggen, Egil, 267,306, Cl. D8-10.000.
- Empire-Fortuno, Ltd.: See—
Fortuno, John, 267,336, Cl. D23-58.000.
- Eriksson, Hans; and Ronndahl, Sylve. Bottle holder. 267,300, 12-21-82, Cl. D7-70.000.
- Erwin-Lambeth, Inc.: See—
Blumenthal, David, 267,295, Cl. D6-146.000.
- Fischer, Milton. Book holder. 267,298, 12-21-82, Cl. D6-184.000.
- Fortuno, John, to Empire-Fortuno, Ltd. Lavatory. 267,336, 12-21-82, Cl. D23-58.000.
- France, George E. Truss post cap. 267,308, 12-21-82, Cl. D8-380.000.
- Fukushima, Hisao; and Hirooka, Junji, to Oki Electric Industry Co., Ltd. Car telephone set. 267,316, 12-21-82, Cl. D14-53.000.
- Fukushima, Hisao; and Hirooka, Junji, to Oki Electric Industry Co., Ltd. Telephone set. 267,317, 12-21-82, Cl. D14-53.000.
- Fukushima, Hisao; and Hirooka, Junji, to Oki Electric Industry Co., Ltd. Portable wireless telephone set. 267,318, 12-21-82, Cl. D14-53.000.
- Funk, Neil A. Digital time-indicating finger ring. 267,312, 12-21-82, Cl. D10-31.000.

Georgi, Marcel. Combined table, radio receiver and speaker. 267,293, 12-21-82, Cl. D6-4.000.

Goldstein, Edwin W., to Crown Marking Equipment Co. Plastic mount for stamping die. 267,331, 12-21-82, Cl. D18-15.000.

Gooding, Elwyn R., to University of Michigan, The Regents of the. Pneumatic liner for protective headgear. 267,287, 12-21-82, Cl. D2-260.000.

Gravity Guidance, Incorporated: See—
Miller, Jack V.; and Miller, Ruth E., 267,343, Cl. D24-64.000.

Herlestam, Tore: See—
Sundstrom, Staffan; and Herlestam, Tore, 267,344, Cl. D24-9.000.

Hillstrom, Alan G. Gutter cleaning tool. 267,357, 12-21-82, Cl. D32-46.000.

Hirooka, Junji: See—
Fukushima, Hisao; and Hirooka, Junji, 267,316, Cl. D14-53.000.
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Fukushima, Hisao; and Hirooka, Junji, 267,318, Cl. D14-53.000.

Hobson, Stephen: See—
Runyan, Steven R.; Link, William T.; and Hobson, Stephen, 267,328, Cl. D16-18.000.

Hopkins, Evan L.; and Cartner, Donald W. Windshield cleaning brush. 267,291, 12-21-82, Cl. D4-12.000.

Hoyle, Walter W.: See—
Bolton, Theodore S.; Lang, Richard D.; and Hoyle, Walter W., 267,338, Cl. D23-141.000.

Hunt, Lawrence F. Nut cracker mechanism. 267,301, 12-21-82, Cl. D7-98.000.

Hyggen, Egil, to Elkem-Spigerverket, A/S. Spade. 267,306, 12-21-82, Cl. D8-10.000.

J. J. B. Hilliard, W. L. Lyons, Inc.: See—
Northcutt, W. Allen, III, 267,313, Cl. D11-1.000.

Jimenez, Antonio: See—
Baruffa, Olindo; and Jimenez, Antonio, 267,322, Cl. D15-70.000.

Kawaiski, Masayoshi: See—
Suganoya, Yoshio; Miyake, Takao; and Kawaiski, Masayoshi, 267,302, Cl. D7-351.000.

Kern, Alfred; Busse, Rido; and Rapp, Reinhold, to Ebauches S.A. Blood pressure measuring instrument or similar article. 267,341, 12-21-82, Cl. D24-21.000.

Kimzey, John S. Leg splint for horses. 267,356, 12-21-82, Cl. D30-34.000.

Koziatek, Jerome P.: See—
Mower, Henry W.; Seymour, Allen; Koziatek, Jerome P.; and Lendvay, Joseph G., 267,296, Cl. D6-153.000.

Kroy Industries Inc.: See—
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Kurozumi, Shigeru, to Sharp Corporation. Case for an electronic calculator. 267,290, 12-21-82, Cl. D3-30.100.

Laible, Rodney, to Brown, Daniel, a part interest. Specimen collector for a commode or similar article. 267,342, 12-21-82, Cl. D24-57.000.

Landman Limited: See—
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Wan, Clement S., 267,304, Cl. D7-402.000.

Lang, Richard D.: See—
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Lanier, Jerry W., to Southwire Company. Strip material folder. 267,326, 12-21-82, Cl. D15-145.000.

Lee, Bruce N. Coffee table. 267,297, 12-21-82, Cl. D6-177.000.

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Pook, Peter D.; and Rosenwinkel, Donald A., 267,334, Cl. D21-240.000.

Lempa, Bernard J., Jr., to Lempa Mfg. Inc. Fertilizer applicator. 267,305, 12-21-82, Cl. D8-02.000.

Lempa Mfg. Inc.: See—
Lempa, Bernard J., Jr., 267,305, Cl. D8-02.000.

Lendvay, Joseph G.: See—
Mower, Henry W.; Seymour, Allen; Koziatek, Jerome P.; and Lendvay, Joseph G., 267,296, Cl. D6-153.000.

Linden, Erkki O., to Oy. Fiskars Ab. Scissors. 267,309, 12-21-82, Cl. D8-57.000.

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Runyan, Steven R.; Link, William T.; and Hobson, Stephen, 267,328, Cl. D16-18.000.

Lipschutz, Charles J., to Louisville Manufacturing Co., Inc. Cap. 267,285, 12-21-82, Cl. D2-248.000.

Louisville Manufacturing Co., Inc.: See—
Lipschutz, Charles J., 267,285, Cl. D2-248.000.

Lowdon, Jack, to Reynolds Metals Company. Can retriever. 267,307, 12-21-82, Cl. D8-14.000.

Lund, Richard G., III. Prenatal support pillow. 267,299, 12-21-82, Cl. D6-201.000.

Mefina S.A.: See—
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Megna, Salvatore J. Hair brush. 267,292, 12-21-82, Cl. D4-35.000.

Miller, Jack V.; and Miller, Ruth E., to Gravity Guidance, Incorporated. Ankle holder. 267,343, 12-21-82, Cl. D24-64.000.

Miller, Ruth E.: See—
Miller, Jack V.; and Miller, Ruth E., 267,343, Cl. D24-64.000.

Miyake, Takao: See—
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Molineri, Giuliano, to NECCHI Societa per Azioni. Sewing machine. 267,321, 12-21-82, Cl. D15-69.000.

Mower, Henry W.; Seymour, Allen; Koziatek, Jerome P.; and Lendvay, Joseph G., to Questor Corporation. Hutch. 267,296, 12-21-82, Cl. D6-153.000.

Mustard, Roger E. Wood cart. 267,359, 12-21-82, Cl. D34-26.000.

Najarian, John. Necktie knot support. 267,289, 12-21-82, Cl. D2-401.000.

NECCHI Societa per Azioni: See—
Molineri, Giuliano, 267,321, Cl. D15-69.000.

Noji, Masuo: See—
Norimatsu, Kenji; and Noji, Masuo, 267,324, Cl. D15-83.000.

Norimatsu, Kenji; and Noji, Masuo, to Sawafuji Electric Co., Ltd. Electric refrigerator and warmer. 267,324, 12-21-82, Cl. D15-83.000.

Northcutt, W. Allen, III, to J. J. B. Hilliard, W. L. Lyons, Inc. Jewelry finding. 267,313, 12-21-82, Cl. D11-1.000.

Nusz, David. Combined valet wall rack and drawer unit. 267,294, 12-21-82, Cl. D6-123.000.

Ogiwara, Kazuyuki, to Sawafuji Electric Co., Ltd. Electric refrigerator. 267,323, 12-21-82, Cl. D15-83.000.

Oki Electric Industry Co., Ltd.: See—
Fukushima, Hisao; and Hirooka, Junji, 267,316, Cl. D14-53.000.
Fukushima, Hisao; and Hirooka, Junji, 267,317, Cl. D14-53.000.
Fukushima, Hisao; and Hirooka, Junji, 267,318, Cl. D14-53.000.

Oy. Fiskars Ab.: See—
Linden, Erkki O., 267,309, Cl. D8-57.000.

Pair, Ron. Dust free loading apparatus. 267,360, 12-21-82, Cl. D34-28.000.

Paradis, Joseph R.: See—
Zimmerman, John D.; and Paradis, Joseph R., 267,325, Cl. D7-309.000.

Pelavin, Donald. Storefront. 267,346, 12-21-82, Cl. D25-59.000.

Pirovano, Rino; and Bosch, Rino. Pencil holding container. 267,332, 12-21-82, Cl. D19-85.000.

Pook, Peter D.; and Rosenwinkel, Donald A., to Leisure Dynamics, Inc. Novelty eye glasses. 267,334, 12-21-82, Cl. D21-240.000.

Quaintance, Peter V. C.: See—
Eade, Robert A.; and Quaintance, Peter V. C., 267,315, Cl. D14-33.000.

Questor Corporation: See—
Mower, Henry W.; Seymour, Allen; Koziatek, Jerome P.; and Lendvay, Joseph G., 267,296, Cl. D6-153.000.

Rapp, Reinhold: See—
Kern, Alfred; Busse, Rido; and Rapp, Reinhold, 267,341, Cl. D24-21.000.

Reynolds Metals Company: See—
Lowdon, Jack, 267,307, Cl. D8-14.000.

Ronndahl, Sylve: See—
Eriksson, Hans; and Ronndahl, Sylve, 267,300, Cl. D7-70.000.

Rosenwinkel, Donald A.: See—
Pook, Peter D.; and Rosenwinkel, Donald A., 267,334, Cl. D21-240.000.

Runyan, Steven R.; Link, William T.; and Hobson, Stephen, to Datagraphix, Inc. Desk drawer microfiche reader. 267,328, 12-21-82, Cl. D16-18.000.

Sassak, John J. Toy alligator. 267,333, 12-21-82, Cl. D21-157.000.

Sawafuji Electric Co., Ltd.: See—
Norimatsu, Kenji; and Noji, Masuo, 267,324, Cl. D15-83.000.
Ogiwara, Kazuyuki, 267,323, Cl. D15-83.000.

Schulz, Glyn A., to American Can Company. Embossed paper towel. 267,361, 12-21-82, Cl. D59-2.00B.

Seymour, Allen: See—
Mower, Henry W.; Seymour, Allen; Koziatek, Jerome P.; and Lendvay, Joseph G., 267,296, Cl. D6-153.000.

Shaffer, Myron W., to Thermo-Seal, Inc. Laminating apparatus. 267,327, 12-21-82, Cl. D15-146.000.

Sharp Corporation: See—
Kurozumi, Shigeru, 267,290, Cl. D3-30.100.
Sundstrom, Staffan; and Herlestam, Tore, 267,344, Cl. D24-9.000.

Sharp Kabushiki Kaisha: See—
Suganoya, Yoshio; Miyake, Takao; and Kawaiski, Masayoshi, 267,302, Cl. D7-351.000.

Sher, S. Franklin. Pipe. 267,353, 12-21-82, Cl. D27-03.000.

Simmons, Robert G. Flashlight. 267,350, 12-21-82, Cl. D26-48.000.

Southwire Company: See—
Lanier, Jerry W., 267,326, Cl. D15-145.000.

Suganoya, Yoshio; Miyake, Takao; and Kawaiski, Masayoshi, to Sharp Kabushiki Kaisha. Microwave oven. 267,302, 12-21-82, Cl. D7-351.000.

Sundstrom, Staffan; and Herlestam, Tore, to Sharp Corporation. Contact lens sterilizer unit. 267,344, 12-21-82, Cl. D24-9.000.

Suzuki, Yoshikazu, to Ushio Denki Kabushiki Kaisha. Electric light. 267,351, 12-21-82, Cl. D26-50.000.

Suzuki, Yoshikazu, to Ushio Denki Kabushiki Kaisha. Combined cover and stand for electric light. 267,352, 12-21-82, Cl. D26-118.000.

Symonds, Darrell C. Blade plough. 267,320, 12-21-82, Cl. D15-11.000.

Thermo-Seal, Inc.: See—
Shaffer, Myron W., 267,327, Cl. D15-146.000.

Thermoforce Limited: See—
Cole, Albert, 267,311, Cl. D8-330.000.

Tihonovich, Walter. Comb. 267,354, 12-21-82, Cl. D28-21.000.

U.S. Philips Corporation: See—
Van De Ven, Peter H. J., 267,319, Cl. D14-73.000.

University of Michigan, The Regents of the: See—
Gooding, Elwyn R., 267,287, Cl. D2-260.000.

Ushio Denki Kabushiki Kaisha: See—
Suzuki, Yoshikazu, 267,351, Cl. D26-50.000.
Suzuki, Yoshikazu, 267,352, Cl. D26-118.000.

Van De Ven, Peter H. J., to U.S. Philips Corporation. Clock radio receiver. 267,319, 12-21-82, Cl. D14-73.000.

Walsh, Brad, to Balcorail Ltd. Balcony railing for buildings or the like. 267,345, 12-21-82, Cl. D25-38.000.

Walsh, Brad, to Balcorail Ltd. Rail for balcony railing and the like. 267,347, 12-21-82, Cl. D25-74.000.

Walsh, Brad, to Balcorail Ltd. Base rail for balcony railing and the like. 267,348, 12-21-82, Cl. D25-74.000.

Wan, Clement S., to Landman Limited. Rotator primarily for a barbecue spit. 267,303, 12-21-82, Cl. D7-402.000.

Wan, Clement S., to Landman Limited. Rotator primarily for a barbecue spit. 267,304, 12-21-82, Cl. D7-402.000.

Watanabe, Tony, to Belmont Equipment Corp. Dental operator unit. 267,340, 12-21-82, Cl. D24-4.000.

Worrell, William R., to Kroy Industries Inc. Printing cartridge. 267,330, 12-21-82, Cl. D18-12.000.

Zimmerman, John D.; and Paradis, Joseph R., to Bunn-O-Matic Corporation. Coffee maker. 267,325, 12-21-82, Cl. D7-309.000.

LIST OF PLANT PATENTEES

Beineke, Walter F., to Purdue Research Foundation. Black walnut tree. 4,966, 12-21-82, Cl. 32.000.

Pan American Plant Company: See—
van der Knaap, Jacques C. M., 4,967, Cl. 76.000.

Purdue Research Foundation: See—
Beineke, Walter F., 4,966, Cl. 32.000.

van der Knaap, Jacques C. M., to Pan American Plant Company. Chrysanthemum named Dark Westland. 4,967, 12-21-82, Cl. 76.000.

ISSUED DECEMBER 21, 1982

NOTE.—First number, class; second number, subclass; third number, patent number

209.1	CLASS 2	4,364,123	122	CLASS 34	4,364,185	276	CLASS 60	4,364,226	501 D	CLASS 76	4,364,287	90.17	4,364,341	625.3	Re.31,105
234		4,364,124		CLASS 36		398		4,364,227		CLASS 81		143 B	4,364,342	625.32	4,364,415
255		4,364,125		3 B	4,364,186	414		4,364,228				179 BG	4,364,343		CLASS 138
	CLASS 3		15		4,364,187	444		4,364,229	3 R		4,364,288	198 F	4,364,344	30	4,364,416
1.5		4,364,126	31		4,364,188	577		4,364,230	9.51		4,364,289	323	4,364,345	42	4,364,417
		4,364,127			4,364,189	641.2		4,364,231		CLASS 82		339	4,364,346	103	4,364,418
6.1		4,364,128	32 R		4,364,190	712		4,364,232	36 R		4,364,290		4,364,348	167	4,364,419
								4,364,233		CLASS 83			4,364,349		CLASS 139
324	CLASS 4	4,364,129	2 R		4,364,191	3		4,364,234	100		4,364,291	357	4,364,351	91	4,364,420
449		4,364,130		CLASS 40		55.5		4,364,235	605		4,364,292	376	4,364,352	383 A	4,364,421
495		4,364,131	155		4,364,192	77		4,364,236	674		4,364,293	425	4,364,353		CLASS 141
546		4,364,132		CLASS 43		99		4,364,237	796		4,364,294	437	4,364,354	1.1	4,364,422
617		4,364,133				160		4,364,238		CLASS 84		440	4,364,355		CLASS 144
	CLASS 5		1		4,364,193	217		4,364,239	1.15		4,364,295		4,364,356	366	4,364,423
201		4,364,134	131		4,364,194	235.1		4,364,240	1.26		4,364,296	450	4,364,357		CLASS 148
443		4,364,135		CLASS 44		476		4,364,241	440		4,364,297	453	4,364,358	1.5	4,364,778
	CLASS 8		1 C		4,364,740	505		4,364,242	465		4,364,298	454	4,364,359	6	4,364,779
634		4,364,738	51		4,364,741			4,364,243	478		4,364,299	492	4,364,360	6.3	4,364,780
654		4,364,739			4,364,742	2		4,364,244		CLASS 89		527	4,364,361		4,364,781
	CLASS 10		66		4,364,743	22		4,364,245	36 A		4,364,300	557	4,364,362		CLASS 149
86 A		4,364,136		CLASS 46		29		4,364,246		CLASS 91		564	4,364,363	21	4,364,782
71.3	CLASS 14	4,364,137	135 R		4,364,195	106		4,364,247	20		4,364,301	568	4,364,364		CLASS 150
			242		4,364,196	160		4,364,248	29		4,364,302	569	4,364,365	1	4,364,424
	CLASS 15			CLASS 47		9 B		4,364,249	329		4,364,303	575	4,364,366	51	4,364,425
50 R		4,364,138	56		4,364,197	75.2		4,364,250	420		4,364,304		4,364,367		CLASS 152
104.06 R		4,364,141		CLASS 48		78		4,364,251		CLASS 92		5	4,364,371		CLASS 156
104.3 SN		4,364,139	86 R		4,364,744	145 R		4,364,252	63		4,364,305	39 R	4,364,372	209 R	4,364,426
		4,364,140	209		4,364,745	163		4,364,253	71		4,364,306	418	4,364,373	349	4,364,427
117		4,364,142		CLASS 49		5 E		4,364,254	157		4,364,307	442	4,364,374		CLASS 158
145		4,364,143						4,364,255		CLASS 99		444	4,364,375	69	4,364,783
229 AC		4,364,144	62		4,364,198			4,364,256	351		4,364,308			78	4,364,784
236 R		4,364,145	181		4,364,199			4,364,257	352		4,364,309			88	4,364,785
323		4,364,146	192		4,364,200	264		4,364,258	357		4,364,310			99	4,364,786
404		4,364,147	248		4,364,201	456 R		4,364,259		CLASS 100				164	4,364,787
	CLASS 16		352		4,364,202			4,364,260	6		4,364,311	1.1	4,364,376	179	4,364,788
			409		4,364,203	86		4,364,261		CLASS 101		1.5	4,364,377	214	4,364,789
32		4,364,148		CLASS 51		88		4,364,262				24.5	4,364,378	346	4,364,790
87 R		4,364,149			4,364,204	90		4,364,263		CLASS 102		89 A	4,364,379	306	4,364,791
126		4,364,150	52 R		4,364,746			4,364,264	110		4,364,312	92 D	4,364,380	628	4,364,792
	CLASS 19		298					4,364,265	401.1		4,364,313	92 E	4,364,381	643	4,364,793
0.2		4,364,151		CLASS 52		58		4,364,266		CLASS 104		204.28	4,364,382		CLASS 159
105		4,364,152			4,364,205	59		4,364,267				213 R	4,364,383	17 P	4,364,794
107		4,364,153	4		4,364,206			4,364,268	225		4,364,314	214 C	4,364,384		CLASS 162
129 R		4,364,154	79.7		4,364,207	187		4,364,269		CLASS 105		214 E	4,364,385		CLASS 166
	CLASS 24		81		4,364,208	319		4,364,270	215 C		4,364,315	214 R	4,364,386	158	4,364,795
			82		4,364,209	345		4,364,271		CLASS 106		234	4,364,387		CLASS 168
217 R		4,364,155	208		4,364,210	356		4,364,272				303 R	4,364,388	11 R	4,364,428
	CLASS 26		221		4,364,211	405		4,364,273	281 R		4,364,773	303.1	4,364,389	28	4,364,429
2 R		4,364,156	245		4,364,212	453.15		4,364,274	287.13		4,364,774	305.3	4,364,390		CLASS 169
	CLASS 28		281		4,364,213			4,364,275		CLASS 111		325	4,364,391		CLASS 171
179		4,364,157	309.17		4,364,214	35		4,364,276				335.5	4,364,392		CLASS 172
	CLASS 29		311		4,364,215			4,364,277	3		4,364,316	419 PT	4,364,393	214	4,364,430
			488		4,364,216	40		4,364,278		CLASS 112		710	4,364,394	275	4,364,431
			731			53		4,364,279				736	4,364,395	290	4,364,432
116 AD		4,364,158		CLASS 53		61.1 C		4,364,280		CLASS 113		774	4,364,396	339	4,364,433
156.5 R		4,364,159			4,364,217			4,364,281	132		4,364,317				CLASS 173
156.8 H		4,364,160	58		4,364,218			4,364,282	147		4,364,318		CLASS 131		CLASS 174
407		4,364,161	331.5		4,364,219	103		4,364,283	238		4,364,319	277	4,364,400	63	4,364,434
570		4,364,163	374		4,364,220	113		4,364,284	262.2		4,364,320	297	4,364,401		CLASS 175
571		4,364,164	411			115		4,364,285	311		4,364,321	311	4,364,402		CLASS 176
	CLASS 30				4,364,221	146		4,364,286		CLASS 114		332	4,364,403	15	4,364,435
						178 R		4,364,287						33	4,364,436
576 B		4,364,165		CLASS 55		223		4,364,288	71		4,364,322		CLASS 133	304	4,364,437
592 R		4,364,166	25		4,364,747	298		4,364,289	265		4,364,323	4 A	4,364,404	789	4,364,438
596		4,364,167	27		4,364,748	432 R		4,364,290	280		4,364,324		CLASS 134	821	4,364,439
724		4,364,168	73		4,364,749			4,364,291	331		4,364,325				CLASS 177
828		4,364,169	89		4,364,750	614		4,364,292	369		4,364,326	3	4,364,775		CLASS 178
858		4,364,170	96		4,364,751	615		4,364,293		CLASS 118		10	4,364,776		CLASS 179
882		4,364,171	138		4,364,752	649		4,364,294				29	4,364,777	93.7	4,364,440
		4,364,172	179		4,364,753	721		4,364,295	102		4,364,327				CLASS 180
	CLASS 36		269		4,364,754	862.34		4,364,296	411		4,364,328		CLASS 135		CLASS 181
			290		4,364,755	862.36		4,364,297	652		4,364,329	70	4,364,405	50	4,365,108
	CLASS 38		316		4,364,756	862.66		4,364,298	697		4,364,330		CLASS 136	109	4,365,109
			357		4,364,757			4,364,299		CLASS 119					CLASS 182
153		4,364,174	365		4,364,758			4,364,300				206	4,365,106		CLASS 183
	CLASS 33		487		4,364,759			4,364,301	28		4,364,331	258	4,365,107	84	4,364,441
			523		4,364,760	55		4,364,302	48		4,364,332		CLASS 137		CLASS 184
1 H		4,364,175			4,364,761	424.8 A		4,364,303	52 AF		4,364,333				CLASS 185
18 R		4,364,176		CLASS 56		489		4,364,304				15	4,364,406	177	4,364,442
147 K		4,364,177				540		4,364,305	61		4,364,334	71	4,364,407		CLASS 186
174 H		4,364,182	13.6		4,364,221	606 R		4,364,306		CLASS 123		107	4,364,408		CLASS 187
174 L		4,364,178	328 R		4,364,222	768		4,364,307				486	4,364,409	22.10	4,365,110
		4,364,179						4,364,308				489	4,364,410	22.13	4,365,111
		4,364,180		CLASS 57				4,364,309	1 A		4,364,336				CLASS 188
		4,364,181	5		4,364,223	53		4,364,310	3		4,364,337	513.5	4,364,411		CLASS 189
268		4,364,183	263		4,364,224	58		4,364,311	41.0		4,364,338		4,364,412		CLASS 190
447		4,364,184	291		4,364,225	126 R		4,364,312	41.42		4,364,339	624.14	4,364,413	1 E	4,365,113
								4,364,313	55 R		4,364,340	624.2	4,364,414	1 SC	4,365,112

1 VE	4,365,114	325	4,364,821	CLASS 239	2.2	4,364,878	163	4,364,604	CLASS 335		
15.55 T	4,365,115				22	4,364,879	306	4,364,605			
84 T	4,365,116			CLASS 209	8	4,364,880	334	4,364,602	281	4,365,223	
99 H	4,365,117	3	4,364,822	74	4,364,881	40.7	4,364,881	337	4,364,606	CLASS 336	
159	4,365,118	135	4,364,823	171	4,364,882	45.9	4,364,882	452	4,364,607	212	4,365,224
170.2	4,365,119	167	4,364,824	191	4,364,883	60	4,364,883			CLASS 337	
		668	4,364,479	230	4,364,884	118	4,364,884			CLASS 338	
CLASS 180				330	4,364,885	134	4,364,885	37 SS	4,364,608	88	4,365,225
9.5	4,364,443			346	4,364,886	171	4,364,886			198	4,365,226
65 R	4,364,444	109	4,364,825	399	4,364,887		4,364,887			202	4,365,227
70 R	4,364,445	150	4,364,826	533.14	4,364,888	177 R	4,364,888	23 R	4,364,609	347	4,365,228
182	4,364,446	225	4,364,827	720	4,364,889	188	4,364,889	36	4,364,610		
206	4,364,447	232	4,364,828		4,364,890	191	4,364,890	84 R	4,364,611	CLASS 338	
271	4,364,448	238	4,364,829		4,364,891	263	4,364,891			25	4,365,229
336	4,364,449	268	4,364,830		4,364,892	284	4,364,892			180	4,365,230
		298	4,364,831		4,364,893	325	4,364,893			334	4,365,231
CLASS 181		518	4,364,832		4,364,894	334	4,364,894			CLASS 339	
120	4,364,446	521	4,364,833		4,364,895	335	4,364,895			17 CF	4,364,620
CLASS 182		525	4,364,834		4,364,896	513	4,364,896			17 F	4,364,619
213	4,364,451	752	4,364,835							17 LC	4,364,618
CLASS 184				CLASS 244	110	4,364,547	CLASS 267			59 M	4,364,621
7 E	4,364,452	85	4,364,480	3.22	4,364,530					97 R	4,364,622
CLASS 187		184	4,364,481	3.27	4,364,531					126 RS	4,364,623
29 R	4,364,453			CLASS 213	139	4,364,548	CLASS 269			154 R	4,364,624
57	4,364,454	8	4,364,482	129.3	4,364,533					183	4,364,625
CLASS 188				CLASS 215	1	4,364,549	CLASS 271			184 M	4,364,626
1.11	4,364,455	218	4,364,483	97	4,364,534					CLASS 340	
106 A	4,364,456	220	4,364,484	123.1	4,364,535					27 R	4,365,232
322.17	4,364,457	232	4,364,485	429	4,364,536					73	4,365,233
		296	4,364,486	448	4,364,537					146.3 AC	4,365,235
CLASS 192				495	4,364,538					146.3 SY	4,365,234
0.033	4,364,459			647	4,364,539					347 AD	4,365,236
3 T	4,364,458			654	4,364,540					521	4,365,237
35	4,364,460										4,365,238
CLASS 194				CLASS 250	69	4,364,556	CLASS 310			564	4,365,239
4 D	4,364,461	10.55 M	4,365,131	207	4,365,150					571	4,365,240
CLASS 198		60 A	4,365,132	222 R	4,365,151					709	4,365,241
347	4,364,462	69 M	4,365,133	231 SE	4,365,152					712	4,365,242
405	4,364,463	118	4,365,134	233	4,365,153					782	4,365,243
419	4,364,464	121 LE	4,365,136	234	4,365,154					792	4,365,244
452	4,364,465	121 LF	4,365,135	235	4,365,155					802	4,365,245
459	4,364,466	137.31	4,365,137	236	4,365,156					825.01	4,365,246
486	4,364,467	200	4,365,138	237	4,365,157						4,365,247
489	4,364,468	216	4,365,139	238	4,365,158						4,365,248
616	4,364,469	225	4,365,140	239	4,365,159						4,365,249
735	4,364,470	370	4,365,141	240	4,365,160						4,365,250
751	4,364,471	374	4,365,142	241	4,365,161						4,365,251
		401	4,365,143	242	4,365,162						
CLASS 200		535	4,365,144	243	4,365,163						
5 A	4,365,120			244	4,365,164						
61.27	4,365,121			245	4,365,165						
61.42	4,365,122			246	4,365,166						
67 DA	4,365,123			247	4,365,167						
81.5	4,365,124			248	4,365,168						
81.9 M	4,365,125			249	4,365,169						
144 AP	4,365,126			250	4,365,170						
144 B	4,365,127			251	4,365,171						
148 F	4,365,128			252	4,365,172						
162	4,365,129			253	4,365,173						
306	4,365,130			254	4,365,174						
CLASS 201				255	4,365,175						
4	4,364,796			256	4,365,176						
CLASS 202				257	4,365,177						
181	4,364,797			258	4,365,178						
267 R	4,364,798			259	4,365,179						
CLASS 204				260	4,365,180						
15	4,364,799			261	4,365,181						
	4,364,800			262	4,365,182						
	4,364,801			263	4,365,183						
23	4,364,802			264	4,365,184						
30	4,364,803			265	4,365,185						
44	4,364,804			266	4,365,186						
98	4,364,805			267	4,365,187						
	4,364,806			268	4,365,188						
114	4,364,807			269	4,365,189						
158 R	4,364,808			270	4,365,190						
159.13	4,364,809			271	4,365,191						
195 R	4,364,810			272	4,365,192						
220	4,364,811			273	4,365,193						
224 M	4,364,812			274	4,365,194						
252	4,364,813			275	4,365,195						
278	4,364,814			276	4,365,196						
283	4,364,815			277	4,365,197						
297 W	4,364,816			278	4,365,198						
CLASS 206				279	4,365,199						
45.34	4,364,472			280	4,365,200						
63.5	4,364,473			281	4,365,201						
219	4,364,474			282	4,365,202						
425	4,364,475			283	4,365,203						
508	4,364,476			284	4,365,204						
511	4,364,477			285	4,365,205						
605	4,364,478			286	4,365,206						
CLASS 208				287	4,365,207						
8 LE	4,364,817			288	4,365,208						
10	4,364,818			289	4,365,209						
96	4,364,819			290	4,365,210						
101	4,364,820			291	4,365,211						

CLASS 357			CLASS 368			CLASS 407			CLASS 430			CLASS 527				
17	4,365,260	80	4,364,668	104	4,364,693	236	4,364,941	19	4,365,012	312	4,365,050	245	4,365,049			
24	4,365,261	111	4,364,669	CLASS 408			245	4,364,942	57	4,365,013						
30	4,365,259	114	4,364,670				246	4,364,943	59	4,365,014						
31	4,365,262	221	4,364,671	CLASS 409			247	4,364,944	59	4,365,015	CLASS 528					
45	4,365,263	240	4,364,672				249	4,364,946	62	4,365,016	64	4,365,051				
54	4,365,264	316	4,364,673				256	4,364,947	83	4,365,017	92	4,365,052				
CLASS 358			319	4,364,674	103	4,364,695	263	4,364,948	139	4,365,018	258	4,365,053				
29	4,365,265	CLASS 369			138	4,364,696	266	4,364,949	190	4,365,019	277	4,365,054				
37	4,365,266	44	4,365,323	CLASS 411			266	4,364,950	CLASS 431			371	4,365,055			
84	4,365,267				38	4,364,697	266	4,364,951	11	4,364,724	403	4,365,056				
93	4,365,268	173	4,365,324	CLASS 414			267	4,364,952	116	4,364,725	503	4,365,057				
111	4,365,269	268	4,365,325				267	4,364,953	215	4,364,726	CLASS 536					
140	4,365,270	CLASS 370			9	4,364,699	269	4,364,954				6.5	4,365,058			
219	4,365,271				24.5	4,364,700	271	4,364,955	CLASS 432			35	4,365,059			
228	4,365,272	18	4,365,327				271	4,364,956	1	4,364,727	65	4,365,060				
260	4,365,273	60	4,365,328	CLASS 371			274	4,364,958	8	4,364,728	103	4,365,061				
283	4,365,275	100	4,365,329				298	4,364,959	9	4,364,729	CLASS 544					
293	4,365,274	124	4,365,330	CLASS 372			CLASS 425			CLASS 433			22	4,365,062		
301	4,365,276				142	4,365,335	78	4,364,719	141	4,364,730	CLASS 546					
CLASS 360			13	4,365,332	CLASS 416			144	4,364,720	218	4,364,731	123	4,365,063			
72.1	4,365,277	27	4,365,333				149	4,364,721	CLASS 434			148	4,365,064			
73	4,365,278	132 B	4,365,334	CLASS 373			192 R	4,364,722	219	4,364,732	334	4,365,065				
109	4,365,279	CLASS 374			183	4,364,711	384	4,364,723	CLASS 435			CLASS 548				
137	4,365,280	34	4,365,335				17	4,364,960	80	4,365,020	228	4,365,066				
CLASS 361			45	4,365,336	CLASS 417			19	4,364,961	CLASS 440			342	4,365,067		
91	4,365,281	87	4,365,337				41	4,364,962	2	4,364,733	435	4,365,068				
127	4,365,282	CLASS 375			50	4,364,713	283	4,364,963	CLASS 441			567	4,364,867			
233	4,365,283	16	4,364,675				422	4,364,964	37	4,364,734	260	4,365,069				
395	4,365,284	44	4,364,676	CLASS 376			481	4,364,965	CLASS 445			263	4,365,070			
CLASS 362			222	4,364,677	CLASS 419			573	4,364,966	42	4,365,346	377	4,365,071			
32	4,365,285	394	4,364,677				407	4,364,716	179	4,365,347	415	4,365,072				
CLASS 363			500	4,364,718	CLASS 423			632	4,364,967	180	4,365,348	451	4,365,073			
58	4,365,286	12	4,365,338				38	4,364,717	392	4,365,349	CLASS 556					
94	4,365,287	CLASS 377			26	4,364,162	40	4,364,718	190	4,365,350	442	4,365,074				
141	4,365,288	148	4,364,897	CLASS 424			44	4,364,968	CLASS 474			CLASS 560				
CLASS 364			190	4,364,898				54.1	4,364,970	14	4,364,735	51	4,365,075			
143	4,365,289	64	4,364,899	CLASS 425			75	4,364,971	168	4,364,736	53	4,365,076				
200	4,365,290	101	4,364,900				213	4,364,972	CLASS 493			94	4,365,077			
	4,365,291	104	4,364,901	CLASS 426			294	4,364,973	346	4,364,737	191	4,365,078				
	4,365,292	144	4,364,902				382	4,364,974	CLASS 501			204	4,365,079			
	4,365,293	19	4,365,155	CLASS 427			429	4,364,975	15	4,365,021	209	4,365,080				
	4,365,294	22	4,365,156	CLASS 428			433	4,364,976	97	4,365,022	243	4,365,081				
	4,365,295	88	4,365,157				3	4,364,977	CLASS 521			247	4,365,082			
	4,365,296	157	4,365,158	CLASS 429			25	4,364,978	32	4,365,023	251	4,365,083				
	4,365,297	65	4,365,159				35	4,364,979	114	4,365,024	CLASS 562					
	4,365,298	84	4,365,160	CLASS 430			65	4,364,980	159	4,365,025	512	4,365,086				
	4,365,299	99	4,365,161				85	4,364,981	168	4,365,026	534	4,365,087				
426	4,365,299	015	4,365,162	CLASS 431			106	4,364,982	CLASS 523			579	4,365,088			
431.06	4,365,300	317	4,365,163				149	4,364,983	332	4,365,027	CLASS 564					
474	4,365,301	321 R	4,365,164	CLASS 432			156	4,364,984	402	4,365,028	67	4,365,089				
475	4,365,302	365	4,365,165				192	4,364,985	437	4,365,029	127	4,365,090				
483	4,365,303	447.6	4,365,166	CLASS 433			212	4,364,986	508	4,365,030	135	4,365,091				
498	4,365,304	573 R	4,365,167				216	4,364,987	CLASS 524			307	4,365,092			
515	4,365,305	629	4,365,168	CLASS 434			218	4,364,988	88	4,365,031	CLASS 568					
521	4,365,306	1	4,364,920				265	4,364,989	99	4,365,032	14	4,365,094				
551	4,365,307	5	4,364,921	CLASS 435			283	4,364,990	118	4,365,033	462	4,365,095				
557	4,365,308	9	4,364,922				316.6	4,364,991	256	4,365,034	665	4,365,096				
577	4,365,309	46	4,364,923	CLASS 436			336	4,364,992	283	4,365,035	684	4,365,097				
702	4,365,310	49	4,364,924				369	4,364,993	297	4,365,036	726	4,365,098				
822	4,365,311	50	4,364,925	CLASS 437			372	4,364,994	449	4,365,037	CLASS 604					
900	4,365,312	56	4,364,926				411	4,364,995	773	4,365,039	10	4,364,395				
	4,365,313	79	4,364,927	CLASS 438			423.9	4,365,001	819	4,365,040	96	4,364,396				
	4,365,314	80	4,364,928				480	4,365,002	CLASS 525			145	4,365,101			
	4,365,315	81	4,364,929	CLASS 439			483	4,365,003	58	4,365,041	163	4,365,102				
CLASS 365			84	4,364,930				552	4,365,004	68	4,365,042	CLASS 585				
72	4,365,316	85	4,364,931	CLASS 440			593	4,365,005	113	4,365,043	320	4,365,103				
162	4,365,317	1	4,364,932				611	4,365,006	127	4,365,044	467	4,365,104				
200	4,365,318	5	4,364,933	CLASS 441			CLASS 429			248	4,365,045	525	4,365,105			
	4,365,319	9	4,364,934							247	4,365,046					
CLASS 366			46	4,364,935	CLASS 442						447	4,365,047				
84	4,364,664	56	4,364,936	CLASS 443						CLASS 526			10	4,364,397		
106	4,364,665	79	4,364,937							128	4,365,048	CLASS 590				
142	4,364,666	80	4,364,938	CLASS 444												
325	4,364,667	81	4,364,939													
CLASS 367			85	4,364,940	CLASS 445											
21	4,365,320	88	4,364,941													
25	4,365,321	180	4,364,942	CLASS 446												
32	4,365,322	230	4,364,943													

D2—	33	267,284		177	267,297		94	267,310		69	267,321	D23—	1	267,335			267,348	
	248	267,285		184	267,298		330	267,311		70	267,322		58	267,336		D26—	37	267,349
	259	267,286		201	267,299		380	267,308		83	267,323		97	267,337			267,350	
	260	267,287											141	267,338			267,351	
	320	267,288	D7—	70	267,300	32—	46	267,357			267,324			267,339			267,352	
	401	267,289		98	267,301	D10—	31	267,312		145	267,326					118	267,353	
D3—	30.1	267,290		309	267,325	D11—	1	267,313		146	267,327	D24—	4	267,340	D27—	03	267,353	
D4—	12	267,291		351	267,302	D12—	300	267,314		D16—	18	267,328		9	267,344	D28—	21	267,354
	35	267,292		402	267,303	D14—	33	267,315		D17—	14	267,329		21	267,341	D30—	15	267,355
							53	267,316		D18—	12	267,330		57	267,342		34	267,356
D6—	4	267,293						267,317			15	267,331		64	267,343	D34—	17	267,358
	123	267,294	D8—	02	267,305			267,318		D19—	85	267,332		38	267,345		26	267,359
	146	267,295		14	267,307		73	267,319		D21—	157	267,333		59	267,346		28	267,360
	153	267,296		57	267,309		D15—	11	267,320		240	267,334		74	267,347	D59—	2 B	267,361

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P —	32	4 966	76	4 967				
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01 :	4,364,272	4,364,692	4,364,679	4,364,229	4,364,494	25 :	4,364,325
	4,364,720	4,364,697	4,364,682	4,364,297	4,364,514		4,364,405
04 :	4,364,183	4,364,708	4,364,696	4,364,308	4,364,522		4,364,562
	4,364,208	4,364,710	4,364,773	4,364,313	4,364,556		4,364,655
	4,364,221	4,364,715	4,364,878	4,364,336	4,364,615		4,364,677
	4,364,234	4,364,748	4,364,884	4,364,356	4,365,098		4,365,005
	4,364,287	4,364,752	4,364,888	4,364,383	4,365,148		4,365,072
	4,364,531	4,364,775	4,364,910	4,364,387	4,365,171		4,365,075
	4,364,618	4,364,793	4,364,913	4,364,424	4,365,232		4,365,083
	4,364,707	4,364,847	4,364,940	4,364,439	4,365,266		4,365,131
	4,364,828	4,364,857	4,364,957	4,364,463	4,365,289		4,365,134
06 :	4,364,123	4,364,861	4,365,006	4,364,466	19 :	Re.31,107.	4,365,183
	4,364,126	4,364,920	4,365,007	4,364,484		4,364,698	4,365,225
	4,364,136	4,364,977	4,365,008	4,364,491		4,364,705	4,365,281
	4,364,140	4,364,984	4,365,077	4,364,547		4,365,268	4,365,294
	4,364,155	4,364,991	4,365,139	4,364,581	20 :	4,364,182	4,365,343
	4,364,174	4,365,004	4,365,146	4,364,603		4,364,132	4,364,132
	4,364,187	4,365,029	4,365,147	4,364,616		4,364,203	4,364,214
	4,364,201	4,365,117	4,365,149	4,364,663		4,364,442	4,364,231
	4,364,222	4,365,132	4,365,293	4,364,666		4,364,526	4,364,254
	4,364,232	4,365,136	4,365,303	4,364,745		4,364,554	4,364,258
	4,364,266	4,365,159	4,365,310	4,364,791		4,364,699	4,364,260
	4,364,275	4,365,186	4,364,998	4,364,819		4,364,817	4,364,265
	4,364,288	4,365,197	4,365,044	4,364,820	21 :	4,365,092	4,364,315
	4,364,290	4,365,204	4,365,106	4,364,821		4,364,523	4,364,300
	4,364,303	4,365,227	Re.31,108	4,364,843		4,364,683	4,364,342
	4,364,386	4,365,239	4,364,134	4,364,848		4,364,749	4,364,343
	4,364,390	4,365,246	4,364,143	4,364,849		4,364,906	4,365,071
	4,364,391	4,365,280	4,364,145	4,364,852		4,365,071	4,364,351
	4,364,395	4,365,288	4,364,228	4,364,870		4,365,129	4,364,366
	4,364,408	4,365,295	4,364,261	4,364,870	22 :	4,364,283	4,364,367
	4,364,410	4,365,313	4,364,379	4,364,893		4,364,407	4,364,388
	4,364,416	4,365,322	4,364,471	4,364,905		4,364,435	4,364,500
	4,364,447	4,365,331	4,364,471	4,364,975		4,364,678	4,364,571
	4,364,451	4,365,332	4,364,521	4,364,981		4,364,833	4,364,584
	4,364,452	4,365,332	4,364,794	4,365,028		4,364,872	4,364,591
	4,364,458	4,365,339	4,364,824	4,365,033		4,364,873	4,364,595
		4,364,253	4,364,880	4,365,035		4,364,874	4,364,614
		4,364,575	4,364,912	4,365,055	24 :	4,364,164	4,364,621
		4,364,818	4,365,024	4,365,074		4,364,188	4,364,719
		4,364,834	4,365,222	4,365,122		4,364,267	4,364,761
		4,365,112	4,365,230	4,365,130		4,364,279	4,364,783
		4,365,120	4,365,338	4,365,140		4,364,311	4,364,831
09 :		4,364,146	4,364,298	4,365,260		4,364,440	4,364,897
		4,364,158	4,364,334	4,365,345	18 :	4,364,495	4,364,954
		4,364,539	4,364,502	4,364,165		4,365,026	4,364,520
		4,364,274	4,364,509	4,364,167		4,364,835	4,365,075
		4,364,330	4,364,729	4,364,172		4,364,903	4,365,103
		4,364,376	4,364,788	4,364,233		4,365,025	4,365,151
		4,364,413	4,364,895	4,364,289		4,365,110	4,365,169
		4,364,475	4,365,145	4,364,344		4,365,173	4,365,238
		4,364,632	4,364,142	4,364,441		4,364,210	4,364,210
		4,364,686	4,364,161	4,364,456		4,365,195	4,364,213
		4,364,691	4,364,196			4,365,200	4,364,370
						4,365,341	

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	4,364,396	4,364,856	4,364,670	4,364,505	4,364,171	4,364,624
	4,364,397	4,364,863	4,364,709	4,364,516	4,364,237	4,364,731
	4,364,437	4,364,908	4,364,744	4,364,579	4,364,280	4,364,756
	4,364,476	4,364,916	4,364,795	4,364,589	4,364,444	4,364,813
	4,364,622	4,364,924	4,364,846	4,364,625	4,364,468	4,364,815
	4,364,695	4,364,927	4,364,853	4,364,633	4,364,474	4,364,829
	4,364,716	4,364,932	4,364,881	4,364,694	4,364,538	4,364,871
	4,364,747	4,364,933	4,364,891	4,364,722	4,364,586	4,364,909
	4,364,751	4,364,934	4,364,929	4,364,723	4,364,772	4,364,915
	4,364,754	4,364,935	4,364,966	4,364,728	4,364,786	4,364,917
	4,364,963	4,364,968	4,364,968	4,364,735	4,364,810	4,364,918
	4,364,972	4,364,937	4,364,993	4,364,740	4,364,822	4,365,010
	4,364,995	4,364,989	4,365,016	4,364,757	4,364,830	4,365,080
	4,365,189	4,365,009	4,365,017	4,364,762	4,364,858	4,365,096
	4,365,192	4,365,030	4,365,019	4,364,764	4,364,889	4,365,141
	4,365,257	4,365,059	4,365,038	4,364,765	4,364,948	4,365,154
28 :	4,365,290	4,365,070	4,365,042	4,364,766	4,364,967	4,365,190
29 :	4,364,517	4,365,083	4,365,050	4,364,798	4,365,045	4,365,191
	4,364,219	4,365,084	4,365,065	4,364,805	4,365,053	4,365,199
	4,364,294	4,365,093	4,365,086	4,364,806	4,365,063	4,365,210
	4,364,310	4,365,097	4,365,099	4,364,883	4,365,079	4,365,213
	4,364,499	4,365,104	4,365,111	4,364,887	4,365,095	4,365,245
	4,364,548	4,365,156	4,365,163	4,364,896	4,365,105	4,365,261
	4,364,557	4,365,160	4,365,164	4,365,003	4,365,125	4,365,297
	4,364,701	4,365,174	4,365,178	4,365,018	4,365,175	4,365,306
	4,364,736	4,365,182	4,365,187	4,365,021	4,365,176	4,365,321
	4,364,758	4,365,202	4,365,203	4,365,027	4,365,214	4,365,350
	4,364,759	4,365,208	4,365,219	4,365,031	4,365,251	4,365,350
	4,364,768	4,365,212	4,365,235	4,365,034	4,365,259	4,364,782
30 :	4,364,925	4,365,215	4,365,258	4,365,039	4,365,275	4,364,797
	4,364,438	4,365,300	4,365,298	4,365,046	4,365,283	4,364,170
	4,364,567	4,365,305	4,365,317	4,365,051	4,365,292	4,364,194
32 :	4,365,211	4,365,324	4,365,318	4,365,069	4,365,302	4,364,194
33 :	4,364,190	4,365,334	4,365,333	4,365,078	4,365,308	4,364,371
	4,365,234	4,365,109	4,364,263	4,365,180	4,364,638	4,364,401
34 :	4,364,150	4,365,282	4,364,320	4,365,198	4,364,156	4,364,743
	4,364,184	Re.31,106	4,364,332	4,365,228	4,364,420	4,364,922
	4,364,185	4,364,129	4,364,675	4,365,240	4,364,421	4,365,054
	4,364,193	4,364,138	4,364,825	4,364,430	4,364,990	4,364,192
	4,364,209	4,364,166	4,365,119	4,364,157	4,364,157	4,364,324
	4,364,375	4,364,195	4,365,194	4,364,199	4,364,199	4,364,411
	4,364,381	4,364,198	4,365,226	4,364,144	4,364,144	4,364,434
	4,364,454	4,364,211	4,364,335	4,364,269	4,364,269	4,364,519
	4,364,465	4,364,212	4,364,839	4,364,295	4,364,295	4,364,563
	4,364,485	4,364,244	4,364,840	4,364,907	4,364,907	4,364,570
	4,364,508	4,364,368	4,364,841	4,364,911	4,364,911	4,364,732
	4,364,527	4,364,385	4,364,842	4,365,172	4,365,172	4,364,945
	4,364,529	4,364,399	4,364,854	4,365,237	4,365,237	4,365,229
	4,364,558	4,364,417	4,364,855	4,365,301	4,365,301	4,365,102
	4,364,561	4,364,426	4,365,143	4,364,133	4,364,133	4,364,137
	4,364,564	4,364,481	4,364,215	4,364,189	4,364,189	4,364,175
	4,364,623	4,364,482	4,364,236	4,364,277	4,364,277	4,364,230
	4,364,721	4,364,507	4,364,255	4,364,524	4,364,409	4,364,268
	4,364,741	4,364,512	4,364,286	4,364,555	4,364,412	4,364,392
	4,364,742	4,364,532	4,364,292	4,364,693	4,364,432	4,364,450
	4,364,767	4,364,534	4,364,337	4,365,108	4,364,433	4,364,700
	4,364,778	4,364,550	4,364,364	4,365,150	4,364,542	4,364,787
	4,364,779	4,364,626	4,364,372	4,365,285	4,364,544	4,365,036
	4,364,814	4,364,645	4,364,446	4,364,124	4,364,587	4,365,124
	4,364,827	4,364,667	4,364,496	4,364,127	4,364,596	4,365,315
	4,364,837		4,364,504	4,364,148	4,364,620	4,364,537

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06 :	267,292	08 :	267,356	18 :	267,329	27 :	267,360		267,298	48 :	267,305
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PLANT PATENTS

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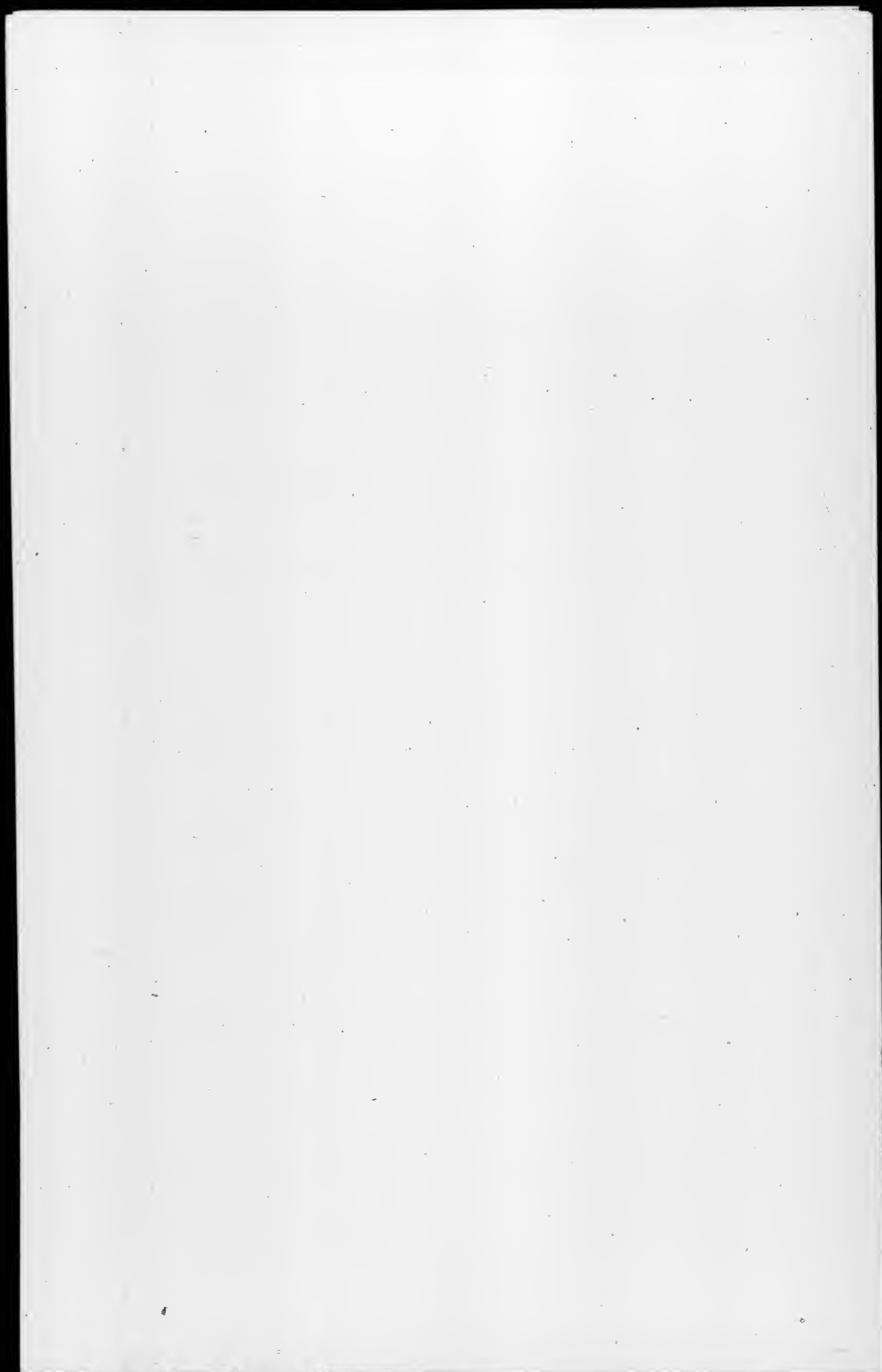
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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries and the most recent PCT rule changes, see the notices appearing in the Official Gazette at 1001 O.G. 14 on Dec. 9, 1980 and at 1012 O.G. 20 on Nov. 17, 1981. For use of the European Patent Office as a searching authority for PCT applications filed in the United States, see the notice in the Official Gazette of Sept. 28, 1982 at 1022 O.G. 52.

Note that the international fees have been increased as of Jan. 1, 1982 and that the domestic PCT fees have been increased as of Oct. 1, 1982. Domestic PCT fees were increased by a rule change which was published at 1021 O.G. 11 on Aug. 10, 1982. The current schedule of fees is as follows:

Transmittal fee	\$ 125.00
Search fee	
U.S. Patent and Trademark Office as Searching Authority	
• No corresponding prior U.S. national application filed	500.00
• Corresponding prior U.S. national application filed	250.00
European Patent Office as Searching Authority	
• All cases	710.00
International Fees	
Basic Fees (first 30 pages)	270.00
Basic Supplemental Fee (for each sheet over 30)	6.00
Designation fee (for each national or regional office)	65.00

DONALD J. QUIGG,
Deputy Commissioner
of Patents & Trademarks.

Sept. 10, 1982.

Board of Appeals Decisions Rendered in the Month of Nov. 1982

Affirmed	195
Affirmed in Part	21
Reversed	52
Total	268

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

4,005,037, Re. S.N. 434,125, Filed Oct. 13, 1982, Cl. 260/44R, POLYCARBONATE-POLYVINYL CHLORIDE MOULDING COMPOUNDS, Fritz Mietzsch, et al., Owner of Record: *Bayer Aktiengesellschaft, Leverkusen, Germany*, Attorney or Agent: Arthur G. Connolly, et al., Ex. Gp.: 142

4,014,574, Re. S.N. 437,685, Filed Oct. 29, 1982, Cl. 299/1, MINING MACHINE HAVING RECTANGULAR THRUST TRANSMITTING CONVEYOR COLUMN, Robert E. Todd, Owner of Record: *Browning B. Bushman, Houston, Tex.*, Attorney or Agent: Herbert C. Brinkman, et al., Ex. Gp.: 356

4,112,122, Re. S.N. 435,764, Filed Nov. 21, 1982, Cl. 426/19, PRESERVATION PROCESS, Dennis J. G. Long, Owner of Record: *B. P. Chemicals Ltd., London,*

England, Attorney or Agent: Lorimer P. Brooks, et al., Ex. Gp.: 172

4,139,076, Re. S.N. 436,628, Filed Oct. 25, 1982, Cl. 181/151, LOUDSPEAKER ENCLOSURE WITH ENHANCED BASS RESPONSE, John O. Hruby, Jr., Owner of Record: *Inventor*, Attorney or Agent: C. Russell Hale, et al., Ex. Gp.: 211

4,215,930, Re. S.N. 405,379, Filed Aug. 5, 1982, Cl. 355/140, METHOD OF MAINTAINING THE CORRECT CONDITIONS OF AN ELECTROPHOTOGRAPHICALLY DUPLICATED IMAGE, Seiichi Miyakawa, et al., Owner of Record: *Ricoh Co. Ltd., Tokyo, Japan*, Attorney or Agent: Norman F. Oblon, et al., Ex. Gp.: 215

4,229,972, Re. S.N. 434,851, Filed Oct. 18, 1982, Cl. 244/073, METHODS OF AND/OR MEANS FOR INDICATING THE LEVELS OF LIQUIDS, Dougald Steward Moreland Phillips, et al., Owner of Record: *AHI Operations Ltd., Maukau City, Auckland, New Zealand*, Attorney or Agent: Holman R. Stern, Ex. Gp.: 244

4,230,549, Re. S.N. 431,172, Filed Sept. 9, 1982, Cl. 204/159.17, SEPARATOR MEMBRANES FOR ELECTROCHEMICAL CELLS, Vincent F. D'Agostino, et al., Owner of Record: *R. A. I. Research Corp., Long Island, N.Y.*, Attorney or Agent: Paul H. Heller, Ex. Gp.: 142

4,256,830, Re. S.N. 405,069, Filed Apr. 18, 1982, Cl. 430/372, PHOTOGRAPHIC MATERIAL CONTAINING A STABILIZER, Gerhard Jager, et al., Owner of Record: *AGFA Geraert Aktiengesellschaft, Leverkusen, Germany*, Attorney or Agent: Arthur G. Connolly, et al., Ex. Gp.: 166

4,285,607, Re. S.N. 434,617, Filed Oct. 15, 1982, Cl. 337/400, APPARATUS FOR FEEDING SINGLE SHEETS FROM A MAGAZINE TO THE PRINTING CYLINDER OF A PRINTING OFFICE MACHINE OR DATA PROCESSING MACHINE AND FOR STACKING THE SINGLE SHEETS ARRIVING FROM THE PRINTING CYLINDER, Helmut Steinhilber, Owner of Record: *Inventor*, Attorney or Agent: Michael J. Striker, Ex. Gp.: 337

4,302,043, Re. S.N. 416,116, Filed Sept. 9, 1982, Cl. 296/98, ROLL-UP TARP FOR TRAILERS, Jerry R. Dimmer, et al., Owner of Record: *Wahpeton Canvas Co., Inc., Wahpeton, N. Dak.*, Attorney or Agent: Dugald S. McDougall, et al., Ex. Gp.: 316

4,307,810, Re. S.N. 431,739, Filed Sept. 30, 1982, Cl. 212/160, REMOTE-CONTROL DEVICE FOR A CRANE, Frank P. Spalluto, Owner of Record: *Garden State Engine & Equipment Co., Inc., South Plainsfield, N.J.*, Attorney or Agent: Ezra Sutton, et al., Ex. Gp.: 315

4,315,339, Re. S.N. 435,562, Filed Oct. 21, 1982, Cl. 7/138, COMBINATION LAWN MOWER TOOL, Theodore P. Lightner, Owner of Record: *Inventor*, Attorney or Agent: D. C. Roylance, et al., Ex. Gp.: 323

4,323,187, Re. S.N. 431,825, Filed Sept. 30, 1982, Cl. 241/229, TELESCOPIC CARTON ASSEMBLY, Raymond A. Gillie, Owner of Record: *Arvey Corp., Chicago, Ill.*, Attorney or Agent: Max Dressler, et al., Ex. Gp.: 241

4,340,647, Re. S.N. 434,399, Filed Oct. 14, 1982, Cl. 428/429, VINYL GUM CURE ACCELERATORS FOR ADDITION-CURE SILICONE, Richard P.

DECEMBER 28, 1982

U.S. PATENT AND TRADEMARK OFFICE

1025 OG 27

Eckberg, Owner of Record: *General Electric Co., Waterford, N.Y.*, Attorney or Agent: Edward A. Hedmann, et al., Ex. Gp.: 164

4,347,650, Re. S.N. 426,751, Filed Sept. 29, 1982, Cl. 29/526R, METHOD OF PREPARING A SECTION FOR AN OVERHEAD DOOR, David O. Martin, Owner of Record: *Inventor*, Attorney or Agent: H. Ross Workman, et al., Ex. Gp.: 321

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

3,512,495, Reexam. No. 90/000,287, Requested: Nov. 12, 1982, Cl. 414/248, SELECTIVELY CONNECTABLE BOAT AND BARGE, Edwin H. Fletcher, Owner of Record: *United States Freight Co., New York, N.Y.*, Attorney or Agent: Arthur G. Yeager, Ex. Gp.: 312, Requester: John W. Gilbert Associates, Inc. Boston, Mass.

3,648,768, Reexam. No. 90/000,293, Requested: Nov. 22, 1982, Cl. 165/171, HEAT-EXCHANGER COMPONENTS, Gunter Scholl, Owner of Record: *Bio-Energy Systems, Inc., Ellenville, N.Y.*, Attorney or Agent: Karl F. Ross, Ex. Gp.: 346, Requester: Environmental Resources, Inc., Las Vegas, Nev.

3,724,800, Reexam. No. 90/000,295, Requested: Nov. 23, 1982, Cl. 248/205R, TELESCOPIC SIGHT MOUNTING, Irving N. Rubin, et al., Owner of Record: *Inventors*, Attorney or Agent: Cullen, et al., Ex. Gp.: 355, Requester: Charles W. McHugh, Arlington, Tex.

4,270,596, Reexam. No. 90/000,291, Requested: Nov. 22, 1982, Cl. 165/1, TUBE MAT HEAT EXCHANGER, Michael F. Zinn, et al., Owner of Record: *Bio-Energy Systems, Inc., Ellenville, N.Y.*, Attorney or Agent: Charles J. Brown, Jr., Ex. Gp.: 346, Requester: Environmental Resources, Inc., Las Vegas, Nev.

4,282,891, Reexam. No. 90/000,297, Requested: Nov. 26, 1982, Cl. 132/73.5, FINGERNAIL TREATING DEVICE, Antoine Duceppe, Owner of Record: *Requester*, Attorney or Agent: Raymond A. Robic, Ex. Gp.: 336, Requester: Revelations Antoine Ltee, Ville d'Anjou, Quebec, Canada

4,355,032, Reexam. No. 90/000,299, Requested: Oct. 21, 1982, Cl. 424/253, 9-(1,3-DIHYDROXY-2-PROPOXYMETHYL)-GUANINE AS ANTIVIRAL AGENT, Julien P. Verheyden, et al., Owner of Record: *Requester*, Attorney or Agent: Alan M. Krubiner & Annette M. Moore, Ex. Gp.: 125, Requester: Syntex Corp., Palo Alto, Calif.

Change in PCT International Fees, Effective Jan. 1, 1983 and Jan. 22, 1983

On Sept. 10, 1982 the PCT Assembly in its ninth session (sixth Extraordinary) held in Geneva, Switzerland, fixed new amounts for the various international fees set in Swiss francs in the Schedule of Fees annexed to the PCT Regulations, effective Jan. 1, 1983. The new fee amounts in Swiss francs reflect a 7 1/2% increase over the previous amounts. The US dollar amounts, however, reflect a slight overall decrease from the previous amounts.

Effective Jan. 1, 1983, for United States applicants filing PCT international applications in the United States

Receiving Office the amounts of the International fees are as follows:

FEE	AMOUNT
Basic Fee (first 30 pages)	\$265.00
Basic Supplemental Fee (each page over 30)	\$ 5.00
Designation Fee (per country or region)	\$ 65.00

The International Bureau has informed the U. S. Patent and Trademark Office that due to a more favorable exchange rate for the US dollar, the International Search fee for United States applicants who choose the European Patent Office as Searching Authority will decrease, effective Jan. 22, 1983, from the current level of \$710.00 to \$670.00.

The amounts of the Transmittal Fee and the Search Fee for the United States Patent and Trademark Office as a Searching Authority remain at the level established on Oct. 1, 1982 (See 1021 O. G. 11, published on Aug. 10, 1982). The amounts of these fees are as follows:

Transmittal Fee	\$125.00
Search Fee	
U. S. Patent and Trademark Office as Searching Authority	
—No corresponding prior U.S. national application filed	\$500.00
—Corresponding prior U.S. national application filed	\$250.00

GERALD J. MOSSINGHOFF,
Commissioner of Patents
and Trademarks.

Dec. 3, 1982.

Removal from Register

Pursuant to the provisions of 37 C.F.R. 1.347, a letter was directed on Oct. 21, 1982, to Mr. David V. Munnis at 207 W. Elm St., Urbana, Ill., 61801, the last post office address furnished by him to the Committee on Enrollment. No reply was received within the period of twenty days therein set. Accordingly, his name is being removed from the Register of Attorneys.

DONALD J. QUIGG,
Chairman, Committee
on Enrollment.

Dec. 6, 1982.

Register of Attorneys and Agents

In the May 18, 1982 issue of the Official Gazette, Volume 1018, Number 20, there was published a list of names and addresses of persons whose names had been removed from the Register of Patent Attorneys and Agents pursuant to the provisions of 37 CFR 1.347.

The following persons, whose names appeared in that list, have been retained on the active Register of Attorneys and Agents in view of information which they have furnished to the Committee on Enrollment.

DONALD J. QUIGG,
Chairman, Committee
on Enrollment.

Nov. 30, 1982.

Names of Registered Attorneys and Agents To Be Retained on the Active Register

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Erratum

In the Official Gazette of Apr. 8, 1975 under TRADE-MARK REGISTRATIONS RENEWED, on page TM 138, "607,924. POWER MATE. Int. Cl. 6 (U.S. Cl. 23). 6-28-55." should be deleted and "607,924. POWER MATE. Int. Cl. 7 (U.S. Cl. 23). 6-28-55." should be inserted.

Status of PTO Services

The following is an update of the status of PTO services as of Dec. 3, 1982:

Service Item	FY 1983 Performance Goal (Calendar Days)	Actual	Comment
Filing Receipts:			
Patents	22	56	Increase due to increased filings in September.
Trademarks	30	66	Delays continue due to increased filings in September.
Patent Copies:			
Window Coupons	5	78% within 5 days	Problems encountered in the initial phase of implementing an automated control system.
Mail Coupons*	29	99% within 29 days	
Letter Orders*	34	99% within 34 days	
Certified Copies:			
Trademark Registrations	30	5	
Applications-As-Filed	20	93% within 20 days	
File-Wrapper/Contents	N/A	90% within 15 days	
Walk-up Certification	1	99% within 1 day	Service extended to Trademarks.
Trademark Search Library:			
Filing Drawings	21	68 *	Due to increased filings in September.
Filing Reg. Certificates	3	5	
Assignments			
Patents	15	52	Goals and the method of computing actual time are being revised.
Trademark	21	79	Goals and the method of computing actual time are being revised.
Patent Official Gazette			
In Bookstore	Issue Date	On Schedule	
Mailed	Issue Date	Avg. 1 day late	
Patent Grants Mailed	Issue Date	2 days late	
Patent Copies Available	Issue Date	75%	90% available by day after Issue Date.
Trademark Official Gazette			
In Bookstore	Issue Date	On Schedule	
Mailed	Issue Date	Avg. 2 days late	
Trademark Regs. Mailed	Issue Date	2 days late	

*Goal now includes mail processing and delivery time. A recent survey of mail delivery time for these services yielded the fact that the average amount of time required for one-way delivery is seven calendar days. Therefore the prior goal was increased by 14 days to reflect average time from mailing by requestors to receipt of copies.

IMPROVEMENTS TO SERVICES

• **Search Room Working Conditions**—New carpet has been installed in the Patent Public Search Room, the search tables have been rehabilitated, and the index files have been painted. A "quiet" area has been designated in the high-ceiling area of the Search Room. The public address/paging system, which is important to some search room users, has speakers now directed to only the low-ceiling area. It is hoped that this will reduce the noise for those who find it disruptive.

• For other improvements made in services, see the Official Gazettes for Oct. 26, 1982 and Nov. 30, 1982.

Dec. 3, 1982.

THERESA A. BRELSFORD,
Assistant Commissioner
for Administration.

PATENT NOTICES

Certificates of Correction for the Week of Dec. 28, 1982

Re. 31,029	4,311,242	4,340,777	4,350,622
D. 260,105	4,314,352	4,340,786	4,350,833
3,689,274	4,314,559	4,341,883	4,350,925
4,002,470	4,319,337	4,342,103	4,351,079
4,094,855	4,320,061	4,342,255	4,351,173
4,108,610	4,325,704	4,342,751	4,351,392
4,238,127	4,328,341	4,343,861	4,351,642
4,239,599	4,329,114	4,344,005	4,351,685
4,261,772	4,329,313	4,344,390	4,351,891
4,273,713	4,329,459	4,345,048	4,352,175
4,284,957	4,330,839	4,345,100	4,352,349
4,288,649	4,333,164	4,347,116	4,352,585
4,292,445	4,333,686	4,348,078	4,352,938
4,293,048	4,333,866	4,348,401	4,353,374
4,295,414	4,334,085	4,348,798	4,353,408
4,295,903	4,334,089	4,348,852	4,353,895
4,299,648	4,334,837	4,348,927	4,353,909
4,301,803	4,336,107	4,348,942	4,353,994
4,302,811	4,336,318	4,348,972	4,354,428
4,304,096	4,336,392	4,349,305	4,354,681
4,304,926	4,338,434	4,349,484	4,355,079
4,304,944	4,338,611	4,349,487	4,355,953
4,306,292	4,338,659	4,349,798	4,357,000
4,306,553	4,339,879	4,349,868	4,357,048
4,308,717	4,339,941	4,349,958	
4,309,476	4,340,452	4,350,036	

Disclaimers

3,785,967.—*Jakob van Klinken*, Amsterdam, Netherlands. HYDRODESULFURIZATION WITH EXPANDED OR MOVING BED OF CATALYST HAVING SPECIFIC PARTICLE DIAMETER AND SPECIFIC PORE DIAMETER. Patent dated Jan. 15, 1974. Disclaimer filed Oct. 4, 1982, by the assignee, *Shell Oil Co.*

Hereby enters this disclaimer to all of the claims of said patent.

3,988,301.—*Lambert Gaston Jeurissen and Frans Antoon De Smedt*, Edegem, Belgium. PROCESS FOR THE PREPARATION OF HIGH-MOLECULAR WEIGHT POLYESTERS. Patent dated Oct. 26,

1976. Disclaimer filed Sept. 29, 1982, by the assignee, *AGFA-Gevaert N. V.*

Hereby enters this disclaimer to all claims of said patent.

4,347,656.—*George E. Smith*, Murray Hill and *Robert J. Strain*, Plainfield, N.J. METHOD OF FABRICATING POLYSILICON ELECTRODES. Patent dated Sept. 7, 1982. Disclaimer filed Oct. 14, 1982, by the assignee, *Bell Telephone Laboratories, Inc.*

The term of this patent subsequent to Nov. 18, 1992 has been disclaimed.

Dedications

3,303,955.—*Andrew G. Osborne and Edward A. Stassin*, Richmond, Ind. CONTAINER CLOSURE. Patent dated Feb. 14 1967. Dedication filed Aug. 30, 1982, by the assignee, *Aluminum Co. of America*.

Hereby dedicates said patent to the Public.

3,601,273.—*Howard R. Kutcher*, Allison Park, Pa. PILFERPROOF CLOSURE WITH VERTICAL WEAKENING LINES. Patent dated Aug. 24 1971. Dedication filed Aug. 30, 1982, by the assignee, *Aluminum Co. of America*.

Hereby dedicates said patent to the Public.

Disclaimers and Dedications

3,866,598.—*Lynn Lawrence Augspurger*, Birmingham, Mich. PROCESSES FOR REPRODUCTION OF CELLULAR BODIES. Patent dated Feb. 18, 1975. Disclaimer and Dedication filed Oct. 15 1982, by the inventor.

The term of this patent subsequent to Dec. 17, 1991 has been disclaimed and dedicated to the Public.

3,906,929.—*Lynn Lawrence Augspurger*, Birmingham, Mich. PROCESSES FOR REPRODUCTION OF CELLULAR BODIES. Patent dated Sept. 23, 1975. Disclaimer and Dedication filed Oct. 15, 1982, by the inventor.

The term of this patent subsequent to Dec. 17, 1991 has been disclaimed and dedicated to the Public.

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the

table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	Name of Library	Telephone Contact
Alabama	Birmingham Public Library	(205) 254-2555
Arizona	Tempe: Science Library, Arizona State University	(602) 965-7607
California	Los Angeles Public Library	(213) 626-7555 Ext. 273
	Sacramento: California State Library	(916) 322-4572
	Sunnyvale: Patent Information Clearinghouse*	(408) 738-5580
Colorado	Denver Public Library	(303) 571-2122
Delaware	Newark: University of Delaware	(302) 738-2238
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4508
Illinois	Chicago Public Library	(312) 269-2865
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library & Information Center	(612) 372-6552
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214, Ext. 215
Nebraska	Lincoln: University of Nebraska-Lincoln, Engineering Library	(402) 472-3411
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7814
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 255-7055 Ext. 212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1321**
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 226
South Carolina	Charleston: Medical University of South Carolina	(803) 792-2372
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 748-9071
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

*Collection organized by subject matter.

**Call only between the hours of 10:00 a.m. and 5:00 p.m.

PATENT EXAMINING CORPS
RENE D. TEGTMEYER, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner
CONDITION OF PATENT APPLICATIONS AS OF November 13, 1982

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director	11-12-80
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal- lurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director	7-20-81
Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director	1-21-80
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthetics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director	4-27-81
Coating; Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170— R. F. WHITE, Director	10-06-81
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufac- ture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director	11-24-80
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director	3-03-81
Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Opt- ics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy; Rocket Fuels; Special, Fuel, Explosive and Thermic Composi- tions; Thermal and Photoelectric Batteries.	
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—EARL LEVY, Director	11-24-80
Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240— G. M. FORLENZA, Director	2-02-81
Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director	11-26-79
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	
DESIGN, GROUP 290—KENNETH L. CAGE, Director	12-01-80
Industrial Arts; Household, Personal and Fine Arts.	
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director	5-01-81
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprin- kling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director	3-02-81
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding; Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330— R. E. AEGERTER, Director	2-13-80
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Infor- mation Dissemination.	
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director	11-17-80
Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Genera- tion and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350— A. L. SMITH, Director	9-17-80
Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscel- laneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	

Expiration of patents: The patents within the range of numbers indicated below expire during November 1982, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

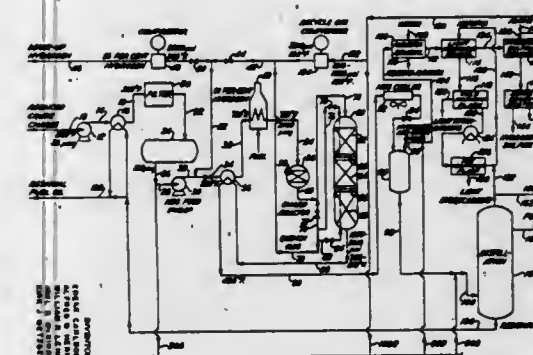
Patents Numbers 3,214,767 to 3,221,338, inclusive
Plant Patents Numbers 2,566 to 2,576 inclusive

REEXAMINATIONS

DECEMBER 28, 1982

Matter enclosed in heavy brackets [] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination

B1 Re. 29,314 (37th)
ASPHALTENE HYDRODESULFURIZATION WITH SMALL CATALYST PARTICLES IN A PARALLEL REACTOR SYSTEM
Edgar Carlson, deceased late of Allison Park, Pa., by Gulf Research & Development Company, Pittsburgh, Pa.; Alfred M. Henke, Springdale, Pa.; William R. Lebrion, Verona, Pa.; Joel D. McKinney, Pittsburgh, Pa.; Kirk J. Metzger, Verona, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
Reexamination Request No. 90/000,095, Nov. 2, 1981.
Reexamination Certificate for Patent No. Re. 29,314, issued Jul. 19, 1977, Ser. No. 721,418, Sep. 8, 1976.
U.S. Cl. 208/216 Int. Cl.³ C10G 23/02.



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims 14 and 17 were previously cancelled.

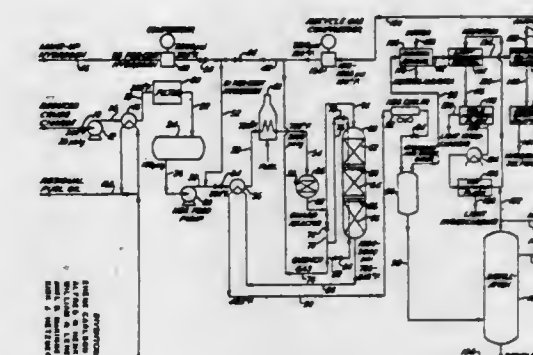
Claims 1 and 7 are determined to be patentable as amended.

Claims 2-6, 8-13, 15, 16, 18 and 19, dependent on amended claims, are determined to be patentable.

New claims 20-44 are added and determined to be patentable.

1. A process for the hydrodesulfurization of a crude oil or a reduced crude oil containing the asphaltene fraction of the crude comprising passing said oil together with hydrogen through a plurality of reactors arranged in parallel, each of said reactors containing a series of compact beds of catalyst particles comprising a Group VI metal and Group VIII metal on alumina, the particles in said compact catalyst beds being between about 1/20 and 1/40 inch in diameter, *in said catalyst more than 60 percent of the pore volume is in pores of 50 Å, radius or greater*, the hydrogen partial pressure in said plurality of compact parallel beds being 1,000 to 5,000 pounds per square inch and a throughput of at least 127 volumes of oil per volume of catalyst is continued for at least 10 days.

B1 Re. 29,315 (38th)
ASHPALTENE HYDRODESULFURIZATION WITH SMALL CATALYST PARTICLES UTILIZING A HYDROGEN QUENCH FOR THE REACTION
Edgar Carlson, deceased late of Allison Park, Pa., by Gulf Science & Technology Company, Pittsburgh, Pa.; Alfred M. Henke, Springdale, Pa.; William R. Lebrion, Joel D. McKinney, Kirk J. Metzger, all of Pittsburgh, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
Reexamination Request No. 90/000,096, Nov. 2, 1981.
Reexamination Certificate for Patent No. Re. 29,315, issued Jul. 19, 1977, Ser. No. 721,419, Sep. 8, 1976.
U.S. Cl. 208/216 Int. Cl.³ C10G 23/02.



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims 18 and 21 were previously cancelled.

Claims 1, 6 and 11 are determined to be patentable as amended.

Claims 2-5, 7-10, 12-17, 19, 20 and 22-26, dependent on amended claims, are determined to be patentable.

New claims 27-62 are added and determined to be patentable.

1. A process for the hydrodesulfurization of a crude oil or a reduced crude containing the asphaltene fraction of the crude comprising passing a mixture of hydrogen and said oil through a compact bed of catalyst particles comprising a Group VI metal and Group VIII metal on alumina, the hydrogen partial pressure being 1,000 to 5,000 pounds per square inch, said particles in said bed being between 1/20 and 1/40 inch in diameter, *in said catalyst more than 60 percent of the pore volume is in pores of 50 Å, radius or greater*, and a throughput of at least 127 volumes of oil per volume of catalyst is continued for at least 10 days.

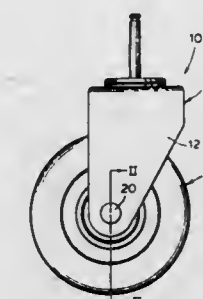
REISSUES

DECEMBER 28, 1982

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 31,110
SOLID AXLE WHEEL SUPPORT AND SEALED BEARING CONSTRUCTION
 John W. Black, Hickory Corners, Mich., assignor to Pemco-Kalamazoo, Inc., Kalamazoo, Mich.
 Original No. 4,122,580, dated Oct. 31, 1978, Ser. No. 806,903, Jun. 15, 1977. Application for reissue Oct. 29, 1980, Ser. No. 201,951

Int. Cl.³ A47B 91/00; F16C 33/00, 1/24
 U.S. Cl. 16—46 **5 Claims**



5. A wheel construction for a tire having a central coaxial opening therethrough, comprising:
 a cylindrical sleeve (21) fixedly disposed in said central opening in said tire, said sleeve having a portion of reduced inside diameter spaced from both axial ends thereof and a cylindrical extension defining a first annular seal surface (52, 53) integrally provided at opposite axial ends thereof;
 a pair of outer bearing race means (38, 39) located at the opposite axial ends of said portion of reduced diameter;
 a cylindrical axle (20) disposed coaxially within and spaced from said reduced portion of said sleeve;
 a pair of inner bearing race means (41, 42) on said axle and radially aligned with said outer bearing race means and anti-friction means (43) positioned between respective pairs of said bearing race means;
 frame legs (12, 13) and securement means (56, 57, 58) for effecting an operative connection of said frame legs to said axle;
 a seal shoulder (A) on said axle spaced axially inwardly along said axle from both of the ends thereof;
 a generally circular end cap (48, 49) made of a compressible thermoplastic material encircling said axle and having integral seal means (50, 51) bearing against said seal shoulder, said end cap having an axial section (B) thereof extending axially from said seal means to bear against the inner face of the axially adjacent frame leg and said end cap further having an integral second annular seal surface (C) thereon spaced radially outwardly from said axial section bearing against said first annular seal surface (52, 53), the parts being so proportioned that when said frame legs are in position adjacent the ends of said axle, said seal means (50, 51) on said end cap is urged snugly against said seal shoulder (A) and said first (52, 53) and second (C) annular seal surfaces urged into engagement with each other;
 whereby said frame legs are held firmly with respect to said axle and through said axle and said securement means held rigidly with respect to each other and said second annular seal surface of said compressible end cap is urged into engagement with said first annular seal surface on said cylindrical sleeve for sealing said bearing means from dust.

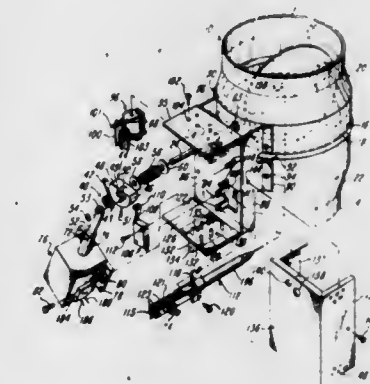
Re. 31,111
WAVE DRIVEN GENERATOR
 Glenn E. Hagen, New Orleans, La., assignor to Williams, Inc., New Orleans, La.
 Original No. 4,077,213, dated Mar. 7, 1978, Ser. No. 657,892, Feb. 13, 1976. Application for reissue Apr. 23, 1979, Ser. No. 32,162

Int. Cl.³ F03B 13/12
 U.S. Cl. 60—500 **52 Claims**

1. A power gathering array for extracting energy from wave motion of a fluid, said wave motion having both an amplitude spectrum and wavelength spectrum, comprising:
 a plurality of differing sized floats, each said float having a density such that it floats on the surface of said fluid and moves in response to said wave motion;
 a connecting means for connecting the rear of at least one first smaller float of said plurality to the front of at least one second larger float of said plurality, said connecting means being adapted to allow relative motion to occur between said first and second floats responsive to said wave motion when the two floats are oriented so the smallest float points into the direction of wave motion;
 second connecting means for connecting the rear of the largest float of said array to a fixed object; and
 work extracting means responsive to said relative motion for extracting a unit amount of work from a unit amount of said relative motion and a non-linearly greater number of units of work from each additional unit of relative motion.

Re. 31,112
AUTOMATIC FLUE DAMPER
 John Prikkel, III, 2952 Ensley Ave., Dayton, Ohio 45414
 Original No. 4,108,369, dated Aug. 22, 1978, Ser. No. 781,649, Mar. 28, 1977. Application for reissue Apr. 13, 1979, Ser. No. 29,927

Int. Cl.³ F23L 11/00
 U.S. Cl. 236—1 G **20 Claims**



1. In a mechanism for controllably venting gases from the flue of a combustion apparatus, said mechanism comprising a housing for mounting to said flue and into which said gases pass, a damper mounted in said housing and movable between a first position opening said housing for the passage of gases therefrom and a second position substantially closing said housing against the passage of gases therethrough, the improvements comprising yieldable means biasing said damper to said first position, motive means for holding said damper against the bias of said yieldable means in said second position, heat sensor means disposed in said housing upstream of said damper for disabling said motive means upon sensing heated gases in said housing and means for connection in circuit with said motive means of a thermostat responsive to a medium

heated by the combustion apparatus for also disabling said motive means.

Re. 31,113

VARIABLE RESISTANCE LIFTING MECHANISM

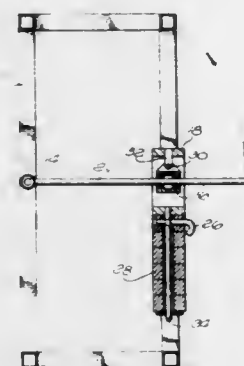
Charles M. Coker, Huntington Beach, and Gary M. Kling, Fullerton, both of Calif.

Original No. 4,093,213, dated Jun. 6, 1978, Ser. No. 767,412, Feb. 10, 1977. Application for reissue Jan. 17, 1980, Ser. No. 112,888

Int. Cl.³ A63B 21/06

U.S. Cl. 272—118

2 Claims



3. [The mechanism as defined in claim 2, further comprising] A variable resistance lifting mechanism, comprising:
a frame having means for guiding the movement of weights;
a lever arm means pivotally attached to said frame at a pivot point and constructed to permit substantially only reciprocation of said lever arm means through a sleeve means when said lever arm means is pivoted by a user;
a pivotable, linear bearing sleeve means for receiving said lever arm means in telescoping relationship, said sleeve means being mounted at a position remote from said lever arm means pivot point, said sleeve means being mounted for linear movement within said guide means and for simultaneous pivotal movement with respect to said frame to maintain alignment with said lever arm, said sleeve means simultaneously distributing a user's lifting forces over a substantial length of the lever arm means during lifting of the lever arm means;
bar weight supporting means pivotally connected to said linear bearing sleeve means;
a plurality of weights slidably mounted for linear movement on said guide means, said weight being adapted to distribute the forces against said guide means over a length of said guide means;
means for attaching a selected number of said weights to said bar means, whereby pivoting by a user of said lever arm means about its pivot point causes pivoting of said linear bearing sleeve means with respect to said guide means and simultaneous linear

movement of said sleeve means and of said weights on said guide means;
a housing slidably mounted on said guide means and adapted to connect said linear bearing sleeve to said bar means, said housing providing further simultaneous distribution of the bending forces over a longitudinal length of said guide means as said weights and housing are moved linearly on said guide means; and a clevis pin pivotally connecting said linear bearing sleeve means to said housing.

Re. 31,114

ELECTRICAL CONNECTOR

William E. Berg, Prior Lake, Minn., assignor to Tektronix, Inc., Beaverton, Oreg.

Original No. 4,150,420, dated Apr. 17, 1979, Ser. No. 861,066, Dec. 15, 1977. Continuation of Ser. No. 631,591, Nov. 13, 1975, abandoned. Application for reissue Nov. 17, 1980, Ser. No. 207,515

Int. Cl.³ H01R 9/09

U.S. Cl. 339—17 CF

9 Claims



6. A high-frequency electrical connector system for electrically interconnecting a conductive path of a first circuit element with a conductive path of a second circuit element, said system comprising:
(a) a resilient member having a surface defined by two protruding portions and an intermediate indented portion;
(b) a contact of flexible metallic material overlaying a substantial part of each said portion of said surface of said resilient member and extending no further than the boundaries of said surface, said contact member also having a surface defined by two protruding portions and an intermediate indented portion, said surfaces of said resilient member and said conduct member being further configured such that said resilient member provides a restoring support for said contact member and such that a common force applied against both protruding portions of said contact member causes said portions to move away from each other;
(c) rigid frame means for holding said resilient member and said contact member against said circuit elements such that a first protruding portion of said contact member touches a conductive path of said first circuit element and a second protruding portion of said contact member touches a conductive path of said second circuit element; and
(d) means for urging said frame means, and thereby said resilient member and said contact member, further against said circuit elements so as to cause said protruding portions of said contact member to move away from each other and thereby wipingly engage said conductive paths.

PLANT PATENTS

GRANTED DECEMBER 28, 1982

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,968

BLACK WALNUT TREE

Walter F. Beineke, West Lafayette, Ind., assignor to Purdue Research Foundation, West Lafayette, Ind.

Filed Apr. 16, 1981, Ser. No. 254,904

Int. Cl.³ A01H 5/03

U.S. Cl. Plt.—32

1 Claim

1. A new and distinct variety of black walnut tree substantially as illustrated and described, which produces abundant annual crops of medium-size nuts; averaging 4 per cluster; the percentage of weight of kernel to nut averages approximately 15 percent, and nut bearing begins early in life of tree; time of leafing is much later than average and has excellent anthracnose resistance; pistillate flowers develop very late and pollen sheds late.

4,969

LILY PLANT: LILIUM GOLDDIGGER

Edward A. McRae, Boring, Oreg., assignor to Melridge, Inc., Sandy, Oreg.

Filed Apr. 29, 1981, Ser. No. 258,742

Claims priority, application Netherlands, May 29, 1980, LEL

Int. Cl.³ A01H 5/00

U.S. Cl. Plt.—68

1 Claim

1. The new and distinctive variety of Asiatic hybrid lily plant substantially as herein shown and described, characterized by improved capability of being forced into flower under glass, increased resistance to leaf scorch and bud abortion when forced into flower under glass, improved inflorescence, buds of intense yellow color, and flowers which are also of an intense yellow color and characterized further by the presence of relatively thick, broad and overlapping tepals lightly spotted with tiny, pigmented papillae.

PATENTS

GRANTED DEC. 28, 1982

ERRATA

For CLASS	See PATENT NO.
128-258	4,365,394
464-132	4,365,488
494-037	4,365,741
436-075	4,365,969
436-066	4,365,970
419-006	4,365,995
419-028	4,365,996
148-031	4,365,997
525-498	4,366,096
436-501	4,366,143
528-335	4,366,272
378-057	4,366,382

PATENTS

GRANTED DECEMBER 28, 1982

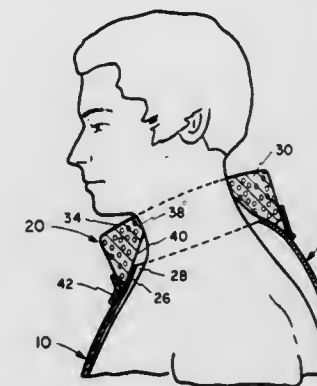
GENERAL AND MECHANICAL

4,365,351

DIVING SUIT WITH NECK AND WRIST SEALS
David C. Doerschuk, Grove City, Ohio, and James F. Mank,
Ottumwa, Iowa, assignors to The United States of America as
represented by the Secretary of the Navy, Washington, D.C.
Filed Apr. 10, 1981, Ser. No. 252,725
Int. Cl.³ B63C 11/04

U.S. Cl. 2-2.1 R

12 Claims



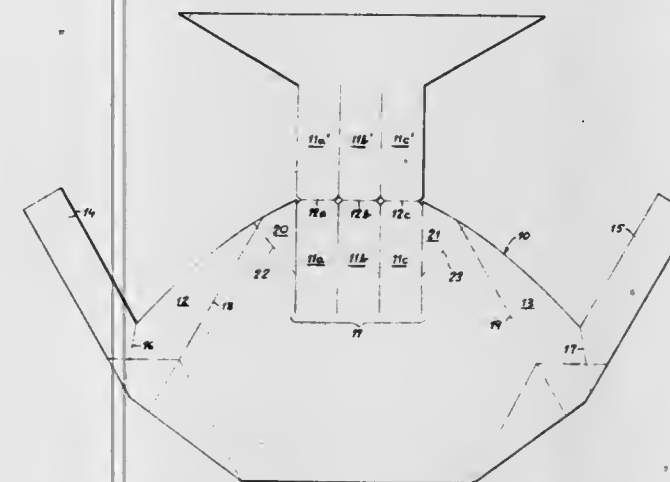
1. In a diving suit having a body member encircling fabric edge portion defining an opening for that body member, the improvement comprising:
said fabric edge portion being conical and tapering inwardly going distally of said body member;
a seal member comprising a body of resiliently stretchable and compressible open cell foam rubber, said body having a right cylindrical outer surface, and an axial, through passage defined in part by a cylindrical inner surface and in part by a frustoconical inner surface whereby said body has an inside tapered end portion and presents a narrow annular edge at its proximal end and a broader annular edge at its distal end;
said frustoconical inner surface being partially disposed in overlapping relation to said conical fabric edge portion; and
means securing said seal member to said fabric.

4,365,352

REVERSIBLE BASEBALL GLOVE
Israel Zidele, 1303 Ditmas Ave., Brooklyn, N.Y. 11226
Continuation-in-part of Ser. No. 46,798, Jun. 8, 1979, Pat. No. 4,227,263. This application Oct. 10, 1980, Ser. No. 195,942
Int. Cl.³ A41D 13/10

U.S. Cl. 2-19

9 Claims



1. In the baseball glove comprising a front piece of tough flexible sheet material and rear sheeting defining with said front piece a thumb stall and four other finger stalls together

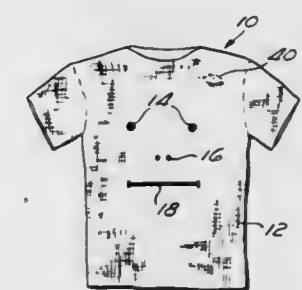
with a web between said thumb stall and the finger stall proximal thereto,
the improvement wherein said front piece consists of an integral blank which is a flattened-out state is symmetrical about a central portion forming part of at least one of said other finger stalls, said central portion being flanked by two wings one of which forms part of said thumb stall and side web while the other forms part of at least a stall for the little finger, said web being joined by lacing to the finger stall proximal thereto.

4,365,353

BODY PUPPET AND TEACHING AID
Richard N. Rayl, 6911 Via Irana, Stanton, Calif. 90680
Filed Dec. 31, 1980, Ser. No. 221,820
Int. Cl.³ A41B 1/00

U.S. Cl. 2-115

9 Claims



1. A body puppet comprising:
a garment sized to be worn about the body of a user;
indicia formed on said garment depicting a humanized face, said garment formed of a sufficiently resilient fabric material so that when said garment is manually stretched by said user, said indicia momentarily distorts to assume varying facial expressions on said puppet; and
an elongate slot formed through said garment and aligned with a portion of said indicia corresponding to the mouth of said humanized face, said slot adapted to permit said garment to spread apart in the vicinity of said portion of said indicia when said garment is manually stretched to simulate the opening of the mouth of said puppet.

4,365,354

RETROREFLECTIVE STRIP WITH POCKET
Edith Sullivan, 51 Osgood St., Methuen, Mass. 01844
Filed Oct. 22, 1980, Ser. No. 199,571
Int. Cl.³ A41D 27/20; G02B 5/12

U.S. Cl. 2-247

8 Claims

1. In wearing apparel having a retroreflective strip of material the improvement comprising, a portion of retroreflective material secured to said retroreflective strip on the outside

thereof and coating therewith to form a pocket having an opening for accommodating small items and means including



an area of said retroreflective strip of material for assisting in protecting the small items from perspiration of the wearer.

4,365,355

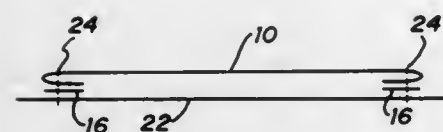
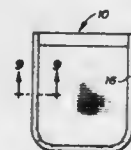
PATCH POCKET AND FLAP CONSTRUCTIONS

Joseph W. A. Off, Irving, and Judson H. Early, Dallas, both of Tex., assignors to Haggard Company, Dallas, Tex.
Continuation of Ser. No. 948,680, Oct. 5, 1978, abandoned. This application Jun. 2, 1981, Ser. No. 269,688

Int. Cl.³ A41D 27/20

U.S. Cl. 2—247

4 Claims



4. A method of constructing a patch pocket on a garment including the steps of:

- providing a layer of pocket material having opposed side edges spaced apart a predetermined distance, a bottom edge interconnecting the side edges, and an upper edge including an extension extending upwardly beyond the upper ends of the side edges and having a width less than the space in between the side edges;
- folding the extension downwardly down along a line extending between the upper ends of the side edges;
- adhesively securing the extension in the folded condition to define a folded top edge of the pocket blank;
- said layer of pocket material having the extension folded and adhesively secured defining a patch pocket blank including a reverse side comprising the side having the extension

secured thereto and an obverse side comprising the opposite side thereof;
attaching fusible adhesive to the obverse side of the patch pocket blank along the side and bottom edges thereof;
folding the side and bottom edges of the patch pocket blank inwardly so that the fusible adhesive attached thereto faces in the direction of the reverse side of the patch pocket blank;
positioning the patch pocket blank on the outside surface of a garment with the fusible adhesive engaging the outside surface of the garment and with the reverse side of the patch pocket blank positioned adjacent thereto; and
activating the fusible adhesive to secure the patch pocket blank in engagement with the outside surface with the garment being carried out by forming a stitch along the side and bottom edges along the patch pocket blank, said stitch including at least one thread comprising a fusible adhesive.

4,365,356

PROSTHESIS PARTS PROVIDED WITH A COATING OF A BIO-ACTIVE MATERIAL

Heinz Broemer, Werner Adam, both of Hermannstein, and Friedhelm Hedrich, Edingen, all of Fed. Rep. of Germany, assignors to Ernst Leitz Wetzlar GmbH, Wetzlar, Fed. Rep. of Germany

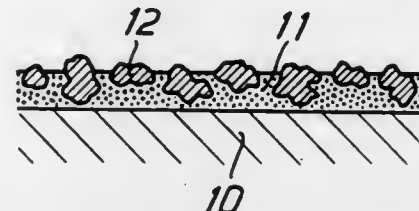
Continuation-in-part of Ser. No. 968,667, Dec. 12, 1978, abandoned, which is a division of Ser. No. 733,313, Oct. 18, 1976, Pat. No. 4,168,326. This application Jul. 21, 1980, Ser. No. 170,805

Claims priority, application Fed. Rep. of Germany, Oct. 18, 1975, 2546824

Int. Cl.³ A61F 1/24

U.S. Cl. 3—1.9

23 Claims



1. A prosthesis working piece comprising: a structural core element; at least one carrier layer substantially free of pores applied to said core element, said carrier layer comprising an inorganic enamel which is compatible with the body; and a multitude of particles of a bio-active material at least partly embedded in said carrier layer to provide a multitude of exposed areas of the particles on which the bone tissue can grow together with the prosthesis, said bio-active material particles having a particle size of at least about 50 μ m.

4,365,357

SURGICAL MATERIALS SUITABLE FOR USE WITH BONE CEMENTS

Klaus Draenert, Ottobrunn, Fed. Rep. of Germany, assignor to Merck Patent Gesellschaft mit beschränkter Haftung, Darmstadt, Fed. Rep. of Germany

Filed Apr. 25, 1980, Ser. No. 143,570

Claims priority, application Fed. Rep. of Germany, Apr. 28, 1979, 2917446

Int. Cl.³ A61F 1/24

U.S. Cl. 3—1.91

6 Claims

1. A bone cement preparation kit for bone repair or other treatment of a bone defect, consisting essentially of a surgical network material formed of physiologically acceptable filaments which are resorbable and are of a thickness of about 50—about 300 μ m, the network having an internal mesh width of about 1—10 mm and having a shape appropriate to the in-

tended use; and a prepolymer and monomer for preparation of bone cement useful in bone repair or other bone treatment.

4,365,358

JOINT PROSTHESES, PARTICULARLY IN HIP PROSTHESES

Robert Judet, deceased, late of Paris, France, and by Vincent Judet, administrator, 17, Boulevard de Montmorency, 75016 Paris, France

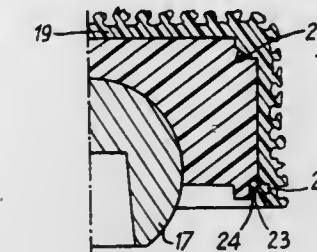
Filed Aug. 15, 1979, Ser. No. 66,842

Claims priority, application France, Aug. 18, 1978, 78 24094

Int. Cl.³ A61F 1/03

U.S. Cl. 3—1.912

3 Claims



1. A hip joint prosthesis comprising a base for engaging the prosthesis with a femur, means on said base for engaging the base to the femur, a cotyle for engaging the prosthesis with a hip bone, means on said cotyle for engaging it to the hip bone, an articulating hip joint for connection between said cotyle and said base, said hip joint including a peripheral severable lip for engagement with a complementary groove at an inner face of said cotyle, means for providing access by a severing device to said lip, said base being formed with a shank at one end terminating in an outwardly extending collar, said femur engaging means comprising a plurality of alveoli on the outer surface of said shank and on the lower surface of said collar for engagement with the osseous matter of a femur bone.

4,365,359

PMMA COATED BONE CONNECTIVE PROSTHESES AND METHOD OF FORMING SAME

Simon Raab, 5872 Westbury Ave., Montreal, Quebec, Canada (H3W 2W9)

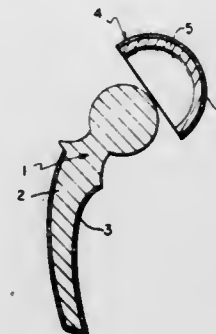
Continuation-in-part of Ser. No. 45,657, Jun. 5, 1979, Pat. No. 4,281,420. This application Mar. 31, 1981, Ser. No. 249,439

Claims priority, application United Kingdom, Feb. 15, 1979, 7905445

Int. Cl.³ A61F 1/24; A01N 1/02

U.S. Cl. 3—1.912

30 Claims



1. In a process for fixedly adhering a polymethylmethacrylate film to a prosthetic element to provide an improved prosthesis adapted to be joined to bone by means of bone cement, said prosthesis having been prepared by the steps of treating said prosthetic element to eliminate any weak boundary layer, applying polymethylmethacrylate to said treated surface to

form a film thereon; and thereafter annealing said polymethylmethacrylate film, the improvement which comprises applying polymethylmethacrylate to the surface of said prosthetic element in the presence of a silane coupling agent.

4,365,360

LENS DESIGNED FOR IMPLANTATION INTO A LENS CAPSULE OF A HUMAN EYE

Tiong S. Ong, 174 Ghijseland, 3161 Vm Rhooon, Netherlands

Continuation of Ser. No. 134,892, Mar. 28, 1980, abandoned.

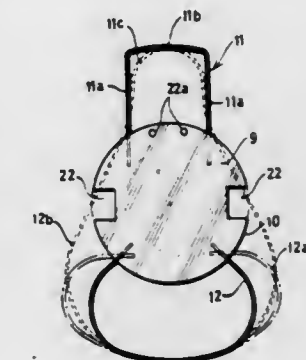
This application Dec. 11, 1981, Ser. No. 329,811

Claims priority, application Netherlands, Apr. 5, 1979, 7902703

Int. Cl.³ A61F 1/16, 1/24

U.S. Cl. 3—13

5 Claims



1. An intraocular lens implantable into the posterior chamber of a human eye without fixating sutures, comprising an optical lens body and at least a pair of loop shaped members fixed to the periphery of said lens body and extending outwardly from generally opposed sides thereof, one member being of U-shaped configuration and the other member being ovaloid, said ovaloid member being relatively radially inwardly resiliently deformable and said U-shaped member being relatively radially inwardly non-deformable.

4,365,361

TOILET BOWL ODOR REDUCING AND POWERED EXHAUST SYSTEM

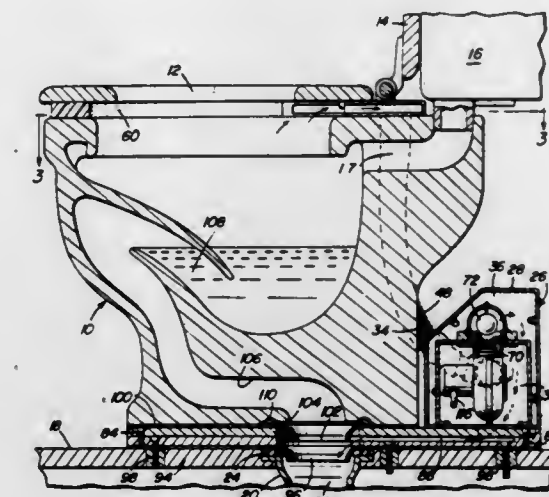
Grant H. Sanstrom, P.O. Box 138, Parker, Wash. 98939

Filed Mar. 23, 1979, Ser. No. 23,246

Int. Cl.³ E03D 9/052

U.S. Cl. 4—213

8 Claims



1. In combination with a toilet bowl having a water seal-type drain outlet communicated with a drain line and a bowl flushing system including flushing water passage means for passing flushing water from a supply thereof into the interior of said bowl, housing means defining first and second closed compartments, said housing means including inlet means opening into

said first compartment, means communicating said inlet means with the interior of said bowl independent of said flushing water passage means, passage means communicating the interiors of said compartments, said housing means including outlet means for said second compartment communicating with said drain line downstream from said water seal, said inlet means, compartments, passage means and outlet means defining an air passage communicating the interior of said bowl with said drain line, said air passage means including one-way air valve means operative to permit airflow through said air passage in one direction from said inlet means to said drain line and to prevent airflow through said air passage in the opposite direction, said one-way air valve being mounted inside second compartment on the exterior surface of said first compartment and being connected to said passage means communicating the interior of said compartments, and selectively operable air pump means serially connected in said air passage for pumping air therethrough in said one direction, said air pump means being disposed in said first compartment and said first compartment being enclosed within said second compartment.

4,365,362

DEVICE IMPROVING SOLUBILITY OF SOLID MATERIAL IN A CLOSED SYSTEM

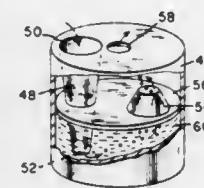
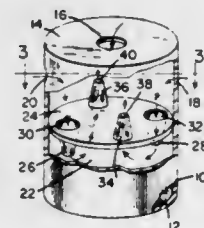
Garland G. Corey, Milltown, N.J., assignor to Sterling Drug Inc., New York, N.Y.

Filed Apr. 20, 1981, Ser. No. 255,659

Int. Cl.³ E03D 9/02

U.S. Cl. 4-228

12 Claims



1. A device of the class described comprising a container, said container having top, bottom, and side walls, a partition in the container located intermediate the top and bottom walls thereof, said partition dividing the container into top and bottom portions, the bottom portion being adapted to contain soluble material, at least two pass-through hollow structures located in the partition; at least one pass-through structure having its larger end uppermost, and another pass-through structure having its smaller end uppermost, and a solvent admitting aperture in the upper portion of said container for the reception of the solvent therein above the partition, the solvent passing down through the pass-through structure with its larger end uppermost, and solution provided thereby tending to rise to and through the other pass-through structure which has its smaller end uppermost into the upper part of the container.

4,365,363

URINE COLLECTING DEVICE FOR PATIENTS IN WHEELCHAIRS

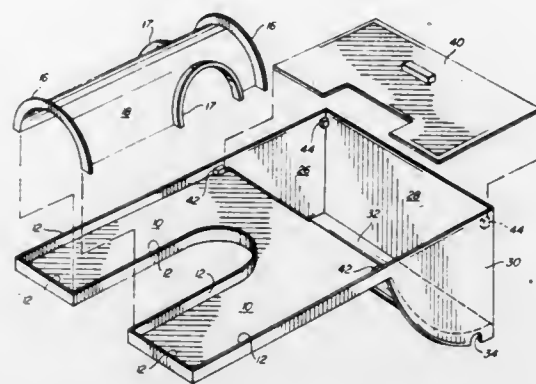
Joseph R. Windauer, 2121 S. Pantano Rd., #438, Tucson, Ariz. 85710

Filed Jan. 12, 1981, Ser. No. 224,112

Int. Cl.³ E03D 13/00

U.S. Cl. 4-301

6 Claims



1. A urine collection and storage device for patients in wheelchairs of the type having a seat, centrally located vertical structural crossed pivoted members below the wheelchair seat, and rear structural members, said device comprising means to collect the urine, said collection means having an elongated flat surface bifurcated to form two extending fingers, said fingers adapted to engage and reside on opposite sides of the crossed pivoted structural members of the wheelchair; and means to store the urine so collected, said urine storage means attached to said urine collection means to so receive urine from said urine collection means, said urine storage means including means adapted to engage the rear structural members of the wheelchair; said urine collection means fingers engaging the crossed pivoted structural members and the urine storage means engaging the wheelchair rear structural members so constructed to provide a front-to-back tilt of the collection and storage means whereby urine collected will drain to the storage means.

4,365,364

TOILET FLUSH CONTROL USING A HOLLOW CROWN INSTANT CLOSE FLAPPER VALVE

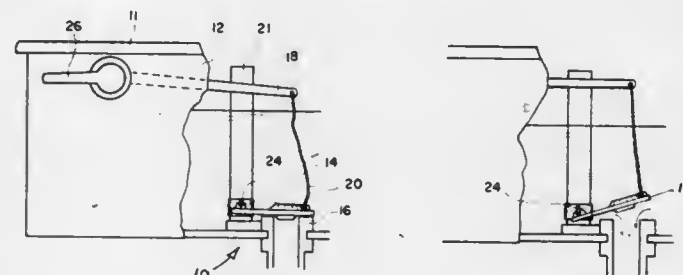
Rudolph T. Riedel, 7198 Sugarbush Ave., Orlando, Fla. 32807

Filed Jun. 29, 1981, Ser. No. 278,365

Int. Cl.³ E03D 1/34

U.S. Cl. 4-378

3 Claims



1. A flush arrangement for preventing the utilization of an unnecessary amount of water in the flushing of a toilet of the type having a water storage tank and a handle movable to bring about a lifting of a water release device from its seat to accomplish a flushing of the toilet, said water release device being a pivotally mounted flapper valve, said flapper valve being non-buoyant, and having a cavity in its upper portion into which water can enter and occupy at least a portion of the interior of the flapper valve, said flapper valve using no guides, weights or appendages, means connecting a portion of said flapper valve to the handle so that handle manipulation brings

about a pivotal movement of said flapper valve away from its seat, thus to permit a controlled flow of water from the tank, said flapper valve, because of its non-buoyancy, and depending solely on downward water pressure from above, plus suction from outflowing water below, plus the density of the valve itself, returning to its seat as soon as the handle is released, such that the flow of water from the tank will be promptly shut off.

4,365,365

FLUSH VALVE AND MEANS FOR MOUNTING THE SAME

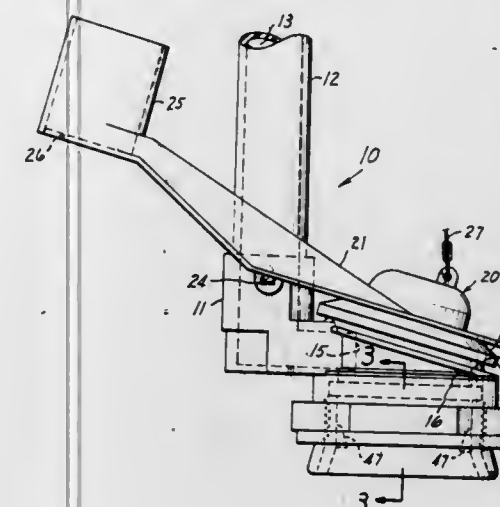
Bruce A. Antunez, 2153 Iron Club Dr., LaVerne, Calif. 91750

Filed Aug. 27, 1981, Ser. No. 296,875

Int. Cl.³ E03D 1/35, 1/06, 5/04

U.S. Cl. 4-393

4 Claims



1. A flush valve to be mounted in a drain port in the bottom wall of a tank, said bottom wall forming at the drain port a peripheral wall with substantial axial and diametral dimensions, said flush valve comprising: a body forming a drain conduit having an opening, a seat on said body surrounding said opening; a plug member having a seal adapted to bear against said seat to close said opening, said plug member being movably mounted to said body to move said seal toward and away from said seat; an internal thread in said drain conduit; a mounting seal having a flange and a tubular skirt, said flange being adapted to bear against said bottom wall inside said tank around said drain port, and said skirt being adapted to fit inside said peripheral wall; a tubular expander, said expander having an external thread adapted to engage said internal thread in said body, and a tapered expander section adapted to enter said skirt and diametrically expand the same against said peripheral wall as the external thread enters said internal thread; and wrench-engaging means inside said expander for engagement by a torque-tool.

4,365,366

THREE PORT VALVE WITH DRAIN PASSAGE

Robert Ortega, Rancho Mirage, Calif., assignor to Purex Corporation, Lakewood, Calif.

Division of Ser. No. 116,033, Jan. 28, 1980, Pat. No. 4,278,109.

This application Dec. 22, 1980, Ser. No. 218,486

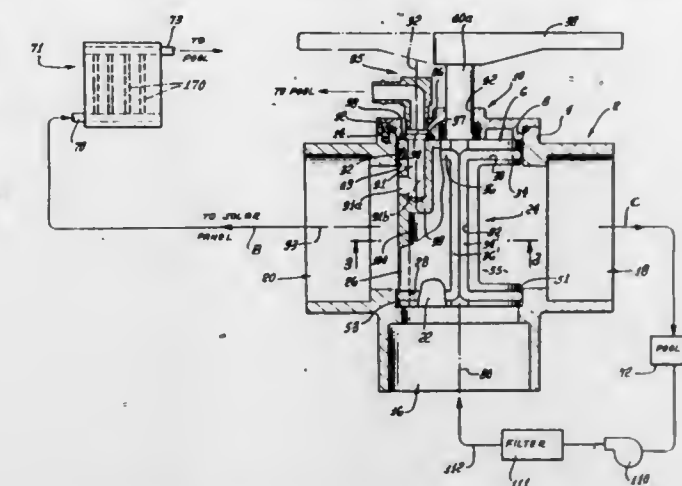
Int. Cl.³ E04H 3/16, 3/18

U.S. Cl. 4-493

8 Claims

1. A system that comprises, in combination: (a) a valve body having a cavity, and first, second and third openings communicating with said cavity, (b) a rotary valve member in said cavity, said valve member having a generally cylindrical exterior surface and an internal hollow with an end opening in alignment with said first opening, (c) the valve member having a side opening positioned at substantially a right angle with respect to said end opening, the valve member being rotatable to bring the side opening into or out of alignment with said second opening

or said third opening so as to establish flow communication between the first and second openings, or between the first and third openings, via said end and side openings in the valve member, (d) the valve body having an additional opening and located generally in alignment with said first opening, (e) there being a removable closure member on the valve body and extending over said additional opening, and



means for rotating the valve member, said means extending through the closure member, (f) a drain passage having a first portion in the closure and a second portion in the rotary valve member, said portions being brought into endwise communication when the side opening in the rotary valve member is in alignment with one of said second and third openings, and (g) a solar panel connected in series with said drain passage via one of said second and third openings.

4,365,367

BATHING UNITS WITH DOOR CONTROLLER

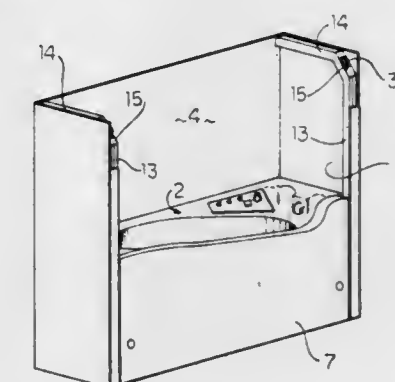
Raymond T. Houle, Traverse City; Michael A. Redwine, Acme; Fredrick A. Kilbourn, Suttons Bay, all of Mich.; Stewart D. Reed, El Toro, Calif.; Arthur A. Sills, and John H. Kraft, both of Traverse City, Mich., assignors to Silchor, Traverse City, Mich.

Filed Sep. 15, 1980, Ser. No. 187,338

Int. Cl.³ A47K 3/02

U.S. Cl. 4-555

22 Claims



1. In combination, a bathing apparatus for invalids and the like, comprising a bathtub having a lateral opening in one side thereof for invalid ingress and egress, a door selectively closing said bathtub opening, means for forming a seal between said door and said bathtub when said door is in a closed position, a pair of tracks supported on opposite sides of said door and extending vertically upwardly, and means for slidably mounting said door on said tracks for vertical translation, a counterbalance for said door, comprising: first and second flexible lines having first ends thereof attached to opposite sides of said door; an axle rotatably mounted adjacent said bathing apparatus;

first and second spools attached to said axle for rotation therewith, and having second ends of said lines connected with a different one of said spools and wrapped thereabout, whereby axle rotation translates said lines; a spring having one end fixed and the other end connected with said axle whereby downward translation of said door tends said spring and counterbalances the weight of said door.

4,365,368

BATHING FACILITY

William H. Boggs, 407 W. Linden Ave., Miamisburg, Ohio 45342

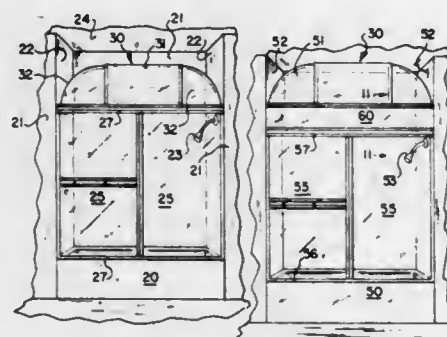
Continuation of Ser. No. 141,191, Apr. 28, 1980, abandoned.

This application Jul. 29, 1981, Ser. No. 288,094

Int. Cl.³ A47K 3/22

U.S. Cl. 4—596

5 Claims



1. An enclosure for the top of a domestic bathing facility having a back wall, a pair of side walls and an openable front wall to retain the heat vapors emanating from hot water delivered to the interior of the facility, comprising:

(a) a body of plastic material including a domed main central portion at least the major portion of which is curved about a radius not less than nor substantially greater than one-half the width of said facility between said front and back walls to direct and recirculate hot vapors downwardly therefrom toward the central upper portion of the interior of said facility, and

(b) a flange extending around at least a portion of the periphery of said body for mounting said enclosure on said facility walls.

4,365,369

THREE CUSHION CONVERTIBLE SEAT-BED

Robert W. Plume, 11416 Erdmann, Sterling Heights, Mich. 48078

Filed Aug. 8, 1980, Ser. No. 176,389

Int. Cl.³ A47C 17/16

U.S. Cl. 5—38

21 Claims

1. In a convertible seat-bed of the type comprising:

a stationary base, first and second panels pivotally coupled with the base and adapted, respectively, to form a seat bottom and seat back in a seat orientation and to form side-by-side bed panels in a bed orientation,

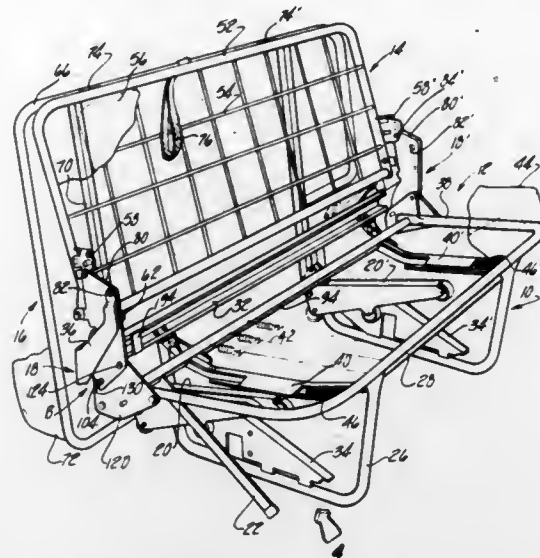
a third panel pivotally coupled with said second panel and adapted to form a third bed panel in said bed orientation, latching means for securing said first and second panels relative to the base,

and manually actuable means for operating said latching means,

the improvement including, said third panel including a leg for carrying the rear edge thereof to the bed orientation,

said manually actuable means comprising an actuator lever for thrusting said third panel rearwardly, said lever being supported by the base and being operatively engageable with but separate from the third panel

whereby the third panel is movable independently of the lever after being thrust rearwardly thereby, said leg being pivotal relative to the third panel between a



first position in the seat orientation and a second position during movement to the bed orientation, different parts of the leg in the second position engaging the floor to support the third panel during movement thereof.

4,365,370

WATER BED MATTRESS

Lynn D. Larson, Rural Route, Walton, Nebr. 68461

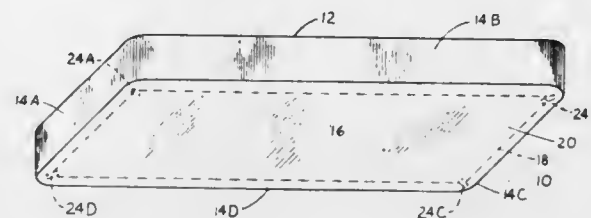
Division of Ser. No. 38,375, May 11, 1979, Pat. No. 4,240,859.

This application Apr. 10, 1980, Ser. No. 138,987

Int. Cl.³ A47C 27/08

U.S. Cl. 5—451

6 Claims



1. A water bed mattress comprising:

a plastic sheet forming a right regular parallelepiped having a first and a second relatively large flat opposite parallel sides and four narrower sides between said relatively large sides;

the first of said relatively large sides and said narrow sides being integrally formed without seams;

a rim integrally formed with said four narrow sides; and said second of said relatively large sides being sealed to said rim.

4,365,371

MATTRESSES WITH STIFFENERS

Bertrand J. Boussaroque, 163 boulevard Clemenceau, Marqu-
Baroeul, France

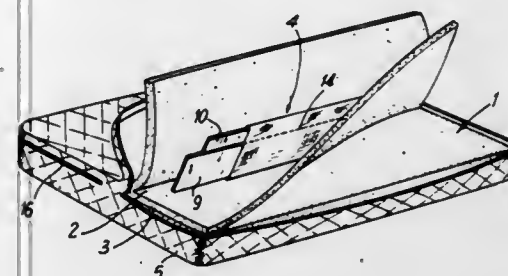
Filed Apr. 18, 1980, Ser. No. 141,721

Claims priority, application France, May 29, 1979, 79 14645

Int. Cl.³ A47C 27/14, 27/16

U.S. Cl. 5—462

11 Claims



1. In a mattress having stiffeners, particularly foam mattresses, having padding or foam portions, the improvement wherein

one said portion is formed with first slits made by at least one perpendicular incision on one side of the portion of the mattress, the end of each incision constituting a hinge for the padding portions of the mattress which remain connected together on opposite sides of the incision, and which is opened in the manner of a book,

stiffeners disposed in at least one of said slits, said stiffeners constituting a plurality of stiff laths,

tubular sheaths of cross-sections and profiles corresponding to said laths, said tubular sheaths are connected to each other, said laths are disposed in said tubular sheaths, respectively,

a padded and quilted covering being formed on the sides of the mattress with another slit over at least a portion of a periphery,

a slide fastener disposed in said another slit.

4,365,372

MATERIALS AND METHODS FOR CULTURE OF NESTING INSECTS

Frederick A. Norman, Banksia Park, Australia, assignor to Internationale Octrooi Maatschappij "Octropa" B.V., Rotterdam, Netherlands

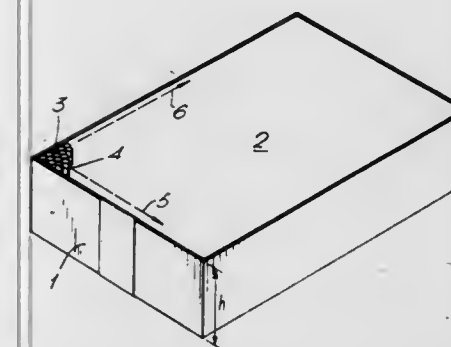
Filed Oct. 20, 1980, Ser. No. 197,411

Claims priority, application Australia, Oct. 25, 1979, PE1065

Int. Cl.³ A01K 47/00

U.S. Cl. 6—1

17 Claims



12. A nesting arrangement suitable for nesting insects including lucerne leaf cutter bees and bumble bees, comprising a container having an open face and packed with a plurality of tubes each with one open end and one end closed by a rear wall of the container, said tubes being fixed in place by wax in said container with the closed ends of said tubes closed by wax, and their cross-section and length being adapted to the nesting requirements of the insects.

4,365,373

PROCESS FOR THE DYEING AND FIXING OF KNITTED ARTICLES OF CLOTHING

Willi Witte, Gevelsberg, and Wulf Böing, Hagen, both of Fed. Rep. of Germany, assignors to Proll & Lohmann Betriebs-GmbH, Hagen, Fed. Rep. of Germany

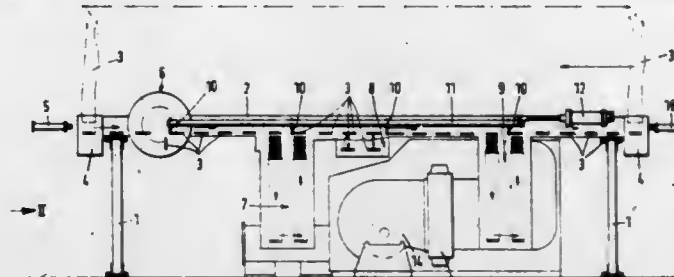
Filed Sep. 26, 1980, Ser. No. 191,473

Claims priority, application Fed. Rep. of Germany, Oct. 4, 1979, 2940267

Int. Cl.³ D06B 3/30

U.S. Cl. 8—150

4 Claims



1. In a process for the continuous dyeing and fixing of articles of clothing having fibers and comprising knitted socks, stockings, panty hose or similar knitted articles of clothing of highly elastic material, comprising the steps of pulling the articles of clothing onto elongated flat forms defining a lengthwise direction of the articles of clothing, and passing said flat forms with the articles of clothing thereon in succession through different treatment stations for at least the dyeing, the fixing, and drying, the improvement comprising

continuously passing said flat forms fixed, in a non-rotatable orientation with a flat side of the forms lying substantially parallel to the ground with respect to a longitudinal axis as well as a transverse axis of the flat side, through the individual treatment stations with the articles of clothing thereon and with the fibers of the articles of clothing extending in the lengthwise direction of the articles of clothing, each of said forms being separated from each other and parallel to each other.

4,365,374

HYDRAULICALLY OPERATED DOCKBOARD

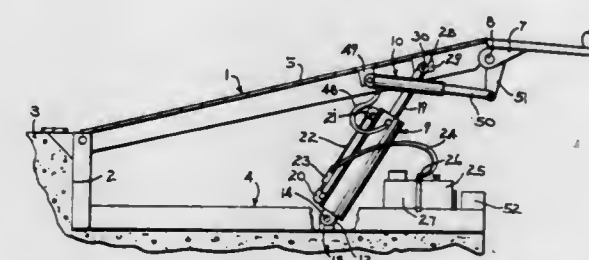
David E. Bennett, Waukesha, Wis., assignor to Kelley Company Inc., Milwaukee, Wis.

Filed Aug. 4, 1980, Ser. No. 175,143

Int. Cl.³ E01D 1/00

U.S. Cl. 14—71.7

13 Claims



9. A hydraulically operated dockboard, comprising a supporting structure, a ramp structure hinged at its rear edge to the supporting structure and movable from a generally horizontal position to an upwardly inclined position, a lip hinged to the forward edge of the ramp and movable between a downwardly hanging pendant position and an extended position, a first hydraulic cylinder unit interconnecting the supporting structure and the ramp structure and including a first cylinder and first piston means slidably disposed within the cylinder, said first cylinder being connected to one of said structures and said piston means being connected to the other of said structures, said piston means including a rod slidably disposed within an opening in a head of the first cylinder, a first conduit

interconnecting opposite ends of said first cylinder, a reservoir for hydraulic fluid, a second conduit interconnecting said reservoir and said first conduit, pumping means operably connected to said reservoir for pumping fluid from the reservoir and through said second and first conduits to said first cylinder, a second hydraulic cylinder unit interconnecting the ramp structure and the lip, third conduit means connecting the first cylinder with said second cylinder unit and said third conduit means including a passage disposed in said head, said passage being normally closed to prevent flow of fluid from the interior of said first cylinder to said second cylinder unit, and means responsive to a predetermined amount of elevation of said ramp to open said passage and permit flow of fluid from said first cylinder through said passage and said third conduit means to the second cylinder unit to thereby extend said second cylinder unit and move the lip from the pendant position to the elevated position.

4,365,375

VACUUM NOZZLE FOR POOL CLEANING

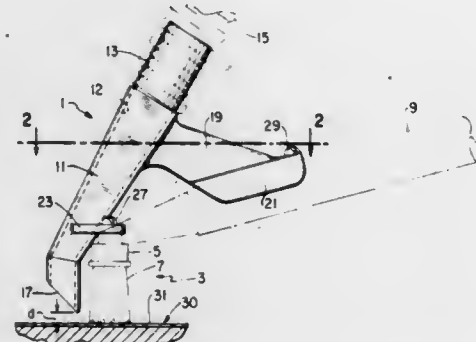
Jack Grodin, and Bessie Grodin, both of 1332 E. Oakley Blvd., Las Vegas, Nev. 89104

Filed Oct. 29, 1980, Ser. No. 201,989

Int. Cl.³ E04H 3/20

U.S. Cl. 15-1.7

6 Claims



1. A vacuum nozzle for removing leaves and debris from an underwater surface and adapted for use in combination with a swimming pool brush which has a plurality of downwardly directed bristles, said nozzle comprising:
a housing having a centrally disposed channel extending therethrough, a vacuum hose coupling formed with said housing and opening into said channel, and an elongated mouth, having a front edge and a rear edge, opening into said channel;
means for attaching said housing to said brush in a position in which the mouth is spaced forwardly from the bristles to prevent clogging or constriction of said mouth by leaves or debris lodged in said bristles and in which the front edge of said mouth is spaced a greater distance from said surface than said rear edge to prevent the front edge from contacting the underwater surface when the nozzle is tilted forwardly.

4,365,376

MOUTH CLEANING DEVICE

Takeshi Oda; Toshio Tanabe, and Yoshimasa Tanaka, all of Kadoma, Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan

PCT No. PCT/JP80/00043, § 371 Date Nov. 14, 1980, § 102(e) Date Nov. 14, 1980, PCT Pub. No. WO80/01873, PCT Pub. Date Sep. 18, 1980

PCT Filed Mar. 13, 1980, Ser. No. 217,002

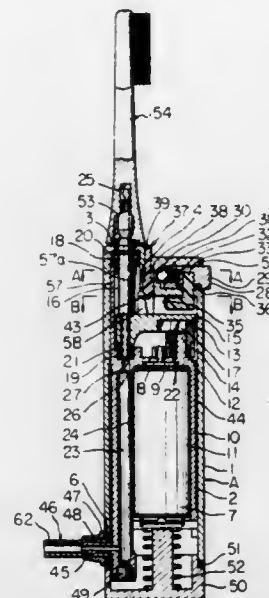
Claims priority, application Japan, Mar. 15, 1979, 54-30855 Int. Cl.³ A46B 13/06

U.S. Cl. 15-22 R

6 Claims

1. A mouth cleaning device, comprising:
a hollow case which forms a hand held gripping part and which has an electric motor therein;

a converting means for converting rotary motion of said motor to a reciprocal turning motion;
a driving rod reciprocally turned by said converting means;
a water receiving port having a hose connected to a water feeding means;
a first water feeding path communicating with said water receiving port;
a second water feeding path being formed within said driving rod and communicating with said first water feeding path;



a mount for selectively receiving a brush member and a nozzle member being formed on said driving rod, said brush and nozzle members being interchangeably mounted; and
a change-over switch for selectively actuating said motor when said brush member is mounted to said driving rod and actuating said water feeding means when said nozzle member is mounted to the driving rod.

4,365,377

FLOOR POLISHING MACHINE

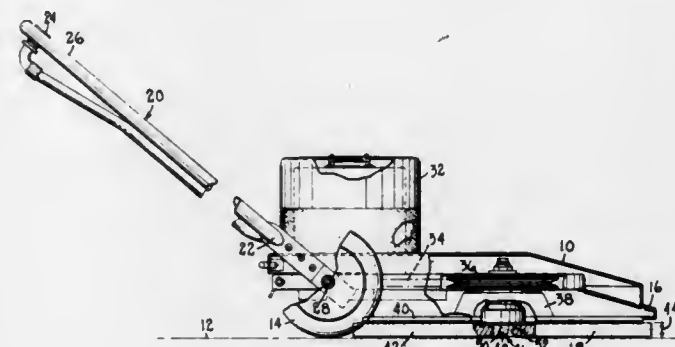
Mike J. Todd, Eagan, and Jeffrey A. Lee, Crystal, both of Minn., assignors to H. B. Fuller Company, St. Paul, Minn.

Filed Jan. 13, 1981, Ser. No. 225,511

Int. Cl.³ A47L 11/14

U.S. Cl. 15-98

3 Claims



1. A floor polishing machine, comprising:

- (a) a housing;
- (b) a pair of coaxial wheels fixed positionally relative to, and rotatably attached rearwardly of, said housing, mounting said housing for movement over a horizontal floor surface, said wheels having peripheral edges engaging the horizontal surface as they rotate;
- (c) a generally U-shaped movement imparting handle having first and second ends and a bail portion therebetween, each of said handle ends being operatively connected to said housing at the axis of said wheels;
- (d) a compressible, circular polishing pad, said pad having a

floor engagement surface for engaging the floor substantially along the engagement surface's total area and defining a plane generally tangent to said wheels at locations thereon engaging the horizontal surface, said pad further having a circular aperture, coaxial therewith, formed therethrough;
(e) means suspending said pad in a fixed position relative to said housing;
(f) means for driving said pad rotationally about a generally vertical axis through its center;
(g) a caster disposed in said aperture and for movement toward and away from said housing; and
(h) means connecting said caster to said housing and for increasingly urging said caster and said housing away from one another as they progressively approach one another.

4,365,378

CARPET AND FABRIC CLEANING MACHINE

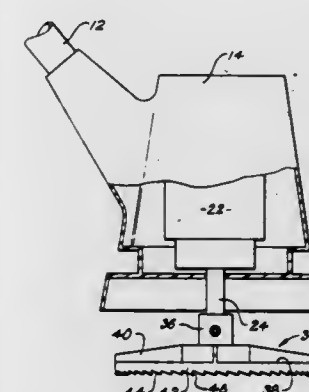
John R. Springer, Overland Park, Kans., assignor to Nu-Co Industries Inc., Overland Park, Kans.

Filed Mar. 5, 1981, Ser. No. 240,994

Int. Cl.³ A47L 11/14; B24B 29/00

U.S. Cl. 15-98

4 Claims



1. A lightweight machine for cleaning generally flat surfaces including:
a portable housing;
means operably connected to said housing for facilitating manual manipulation of said cleaning machine;
a generally flat cleansing pad for engaging said surfaces;
motive means operably mounted to said housing and capable of delivering a high rotational torque;
means operably coupling said motive means and said pad comprising
a disc operably secured to said motive means for rotation by the latter;
a plurality of circularly arranged relatively closely adjacent, equidistantly spaced teeth depending from said disc and integral therewith, each of said teeth having a generally flat upright surface and an oblique surface, each of said flat surfaces lying in an imaginary plane radial of the disc and facing the direction of rotation of said disc, said oblique surfaces interconnecting respective adjacent upright flat surfaces;
a section of open mesh netting operably connected to and supporting said pad, said teeth of the disc each being of a size permitting a significant portion thereof to be received within respective associated proximal openings of said mesh netting with the flat surface thereof variably engaging the netting;
the teeth being located adjacent the perimeter of the disc and engaging the netting along a series of closely spaced points arranged in a circular pattern affording a positive mechanical interlocking of the netting and thereby the pad to the disc during use of the machine.

4,365,379

PIPELINE PIG HAVING IMPROVED END PLATE RETENTION

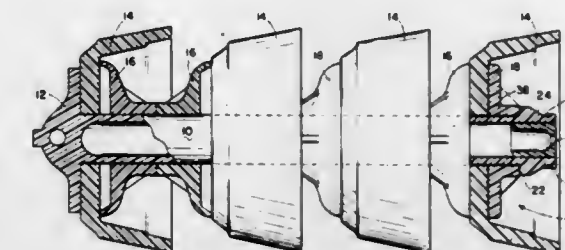
Larry M. Neff, Tulsa, Okla., assignor to S.U.N. Engineering, Inc., Tulsa, Okla.

Filed Apr. 13, 1981, Ser. No. 253,890

Int. Cl.³ B08B 9/04

U.S. Cl. 15-104.06 R

6 Claims



1. In a pipeline pig having at least one operating member dimensioned to engage the interior wall of a pipeline, an improved end retainer means comprising:
a cylindrical shaft of flexible plastic material adaptable to receive at least one operating member thereon, at least the rearward end portion being tubular and having an integral enlarged diameter portion adjacent the rearward end, and having a plurality of spaced-apart longitudinal slots formed in the rearward end, the slots being in planes of the shaft axes and extending forwardly past the enlarged diameter portion; an end plate having an opening therethrough the diameter of which is slightly larger than the diameter of said shaft and smaller than said shaft enlarged diameter portion; the end plate being insertable onto said shaft rearward end past said enlarged diameter portion by deflecting the portions of the shaft rearward end between said slots inwardly;
a plug member positioned in said tubular shaft rearward end serving to prevent the inward deflection of the portions of the shaft rearward end between said slots; and
means to retain said plug member in position within said tubular shaft end.

4,365,380

BRUSH-LIKE CLEANING TOOL FOR CLEANING GRILLS AND OTHER STRUCTURES HAVING ELONGATE ROD-LIKE MEMBERS

Fred G. Fassler, 7 Oreca Ter., Monroe, N.Y. 10954

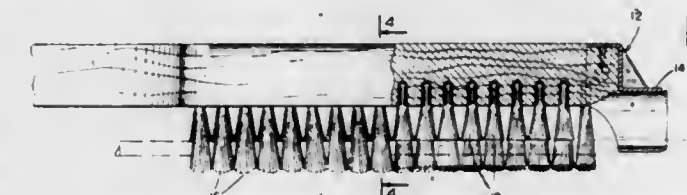
Continuation-in-part of Ser. No. 951,648, Oct. 16, 1978,

abandoned. This application Oct. 19, 1979, Ser. No. 86,349

Int. Cl.³ A47L 17/00

U.S. Cl. 15-111

10 Claims



1. A cleaning tool for cleaning cooking grills or like structures made of of rod-like members, comprising:
a relatively elongate single-piece tool body adapted to be gripped in a person's hand and having a bottom surface; scraper means formed generally at an end of said tool body and providing a scraper edge extending generally below the bottom surface of said tool body, said scraper edge being a permanent structure in the form of an almost-closed-loop two-dimensional figure and said scraper means having an opening proportioned to permit a rod-like member to pass through said opening and become generally encircled within said scraper edge; and
a plurality of brush bristles affixed to the bottom surface of said tool body and extending generally in the same direc-

tion as said scraper edge, such that when the rod-like member is generally encircled within said scraper edge, the person can apply a scraping action against virtually the entire surface of the rod-like member simply by changing the direction in which he urges the tool body against the rod-like member and, if need be, rotating the tool body slightly about the rod-like member, permitting said tool to be used to apply both a scraping action and a brushing action to the rod-like member without requiring the tool to be reoriented or turned over.

4,365,381

CHIMNEY CLEANER

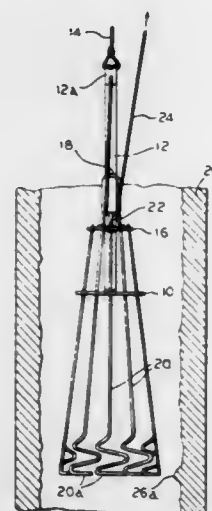
Orin E. Neuman, Wittenberg, Wis., assignor to Neuman Chimney Cleaners, Inc., Wittenberg, Wis.

Filed May 28, 1981, Ser. No. 268,485

Int. Cl.³ F23J 3/00

U.S. Cl. 15—243

6 Claims



1. A chimney cleaner for removing soot deposits from the inside walls of chimneys, which walls have protrusions of mortar and the like, comprising:

- a vertical support member secured orthogonally at its lower end to a lower plate;
- an upper plate having an aperture near its center such that said vertical support member passes slidably through it, said upper plate thus being approximately vertically aligned with, smaller than, and approximately the same shape as said lower plate;
- a plurality of rod-like cleaning members looped pivotably through apertures around the perimeter of said upper plate, passing slidably through similar apertures around the perimeter of said lower plate, and ending in z-shaped scraping portions for engagement with the inside chimney walls, such that when said plates are caused to approach each other, said scraping portions are faced outward toward the walls; and
- means for disengaging said scraping portions of said cleaning members from any snags they may encounter with the protrusions of the inside walls.

4,365,382

CHIMNEY CLEANING SYSTEM

Robert G. Korfmann, R.D. #1, Box 222A, and Richard C. Bennett, R.D. #1, Box 172, both of Wyalusing, Pa. 18853

Filed Jan. 19, 1981, Ser. No. 226,410

Int. Cl.³ F23J 3/00

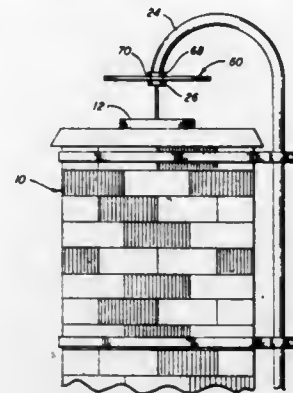
U.S. Cl. 15—249

2 Claims

1. A chimney cleaning system, comprising:
- a cleaning head, constructed of a plurality of metal sections, each of said sections having a sharpened lower end for more efficiently removing soot and creosote from an inner surface of said chimney, said cleaning head being formed to adapt to the interior dimensions of a chimney to be cleaned;
 - a support system for said cleaning head, said support system

comprising a cable attached to said cleaning head, said cable being supported by a tubular support member which is attached to an exterior of said chimney and which passes said cable to a user at ground level; and

an anti-down draft cap affixed to said tubular support member



and positioned at a predetermined distance above a top of said chimney for reducing down drafts into said chimney and for protecting said chimney from rain and other forms of precipitation, said anti-down draft cap further comprising a plurality of radially extended slots therein to allow free passage of wind and exhaust gases from said chimney.

4,365,383

CLEANING APPARATUS FOR COMPONENTS

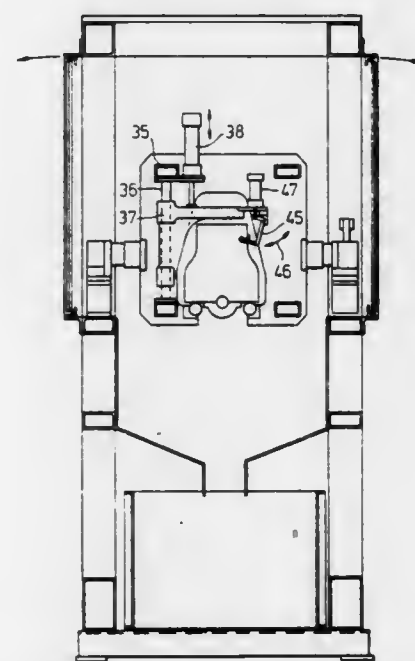
John M. Bartlett, Woodcote near Reading, England, assignor to Elan Pressure Clean Limited, Oxford, England

Continuation-in-part of Ser. No. 51,500, Jun. 25, 1979, abandoned. This application Feb. 17, 1981, Ser. No. 234,715

Int. Cl.³ A47L 5/38

U.S. Cl. 15—302

14 Claims



1. A Cleaning apparatus for cleaning components such as vehicle engine blocks, said apparatus comprising a cleaning chamber, support means for supporting a component within the cleaning chamber during cleaning, pump means, a water manifold in said cleaning chamber for receiving water from said pump means at a pressure in excess of 1000 psi, said water manifold being mounted for movement relative to the support means for washing the component with a flow rate of water less than 200 gallons per minute at said pressure in excess of 1000 psi, said water manifold including a main washing head of a plurality of jets and at least one selective washing head movable relative to the main washing head and the component to effect selective washing of the component, valve means associated with each of the washing heads and operable on actuation

to open or close the supply of water to the respective washing heads whereby the application of the water via the washing heads can be controlled, recycling means for dirty water produced by washing the component, said recycling means including means for collecting the dirty water, filter means for filtering the dirty water for re-use and a storage tank for recycled water, diverter valve means between the pump means and the water manifold, said diverter valve means having an inlet and first and second outlets whereby, in a first position, it supplies water at said pressure in excess of 1000 psi to the water manifold on demand and, in a second position, it returns the water to the storage reservoir, and means for drying the components.

4,365,384

CONCEALED MULTI PINTLE LATCH HINGE

Theodor Vitt, Cologne, Fed. Rep. of Germany, assignor to Prameta Präzisionsmetall- und Kunststoffzeugnisse G. Bau- mann & Company, Cologne, Fed. Rep. of Germany

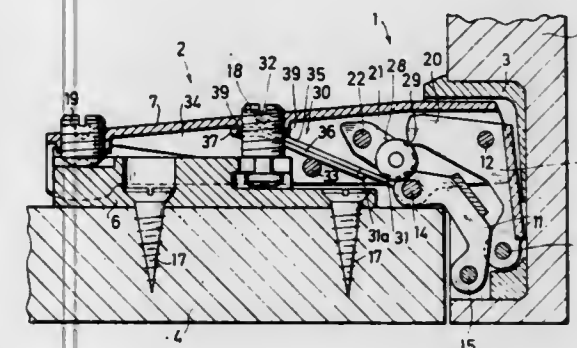
Filed May 8, 1980, Ser. No. 147,789

Claims priority, application Fed. Rep. of Germany, May 9, 1979, 2918660

Int. Cl.³ E05F 1/14

U.S. Cl. 16—333

10 Claims



1. A spring hinge assembly for use as a concealed furniture hinge, said assembly comprising:

- (a) a frame hinge section and a leaf hinge section connected by link members each having two pivot points and being movable between an open and a closed position,
- (b) the frame hinge section comprises a base plate and a link supporting plate,
- (c) said hinge sections being under spring action with respect to one another with the leaf hinge section being held by a spring latch in said closed position,
- (d) one link member having an extension on its end projecting into the frame hinge section,
- (e) the extension including a control cam which coacts with a lever means,
- (f) said lever means including a roller disposed on a lever element which is under spring action and is linked to the frame hinge section,
- (g) biasing means is located on that side of the lever means remote from the link supporting plate,
- (h) said biasing means being effective to simultaneously engage the lever means and the link supporting plate and to bias the lever means and supporting plate outwardly from the base plate,
- (i) the link supporting plate includes an eye-boss means which extends toward the base plate and receives an adjusting screw for the link supporting plate,
- (j) said biasing means includes a leaf spring having an opening to surround said eye-boss means.

4,365,385

HINGE CLAMP

Akio Gotoh, Yokohama, Japan, assignor to Katoh Electrical Machinery Co. Ltd., Tokyo, Japan

PCT No. PCT/JP79/00255, § 371 Date Jun. 9, 1980, § 102(e) Date May 27, 1980, PCT Pub. No. WO80/00688, PCT Pub. Date Apr. 17, 1980

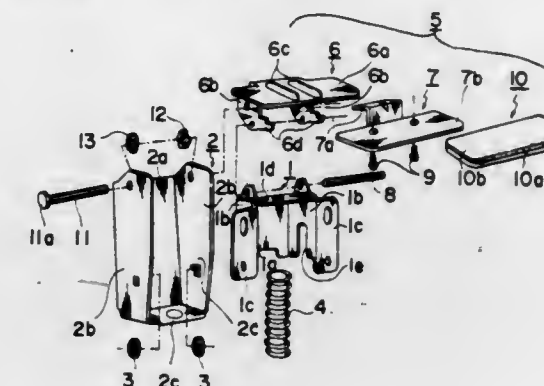
PCT Filed Oct. 9, 1979, Ser. No. 198,971

Claims priority, application Japan, Oct. 9, 1978, 53/138761[U]

Int. Cl.³ E05D 5/06

U.S. Cl. 16—382

1 Claim



1. A hinge for opening and closing a cover of a record player, comprising in combination:

- (a) a cover retainer (5) with a pair of hinge plates (6, 7);
- (b) side plate portions (6b, 6b) on one of said hinge plates (6), a hinge pin (8) pivotally supported by said side plate portions (6b, 6b), said side plate portions defining a receiving space and being provided with a pair of anchoring lugs (6d, 6d);
- (c) a side portion on said other hinge plate (7), said side portion being received by and fixed in said defined space and being retained substantially at its center point by said anchoring lugs (6d, 6d) so as to prevent said other hinge plate (7) from rotating back away from the one hinge plate (6); and,
- (d) at least one of said hinge plates (6, 7) being provided with attaching screws (9, 9) for fixing the cover inserted in said cover retainer.

4,365,386

HINGE DOOR ASSEMBLY

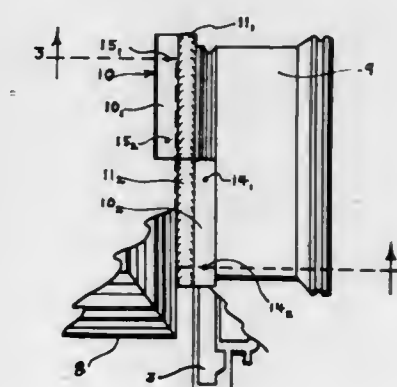
John L. Lowery, 1864 Country Club Dr., Baton Rouge, La. 70808

Filed Mar. 3, 1981, Ser. No. 239,906

Int. Cl.³ E05C 5/06; E05F 1/10

U.S. Cl. 16—382

7 Claims



1. Apparatus constituting a hinge for mounting a door to a door jamb in hinged relationship, the door jamb being formed from a longitudinally, edge grooved metal frame, which comprises a pin,

a pair of hinge segments of identical cross-section, constituted of tubular portions fitted together in tandem and pivotally attached one to the other via said pin passed through the openings through each of said tubular portions, L-shaped projections connecting via a terminal end to and extending from said tubular portions, said L-shaped projections including webbed portions directly connected at right angles to said tubular portions, and planar edge members extended at right angles from said webbed portions to which said planar guide members are directly connected via a terminal end, said planar edge members including projecting guide ribs which, in combination with said planar edge members, form tongue-and-groove connections which mate with the edge groove of said door jamb

whereby the door can be pivotally attached to said door jamb via said pair of hinged segments, and the lower of the hinged segments of the pair can serve as a support for the upper of the hinged segments of said pair.

4,365,387

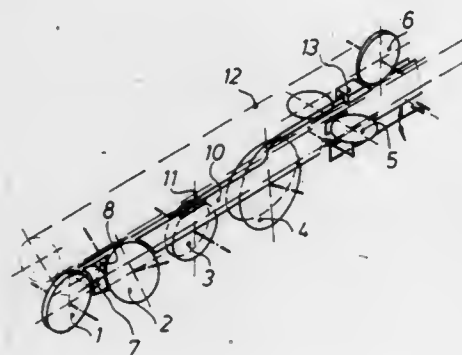
METHOD AND APPARATUS FOR FILLETING FISH
Franz Hartmann, Bad Oldesloe, and Manfred Krohn, Bad Schwartau, both of Fed. Rep. of Germany, assignors to Nordischer Maschinenbau Rud. Baader, Lubeck, Fed. Rep. of Germany

Filed Dec. 24, 1980, Ser. No. 219,947

Int. Cl.³ A22C 25/16

U.S. Cl. 17—52

7 Claims



1. A method of filleting a decapitated fish of substantially circular cross-section, said fish having at least a back, a belly including belly flaps essentially defining a belly cavity, a backbone, lateral vertebral appendages projecting from said backbone, belly spokes, back spokes, and dorsal fins having fin holders, said method including the following steps:

- transporting said fish belly side down and head end leading along a pathway in a conveying direction, with the fish engaged by its flanks;
- opening said belly cavity and cutting free said belly spokes substantially up to said backbone by means of belly filleting cuts;
- cutting free said lateral vertebral appendages projecting from said backbone on the side remote from said belly substantially up to said backbone by means of rib cuts;
- severing a bone strip containing said lateral vertebral appendages by cutting through said bones on both sides of, and in the vicinity of, said backbone substantially as far as said rib cuts;
- cutting free said back spokes to a point adjacent to said fin holders of said dorsal fins by means of back filleting cuts performed from the belly side of said fish; and
- separating the fillets from the bone structure by means of severing cuts from said back of said fish on both sides of said dorsal fins as far as said back filleting cuts.

4,365,388 APPARATUS FOR AUTOMATICALLY CHANGING CANS OF A SPINNING MACHINE

Mitsuo Mori, Toyota, and Yoshihisa Suzuki, Chiryu, both of Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Aichi, Japan

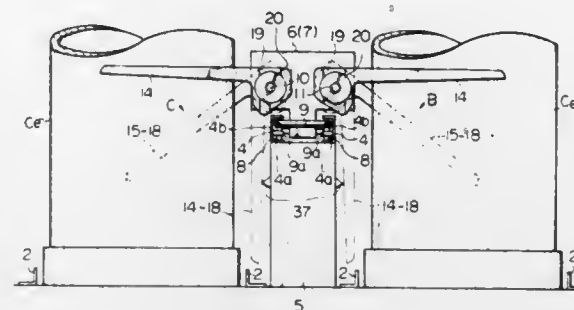
Filed Sep. 4, 1980, Ser. No. 184,177

Claims priority, application Japan, Sep. 10, 1979, 54/116585

Int. Cl.³ B65H 54/80

U.S. Cl. 19—159 A

8 Claims



1. An apparatus for automatically changing cans of a spinning machine comprising:

- a movable support frame which can be reciprocated along a transporting direction of the cans; and
- a plurality of can transporting arms which are substantially equidistantly arranged on said support frame and which can alternately be located at operating positions where said arms transport said cans and stand-by positions where said arms do not interfere with said cans, whereby, when said movable support frame is moved forward, said can transporting arms are maintained at said operating positions so as to transport said cans, and then, after said can transporting arms are returned to said stand-by positions from said operating positions, said support frame is moved backward, characterized in that, said apparatus further comprises an arm height adjusting member by which different heights of the can transporting arms in said operating positions where said arms about the cans are adjustable while said can transporting arms in said stand-by positions are almost at the same level as each other.

4,365,389

APPARATUS FOR CLEANING TEXTILE FIBER TUFTS
Wolfgang Beneke, Mönchen-Gladbach, and Ferdinand Leifeld, Kempen, both of Fed. Rep. of Germany, assignors to Trützschler GmbH & Co. KG, Mönchen-Gladbach, Fed. Rep. of Germany

Filed Sep. 29, 1980, Ser. No. 196,108

Claims priority, application Fed. Rep. of Germany, Sep. 25, 1979, 2939640; Aug. 22, 1980, 3031632

Int. Cl.³ D01B 1/00

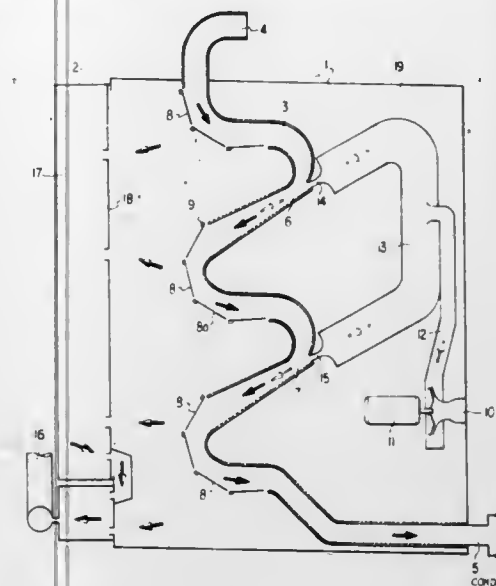
U.S. Cl. 19—200

35 Claims

1. Apparatus for cleaning and removing dust from textile fiber tufts, comprising means defining a channel for the passage of fiber tufts and including an air injector nozzle for introducing fresh air into the channel, means defining an air separation zone associated with the channel for separating air from the tufts in the channel, and suction means for extracting air from the air separation zone, wherein said means defining an air separation zone comprise at least one comb disposed a short distance downstream of said injector nozzle at a location to

enable tufts being carried through said channel to abut on said comb, said comb being composed of a plurality of teeth extend-

side being bent back substantially at right angles at one end thereof towards a side of said case which is opposite to said one side of said case so as to form therewith a slit in the plane of said suspension element, and a strap having an active strand



ing generally in the direction of flow of the stream of air introduced by said nozzle.

4,365,390

CLIP FOR WRITING UTENSIL
Hideaki Kageyama, and Takahiko Suzuki, both of Saitama, Japan, assignors to Kotobuki & Co., Ltd., Saitama, Japan

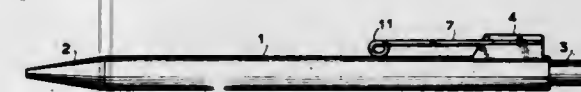
Filed Jul. 17, 1980, Ser. No. 169,829

Claims priority, application Japan, Mar. 29, 1980, 55-41757[U]

Int. Cl.³ B43K 25/00

U.S. Cl. 24—11 R

2 Claims



1. A clip for writing utensils comprising a holder, a clip base made integral with said holder and projecting laterally therefrom, said clip base including aligned grooves in opposite faces thereof extending lengthwise of said clip base, said grooves being spaced from said holder and extending substantially parallel thereto, a clip piece secured to said clip base, said clip piece including a pair of insertion arms extending substantially parallel with each other, said arms being slidably received in said grooves for assembly with said clip base, each of said arms being provided at its inside surface with an engaging portion having saw-tooth shaped indentations, said engaging portions being struck into the base surface of each of said grooves after assembly on said clip base, to form depressions in said base surfaces so as to firmly secure said clip piece to said clip base.

4,365,391

DEVICE FOR LOCKING AND ADJUSTING STRAPS FOR LIFTING AND SECURING APPARATUSES

Jean-Pierre Chaplain, 22, Rue de Mery, 95310 Saint-Ouen-l'Aumône, France

Filed Jul. 17, 1980, Ser. No. 169,654

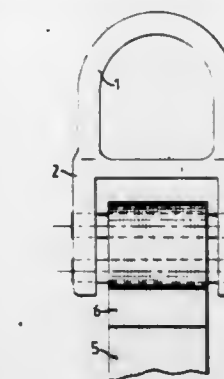
Claims priority, application France, Jul. 18, 1979, 79 18580

Int. Cl.³ A44B 11/00

U.S. Cl. 24—197

2 Claims

1. A device for locking and adjusting the length of a lifting and securing strap, comprising a suspension element disposed in a plane, a clevis integral with said element having parallel arms, at least two superposed holes in each arm of said clevis, the holes in one arm of said clevis facing the holes in the other arm of said clevis, at least two superposed shafts removably disposed in said holes, a case fixed on said clevis having one side disposed out of the plane of said suspension element, said



passing through said slit and wound around said shafts, and said strap having a return strand in contact with the active strand leaving through the slit, said slit maintaining the active strand of the strap against the return strand in the plane of the suspension member.

4,365,392

GAS-TIGHT EXHAUST CLAMP FOR TUBING SLIP-JOINTS

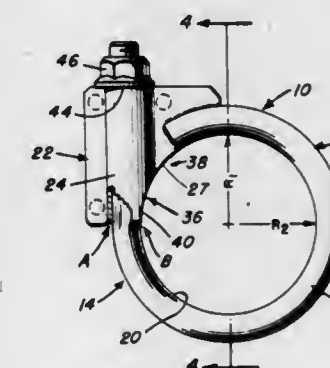
John E. Heckethorn, Dyersburg, Tenn., assignor to Heckethorn Manufacturing Company, Dyersburg, Tenn.

Filed Nov. 13, 1978, Ser. No. 960,036

Int. Cl.³ A44B 21/00; F16L 25/00

U.S. Cl. 24—256

8 Claims



1. A pipe or tube clamp comprising: a substantially rigid discontinuous arcuate ring member formed from circular stock and having a substantially straight leg portion extending from a first end thereof; a lug member disposed between said first end of the ring member and a second end thereof, said second end being fixedly joined to said lug member, the inner circumferential surface of the ring member forming a continuous circular arc with an arcuate surface formed in the lug member, the arcuate surface of the lug member defining a continuous arc extending between the ends of the ring member and forming an uninterrupted continuation of the arc defined by the ring member, the lug member further comprising a housing which receives the leg portion of the ring member therethrough, and including a web extending from one side of the housing, the web being joined to the second end of the ring member and having an arcuate inwardly disposed edge surface which forms at least a portion of the arcuate surface formed in the lug member, the housing having spaced flared arcuate edge surfaces at the end thereof at which the ring member extends into the housing, said surfaces forming at least an additional portion of the arcuate surface formed in the lug member; and means disposed on the distal end of the leg portion for tensioning the ring member to reduce the diameter of the clamp.

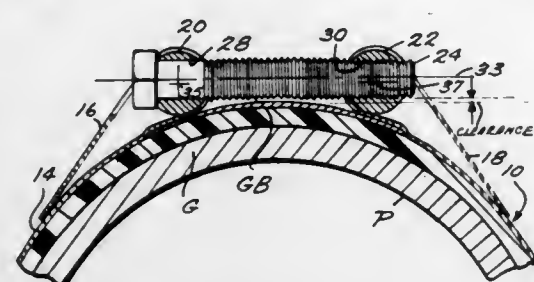
4,365,393

SINGLE AND MULTIPLE SECTION PIPE REPAIR CLAMPS

William L. Haupte, Warrensburg, and Joseph L. Daghe, Decatur, both of Ill., assignors to Mueller Co., Decatur, Ill.
Filed May 11, 1981, Ser. No. 262,776
Int. Cl.³ F16L 33/04

U.S. Cl. 24—279

17 Claims



1. A low profile pipe clamp for encircling a pipe, said pipe clamp having a use for a wide range of varying outside diameters of a particular size of pipe and comprising:

- a split flexible band means having at least one pair of opposed spaced apart looped ends extending in a lengthwise direction of the pipe when the band means encircles the pipe, said looped ends drawn toward one another to tighten said band means about the pipe;
- a pair of elongated trunnion loading bars, one of said trunnion loading bars being carried in one of said looped ends and the other of said elongated trunnion loading bars being carried in the other of said looped ends, said trunnion loading bars being rotatable relative to the respective looped ends when the looped ends are drawn together; and

bolt means coaxing with said trunnion bars for moving said trunnion bars toward one another and drawing said opposed looped ends toward each other so that said band means tightly encircles the pipe, said bolt means including at least one bolt extending through the trunnion bars in each of the looped ends of said opposed looped ends, said bolt having a longitudinal axis extending transverse of and spaced outwardly of the longitudinal axes of said trunnion bars, whereby said bolt avoids interference with said flexible band means when said pipe clamp is used on a pipe having a maximum diameter for a particular size of pipe.

4,365,394

METHOD FOR PRODUCING AN INTERLACED MULTIFILAMENT YARN

Tadayuki Matsumoto, Mishima; Kozo Imaeda, Shizuoka; Masatoshi Mineo, and Kiyoshi Nakagawa, both of Mishima, all of Japan, assignors to Toray Industries, Inc., Tokyo, Japan
Division of Ser. No. 865,667, Dec. 29, 1977, abandoned, which is a division of Ser. No. 705,145, Jul. 14, 1976, Pat. No. 4,115,988.

This application Mar. 22, 1979, Ser. No. 22,934

Claims priority, application Japan, Jul. 18, 1975, 50-87372

Int. Cl.³ D02G 1/20, 1/16; D02J 1/08, 1/16

U.S. Cl. 28—258

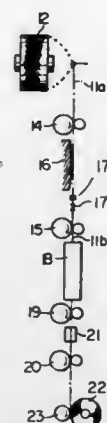
5 Claims

1. Method for producing an interlaced multifilament yarn comprising, in combination:

- previously rubbing and scratching a material multifilament yarn with such intensity that individual filaments constituting said filament yarn are not substantially broken by a rotary rough surface member having sharp projections which are smaller than the cross-sectional diameter of the individual filaments of said material yarn;
- then diffusing at least one jetted fluid, jetted in the yarn running direction along a predetermined yarn passage from a jetting aperture of a supply conduit through a nozzle formed with a rectifying and diffusing portion having a substantially uniform cross-section of limited axial extent formed only in the vicinity of said jetting aperture, and the width of said jetting aperture being smaller than said rectifying and diffusing portion, said

supply conduit being fixed with respect to members defining said yarn passage, said fluid being diffused along a direction parallel to said yarn passage in said rectifying and diffusing portion; and

impinging said diffused jetted fluid against said running



material multifilament yarn so that said individual filaments of said multifilament yarn mostly vibrate in a direction substantially parallel to a plane defined by the yarn running direction and the fluid jetting direction, the vibration taking place in a section of said yarn passage facing said rectifying and diffusing portion.

4,365,395

APPARATUS FOR HANDLING TEXTILE FILAMENTARY MATERIAL

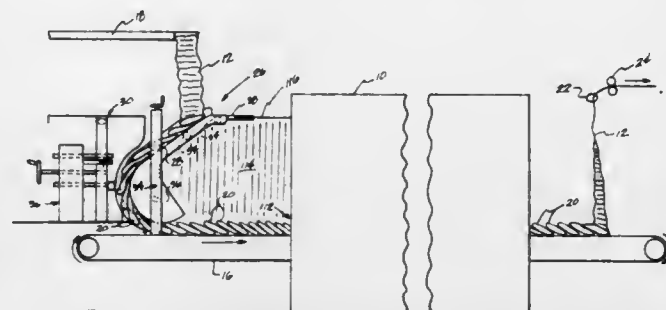
Zachry G. Brantley, Spartanburg, S.C., assignor to Hoechst Fibers Industries, Division of American Hoechst Corporation, Spartanburg, S.C.

Filed Mar. 28, 1980, Ser. No. 134,949

Int. Cl.³ B65H 17/50; D02C 1/18

U.S. Cl. 28—281

9 Claims



1. A stationary tow inverter for depositing a continuous length of tow onto the surface of a moving conveyor in a plurality of overlapping layers with preceding layers of the tow overlying next succeeding layers in the direction of movement of the conveyor, comprising:

tow guiding means defining a first stationary support surface for receiving a continuous length of tow deposited thereon in a plurality of overlapping layers with preceding layers underlying next succeeding layers deposited thereon, and a second stationary support surface spaced from said first surface and cooperating therewith to gravitationally convey and guide the overlapping layers of tow through a downwardly curved path to reverse the direction of lay of the overlapping layers and deposit the same onto a conveyor surface with preceding layers of tow overlying next succeeding layers in the direction of movement of the conveyor.

4,365,396

METHOD FOR MANUFACTURING A BASELESS INCANDESCENT LAMP ASSEMBLY

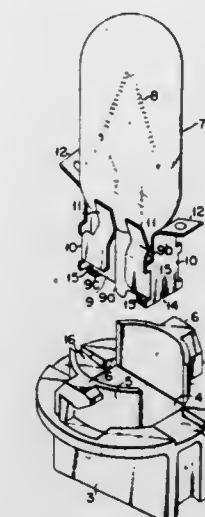
Masaharu Baba, Yokohama; Kiyokazu Honda, Zushi, and Akiyoshi Hashima, Yokohama, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan
Filed Dec. 4, 1980, Ser. No. 213,077

Claims priority, application Japan, Dec. 20, 1979, 54-165986

Int. Cl.³ H01R 33/06; H01K 3/06

U.S. Cl. 29—25.13

10 Claims



1. A method for manufacturing a baseless incandescent lamp having a flattened seal section and external lead wires led outward from said flattened seal section; a main socket body having a lamp holding chamber to contain the flattened seal section of said baseless incandescent lamp; and a pair of conductive holding members disposed inside the lamp holding chamber of said main socket body to hold and pinch the flattened seal section of said baseless incandescent lamp and electrically connected with said external lead wires, said method comprising:

- a step for holding the flattened seal section of said baseless incandescent lamp between said pair of holding members;
- a step for inserting said holding members into the lamp holding chamber of said main socket body while keeping the flattened seal section of said baseless incandescent lamp held with said holding members; and
- a step for softening part of said main socket body by heating to deform the same, thereby forming fixing portions to prevent said inserted holding members from slipping out of said lamp holding chamber.

4,365,397

FILE TOOL ATTACHMENT

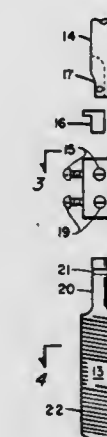
Glenn D. Felpel, 4917 Macmont Cir., Powell, Tenn. 37849

Filed Oct. 7, 1980, Ser. No. 194,887

Int. Cl.³ B23D 71/00, 71/02

U.S. Cl. 29—76 R

4 Claims



1. An attachment for commercially available sabre saw power device said device having a power driven reciprocating

bar, comprising a tool adapter of configuration to engage said bar and acting in cooperation with and substantially coaxial with said bar, means for clamping said adapter to said bar in rigid manner, a spacer member being substantially rectangular of thickness and configuration such as to conform to a slot in said bar and being provided with a tab which engages in tight fit a slot provided in said adapter, means for clamping said file tool in rigid manner to said adapter.

4,365,398

METHOD OF AND APPARATUS FOR ASSEMBLING INTERMEDIATE-WEB HELD TERMINAL PINS

William M. Chisholm, Midlothian, Va., assignor to Western Electric Company, Inc., New York, N.Y.

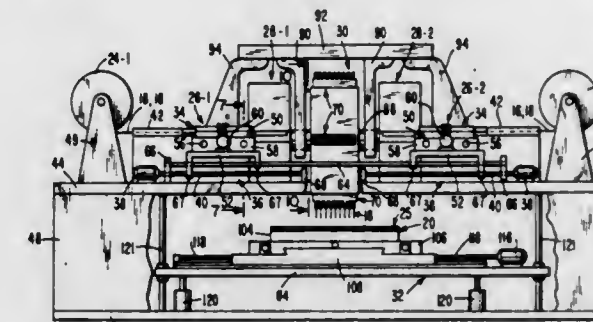
Division of Ser. No. 965,219, Nov. 30, 1978, Pat. No. 4,265,508.

This application Jul. 31, 1980, Ser. No. 174,061

Int. Cl.³ H05K 3/00; B23P 23/00

U.S. Cl. 29—845

10 Claims



1. A method of assembling terminal pins with a support structure where each pin is formed with a free insertion end to be inserted into one of a plurality of apertures in the support structure, and a free connector end for ultimate assembly with a connector, and where the pins are held in a strip by webs formed integrally with and between intermediate portions of adjacent pins, which comprises the steps of:

- positioning the free insertion end of each of a plurality of the terminal pins of the strip into a movement-confining portion of a pin transporter;
- removing each of the webs between the intermediate portions of adjacent pairs of the terminal pins positioned in the pin transporter so that the pins are retained individually in spaced relationship by their respective movement-confining portions of the pin transporter;
- moving the pin transporter toward a pin inserter after the webs have been severed from the intermediate portions of the terminal pins, to position the intermediate portion of each terminal pin in the pin transporter into a movement-confining portion of the pin inserter;
- withdrawing the pin transporter from the free insertion ends of the terminal pins so that the pins are retained individually in the pin inserter in spaced relationship by the movement-confining portions of the pin inserter; and
- causing relative movement between the pin inserter and a support structure to insert the free insertion end of each terminal pin retained in the pin inserter into one of the apertures of the support structure.

5. Apparatus for assembling terminal pins with a support structure where each pin is formed with a free insertion end to be inserted into one of a plurality of apertures in the support structure, and a free connector end for ultimate assembly with a connector, and where the pins are held in a strip by webs formed integrally with and between intermediate portions of adjacent pins, which comprises:

- first clamping means for releasably clamping the free insertion ends of a plurality of the terminal pins;
- means for severing the webs between the intermediate portions of the terminal pins being clamped by the first clamping means;
- second clamping means for releasably clamping the interme-

diate portions of the terminal pins after the webs have been severed from the intermediate portions of the terminal pins by the web severing means; means, including the first clamping means, for transporting the clamped terminal pins from the web severing means to the second clamping means; means for causing the first clamping means to release the free insertion ends of the terminal pins after the intermediate portions of the pins have been clamped by the second clamping means; and means for causing relative movement between the support structure and the second clamping means to insert the free insertion ends of the pins into respective ones of the apertures in the support structure.

4,365,399

MANUFACTURE OF LIGHT WEIGHT PISTONS

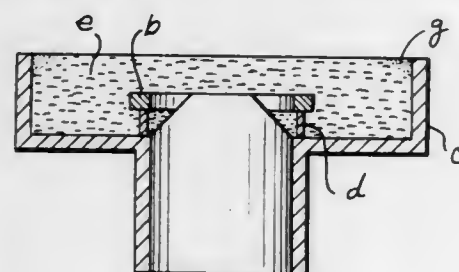
Duraid Mahrus, Sao Paulo, Brazil, assignor to Metal Leve S.A. Industria e Comercio, Brazil

Continuation-in-part of Ser. No. 56,190, Jul. 10, 1979, abandoned. This application Sep. 15, 1980, Ser. No. 187,344 Claims priority, application Brazil, Jul. 12, 1978, 17804521

Int. Cl.³ B23P 15/10; B22D 13/00

U.S. Cl. 29—156.5 R

9 Claims



1. A method of manufacturing light weight composite internal-combustion engine pistons which comprises forging a piston body of aluminum alloy with a configuration adapted for a ring insert, positioning a ring insert of an iron alloy in juxtaposition to and with a clearance between it and said configuration to form an assembly, inserting said assembly in a confining mold, heating the surface of said assembly to temperatures below the melting point of said forging, rotating said mold and while said mold is being rotated directing a flow of a molten aluminum alloy at an oxide-removing angle into the space formed by the clearance between the configuration in said piston body forging and said insert to fusion weld said insert to said piston body at said configuration, said rotation of said mold while said flow of molten aluminum alloy is being directed therein at said oxide removing angle causing oxides to dislodge from the surfaces of the piston body and insert ring and flow to the upper periphery of the mold where the same can be removed, thus effecting integral bonding of the piston body to the ring insert.

4,365,400

APPARATUS FOR INSTALLING SLEEVES ON SUBSTRATES

William D. Carlomagno, Redwood City, Calif., assignor to Raychem Corporation, Menlo Park, Calif.

Filed Jan. 23, 1980, Ser. No. 114,617

Int. Cl.³ B23P 19/00

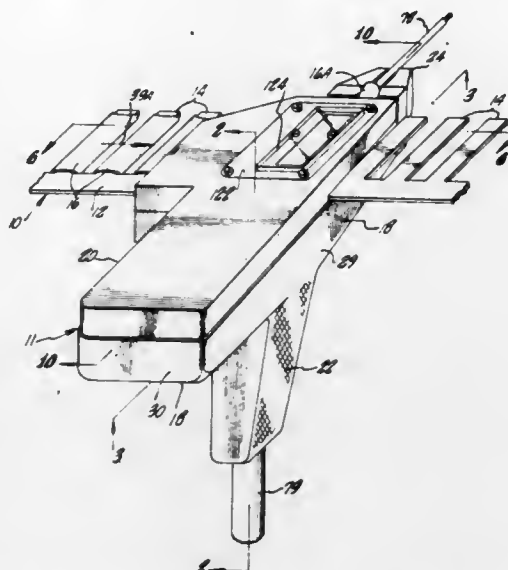
U.S. Cl. 29—235

38 Claims

1. Apparatus for installing sleeves on elongated substrates, each sleeve being slideably arranged on one of a plurality of fingers extending substantially perpendicular from a carrier belt, the apparatus comprising:

- a base including a belt path for receiving the carrier belt and a finger guideway for receiving a finger of the carrier belt with a sleeve arranged thereon, the finger guideway being substantially perpendicular to the belt path; and
- stripping means mounted to slide reciprocally along the base for slidably forcing a sleeve that is arranged on a

finger within the finger guideway onto a substrate, the stripping means having a stroke and comprising tines spaced apart a distance at least equal to the thickness of



the carrier belt, and means for limiting the stroke of the stripping means to a sufficiently short length that the carrier belt can be maintained between the tines as the stripping means reciprocatingly slides along the base.

4,365,401

RIVET REMOVAL AND FASTENING TOOL

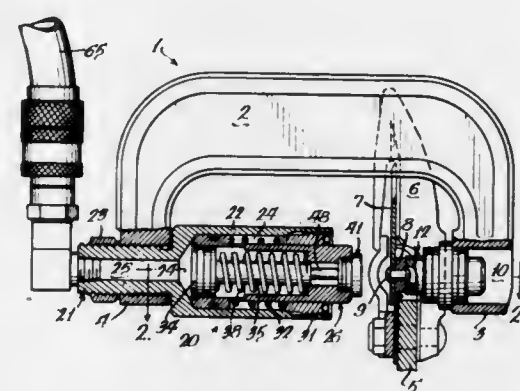
Robert S. Ogren, Owatonna, Minn., assignor to Owatonna Tool Company, Owatonna, Minn.

Filed Oct. 20, 1980, Ser. No. 199,197

Int. Cl.³ B23P 11/00

U.S. Cl. 29—243.53

11 Claims



1. A rivet tool comprising: a frame having a first support opposed by a second support; an anvil mounted in said first support for supporting the workpiece; a hydraulic cylinder mounted in said second support and having a closed end and an open end directed toward the workpiece; a sleeve having a head end sealingly and slidably located within said cylinder with another end for clamping said workpiece extensible beyond said open end of said cylinder; a piston located within said sleeve for relative movement therewith and having a rivet engaging member thereon; means for preventing the movement of said piston relative to said sleeve until said sleeve has clamped the workpiece; and a hydraulic conduit connected to the closed end of said cylinder whereby fluid under pressure enters the closed end of said cylinder through said conduit to cause the sleeve and piston to move as a unit due to said preventing means until said sleeve clamps the workpiece whereupon

the piston moves relative to the sleeve to cause the rivet engaging member to engage the rivet.

4,365,402

METHOD FOR COUNTING TURNS WHEN MAKING THREADED JOINTS

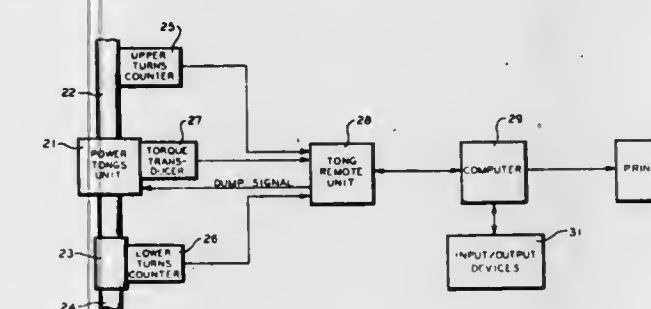
Russell L. McCombs, San Antonio, and James V. Motsinger, Austin, both of Tex., assignors to Baker International Corporation, Orange, Calif.

Division of Ser. No. 941,894, Sep. 12, 1978. This application Jul. 19, 1979, Ser. No. 59,100

Int. Cl.³ B23Q 5/00

U.S. Cl. 29—407

3 Claims



1. A method for making threaded joints from a pair of cooperatively threaded members within a desired range of predetermined applied torque and turns values comprising the following steps: (a) engaging the cooperating threads and rotating one of the members with respect to the other of the members by applying torque thereto; (b) monitoring the actual torque applied to said one member; (c) accumulating a count total of the turns made by said one member after a predetermined reference torque value has been reached by adding each turn as it is made to said count total when said actual torque is greater than said reference torque and by subtracting each turn as it is made when said actual torque is less than said reference torque; and (d) indicating when said accumulated count total and said actual torque values are within said desired range of predetermined applied torque and turns values.

4,365,403

METHOD OF AND APPARATUS FOR INTERENGAGING A PAIR OF SLIDE FASTENER STRINGERS

Yasumasa Ooura, Kurobe, Japan, assignor to Yoshida Kogyo K.K., Japan

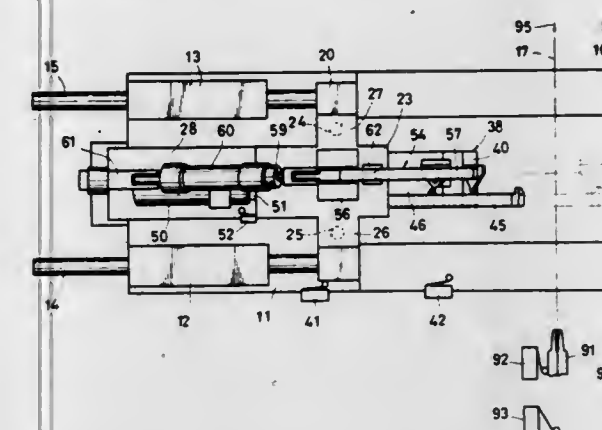
Filed Dec. 1, 1980, Ser. No. 211,805

Claims priority, application Japan, Dec. 18, 1979, 54-164260

Int. Cl.³ B23P 19/04

U.S. Cl. 29—408

10 Claims



1. A method of interengaging a pair of slide fastener stringers including a pair of rows of coupling elements, respectively, comprising the steps of:

- (a) intermittently feeding the slide fastener stringers respectively along a pair of longitudinal paths in parallel planes

with the rows of coupling elements being directed in one direction;

- (b) displacing the stringers sideways off said paths toward each other into a generally Y-shaped coupling channel while the stringers are at rest; and
- (c) turning the rows of coupling elements into confronting relation to each other in said coupling channel, whereby the rows of coupling element can be interengaged when they move through said coupling channel.

4,365,404

MAKING JACKETED LINED PIPE

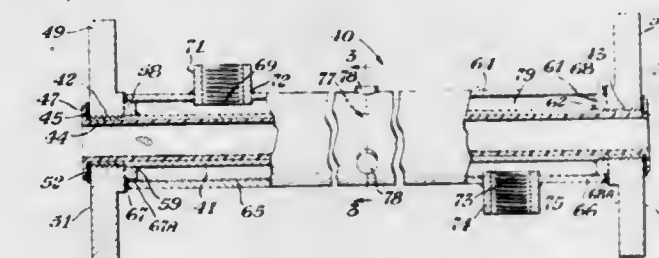
German O. Castro, and Frederick C. Soria, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 31,795, Apr. 20, 1979. This application Nov. 19, 1980, Ser. No. 208,208

Int. Cl.³ B21D 39/00; B23P 19/04

U.S. Cl. 29—455 R

3 Claims



1. A method for the preparation of a lined pipe, the steps of the method comprising providing a first metallic conduit having a first end and a second end, disposing on the first end and the second end of the conduit a metallic spacing ring, welding the spacing ring in liquid tight engagement to the conduit, providing a first flange, disposing the first flange on the first end of the conduit, providing a generally cylindrical jacket, positioning the jacket over the spacing rings in abutting relationship to the first flange; providing a second flange on the second end of the pipe, welding in liquid tight engagement the jacket to the first and second flanges and metallic spacing rings, subsequently lining the pipe with a plastic liner.

4,365,405

METHOD OF LATE PROGRAMMING READ ONLY MEMORY DEVICES

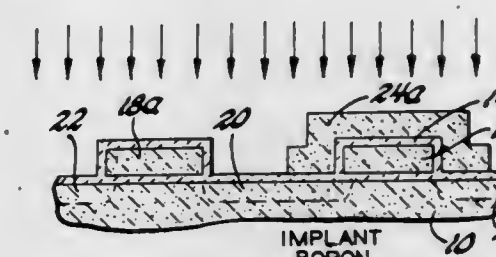
John E. Dickman, Russiaville, and William B. Donley, Kokomo, both of Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed May 28, 1981, Ser. No. 268,089

Int. Cl.³ H01L 21/22

U.S. Cl. 29—571

5 Claims



1. A method of making a high speed and high density read-only memory, and encoding it in later steps of the method comprising:

- forming on a semiconductor surface, an operative IGFET array having an overlying gate electrode pattern formed by a first level of polycrystalline silicon; covering channels of predetermined IGFETs in said array with a second level of polycrystalline silicon and leaving the balance of array IGFET channels uncovered;

significantly selectively altering threshold voltage of said balance of IGFET channels by blanket ion implantation of said array at an energy insufficient to penetrate both levels of said polycrystalline silicon, effective to render said channels unresponsive at an intended gate electrode operating voltage;

covering said array with an insulating coating and etching array contact windows in it while maintaining coating thickness over said channels; and

forming an array output conductor pattern on said insulating coating, whereby said pattern crosses gate electrodes over said channels without incurring significant parasitic interaction therewith.

4,365,406

PRESSURE TRANSDUCER AND METHOD OF MAKING SAME

Daniel L. Neill, Pelleville, and Leonard T. Tribe, Ann Arbor, both of Mich., assignors to Kelsey Hayes Company, Romulus, Mich.

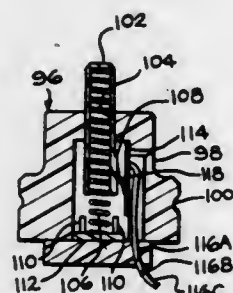
Division of Ser. No. 96,861, Nov. 23, 1979, Pat. No. 4,279,162.

This application Mar. 30, 1981, Ser. No. 249,281

Int. Cl.³ G01L 27/00; G01R 3/00

U.S. Cl. 29—593

1 Claim



1. A method of producing an electro-mechanical pressure transducer whereby a desired relationship between an input fluidic pressure signal and an electrical output signal is achieved through positioning of elements during assembly thereof, comprising the steps of:

- providing a housing;
- affixing within said housing a pressure responsive means wherein said pressure signal results in translation of a piston means representative of said pressure signal;
- providing an electric signal output means wherefrom an electric signal proportional to the movement of an actuation means therein emitted, wherein said electric signal output means is an integral assemblage;
- assembling said electric signal output assemblage within said housing whereby said piston element and said actuation means are engaged such that translation of said piston element causes displacement of said actuation means;
- applying a known input pressure signal to said pressure responsive means;
- monitoring said electrical output signal;
- permanently positioning said integral electric signal output assemblage within said housing such that the emitted electrical signal bears a desired relationship with said input pressure signal.

4,365,407 METHOD OF MAKING AN INSULATED POLE AND COIL ASSEMBLY

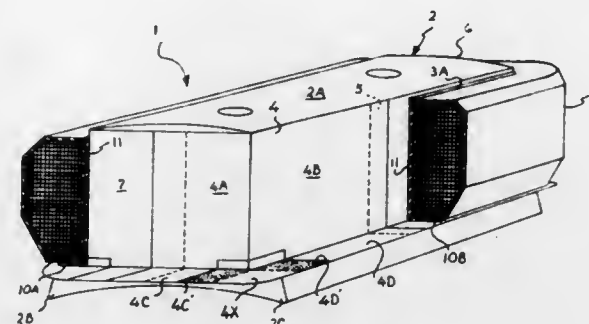
Joseph J. Zdaniewski; William B. Penn, and Roy L. Balke, all of Erie, Pa., assignors to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 41,170, May 21, 1979, Pat. No. 4,293,784. This application Feb. 2, 1981, Ser. No. 230,471

Int. Cl.³ H02K 15/10

U.S. Cl. 29—598

4 Claims



1. A method of making an insulated pole and coil assembly comprising the steps of:

- providing a pole having a base portion with tip portions protruding from generally opposite sides thereof;
- forming sheets of readily bendable insulating material with back parts and lip parts that are adapted, respectively, to cover the corners and the sides of the pole base and surfaces of the tip portions, said forming including the steps of b-1, b-2 and b-3 as set forth below;
- cutting sheets of calendered insulating material into predetermined pole-covering patterns;
- bending edges of the calendered sheets to form them into L-shaped back parts and first and second sections of a lip part that define a gap at the corner thereof;
- adhering a preformed sheet of insulating felt to the ends of the first and second sections of each lip part adjacent to said corner gap and to the back part adjacent said corner, thereby to cover the gap and form said sheet of insulating felt as a third section of each lip part;
- mounting the sheets of insulating material on the pole to cover each corner thereof and extend beyond said corners, respectively, to cover the sides of the pole base portion and one surface of the tip portions;
- mounting a coil around the pole over the sheets of insulating material to press them against the tip portions of the pole.

4,365,408

METHOD OF MAKING MEMBRANE CONTACT SWITCH

Albert F. Ditzig, Hoffman Estates, Ill., assignor to Re-al, Inc., Wheeling, Ill.

Division of Ser. No. 171,726, Jul. 24, 1980, Pat. No. 4,314,117.

This application Jun. 1, 1981, Ser. No. 268,790

Int. Cl.³ H01H 11/00

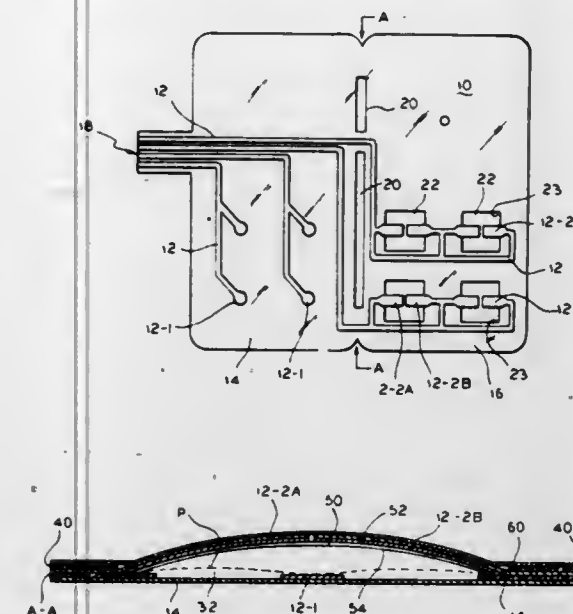
U.S. Cl. 29—622

7 Claims

1. The method of assembling a contact switch comprising: supporting a switch circuit pattern on a unitary sheet of flexible and resilient insulation membrane having a first and second section separated by a fold line and a tail section, said switch circuit having a contact point supported by said first membrane section and a contactor element supported by said second membrane section, said circuit patterns communicating with said contact point and contactor element terminating at said membrane tail section;

folding said first and second membrane sections upon themselves along said fold line so that said contactor element supported by said second membrane section is positioned above and in registry with said contact point supported by said first membrane section; and

positioning a resilient dome having upper and lower electrically conductive surfaces which are in communication with each other between said contact point and said contactor element so that the contactor element will be maintained in electrical contact with the upper surface of said dome and, in its nonflexed, rest position, said dome will not electrically contact the circuit pattern supported by said first membrane section.



tained in electrical contact with the upper surface of said dome and, in its nonflexed, rest position, said dome will not electrically contact the circuit pattern supported by said first membrane section.

4,365,409

METHOD AND APPARATUS FOR FILLING SODIUM INTO SODIUM SULPHUR CELLS

David J. Riley, Chester, and Gerald McGreavy, Bolton, both of England, assignors to Chloride Silent Power Limited, London, England

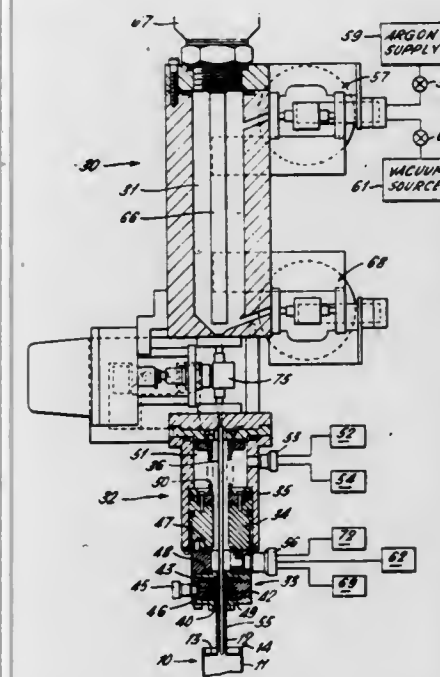
Filed Oct. 2, 1980, Ser. No. 193,058

Claims priority, application United Kingdom, Oct. 15, 1979, 7935712

Int. Cl.³ H01M 2/36

U.S. Cl. 29—623.2

16 Claims



1. A method of filling sodium into the sodium reservoir of a sodium sulphur cell comprising the steps of closing the sodium reservoir except for an open-ended metal filler tube sealed into the reservoir and extending outwardly therefrom, heating the cell to a temperature such that sodium will remain liquid, temporarily sealing an outlet of a filling machine round the outer surface of the filler tube with the cell arranged so that the

filler tube extends upwardly from the reservoir, inserting a feed tube from said outlet into the filler tube to extend downwardly therein, evacuating the reservoir of air through the annular region between the feed tube and the filler tube, metering a predetermined quantity of liquid sodium through said outlet and said feed tube into the sodium reservoir and then pinching and sealing the filler tube.

4,365,410

CONDUCTOR TRANSFER DEVICE

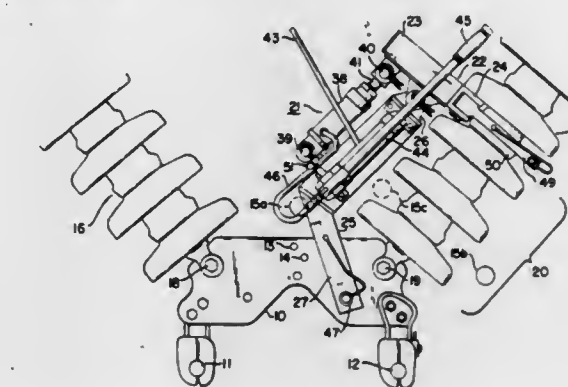
Herbert J. Houston, and Edward S. Dinsmore, both of Oakville, Canada, assignors to Slater Steel Industries Limited, Hamilton, Canada

Filed Mar. 2, 1981, Ser. No. 239,527

Int. Cl.³ H01R 43/00

U.S. Cl. 29—762

5 Claims



1. A device enabling movement of a conductor from one side to the other of a string of insulators coupled between a tower and a yoke plate, comprising:

- an upper frame having clamping means at its upper end for engaging an intermediate portion of said string;
- a lower frame having securing means at its lower end for engaging said yoke plate;
- means interconnecting the lower end of said upper frame and the upper end of said lower frame for effecting approximately longitudinal movement of the upper end of the upper frame and the lower end of the lower frame relative to each other to permit uncoupling of a selected portion of said string to permit movement of said conductor past said selected portion from one side of said string to the other and subsequent recoupling of said selected portion of said string,

wherein said clamping means and said securing means are aligned with each other longitudinally of the device to define a longitudinal axis,

the lower end of said upper frame, the upper end of said lower frame and said means for interconnecting the same being offset relative to said axis,

said clamping means comprising:

- a first semi-circular jaw having a lateral extension with a first hole therein, said first jaw being pivotally mounted at its opposite end to the upper end of said upper frame,
- a second semi-circular jaw shaped complementally to said first jaw with a lateral extension having a second hole therein aligned with said first hole and pivotally mounted at its opposite end on said upper end of said upper frame, a bolt adapted for movement into and out of said aligned holes, and a nut threaded on said bolt for engagement with said lateral extension of said second jaw,

said means for effecting longitudinal movement of said frames relative to each other comprising means for pivotally mounting the upper end of the lower frame to a part of the upper frame intermediate the ends thereof, and extensible means coupled between the lower frame and the lower end of the upper frame for causing relative rotation of said frames, so that said lower end of said upper frame moves away from said lower frame, and said

upper end of said upper frame moves toward said lower frame.

4,365,411

METHOD AND MEANS FOR INSERTION OF INSERTS INTO A HOLE OF A PREDRILLED BOARD

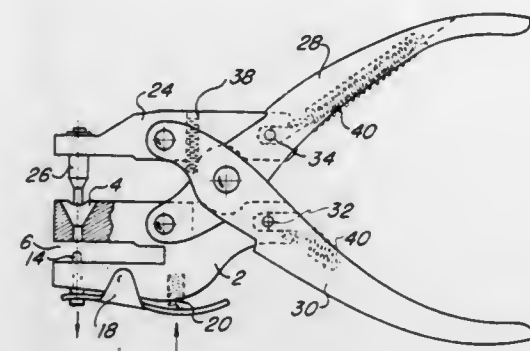
Edward M. Muldoon, Jr., Dana Point, Calif., assignor to Bivar, Inc., Santa Ana, Calif.

Filed Aug. 28, 1980, Ser. No. 182,138

Int. Cl.³ H05K 3/00; B23P 19/00

U.S. Cl. 29—845

4 Claims



1. A method for inserting an insert into a hole on a predrilled workpiece comprising the steps of: inserting a retractable centering pin from one side of the workpiece into the hole for centering the hole axially; aligning the insert axially to the centering pin from the opposite side of the workpiece; inserting the insert axially into the hole with a force substantially axial to the hole; and retracting the centering pin in response to the insertion of the insert.
2. An apparatus for inserting an insert into a hole of a predrilled workpiece, comprising: first and second members mounted for relative movement with respect to each other; first means disposed on the first member for aligning the hole and the insert to permit insertion of the insert into the hole from one side of the workpiece; second means disposed on the second member to apply an axial force to the insert for insertion into the hole; third means retractably mounted on the opposite side of the workpiece and disposed to be positioned within the hole for centering the hole in axial alignment with the insert; and means coupled to the first and second members to impart relative movement thereto in a direction toward each other for inserting the insert within the hole and for retracting the third means from the hole in response to insertion therein of the insert.

4,365,412

METHOD OF MAKING AN ELECTRICAL CONNECTOR ASSEMBLY

Edward K. Marsh, Sidney, N.Y., assignor to The Bendix Corporation, Southfield, Mich.

Division of Ser. No. 82,439, Oct. 9, 1979, Pat. No. 4,270,825.

This application Oct. 3, 1980, Ser. No. 193,671

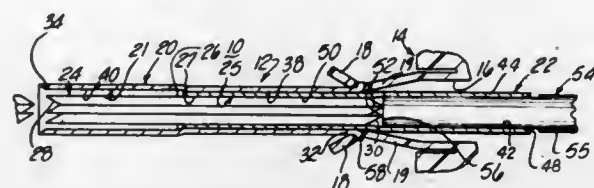
Int. Cl.³ H01R 43/04

U.S. Cl. 29—863

3 Claims

1. A method of making a releasable electrical connector assembly, the steps of the method comprising: positioning an elongated electrical conductor having an axial passage extending completely therethrough, sliding an elongated body over the conductor, the body having an axial passage extending completely therethrough, inserting a plurality of straight electrical conducting wires in one end of said conductor, said inserting being such that

each wire has its forward end extending from the conductor for mating, securing the conducting wires, the conductor and the elongated body together to thereby form an electrical contact, inserting an exposed conductive end portion of an electrically



cally conducting cable in the opposite end of the elongated electrical conductor so as to engage the rearward ends of the straight wires and be in electrical circuit relationship, and securing the electrically conducting cable and the elongated electrical conductor together

4,365,413

FAUCET STEM NUT SPLITTER

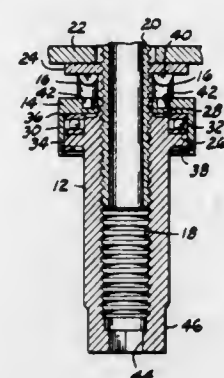
Thomas R. Quick, 2640 SW. 61, Oklahoma City, Okla. 73159

Filed Dec. 22, 1980, Ser. No. 219,029

Int. Cl.³ B26B 7/00

U.S. Cl. 30—272 R

2 Claims



1. A nut splitting tool for a faucet nut surrounding an intermediate portion of a vertically disposed faucet stem adjacent a sink flange, comprising: an elongated sleeve threadedly surrounding said faucet stem below said faucet nut and having an annular outstanding flange adjacent one end portion forming a bearing surface facing said faucet nut; a centrally bored pressure plate coaxially surrounding said faucet stem between said sleeve and said faucet nut and forming a bearing surface facing said annular flange; an annular wall depending from said pressure plate adjacent the periphery of and projecting downwardly beyond said flange; keeper means for maintaining said pressure plate on said sleeve; a chisel-like cutter secured to said pressure plate opposite its bearing surface and having a radially disposed sharpened cutting edge facing said faucet nut; friction reducing means interposed between said annular flange and said pressure plate for angular rotation of said sleeve relative to said faucet stem; and, wrench engaging means formed on the end portion of said sleeve opposite the annular flange.

4,365,414

VEGETABLE SLICER

Joseph Kovacs, 1977 Jarry St., East, Montreal, Quebec, Canada (H2E 1B7)

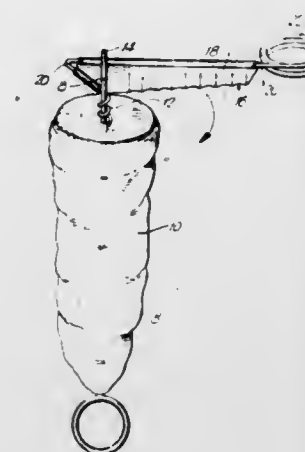
Filed Feb. 17, 1981, Ser. No. 235,155

Claims priority, application Canada, May 1, 1980, 351087

Int. Cl.³ A47J 17/02

U.S. Cl. 30—310

3 Claims



1. A device for cutting vegetables into connected slices of helical configuration comprising cutting means comprising a bent wire frame with an inner end bent to form a feed screw and an outer end bent into a looped handle, and an elongate cutting blade having a cutting edge carried by the frame between the ends thereof with the blade extending outwardly from the feed screw in direction normal to the axis thereof, the feed screw having an axial opening to receive a skewer upon which a vegetable to be cut is mounted, the feed screw upon rotation of the cutting means about the skewer carrying a vegetable, advancing into the vegetable to move the slicing means along the skewer and the cutting edge through the vegetable in a helical cutting path.

4,365,415

MELON CUTTING TOOL

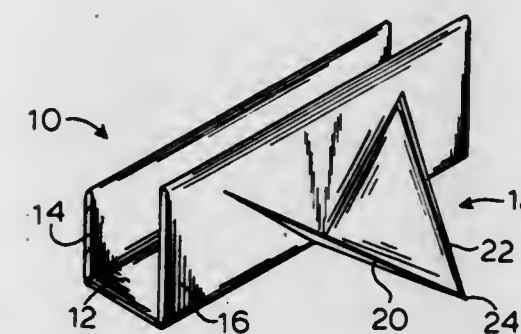
Rene Pustoch, 24-49 23rd St., Astoria, N.Y. 11102

Filed Sep. 8, 1981, Ser. No. 299,955

Int. Cl.³ B26B 3/00

U.S. Cl. 30—314

3 Claims



1. A melon cutting tool, comprising: an elongated handle portion having a generally U-shaped cross section and being comprised of a base portion and two upright sidewalls joined to opposite ends of said base wall, which handle portion is configured and dimensioned for gripping by one's fingers; and a blade portion secured to an outer side of one of said sidewalls, centrally thereto, and disposed normally to said handle portion, said blade portion tapering generally to a point and having a generally V-shaped cross section.

4,365,416

CHAIN SAW HANDLE, GUARD AND HOUSING INTERCONNECT

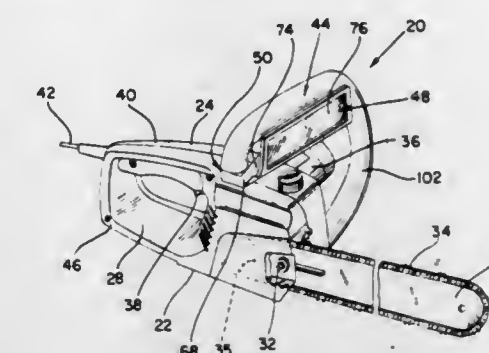
Douglas G. Overbury, Brockville, Canada, assignor to Black & Decker Inc., Newark, Del.

Filed Nov. 18, 1980, Ser. No. 251,720

Int. Cl.³ B23D 57/02

3 Claims

14 Claims



1. A housing for a chain saw in which a motive means is mounted to power a saw chain, the housing comprising: (a) a frame, (b) a handle projecting from the frame at one end, (c) a handguard projecting from the frame at one end and having a portion thereof in spaced relationship to the handle, (d) the handle having an other end thereof slabbed, (e) the handguard having an other end thereof slabbed to interlock with the slabbed end of the handle, and (f) fastener means interlocking the slabbed ends of the handle and handguard to the frame to form a rigid connection therewith.

4,365,417

TIN OPENER

Evert Rosendahl, Adolf Fredriksgatan 15A, S-217 74 Malmö, Sweden

PCT No. PCT/SE78/00088, § 371 Date Aug. 1, 1980, § 102(e)

Date Jul. 31, 1980, PCT Pub. No. WO80/01159, PCT Pub.

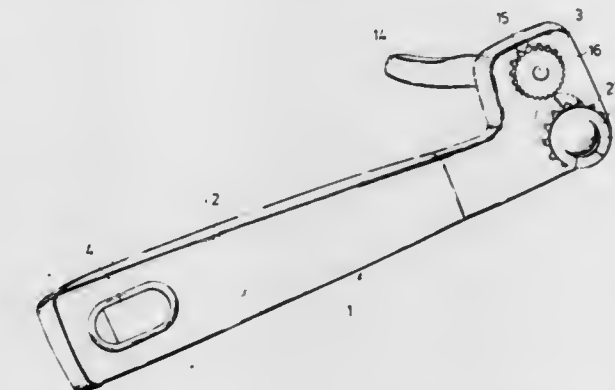
Date Jun. 12, 1980

PCT Filed Dec. 1, 1978, Ser. No. 199,723

Int. Cl.³ B67B 7/34

U.S. Cl. 30—422

2 Claims



1. A tin opener with a body (2, 3), a drive shaft (8) mounted in the body in such a way as to be capable of rotation about an axis (9), the said drive shaft having a feed roll (16) for driving engagement with the tin and further supporting a pinion (10), a tooth segment device so mounted in the body as to be capable of rotation about a second axis (20) between a position of rest and a working position, the said tooth segment device having a row of teeth (21) extending along an arc and arranged to engage the pinion (10) with a view to rotating the tooth segment device between the position of rest and the working position, a cutter roll (28) so mounted in a rotatable manner on

a spindle embedded in the tooth segment device that the axis of rotation (29) of the cutter roll is inclined in relation to the second axis and the cutter roll is, in the working position, in cutting engagement with a tin abutting a feed roll but is in the position of rest at a distance from the tin, characterised in that the spindle (25) carries in as such known manner a gear-wheel (27) which in the working position engages a driving gear-wheel (15) on the drive shaft (8) but does not engage the driving gear-wheel in the position of rest, and in that the spindle (25) is eccentrically arranged on the tooth segment device in such a way while the axis of rotation (29) extends at such a distance from and with such an orientation relative to the second axis that as the tooth segment device turns, in the vicinity of the working position, respectively to or from the working position, the centre of the cutter roll (28) moves respectively towards or away from the axis (9) in a predominantly radial direction relative to the axis (9).

4,365,418

DRILL STAND WITH MARKING ELEMENT

Franz Hoyss, Bad-Tölz-Oberf., and Franz Popp, Puchheim, both of Fed. Rep. of Germany, assignors to Hilti Aktiengesellschaft, Schaan, Liechtenstein

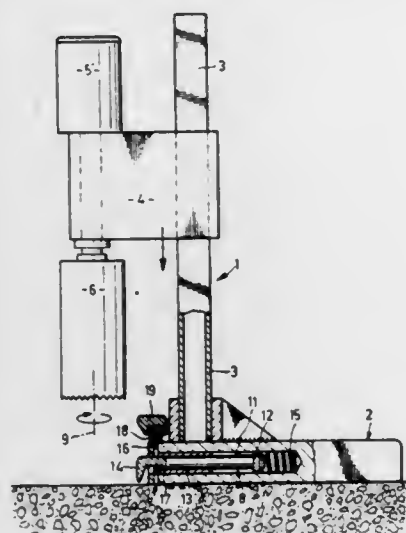
Filed Dec. 12, 1980, Ser. No. 215,912

Claims priority, application Fed. Rep. of Germany, Dec. 17, 1979, 2950816

Int. Cl.³ B27G 23/00; B23B 39/00

U.S. Cl. 33—185 R

2 Claims



1. Drill stand comprising means for supporting a drilling member having a drilling axis for movement between an inactive position with the drilling member spaced from the material to be drilled and an active position with the drilling member moved into contact with the material to be drilled, and a marking element mounted on said means and being selectively displaceable between a retracted position and a marking position and in said marking position said marking element being located on the axis of the drilling member for locating the drilling axis on the material to be drilled, said means supporting a drilling member comprise a base arranged to be supported on the material to be drilled, said marking element being supported in said base, said base has a bore therein extending normally of the drilling axis, said marking element comprises a pointer slidably displaceable in said bore, a spring located in said bore inwardly of said pointer for biasing said pointer into the marking position, said pointer including a shaft-like portion having a shoulder adjacent one end thereof, and a slide member positioned in said base and spring biased into contact with said shoulder on said pointer for securing said pointer in the retracted position.

2. Drill stand comprising means for supporting a drilling member having a drilling axis for movement between an inactive position with the drilling member spaced from the material to be drilled and an active position with the drilling member moved into contact with the material to be drilled, and a mark-

ing element mounted on said means and being selectively displaceable between a retracted position and a marking position and in said marking position said marking element being located on the axis of the drilling member for locating the drilling axis on the material to be drilled, said means for supporting a drilling member comprise a base arranged to be supported on the material to be drilled, said marking element being supported in said base, a pair of laterally spaced guide attachments secured to said base and extending perpendicularly of the drilling axis, said marking element comprising a pair of rods each slidably displaceable in one of said guide attachments, a marking plate secured to and extending between said rods, springs positioned on said rods between said marking plate and said guide attachments for biasing said marking element to the marking position, and a stop spring mounted on said base and engageable with said rods for securing said marking element in the retracted position.

4,365,419

ALIGNMENT DEVICE FOR MACHINE HEAD

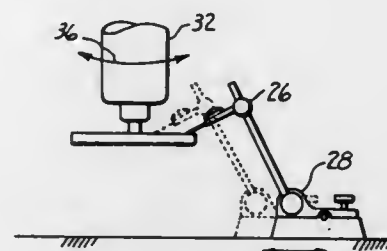
Luis Ingels, 242 S. Irwindale, Azusa, Calif. 91702

Continuation-in-part of Ser. No. 47,369, Jun. 11, 1979, abandoned. This application Jan. 14, 1981, Ser. No. 225,017

Int. Cl.³ G01B 5/24

U.S. Cl. 33—185 R

31 Claims



1. A device for aligning the cutting head of a machine comprising:

a disk having a flat surface;
means including a hub attached to said disk, said hub having an axis accurately perpendicular to said flat surface, for attaching said disk to said machine head; and indicia means around the periphery of said flat surface for use in determining the location of an axis on said disk perpendicularly accurate to said machine head axis, whereby said machine head may be accurately aligned with the machine table by traversing said last-named axis.

4,365,420

CHAIN GAUGE

William C. Walden, Box F, Sandstone, Minn. 55072

Filed Mar. 27, 1981, Ser. No. 248,420

Int. Cl.³ B23D 63/00; G01B 5/20

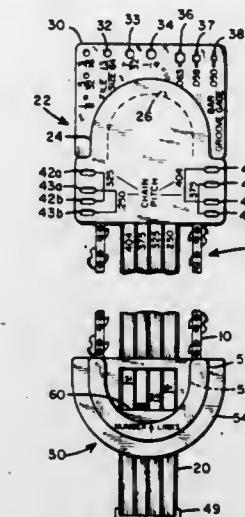
U.S. Cl. 33—202

14 Claims

1. An apparatus for measuring link characteristics of chains including number of chain links as a function of pitch of chain links, comprising

(a) a semicircular holder having a recess therein for accepting a chain, said holder having a plurality of pairs of sight holes, each such pair of sight holes positioned along said recess to permit viewing of said chain links;
(b) an elongated scale extending from said semicircular holder, said scale having graduations thereon indicative of the number of links on a chain;

(c) a semicircular shoe slidably mounted on said elongated scale, said shoe having a recess therein for accepting a



chain and having a cursor thereon for reading graduations on said scale.

4,365,421

MOTION AND ORIENTATION SENSOR

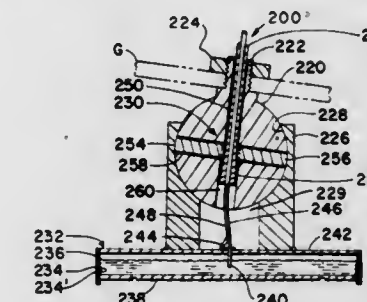
Barney L. Byrum, 7706 Tomlinson Ave., Bethesda, Md. 20034

Filed Aug. 24, 1978, Ser. No. 936,387

Int. Cl.³ G01C 9/06

U.S. Cl. 33—366

22 Claims

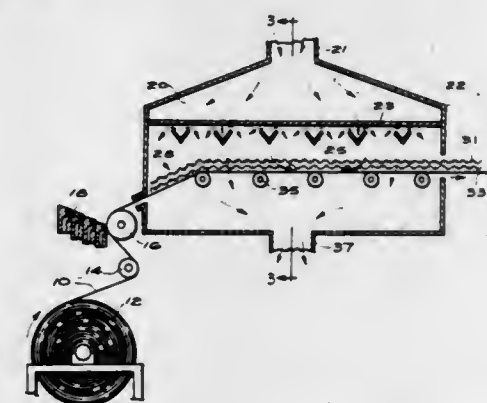


1. A device for detecting changes in inclination of an object comprising:

a closed container having an interior which is at least partly defined by side walls which are electrically non-conductive and diametrically separated by a distance $2R$, said container interior having a height H and a top wall and being at least partially filled with electrically conductive fluid having a top surface which subsists in a substantially uninterrupted plane between said side walls and which is spaced a distance h from said top wall when said height H is vertically oriented, wherein the ratio $2R/H$ is much greater than one; mounting means suspending said container in fixed orientation in relation to said object;

electrical circuit means responsive to a predetermined degree of disturbance of said fluid in said container for providing an electrical signal representing an inclination change in said object, said electrical circuit means including an electrical switch comprising:

a first electrode positioned in said container to be continuously immersed in said conductive fluid when said height H is vertically oriented and over a predetermined range of inclinations of said height H ;
a second electrode positioned in said container above said top surface of fluid a distance h' no greater than h when said height H is vertical but immersed in said fluid when inclination change in said height H causes said predetermined degree of disturbance of said fluid.



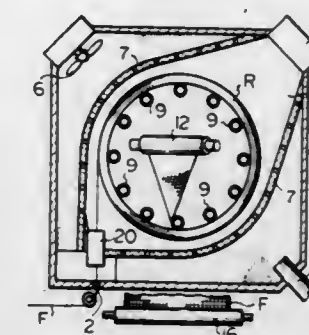
4,365,422
METHOD AND APPARATUS FOR CONTINUAL TREATMENT OF TEXTILE SHEET MATERIAL BY APPLICATION OF MICROWAVES
Bunshiro Kawaguchi, Kyoto, Japan, assignor to The Ichikin, Ltd., Japan

Filed Apr. 16, 1981, Ser. No. 254,928

Int. Cl.³ F26B 23/08

U.S. Cl. 34—1

7 Claims



1. A method for continuous treatment of textile sheet material by application of microwaves comprising the steps of, continuously introducing said textile sheet material into a confining chamber, continuously winding said textile sheet material in the form of a cylindrical hollow roll comprising a plurality of contiguous layers of textile sheet material about a plurality of substantially parallel guide rollers arranged within said chamber at predetermined intervals along the circumference of an imaginary circle, supplying steam into said chamber and within said hollow roll, continuously delivering the innermost layer of said textile sheet material from said cylindrical hollow roll towards the outside of said chamber as said textile sheet material is being continuously wound about the outermost layer of said cylindrical hollow roll, and emanating microwaves into said chamber during passage of said textile sheet material therethrough.

4,365,423

METHOD AND APPARATUS FOR DRYING COATED SHEET MATERIAL

Thomas C. Arter, Rochester, and Eugene H. Barbee, East Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 27, 1981, Ser. No. 247,976

Int. Cl.³ F26B 3/04, 13/02

U.S. Cl. 34—23

28 Claims

1. In a method for drying a sheet material which has been coated on a surface thereof with at least one layer of a mottle-prone coating composition containing a liquid medium that is capable of being evaporated from said coating composition by contact with a gaseous drying medium, said method comprising the steps of advancing said coated sheet material along a predetermined path through a drying zone and uniformly directing a gaseous drying medium onto the coated surface of

said sheet material so as to bring about evaporation of said liquid medium with resulting formation of spent gaseous drying medium which flows away from said path for discharge from said drying zone; the improvement which comprises advancing said sheet material with said coated surface in opposed closely spaced relationship with a foraminous shield which is permeable to said gaseous drying medium, so as to promote flow of said spent gaseous drying medium adjacent to the surface of said shield which is remote from said coated surface and to form a quiescent region between said shield and said coated surface which is rich in the vapor of said liquid medium and in which flow of said spent gaseous drying medium is suppressed and uniform heat transfer conditions are promoted, whereby formation of mottle in said coating is reduced.

4,365,424

METHOD FOR SURFACE TREATMENT OF AN ENDLESS TEXTILE STRUCTURE

Werner Hoersch, Im Bruch 7, 4060 Viersen 11 - Boenheim, Fed. Rep. of Germany

Division of Ser. No. 127,884, Mar. 6, 1980, Pat. No. 4,286,395.

This application Apr. 24, 1981, Ser. No. 257,214

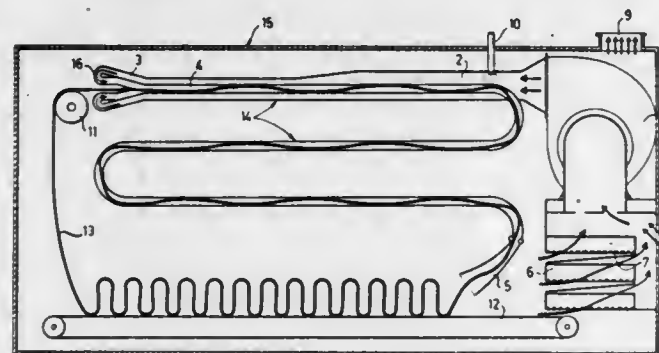
Claims priority, application Fed. Rep. of Germany, Mar. 7, 1979, 2908888

The portion of the term of this patent subsequent to Sep. 1, 1998, has been disclaimed.

Int. Cl.³ F26B 3/04

U.S. Cl. 34—23

9 Claims



1. A process for surface treating an endless textile structure comprising the steps of

placing an endless textile structure in a substantially closed container with a portion of the textile positioned within an elongated intensive treatment zone which is located in the container but which is substantially isolated from the container interior;

directing a jet of treatment air from a blower zone into the treatment zone at an inlet zone thereof, through a nozzle, away from the inlet zone and against the portion of the textile to create a current of air moving in a flow direction longitudinally through the treatment zone, thereby causing the textile to spread out and flutter in its spread-out form and to be conveyed continuously through the treatment zone;

continuously receiving the textile through an outlet zone laterally spaced from the inlet zone and onto a conveyor disposed below the treatment zone as the textile emerges from the treatment zone;

continuously conveying the textile on the conveyor to a location substantially below the inlet zone;

continuously removing the textile from the conveyor; and after removal of the textile from the conveyor, delivering the textile to the inlet zone for repetitive treatment.

4,365,425

CONTROLLED CURING OF AIR-PERMEABLE BONDED WEBS

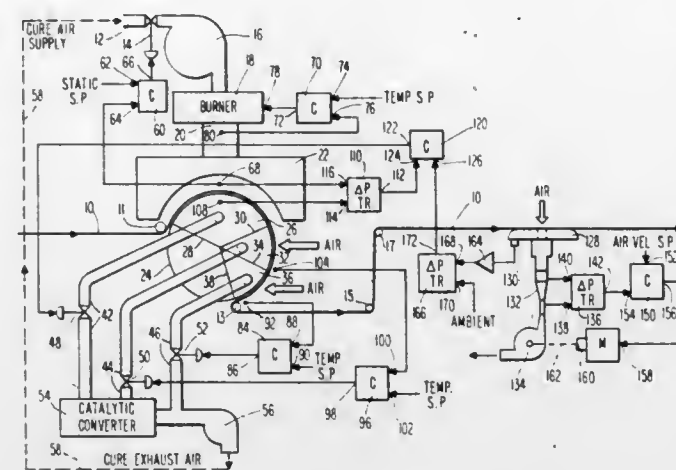
Joel P. Gotchel, Delaware County, Pa., assignor to Scott Paper Company, Philadelphia, Pa.

Filed Jun. 9, 1981, Ser. No. 272,057

Int. Cl.³ F26B 21/12

U.S. Cl. 34—54

4 Claims



1. Apparatus for curing a bonded, air-permeable web comprising:

(a) drying means for controllably passing heated air at a predetermined temperature through the web for a predetermined time;

(b) means for generating a first signal representing the pressure drop, at a predetermined velocity, across the web outside of the drying means;

(c) means for generating a second signal representing the pressure drop across the web inside the drying means; and

(d) means, responsive to the first and second signals, for controlling the passing of the heated air through the web so as to maintain the pressure drop across the web inside the drying means equal to the pressure drop as measured by the first signal generating means.

4,365,426

HAIR DRYER

Kunio Suzuki, and Minoru Takahashi, both of Kyoto, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

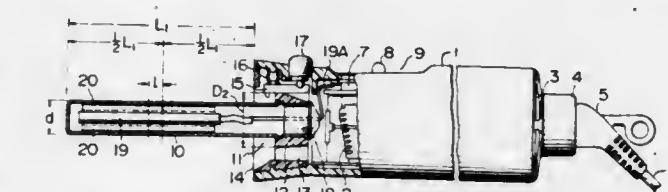
Filed Jan. 8, 1981, Ser. No. 223,290

Claims priority, application Japan, Jan. 11, 1980, 55/1292

Int. Cl.³ F26B 11/00; A45D 2/36

U.S. Cl. 34—101

8 Claims



1. In a hair dryer having an elongated cylindrical casing, an elongated hair setting member around which the hair is to be wound, said hair setting member being detachably secured to said casing, heating means and blowing means disposed in said casing, an intake port means provided in said casing and a discharge port means for said blowing means provided at a forward end portion of said casing, an improvement comprising an elongated heating bar disposed substantially centrally of said discharge port means and extending forwardly beyond said casing, a heat generating body means associated with said heating bar, said hair setting member being formed of a heat conducting material and including an insertion hole extending in a longitudinal direction of said hair setting member and adapted to receive said heating bar such that contact is established between an outer peripheral surface of said heating bar

and an inner peripheral surface of said insertion hole formed in said hair setting member, whereby heat is transferred from said heat generating body means to said hair setting member via said heating bar and a discharge from the blowing means is directed around the hair setting member.

4,365,427

SUCTION DREDGE CUTTER HEAD

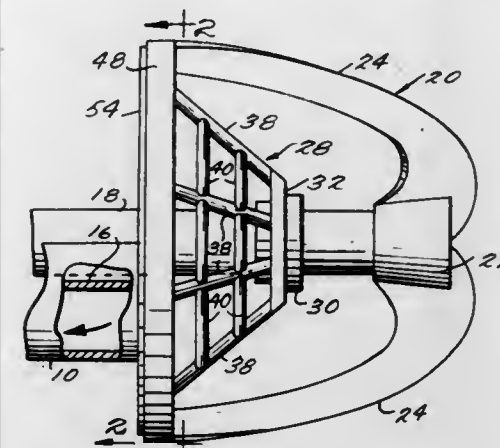
Marion R. Chapman, Jr., 1102 D. Holik Dr., College Station, Tex. 77840

Filed Jul. 21, 1981, Ser. No. 285,527

Int. Cl.³ E02F 3/92

U.S. Cl. 37—57

6 Claims



1. For use with a suction dredge having a suction pipe, the combination comprising:

a driven cutter head of open-work construction which encloses and is rotatable adjacent the mouth of the pipe about an axis generally parallel to the axis of the pipe, said head comprising a plurality of digging arms which spiral divergently rearward from hub means forward of the mouth and recede rearward of the direction of their rotation; and

crusher means of grid-like open-work construction within said head and cooperating with said arms to crush, on relative rotation between said head and crusher means, large objects dug by and passing through said head in order to minimize damage and clogging of suction and discharge lines and the dredge pump of the dredge, said crusher means being of generally frusto-conical configuration and generally-coaxial with said head, and provided with interconnecting generally circumferential and generally longitudinal bars, whereby said arms sweep large objects into the clearance between said arms and bars so as to exert a crushing action which breaks the objects into smaller pieces which can pass through the openings in said crusher means and into the mouth of the pipe.

4,365,428

BUCKET MOUNTED FOOTING TOOL

John F. Shumaker, Mt. Pleasant, Iowa, assignor to J. I. Case Company, Racine, Wis.

Filed Nov. 24, 1980, Ser. No. 209,540

Int. Cl.³ E02F 5/02

U.S. Cl. 37—103

4 Claims

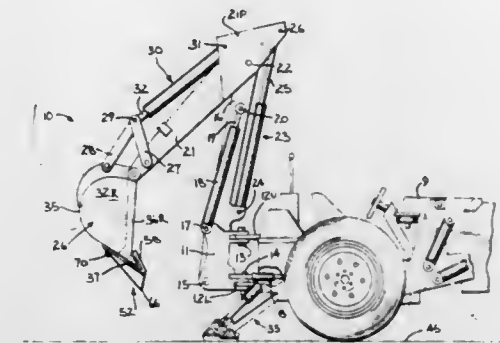
1. Digging apparatus suitable for use with implements using a pivoting arm to operate a bucket in digging a trench in soil, comprising:

(a) a bucket adapted to be connected to said arm and defining two side walls and a backwall, one edge of which is the leading edge of said bucket,

(b) footing means, carried by said bucket, for excavating a channel at the base of the trench dug by said bucket, said footing means defining a downwardly disposed first leading edge lying in advance of the leading edge of said

bucket and having a width less than the width of said bucket,

whereby said bucket when thrust forward into the soil drives said first leading edge into the soil where it breaks loose a portion of the soil beneath the leading edge of the bucket, that portion of the soil broken loose by said footing means being funneled into said bucket by the leading edge of the bucket while leaving an elongated groove along the path of the bucket, the width of said groove being less than the width of the trench formed by said bucket,



said footing means including a first plate member and a second plate member, said first plate member and said second plate member defining complementary edges, said first plate member and said second plate member being joined together along said complementary edges to define said first leading edge, said first leading edge of said footing means lying forwardly and downwardly relative to the leading edge of said bucket when the leading edge of the bucket lies along the base of said trench.

4,365,429

MAXIMUM LIFT SYSTEM FOR HYDRAULIC HOE

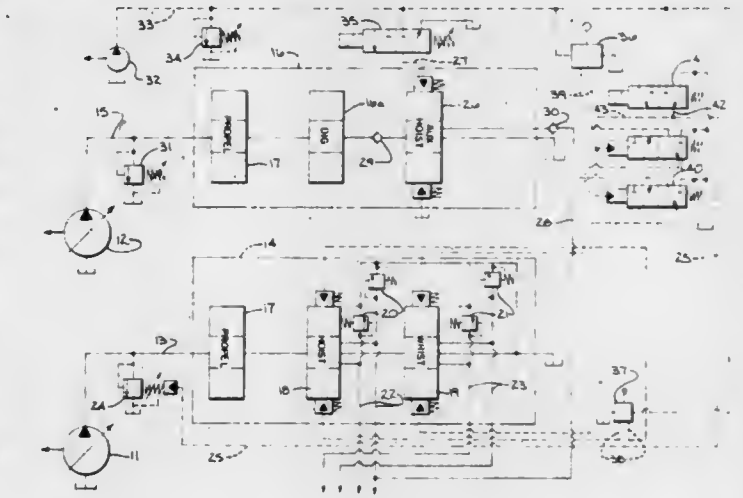
Frank A. Ecker, Racine; Theodore G. Jensen, Kenosha, and Norman B. Christensen, Racine, all of Wis., assignors to Bucyrus-Erie Company, South Milwaukee, Wis.

Filed Nov. 18, 1981, Ser. No. 322,404

Int. Cl.³ E02F 3/32; F15B 13/08

U.S. Cl. 37—103

4 Claims



1. In a maximum lift system for a hydraulic hoe having a hydraulic hoist cylinder and associated hoist circuit, a double-acting hydraulic wrist cylinder with an associated wrist circuit, a dual pressure relief valve in the hoist circuit that has a normal lower operating setting and can be hydraulically biased to a higher maximum setting, and actuating means to supply a bias signal to the relief valve,

the improvement wherein: there is a lockout means in the wrist circuit that is selectively operable to block the wrist circuit and lock the wrist cylinder in whatever position it is then in; and the actuating means operates the lockout means simultaneously with supplying the bias signal.

4,365,430

SNOW REMOVAL ACCESSORY FOR SNOW THROWING DEVICES

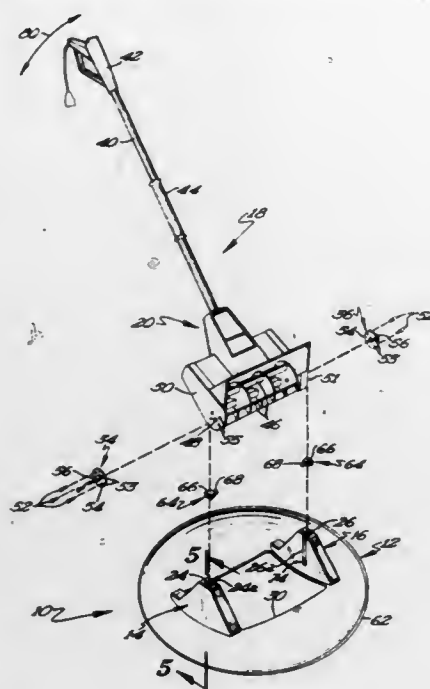
James W. Myerly, Box 236, Ortonville, Minn. 56278

Filed Jun. 29, 1981, Ser. No. 278,490

Int. Cl.³ E01H 5/00

U.S. Cl. 37-244

7 Claims



1. A snow removal accessory usable with a power-driven snow-throwing device on the upper surface of an accumulation of snow comprising:

a support frame including skid means for placement on the upper surface of the accumulation and capable of sliding movement on the upper surface while supporting the weight of the snow-throwing device, said skid means comprising a substantially circular disc having a port therethrough for downward suspension of the snow-throwing device below said disc; and

mounting means on said frame and connectable to the snow-throwing device for retaining the snow-throwing device on the frame and for suspending the snow-throwing device a predetermined distance below the level of said skid means so that the device extends within and confronts the snow accumulation so as to remove the accumulation to a predetermined depth.

4,365,431

COPY HOLDER

Gerald R. Klaus, St. Charles; Thomas E. Williams, Schaumburg, and Paul D. Nizzere, Darien, all of Ill., assignors to Bankers Box Company, Itasca, Ill.

Filed Nov. 10, 1980, Ser. No. 205,343

Int. Cl.³ B41J 11/64

U.S. Cl. 40-352

7 Claims

1. A copy holder for positioning and supporting two displays simultaneously comprising:

a support member defining a flat front panel of selected height and width;

leg means to maintain said front panel in a generally upright position;

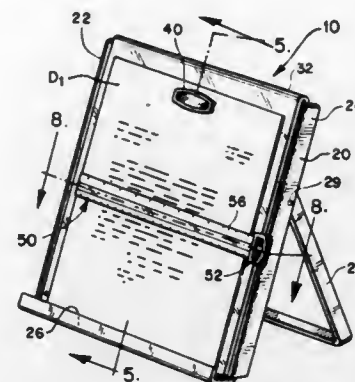
a first display positioned on said front panel of said support member;

transparent mounting means removably connectable to said support member and defining a transparent portion extending over said first display, said transparent mounting including an upper portion which has a U-shaped bend defining a slot dimensioned to frictionally engage an upper edge of said front panel;

ledge means positioned along a lower front portion of said support member;

a second display positioned and relatively loosely supported

on said ledge means in front of said transparent mounting means; and



means for supporting said second display against said transparent mounting means.

4,365,432

FOLDABLE VIEWER

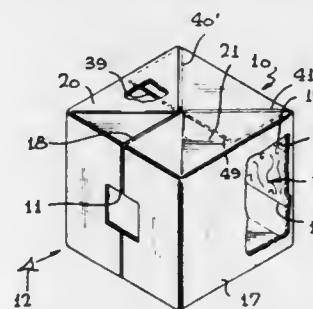
John W. McCauley, 23351 Burbank Blvd., Woodland Hills, Calif. 91367, and Stephen Paul, 6525 Cleon Ave., North Hollywood, Calif. 91607

Filed Aug. 17, 1981, Ser. No. 293,250

Int. Cl.³ G02B 27/04; G09F 1/08; A63H 33/00

U.S. Cl. 40-365

1 Claim



1. In a foldable viewer for enclosing a graphic, pictorial or message display comprising the combination of:

a blank sheet folded over upon itself to provide an enclosure having a continuous sidewall, a top and a bottom;

a predetermined surface area carried on said blank constituting an interior wall surface;

display data carried on said surface area;

a viewing aperture provided in said continuous wall in a location opposite to said surface area so that said display data is visible therethrough;

said enclosure includes a first condition which is characterized as being folded and flat and a second condition which is characterized as being unfolded and expanded into its operative position;

said viewing aperture employed for conducting pressurized air therethrough for inflatably expanding said enclosure from its first condition into said second condition;

said blank is provided with a plurality of creases constituting hinge or fold lines about which selected portions of said blank are folded to form said enclosure;

certain ones of said selected portions of said blank provide pockets for insertably receiving other certain ones of said selected portions so as to bind or hold said enclosure together into a unitary construction;

said blank is a square initially folded diagonally between opposite corners to establish an apex or center;

said display data appearing across said apex;

said apex appearing directly opposite said viewing aperture when said enclosure is in its expanded or second condition; and

said creases are scored along the surface of said blank.

4,365,433

NAUTICAL CHART CASE

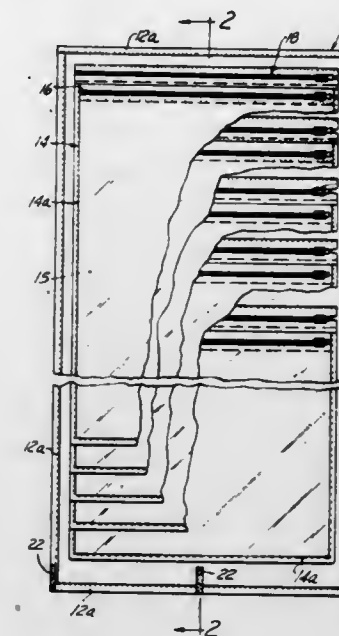
Calvin D. Buell, 1077 Holly Spring La., Grand Blanc, Mich. 48439

Filed Jun. 29, 1981, Ser. No. 278,734

Int. Cl.³ B42F 17/22

U.S. Cl. 40-391

7 Claims



1. A chart case for holding a plurality of separate charts, comprising:

a flexible cover;

a plurality of chart holders having transparent front portions and mounted on the inner side of said cover, each of said holders having a zipper type closure and opening means proximate one edge thereof;

means including a separate zipper for securing said holders to said cover in hinged, stacked relationship one relative to the other; and

means fixed to said cover for closing and retaining it in a closed roll-up position.

4,365,434

DISPLAY STAND FOR SHEET MATERIAL SUCH AS PHOTOGRAPHS

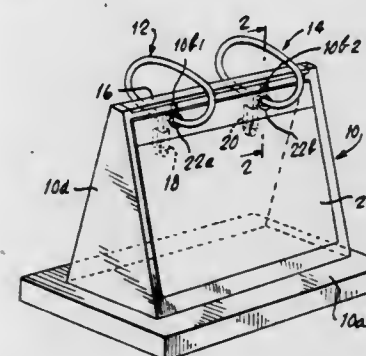
John S. Doyel, 404 W. 20th St., New York, N.Y. 10011

Filed Oct. 22, 1981, Ser. No. 313,745

Int. Cl.³ G09F 19/00

U.S. Cl. 40-530

4 Claims



1. A display stand for sheet material such as photographs comprising:

a base and a front and a back wall which slant toward each other in extending upwardly from the base and are integrally formed therewith from molded plastic material, each wall having at its top edge a pair of spaced-apart, open top notches aligned with those of the other wall;

a pair of open sleeves each extending downwardly from a respective aligned pair of said notches and located between said walls and secured thereto;

a pair of ring members each made of integrally molded

resilient plastic material and comprising an oval ring and a post which extends away from the ring along the short diameter thereof, said ring being split at one side of the post and each post being shaped and dimensioned to fit within a respective one of said sleeves, with the connected end of the ring resting on the respective notch in the back wall and the free end of the ring resting on the respective notch in the front wall;

whereby sheets such as photographs, cards, transparent envelopes or the like which have at a margin thereof a pair of holes aligned with said ring can be loaded onto the display stand by pulling the side of the ring which has the free end thereof away from the adjacent wall and then allowing said free ends to snap back through said holes.

4,365,435

PORTABLE SIGN

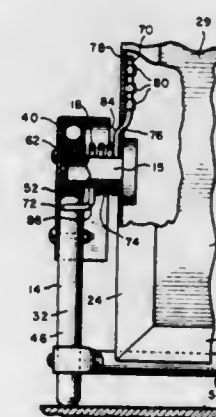
H. Kent Snyder, Jr., River Forest, Ill., assignor to Chicago Display Company, Chicago, Ill.

Filed Nov. 3, 1980, Ser. No. 203,701

Int. Cl.³ G09F 15/00; 7/00; E04G 3/00

U.S. Cl. 40-608

10 Claims



1. A portable sign comprising:

a display frame;

a base for supporting the display frame and having a front end and a rear end;

means for pivotably supporting the display frame on the base along a pivot axis;

first and second stops, the first stop positioned on one side of the base forward of the pivot axis, the second stop positioned on an opposite side of the base aft of the pivot axis, such that the second stop is diagonally opposite the first stop;

a first spring having a first end, a second end and an intermediate coil;

means for mounting the first spring between the display frame and the base, such that the second end engages the first stop and tightens the coil of the first spring when the display frame is pivoted forward of an upright position and the second end of the first spring disengages from the first stop when the display frame is pivoted backward from an upright position in order that the first spring and first stop cooperate to restore the display frame to an upright position when the display frame is tilted forward, without unwinding the first spring;

a second spring, having a first end, a second end, and an intermediate coil;

means for mounting the second spring between the display frame and the base, such that the second end engages the second stop and tightens the coil of the second spring when the display frame is pivoted backward from an upright position and disengages the second end of the second spring from the second stop when the display frame is pivoted forward from an upright position in order that the second spring and the second stop cooperate to restore the display frame to an upright position when the

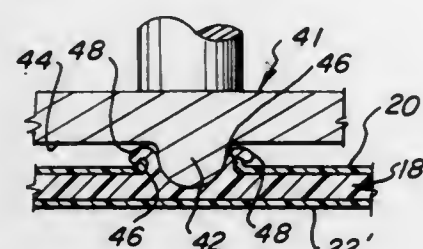
display frame is tilted backward without unwinding the second spring.

4,365,436

DISPLAY PANEL AND METHOD OF MAKING SAME

Eugene B. Ritchey, Rte. 2, Box 58, Brighton, Colo. 80601
Continuation-in-part of Ser. No. 23,547, Mar. 26, 1979,
abandoned, which is a continuation of Ser. No. 755,646, Dec. 30,
1976, abandoned. This application Apr. 28, 1980, Ser. No.
144,699

Int. Cl.³ G09F 19/00; B05D 3/00; B41L 1/16; B26D 3/08
U.S. Cl. 40—615 6 Claims



1. A method of producing a panel having a highly recognizable indicia display thereon, said method comprising:
providing a panel of sheet-like material with a substratum of a first selected property and at least one superstratum of a second selected property contrasting with the first property and connected to the substratum;
the superstratum and the substratum each being formed of meltable material;
providing an indicia-forming tool having a heated stylus;
pressurably applying the stylus of the tool to the superstratum and moving it along the superstratum in a predetermined path to melt localized portions of the material of the superstratum throughout its thickness as the stylus progressively comes in contact therewith and forcing the melted portion of the superstratum out of the path of movement of the tool to leave the corresponding portions of the substratum exposed to define indicia of said first selected property with a background on the superstratum of said second selected property;
causing the melted portion of the superstratum to solidify in displaced position forming a ridge above the surface of the panel and along the margins of the indicia;
applying the tool with sufficient pressure to melt a portion of the substratum and cause the melted portion of the substratum to be displaced and to flow over the superstratum ridge; and
causing the melted portion of the substratum to solidify in displaced position extending over the ridge formed from the superstratum to increase the recognizability of the indicia by forming a border around the indicia of said first selected property.

4,365,437

GYROSCOPIC WALKING TOY

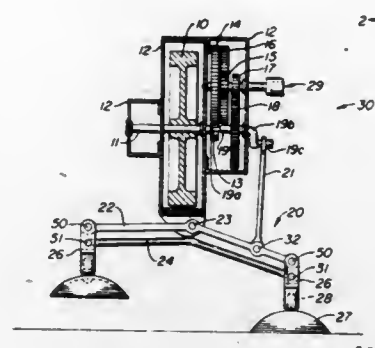
John W. Jameson, 191 Heather La., Palo Alto, Calif. 94303
Filed Apr. 15, 1981, Ser. No. 254,504

Int. Cl.³ A63H 11/14

U.S. Cl. 46—150 7 Claims

1. A walking toy comprising
a housing adapted to be positioned for motion in at least one given horizontal direction,
a gyroscopic element for rotation,
means for supporting said gyroscopic element from said housing for rotation in a substantially vertical plane,
leg support means connected to said housing for supporting said housing on a support surface,
said leg support means including a leg frame connected to at least two spaced apart feet, and
means for pivotally mounting said feet from said leg frame whereby said housing and leg frame are able to pivot

around one of said feet while the other of said feet is elevated above the support surface



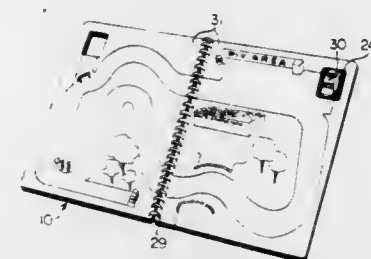
whereby gyroscopic action of said gyroscopic element during rotation enables lifting of a portion of said leg support means from the surface and said gyroscopic action also enables forward motion of said leg support means.

4,365,438

COMBINATION TOY AND BOOK

Herman E. Nelson, 3618 Chateau Knoll, Bettendorf, Iowa 52722
Filed Feb. 23, 1981, Ser. No. 236,875

Int. Cl.³ A63H 11/10, 33/00; B65D 73/00; G09F 3/18
U.S. Cl. 46—202 8 Claims



1. A combination toy article comprising a removable three dimensional toy vehicle having at least one rotatable supporting wheel and a book having a plurality of relatively heavy pages, each of said pages containing graphic material in the form of a different illustrated scene or game, each of said pages further containing a cut-out region which cooperates with said scene or game and which aligns with all other cut-out regions to form a well at least large enough to completely receive and contain said three dimensional toy vehicle when the book is closed, means for binding each of said pages along one edge such that when bound together said cut-out regions cooperate to form said well in the book with said removable three dimensional toy means completely housed within said well, the pages having said graphic material formed thereon which cooperates with said toy to provide a playing surface, along which the toy means may be moved while being supported by said rotatable wheel.

4,365,439

TOY LASER-TYPE GUN

Zbigniew Litynski, 5150 S. Newland Ave., Chicago, Ill. 60638

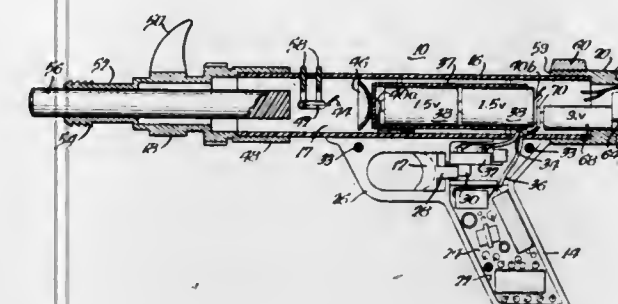
Filed Sep. 2, 1980, Ser. No. 183,001

Int. Cl.³ A63H 33/26

U.S. Cl. 46—227 21 Claims

1. A toy gun having a generally cylindrical main body secured to a grip for simultaneously producing sounds and emitting light pulses when a trigger is depressed, comprising:
a front end piece secured to a front portion of said main body and having a barrel;
a light source secured within said main body;
first light transmission means secured within said barrel and extending into said main body on one side of said light

source for transmitting light pulses developed by said light source along the axis of said cylindrical main body;
a rear end piece secured to a rear portion of said main body and having a back end surface;



sound producing means secured to said back end surface; and
actuation means for simultaneously actuating said light source and said sound producing means in response to said trigger depression.

4,365,440

LEAKAGE RESISTANT CONTAINER FOR PLANT INJECTION APPARATUS

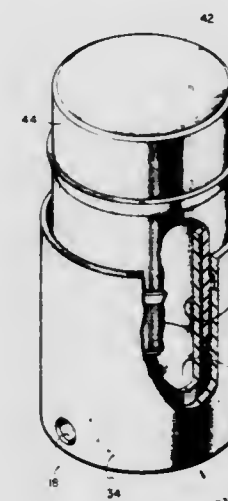
Donald D. Lenardson, Sun Valley, Calif., assignor to J. J. Mauget Co., Burbank, Calif.

Filed Jul. 23, 1981, Ser. No. 286,208

Int. Cl.³ A01G 29/00

U.S. Cl. 47—57.5

2 Claims



1. A two component, telescopically compressible, hollow container for plant injectable fluid compositions which includes hermetic sealing means extending between the telescopic portions of said container to prevent leakage through capillary film formation, wherein said components are telescopically compressible from an outer position of an enlarged interior volume to an inner position of reduced interior volume and said hermetic sealing means are defined by a plurality of perimetrical ridges which project outwardly from a first of said container components into positive engagement with a second of said container components with said plurality of ridges including an uppermost perimetrical ridge that projects outwardly to a lesser extent than the other ridges in said plurality of ridges, and wherein said hermetic sealing means further includes a single perimetrical ridge that projects outwardly from the second of said container components into positive engagement with the first of said container components at a locus proximate to said uppermost ridge when said container is disposed in the outer position.

4,365,441

SHUTTER SHIELDS (TM) IN COMBINATION WITH AN OUTER AND INNER GLASS AREA MEANS

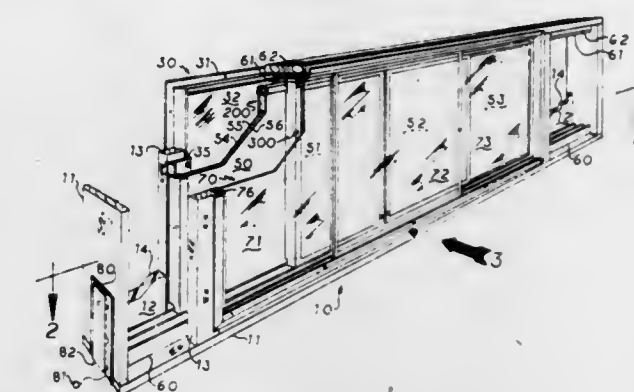
James D. Davidson, P.O. Box 1293, Pontiac, Mich. 48056

Continuation of Ser. No. 114,662, Jan. 23, 1980, which is a continuation-in-part of Ser. No. 39,049, May 16, 1979, Pat. No. 4,267,666, which is a continuation-in-part of Ser. No. 912,186, Jun. 5, 1978, abandoned, which is a continuation-in-part of Ser. No. 776,448, Mar. 10, 1977, abandoned. This application Mar. 16, 1981, Ser. No. 243,704

Int. Cl.³ E05B 65/04

U.S. Cl. 49—63

8 Claims



1. An improved thermally insulated shutter shield device having an outer periphery support frame means in combination with a glass area unit commonly called a window, glass sliding door or glass wall, mounted in a building structure having upright walls, said glass area unit including a glass area frame and glass panel means mounted in said glass area frame, said shutter shield device having first and second parallel track means spaced inwardly of said window unit and having a spacing therebetween at least equal to one height dimension and being parallel to said glass area means;

laminated insulative shield means mounted in said track means for movement between positions adjacent to the side of said glass area unit and in front thereof, to block off the entirety of said glass area means, low friction means for supporting said laminated insulative shield means for movement on said track means, said laminated insulative shield means including a frame movably supported on said track means and having a rigidifying means and an insulation material layer mounted in said frame, said insulative material layer having little resistance against breakage when forces are applied in directions perpendicular to the plane thereof, said rigidifying means providing a rigidification of said insulative material against the effects caused by forces applied from the outside in directions perpendicular to the plane thereof; and

seal means for effecting a seal around the periphery of said glass panel means and between said glass area unit frame means and said insulative shutter shield means, thereby defining a sealed chamber,

wherein the improvement comprises:

a second glass area means including a glass area frame means having at least one glass panel means movably mounted in said glass area frame means,

said glass panel frame means is mounted inwardly of said thermally insulated shutter shield device, fastened to said shutter shield outer periphery support frame means in a parallel mode to said shutter shield device means, said inner movable glass panel means provides access to manually hand close or open said thermally insulated shutter shields; and

a second seal means for effecting a seal around the periphery of said second movable glass panel means and between said second glass area unit frame means and said insulative shutter shield device means thereby defining a second sealed chamber, thusly

improving the overall R-factor of said combination reducing

heat transfer either direction through said first and second glass area means reducing heating and air conditioning cost of said building, whereby energy is conserved.

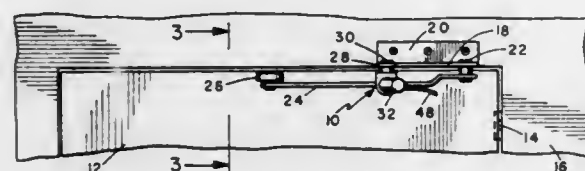
4,365,442

AUTOMATIC DOOR CONTROL SYSTEM

Harold A. Speer, 718 Front St., San Diego, Calif. 92101
Continuation-in-part of Ser. No. 58,153, Jul. 17, 1979,
abandoned. This application Sep. 24, 1980, Ser. No. 190,477
Int. Cl.³ E05F 11/24

U.S. Cl. 49—346

14 Claims



1. A fluid powered door opening system for a door moveable between an open position and a closed position, the combination comprising:

- a mounting bracket for mounting in a fixed position adjacent a door;
- a linear fluid motor pivotally mounted on said bracket;
- an arm pivotally mounted on said bracket for extending parallel to the face of a door and connected to said fluid motor for unidirectional engagement with and application of force to the face of a door for moving the door in a direction away from said fluid motor to an open position;
- a source of pressurized fluid for powering said motor; and
- a control system for selectively communicating said pressurized fluid to said fluid motor for operation thereof for moving a door to the open position.

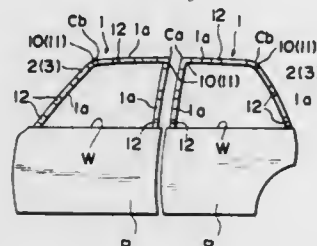
4,365,443

DOOR FOR AN AUTOMOTIVE VEHICLE

Eiichi Miura, Kamakura, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan
Filed Jun. 4, 1980, Ser. No. 156,305
Claims priority, application Japan, Jun. 4, 1979, 54-69668
Int. Cl.³ B60J 5/04

U.S. Cl. 49—502

8 Claims



1. A door for an automotive vehicle, comprising:
- a door panel positioned at the lower portion of the door;
 - a door sash fixed to the door panel so as to receive a glass therein;
 - a door sash moulding overlying the outer surface of the door sash for protecting the door sash; and
 - a non-metallic resilient material interposed between the door sash and the door sash moulding so as to prevent the door sash moulding from directly contacting the door sash, the door sash and the door sash moulding being made of different metals, the resilient material being separated into a plurality of pieces which are provided at the corners, ends, and intermediate portions of the door sash, each of the pieces at the corners being formed as one body and being curved along the outline of the corner so that each corner piece

extends along two adjacent side portions of the door sash at the corner thereof.

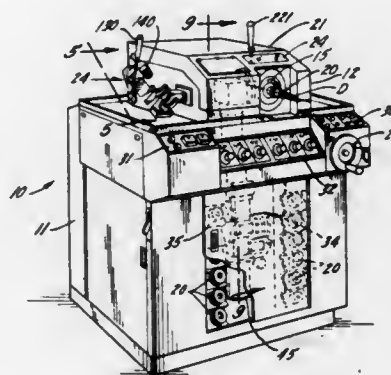
4,365,444

DRILL POINT GRINDING MACHINE

John C. Chwae, c/o Giddings & Lewis, Inc., 142 Doty St., Fond du Lac, Wis. 54935
Filed Jun. 24, 1980, Ser. No. 162,547
Int. Cl.³ B24B 3/26

U.S. Cl. 51—94 R

50 Claims



1. A drill point grinding machine comprising:
- a frame,
 - a rotary grinding wheel mounted on said frame and having a grinding surface,
 - a workhead for rotatably supporting the shank of a drill to be ground,
 - means for rotating a drill supported in said workhead,
 - means mounting said workhead for movement relative to said frame and grinding wheel, and
 - means for moving said workhead while the drill is rotated therein such that following a single set-up of the machine the drill is automatically and successively moved in (1) a first predetermined cyclic path of contact with said grinding surface for grinding the point of said drill with land surfaces which meet the drill shank with a curved contour, and (2) a second predetermined cyclic path of contact with said grinding wheel for grinding the point of said drill with a forwardmost raised helical shaped tip.

4,365,445

AUTOMATED FASTENER MACHINING SYSTEM

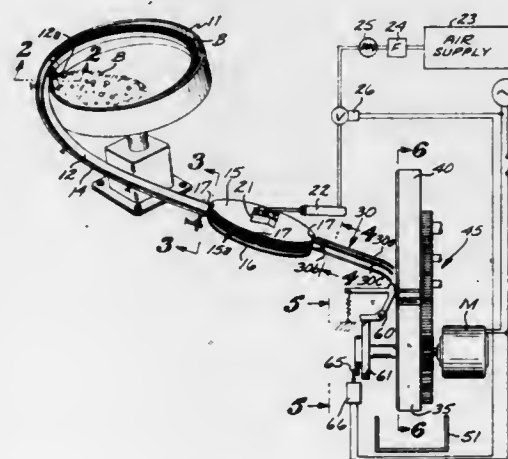
John R. Watson, 21418 S. Bloomfield, Apt. 66, Lakewood, Calif. 90715

Filed Aug. 22, 1980, Ser. No. 180,354

Int. Cl.³ B24B 5/18

U.S. Cl. 51—103 WH

3 Claims



1. Apparatus for advancing fastener blanks into a machine conformed as a centerless grinder having a grinding wheel

geared to rotate adjacent a feed wheel, and a head stop mounted between said grinding and feed wheels, comprising:

- a vibratory feeder assembly adapted to receive, in random alignment, a plurality of said blanks and rendered operative to align said blanks in a coherent vertical alignment;
- a guide connected to said feeder assembly for receiving said blanks in a row and for inverting the alignment thereof;
- an indexing cylinder deployed proximate the output of said guide and conformed to receive in succession the end ones of said row of blanks, said cylinder including peripheral recesses conformed to receive said blanks and advancing means, including an air operated piston rendered operative at the completion of operation on said blank by said machine tool, for periodically advancing said cylinder in rotation;
- a turning chute mounted along said cylinder and aligned to receive said blanks, in sequence, contain in said recesses, said chute being convolved to align the descent by gravity of said blanks therethrough to a horizontal position; said head stop being mounted on said machine tool and aligned with said turning chute for directing said blanks into said machine tool and for opposing the withdrawal thereof said head stop includes a pivotal mount for articulation thereabout; and
- said feed wheel includes a first and second cam respectively connected to enable said air operated piston and to articulate said head stop according to the rotation of said feed wheel.

4,365,446

GUARD DEVICE FOR A GRINDING WHEEL IN A GRINDING MACHINE

Kenichi Munekata; Yasuo Suzuki, both of Kariya, and Norio Ohta, Chiryu, all of Japan, assignors to Toyoda Koki Kabushiki Kaisha, Kariya, Japan

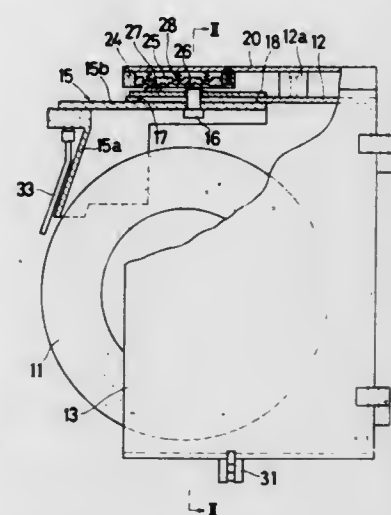
Filed Jan. 26, 1981, Ser. No. 228,352

Claims priority, application Japan, Jan. 24, 1980, 55-7849[U]

Int. Cl.³ B24B 55/04

U.S. Cl. 51—268

5 Claims



1. A guard device for a grinding wheel in a grinding machine, comprising:
- a guard body for covering said grinding wheel, said grinding wheel being rotatably mounted upon a wheel support, and said guard body having a side opening;
 - a side guard plate pivotally mounted upon said guard body for covering said side opening;
 - a front cover member slidably mounted upon the top portion of said guard body for covering the upper front portion of said grinding wheel;
 - a latch member mounted on said front cover member;
 - a locking member pivotally mounted at one end thereof upon the top portion of said guard body and engageable at the other end thereof with the top portion of said side

guard plate to lock said side guard plate in a closed position wherein said side opening is covered;

- a saw-toothed member engageable with said latch member to restrict movement of said front cover member in one direction away from the periphery of said grinding wheel, but to allow movement of said front cover member in the opposite direction, said saw toothed member being operatively connected to said locking member so as to be disengaged from said latch member when said locking member is pivoted to be disengaged from the top portion of said side guard plate.

4,365,447

APPARATUS AND METHOD FOR SHARPENING A CUTTING STYLUS

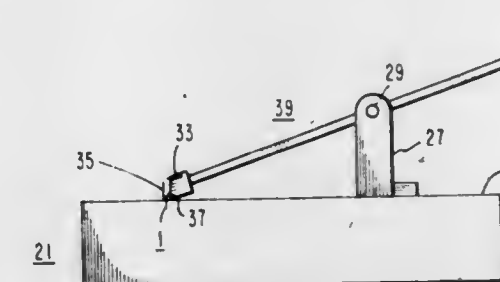
Anil R. Dholakia, East Windsor, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Sep. 25, 1980, Ser. No. 190,647

Int. Cl.³ B24B 19/00

U.S. Cl. 51—277

7 Claims



1. Apparatus for orienting a cutting stylus, having a mounting face and a cutting face used to cut video signal information in a metal master, said apparatus comprising the combination of:

- a base member having a flat surface; and
- a stylus holding feature having a stylus attaching face, said stylus holding fixture being arranged on said flat surface of said base member such that said attaching face is positioned at an angle with respect to said flat surface which is equal to the angle between said cutting face and said mounting face of said cutting stylus and said cutting face of said stylus is presented at a given orientation when said stylus holding fixture having said stylus mounted thereon is mounted in a grinding machine for stylus sharpening; said cutting stylus being bonded to said stylus attaching face of said stylus holding fixture with an adhesive; said flat surface of said base member being formed of a material that does not bond to the adhesive used to bond said cutting stylus to said stylus attaching face.

4,365,448

SANDING WHEEL

Byron Wilson, 3650 Green Acre Rd., Oakland, Calif. 94619

Filed Jul. 14, 1980, Ser. No. 168,747

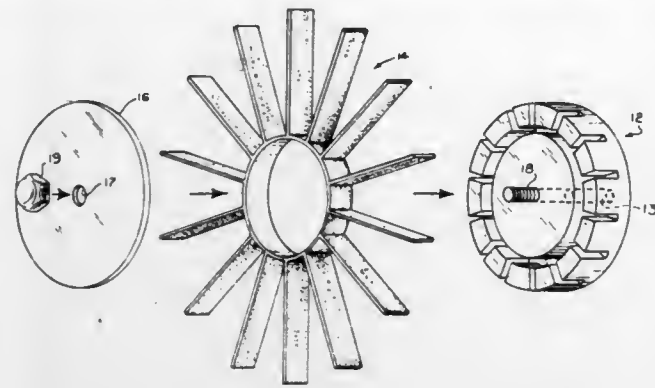
Int. Cl.³ B24B 9/02

U.S. Cl. 51—334

1 Claim

1. An abrasive element for a rotary sander comprising an elongated strip of flexible substrate having an abrasive material affixed to an outer surface, said strip being configured in a continuous endless loop with outwardly folded flaps each separated by a short section and said substrate contacting at each fold, means attaching each side of said folded flaps together at least in the base of each fold to provide a circular portion with radial flaps presenting an abrasive outer surface

on each side of each flexible flap, and a substantially rigid ring disposed interiorly of said strip and contacting each of said



short sections between said folded flaps with means securing said strip to said ring at said short sections.

4,365,449

HONEYCOMB FRAMEWORK SYSTEM FOR DROP CEILINGS

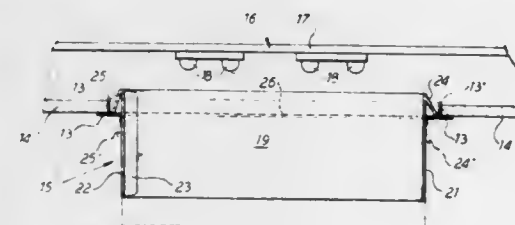
James P. Liautaud, 70 Bluff Rd., Cary, Ill. 60013, assignor to James P. Liautaud, Cary, Ill.

Filed Dec. 31, 1980, Ser. No. 221,771

Int. Cl.³ E04B 5/60

U.S. Cl. 52—28

14 Claims



1. A drop ceiling framework system for use in a drop ceiling formed of a grid of inverted T-shaped channels with rectangular removable ceiling tiles resting on rectangular support frames formed by the grid of T-shaped channels, and wherein a light source means is provided above the drop ceiling, comprising:

a rectangular cardboard framework having an open top and bottom and being formed of four interconnected side walls; the rectangular framework being dimensioned to closely fit in a plurality of the rectangular support frames of the drop ceiling in place of the ceiling tiles so that light is substantially blocked from passing between each side wall and an adjacent portion of the rectangular support frame; and at least two of the side walls opposite one another having a locking flap at a top thereof formed of a hinged portion adapted to fold flush against an outside surface of the associated side wall during upward insertion of the cardboard framework into and through one of the ceiling rectangular support frames and then spring outwardly into a locking position after clearing a horizontal portion of the T-shaped channel and abut in a corner portion of the T-shaped channel formed between vertical and horizontal portions thereof.

4,365,450

DOOR EDGE GUARD

Robert Adell, Novi, Mich., assignor to U.S. Product Development Co., Novi, Mich.

Filed Oct. 7, 1980, Ser. No. 194,748

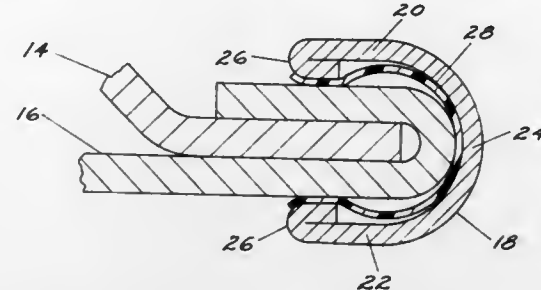
Int. Cl.³ B60J 5/00

U.S. Cl. 52—98

6 Claims

1. In a vehicle body having a sheet metal closure, such as a door, on a marginal edge portion of which is disposed an ornamental and protective metallic edge molding of generally

U-shaped cross section comprising an inner leg and an outer leg whose free ends bear against opposite sides of said marginal edge portion and a plastic liner disposed between the metallic edge molding and the closure marginal edge portion, including the location where the free ends of the legs bear against the closure marginal edge portion, to insulate the molding from the



closure, the metallic edge molding being applied to the closure marginal edge portion by moving the metallic edge molding toward the closure marginal edge portion in a direction generally transverse to the length of the metallic edge molding, the improvement characterized in that the liner comprises a thin sheet of grained plastic film arranged with the grain running generally lengthwise of the edge molding.

4,365,451

POURED ADOBE BUILDING CONSTRUCTION AND METHOD OF FORMING SAME

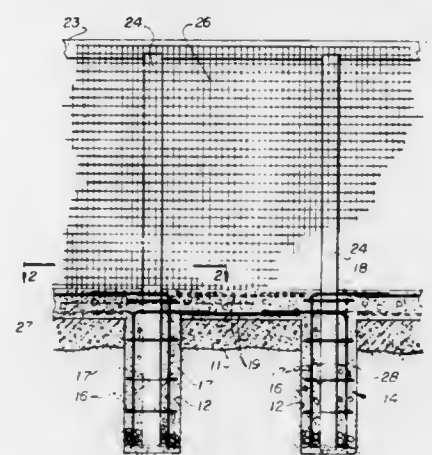
Lynn S. Nelson, 162 Christen Dr., Pacheco, Calif. 94553

Filed Jan. 8, 1980, Ser. No. 110,362

Int. Cl.³ E02D 27/00

U.S. Cl. 52—169.9

9 Claims



1. In combination, a poured adobe building having a foundation, a plurality of vertical, longitudinally spaced posts extending up from said foundation, having inner and outer faces, said posts being substantially centrally located relative to the inside and outside of said wall, inner and outer removable, reusable forms on opposite sides of said wall spaced outwardly of said inner and outer faces, severable tie means securing said forms aligned and accurately spaced apart, said forms having sheets of porous material to permit escape of water from between the forms, said porous material being removable with said forms, and a slurry of adobe, filler material and water poured between said forms, said foundation comprising concrete formed in a trench along the wall and in holes dug at intervals along said trench, the lower ends of said posts fitting into said holes.

4,365,452

LOADING DOCK CANOPY

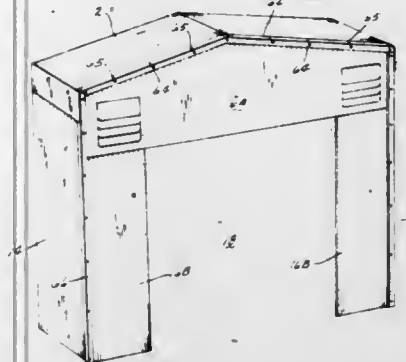
Russell L. Fillman, Colorado Springs, Colo., and Young Z. Yoon, Indianapolis, Ind., assignors to Woodford Manufacturing Company, Colorado Springs, Colo.

Filed Jun. 4, 1981, Ser. No. 270,227

Int. Cl.³ E04H 14/00, 6/30; E06B 3/50, 1/06

U.S. Cl. 52—173 DS

14 Claims



10. A loading dock canopy, comprising, a frame means adapted to be secured to a building around a loading access opening, said frame means having a top, opposite sides, an inner face adapted to be placed adjacent said building, an outer face located outwardly from said building, and a center access opening adapted to be in alignment with the loading access opening of said building, each side of said frame means including inner and outer vertical members, and a pair of vertically spaced-apart compression springs connected to and extending between said vertical members on each side of said frame means to resiliently hold said vertical members apart, each compression spring having inner and outer ends and said outer end being movable vertically and laterally of and toward and away from said inner end.

4,365,453

FRAMELESS METAL BUILDING AND BUILDING COMPONENTS

Colin F. Lowe, 5214 Sanford, Houston, Tex. 77035

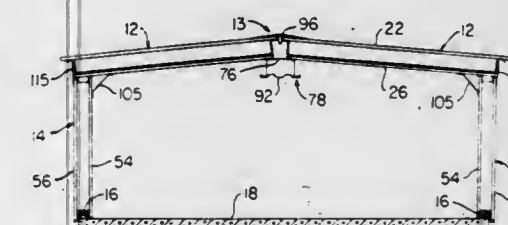
Continuation-in-part of Ser. No. 59,575, Jul. 23, 1979, Pat. No. 4,301,628, which is a continuation-in-part of Ser. No. 969,342, Dec. 14, 1978, which is a continuation-in-part of Ser. No. 931,854, Aug. 7, 1978, Pat. No. 4,221,087, which is a

continuation-in-part of Ser. No. 831,781, Sep. 9, 1977, Pat. No. 4,106,245. This application Apr. 16, 1980, Ser. No. 140,764

Int. Cl.³ E04B 7/02

U.S. Cl. 52—478

16 Claims



1. A panel assembly adapted to form a generally flat load bearing frameless wall for a metal building, comprising a series of elongated thin sheet metal panels forming generally flat elongated inner skin portions and generally flat elongated outer skin portions with generally flat elongated web portions extending between said inner and outer skin portions, fastener means connecting said panels with said outer skin portions and said web portions forming parallel spaced and longitudinally extending primary corrugations each having a U-shaped cross-sectional configuration, said inner and outer skin portions having longitudinally extending and parallel spaced secondary corrugations forming ribs substantially smaller than said pri-

mary corrugations, a plurality of spacer members disposed within said primary corrugations and secured to said web portions, at least one of said spacer members including a spacer of molded plastics material and having a corrugated outer flange portion projecting into said secondary corrugations within the adjacent said outer skin portion to stabilize said ribs, each said web portion being formed by a sheet metal panel separate from said sheet metal panels forming the adjacent said inner and outer skin portions and having at least one longitudinally extending secondary corrugation forming a rib, said sheet metal panel forming each said web portion having bent inner and outer longitudinal U-shaped edge portions defining corresponding longitudinally extending said ribs, and said sheet metal panels forming said generally flat inner and outer skin portions having bent opposite longitudinal U-shaped edge portions forming corresponding said ribs overlapping the adjacent ribs of said web portions.

4,365,454

CONSTRUCTION SYSTEM

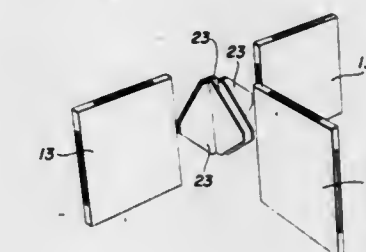
John M. Davis, Berlin, Mass., assignor to Cubit Corporation, Stowe, Mass.

Division of Ser. No. 13,086, Feb. 21, 1979. This application Mar. 17, 1981, Ser. No. 244,331

Int. Cl.³ E04C 1/10

U.S. Cl. 52—586

6 Claims



1. Construction system, comprising:

- a main body formed of a light-weight material having a plurality of sides each of which has a recess, and
- a connecting member having hinge line formed by a score on each side and dividing the member into two parts, each part being formed to fit snugly into one of the said recesses in the main body, said member being relatively resistant to bending except along said hinge line, the recess being twice as thick as a single connecting member, the main body and the member being formed from a material consisting of two sheets of paper between which is sandwiched a layer of foamed plastic.

4,365,455

METHOD OF BUILDING CONSTRUCTION

William G. Braine, 7 Brodie St., Christchurch, New Zealand

Continuation of Ser. No. 908,566, May 22, 1978, abandoned.

This application Aug. 8, 1980, Ser. No. 176,559

Claims priority, application New Zealand, May 23, 1977, 184184

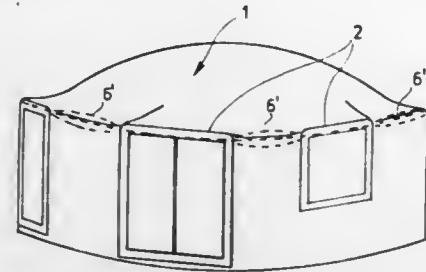
Int. Cl.³ E04B 1/34; E04C 3/00

U.S. Cl. 52—741

33 Claims

1. A method of constructing a construction shell, the method comprising the steps of:
constructing a building foundation of a desired shape;
fixing a sheet of thin flat elastic material to the foundation to form a substantially airtight seal therebetween;
inflating the sheet of thin material to form a double curvature shape and the configuration of a shell on the foundation;
propping selected parts of the sheet of thin material with internally positioned formers which shape the sheet of material around window and door spaces;

positioning window and door frames externally of the sheet of material and in association with the internally positioned formers;
 applying a strengthening and stiffening material to the outside of the sheet of thin flexible material progressively to form a strengthened shell former in which the areas within the externally positioned window or door frames are free



from the strengthening and stiffening material; and applying a coating of at least one layer of structural coating material on the outside of the strengthened and stiffened shell former;
 and removing the internally positioned formers whereby there is formed a constructional shell for a building of any desired shape which can be used for a variety of different building constructions.

4,365,456

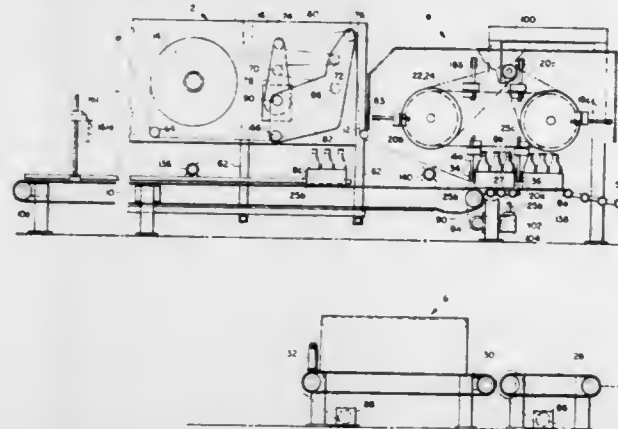
METHOD OF AND APPARATUS FOR PACKAGING
 John E. Ullman, Huntingdon Valley, Pa., assignor to The Mead Corporation, Dayton, Ohio

Filed May 5, 1976, Ser. No. 683,611

Int. Cl.³ B65B 7/16, 7/28, 51/18

U.S. Cl. 53—69

17 Claims



1. In a non-adhesive packaging machine for forming a composite package including a paperboard tray containing a plurality of articles and capped with a film sheet, each tray having a bottom and upstanding walls extending therefrom with a first pair of spaced-apart walls connected together by a second pair, means for disposing a surface-treated film sheet over the articles and over the upper portion of said first pair of walls, means for pressing and heating said sheet against said first pair of walls to bond said film sheet to said pair of walls by its own substance to form a strong paper-tearing bond with the film sheet in intimate laminar contact with said paperboard without the use of an adhesive to cap the article-filled tray with said sheet,
 said machine being without adhesive-applicator means for applying adhesive to said tray,
 means for releasing said tray from the pressing and heating means and allowing the bond to cool to ambient temperature,
 said pressing and heating means including a plurality of flight bars,
 means conveying said flight bars in an orbital path and pressing

said flight bars against said sheet and said first pair of walls in a bonding station,
 said conveying means operating without stopping in the bonding station,
 and heating means connected to said flight bars for heating said bars and the sheet pressed against the tray by the bars to form said bond.

4,365,457

CONTAINER CLOSURE

Walter Schellenberg, Diepoldsau, Switzerland, assignor to Max Sandherr AG, Switzerland

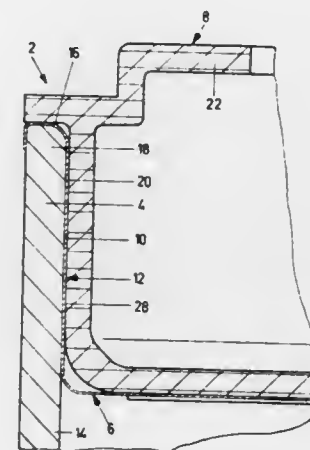
Filed Apr. 28, 1980, Ser. No. 143,463

Claims priority, application Switzerland, Jun. 18, 1979, 5674/79

Int. Cl.³ B65B 7/28, 61/18

U.S. Cl. 53—412

9 Claims



1. A method for producing a closure for a container comprising the steps of
 preforming a foil membrane into a cup-like shape having a generally cylindrical wall with upper and lower substantially cylindrical portions, a transverse wall at one end and an outward annular flange at the other end; forming an annular radially extending shoulder between said upper and lower cylindrical portions of said cylindrical wall to offset said upper and lower portions from each other and compressing the membrane material of said shoulder to a thickness significantly less than that of the adjacent membrane material in said upper and lower portions;
 inserting the preshaped membrane into a tubular container with the flange overlying the container edge;
 shaping the shoulder and the cylindrical portion between the shoulder and the one end to conform to the container wall; and
 sealing the cylindrical wall to the interior wall of the container on both sides of the compressed shoulder and the outward annular flange to the container edge.

4,365,458

METHOD AND APPARATUS FOR FILLING SLEEVES WITH FINISHED DISC RECORDS AND INSERTING THE FILLED SLEEVES INTO JACKETS

Leonard Palmer, and Jack A. Palmer, both of Morristown, N.J., assignors to Lened, Inc., Elizabeth, N.J.

Filed Jul. 9, 1980, Ser. No. 167,097

Int. Cl.³ B65B 43/28, 43/36, 55/04

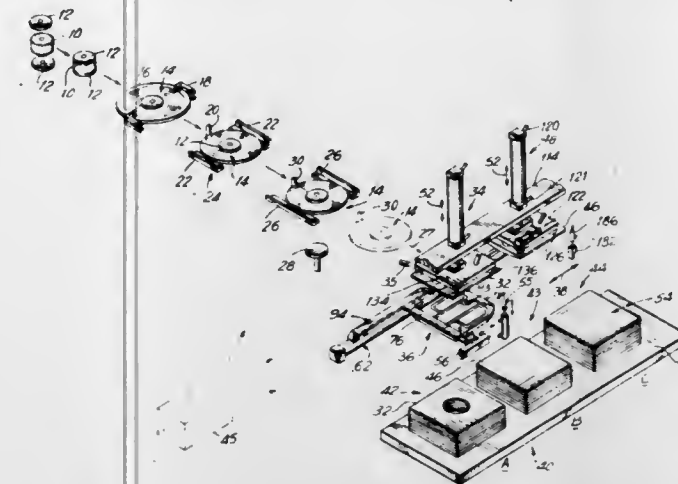
U.S. Cl. 53—449

34 Claims

1. A method for enclosing finished disc records in sleeves individually, and the record-filled sleeves in jackets individually, and arranging the jackets with the finished records therein in a stack, comprising the steps of:

- (a) pushing a finished record disc along a first path;
- (b) raising an empty sleeve from a stack of empty sleeves to the level of said first path;

- (c) opening said raised sleeve and receiving therein said pushed record;
- (d) moving said record-filled sleeve along a second path from a position above said stack of empty sleeves to a position above a stack of empty jackets;
- (e) raising an empty jacket from said stack of empty jackets,



- opening the end of said raised jacket and subsequently inserting therein said record-filled sleeve;
- (f) transporting said jacket filled with said record-filled sleeve from said position above said stack of empty jackets to a position above a stack of record-filled jackets; and,
- (g) depositing said jacket with said sleeved record therein onto a stack of similarly filled jackets.

4,365,459

APPARATUS FOR PRODUCING BAG PACKAGES
 Bruno Gründler, Neuhausen am Rheinfell, Switzerland, assignor to SIG - Schweizerische Industrie-Gesellschaft, Neuhausen am Rheinfell, Switzerland

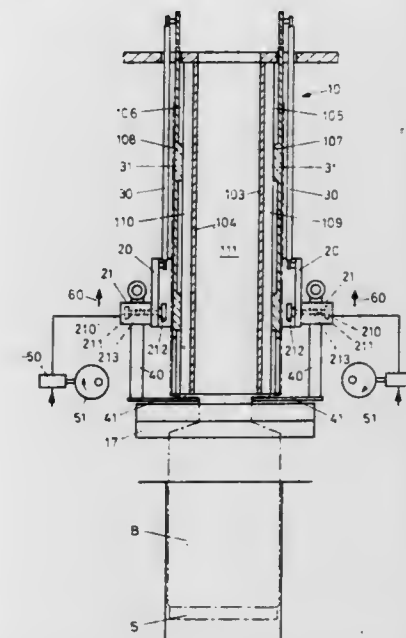
Filed Dec. 30, 1980, Ser. No. 221,446

Claims priority, application Switzerland, Jan. 4, 1980, 37/80

Int. Cl.³ B65B 9/08, 41/14

U.S. Cl. 53—552

10 Claims



1. In apparatus for producing bag packages and including a shaping mandrel presenting a shaping surface and a longitudinal seal forming device for forming a panel of sealable material into a tube and transverse sealing jaws and severing blades for dividing the tube into individual bags, the improvement wherein said mandrel comprises means defining two carriages mounted at diametrically opposite sides of said mandrel and forming at least in part the shaping surface of said mandrel, and said apparatus further comprises clamping members each mounted to face a respective carriage and to be moved toward

said shaping mandrel to press the tube against said carriages and thus clamp the tube; and means connecting said carriages and clamping members together for movement in unison in the longitudinal direction of said mandrel.

4,365,460

METHOD AND APPARATUS FOR MANUFACTURING FOAM PLASTIC CONTAINERS BY USE OF A TUBULAR FORMING MANDREL

Allan K. Cress, Baltimore, and Charles E. Busse, Jarrettsville, both of Md., assignors to Maryland Cup Corporation, Owings Mills, Md.

Continuation of Ser. No. 899,848, Apr. 25, 1978, abandoned, and a continuation-in-part of Ser. No. 665,617, Mar. 10, 1976. This application Jul. 17, 1980, Ser. No. 169,896

Int. Cl.³ B65B 3/02, 43/08

U.S. Cl. 53—563

28 Claims



1. Means for forming a cylindrical blank from a rectangular blank of foam plastic sheet material comprising:
 conveyor means feeding said rectangular blank along a predetermined path transversely of its length at a predetermined continuous rate;
 cylindrical mandrel means positioned parallel with said predetermined path adjacent said conveyor means;
 folding means adjacent said mandrel means over a portion of the length of the latter engaging and progressively folding said blank about said mandrel means while feeding said blank along said path to overlap the ends thereof on said mandrel means in the provision of a lapped seam;
 heating means adjacent said path for progressively applying heat to each of the ends of said blank at independently selected temperatures for the respective said ends to prepare said blank for heating sealing of said lapped seam; and
 sealing means adjacent said mandrel means downstream of said folding means for pressing said heated ends of said blank together to seal said lapped seam and for accelerating the resulting cylindrical blanks ahead of said conveyor means at a second faster predetermined rate and ejecting said cylindrical blank from said mandrel means.

4,365,461

IMPLEMENT FOR THE HARVESTING OF SEED-PRODUCING PLANTS BY MECHANICAL HARVESTER

Jürgen M. Schütt, Caracas, Venezuela, assignor to Instituto Venezolano de Investigaciones Científicas (IVIC), Estado Miranda, Venezuela

Filed Oct. 30, 1980, Ser. No. 202,231

Int. Cl.³ A01D 14/02

U.S. Cl. 56—14.3

6 Claims

1. An implement for harvesting seed-producing plants suitable for use with a mechanical harvester which comprises: a chassis, constituted generally as a front hollow transverse

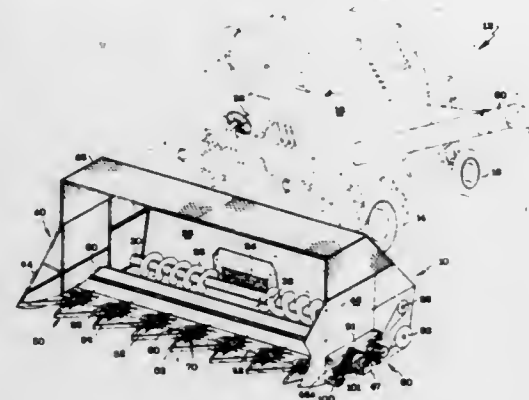
beam which extends along the entire width of the implement;

a self-bearing structure, supporting the said chassis, adapted to define a closed contour for the implement except for its front;

at least one pair of collector tray means borne by the transverse beam and adapted to extend, spaced apart from each other, towards the front of the harvester; said tray means being developed to define a large collection surface which extends at an inclination towards the rear of between about 10° and 15°;

static guide means defined on the cooperating edges of the adjacent tray means and spaced apart from each other which define narrow intermediate passage means which have a generally axial course;

a cutting station, provided at the end of each of the intermediate passages, provided with a disk-shaped cutting element adapted to cover the entire width of the end of the associated passage means;



a plant impelling mechanism associated with each cutting station, provided with projecting impelling means adapted to engage the plants and impel them along the associated intermediate passage means and bring the plants firmly and uniformly to beyond the cutting station;

a first drive mechanism for the cutter disks, adapted to cause them to turn at high speeds synchronously;

a second drive mechanism for the plant impelling mechanisms adapted to move said projecting impelling means provided on the said mechanisms at a relative speed of approach to the associated cutter means which is as close as possible to the speed of advance of the harvester; said first and second drive mechanisms extending separately within the front transverse beam of the chassis;

transmission means for connecting the first and second drive mechanisms to the power take-offs of the harvester, and conveyor means arranged to the rear of the cutting stations to bring the cut plants into the harvester; said conveyor means being functionally coupled to the transmission means which moves the second drive mechanism so that its speed is directly related to the speed of the projecting impelling means.

4,365,462

MOWER HAVING SEPARATELY REPLACEABLE BEARING SUBASSEMBLY

Anton Werner, Saverne, and Horst Neuerburg, Haegen, both of France, assignors to Kuhn S.A., Saverne, France

Filed Jan. 26, 1981, Ser. No. 228,109

Claims priority, application France, Feb. 4, 1980, 80 02639

Int. Cl.³ A01D 55/18

U.S. Cl. 56—255

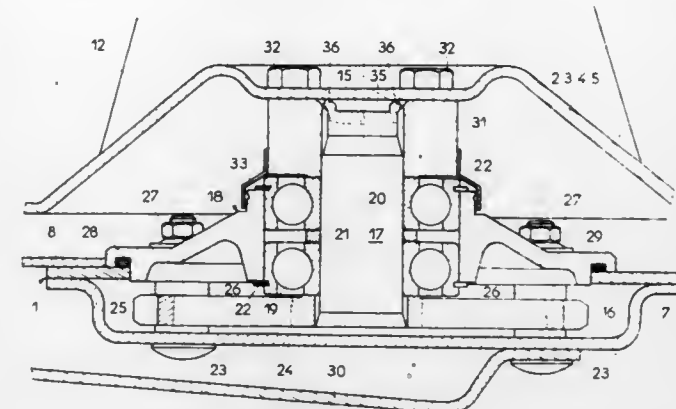
12 Claims

1. In a mower having a frame and a plurality of subassemblies supported by said frame, each subassembly including a rotatable disk, in combination

at least one of said subassemblies forming a unit comprising driving means, including a driving gear member operable to rotate the disk of said unit,

a shaft member in driven connection with said driving gear member,

a coupling member in driven connection with said shaft member for coupling said disk to said shaft member, and



antifriction bearing means for guiding said shaft member, said unit being removable from said mower free from damage to any of its members only if removed as a whole.

4,365,463

HARVESTING TOMATOES

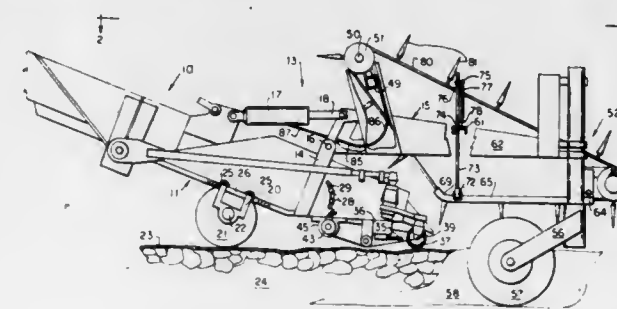
Thomas S. Bettencourt, Isleton, and Daniel L. Freeman, Rio Vista, both of Calif., assignors to The Regents of The University of California, Berkeley, Calif.

Filed Jan. 7, 1981, Ser. No. 223,162

Int. Cl.³ A01D 45/00, 89/00

U.S. Cl. 56—327 R

38 Claims



1. A tomato harvester pickup, including in combination:

a pickup frame,

a pickup conveyor supported by said pickup frame and having a relatively flat initial pickup angle at its forward end,

an assist frame secured to said pickup frame spaced from said forward end and having a front end and an upper rear end, a plurality of endless overhead assist means supported by said front and rear ends for movement in a loop in a continuous path extending generally horizontally rearwardly from said front end forward of and higher than said forward end of said pickup conveyor, then up steeply in an upwardly and rearwardly inclined portion beginning slightly forward of said forward end of said pickup conveyor and extending to the rear of said forward end well above said pickup conveyor, with increasing vertical spacing from said pickup conveyor to said rear end, and then downwardly and forwardly to said front end,

power means for moving each said assist means around its loop,

a series of long, individual, spike-like projections extending out substantially normally from each said assist means so that, along the generally horizontal portion of its path, the projections extend downwardly so that they can enter into tomato vines and engage them, and then carry the vines upwardly steeply along the steeply inclined portion of the loop, and

a series of vine-releasing means secured to the rear end of said assist frame and each extending downwardly from its point of securement and then curved to extend rearwardly from and beyond said assist frame and generally parallel to said pickup conveyor for freeing said vines from said assist means when said vines are over said pickup conveyor, thereby insuring transfer of the vines fully to said pickup conveyor.

4,365,464

APPARATUS TO UNIFORMLY CONTROL WRAPPING A FILAMENT AROUND THE SURFACE OF A SPUN CORE YARN DURING RING SPINNING

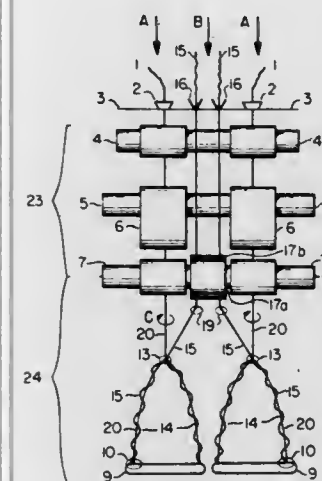
Clarence O. Graham, Jr., New Orleans; Charles L. Shepard, Chalmette, and Russell M. H. Kullman, Harahan, all of La., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Jan. 28, 1981, Ser. No. 229,217

Int. Cl.³ D02G 3/36

U.S. Cl. 57—12

5 Claims



1. An apparatus to uniformly control wrapping of a filament around the surface of a spun core yarn during ring spinning comprising:

- means for drafting a fiber into a spun core yarn;
- means to feed the core yarn through a contact guide and into a ring spinning means;
- said ring spinning means to receive said core yarn, spin said core yarn, and rotate said core yarn on its longitudinal axis;
- means to over-feed a filament into the contact guide of (b) where the filament cohesively contacts the outer surface of the rotating core yarn, thus causing helical wrapping of the filament around the outer surface of the core yarn as the core yarn and filament are simultaneously fed through a balloon area located between the contact guide and ring spinning means.

4,365,465

STOP MOTION FOR SPINNING MACHINE

Heinz Müller, Harzerweg 15, D-7321 Sparwiesen; Max Hartmannsgruber, Bleicherwiesen 8, D-7312 Kirchheim, and Hermann Güttler, Porschestr. 5, D-7333 Uhingen, all of Fed. Rep. of Germany

Filed Dec. 10, 1980, Ser. No. 214,836

Claims priority, application Fed. Rep. of Germany, Dec. 28, 1979, 2952533

Int. Cl.³ D01H 13/18

U.S. Cl. 57—84

20 Claims

1. In a spinning machine, a drafting frame comprising an input roll pair including:

- a bottom roll,
- a top roll mounted above and cooperating with said bottom roll,
- a spindle forming part of said top roll,

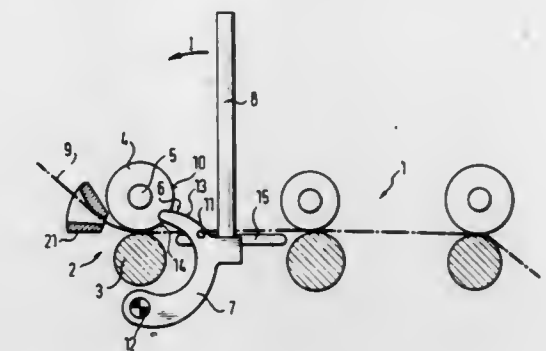
mounting means permitting said top roll to be lifted from said bottom roll in the event of yarn breakage; and engagement means adapted for lifting said top roll upon yarn breakage and including

a lift element mounted for movement into lifting engagement with said spindle, and

means defining a clamping element carried by said lift element and movable by said movement of said lift element into lifting engagement with said spindle for engaging roving passing between said input roll pair and clamping the leading end of said roving against said top roll.

8. In a spinning machine, a drafting frame comprising input roll means including:

a bottom roll,



twin top rolls mounted above and cooperating with said bottom roll,

spindle means forming parts of said top rolls,

mounting means permitting said top rolls to be lifted from said bottom roll in the event of yarn breakage; and engagement means adapted for lifting said top roll upon yarn breakage and including

a lift element means mounted for movement into lifting engagement with said spindle means of said top rolls, and clamping means carried by said lift element and movable by said movement of said lift element into lifting engagement with said spindle means for engaging roving passing between said top and bottom rolls of said input roll means and clamping the leading end of said roving.

4,365,466

POLYESTER SPUN-LIKE TEXTURED YARN AND METHOD FOR MANUFACTURING THE SAME

Takumi Horiuchi, Yoji Kuroda, and Kenji Hukatsu, all of Matsuyama, Japan, assignors to Teijin Limited, Osaka, Japan

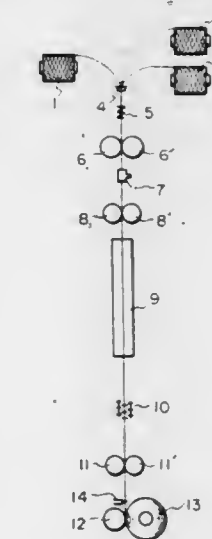
Filed Jul. 9, 1981, Ser. No. 281,871

Claims priority, application Japan, Jul. 15, 1980, 55-95597

Int. Cl.³ D02G 1/02, 3/24

U.S. Cl. 57—205

7 Claims



1. A polyester spun-like textured yarn comprising:

a core portion comprising a polyester multifilament yarn (A) which is not dyeable with ionic dyes; and a wrapper portion comprising a polyester multifilament yarn (B) which is not dyeable with ionic dyes and a polyester multifilament yarn (C) which is dyeable with ionic dyes and together continuously wrapped about said core portion in an alternately twisted condition, wherein said multifilament yarn (B) and said multifilament yarn (C) are randomly mixed and entangled with each other in said wrapper portion and wherein some of the filaments constituting the wrapper portion are entangled and interlaced with some of the filaments constituting said core portion in the boundary region between said core portion and said wrapper portion in order to form an interlaced portion.

4. A method for manufacturing a polyester spun-like yarn comprising:

doubling a partially oriented polyester multifilament yarn (a) which has a breaking elongation of between 100 and 250% and which is not dyeable with ionic dyes, an undrawn polyester multifilament yarn (b) which has a breaking elongation of at least 250%, said breaking elongation being higher than that of said partially oriented polyester multifilament yarn (a) by at least 80%, and which is not dyeable with ionic dyes, and an undrawn polyester multifilament yarn (c) which has a breaking elongation of at least 250%, said breaking elongation being higher than that of said partially oriented polyester multifilament yarn (a) by at least 80%, and which is dyeable with ionic dyes; subjecting said three multifilament yarns (a), (b) and (c) to an interlacing treatment by means of a turbulent fluid flow in order to mix them; and simultaneously drawing and frictionally false twisting the mixed multifilament yarns (a), (b) and (c) at a draw ratio of at least 1.2.

4,365,467

ROTATION RESISTANT WIRE ROPE

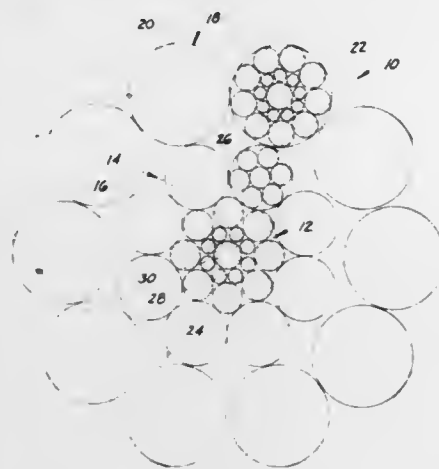
Donald L. Pellow, Lee's Summit, Mo., assignor to Arco Inc., Middletown, Ohio

Filed Dec. 12, 1980, Ser. No. 215,612

Int. Cl.³ D07B 1/00, 5/00

U.S. Cl. 57—214

14 Claims



1. A rotation resistant rope comprising a central multi-wire heart strand, of Seale's construction, having a central wire, an inner layer and an outer layer, an intermediate layer comprising a plurality of multi-wire strands closed in one operation around said central strand to form an independent wire rope core, the number of wires of both said inner and outer layers of said central multi-wire heart strand corresponding in number to the strands in said intermediate layer, and a covering layer of 10 multi-wire strands closed around said intermediate layer, each intermediate layer and covering layer of strands having a direction of lay opposite to that of the other layer of strands, whereby said rope provides improved torque balancing characteristics to provide resistance to spinning of the rope under

load, improved crushing resistance to drum winding or external factors and high strength.

4,365,468

FALSE TWIST MACHINE

Hans Schellenberg, Winterthur; Eduard Schenkel; Andreas Schwander, both of Seuzach, and Dieter Thalmann, Winterthur, all of Switzerland, assignors to Rieter Machine Works, Ltd., Winterthur, Switzerland

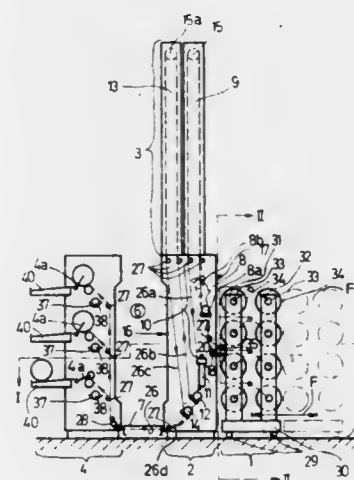
Division of Ser. No. 109,663, Jan. 4, 1980, Pat. No. 4,291,529, which is a division of Ser. No. 935,110, Aug. 21, 1978, Pat. No. 4,201,036. This application Jan. 28, 1981, Ser. No. 229,107

Claims priority, application Switzerland, Mar. 1, 1978, 2195/78

Int. Cl.³ D02G 1/02; D01H 13/28; B65H 49/02

U.S. Cl. 57—291

6 Claims



1. In a false twist machine, the combination of bobbin creel comprising a movable base for movement back and forth in a given direction, a first plurality of bobbin holders mounted on said base at respective different heights above said base, a second plurality of bobbin holders mounted on said base at respective different heights above said base and spaced from said first plurality of bobbin holders in said given direction, a plurality of means for continuously taking off a thread from a pair of bobbins, each said means being associated with a respective one of said bobbin holders of said first plurality of bobbin holders and a respective one of said bobbin holders of said second plurality of bobbin holders for continuously taking off a thread from a pair of bobbins carried in use on said associated bobbin holders, and a plurality of thread transfer means corresponding with said plurality of thread take-off means and mounted on said base at a location spaced from both said pluralities of bobbin holders in said given direction, said pluralities of thread transfer means being disposed at midheight of the creel; and

a texturizing station having an operating side comprising a first supply device for taking in a thread from said thread transfer means, a first heat treatment zone located above said supply device to receive a thread therefrom, a cooling zone below said heat treatment zone for the thread, a false twist device below said cooling zone for imparting a false twist to the thread, a second supply device for taking up the thread below said false twist device, a second heat treatment zone adjacent said first heat treatment zone to receive the thread from said second supply device, and a third supply device below said second supply device for taking up the thread from said second heat treatment zone wherein said first supply device, said false twist device, said second and said third supply devices are mutually offset from the top down and toward said operating side.

4,365,469

SZ TWISTING DEVICE FOR TWISTING ELEMENTS OF ELECTRIC CABLES

Dieter Vogelsberg, Coburg, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

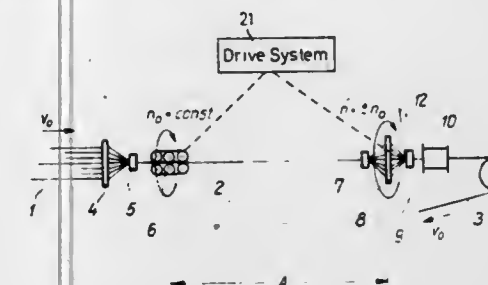
Filed Apr. 9, 1981, Ser. No. 252,451

Claims priority, application Fed. Rep. of Germany, Apr. 9, 1980, 3013933

Int. Cl.³ H01B 13/04

U.S. Cl. 57—293

3 Claims



1. In a device for the SZ twisting of twisting elements of electric cables, comprising: a first twisting closer; an immediately following rotating twisting head; a twisting plate arranged at a greater distance from the twisting head, said twisting plate provided with guide holes for the twisting elements; means to rotate said twisting head and to rotate said twisting plate with a changing direction of rotation; and at least one following twisting closer, the improvement comprising:

- (a) the means to rotate adapted to always rotate the twisting head with the same direction of rotation, and a speed of rotation equal or approximately equal to the speed of rotation of the twisting plate; and
- (b) the guide holes of the twisting plate being arranged on at least two pitch circles which are concentric with each other.

4,365,470

FUEL NOZZLE GUIDE AND SEAL FOR A GAS TURBINE ENGINE

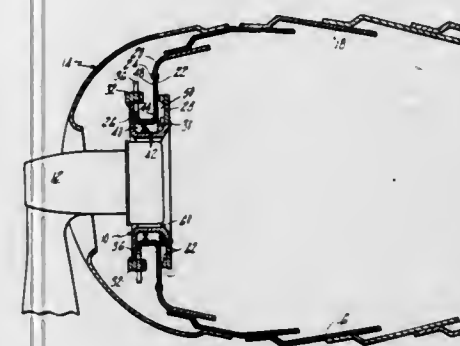
John A. Matthews, Melrose; David A. Washburn, South Glasstonbury, and Vito J. Sarli, Manchester, all of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Apr. 2, 1980, Ser. No. 136,655

Int. Cl.³ F23R 3/10; F02C 7/18

U.S. Cl. 60—39.32

3 Claims



1. In combination, an annular combustor for a gas turbine engine having a cylindrical inner liner wall and a concentrically disposed outer liner wall between which combustion ensues, a dome-like element attaching the inner and outer liner at the forward end and closing off said end, a plurality of fuel nozzle guide and seal elements supported in a corresponding number of holes circumferentially disposed in said dome-like element, a generally annular shaped bulkhead U-shaped in cross section circumscribing said holes and having a flange, said fuel nozzle guide and seal element having a sleeve member extending through a central opening of said bulkhead supporting the fuel nozzle intended to supply fuel to the combustor

and a forward extending flange abutting the forward face of the flange of said bulkhead, a ring element disposed parallel to, but spaced from said bulkhead mounted in situ to the end of said sleeve remote from said flange thereof, nestling said bulkhead, clip means rigidly supported to the forward face of said flange of said sleeve slidably supported to said flange of said bulkhead for radial and circumferential movement of said fuel nozzle guide and seal element, slots formed in said sleeve adjacent said fuel nozzle for conducting air from outside said combustor to circumscribe said fuel nozzle inside said combustor to prevent flameholding and means for cooling said ring element, the bottom of said U of said bulkhead being spaced from said sleeve, and said ring being spaced from said bulkhead defining a gap, openings in said bulkhead for leading cool air outside said combustor through said gap to impinge on said ring and form a film in said gap discharging into said combustor.

4,365,471

COMPRESSION WAVE FORMER

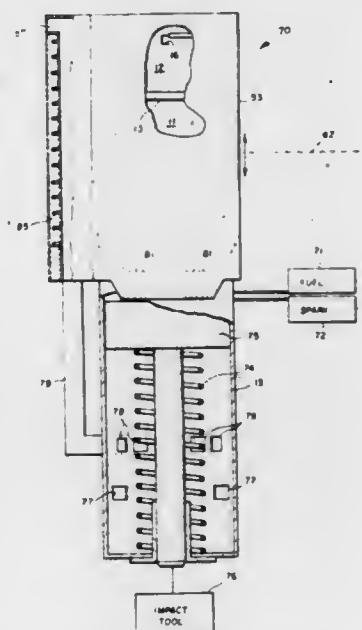
Joseph S. Adams, 7509 Vivian Dr., Vancouver, British Columbia, Canada

Filed Nov. 5, 1979, Ser. No. 91,150

Int. Cl.³ F02C 5/02

U.S. Cl. 60—39.76

14 Claims



- 1. A compression wave former comprising:
 - a. a detonation chamber having an ignition region at one end, an output region at an opposite end, and a fuel detonation region between said ignition region and said output region;
 - b. an ignition chamber smaller than said detonation chamber and arranged adjacent said one end of said detonation chamber;
 - c. an ignition control wall separating said ignition and detonation chambers;
 - d. said output region of said detonation chamber being formed with a constricted output opening having a smaller cross-sectional area than said detonation chamber;
 - e. means for charging said ignition chamber and said detonation chamber with a mixture of air and fuel;
 - f. an igniter in said ignition chamber for igniting said mixture in said ignition chamber; and
 - g. a peripheral region of said control wall having a plurality of through openings arranged so that a rapid increase in temperature and pressure that occurs soon after ignition in said ignition chamber simultaneously injects a plurality of hot gas jets through said openings of said control wall and into said ignition region of said detonation chamber, said hot gas jets being directed by said control wall openings along a peripheral region of said detonation chamber toward said output region of said detonation chamber to simultaneously initiate in said detonation chamber a burning of said mixture that

accelerates towards said output region and inward from said peripheral region for dynamically compressing said mixture in said detonation region to detonate said dynamically compressed mixture and form a compression wave directed out of said output opening.

4,365,472

TURBINE-TYPE INTERNAL-COMBUSTION ENGINE
Saburo Ogata, 2-11, Shonai Higashimachi 4-chome, Toyonaka-shi, Osaka 560, Japan

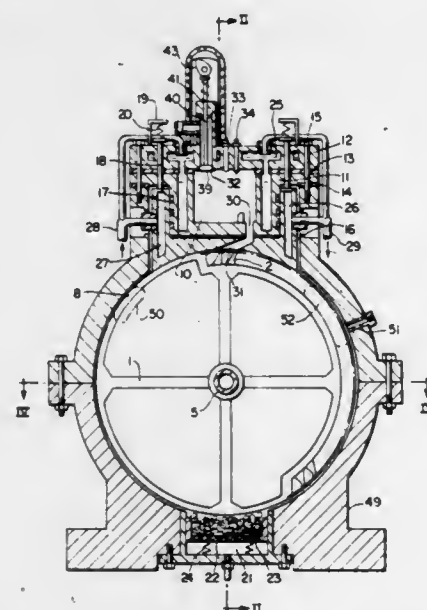
PCT No. PCT/JP78/00015, § 371 Date Jun. 25, 1980, § 102(e)
Date Jun. 25, 1980, PCT Pub. No. WO80/00990, PCT Pub.
Date May 15, 1980

PCT Filed Oct. 31, 1978, Ser. No. 198,954

Int. Cl.³ F02C 5/00

U.S. Cl. 60—39,76

7 Claims



1. A turbine-type internal combustion engine housed in a casing and comprising:

- a rotary wheel having a circumference and a first row of blades arranged along a portion of said circumference and a circular arc surface formed on a remaining portion of said circumference, said rotary wheel having approximately the same radius as an inner surface of said casing;
- a combustion chamber disposed above said casing having a discharge nozzle opening approximately tangentially to said rotary wheel;
- a fuel supply means and an ignition means disposed in said combustion chamber;
- said combustion chamber being in communication with a compressed air duct through a valve;
- said casing being formed with exhaust ports positioned ahead of the orifice of the discharge nozzle with respect to a direction of advance of said rotary wheel;
- an air inlet for introducing fresh air to said blade row;
- exhaust openings positioned ahead of said exhaust ports with respect to said direction of advance of said rotary wheel;
- at least one additional row of blades on said rotary wheel arranged parallel to said first row of blades; and
- guide blades interposed between said first row of blades and said at least one additional row of blades and fixed to said casing, said guide blades being operable for changing the direction of flow of exhaust gas from said first row of blades to guide said exhaust gas to said at least one additional row of blades.

4,365,473 HYDROSTATIC TRANSMISSION HAVING AN OVERSPEED CONTROL

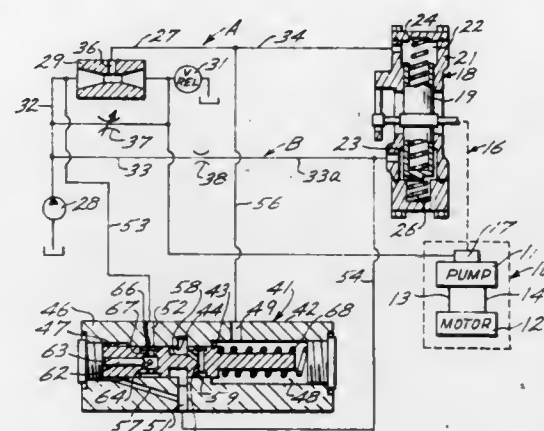
Lawrence F. Schexnayder, and William J. Spivey, Jr., both of Joliet, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
PCT No. PCT/US80/01096, § 371 Date Aug. 20, 1980, § 102(e)
Date Aug. 20, 1980, PCT Pub. No. WO82/00617, PCT Pub.
Date Mar. 4, 1982

PCT Filed Aug. 20, 1980, Ser. No. 251,522

Int. Cl.³ F15B 7/00

U.S. Cl. 60—447

15 Claims



1. In a hydrostatic transmission (10) having a variable displacement pump (11) driven by an engine, signal means (27) for controllably delivering low and high pressure signals (A, B) with the pressure differential between the low and high pressure signals being increased in response to an increase in the engine speed and decreased in response to a decrease in the engine speed, and control means (16) for receiving the low and high pressure signals and reducing the pump displacement in response to said pressure differential between the low and high pressure signals dropping below a predetermined magnitude, the improvement comprising:

overspeed control valve means (41) for decreasing the pressure level of the high pressure signal (B) received by the control means (16) in response to the pressure differential between the low and high pressure signals (A, B) exceeding a second predetermined magnitude.

4,365,474 MODULE FOR CONSTRUCTING A DOUBLE-ACTING FOUR-CYLINDER STIRLING ENGINE

Stig G. Carlqvist, Malmö, Sweden, assignor to CMC Aktiebolag, Malmö, Sweden

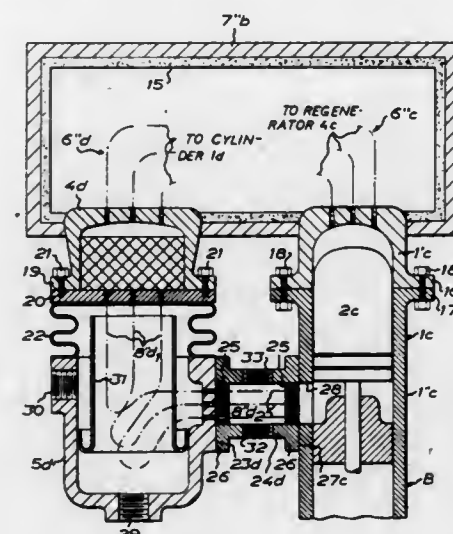
Filed May 21, 1980, Ser. No. 151,863

Claims priority, application Sweden, Jun. 19, 1979, 7905378

Int. Cl.³ F02G 1/04

U.S. Cl. 60—525

6 Claims



1. Module for the construction of a double-acting four-cyl-

der Stirling engine which has a heater means (7'a, 7'b, 7''a, 7''b) for heating the working gas of the engine; an engine block (B) in which the four cylinders (1a-1d) of the engine are fixedly anchored; a piston (2a-2d) arranged in each cylinder and dividing the interior of the respective cylinder into an upper hot space and a lower cold space; a regenerator/cooler unit (3a-3d) associated with each cylinder and comprising an upper regenerator (4a-4d) and a lower cooler (5a-5d) which is connected to the regenerator; a heater tube system (6'a-6'd; 6''a-6''d) associated with each cylinder and extending from the upper hot space of the respective cylinder through the heater means and into the regenerator of the regenerator/cooler unit associated with the cylinder; and a cooler tube system (8'a-8'd; 8''a-8''d) associated with the regenerator/cooler unit of each cylinder and extending from the interior of the regenerator through the cooler and into the lower cold space of the next cylinder, the cylinders, the heater tube systems, the regenerator/cooler units and the cooler tube systems forming a completely closed system in which the working gas by means of the pistons is continuously moved back and forth between the upper hot space of the respective cylinder and the lower cold space of the next cylinder, characterized by a heater module (7'a, 7'b, 7''a, 7''b) which constitutes one of two separate heater units forming the heater means of the Stirling engine; two upper cylinder portions (1'a-1'd) which extend into the heater module, are sealingly and fixedly connected thereto and each adapted to be rigidly connected to a lower cylinder portion (1''a-1''d) fixedly anchored to the engine block (B) to form two of the four cylinders (1a-1d) of the engine; regenerator/cooler units (3a-3d) associated with each of said cylinders and the regenerators (4a-4d) of which extend into the heater module, are sealingly and fixedly connected thereto and flexibly connected to the respective cooler (5a-5d) and the coolers of which are adapted to be fixedly connected each to a lower cylinder portion (1''a-1''d) fixedly anchored to the engine block, to connect the respective cooler tube system (8'a-8'd; 8''a-8''d) thereto; heater tube systems (6'a-6'd; 6''a-6''d) associated with each of said cylinders and located in the heater module and connecting said upper cylinder portions to the respective regenerator; and a plurality of flexible first cooler tubes (8'a1-8'd1; 8''a1-8''d1), included in the respective cooler tube system, in each of said to regenerator/cooler units, said cooler tubes being fixedly connected to the respective regenerator, extending from the interior of the regenerator to the respective cooler, said cooler having a wall through which the cooler tubes extend and to which the cooler tubes are fixedly connected.

4,365,475

THERMOCHEMICAL ENERGY STORAGE AND MECHANICAL ENERGY CONVERTER SYSTEM

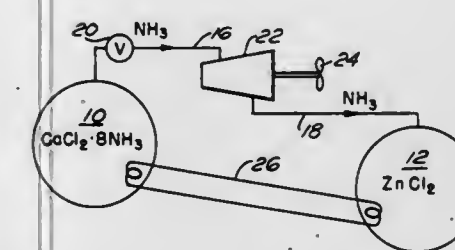
Richard M. Dunlap, Middletown, R.I., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 29, 1980, Ser. No. 182,366

Int. Cl.³ F01K 25/10

U.S. Cl. 60—673

2 Claims



4,365,477 COMBUSTION APPARATUS FOR GAS TURBINE ENGINES

Donald E. Pearce, Bristol, England, assignor to Rolls-Royce Limited, London, England

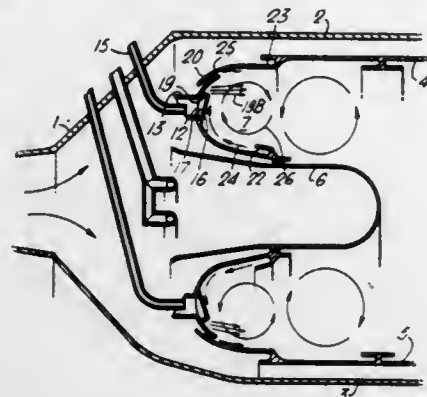
Filed May 16, 1980, Ser. No. 150,366

Claims priority, application United Kingdom, May 18, 1979, 7917335

Int. Cl.³ F23R 3/30, 3/50

U.S. Cl. 60—737

9 Claims



1. Combustion apparatus for gas turbine engines, comprising a combustion chamber having an end wall, first passages in said wall for introducing a primary fuel-air mixture into the chamber, the first passages each having an outlet positioned to direct flow into the chamber in a direction predominantly parallel to the adjacent portion of said wall, second passages in said wall for introducing unfuelled air into the chamber, a said second passage being situated in proximity with each said outlet and in a position to direct air flow across the flow of primary mixture from the outlet so that the flows from adjacent said first and second passages combine to produce a flow of secondary mixture whose direction has a component away from said end wall of the chamber, each said first passage having a wall facing the inside of said chamber, inlets positioned to generate a cooling film along the inside of said end wall and arranged to direct said cooling film over at least the greater part of respective said walls of said first passages.

4,365,478 SUPPORT FOR A SPHERICAL TANK

Heinrich Störi, Winterthur, Switzerland, and Walter Averdiek, Georgsmarienhütte, Fed. Rep. of Germany, assignors to Sulzer Brothers Limited, Winterthur, Switzerland and Klockner-Werke AG, Duisburg, Fed. Rep. of Germany

Filed Aug. 24, 1979, Ser. No. 69,504

Claims priority, application Fed. Rep. of Germany, Aug. 24, 1978, 2837007; Switzerland, Oct. 26, 1978, 11067/78

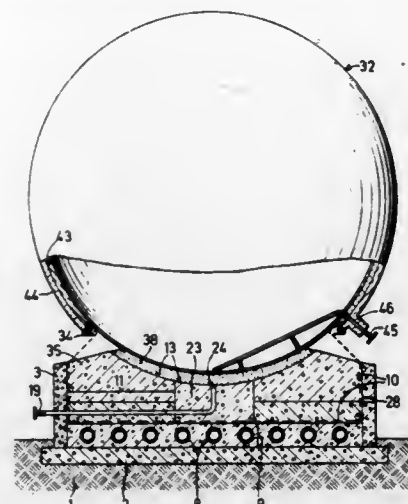
Int. Cl.³ F17C 1/12

U.S. Cl. 62—45

15 Claims

1. A support for a spherical tank comprising a foundation slab; an outer vertically disposed boundary ring mounted on said slab to define a peripherally enclosed space;

a filling of insulating concrete in said space, said filling having an upper spherical surface; and



a layer of sand of essentially uniform thickness on said spherical surface of said filling to receive a spherical tank thereon.

4,365,479 COOLANT REPLENISHING SYSTEM FOR SUPERCONDUCTING FIELD WINDINGS

Erich Weghaupt, Mülheim; Lutz Intichar, and Christoph Schnapper, both of Erlangen, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

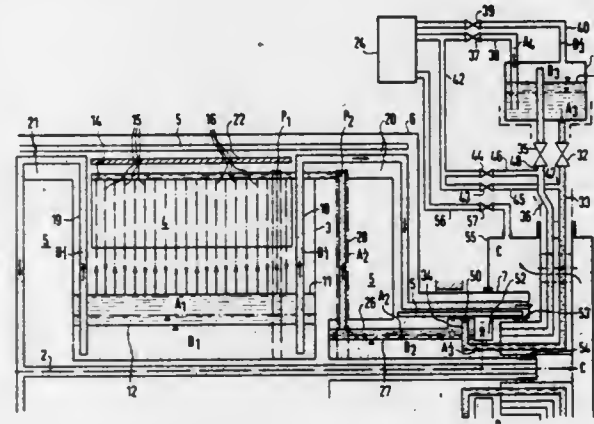
Filed Nov. 4, 1980, Ser. No. 203,967

Claims priority, application Fed. Rep. of Germany, Nov. 26, 1979, 2947592

Int. Cl.³ F17C 7/02

U.S. Cl. 62—55

9 Claims



1. A coolant replenishing system for a superconducting field winding in the rotor of an electric machine, the machine being of the type which has a coolant feed system which contains a rotating antechamber near an axis of rotation for containing coolant in liquid and gaseous phases, an external coolant supply tank for supplying the coolant to the rotating antechamber, and a stationary coolant supply line for connecting the external coolant supply tank to the rotating antechamber, the coolant replenishing system further comprising discharge means for the stationary coolant supply line, said discharge means having an opening located in a radially outer region of the rotating antechamber and at a predetermined radius from the axis of rotation such that an input pressure at said opening of said discharge means is in equilibrium with a pressure of the liquid coolant in the rotating antechamber during normal operation of the machine.

4,365,480 PROCESS GAS TREATING APPARATUS

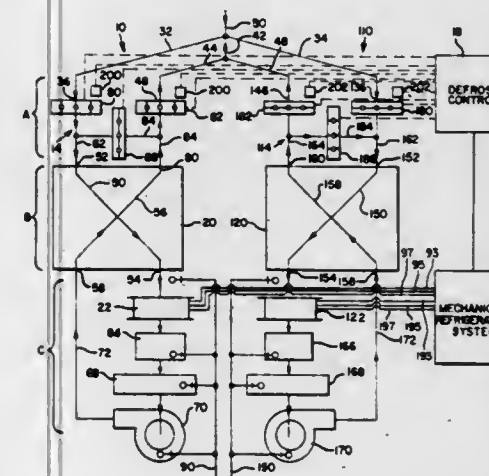
William J. Darm, Tigard, Oreg., assignor to United Air Specialists, Inc., Cincinnati, Ohio

Continuation-in-part of Ser. No. 152,887, Jun. 3, 1980, which is a continuation-in-part of Ser. No. 53,819, Jul. 2, 1979, which is a continuation-in-part of Ser. No. 939,334, Sep. 5, 1978, which is a continuation-in-part of Ser. No. 567,258, Apr. 11, 1975, Pat. No. 4,140,175. This application Aug. 11, 1980, Ser. No. 177,228

Int. Cl.³ F25D 21/12, 17/00

U.S. Cl. 62—82

15 Claims



1. A process exhaust gas treating apparatus for condensing water vapor and vaporized solvent from the process exhaust gas comprising:

at least two condenser assemblies connected in parallel, each of said assemblies including means defining a gas flow path having an upstream inlet and a downstream outlet, water vapor condenser means in said gas flow path, solvent vapor condenser means in said gas flow path downstream of said water vapor condenser means, means defining a defrost gas flow passageway which communicates between a first location in said gas flow path upstream of said water vapor condenser means and a second location in said gas flow path downstream of said solvent vapor condenser means, and defrost control means for selectively shifting each condenser assembly between a condensing mode and a defrost mode so that when the condenser assembly is in the condensing mode the inlet and outlet of the gas flow path are open to permit the flow of process exhaust gas through the gas flow path, the water vapor condenser means condenses water vapor to a liquid from process exhaust gas flowing in the gas flow path, and said defrost gas flow passageway is closed, and so that when the condenser assembly is in the defrost mode said inlet is closed and prevents the passage of process exhaust gas therethrough and said defrost gas flow passageway is open to provide a recirculating defrost gas flow loop which includes the defrost gas flow passageway and that portion of the gas flow path from the first location downstream to the second location, said defrost control means comprising means for shifting one of said assemblies into said condensing mode while another of said assemblies is in the defrost mode and for shifting said one of said assemblies into said defrost mode while another of said assemblies is in the condensing mode, and means for removing said condensed water and solvent from said water and solvent condensing means, respectively.

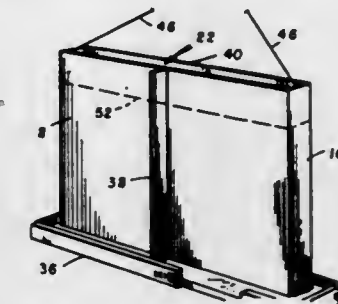
4,365,481 METHOD AND APPARATUS FOR REMOVAL OF SODIUM CARBONATE FROM CYANIDE PLATING BATHS

Fred Pearlstein, Philadelphia, Pa., and Carroll F. Evans, Cincinnati, N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C. Division of Ser. No. 84,964, Oct. 15, 1979, Pat. No. 4,278,515. This application Oct. 14, 1980, Ser. No. 196,957

Int. Cl.³ B01D 9/04; C02F 1/22

U.S. Cl. 62—123

7 Claims



1. In a plating apparatus suitable for the removal of sodium carbonate from a plating bath solution, the combination of: a tank means for containing a plating solution comprising sodium carbonate, a container body means adapted to be immersed in said solution and to cause the sodium carbonate to precipitate on the cold exterior surface thereof, said container body means being loaded with a cooling liquid comprising dry ice and containing an open top loading said cooling liquid comprising dry ice into said container body means, means for maintaining said container body means in an upright position in said plating solution, and means affixed to said container body means for lifting said container body means into and out of said plating solution.

4,365,482 DEVICE AT HEATING OR COOLING UNIT

Sixten Langgard, Box 75, 736 00 Kungsör, and Lennart Larsson, Agnevägen 9, 633 47 Eskilstuna, both of Sweden

PCT No. PCT/SE79/00174, § 371 Date Apr. 24, 1980, § 102(e) Date Apr. 24, 1980, PCT Pub. No. WO80/00491, PCT Pub. Date Mar. 20, 1980

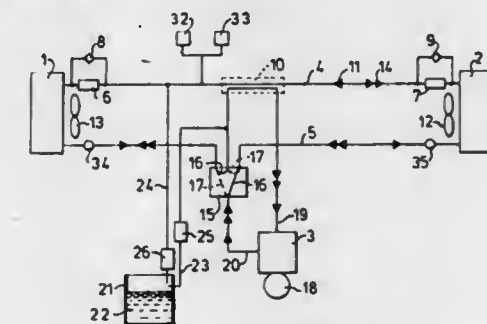
PCT Filed Aug. 17, 1979, Ser. No. 195,607

Claims priority, application Sweden, Aug. 24, 1978, 7808937

Int. Cl.³ F25B 45/00

U.S. Cl. 62—149

2 Claims



1. A device in a heating or cooling system, such as, a heat pump, wherein the energy carrier is a substance, the volume of which varies substantially with the temperature, for example freon, which system constitutes a closed total system comprising: an active system portion of said closed system including a compressor, a condenser, an expansion valve, a subsequent evaporator and appropriate conduits for advancing said substance in said active system; a closed tank, connected to said active system portion, for containing said substance, said tank being connected respectively to the suction side and pressure side of the compressor by two respective conduits, each of which is provided with an electrically controlled valve for

closing and opening the conduit in question, wherein the compressor is driven by an electric motor and wherein a control circuit is provided to sense the load of the motor, characterized in that: said control circuit is adapted in a way known per se, to sense the working current in one or several phases and, in response to said working current, is adapted to transmit a signal to that said valve which is located on the suction side of the compressor to cause said valve to open when the working current has dropped below a predetermined value related to a certain pressure in the system whereby filling of the substance into the active system from said tank is effected, and is adapted to transmit a signal to that said valve located on the pressure side of the compressor to cause the associated valve to open when the working current has increased above a certain predetermined value related to a certain pressure in the active system whereby draining of the substance from the active system into said tank is effected, in order to vary the amount of said substance in the active system so that a predetermined pressure, as well as normal working conditions for the compressor, is maintained in the active system to obtain a good efficiency of the unit at different temperatures thereof.

4,365,483

VERTICAL CONVECTION HEAT DISSIPATION TOWER

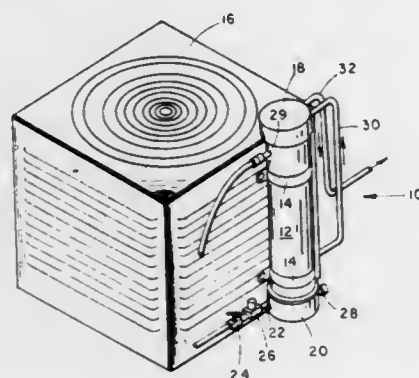
Larry W. Binger, P.O. Box 32511, San Antonio, Tex. 78216

Filed Jul. 1, 1981, Ser. No. 279,339

Int. Cl.³ F25B 39/04

U.S. Cl. 62-183

6 Claims



6. A convection heat dissipater comprising:
- a vertical cylindrical tube having a top end and a bottom end;
 - a top cap connected to said top end of said vertical cylindrical tube;
 - a bottom cap connected to said bottom end of said vertical cylindrical tube;
 - a first fluid tube passing through a first aperture in said top cap, said first fluid tube branching into a plurality of coiled portions, said coiled portions extending downwardly inside said vertical cylindrical tube from approximately said top cap to approximately said bottom cap, said plurality of coiled portions bending sharply and becoming uncoiled portions near said bottom cap, said uncoiled portions extending upwardly through said plurality of coiled portions, said uncoiled portions being coupled to form a single exit fluid tube exiting said vertical cylindrical tube through a second aperture in said top cap;
 - a second fluid tube connected to a third aperture in said bottom cap and in fluid communication with said vertical cylindrical housing, said second fluid tube being tangentially connected to said bottom cap, said second fluid tube having a flow adjustment valve and an automatic flow control valve located along said second fluid tube immediately prior to said third aperture, said automatic control valve being adapted to open when energized by a voltage being applied thereto;
 - a discharge line threaded into a fourth aperture located near said top end of said vertical cylindrical tube;
 - a plurality of semi-rigid, generally horizontal discs equally

spaced within and along the entire height of said vertical cylindrical tube, each of said discs having a split extending from the outer circumference of said disc to an inner bore in the center of said disc, each of said discs further having a multiplicity of bores spaced along the circumferential edge of said disc, said inner bore sized to enable said plurality of uncoiled portions of said first fluid tube and said insulating sleeve member to pass through said inner bore;

- a drain plug threaded into a fifth aperture at the lowest point of said bottom cap; and
- said convection heat dissipater being adapted to receive a refrigerant fluid from a condenser of an air conditioning system through said first fluid tube, a coolant fluid flowing in through said second fluid tube, into said vertical cylindrical tube, through said fourth aperture, and out through said discharge line.

4,365,484

TRANSPORT REFRIGERATION MACHINE

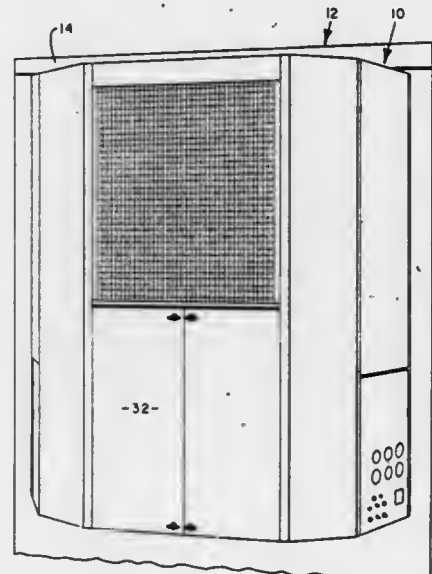
Ernest A. Carson, San Pedro, and Gordon K. Anderson, Tustin, both of Calif., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Feb. 24, 1981, Ser. No. 238,390

Int. Cl.³ B60H 3/04

U.S. Cl. 62-239

7 Claims



1. A transport refrigeration machine for conditioning the interior of a trailer, comprising:
- a frame for connecting the machine to the trailer;
 - a refrigerant compressor supported by the frame;
 - a condenser assembly supported by the frame and located in an upper front portion of the refrigeration machine;
 - an evaporator assembly located in an upper rear portion of the refrigeration machine, and including
 - a housing secured to and supported by the frame,
 - an evaporator heat exchanger extending within the housing for conducting a refrigerant fluid therethrough, and including first and second end plates,
 - heat exchanger support means connecting the evaporator heat exchanger to the frame to support the evaporator heat exchanger independently of the housing, and including first and second side channel members secured to the frame and projecting rearward of the housing, means securing the end plates of the evaporator heat exchanger to the first and second side channel members, and buttress members secured to and projecting forward from the side channel members, and extending directly below and in contact with the end plates to further support the evaporator heat exchanger,
 - a blower unit extending within the housing and including an evaporator fan to circulate air through the housing in heat

transfer relation with refrigerant conducted through the evaporator heat exchanger, and

blower unit support means connecting the blower unit to the frame to support the blower unit independently of the housing;

a fan shaft rotatably supported by the frame for driving the evaporator fan; and

power means to drive the compressor and the fan shaft.

4,365,485

ARRANGEMENT IN AN ICE MACHINE

Per Samuelsen, Grimstad, Norway, assignor to A/S Finsam International, Inc., N-Oslo, Norway

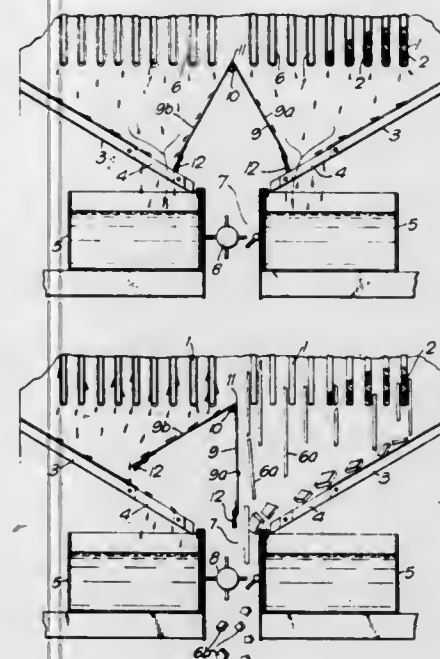
Filed Sep. 23, 1981, Ser. No. 304,956

Claims priority, application Norway, Oct. 1, 1980, 802900

Int. Cl.³ F25C 1/12

U.S. Cl. 62-320

8 Claims



1. Arrangement in an ice machine comprising a plurality of substantially parallel vertically arranged ice freezing elements (1) which during the ice freezing phase are supplied with water, and which are provided with conduits (2) for transport of freezing medium or thawing medium, as well as vessels (5) arranged below the ice freezing elements and adapted for collecting surplus water, and an ice crusher box (7) for crushing and delivery of finished produced ice (6b), characterized in that between the bottom of the ice freezing elements (1) and the water collecting vessels (5) and the ice crusher box (7) there is provided a pivotable baffle means (9) which during the ice freezing phase (FIG. 1) adopts an inclined position covering the ice crusher box (7) and conducting surplus water to the water collecting vessels (5) via a stationarily arranged inclined guiding plate (3) having a water escaping field (4), and which during the harvesting phase (FIG. 2) when the water supply is shut off can swing to an approximately vertical position under the weight of the ice crop (6a) and enable the ice flakes (6a) to be passed to the ice crusher box (7), the pivotable baffle means (9) subsequent to the finished harvesting phase retaining its inclined position covering the ice crusher box.

4,365,486

WATER-COOLED HEAT-ACCUMULATING TYPE DRINK COOLING SYSTEM

Masao Iwanami, Suzuka, and Yusuke Ogawa, Yokkaichi, both of Japan, assignors to Fuji Electric Co., Ltd., Japan

Filed Jun. 29, 1981, Ser. No. 278,887

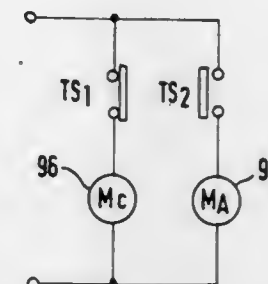
Int. Cl.³ B67D 5/62

U.S. Cl. 62-392

7 Claims

1. In a water-cooled heat-accumulating type drink cooling system having a water tank filled with water and a cooler disposed therein, a drink cooling coil formed at an intermediate

portion of a drink supply pipeline, and an electric water agitator, said cooler being operated to cool the water in said tank to form an ice bank around the cooler and accumulate heat in the ice bank, a drink flowing through said drink cooling coil being cooled with the cooling water in said tank, the improvement therein comprising:



an agitator stopping means for sensing, while said cooler is operated to cool the water in said tank and form an ice bank around the cooler, a decrease in the temperature of the water in said tank to a level higher than and in the neighborhood of its freezing point, and for stopping said agitator in response thereto.

4,365,487

REFRIGERATION APPARATUS

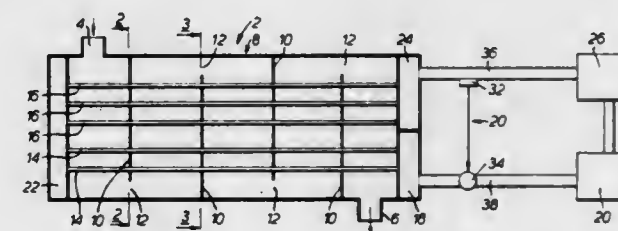
William E. Dorney, Camberwell, Australia, assignor to Luke Limited, Mitcham, Australia

Continuation of Ser. No. 118,885, Feb. 6, 1980, abandoned. This application Apr. 2, 1981, Ser. No. 250,321

Int. Cl.³ F25B 1/00

U.S. Cl. 62-498

17 Claims



1. Refrigeration apparatus for cooling a fluid, said apparatus comprising:

a heat exchanger having a shell, tubes for flow of refrigerant through the shell from a refrigerant inlet to a refrigerant outlet, baffle means for the shell for defining a tortuous flow path for said fluid through the shell, said tubes which lead to the refrigerant outlet being located only in those regions of the shell where the flow path of said liquid has substantial components of velocity in a direction transverse to the tubes;

a condenser for supplying liquid refrigerant to said refrigerant inlet;

a compressor for receiving evaporated refrigerant from said refrigerant outlet and for supplying compressed refrigerant to said condenser;

valve means for controlling the flow of refrigerant; and

sensing means for sensing the state of refrigerant at said refrigerant outlet and being operable to control said valve means so as to reduce flow of refrigerant if a liquid refrigerant or conditions indicative thereof are sensed at said outlet.

4,365,488

UNIVERSAL JOINT

Haruo Mochida; Yoshiyuki Tanaka, both of Yokohama; Yoshio Yamamoto, Kosai, and Minoru Kataoka, Shizuoka, all of Japan, assignors to Nissan Motor Co., Ltd. and Fuji Kiko Company, Limited, both of, Japan

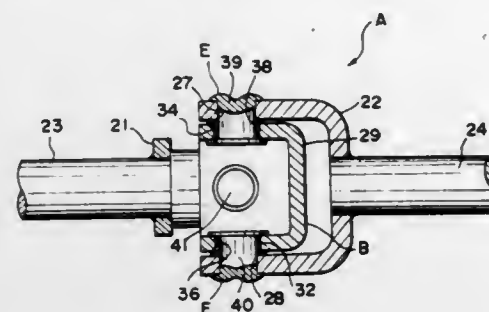
Filed Apr. 30, 1980, Ser. No. 145,154

Claims priority, application Japan, May 11, 1979, 54-63193[U]

Int. Cl.³ F16D 3/26

U.S. Cl. 464-132

5 Claims



1. A universal joint, comprising:
 - first and second yokes, each having two side sections, each of said side sections having a hole therein;
 - a hollow rectangular parallelepiped support member positioned between the side sections of said first and second yokes, said support member having five rectangular plate sections, four of said rectangular plate sections including respective holes, each of said four rectangular plate sections being integrally connected to adjacent plate sections at adjoining edges thereof;
 - four bushings, one each being disposed in a respective hole of said support member, each of said bushings being formed with a cylindrical opening therethrough and an annular flange section at one end thereof, said flange sections being located between the rectangular plate sections of said support member and the side sections of said yokes; and
 - pin means inserted into the respective holes of the side sections of said yokes and the bushings disposed in said support member plate sections for pivotally coupling said yokes and support member plate sections.

4,365,489

CLEANING LIQUID LEVEL REGULATOR FOR DRY CLEANING MACHINES

Gino Maestrelli, Milan, Italy, assignor to Maestrelli S.p.A., Milan, Italy

Filed Jan. 29, 1981, Ser. No. 229,675

Claims priority, application Italy, Feb. 18, 1980, 20816/80[U]

Int. Cl.³ D06F 43/02

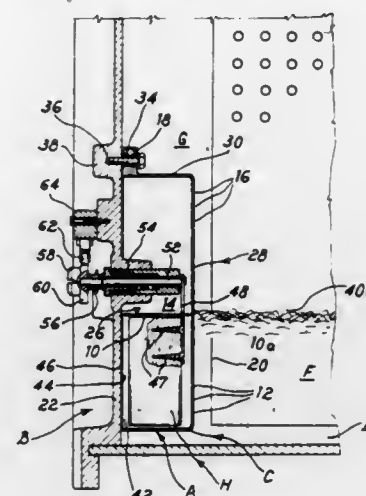
U.S. Cl. 68-212

8 Claims

1. In a dry cleaning machine of the type including a cleaning chamber containing therein a liquid cleaning solvent having an upper surface, and a drum rotatable within said chamber and agitating said upper surface of said solvent therein, the improvement of means for regulating the level of said upper solvent surface, said level regulating means comprising:
 - a box-shaped body positioned entirely within said cleaning chamber and mounted on a wall of said machine, said box-shaped body defining therein a cavity;
 - said box-shaped body including inlet means for enabling passage of solvent from said chamber through said box-shaped body into said cavity, such that said solvent fills said cavity up to a level therein equal to said level of said upper solvent surface in said chamber, said inlet means comprising a first, lower plurality of openings in said box-shaped body at a level normally below said level of said solvent surface in said chamber, said first, lower plurality of openings being dimensioned to enable free flow of said solvent from said chamber to said cavity, but

to prevent turbulence of said upper surface of said solvent in said chamber due to agitation by said drum from effecting the upper surface of said solvent in said cavity, such that said upper surface in said cavity is even and free of turbulence;

said box-shaped body including outlet means for enabling passage of air within said cavity above said solvent therein through said box-shaped body into said chamber, said outlet means comprising a second, upper plurality of openings in said box-shaped body at a level always above said level of said solvent surface in said chamber;



- liquid level detecting means, positioned within said cavity, for detecting said level of said even and turbulent-free upper surface of said solvent in said cavity, whereby such detected level corresponds to the true level of said solvent in said chamber; and
- means, operably connected to said level detecting means and operable in response to the detection thereby of level variations, for controlling the amount of said solvent within said chamber, and thereby for regulating the levels of said solvent in said chamber and said cavity.

4,365,490

LOCKING DEVICE FOR USE ON SUITCASES

Stephane Manzoni, 1, rue Pasteur, Saint Claude, France (39200)

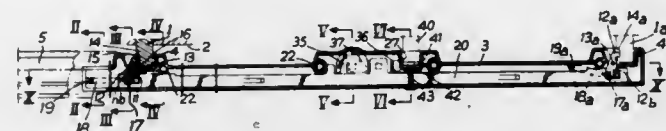
Filed Mar. 31, 1980, Ser. No. 135,637

Claims priority, application France, Apr. 6, 1979, 79 08863

Int. Cl.³ E05B 65/52

U.S. Cl. 70-70

8 Claims



1. A locking device for use in suitcases, comprising:
 - a housing including two elements adapted to be assembled, keepers in one of said elements, each keeper having a lateral notch and an outermost surface inclined to form a cam,
 - lock-staples in the other of said elements, each lock-staple adapted to engage a respective keeper therein, latch hooks, each pivotally mounted inside a respective one of said lock-staples and adapted to be engaged in a notch provided in a respective keeper,
 - elastic members, each associated with a latch hook for biasing the associated latch hook in said notch provided in said respective keeper,
 - an opening control bar axially slidably mounted within said housing and selectively engageable with said latch hooks, and
 - a locking bar axially slidably mounted within said housing and selectively engageable with said latch hooks.

4,365,491

GUARD PLATE

Edward Rubinstein, 3325 Neptune Ave., Brooklyn, N.Y. 11224, and Efim Rubinshtein, 2612 West St., Brooklyn, N.Y. 11223

Filed May 7, 1980, Ser. No. 147,623

Int. Cl.³ E05B 17/14, 37/12

U.S. Cl. 70-425

14 Claims



1. An improved guard plate for protecting a cylinder of a lock, comprising: a body attached to the door in the vicinity of the cylinder, said body having a first opening in alignment with said cylinder; a disc rotatably mounted on an inside surface of said body between said body and said door, said disc having an opening approximately equal in size to said first opening of said plate; means for rotating said disc positioned on a surface of said disc and being accessible through a second opening in said body; and at least one substantially round finger including a cutoff portion, rounded portions of each finger interacting with a respective groove made on the periphery of said disc to prevent rotation of said disc, rotation of each finger causing said rounded portions to move away from respective grooves and causing said cutoff portions to become aligned with said respective hollow grooves, thereby permitting rotation of said disc, and each finger being rotatably inserted in a respective third opening in said plate.

4,365,492

RING FORMER AND CUTOFF

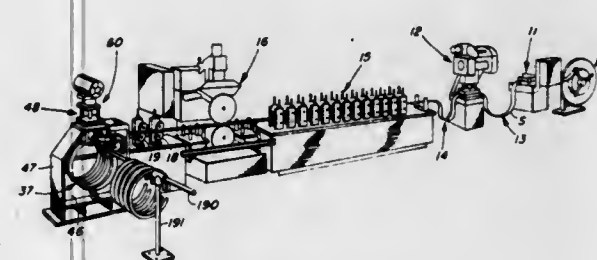
William A. Kortan, and Donald A. Nebrig, both of Bay Village, Ohio, assignors to Intercole Bolling Corp., Cleveland, Ohio

Filed Jun. 25, 1980, Ser. No. 162,795

Int. Cl.³ B21F 11/00

U.S. Cl. 72-10

50 Claims



1. A ring forming machine comprising:
 - (a) forming means for continuously forming ring stock into a helix having a plurality of turns;
 - (b) drive means for feeding a free end of said helix through a stationary cutoff die;
 - (c) stop means for arresting motion of said helix free end, at least temporarily, to produce radial expansion in at least one turn of said helix;
 - (d) means for sensing expansion in said one turn including means for actuating said cutoff die to sever said one turn from the helix upon sensing a predetermined expanded condition of said one turn.

1025 O.G.-49

4,365,493

SHOT PEENING APPARATUS

Paul G. Feld, Los Angeles, and Richard M. Engel, Cypress, both of Calif., assignors to Metal Improvement Company, Inc., Paramus, N.J.

Filed Jun. 10, 1981, Ser. No. 272,337

Int. Cl.³ B21J 1/00; C21D 7/06

U.S. Cl. 72-53

14 Claims



1. A shot peening apparatus for shot peening the surface of the workpiece comprising
 - (a) guide duct means for receiving and conducting shot and having an upper inlet end portion and a lower outlet end portion;
 - (b) gravity feed means receiving shot from a source of supply thereof and for conveying and discharging shot by gravity;
 - (c) impact means interposed between the upper inlet end of said guide duct means and said gravity feed means which utilizes a portion of the kinetic energy of the shot discharging from the gravity feed means to effect substantially uniform distribution of the shot in the guide duct means; and
 - (d) a nozzle means for receiving the substantially uniformly distributed shot from the guide duct means at gravitational velocity and for directing the shot to impact against a workpiece.

4,365,494

HYDRAULIC PRESS ELASTIC STAMPING TOOL

Arkady N. Kurovich, Tashkent, pereulok, 5, korpus 3, kv. 67; Jury B. Krasnokutsky, Znamenskaya ulitsa, 38, korpus 1, kv. 201; Vyacheslav N. Sysoev, Khoroshevskoe shosse, 1, korpus 3, kv. 55; Lev D. Golman, Leninsky prospekt, 67, kv. 83, all of Moscow; Vladimir T. Zuev, ulitsa Marshala Birjuzova, 24, kv. 58, Odintsovo Moskovskoi oblasti; Viktor I. Nesterov, ulitsa Narodnogo opolchenia, 44, korpus 1, kv. 68, Moscow, and Viktor A. Laboda, ulitsa generala Vitruka, 21, kv. 23, Kiev, all of U.S.S.R.

Filed Sep. 30, 1980, Ser. No. 192,215

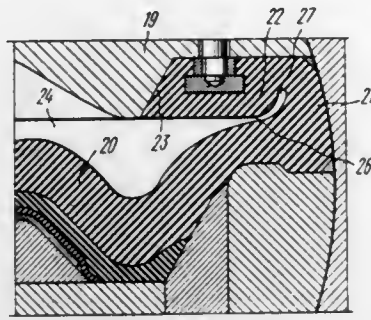
Int. Cl.³ B21D 22/12

U.S. Cl. 72-63

11 Claims

1. A hydraulic press elastic stamping tool comprising a tool body; a recess provided in said tool body; a projection provided on the bottom of said recess some distance from the walls thereof; a flat elastic diaphragm situated in said recess and provided around its perimeter with a flange facing toward the bottom of said recess, the end portion of the flange being parallel to the plane of the diaphragm and having a sealing edge which makes contact with said projection in the tool body recess, forming a hermetically sealed chamber; ducts provided in said tool body for communicating said

chamber with a source of working fluid under pressure; said flat elastic diaphragm end portions forming in conjunction with the main body of the diaphragm an aperture closed at one end and dimensioned at least four times smaller than the thickness of the diaphragm, the periph-



eral part of said aperture, in cross section thereof, being smoothly curved with respect to the plane of the diaphragm toward the bottom of the recess, and the closed end of the aperture being situated in a zone which is not subjected to tension strain when working fluid is delivered under pressure into said chamber.

4,365,495

METHOD OF MAKING A MANDREL FOR A SELF PLUGGING BLIND RIVET

Albert C. Francis, Bennington, England, assignor to Aerpat A.G., Zug, Switzerland
Continuation of Ser. No. 57,355, Jul. 13, 1979, abandoned, which is a continuation of Ser. No. 869,282, Jan. 13, 1978, abandoned.
This application Jun. 25, 1980, Ser. No. 162,935
Claims priority, application United Kingdom, Jan. 13, 1977, 1396/77

Int. Cl.³ B21K 1/58; B21D 17/04; B21H 3/06

U.S. Cl. 72-88

12 Claims



1. A method of making a mandrel for a blind rivet, which method comprises first forming a blank having a generally cylindrical stem and a head, which head comprises a cylindrical core portion adjacent to and of substantially the same diameter as the stem, a boss spaced from the stem by the core portion and having a diameter greater than the core portion, and an end portion adjacent to the boss and having a diameter greater than the boss, and then rolling the boss downwardly toward the stem and over the core portion to form a skirt which peripherally surrounds the core portion and which has a greater diameter than the stem, forming a portion of said skirt into a shoulder extending transverse to the direction of the stem, and confining the material of said skirt so that said skirt surrounds only said core portion.

4,365,496

ROLLING PROCESS

Hiroyuki Shiozaki, Yokosuka; Masao Mikami, Fujisawa; Isao Imai, and Toshio Iwanami, both of Yokohama, all of Japan, assignors to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo, Japan

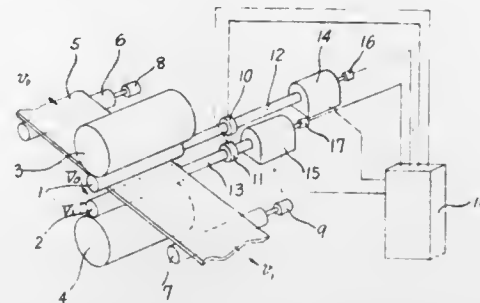
Filed Feb. 24, 1978, Ser. No. 880,931

Claims priority, application Japan, Mar. 1, 1977, 52-22033

Int. Cl.³ B21B 35/00

U.S. Cl. 72-249

1 Claim



1. A rolling process for a metal piece maintaining a peripheral velocity ratio between a pair of working rolls as high as possible but below a thickness ratio between the metal piece entering the working rolls and the same metal piece leaving the working rolls, whereby the rolling torque may be within a maximum tolerable torque.

4,365,497

INTERMEDIATE FRAME TYPE INDIRECT EXTRUSION PRESS

Akira Asari, Osaka, Japan, assignor to Kobe Steel, Ltd., Kobe, Japan

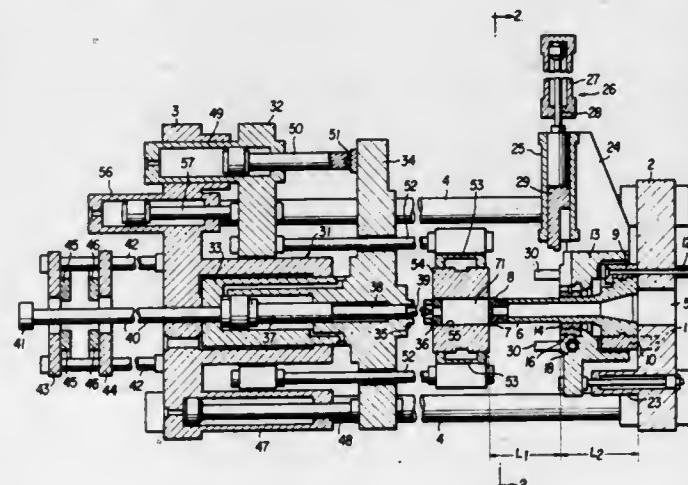
Filed Sep. 27, 1978, Ser. No. 946,330

Claims priority, application Japan, Oct. 7, 1977, 52/122663; Oct. 7, 1977, 52/122664; Oct. 7, 1977, 52/122665; Oct. 7, 1977, 52/122666

Int. Cl.³ B21C 27/00, 33/00, 35/04

U.S. Cl. 72-255

6 Claims



1. In an indirect extrusion press of the type having a cross head, a ram, a pressing stem, a die, a shearing means, and a frame including a press bed and columns, and wherein a die stem is connected along a press axis on the rear end surface of a press platen and extends toward a container, an intermediate frame type indirect extrusion press which comprises: an intermediate frame mounted on said frame, and movably interposed in the direction of the press axis between said press platen and said container; guide means disposed between said intermediate frame and said frame for guiding said intermediate frame in a direction parallel to the direction of the press axis; die stem support means carried by the intermediate frame

and engageable with the die stem for providing support thereto; and
a driving device for moving said intermediate frame in the direction of the press axis whereby the movable intermediate frame and die stem guide means carried thereby can be moved along the die stem to provide support thereto and maintain accurate alignment of the die stem during extrusion and shearing operations.

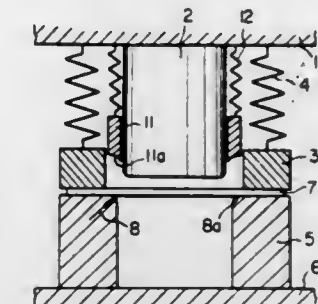
4,365,499

METHOD OF MANUFACTURING FORMED ARTICLES, EQUIPMENT FOR PRACTICING SAME, AND FORMED ARTICLES MANUFACTURED BY THE METHOD

Kazumi Hirota, Tokyo, and Kikuo Matsuoka, Fujisawa, both of Japan, assignors to Toyo Seikan Kaisha, Limited, Tokyo, Japan
Division of Ser. No. 921,162, Jul. 3, 1978, Pat. No. 4,225,553.
This application Mar. 31, 1980, Ser. No. 135,831
Claims priority, application Japan, Jul. 5, 1977, 52-79532
Int. Cl.³ B21D 22/00

U.S. Cl. 72-351

11 Claims



1. A drawing machine comprising:
a punch, and a die having a cavity formed therein corresponding to said punch and having a radius corner, said punch for drawing a thin sheet having a relatively low rigidity into said cavity in said die to manufacture a formed article, and
means comprising a depressing member having an end surface of the depressing member being formed substantially conforming to the shape of the radius corner which is disposed movable around said punch in such a manner that said end surface of said depressing member is brought to cooperate with said radius corner with said thin sheet therebetween into contact with a surface of said thin sheet which is opposite to a face of said thin sheet which is brought into contact with the radius corner of said die and said sheet is depressed by said depressing member substantially throughout the drawing.

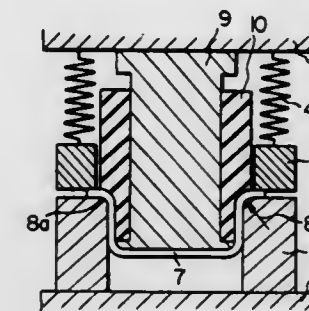
4,365,498

METHOD OF MANUFACTURING FORMED ARTICLES, EQUIPMENT FOR PRACTICING SAME, AND FORMED ARTICLES MANUFACTURED BY THE METHOD

Kazumi Hirota, Tokyo, and Kikuo Matsuoka, Fujisawa, both of Japan, assignors to Toyo Seikan Kaisha, Limited, Tokyo, Japan
Division of Ser. No. 921,162, Jul. 3, 1978, Pat. No. 4,255,553.
This application Mar. 31, 1980, Ser. No. 135,759
Claims priority, application Japan, Jul. 5, 1977, 52/79532
Int. Cl.³ B21D 22/00

U.S. Cl. 72-351

10 Claims



1. A punch cooperating with a die, the punch being movable relative the die for drawing a thin sheet having a relatively low rigidity into a cavity in the die, wherein
said punch comprises a core section, insertable in said cavity during the drawing, made of a rigid material and an elastic wall section made of an elastic material and surrounding said core section,
said die is formed with a radius corner at a mouth of said cavity,
said elastic wall section has a freely exposed portion spaced apart from said radius corner, the cross-sectional area of said elastic wall section being larger than that of the mouth of said cavity in said die,
means for moving said punch into said cavity of said die with said thin sheet therebetween with said freely exposed portion of said elastic wall section entering said cavity so as to cooperate with said radius corner and depress said thin sheet over said radius corner such that said thin sheet is drawn while the surface of said thin sheet which is opposite to a face of said thin sheet which is brought into contact with the radius corner of said die is depressed over said radius corner of said die by an elastic pressure of said elastic wall section of said punch substantially throughout the drawing, thereby preventing creation of wrinkles on a formed article.

4,365,500

WEB BENDING FIXTURE

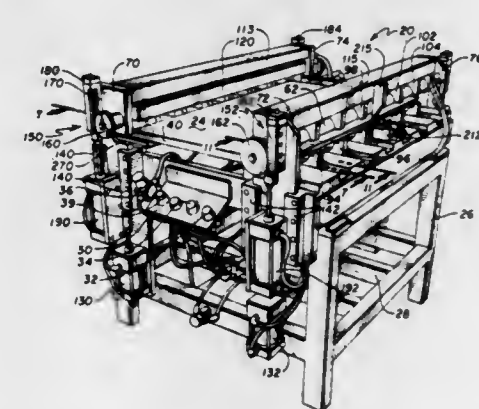
Roger Klukow, Champlin, Minn., assignor to Chesley F. Carlson Company, Minneapolis, Minn.

Filed Jan. 30, 1981, Ser. No. 230,281

Int. Cl.³ B21D 5/01

U.S. Cl. 72-387

27 Claims



1. A web bending fixture for bending plates of metal having a leading edge and a trailing edge comprising:
a bed to support the plate to be bent;
at least one anvil having a bending radius at the edge of the bed;
at least one eccentric camming member having a bending surface positioned relative to the anvil to bend one of the edges of the plate around the bending radius of the anvil;

a full bearing supporting each end of the eccentric camming member for rotation;
a plurality of additional bearings intermediate the ends of the eccentric camming member within which the eccentric camming member is rotatably contained during rotation, the additional bearings being spaced along the length of the eccentric camming member to radially support the eccentric camming member throughout its length; and
means for rotating the eccentric camming member around the bending radius of the anvil, the closest point on the bending surface of the eccentric camming member being spaced from the anvil at all times during rotation a distance equivalent to the thickness of the plate being bent.

4,365,501

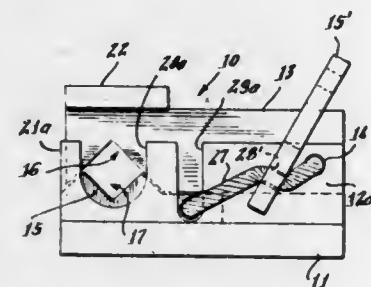
TOOL FOR CRIMPING CONNECTOR SLEEVES

Douglas L. Potts, 21 Flicker La., Rowayton, Conn. 06853

Filed Sep. 8, 1981, Ser. No. 299,651

Int. Cl.³ B21D 37/10

U.S. Cl. 72—416



1. A tool for crimping a connector sleeve onto a cable strand or the like comprising:

a base,

an anvil arm pivotally mounted relative to the base for a longitudinal edge thereof to swing toward and away from a portion of the base,

a die block adapted to be removably supported on the base in position for a longitudinal edge thereof to be engaged by said edge of said anvil arm when the latter is swung toward said base,

said anvil arm having a notch therein in said edge with at least the outward end portions of the walls of said notch being substantially flat and diverging outward to the mouth of said notch,

said die block having a pair of projections spaced in line on said edge thereof with their adjacent edges forming a notch whose mouth is narrower than said mouth of the notch in said anvil arm edge, the edges of said pair of projections that are relatively outward thereof being shoulders that are substantially flat and converge outward relative to said die block at an angle substantially corresponding to the angle at which said wall portions of said notch in said anvil arm diverge, and

said projections being dimensioned and located on said die block so that when said die block is in said position on said base and said anvil arm is swung for its said edge portion to swing toward said base, said flat end portions of said anvil arm notch engage and seat on said shoulders of said projections and thereby bring said two notches together into predetermined opposed alignment to form a crimp opening therebetween,

whereby when a connector sleeve whose diameter is less than the width of the mouth of said die block notch but more than the length of the shortest diameter of said crimp opening is laid longitudinally through said notch in said die block before said anvil arm edge is swung toward said base and said anvil arm is thereafter swung so that said flat end portions of its notch seat on said projection shoulders, walls of said notches engage and compress sides of said connector sleeve.

4,365,502 WIRE DRAWING DIE AND METHOD OF MAKING THE SAME

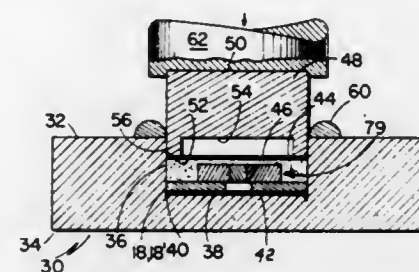
Charles Carson, Fort Wayne, Ind., assignor to Fort Wayne Wire Die, Inc., Fort Wayne, Ind.

Filed Nov. 19, 1980, Ser. No. 208,198

Int. Cl.³ B21C 3/02; B21K 5/20; B22F 7/04

U.S. Cl. 72—467

32 Claims



18. A wire drawing die comprising: a metal casing having front and back sides, said front casing side having a cylindrical cavity formed therein with a substantially flat bottom spaced from said back casing side; a cylindrical metal plug closely fitted in said casing cavity and having opposite ends, one of said plug ends facing and being spaced from said casing cavity bottom thereby defining a chamber extending across said cavity; a circular metal plate closely fitted in said chamber and having opposite sides; a die element in said chamber centered on one side of said plate and adhered thereto; means for securing said plate and die element in said chamber; said back side of said casing having a countersunk opening extending therethrough to said die element, the other end of said plug having a countersunk opening extending therethrough to said die element, said die element having a die opening therethrough communicating between said countersunk openings.

4,365,503

APPARATUS FOR CALIBRATING METER PROVER ENCODER

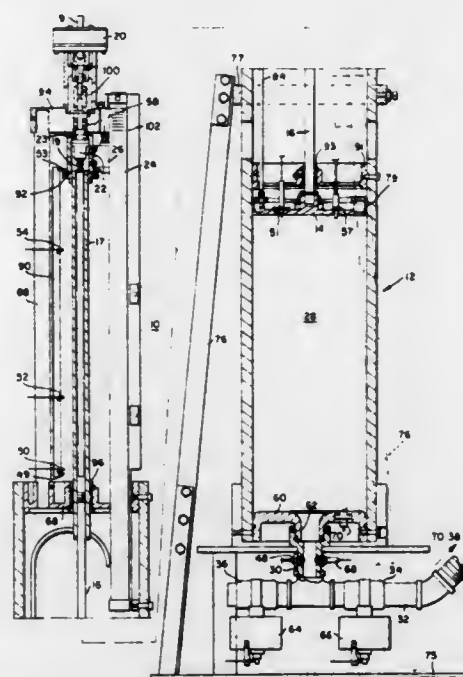
William W. Ho; William F. Hall, both of Thousand Oaks, Calif.; Harry W. Fisher, and Eugene B. Perrine, both of Pittsburgh, Pa., assignors to Rockwell International, Pittsburgh, Pa.

Filed Mar. 28, 1980, Ser. No. 136,077

Int. Cl.³ G01F 25/00

U.S. Cl. 73—3

15 Claims



1. A method of calibrating a meter prover, the meter prover including a chamber having the geometry of a right circular cylinder, the right circular cylinder having a diameter D and a length L, a piston adapted for rectilinear movement in the

chamber to direct fluid between a fluid meter under test and the chamber, and measuring means responsive to the relative movement of the piston to provide a signal indicative of the extent of piston movement, each incremental unit of the signal corresponding to an incremental movement of the piston and thus the volume of fluid directed through the fluid meter under test, said method of calibrating comprising the steps of:

- disposing the piston to a first position within the chamber;
- generating first and second electromagnetic fields within the chamber, each electromagnetic field being of a distinct, normal mode selected so that at its resonant condition within the chamber, the electric and magnetic component fields of the first and second fields are related to the diameter and length of the chamber;
- measuring first and second frequencies at which the first and second electromagnetic fields establish a resonant condition within the chamber;
- moving the piston to a second position displaced with respect to the first position, while accumulating the signal derived from the measuring means;
- generating third and fourth electromagnetic fields within the chamber, each electromagnetic field being of a distinct, normal mode selected so that at its resonant condition within the chamber, the electric and magnetic component fields of the third and fourth fields are related to the diameter and length of the chamber;
- measuring the third and fourth resonant frequencies at which the third and fourth electromagnetic fields establish resonant conditions within the chamber;
- determining, based upon the first and second resonant frequencies, the diameter and length of and thus a first volume defined by the chamber and the piston at its first position, and based upon the third and fourth frequencies, the diameter and length of and thus a second volume defined by the chamber and the piston at the second position; and
- determining the displacement piston volume as the difference between the second and first volumes, and correlating the accumulated piston movement signal from the measuring means with the displacement volume to provide a manifestation of the value of the incremental fluid volume represented by an incremental unit of the piston movement signal.

4,365,504

METHOD AND APPARATUS FOR FIELD TESTING OF ANEMOMETERS

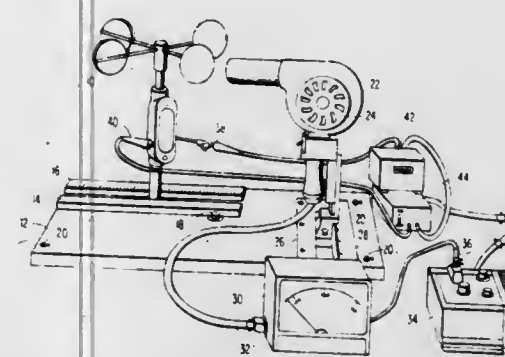
Donald A. Haines, East Lansing; John S. Frost, Mason, both of Mich., and Rosalie J. Klumpp, Idleld Park, Oreg., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Jun. 4, 1981, Ser. No. 270,676

Int. Cl.³ G01F 25/00

U.S. Cl. 73—3

6 Claims



1. An apparatus for field testing anemometers comprising in combination:
a base;

means for mounting an anemometer having an output to be tested on said base;
an electrically driven blower having an adjustable manifold;
means for mounting said electrically driven blower on said base; and
an adjustable power supply means for supplying a constant pre-determined voltage to said electrically driven blower.

4,365,505

APPARATUS FOR DETERMINING THE GAS CONTENT OF A LIQUID

Emil Hölzl, Munich, Fed. Rep. of Germany, assignor to Krauss-Maffel Aktiengesellschaft, Munich, Fed. Rep. of Germany

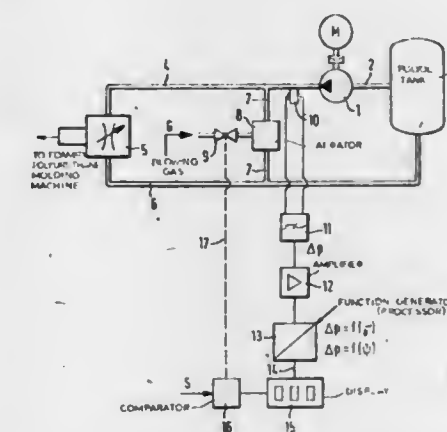
Filed Jul. 2, 1980, Ser. No. 165,397

Claims priority, application Fed. Rep. of Germany, Jul. 18, 1979, 2929013

Int. Cl.³ G01N 7/00, 33/44

U.S. Cl. 73—19

6 Claims



1. An apparatus for determining the gas content of a liquid, comprising:

pump means for generating a pulsating stream of a gas-containing liquid in a flow channel;

detector means disposed at said flow channel downstream of said pump means and responsive to the pulsations in the pulsating stream produced by said pump means for generating an intermediate signal indicative of the pressure-propagating characteristics of the liquid/gas mixture flowing in said channel;

electronic processing means connected to said detector means and preprogrammed with at least one characteristic curve for converting said intermediate signal into an output signal corresponding to a predetermined parameter representing the proportion of gas in said liquid; and

a load responsive to said output signal connected to said processing means.

4,365,506

REMOTELY OPERATED DOWNHOLE TEST DISCONNECT SWITCHING APPARATUS

Robert L. Hyde, Bartlesville, Okla., assignor to TRW Inc., Cleveland, Ohio

Filed Dec. 22, 1980, Ser. No. 219,250

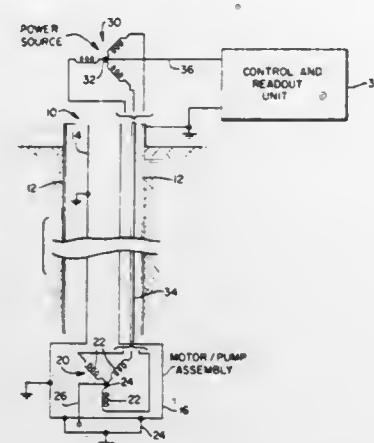
Int. Cl.³ E21B 47/00

U.S. Cl. 73—151

15 Claims

1. A remotely controlled switching apparatus for selectively controlling the connection of a downhole device to a cable which carries power to a downhole motor comprising temperature responsive switch means connected between the device and the cable, said switch means being in a first state when its temperature is below a predetermined temperature and being in a second state when its temperature is above the predeter-

mined temperature, means for impressing a switching signal onto the cable, and heater means responsive to the switching



signal for producing sufficient heat to raise the temperature of the switch means above said predetermined temperature.

4,365,507

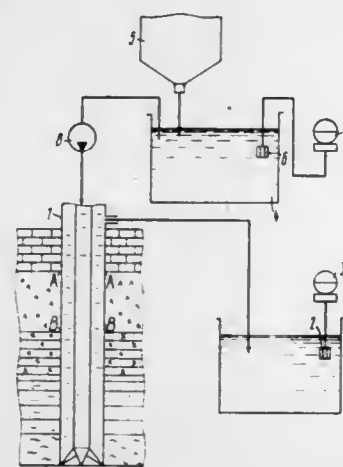
METHOD OF DETERMINING THE DEPTH OF OCCURRENCE OF A CHEMICALLY AGGRESSIVE BED
Vitol M. Bakhr, proezd Gaidara, 7a, kv. 17; Stanislav A. Alekhin, Chilanar, kvartal 24, 53, kv. 89; Tatiana M. Bakhr, proezd Gaidara, 7a, kv. 17; Raisa I. Born, Chilanar, kvartal 24, 53, kv. 89, all of Tashkent, and Khamidulla A. Alimd-zhanov, ulitsa Lenina, 14, kv. 5, Bukhara, all of U.S.S.R.
PCT No. PCT/SU79/00068, § 371 Date Nov. 26, 1980, § 102(e) Date Nov. 24, 1980, PCT Pub. No. WO80/02052, PCT Pub. Date Oct. 2, 1980

PCT Filed Aug. 21, 1979, Ser. No. 224,525

Claims priority, application U.S.S.R., Mar. 26, 1979, 2736510 Int. Cl.³ E21B 47/00

U.S. Cl. 73—153

3 Claims



1. A method of determining the depth of occurrence of a chemically aggressive bed in the course of drilling a well with the use of a drilling mud, CHARACTERIZED in that the value and direction of the redox potential (the oxidation-reduction potential) of the drilling mud situated in the well are measured beforehand, whereupon the walls of the well are stripped of the mud cake, and an additional portion of the drilling mud featuring its redox potential differing as to the value and direction, from the redox potential of the drilling mud situated in the well is injected into the well until the mud is completely expelled therefrom, after which the circulation of the additional portion of the drilling mud is suspended for a period of time, wherein relaxation of the ion-exchange processes between the chemically aggressive bed and the additional portion of the drilling bed occurs, whereupon the additional portion of the mud resumes circulation, while the time interval between the resuming of the mud circulation till the beginning and end of returning the amount of the additional mud portion that has been in contact with the chemically aggressive bed, is registered against the deviation of the value

and direction of the redox potential of the drilling mud, whereupon proceeding from said deviation the depth and interval of occurrence of the chemically aggressive bed is estimated.

4,365,508

LIMPNESS DETECTOR FOR DOCUMENTS AND THE LIKE

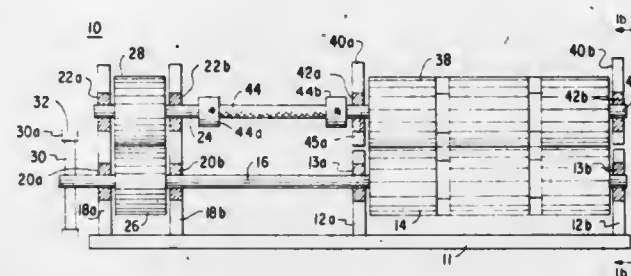
Peter J. Loftus, Levittown, Pa., assignor to Brandt, Inc., Bensalem, Pa.

Filed Aug. 1, 1980, Ser. No. 174,595

Int. Cl.³ G01N 3/20

U.S. Cl. 73—159

34 Claims



9. Apparatus for measuring liness of moving sheets comprising:
a pair of moving surfaces arranged in spaced parallel fashion, said surfaces each having undulating peripheries which interleave one another;
means for yieldably urging said surfaces towards one another;
means directing said moving sheets into the nip formed by the interleaved peripheries of said moving surfaces whereby each sheet tends to exert a force urging said moving surfaces apart wherein the magnitude of said force is a function of the liness of the sheet being examined; and
sensing means responsive to the relative spacing of said moving surfaces due to a sheet for generating a signal representing the liness of the sheet being examined.

4,365,509

SYSTEM AND METHOD FOR DETERMINING THE WELL LOAD OF A HOPPER SUCTION DREDGE

Christiaan A. Cornelis, Papendrecht, Netherlands, assignor to IHC Holland N.V., Papendrecht, Netherlands

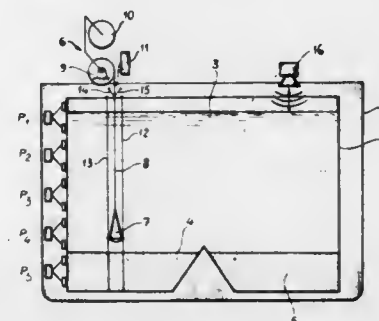
Filed Feb. 18, 1981, Ser. No. 235,557

Claims priority, application Netherlands, Feb. 20, 1980, 8001034

Int. Cl.³ G01F 23/00

U.S. Cl. 73—290 V

11 Claims



1. Well measuring system for a hopper suction dredge, especially for determining the dredged total amount of mixture consisting of a settled mixture and of mire and mud contained as a fluidized mixture into the dredged water in the well of a hopper suction dredge, characterized by means for measuring the upper level of the total load at one or more positions in the well of the hopper suction dredge using a sounder device; means for measuring the upper level of the settled material at one or more suitable positions using a plumb device; means for determining the specific weight of the mire in the fluidized mixture in the area between the upper level of the total load

and the upper level of the settled material; means for determining the total amount of mire in the fluidized mire mixture based on the above mentioned data and on the other dimensions of the well.

4,365,510

METHOD AND DEVICE FOR MEASURING THE HEIGHT OF AT LEAST ONE SEPARATION LAYER IN THE MATERIAL BED OF A DENSITY SORTING MACHINE

Rainer Imhof, St. Augustin; Wolf-Diethard Grünberg, Bergisch Gladbach, and Karl-Heinz Unkelbach, Cologne, all of Fed. Rep. of Germany, assignors to Klöckner-Humboldt-Deutz AG, Fed. Rep. of Germany

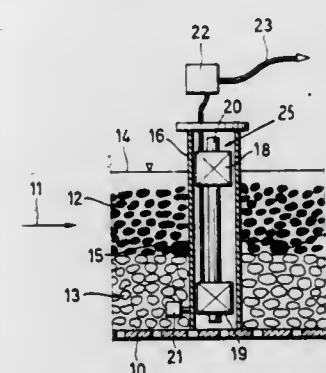
Filed Nov. 14, 1980, Ser. No. 206,958

Claims priority, application Fed. Rep. of Germany, Nov. 19, 1979, 2946605

Int. Cl.³ G01N 9/12; G01F 23/10

U.S. Cl. 73—313

14 Claims



1. Apparatus for use in a density grading machine having a bed containing solids material and a predetermined range of densities to detect the height of a boundary layer between materials of different densities within the bed comprising:
a measuring body having a generally solid cross section and an overall density substantially equal to the density of material along said boundary layer and being free floating in said bed;
a transmitter means embedded in said measuring body;
said measuring body having a generally uniform density distribution and said transmitter means having a density substantially equal to the density of said measuring body;
a probe mechanism for monitoring the relative position of said measuring body in said bed; and
housing means for said probe disposed in said bed in the direction of the density gradient therein.

4,365,511

DATA RATE GENERATOR

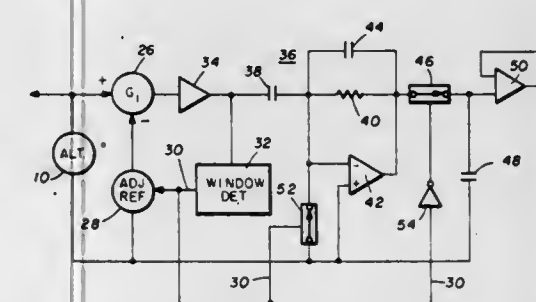
John M. Nixon, Bedford, Tex., assignor to Edo-Aire Mitchell, Mineral Wells, Tex.

Filed Jan. 6, 1981, Ser. No. 222,993

Int. Cl.³ G01L 7/00; G01C 21/00

U.S. Cl. 73—384

10 Claims



1. A rate circuit for an input signal having a slowly varying amplitude, comprising:
an adjustable reference source;
means for summing an input signal with the output of said

adjustable reference source to generate an error signal varying the difference therebetween;
means for monitoring the amplitude of the error signal within predetermined limits;
means for changing the output of said adjustable reference source when the error signal approaches a predetermined limit; and
means including rate means connected to receive the error signal of said means for summing, said rate means generating an output having an amplitude varying with the input.

4,365,512

NULL CIRCUIT FOR USE IN AN ANGULAR RATE INSTRUMENT

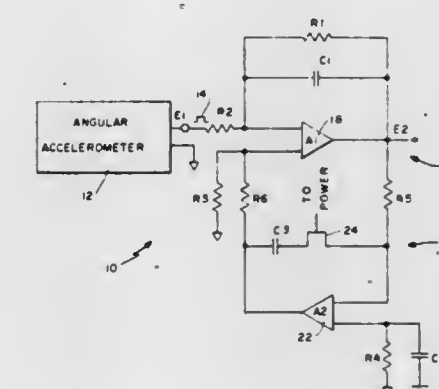
James R. Woodruff, Concord, Calif., assignor to Systron-Donner Corporation, Concord, Calif.

Continuation-in-part of Ser. No. 90,108, Nov. 1, 1979, abandoned. This application Dec. 15, 1980, Ser. No. 216,194

Int. Cl.³ G01P 7/00

U.S. Cl. 73—503

12 Claims



1. An angular rate instrument adapted for mounting to a given object for measuring the rate of turn of the latter, comprising:
means for producing a first signal responsive to and dependent on the angular acceleration to which said instrument is subjected;
means responsive to said first signal at one input and a reference signal at a second input for integrating the difference between the two latter signals to produce an integrated output signal corresponding to the rate of turn to which said instrument is subjected; and
means including a capacitor connected to the second input of said signal integrating means for producing said reference signal such that the magnitude of the latter is dependent on the magnitude of charge on said capacitor, said last named means also being connected with the output of said integrating means and including means responsive to signals at said output below a predetermined frequency for charging said capacitor to a magnitude depending on said last mentioned signals, and means for preventing said capacitor from losing its charge during interruptions of power to said instrument.

4,365,513

DECELERATION SENSOR

Shinichiro Iwasaki, Auburn Heights, Mich., assignor to Aisin Seiki Company, Limited, Aichi, Japan

Filed Aug. 29, 1980, Ser. No. 182,845

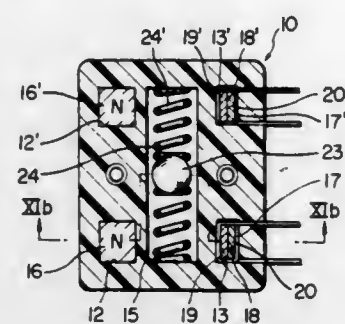
Int. Cl.³ G01P 15/11

U.S. Cl. 73—517 R

39 Claims

1. A deceleration sensor comprising:
magnetically soft core means having an electrical coil wound thereon,
permanent magnet means for creating a magnetic flux,
spring means,
a movable ferromagnetic member normally biased by said spring means and adapted to be displaced against said spring means in response to deceleration to thereby

change the magnetic flux acting on said magnetically soft core means, and
detection means for applying a predetermined pulse voltage to said electric coil to saturate said core means and for detecting changes in the external magnetic field strength provided by said permanent magnet means acting on said



magnetically soft core means according to changes in the relative position of said ferromagnetic material member, comprising means for producing an output signal indicative of the deceleration based on the time between application of said pulse voltage and saturation of said core means.

4,365,514

METHOD AND APPARATUS FOR NON-DESTRUCTIVE INSPECTION OF TIRES

Morris D. Ho, Walnut Creek, Calif., assignor to Bandag Incorporated, Muscatine, Iowa

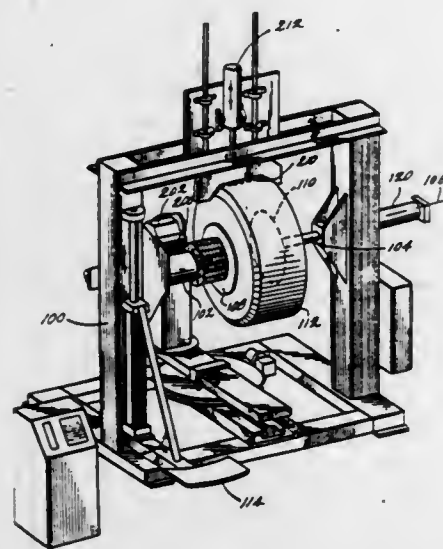
Division of Ser. No. 31,962, Apr. 19, 1979, Pat. No. 4,285,235.

This application May 11, 1981, Ser. No. 262,706

Int. Cl.³ G01M 3/24

U.S. Cl. 73—592

9 Claims



1. Tire testing apparatus for detecting air leaks from pressurized tires, said apparatus comprising:
an ultrasonic transducer for converting ultrasonic vibrations in excess of about 40 KHz into corresponding electrical signals;
means for mounting and moving the wall of an inflated tire past said ultrasonic transducer; and
signal processing means connected to said transducer for detecting the presence of ultrasonic signals in excess of about 40 KHz generated by air escaping from a leak in the tire wall.

4,365,515

ULTRASONIC SENSING

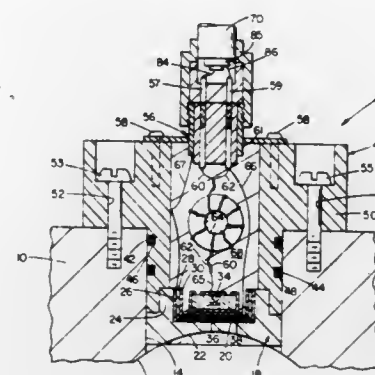
Leigh R. Abts, Providence, R.I., assignor to Micro Pure Systems, Inc., North Providence, R.I.

Filed Sep. 15, 1980, Ser. No. 187,615

Int. Cl.³ G01N 24/00, 29/00

U.S. Cl. 73—632

5 Claims



1. A pulse-echo device for obtaining information about a fluid, said device being adapted to fit into a hole extending through the sidewall of a conduit, comprising:

a transducer unit,

said transducer unit having a transducer for producing energy waves,

said transducer having a first and a second electrode, said transducer also having a first electrically-grounded shield which isolates said transducer from the fluid in the conduit and a second electrically-grounded shield which is separated from said first shield and which completely surrounds said transducer,

at least a portion of said transducer unit being adapted to connect to a pipe so as to direct the focused energy waves into fluid flowing through the conduit.

4,365,516

ULTRASONIC COUPLANT GEL COMPOSITIONS AND METHOD FOR EMPLOYING SAME

Orlando G. Molina, Westminster, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Jan. 6, 1978, Ser. No. 867,549

Int. Cl.³ C09K 3/00; G01N 29/04

U.S. Cl. 73—644

29 Claims

1. A method for detecting surface and subsurface flaws and discontinuities in an object, which comprises applying to a surface of said object a water washable substantially non-toxic ultrasonic couplant gel composition which consists essentially of a nonionic surfactant in the form of a poly(oxypropylene) poly(oxyethylene) condensate having a molecular weight ranging from about 1,000 to about 15,000, and an amount of silica sufficient to convert said surfactant into a gel, contacting a transducer of an ultrasonic testing device with said gel on said surface of said object, and transmitting ultrasonic energy through said gel and into said object to inspect said object and locate any surface or subsurface flaws, cracks or discontinuities in said object, and removing said ultrasonic couplant composition from said surface.

4,365,517

LINEAR DIFFERENTIAL FOUCAULT CURRENT DETECTOR SERVING FOR MEASURING SMALL DISPLACEMENTS OF A METALLIC ELEMENT

Francois Ramel, Levallois, and Alain Rousseau, Paris, both of France, assignors to Effa Etudes, France

PCT No. PCT/FR80/00034, § 371 Date Nov. 12, 1980, § 102(e) Date Nov. 10, 1980, PCT Pub. No. WO80/01951, PCT Pub. Date Sep. 18, 1980

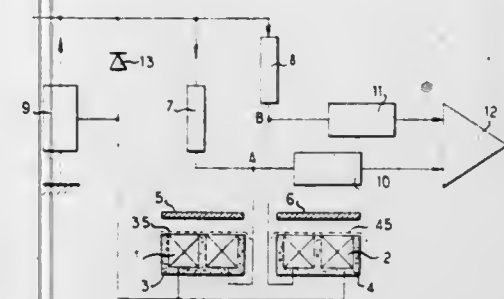
PCT Filed Mar. 11, 1980, Ser. No. 224,506

Claims priority, application France, Mar. 12, 1979, 79 06206

Int. Cl.³ G01D 5/20; G01L 9/10

U.S. Cl. 73—722

9 Claims



1. Displacement detector comprising two substantially identical windings of which at least one co-operates with a conductive element the displacements of which are to be measured, means for applying to these windings, respectively in series with two resistances, rectangular signals of low frequency, means for detecting the peak values of voltages respectively received at the common points between the respective windings and the corresponding resistances, and means for determining the difference between these peak values, characterised in combination in that the said element is of non-ferromagnetic metal, that the two windings are directly coupled to a common point of application of the said signals, and that a free wheel diode couples the same common point to the common point of the resistances.

4,365,518

FLOW STRAIGHTENERS IN AXIAL FLOWMETERS

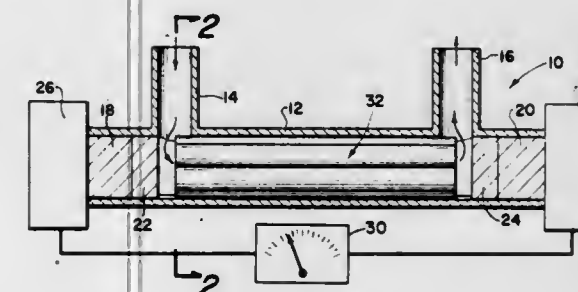
Ellis M. Zacharias, Jr., Tulsa, Okla., assignor to Mapco, Inc., Tulsa, Okla.

Filed Feb. 23, 1981, Ser. No. 236,932

Int. Cl.³ G01F 1/66

U.S. Cl. 73—861.31

8 Claims



1. An improved sonic flowmeter comprising:
a conduit having an inlet and outlet through which fluid flows for flow rate measurement, a portion of the conduit providing a linear flow path;
first and second spaced apart sonic transducer elements positioned to transmit and receive sound energy travelling through fluid as it traverses said conduit linear flow path;
means for detecting the speed of sound transmission between said transducer elements as an indication of the rate of fluid flow through said linear flow path; and
a means within said linear flow path of separating the fluid stream into a plurality of reduced cross-sectional area streams, each providing a separate linear flow path through

which sound is transmitted between said transducer elements.

4,365,519

ADJUSTABLE SPRING UNIT FOR USE IN FORCE MEASURING APPARATUS

Matti Hietaranta, Nattari, Finland, assignor to Valmet Oy, Finland

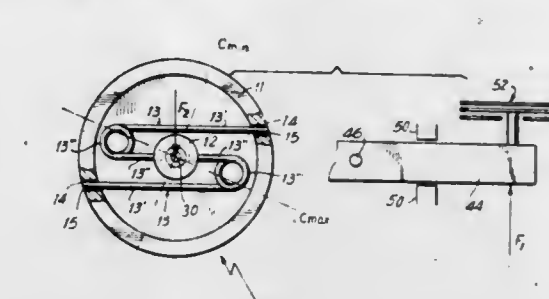
Continuation-in-part of Ser. No. 18,833, Mar. 8, 1979, abandoned. This application Aug. 27, 1980, Ser. No. 183,095

Claims priority, application Finland, Mar. 9, 1978, 780753

Int. Cl.³ G01L 1/04

U.S. Cl. 73—862.52

8 Claims



1. In force measuring apparatus, a unit for measuring a directional force, said unit having an adjustable effective spring constant so that the unit can operate in varying ranges of the forces to be measured, comprising:

a ring-shaped member adapted to be rotatably connected to a fixed frame about an axis of rotation in a manner such that the rotational position of said ring-shaped member is selectively adjustable with respect to said fixed frame;

a hub member disposed within said ring-shaped member for movement with respect thereto, said hub member being arranged so as to be receivable of a directional force proportional to the force to be measured; and

spring means interconnecting said ring-shaped member and said hub member in a manner so as to resist movement of said hub member under the action of the directional force received thereby, whereby the effective spring constant presented by said spring means is selectively adjustable between a maximum value and a minimum value by selectively rotating said unit about the axis of rotation, and such that upon the directional force being imparted to said hub member, the latter will move within said ring-shaped member in the direction of said force over a distance which is inversely proportional to the selected spring constant of said spring means.

4,365,520

STRAIN GAGE TRANSDUCERS

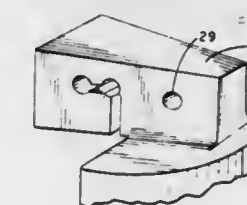
Hooshmand Zaghi, Oxnard, Calif., assignor to Gould Inc., Rolling Meadows, Ill.

Filed Jan. 7, 1981, Ser. No. 223,068

Int. Cl.³ G01L 1/22

U.S. Cl. 73—862.63

14 Claims



4. In a transducer having first and second strain gages, the improvement comprising:
a thermally conductive deformable beam comprising a block

and defining a first surface portion on which the first strain gage is mounted and a second surface portion on which the second strain gage is mounted, said beam defining a first thermal conductivity path from said first gage and a second thermal conductivity path from said second gage, said beam being provided with at least one cavity in the portion thereof defining said second path causing said second path to define a different physical configuration from the physical configuration of said first path, said first path defining a first heat receiving sink and said second path defining a second heat receiving sink, said paths, including said sinks, being arranged to be substantially identical in effective thermal conductivity notwithstanding said different physical configurations whereby heat dissipation from said strain gages is substantially similar.

4,365,521

DEVICE FOR THE FINE ADJUSTMENT IN ALL THREE DIRECTIONS OF SPACE OF AN INSTRUMENT ARRANGED ON A BASE

Kurt Kohler, Königsbrunn, Fed. Rep. of Germany, assignor to Carl Zeiss-Stiftung, Oberkochen, Fed. Rep. of Germany
PCT No. PCT/DE80/00001, § 371 Date Oct. 23, 1980, § 102(e)
Date Oct. 6, 1980, PCT Pub. No. WO80/01751, PCT Pub. Date Sep. 4, 1980

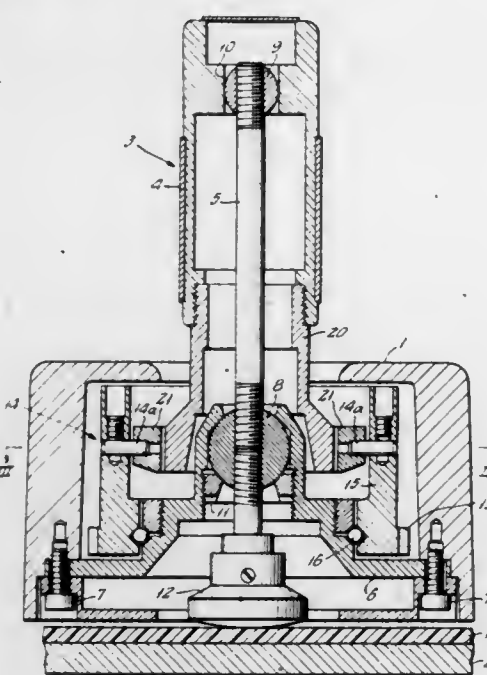
PCT Filed Jan. 10, 1980, Ser. No. 197,983

Claims priority, application Fed. Rep. of Germany, Feb. 23, 1979, 2907099

Int. Cl.³ G05G 7/00; A61B 3/12

U.S. Cl. 74—471 XY

5 Claims



1. A device for the fine adjustment of an instrument base in all directions of space, said adjustment being effected by an actuating member adapted to swing sideways for horizontal adjustment and rotatable about its vertical axis for vertical adjustment of said base, said actuating member comprising an outer rotatable handle connected via a universal joint to a rotatable member for effecting vertical displacement of the instrument base, said actuating member further comprising an inner lever provided at its lower end portion with a ball foot which contacts a base plate, the radius of said ball foot being equal to the distance between the pivot point of the handle and the base plate, said inner lever being supported by a lower support sleeve fixably attached to the instrument base and adapted to non-rotatably support said inner lever while allowing said lever to swing horizontally in all directions.

4,365,522 SHIFT LEVER MECHANISM OF AN AUTOMATIC TRANSMISSION

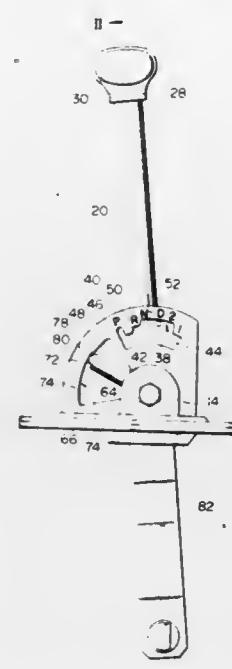
Shikibu Kubota, Koganei, and Yuichi Uriya, Tokyo, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan
Filed Dec. 19, 1980, Ser. No. 218,330

Claims priority, application Japan, Dec. 21, 1979, 54-178153[U]

Int. Cl.³ G05G 5/14

U.S. Cl. 74—475

10 Claims



1. A shift lever mechanism for use with a vehicle automatic transmission, comprising:
first means for selecting one of the operational modes of the automatic transmission;
second means for retaining the first means in certain ones of its selected operational modes;
a plate member arranged stationary relative to the vehicle body, said plate member being formed with a stepped cam surface;
a cylindrical rod swingable about its axis in response to operation of said first means relative to said plate member;
a tubular housing connected to said cylindrical rod to be swingable therewith about the axis of said cylindrical rod;
a ball rotatably mounted on the free end of said tubular housing; and
biasing means for biasing said ball to project from the open end of said tubular housing so that said ball is forced to engage said stepped cam surface of said plate member.

4,365,523

DIE-CAST EXTENSION HOUSING OF AUTOMOTIVE TRANSMISSION

Akio Numazawa, Nagoya; Nobuaki Katayama, Toyota; Kazuhito Ikemoto, Toyota; Kan Sasaki, Toyota, and Yukio Terakura, Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan
Filed Jul. 24, 1980, Ser. No. 171,758

Claims priority, application Japan, Apr. 4, 1980, 55-44368

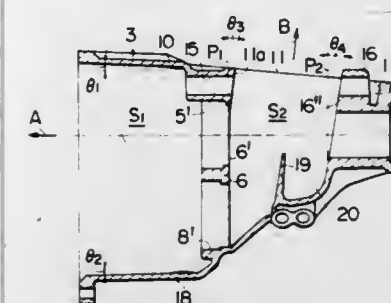
Int. Cl.³ F16H 57/02

U.S. Cl. 74—606 R

1 Claim

1. A die-cast transmission extension housing comprising a shell having a first end at which said extension housing is adapted to be connected to a transmission casing, said first end defining therein a first opening, a second end defining therein a second opening for a transmission output shaft, a bearing supporting means provided between said first and second ends for supporting at least one bearing for said transmission output shaft, said bearing supporting means comprising a partition wall die-cast integrally with said shell, said shell comprising a first part extending between said first end and said partition

wall and a second part extending between said partition wall and said second end, said first part of said shell and said partition wall cooperating to define a first inner space divergent to a peripheral edge of said first opening, said second part of said shell having a top formed therein with a third opening adapted to be closed by a shift lever retainer, said second part of said shell, said partition wall and said second end cooperating to define a second inner space communicating with said second and third openings, said partition wall having a first surface facing said second inner space and extending between said top of said second part of said shell and a bottom of said second



part, said first surface comprising upper and lower sections, said upper section being inclined toward said second end of said shell at a first angle relative to a plane normal to the axis of said transmission output shaft with said lower section being substantially normal to said axis, said second end of said shell having a second surface facing said second inner space and extending generally downwardly from said top of said second part of said shell, said second surface being inclined away from said partition wall relative to said plane normal to said axis at a second angle greater than said first angle so that said upper section of said first surface and said second surface are divergent to said third opening.

4,365,524

TORQUE-PROPORTIONING DIFFERENTIAL WITH WEDGE BLOCK THRUST BEARING MEANS

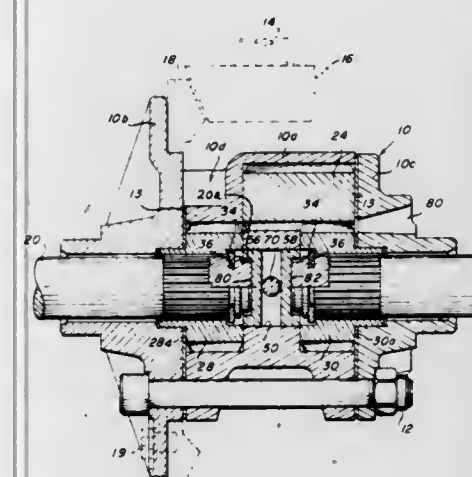
Walter L. Dissett, Southfield, and James R. Bawks, St. Clair Shores, both of Mich., assignors to Tractech, Inc., Detroit, Mich.

Filed Sep. 5, 1980, Ser. No. 184,393

Int. Cl.³ F16H 1/38

U.S. Cl. 74—715

4 Claims



1. Gear differential apparatus for supplying driving torque from a drive shaft to a pair of aligned output shafts, comprising (a) a sectional differential carrier housing (10) adapted to be rotatably driven by the drive shaft, said housing including a center body section (10a) and a pair of end cover sections (10b, 10c) connected on opposite sides of said center body section;
(b) a pair of annular helical side gears (28, 30) journaled in corresponding aligned bores contained in opposite ends of said center body section, respectively, said side gears

having splined inner circumferences for non-rotatable connection with the output shafts when the adjacent ends of the shafts extend in axially spaced relation through aligned openings contained in said end cover sections, respectively;

(c) lock means (34) preventing axial outward displacement of the output shafts relative to the side gears, respectively;
(d) a plurality of pairs of differential helical pinions (24, 26) having threads of opposite hands, respectively; the pinions of each pair being mounted with an outside diameter running fit within bores (40, 42) contained in opposite ends of said center housing section, respectively, the adjacent ends of said bores being in communication and the adjacent ends of said differential helical pinions being in overlapping enmeshing engagement with each other, said pinions having axes parallel with the axes of, and being in enmeshing engagement with, said side gears, respectively, whereby the torque transmitted through said differential mechanism introduces gear tooth loads on said pinions which cause a frictional torque resistance as the pinions rotate within their respective pinion cavities, thereby introducing a torque bias in the differential mechanism; and
(e) spacer means (54) arranged between said side gears for maintaining said output shafts in spaced relation;
(f) said housing center body section containing at each end first recessed portions (10d) opposite the helical pinion bores (40, 42) formed in the opposite ends of the center body section, respectively, and second recessed portions (10e) extending longitudinally of the center body section between each pair of helical pinion bores.

4,365,525
DAMPER

Yasutaka Imazaike, 8-22, Tanabe-nishinocho, Higashi-sumiyoshi-ku, Osaka, Japan

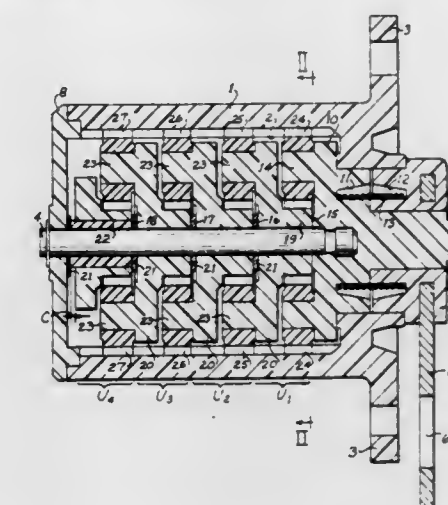
Filed Jun. 17, 1980, Ser. No. 160,357

Claims priority, application Japan, Jul. 5, 1979, 54-85649

Int. Cl.³ F16H 57/10; F16D 13/76

U.S. Cl. 74—768

7 Claims



1. A damper comprising a damper case, an internal gear formed on the inner periphery of said damper case, a shaft means rotatably mounted in said damper case, planetary gear units provided around said shaft means and arranged in a plurality of stages axially thereof, each gear unit comprising a sun gear, a plurality of planetary gears and said internal gear, the planetary gear of the unit in the first stage being rotatably supported by said shaft means, the planetary gears of each of the units in the second and following stages being rotatably supported by the sun gear in the immediately preceding stage, actuation means rotatably mounted on said damping case and adapted to provide a damping effect, and clutch means operably disposed between said shaft means and said actuation means to connect said shaft means to said actuation means

when said actuation means is rotated in one direction and to disconnect said shaft means from said actuation means when said actuation means is rotated in the opposite direction, said gear units being constructed and arranged to provide a multi-stage, series meshing engagement which thereby offers rotational resistance to said shaft means to thereby provide damping of said actuation means when said actuation means is rotated in said one direction, and to preclude said damping effect when said actuation means is rotated in the opposite direction.

4,365,526

APPARATUS FOR CONTROLLING LINE PRESSURE OF AUTOMATIC TRANSMISSION

Masaaki Suga, Yokohama, and Hideo Hamada, Yokosuka, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

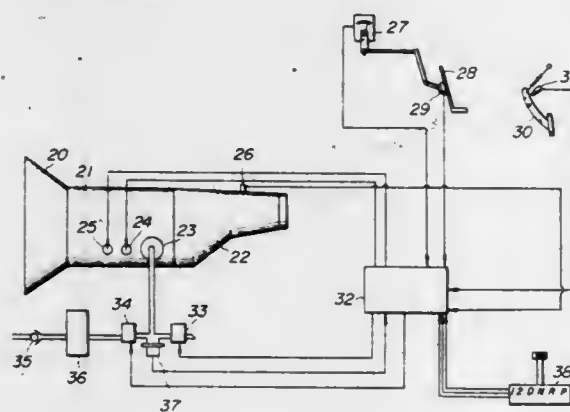
Filed May 20, 1980, Ser. No. 151,636

Claims priority, application Japan, May 21, 1979, 54-61514

Int. Cl.³ B60K 41/04

U.S. Cl. 74-866

7 Claims



1. In an automotive vehicle having an automatic transmission, with friction elements which are selectively actuated to effect speed changes in said transmission, hydraulic means hydraulically connected to said friction elements for applying fluid under pressure to said friction elements, the torque transmission capability of said friction elements varying with said pressure of said fluid applied to said friction elements, and pressure regulating means operatively connected with said hydraulic means for controlling the pressure of the fluid applied to said friction elements, the improvement comprising control means operatively associated with said transmission and said regulating means and responsive to predetermined operating conditions of said automotive vehicle under which engine braking is desired to automatically cause said transmission to downshift and to cause said pressure regulating means to increase the pressure of the fluid applied to said regulating means in response to said predetermined operating conditions.

4,365,527

AUTOMATIC WIRE CONNECTOR ATTACHING APPARATUS

Robert W. Kruse, Rockford, Ill., assignor to Gardner Bender, Inc., Milwaukee, Wis.

Filed Apr. 3, 1981, Ser. No. 250,842

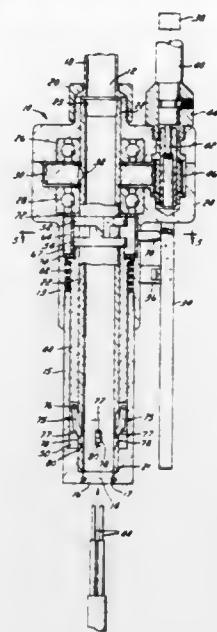
Int. Cl.³ B25B 23/04

U.S. Cl. 81-431

9 Claims

1. In an apparatus for automatically rotating screw-on connectors onto the stripped ends of electric wires, an elongated housing with an inlet opening at one end for the reception of said connectors and an outlet opening at the other end for the discharge thereof, a rotatable and hollow drive shaft in said housing, said connectors being received in said hollow drive shaft, cam surfaces in said drive shaft and adjacent said outlet opening, a sleeve concentric with and around said drive shaft and rotatable therewith, a plurality of fingers secured at one end to said sleeve and each having a free end, manually operated cam means acting between said housing and said sleeve

for axially moving said sleeve toward said outlet opening to cause engagement of said fingers with said cam surfaces and



gripping engagement of said fingers with a connector located adjacent said outlet opening.

4,365,528

PORTABLE LATHE

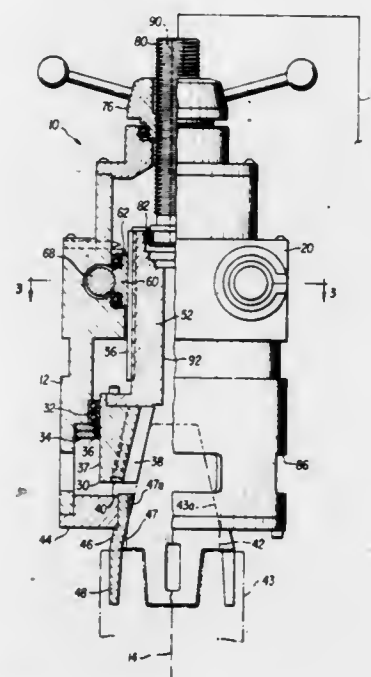
William H. Astle, 2380 LaLoma Dr., Rancho Cordova, Calif. 95670

Filed Nov. 12, 1980, Ser. No. 205,988

Int. Cl.³ B23B 5/16

U.S. Cl. 82-4 C

1 Claim



1. A portable lathe comprising:

- (a) a housing extending along a longitudinal axis and having an open end area for receiving a workpiece to be machined at one end of said housing;
- (b) an annular cutter head and carrier shaft assembly disposed within the housing and arranged to be rotated about and translated along said rotational axis, the cutter head part of said assembly including a radially outer surface defining a cylindrical bearing guide surface and an inner annular area;
- (c) one or more cutter bits mounted on the inner annular area of the cutter head part of said assembly, the cutter bit or bits being inclined relative to the longitudinal axis to cut a conical taper on a workpiece inserted into said open end of the housing and presented to the cutter head part, the taper converging towards the interior of the housing;

- (d) an annular, rotatable ring gear drivingly connected to the exterior of the carrier shaft part of said cutter head and carrier shaft assembly, said carrier shaft part slidable longitudinally within said ring gear, said ring gear fixed against longitudinal motion along said longitudinal axis;
- (e) dual drive shafts extending through the housing and drivingly connected to said ring gear on opposed sides of said ring gear;
- (f) rolling bearing means within the housing and in engagement with said bearing guide surface of said cutter head part for supporting and locating said cutter head part while the latter is rotating and translating about and along said longitudinal axis;
- (g) feed means for causing said cutter head and carrier shaft assembly to translate along said longitudinal axis towards or away from said open end of said housing, said feed means including a threaded nut secured to the housing for rotational movement and a threaded feed rod axially movable within said feed nut and threadedly engaged therewith, said feed rod connected to said carrier shaft part of said cutter head and carrier shaft assembly through a joint connection permitting relative rotation between the feed rod and said carrier shaft part, whereby rotation of the feed nut causes the cutter head and carrier shaft assembly, and the feed rod, to translate along said longitudinal axis while said assembly is rotating, while said ring gear is rotating but not translating, and while said feed rod is translating but not rotating;
- (h) a workpiece annular guide located at said open end of said housing, said guide having a conical interior opening symmetrical about and concentric with said longitudinal axis, said conical opening of said guide converging towards said cutter head and carrier assembly; and
- (i) a plurality of projections extending axially in front of the housing opening about said conical interior opening of said guide and concentric with said opening for engaging cooperating openings in a workpiece presented in said open end of said housing for preventing relative rotation between such workpiece and the housing.

4,365,529

HYDRODYNAMIC INJECTION DEVICE FOR MACHINE TOOLS

Walter Neukomm, deceased, late of Court, Switzerland (by Marguerite Neukomm, heiress), assignor to Societe de Vente et de Fabrication pour le Decolletage LNS S.A., Berne, Switzerland

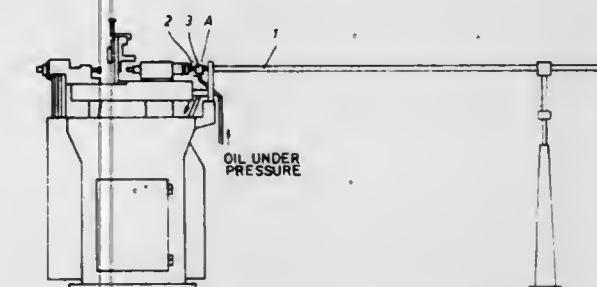
Filed Apr. 8, 1980, Ser. No. 138,441

Claims priority, application Switzerland, Apr. 17, 1979, 3618/79

Int. Cl.³ B23B 13/08

U.S. Cl. 82-38 A

7 Claims



1. In a device comprising a hydraulic stock-guiding tube containing a first liquid and forming part of a machine-tool feed apparatus having a general hydraulic circuit, the improvement comprising:

- a hydrodynamic injection means disposed at the output end of the stock-guiding tube, comprising an annular nozzle adapted to encircle a piece of bar stock, said nozzle including at least one fluid ejection passage disposed at an angle to the longitudinal axis of said annular nozzle and opening out on the inside surface thereof in a direction opposite to

the direction of flow of the first liquid, so that a fluid flowing out of said nozzle flows in a direction opposite to the flow of the first liquid and thereby creates an overpressure zone in the output end of the stock-guiding tube.

4,365,530

ORBIT SAW

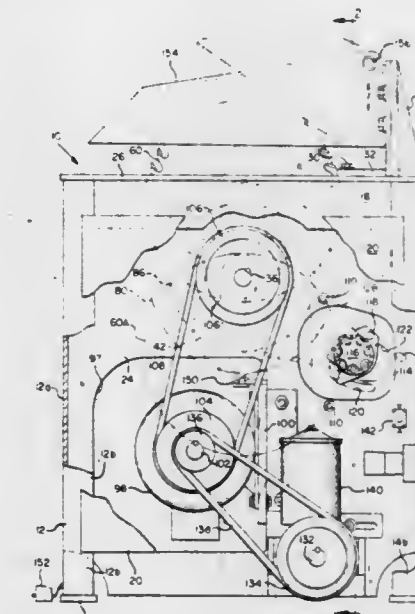
Nolton C. Johnson, Jr., and David A. Rein, both of Bend, Oreg., assignors to Mid Oregon Iron, Inc., Bend, Oreg.

Filed Oct. 31, 1980, Ser. No. 202,562

Int. Cl.³ B23D 45/04, 47/12

U.S. Cl. 83-490

9 Claims



1. An orbit saw comprising:

- a frame including an upstanding mounting plate,
- a driven shaft extending through and rotatably supported in said mounting plate with ends on either side of said plate,
- orbit arm structure concentric with the driven shaft and rotatably mounted on one protruding end of the driven shaft on one side of said plate,
- an arbor shaft laterally offset from the driven shaft and journaled on said orbit arm structure,
- a driven wheel member on said one side of the plate concentric with the driven shaft and secured to the orbit arm structure,
- a first motor of variable speed and an output shaft driven by said first motor located on said one side of the plate and positioned laterally of said driven shaft and belt means connecting said output shaft and said driven wheel member,
- a second motor with an output shaft and power-transmitting means on the other side of said plate connecting the second motor's output shaft and said driven shaft, and power-transmitting means connecting said driven shaft and said arbor shaft.

4,365,531

MITER BOX CONSTRUCTION

Alfred M. Potvin, St. Lambert, Canada, assignor to Mita Wood Products Inc., Montreal, Canada

Filed Nov. 10, 1980, Ser. No. 205,513

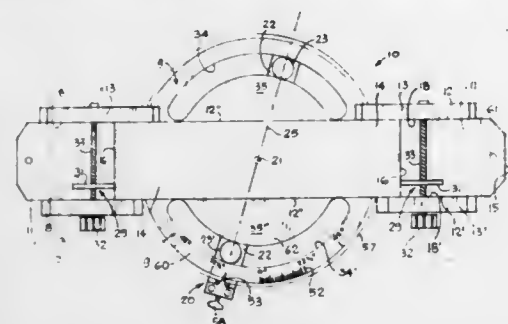
Int. Cl.³ B27G 5/02

U.S. Cl. 83-767

10 Claims

1. A mitre box comprising a base having a flat top surface and opposed parallel elongated side edges, a pair of spaced apart side walls extending from at least one of said side edges transversely above said flat top surface, said side walls having a flat inner surface to form right angle walls with said flat top surface, a saw blade guide mechanism between said pairs of side walls, said mechanism comprising an arcuate guide means adjacent each said side edges intermediate said pair of side

walls and disposed on a circular axis of a common center point, said guide means having a diametrical pivotal base member pivotally secured on said center point below said flat top surface, support guide means secured to said pivotal base member and extending transversely above said flat top surface and displaceable along an arcuate path between each said pairs of side walls, said support guide means each having a saw blade guide slot axially aligned on a common diametrical axis extending across said opposed side edges and passing through said center point, arresting means to immovably secure said pivotal base member at a desired position along said arcuate guide means, said support guide means being a tubular member secured at a base thereof to a respective end of said base member, a hollow piston receiving portion above said base and terminat-



ing in an open top end to receive a piston blade guide member for free axial displacement therein, said piston blade guide member having said saw blade guide slot therein, said hollow piston portion having a pair of diametrically aligned piston guide slots in the cylindrical side wall thereof and axially aligned with said saw blade guide slot in said piston blade guide member, said piston blade guide member being an elongated cylinder member being of smaller outer diameter than the inner diameter of said tubular member, said cylinder member having a transverse diametrical slot extending from a bottom end to a point below a solid top portion, and an elongated narrow rib in an outer face of said cylinder and disposed adjacent at least one side edge of said transverse diametrical slot, said rib protruding in a respective one of said piston guide slots.

4,365,532

ELECTRONIC MUSICAL INSTRUMENT WITH PLURAL TONE PRODUCTION CHANNELS

Akira Nakada, and Takeshi Adachi, both of Hamamatsu, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

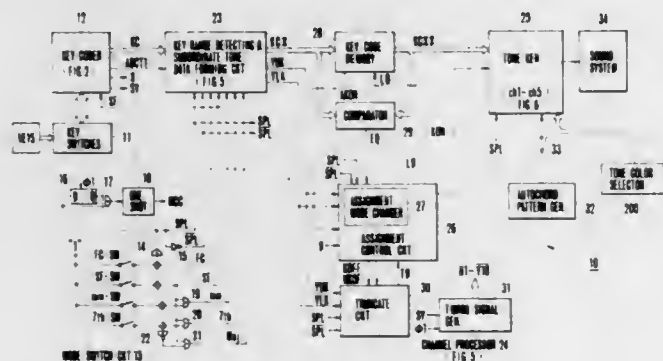
Filed Aug. 28, 1980, Ser. No. 182,464

Claims priority, application Japan, Sep. 3, 1979, 54-112580

Int. Cl.³ G10H 1/06, 1/38

U.S. Cl. 84-1.19

8 Claims



1. An electronic musical instrument comprising: keyboard means provided with a plurality of keys; musical tone generating means including a plurality of musical tone production channels of a number smaller than that of a total number of said keys; assigning means for assigning a tone production corresponding to a depressed key of a group comprising certain keys

of said plurality of keys to one of said musical tone production channels; means for selecting a performance mode of the electronic musical instrument from among a plurality of performance modes and for dividing said musical tone production channels into a plurality of groups in accordance with the set performance mode; and assignment mode changing means for changing musical tone production channels belonging to a channel group to which the keys in said key group are assigned in accordance with an output of said performance mode selecting means; said assigning means assigning tone production of the depressed key of said key group to one of said musical tone production channels of said channel group determined by said assignment mode changing means; said musical tone production means acting to make different manners of tone production among respective channel groups according to the output of said performance mode selecting means.

4,365,533

MUSICAL INSTRUMENT

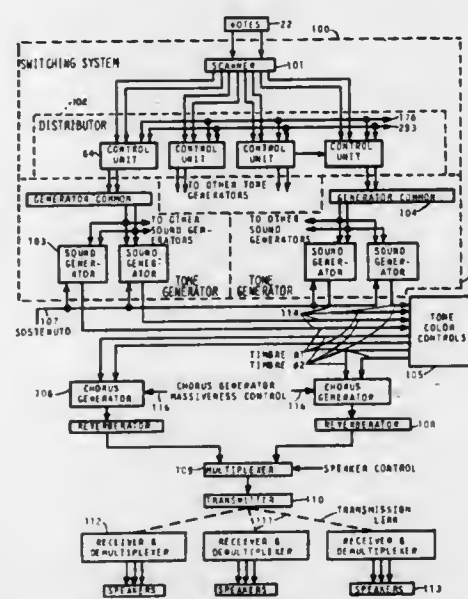
Melville Clark, Jr., 8 Richard Rd., Cochituate, Mass. 01778, and David A. Luce, Natick, Mass., assignors to Melville Clark, Jr., Cochituate, Mass.

Continuation of Ser. No. 495,130, Aug. 5, 1974, abandoned, which is a continuation-in-part of Ser. No. 148,514, Jun. 1, 1971, abandoned. This application Jun. 11, 1976, Ser. No. 695,042

Int. Cl.³ G10H 1/02

U.S. Cl. 84-1.24

111 Claims



1. Sound generating apparatus comprising, output means, a plurality of tone generators coupled to said output means for providing note signals with each including means for producing any of a large common plurality of frequencies characterizing respective musical notes over at least an octave, a plurality of note selecting means for selecting note signals characteristic of selected notes for production by said tone generators where each note selecting means includes means upon selection for providing a note selection signal representing a unique contribution to a signal waveform on said output means which note selection signal is representative of at least one of speed of note selection and force applied to note selecting means, control means coupled to said tone generators for providing continuous data signals to said tone generators representative of the selected note signals and for selecting which of said tone generators coupled to said output means is to provide said note signals, and scanning means responsive to said note selecting means

for coupling the selected note selection signals to said control means, wherein each of said tone generators includes means for varying the frequencies thereof and may be associated with any note and includes means for generating the frequencies of notes at least a semitone apart and said control means includes means for associating different ones of said tone generators with each note selected by said note selecting means for controlling the frequency of an associated tone generator in accordance with that of the associated note.

4,365,534

MODIFIED MUSICAL INSTRUMENT STRING

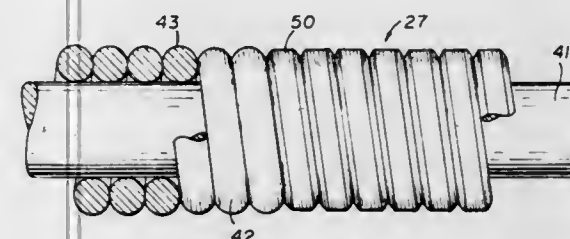
Stanley E. Rendell, Kalamazoo, Mich., assignor to Sterlingworth Music, Inc., Kalamazoo, Mich.

Filed Mar. 11, 1980, Ser. No. 129,481

Int. Cl.³ G10D 3/10

U.S. Cl. 84-297 S

3 Claims



1. A musical instrument string comprising a core having a fine cover wire helically wound thereon, said cover wire having a substantially round cross-section over the major proportion of its surface, but having compressed flats at the crown of said wire at the outer surface of said string but not at the inner surface of said cover wire.

4,365,535

QUICK RELEASE LOCKING MECHANISM

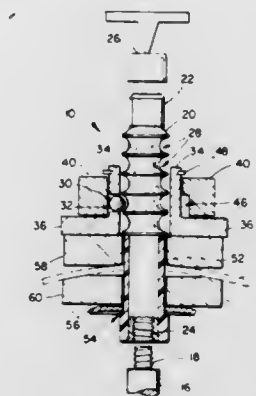
Ronald Buttner, Bellmore, N.Y.; Herbert Dolowich, 905 Grant Pl., North Bellmore, N.Y. 11710, and Chaim Zelman, Roslyn, N.Y., assignors to Herbert Dolowich, North Bellmore, N.Y.

Filed Jan. 9, 1981, Ser. No. 223,705

Int. Cl.³ G10G 5/00

U.S. Cl. 84-421

12 Claims



1. In a cymbal mounting arrangement including a cymbal rod having a threaded end, a cymbal having a central opening for passage of the cymbal rod and support means for suspending the cymbal on said rod, the improvement comprising a quick release locking mechanism, said locking mechanism having an adaptor threadably engageable on said cymbal rod, a collar member slidably mounted on said adaptor, said collar member including an aperture for seating a locking ball, a ring member rotationally displaceable about said collar member, said ring member including a camming surface for selectively urging said locking ball toward the adaptor for interlocking engagement therewith to thus secure the collar at selected

locations along the adaptor for adjustable cymbal vibration dampening.

4,365,536

SLIDING ACTUATOR MEMBRANE SWITCH FOR ORGAN KEYBOARD

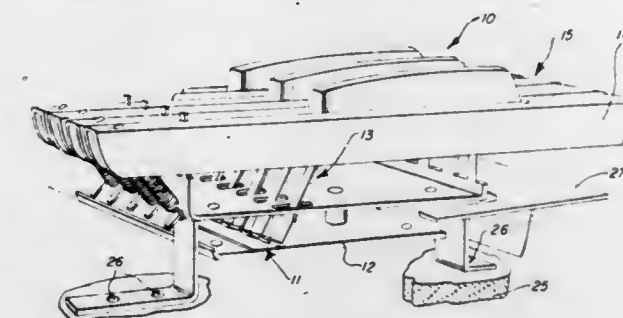
Donald B. Koepke, Leyden Township, Cook County, and Martin C. Reed, Lake County, both of Ill., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Filed Oct. 27, 1980, Ser. No. 201,173

Int. Cl.³ G10C 3/12

U.S. Cl. 84-433

27 Claims



1. In an organ key assembly having a key, means for pivotally mounting the key, means for pivotally biasing the key to a normal position, and a membrane switch mounted adjacent the key, an improved actuator means for operating the switch as an incident of pivotal depression of the key from the normal position, said actuator means comprising:

a resiliently deflectable actuator having an end portion loosely secured to the key, a switch actuating portion slidably engaging the membrane switch, and a guide portion intermediate said end portion and switch actuating portion; and

force transfer means on the key for movably engaging the actuator guide portion to adjustably urge the switch actuating portion against the switch to operate the switch as an incident of the key depression, wherein the loose securing of the actuator to the key and the movable engagement of the force transfer means with the actuator guide portion permit self alignment of the switch actuating portion with the switch.

4,365,537

COMBINED PICK AND TUNER

Gary S. Pogoda, 223 N. Douglass Ave., Margate, N.J. 08402

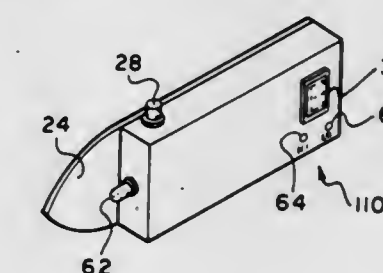
Division of Ser. No. 120,061, Feb. 11, 1980, Pat. No. 4,320,689.

This application Apr. 20, 1981, Ser. No. 255,876

Int. Cl.³ G10G 7/02

U.S. Cl. 84-454

13 Claims



1. In a stringed musical instrument tuning device the improvement comprising: a housing, said housing being of sufficiently small size so that it can be conveniently held in a person's hand and being intended to be so held when in use, a manually operable switch means carried by said housing, said switch means controlling an electronic tuner circuit and being conveniently located so as to be operable while said housing is being held,

an audio pickup carried by said housing and being connected to said electronic tuner circuit, said pickup being arranged to receive sounds from a vibrating string of a stringed musical instrument while said housing is being held, and a pick extending outwardly from one end of said housing, the free end of said pick being thin enough to fit between adjacent strings of a stringed musical instrument for plucking the same, said pick and audio pickup being arranged with respect to each other so that the pick can be used to pluck the string to vibrate the same and the sounds from the vibrating string can then be substantially immediately picked up by said audio pickup.

4,365,538

VACUUM OPERABLE DIFFERENTIAL SERVO-MOTOR

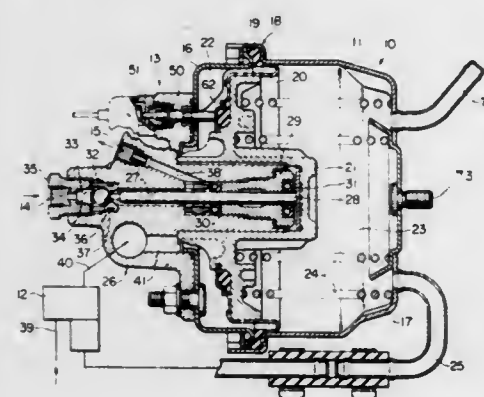
Masamoto Andoh, Toyota, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Aichi, Japan

Filed Sep. 15, 1980, Ser. No. 187,075

Claims priority, application Japan, Sep. 21, 1979, 54-131728[U]

Int. Cl.³ F01B 25/26

U.S. Cl. 91-1



1. A vacuum operable differential servo-motor for a motor vehicle having an engine intake manifold comprising:

- a housing;
- a power piston movable within said housing;
- first and second chambers positioned in said housing one on each side of said power piston;
- means for fluidly connecting said first chamber to said engine intake manifold;
- means for controlling a pressure differential between said first and second chambers including an air passage disposed between said first and second chambers and an electromagnetically operable solenoid valve for closing said air passage and admitting air to said second chamber in response to a signal;
- a failure sensing switch means for detecting operation of said power piston so as to sense any failure or unusual operation of said power piston;
- wherein said failure sensing switch means further comprises a casing disposed outside of said housing;
- a stationary terminal member and a movable terminal member engageable with each other;
- a plunger for abutting said power piston and for operatively connecting said movable terminal member to said power piston in said housing; and
- a diaphragm seal member having a peripheral bead and a central portion formed so as to effect minimal resistance against reciprocation of said plunger, said bead being retained between said casing of said switch means and said housing, said central portion of said diaphragm seal member being sealed to said plunger.

4,365,539 FLUID PRESSURE ACTUATOR WITH STROKE END LOCK MECHANISM

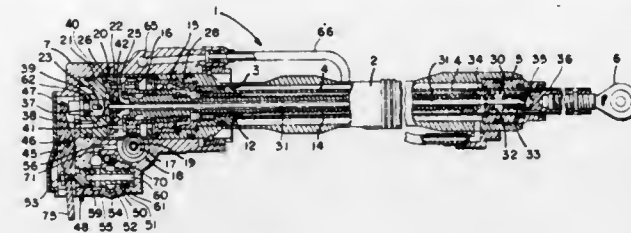
Eugene J. Martin, Portage, and Thomas Rollins, Kalamazoo, both of Mich., assignors to Pneumo Corporation, Boston, Mass.

Filed Feb. 24, 1982, Ser. No. 352,044

Int. Cl.³ F15B 15/26

U.S. Cl. 92-17

10 Claims



1. A fluid actuator comprising a cylinder, a piston axially movable within said cylinder, a member rotatably journaled in said cylinder and operatively connected to said piston such that axial movement of said piston effects and is dependent on rotation of said member, releasable lock means engageable with said member for preventing rotation of said member thereby locking said piston against movement, a fluid pressure operated lock piston movable in a direction to release said lock means, said lock means having a first surface area exposed to the fluid pressure that is applied to said actuator to move said piston after said lock means has been released creating a force tending to move said lock piston in the opposite direction, and said lock piston having a second surface area which is exposed to the same fluid pressure that is applied to the actuator creating a force acting in opposition to the force exerted on said lock means by fluid pressure acting in said first surface area.

4,365,540

UNDERDASH AIR SWEEP SYSTEM FOR AUTOMOBILES

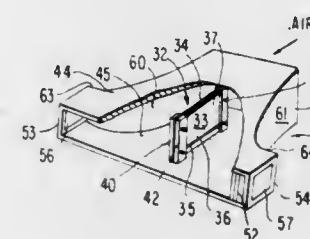
Juanito Honrado, Oxon Hill, Md., assignor to Bowles Fluidics Corporation, Silver Spring, Md.

Filed Oct. 7, 1980, Ser. No. 194,743

Int. Cl.³ B60H 1/14

U.S. Cl. 98-2

6 Claims



4. In a oscillating member air sweep system in which a flowing air stream is directed upon an oscillator element located in an outlet element, said oscillator element having a free upstream end and a fixed downstream end to cause oscillatory movement of the free upstream end in the flowing air stream, said outlet element having diverging side walls defining the extreme limits between which the air is swept by said oscillator element, the improvement comprising said outlet element having an output element coupled to the downstream end of said diverging side walls, said output element having means for providing an alternative flow path for blocked air flow when air flow through said output element is partially blocked for sustaining oscillation of said oscillation element, said means for providing an alternative flow path including at least one aperture forming means in said output element which is downstream of said oscillator element.

5. The invention defined in claim 4 wherein said air sweep

system is mounted under the dashboard of an automobile and said aperture forming means passes air to under the dashboard of said automobile.

4,365,541

FILTER ARRANGEMENT FOR AN AIR CIRCULATORY SYSTEM

Jerry G. Marques, Decatur, and Robert D. Cruthis, East Peoria, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US80/01668, § 371 Date Dec. 12, 1980, § 102(e)

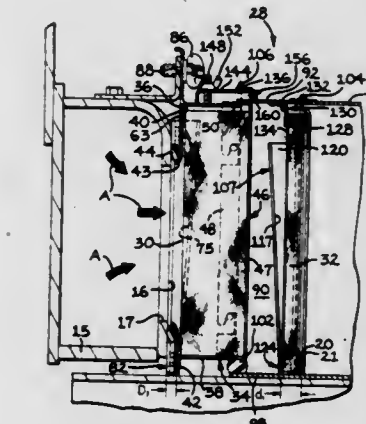
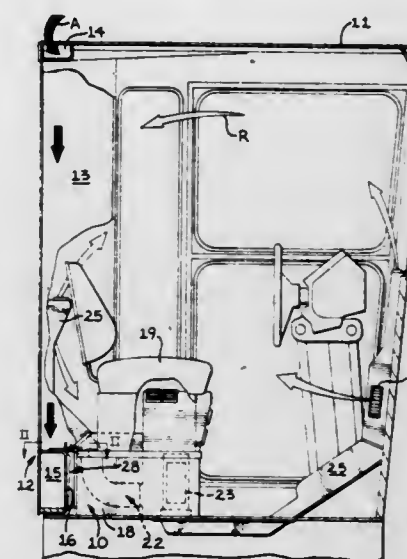
Date Dec. 12, 1980, PCT Pub. No. WO82/02086, PCT Pub. Date Jun. 24, 1982

PCT Filed Dec. 12, 1980, Ser. No. 273,872

Int. Cl.³ F24F 3/16

U.S. Cl. 98-2.11

17 Claims



14. A filter assembly (28) for an air circulatory system (10), comprising:

- frame means (12) having an air passageway (17,21) defined therein;
- first filter means (34);
- second filter means (32);
- first guide means (64,66) for positioning said first filter means (34) substantially across said air passageway (17,21);
- first fastening means (86) for releasably sealingly, retaining said first filter means (34) against said frame means (12) in cooperation with said first guide means (64,66);
- second guide means (107,108) for positioning said second filter means (32) substantially across said air passageway (17,21); and
- second fastening means (106,130) for releasably, sealingly retaining said second filter means (32) against said frame means (12) in cooperation with said second guide means (107,108) and said first filter means (34).

4,365,542

ELECTRIC FAN

Kenichi Watanabe; Hiroshi Kinoshita; Akira Tatsumi, all of Hitachi, and Koichi Goto, Yamagata, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

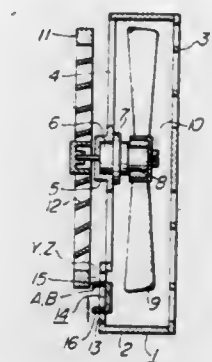
Filed Mar. 17, 1981, Ser. No. 244,677

Claims priority, application Japan, Mar. 17, 1980, 55-33784[U]

Int. Cl.³ F24F 13/08

U.S. Cl. 98-40 V

5 Claims



4. An electric fan having a frame, an electric motor attached to said frame, a fan blade unit adapted to be driven by said electric motor, a rotary grille disposed in front of said fan blade unit and provided with a plurality of inclined grille plates, and means for rotatively driving said rotary grille at a low speed, said means for rotatively driving including a small sized reversible synchronous motor, and means for limiting an angular range of rotation of said rotary grille including a plurality of projections formed on said rotary grille at different angular positions, and a stopper mounted on said frame, said stopper having a retainer portion which is movable into and out of a locus of movement of said projections.

4,365,543

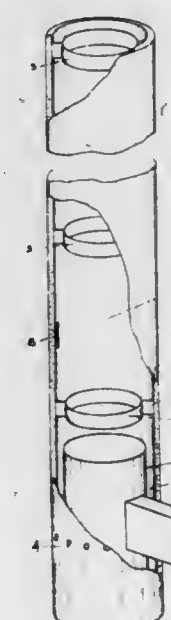
MAURICE R. BAKER, 2472 CALLUM AVE., MISSISSAUGA, ONTARIO, CANADA (LSB 2H9)

Filed Sep. 17, 1980, Ser. No. 188,220

Int. Cl.³ F23L 17/02

U.S. Cl. 98-58

2 Claims



1. A method of constructing a chimney or other fluid carrying conduit comprising the steps,

- providing an external or structural wall of the chimney or conduit,
- providing a layer of air, or inert medium, adjacent to the structural wall and inwardly therefrom, which surrounds the effluent gas or other material being passed through the

system, providing rings having a curved radial section, or approximately so, at intervals to maintain separation of the gas and air.

4,365,544

PREPARATION OF BEVERAGES

George Howitt, High Lanes, North Dr., Wentworth, Surrey, England

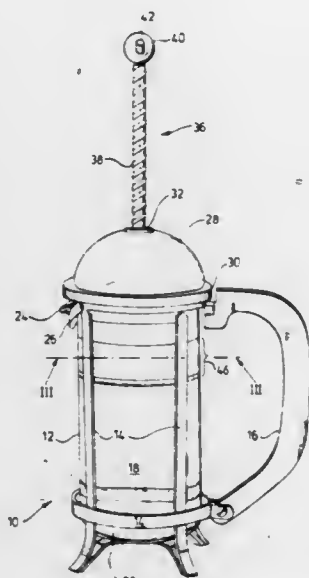
Filed Jan. 16, 1981, Ser. No. 225,745

Claims priority, application United Kingdom, Jan. 22, 1980, 8002141

Int. Cl.³ A47J 31/18

U.S. Cl. 99—297

8 Claims



1. An apparatus for preparing a beverage by extraction of soluble matter from a generally solid flavouring material into a liquid, said apparatus including a cylinder and a piston assembly, said piston assembly comprising a detachable capsule containing a flavouring material and being constructed in the form of an inverted cup, said capsule having an annular wall, a rim along said wall, a base containing apertures therein, a first disc constructed of filter medium supported on said base, a second disc constructed of filter medium secured to said annular wall rim, said solid flavouring material being retained within said capsule by said first and second filter mediums, and an annular flange constructed and designed so as to be slightly deformed upon insertion into said cylinder to sealingly engage said cylinder, whereby relative axial movement of said piston assembly through liquid contained in said cylinder forces liquid through said capsule first and second filter mediums, the liquid contacting said flavouring material within the capsule and extracting soluble matter therefrom.

4,365,545

APPARATUS FOR MAKING LARGE SIZED BLOCKS OF CHEESE

Wilfred F. Retzlaff, New Franken, Wis., assignor to L. D. Schreiber Cheese Co., Inc., Green Bay, Wis.

Division of Ser. No. 30,119, Apr. 16, 1979, Pat. No. 4,291,064.

This application Mar. 30, 1981, Ser. No. 249,090

Int. Cl.³ A01J 25/11, 25/13, 25/15

U.S. Cl. 99—459

23 Claims

1. An apparatus for manufacturing cheese blocks from cheese curd particles containing whey comprising: a container having two open ends for holding said curd particles, said container adapted to be initially oriented in an upright position with said open ends being at the top and bottom of said container and being defined by sidewalls of said container; receiver means enclosing said bottom open end of said container, said receiver means having perforations for receiving draining whey from said curd particles; conduit means including two spaced apart generally parallel foraminous sidewalls defining a space therebetween, said space being communicating with the

perforations in said receiver means, said foraminous sidewalls being of substantially parallel construction throughout their extent in the container and being of sufficient width and height in relation to the container such that the whey has a relatively



short distance to travel to said sidewalls and thus is easily drainable over substantially the entire volume of said cheese curd, whereby said conduit means defines a path to allow a quantity of said whey to flow out of said container into said receiver means when pressure is applied to said curd particles.

4,365,546

APPARATUS FOR DEGERMINATING A KERNEL BY COMPRESSING THE EDGES OF THE KERNEL

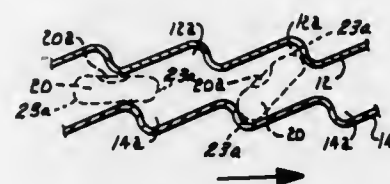
R. James Giguere, Kansas City, Mo., assignor to Cereal Enterprises, Inc., Kansas City, Mo.

Division of Ser. No. 93,611, Nov. 13, 1979, Pat. No. 4,301,183, which is a continuation-in-part of Ser. No. 909,974, May 26, 1978, Pat. No. 4,189,503. This application Oct. 23, 1981, Ser. No. 314,106

Int. Cl.³ B02C 9/02, 9/04

U.S. Cl. 99—567

2 Claims



1. A machine for degerminating a kernel of grain such as corn having relatively large side surfaces and relatively thin side edges, said machine comprising: first and second relatively movable members presenting opposed crushing surfaces, means mounting said members for relative movement with said crushing surfaces of the members generally parallel to one another; means providing a plurality of corrugations in said crushing surfaces of said members with smoothly rounded ridges and grooves in facing relationship to the corrugations on the opposite surface, said grooves being spaced apart less than the dimension of the kernel between any two of its opposed side edges to provide said crushing force, said ridges being spaced apart a distance at least as great as the distance between said side surface to avoid the application of any crushing forces to said side surfaces; a kernel placed between said members and caught between the grooves of opposed corrugations is subjected to compressive

crushing forces applied to the edges thereof and toward the center of the kernel which fracture the endosperm portion of the kernel away from the germ portion.

4,365,547

METHOD AND APPARATUS FOR CONTROLLING A PRESS

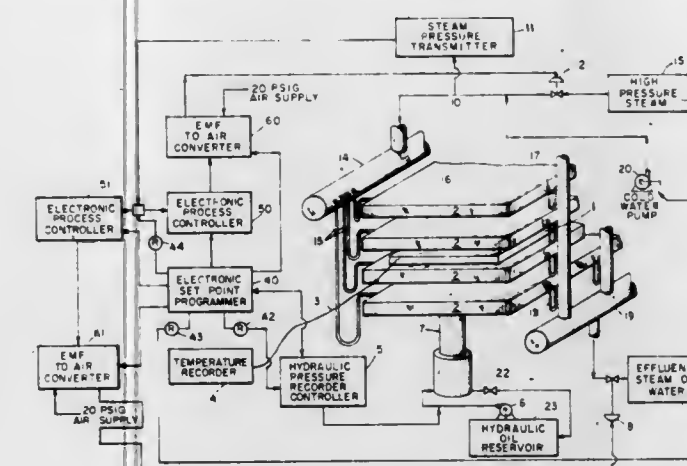
George W. McClure, Jr., Cincinnati, Ohio, assignor to Formica Corporation, Wayne, N.J.

Filed Jun. 22, 1981, Ser. No. 275,573

Int. Cl.³ B30B 15/34

U.S. Cl. 100—38

5 Claims



1. A method of controlling the pressing of a laminate assembly wherein the assembly is placed between heatable platens of a press which is then closed subjecting the assembly to pressure comprising:

- continually providing an output signal to a controller from a programmer in response to a desired time and temperature command profile,
- continually measuring the temperature of the heat transfer medium circulating through the heating elements of the press,
- continually providing said circulating temperature to said controller,
- continually determining the conformity of said measured temperature to the programmed temperature of said profile in conjunction with said time of said profile,
- continually determining a need for a temperature change in the circulating temperature from said conformity determination,
- continually providing first and second signals, each to one of a pair of relays and a third signal to a heat source from said programmer in accordance with said command profile which third signal energizes first means for introducing heating medium to the platens and which first and second signals energize second means for removing heating medium from said platens and third means for introducing cooling medium to said platens, respectively, and
- continually controlling the temperature of the heat transfer medium circulating through the heating elements in accordance with said need.

4,365,548

PRESSURE APPLICATION APPARATUS

Werner Pankoke, Bielefeld, Fed. Rep. of Germany, assignor to Firma Theodor Hymmen KG, Bielefeld, Fed. Rep. of Germany

Filed Sep. 15, 1980, Ser. No. 187,559

Claims priority, application Fed. Rep. of Germany, Sep. 20, 1979, 2937972

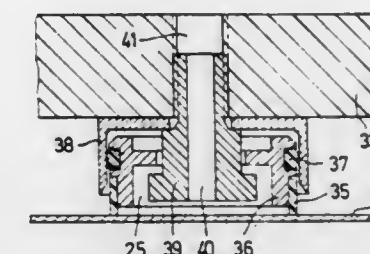
Int. Cl.³ B30B 5/06

U.S. Cl. 100—154

10 Claims

1. An apparatus for applying a surface pressure to progressively moving workpieces comprising: a plate member having a working surface; a plurality of pressure members secured to said plate member working surface, each pressure member having a

peripheral outer frame defining an open ended pressure chamber; an inner frame slidably received in each said pressure member outer frame, each inner frame having a peripheral edge; a sealing strip affixed to and extending from the peripheral edge of each of said inner frames;



an endless pressure belt rotating around said plate member, the belt having a workpiece engaging surface and an opposed surface, the sealing strip affixed to each of said pressure chambers slidably engaging the opposed surface of said belt; and

means of applying a pressure medium to each said pressure chamber to thereby force said belt into pressure contact with moving workpieces.

4,365,549

ELECTROSTATIC TRANSFER PRINTING

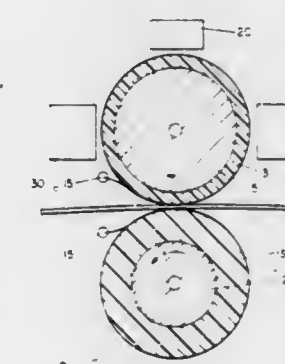
Richard A. Fotland, Holliston, and Jeffrey J. Carrish, Hopkinton, both of Mass., assignors to Dennison Manufacturing Company, Framingham, Mass.

Continuation-in-part of Ser. No. 969,517, Dec. 14, 1978, Pat. No. 4,267,556, which is a continuation-in-part of Ser. No. 844,913, Oct. 25, 1977, abandoned. This application Jan. 5, 1981, Ser. No. 222,829

Int. Cl.³ G03G 15/22

U.S. Cl. 101—1

35 Claims



1. Electrostatic printing apparatus comprising: an imaging member having a conductive core and a dielectric surface layer; means for generating ions comprising control and driver electrodes separated by a dielectric member, and a varying potential applied between the two electrodes to create a glow discharge; means for extracting ions from said glow discharge to create a latent electrostatic image on said dielectric surface layer; means for toning said latent electrostatic image; and a transfer roller which nips said dielectric surface layer under pressure, with an image receptor fed through the nip.

4,365,550

PRINTING MECHANISM FOR DOT MATRIX PRINTERS
Toshio Kurihara, and Nagao Mizutani, both of Tokorozawa, Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan

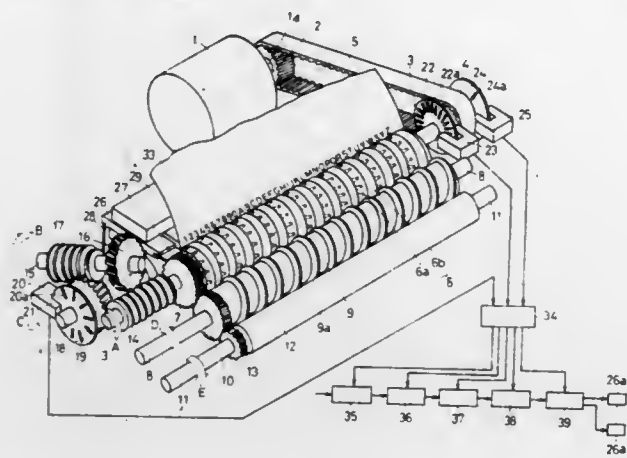
Filed Mar. 23, 1981, Ser. No. 246,183

Claims priority, application Japan, Apr. 11, 1980, 55-47567

Int. Cl.³ B41J 3/12

U.S. Cl. 101—93.04

7 Claims



1. A printing mechanism for dot matrix printers comprising a platen, a plurality of cylindrical protrusions helically provided on the periphery of said platen, said protrusions comprising at least two groups which are different in round top surface area, a plurality of hammers arranged in the axial direction of said platen, each of said hammers being supported so as to be moved to said platen and having a hammer head which has an axial length substantially equal to the pitch of helix of said protrusions so as to engage with the tops of said protrusions during rotation of said platen, means for feeding ink to periphery of said helical protrusions, means for rotating said platen, and means for moving said hammers to said platen to engage said protrusions to perform the dot matrix printing.

4,365,551

SCREEN PRINTING APPARATUS

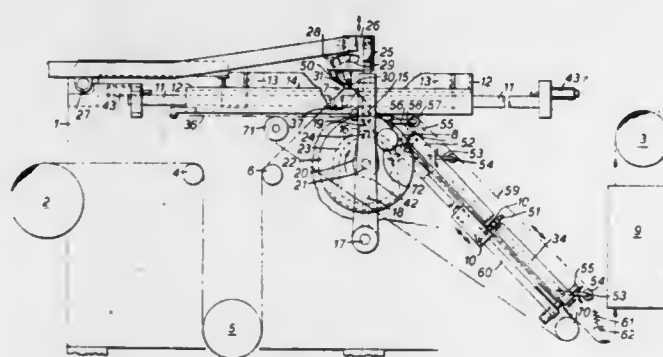
David Horton, Ashford, England, assignor to Letraset Limited, London, England

Filed Aug. 12, 1980, Ser. No. 177,492

Int. Cl.³ B05C 17/04; B41L 27/00

U.S. Cl. 101—124

4 Claims



1. In screen printing apparatus for printing on web material, a printing station including:
a screen printing mesh attached under tension to a screen frame;
reciprocating means for rectilinearly reciprocating said screen frame with a particular speed;
a squeegee mounted above said screen printing mesh for movement into contact with said screen printing mesh along a line of contact, and out of contact with said screen printing mesh;
means for feeding ink to one side of the squeegee above the mesh;
a profiled support surface positioned opposite said squeegee and below said screen printing mesh for supporting a

portion of the web material in a planar configuration which forms a snap-off angle between itself and the screen printing mesh at the line of contact, said screen printing mesh being biased toward said support surface when said squeegee is in contact with it;

conveyor means for moving the web of material to be printed on between said support surface and said screen printing mesh at the location of said squeegee, said conveyor means moving said web of material at the particular speed of said reciprocating means during a printing stroke when said screen printing mesh is biased towards said support surface by said squeegee, the improvement comprising;

means for moving said support surface during said printing stroke to change the position of the planar configured portion of the web such that the snap-off angle between the support surface, and hence the portion of the web of material which lies against the support surface, and the portions of the screen printing mesh after the squeegee, is maintained at a substantially constant value, a snap-on angle between the support surface and the portion of the web of material before the squeegee also is maintained at a substantially constant value.

4,365,552

AUTOMATIC CYLINDER SKEWING APPARATUS

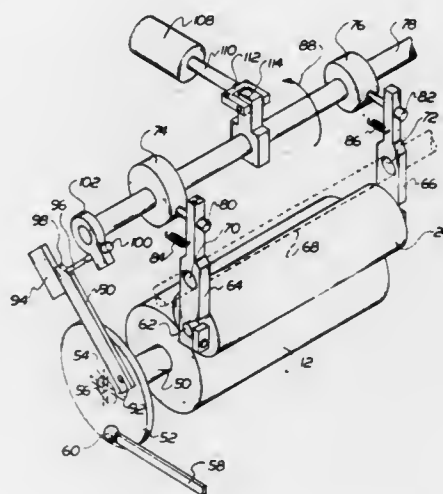
Vincent T. Kubert, Arlington, Tex., assignor to Harris Corporation, Melbourne, Fla.

Filed May 20, 1980, Ser. No. 151,739

Int. Cl.³ B41F 7/04, 7/26

U.S. Cl. 101—218

5 Claims



1. A rotary printing press comprising a pair of spaced side frames, a plate cylinder and a blanket cylinder journaled for rotation between said side frames, skew eccentric means mounting an end portion of the plate cylinder for shifting said end portion of the plate cylinder relative to the blanket cylinder upon rotation of said skew eccentric means to thereby skew the plate cylinder by an amount dependent upon the amount of rotation of said skew eccentric means, a form roll located adjacent said plate cylinder and mounted for rotation on an axle, supporting means for supporting said form roll including first and second hangers, each attached to a corresponding end of said axle and each pivotally mounted for swinging movement of the form roll toward and away from the plate cylinder, a shaft disposed generally parallel to the axis of said form roll, first and second cams connected with said shaft for rotation together with said shaft, each of said cams associated with a respective one of said first and second hangers, first and second cam followers for following an associated one of said cams and each of said cam followers being operatively connected to the corresponding one of said pivoting hangers so as to pivot said hanger by an extent which is dependent upon the rotary position of said cam, and a linkage connected between said skew eccentric means and said shaft for

4,365,554

ARTICLE IMPRINTING APPARATUS

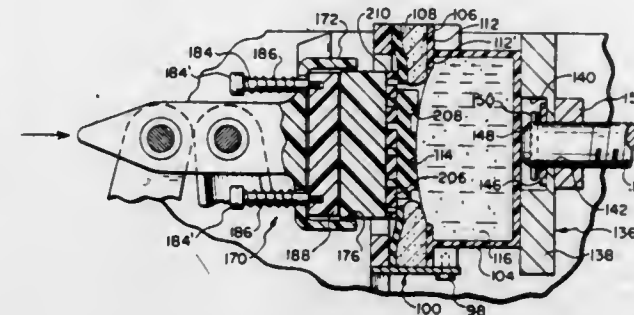
Burton L. Siegal, and Jay S. Waxman, both of Skokie, Ill., assignors to Kiwi Coders Corporation, Wheeling, Ill.

Filed Oct. 27, 1980, Ser. No. 200,913

Int. Cl.³ B41K 1/42

U.S. Cl. 101—333

18 Claims



rotating said shaft by an amount dependent upon the amount of rotation of said eccentric, said first and second cams having different profiles and including surface means for moving first and second hangers supporting opposite ends of said form roll relative to one another thereby to skew the form roll by an amount corresponding to the skewing of the plate cylinder, whereby said form roll is automatically skewed in response to skewing of said plate cylinder, and throw off means for rotating said shaft beyond the range of movement controlled by said linkage, said first and second cams including surface means for pivoting each of said cam follower means and its associated hanger upon such rotation of said shaft, to thereby throw off the associated end of said form roll from said plate cylinder.

4,365,553

SINGLE-SHEET ROTARY OFFSET PRINTING MACHINE

Hermann Fischer, Augsburg, and Johannes M. Schubert, Mainhausen, both of Fed. Rep. of Germany, assignors to M.A.N.-Roland Druckmaschinen Aktiengesellschaft, Offenbach am Main, Fed. Rep. of Germany

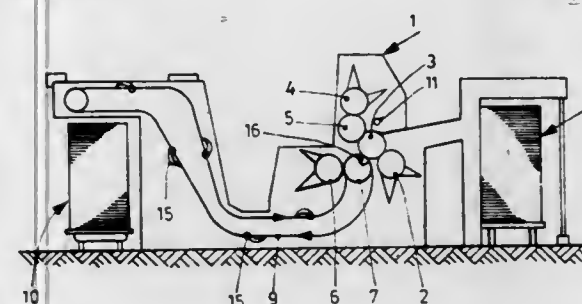
Filed Oct. 5, 1981, Ser. No. 308,363

Claims priority, application Fed. Rep. of Germany, Oct. 25, 1980, 3040388

Int. Cl.³ B41F 13/24

U.S. Cl. 101—232

9 Claims



1. Rotary offset sheet printing machine for prime and verso printing having
a printing station (1, 13) including
three paired rubber blanket cylinder - plate cylinder combinations (2, 3; 4, 5; 6, 7), each having a first, second and third rubber blanket cylinder (3, 5, 7);
a transport chain system including a transport chain (9, 9', 14) and gripper means (15) on the chain,
and means for transporting the sheets between the first rubber cylinder (5) and past the third rubber cylinder (7), said first and second rubber cylinders (3, 5) and the second rubber cylinder (5) applying, respectively, verso and prime printing thereon, and the third rubber cylinder (7) applying a second prime printing,
wherein, in accordance with the invention,
the transport chain (9, 9', 14) is carried about the third rubber cylinder (7) applying the second prime printing, and receive sheets from the first rubber cylinder (3) after having the first prime printing and the verso printing applied by the second and first rubber blanket cylinders, respectively, the transport chain leading the sheet over part of the circumference of the third rubber cylinder (7) to thereby have the second prime printing applied, with the first rubber cylinder forming the printing cylinder for the third rubber cylinder,
said transport chain then carrying the sheet out of the printing station (1).

4,365,555

EXPLOSIVE PRIMING DEVICE

Giovanni Galluzzi, Lecco, and Giulio Flocchi, Milan, both of Italy, assignors to BERFI S.p.A., Milan, Italy

Filed Jul. 2, 1980, Ser. No. 165,367

Claims priority, application Italy, Jul. 4, 1979, 24094 A/79

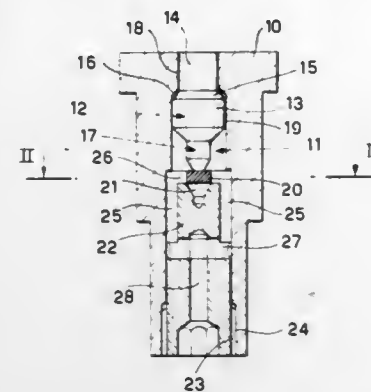
Int. Cl.³ F42C 19/10

U.S. Cl. 102—204

5 Claims

1. Explosive priming device, comprising a pill of explosive material, which covers the open end of a frusto-conical, blind bottomed explosion chamber, and a percussion pin adapted to strike said pill at the side opposite with respect to said explosion chamber, including a casing having a through hole, said percussion pin being slidably located at one end of said through hole, without possibility of coming out therefrom, a die member removably mounted at the other end of said through hole, said explosion chamber being formed in the end of said die

member which is more internal with respect to said through hole, and said die member being provided with channels by



which said explosion chamber communicates with an axial duct, formed in said die member and leading outwardly.

4,365,556

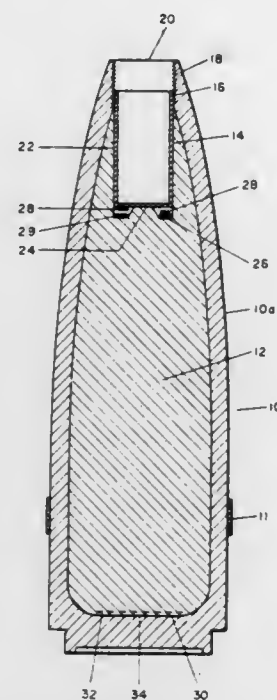
METHOD AND SYSTEM FOR PREVENTING BASE SEPARATION OF CAST EXPLOSIVES IN PROJECTILES
Paul F. Reibel, Sparta, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 6, 1980, Ser. No. 194,314

Int. Cl.³ F42B 1/02

U.S. Cl. 102—307

13 Claims



1. A projectile comprising in combination:
 - a metal casing having a closed base end and a forward end having a threaded central opening;
 - a cast explosive charge filling said casing, said charge having a longitudinal cylindrical cavity at its forward end to receive a fuze liner for containing a fuze for detonating said charge;
 - a fuze liner positioned in said cavity and threadedly secured to said casing at said threaded opening; and
 - a resilient means compressed between the bottom of said cavity and the bottom of said liner, wherein said compressed resilient means presses against said liner and said cast explosive with a force sufficient to prevent or greatly minimize separation of said cast explosive from the base end of said casing in response to thermal contraction or expansion of said cast.

4,365,557

AIR DEPLOYABLE INCENDIARY DEVICE

Joseph E. G. Couture, Cap Rouge, and Philip A. Twardawa, Shannon, both of Canada, assignors to Her Majesty the Queen in right of Canada, as represented by the Minister of National Defence, Ottawa, Canada

Filed Sep. 22, 1980, Ser. No. 189,854

Claims priority, application Canada, Jun. 3, 1980, 353323

Int. Cl.³ F42B 25/14, 4/26

U.S. Cl. 102—341

25 Claims



1. A floating incendiary device for igniting a combustible material on the surface of a body of water, comprising:
 - a casing;
 - flare means disposed in said casing;
 - firing means for igniting said flare means;
 - floatation means associated with said casing to maintain the device in a substantially upright position on the water, wherein the flame of said flare is maintained above the surface of the water; and
 - deflector means for directing the flame of said flare onto said combustible material.

4,365,558

COMBUSTIBLE OBJECTS, IN PARTICULAR COMBUSTIBLE CARTRIDGE CASES, WHICH ARE HEAT-RESISTANT

Remy R. Lippler; Andre J. Mengelle, both of Bergerac, and Jacques Plazenet, Mouleydier, all of France, assignors to Societe Nationale des Poudres et Explosifs, Paris, France

Filed Dec. 7, 1979, Ser. No. 101,201

Claims priority, application France, Dec. 15, 1978, 78 35345; Sep. 19, 1979, 79 23367

Int. Cl.³ F42B 5/26

U.S. Cl. 102—431

13 Claims

1. A heat-resistant combustible object which is covered with a thin layer of varnish, which object exhibits delayed self-ignition in the temperature range of 200°–300° C., said varnish containing hollow microspheres, said varnish comprising as the basic ingredient an organic binder which consists of a polymer, which is a chlorinated rubber, polyvinylidene chloride, a cellulosic binder, a glycerophthalic binder, a polyurethane resin or a polyepoxy resin, the thickness of the layer of said varnish being negligible when compared with the thickness of said combustible object.

4,365,559

MUNITION ROUND FOR FIREARMS

Eric Gruaz, 4, avenue Marechal Foch, Lyon 6eme, France

Filed Apr. 16, 1980, Ser. No. 140,826

Claims priority, application France, Apr. 17, 1979, 79 10417

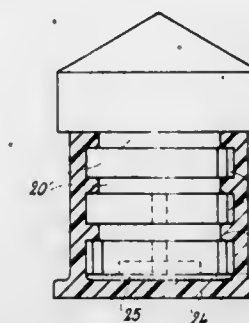
Int. Cl.³ F42B 11/00

U.S. Cl. 102—439

3 Claims

1. A cartridge for a firearm comprising:
 - a bullet having a head and a shank extending axially from said head, said shank being formed with at least one axially extending groove and a plurality of circumferential grooves having a given depth;

a casing of synthetic material receiving said shank and provided with a plurality of internally projecting annular ribs of a number equal to the number of said circumferential grooves and received therein, the said ribs extending into said circumferential grooves a distance less than said given



depth, bullet and the casing defining a space at the bottom of said casing which is vented to the ambient atmosphere through said axial groove which extends from said space to said plurality of circumferential grooves; and an explosive charge received in said space and adapted to be introduced into said casing in a moist state.

4,365,560

FIN-STABILIZED PROJECTILE

Amos Frostig, Haifa, Israel, assignor to Etablissement Salgad, Vaduz/Liechtenstein, Fed. Rep. of Germany

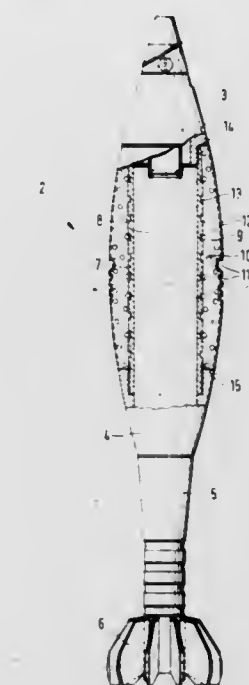
Filed Sep. 8, 1980, Ser. No. 185,042

Claims priority, application Fed. Rep. of Germany, Sep. 11, 1979, 7925652[U]

Int. Cl.³ F42B 13/02

U.S. Cl. 102—477

2 Claims



1. A fin-stabilized projectile for firing from the barrel of a firearm, said projectile comprising:

- (a) an ogival projectile body having a nose portion and a base portion, a tail tube connected to said body and having a finned tail unit;
- (b) said nose and base portions being rigidly connected at respective ends of an internal connecting tube made of steel;
- (c) a charge portion including a bursting charge disposed around the steel internal tube and being composed of a rigid plastic material which forms a matrix in which shrapnel fragments are imbedded;
- (d) said bursting charge forming the ogival projectile body shape with the outer surface thereof being of a diameter

which may contact the inner wall of the barrel of the firearm from which the projectile is being fired,

- (e) said steel internal tube having undercut annular grooves with radially extending surfaces and being disposed on the total external surface thereof and along the length of said bursting charge containing the shrapnel fragments;
- (f) said rigid plastic material filling said undercut annular grooves.

4,365,561

COMPUTER TERMINAL STATION FOR DATA INPUT AND OUTPUT

Pierre Tellier, Villevaude; Jean-Pierre Demaille; Saint Maur, and Jean Doillon, Montry, Esbly, all of France, assignors to Compagnie du Roneo, Paris, France

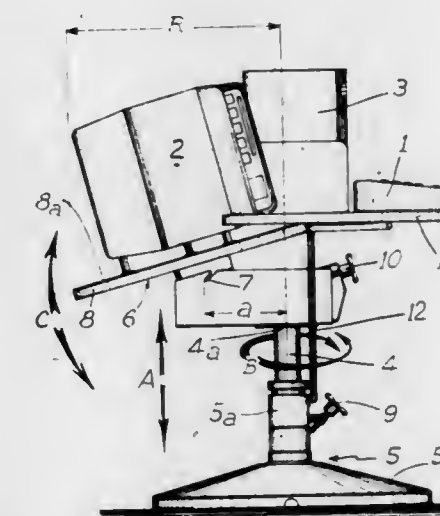
Filed Oct. 11, 1979, Ser. No. 83,586

Claims priority, application France, Oct. 12, 1978, 78 29159; Jan. 15, 1979, 79 00902

Int. Cl.³ A47F 5/12; A47B 9/08, 11/00

U.S. Cl. 108—7

12 Claims



1. A terminal station for the input and output of data issued from and directed to a central processor, such as a computer for example, constituted by a hand-operated input device of the keyboard type and by an output device which the operator can read over, the input and output devices being separate one from the other, comprising a vertically stationary support for the said input device and a support for the said output device, wherein the support for the said output device comprises a platform connected to a mechanism for adjusting its height and its inclination, which mechanism is mounted for rotation about a vertical axis in a lower base with means for immobilizing it in rotation in said base, the main part of said platform being excentered in a horizontal projection with respect to said vertical axis and wherein: the support for the said input device comprises a jamb, fast with a part of the said mechanism which is only rotatable with respect to the said base, shaped at its upper part into a console supporting a horizontal panel cut so as to surround at least part of the said platform and to be substantially inscribed in a circle centered on said vertical axis and surrounding the support for the output device.

4,365,562

SUPPORT ASSEMBLY

William M. Webb, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Oct. 3, 1980, Ser. No. 193,683

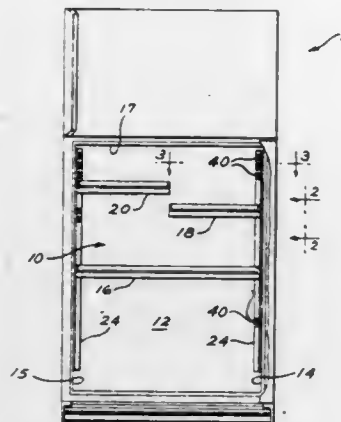
Int. Cl.³ A47B 9/00

U.S. Cl. 108—108

9 Claims

1. A support assembly for an inside corner formed by a vertical rear wall and a vertical side wall intersecting each other at a right angle comprising:
 - a single elongated vertical track secured to one of the walls in close proximity to the inside corner;

a shelf assembly for securement to only the single track including,
a bracket having a forward portion and a rearward portion, said rearward portion having means for removable securement to the track,
a support member having a forward portion and a rearward portion and horizontally spaced from the bracket,



a planar shelf supported by the bracket and support member; and
a torsion member extending between and at a right angle to both the bracket and support member and secured to each at the respective rearward portions thereof.

4,365,563

SAFETY DEVICE FOR A BURNER OF A COAL GASIFICATION PLANT

Hsi L. Wu, Amsterdam, Netherlands, assignor to Shell Oil Co., Houston, Tex.

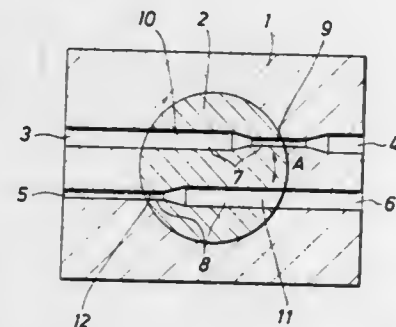
Filed May 4, 1981, Ser. No. 259,888

Claims priority, application Netherlands, May 29, 1980, 8003093

Int. Cl.³ F23N 5/18

U.S. Cl. 110—186

5 Claims



1. A safety device for preventing blockages of significant duration in the flowing of a mixture of coal particles and fluid through the safety device and into a burner, comprising:
a housing which contains a movable element inside its wall; in the wall of the housing, coal fluid inlet and outlet ports for flowing a mixture of coal particles and fluid into and out of the housing, and cleaning fluid inlet and outlet ports for flowing a blockage-removing fluid into and out of the housing;

within the movable element inside the housing, at least two internal channels, with each internal channel having both a narrow portion and a wide portion; and,
an arrangement of said coal fluid and cleaning fluid ports and said internal channels such that the movable element can be moved into (a) a first position in which one internal channel forms a flow path between the coal fluid inlet and outlet ports, with the wide portion of that internal channel upstream of the narrow portion, while another internal channel forms a flow path between the cleaning fluid inlet and outlet ports, with the wide portion of that channel downstream of the narrow portion, and (b) a second position in which one internal channel that was previously

connected between the coal fluid ports with its wide portion upstream is now connected between the cleaning fluid ports with its wide portion downstream.

4,365,564

DRIVING APPARATUS FOR RETAINING FRAME OF OBJECT TO BE SEWED IN AUTOMATIC SEWING MACHINE

Jin Sugiyama, Osaka, Japan, assignor to Unitech Engineering Ltd., Osaka, Japan

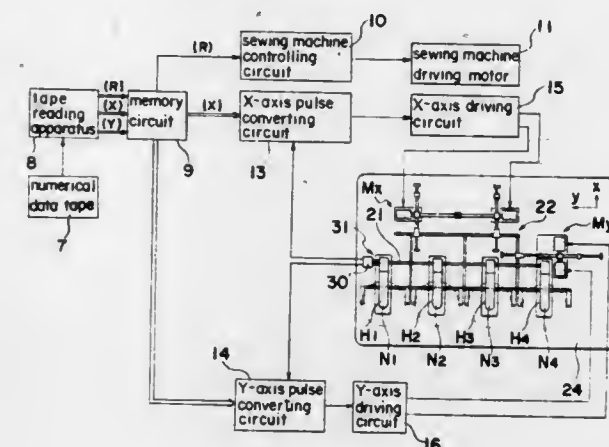
Filed Jun. 18, 1980, Ser. No. 160,742

Claims priority, application Japan, Jun. 19, 1979, 54-77075

Int. Cl.³ D05B 21/00

U.S. Cl. 112—121.12

6 Claims



1. A driving control apparatus in an automatic sewing machine for a pattern controlled displacement of a sewing object frame in both X- and Y-directions by means of respective X and Y stepping motors comprising:
a pulse generator synchronized with a needle drive shaft of said sewing machine, which for each needle cycle produces a clock pulse train having a predetermined number of pulses, said pulse train being produced over a predetermined angular interval of said needle shaft when a needle of said sewing machine is not engaging an object to be sewed;

read-out means for reading controlling data corresponding to the value of the X and Y-displacements for said each needle cycle from a stored pattern program;

and a pair of pulse control circuit means for transmitting a portion of each clock pulse train from said pulse generator for use as a control pulse train for said X and Y stepping motors, respectively, said transmitted portion being proportional to said read-out control data from said read-out means;

wherein each of said pulse control circuit means produces said control pulse train with substantially the same duration as that of said clock pulse train by suppressing clock pulses distributed over the length of said clock pulse train.

4,365,565

CONTROL APPARATUS FOR AUTOMATIC EMBROIDERY SEWING MACHINE

Taneichi Kawai, Koji Nishida, both of Anjo; Osamu Miyake, Toyota, and Shigemitsu Hamajima, Oobu, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Aichi, Japan

Filed Nov. 4, 1980, Ser. No. 204,052

Claims priority, application Japan, Nov. 7, 1979, 54-144899; Nov. 29, 1979, 54-165288

Int. Cl.³ D05C 9/06; D05B 21/00

U.S. Cl. 112—103

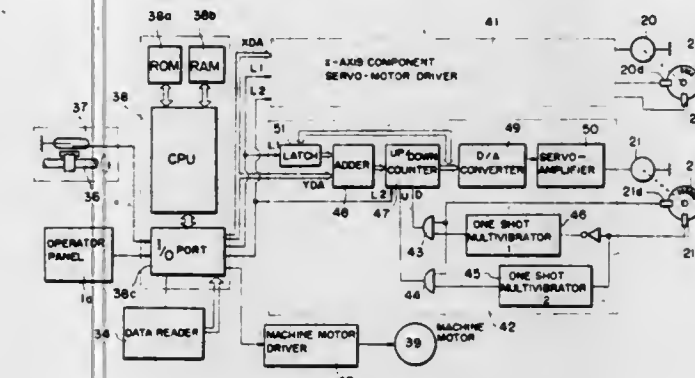
18 Claims

1. A control apparatus for embroidery sewing machine which sequentially reads out embroidery frame driving data of each stitch for embroidery sewing stored in a memory means, and actuates an embroidery frame-supporting/driving means

in x- and y-axis directions synchronized with operation of a sewing machine through two controlled servomotors on each stitch, thereby controlling feed of a base cloth spanned on the embroidery frame stitchingly drawing a locus of a plane figure; wherein the improvement comprises:

two direct current servomotors as said two servomotors;
means for producing a feed back pulse signal according to a rotation angle in a respective rotation sense by way of coding each rotation sense and angle of each servomotor output shaft;

an up/down counter which registers a preset x- or y-axis driving data through an adder, yields a servo control



signal for each of said servomotors according to the preset data, and counts up or down toward making the preset data zero according to said feed back pulse signal resulting in a residual data if the servomotor is incompletely actuated;

means for correction by superposing said x- or y-axis driving data for a next stitch with the residual data by temporally memorizing the residual data slightly preceding a timing whereat said x- or y- axis driving data for the next stitch is supplied from said memory means to said adder; wherein integral accumulation of errors on incomplete actuation of each servomotor is capable of being eliminated or reduced.

4,365,566

SWITCH PATTERN SELECTION AND INFORMATIONAL DISPLAY ARRANGEMENT FOR A MULTIPLE PATTERN SEWING MACHINE

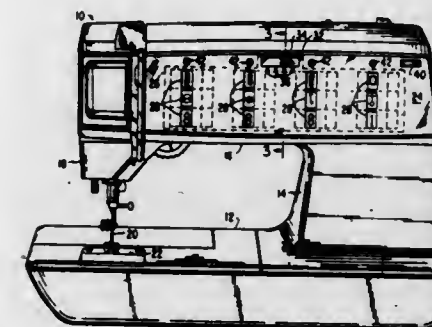
Manfred R. Laidig, Whippany, N.J., assignor to The Singer Company, Stamford, Conn.

Filed Jun. 1, 1981, Ser. No. 268,950

Int. Cl.³ D05B 3/02

U.S. Cl. 112—158 F

5 Claims



1. A stitch pattern selection and informational display arrangement for use in an electronically controlled multiple pattern sewing machine comprising:

a graphics element having thereon a plurality of stitch pattern indicia arranged in groups and a plurality of sets of informational indicia, each of said sets of informational indicia being associated with a respective stitch pattern indicium, said graphics element comprising a card having the stitch pattern and informational indicia printed

thereon, said card being slidably mounted for back and forth sliding motion;

means for masking said graphics element to make visible at any time only the stitch pattern indicia from one of said groups and the corresponding sets of informational indicia, said masking means including a fixed opaque element with a plurality of optically transparent window regions; operator influenced shifting means for relatively positioning said masking means with respect to said graphics element so as to selectively make visible a desired group of said stitch pattern indicia and the corresponding sets of informational indicia, said shifting means including a tab member extending outwardly from said card to a region where its position can be influenced by an operator;

first switching means responsive to the position of said shifting means for providing a first signal corresponding to the visible group of said stitch pattern indicia;

operator actuable second switching means for providing a second signal indicative of a selected one of said stitch patterns indicia within said visible group; and means for combining said first and second signals to provide a stitch pattern selection signal.

4,365,567

MODIFIED THREAD CONTROL LEVER FOR A BOBBIN CASE

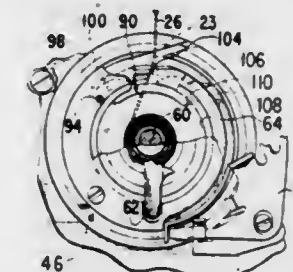
Ludwig J. Kuhar, Clark, N.J., assignor to The Singer Company, Stamford, Conn.

Filed Jun. 30, 1978, Ser. No. 921,033

Int. Cl.³ D05B 57/14, 59/00

U.S. Cl. 112—184

3 Claims



1. A bobbin case for a lockstitch sewing machine having stitch forming instrumentalities including a needle and a loop taker, actuating means interconnecting said needle and loop taker for interrelated movement as is required for the formation of lock stitches, a bobbin case, said loop taker having a cavity formed therein for receiving said bobbin case, means for restraining said bobbin case from rotation with said loop taker, said loop taker having a wall defining its periphery and containing a bearing rib formed along an inner surface of said wall, said bobbin case having a wall defining its periphery, said bobbin case wall containing an annular raceway, said bearing rib of said loop taker being received by said annular raceway of said bobbin case for supporting said bobbin case within said cavity of said loop taker, a gap formed in said wall of said bobbin case, a thread control lever bridging said gap in said wall, said wall of said bobbin case further having a race and a race extension formed therein, said race pivotally receiving one extremity of said thread control lever for arcuate motion toward and away from said wall of said bobbin case, said thread control lever having an arcuately formed thread engaging shoe at an extremity opposite the pivoted extremity for engaging wraps of thread contained on said bobbin, and an oblique surface at the thread engaging shoe extremity of said thread control lever, said oblique surface forming an obtuse angle with said wall of said bobbin case, whereby a bobbin containing a supply of bobbin thread may reside in said bobbin case with said bobbin thread passing over said thread control lever to a point where a lockstitch is formed.

4,365,568

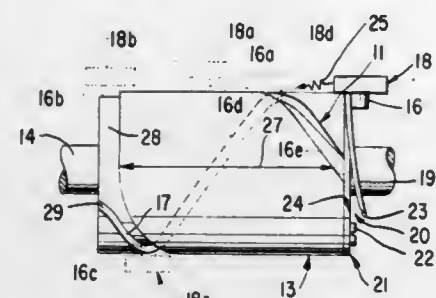
UNDERBED THREAD TRIMMER AND CONTROLLED SINGLE-OPERATION CAM MECHANISM THEREFOR Roger J. Ross, Mont St-Gregoire, Canada, assignor to The Singer Company, Stamford, Conn.

Filed May 15, 1980, Ser. No. 150,254

Int. Cl.³ D05B 65/00

U.S. Cl. 112—291

19 Claims



1. An underbed thread trimmer in a sewing machine comprising a bed, a needle reciprocatingly driven along a path toward and away from the bed, a needle thread carried by the needle, looptaker means supported in the bed for seizing a loop of needle thread shed by the needle, the looptaker means containing a quantity of looptaker thread for concatenation with the needle thread to form stitches, and driving means for driving the looptaker in synchronism with the reciprocation of the needle, the underbed thread trimmer comprising:

looptaker thread engaging means movable between a retracted position and a looptaker thread engaging position; needle thread engaging means movable between a retracted position and a needle thread engaging position spaced from the looptaker thread engaging position; controllable, single-operation driving means to drive the looptaker thread engaging means from its retracted position to the looptaker thread engaging position and to return the looptaker thread engaging means to its retracted position and to drive the needle thread engaging means from its retracted position to the needle thread engaging position to engage the needle thread and to return the needle thread engaging means to its retracted position;

a first ledger blade located in the path of movement of the looptaker thread engaging means from the looptaker thread engaging position to the retracted position of the looptaker thread engaging means to sever the looptaker thread; and,

a second ledger blade located in the path of movement of the needle thread engaging means between the needle thread engaging location and the retracted position of the needle thread engaging means to sever the needle thread at a point remote from the reciprocating path of the needle.

4,365,569

FEED REGULATOR CLAMP

Kenneth D. Adams, Madison, N.J., assignor to The Singer Company, Stamford, Conn.

Filed Oct. 6, 1980, Ser. No. 194,706

Int. Cl.³ D05B 27/22

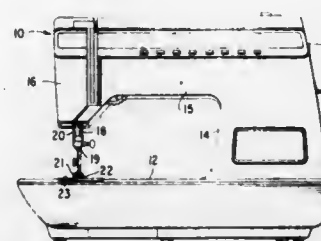
U.S. Cl. 112—315

4 Claims

1. A work feed system for a sewing machine having a frame including a work supporting bed housing said feed system, a throat plate carried by said work supporting bed and having a feed dog accommodating slot therein, said feed system including a feed dog having a work supporting rib arranged in said feed dog accommodating slot of said throat plate, a feed shaft, a feed lift cam supported on said feed shaft for alternately raising and lowering said feed dog to and from a work advancing position with said work supporting rib extending through said feed dog accommodating slot, a feed regulator shaft, a regulator affixed to said feed regulator shaft for selectively varying the direction and rate of work advance movement,

means for rotating said regulator shaft for selective variation of the direction and rate of said work advance movement, the improvement comprising

a radially functioning camming device on said feed shaft operating in synchronism with said feed lift cam; a brake member affixed to said feed regulator shaft;



a bell crank pivotally supported in said work supporting bed having a first arm thereof in contact with said camming device and a second arm thereof in selective contact with said brake member for inhibiting movement thereof as permitted by said camming device; and, means for urging said bell crank in a direction to have the second arm thereof in contact with said brake member.

4,365,570

SAIL SYSTEM FOR SAILBOARDS

Robert S. Jamieson, 667 S. Hudson, Pasadena, Calif. 91106

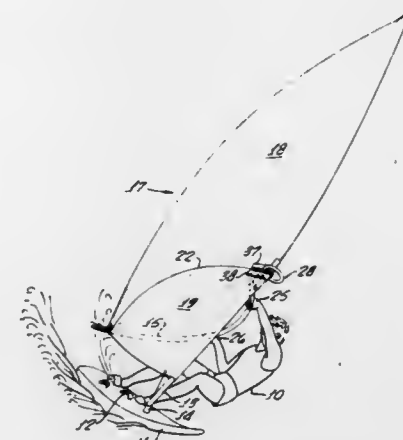
Continuation-in-part of Ser. No. 289,386, Aug. 3, 1981. This

application Sep. 21, 1981, Ser. No. 304,113

Int. Cl.³ B63H 9/06

U.S. Cl. 114—39

53 Claims



1. A sail system for a sailboard of the type in which an operator rides the board in standing position, and manipulates a sail system in order to effect propulsion of the board, said sail system comprising:

(a) a mast adapted at its lower end to be mounted on a sailboard,

(b) a boom connected at one end to said mast at a region intermediate the upper and lower ends thereof, said boom extending away from said mast transversely thereof,

(c) upper and lower sails each having its luff connected to said mast and its leech connected to said boom at the end of said boom remote from said mast, said upper sail being generally above said boom, said lower sail being generally below said boom, said sails and boom being such that said boom may be grasped by the operator regardless of which side of said sails said operator is standing on, and

(d) means to effect a lapped, sealing relationship between the lower edge of said upper sail and the upper edge of said lower sail, said sealing relationship being such that said lower edge of

said upper sail is, regardless of the tack said sailboard is on, on the upwind side of said upper edge of said lower sail,

said sail system being such that said sails operate like a single sail which is aerodynamically unconstrained by any boom and therefore assumes a single efficient sailing shape characterized by the absence of a crease, said sail system being further characterized by the absence of substantial leakage of air between said sails, which leakage would reduce the efficiency of the sail system.

21. A method of sailing a sailboard, which comprises:

(a) providing a sailboard having upper and lower sail portions, the lower edge of said upper sail portion and the upper edge of said lower portion being lapped, and having a boom adapted to be grasped by the operator regardless of which tack the sailboard is on,

(b) sailing said sailboard on a port tack with said sail edges in such relationship to each other that said lower edge is on the port side of said upper edge whereby wind moving down said upper sail portion flows onto said lower sail portion without passing in substantial amount between said lapped edges,

(c) turning said sailboard to port, into the wind,

(d) walking around the mast of said sailboard and also grasping said boom from the side of the board opposite the one said boom was originally grasped from, and

(e) reversing the lapped relationship of said edges whereby the lower edge of said upper sail portion is on the starboard side of said upper edge of said lower sail portion, and

(f) sailing said boat on the starboard tack whereby wind moving down said upper sail portion flows onto said lower sail portion without passing in substantial amount between said lapped edges.

4,365,571

ICE DISAGGREGATION SYSTEM

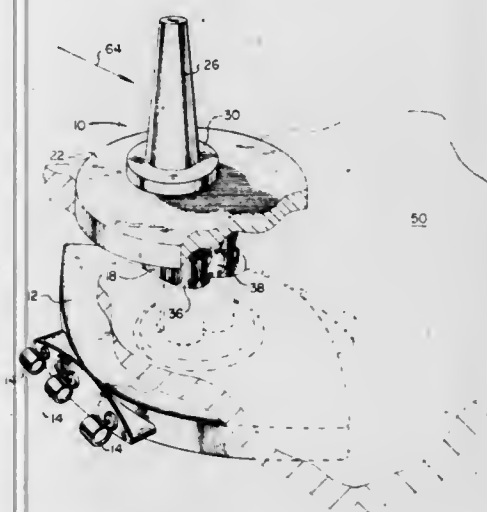
George W. Morgan, La Jolla, Calif., assignor to Suncor Inc., Toronto, Canada

Filed Sep. 7, 1978, Ser. No. 940,247

Int. Cl.³ B63B 35/08

U.S. Cl. 114—42

3 Claims



1. In an ice disaggregation system characterized by at least one rotating drum, which drum carries ice engaging teeth structure on the peripheral surface thereof, the improvement comprising:

(A) a plurality of tooth supporting brackets distributed about and affixed to the peripheral surface of the drum, each of said brackets including an elongated tooth carrying beam portion disposed generally parallel to the drum peripheral surface and rigidly supported outwardly therefrom by a plurality of bracket legs; and

(B) a plurality of ice engaging teeth fixed to said bracket beam portion, each of said teeth having a sharp, ice engaging forward portion, said teeth being oriented such that

the forward portions thereof generally face the direction of drum rotation.

4,365,572

WORKING SAILS AND METHODS FOR FURLING THEM WHILE ALOFT

William H. Stevenson, IV, Travelers Rest, Rte. 5, Box 532, Easton, Md. 21601

Filed Mar. 2, 1981, Ser. No. 239,471

Int. Cl.³ B63H 9/10

U.S. Cl. 114—104

26 Claims



1. The method for furling a working sail while the sail is aloft on a sailboat having a cockpit, comprising providing flexible sheet material along the sail from head to foot;

positioning a travelling furler at the head and engaged over the leech with the furler having connected thereto furling line means and unfurling line means; interconnecting the ends of the furling line means and unfurling line means most distant from the furler; pulling the furling line means to cause the travelling furler to move downwardly and progressively furl the sail from leech to luff and form the flexible sheet material into a tubular bag enclosing the furled sail substantially from head to foot;

and simultaneously causing the unfurling line means and a portion of the furling line means to be pulled into stowed positions in which the line means extend lengthwise of and within the tubular bag.

4,365,573

STEERING GEAR FOR SHIPS

John R. Jamieson, Largs, Scotland, assignor to Vickers Limited, London, England

Filed Jun. 16, 1980, Ser. No. 159,627

Claims priority, application United Kingdom, Jun. 22, 1979, 7921854

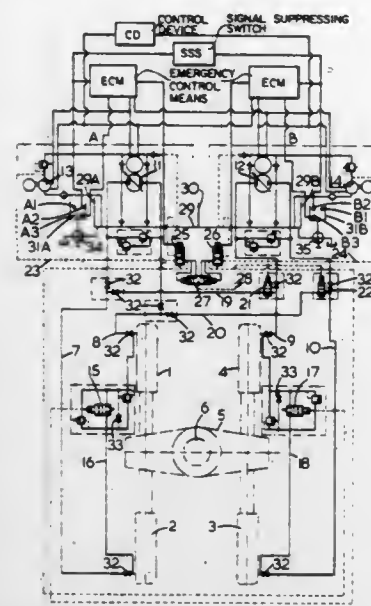
Int. Cl.³ B63H 25/22

U.S. Cl. 114—150

12 Claims

1. A steering gear incorporating two liquid-operated thruster units each arranged to provide power movements alternatively in opposite rotational direction to a steering member, two pumps, two liquid supply tanks one for each pump, two pipe systems each containing a pump and a thruster unit, a liquid-conducting connection between the two pipe systems, an isolating valve device operable to close the liquid-conducting connection to isolate the pipe systems from one another, two two-level liquid detecting devices one in each tank, each arranged to detect and issue separate consecutive signals when the liquid level in the associated tank drops to a first lower level and then a second lower level and emergency control means arranged to be operative to close the isolating valve device when a liquid-detecting device operates to signal that the first lower level has been reached in the associated tank and also to be operative to control the pumps so that when a liquid-

level detecting device signals that the second lower level has been reached in a tank to render inoperative the pump fed from



that tank and to render operative the other pump if it is not already operative.

4,365,574

ONE-PIECE SNAP-ON FOIL-SHAPED LOW-DRAG FAIRING FOR LONG UNDERWATER CABLES

Robert S. Norminton, Niagara Falls, Canada, assignor to Fleet Industries, Ontario, Canada

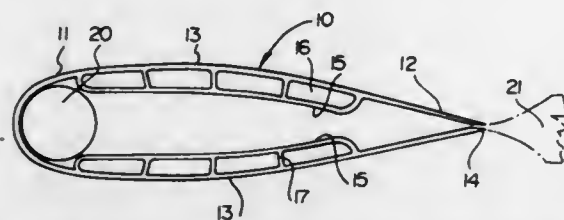
Filed Jun. 5, 1981, Ser. No. 270,881

Claims priority, application Canada, Jun. 23, 1980, 354637

Int. Cl.³ F15D 1/10

U.S. Cl. 114—243

9 Claims



1. A finite length monolithic one-piece, snap-on, foil-shaped low drag fairing element of streamlined hydrodynamic shape, having an outer wall formed of high strength material, the fairing being symmetrical about its central longitudinal axis, and adapted to be associated with a plurality of similar such fairing elements in end-to-end abutting relation on a cable, said fairing element comprising: a hollow rounded nose portion within which said cable is adapted to be disposed; a spring tail portion provided by a slit in the tail thereof along the central longitudinal axis; a hollow expandable channel symmetrical about said central longitudinal axis interconnecting said spring tail portion and said hollow nose portion, and through which said cable is adapted to be urged from its entry at said tail portion to its lodging at said hollow rounded nose portion; and an inner wall section of said high strength material spaced from said outer wall of said substantially hollow fairing element by a plurality of ribs of said high strength material, thereby defining said hollow expandable channel and also a double wall section along the flanks of said fairing element between said nose portion and said tail portion.

4,365,575

MARINE SCOOPERS FOR PORPOISES AND TUNA - PORPOISE-ESCAPE-WAY

Frank Cicero, 3948 5th Ave. #17, San Diego, Calif. 92103

Continuation-in-part of Ser. No. 868,115, Jan. 9, 1978,

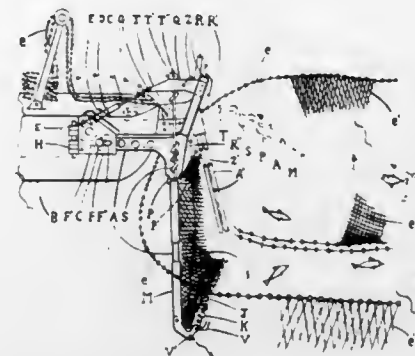
abandoned, and Ser. No. 792,121, Apr. 29, 1977, abandoned. This

application Dec. 20, 1979, Ser. No. 105,539

Int. Cl.³ B63B 35/14

U.S. Cl. 114—255

13 Claims



11. In a scoop net equipped marine vehicle or boat or barge including: a pair of arms or limbs pivotally carried by the boat sides; arm or limb extensions slidably mounted over said arms; a net extended between the arm extensions and adapted to bag fish and porpoises by activation of the extensions and by pivoting of the arms.

12. In a seine enclosure having a cork-line open and a closed bottom and wherein fish and mammals may be captured: a number of weights adapted to be hung on the cork-line and to sink a portion thereof; a tube attached by one end to the deck and by the other to the bottom of each one of a pair chase boats; cord pulling means attached to the weights and inserted thru said tube upwardly from the bottom to prevent overturning when the chase boats lift up the weights by pulling in opposite direction of each other.

4,365,576

OFFSHORE SUBMARINE STORAGE FACILITY FOR HIGHLY CHILLED LIQUIFIED GASES

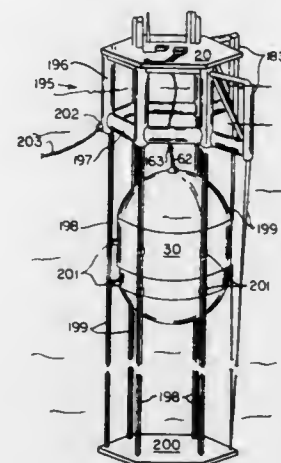
Sidney F. Cook, Corvallis, Oreg., assignor to Cook, Stolowitz and Frame, Visalia, Calif.

Filed Jul. 21, 1980, Ser. No. 170,800

Int. Cl.³ B63B 35/44; E02B 17/00; F17C 1/12

U.S. Cl. 114—265

15 Claims



1. In an offshore submarine storage facility in the ocean and the like for liquified energy gases and similar liquid materials at cryogenic temperatures which includes a vertically compressible insulated submarine storage tank positionable at various selected depths in the water for storing said liquid materials, said tank including ambient water pressure transfer means for transferring external ambient water pressures available at a selected depth to the liquified material stored therein without

intermixture of water and liquified material to aid maintaining its liquid state, an improvement comprising: frame means surrounding said tank and to which said tank is slidably attached, for anchoring said tank in place in the ocean and for enabling said tank to be positioned at said selected depths, said frame means including openable gate means therein, adjacent the surface of the ocean, for enabling said tank to be installed in and removed from said frame means, while said tank is floating at the surface of the ocean.

4,365,577

FLOAT MODULE COMBINATION

Edgar W. Heinrich, 23352 Lowrie Dr., Grosse Ile, Mich. 48138

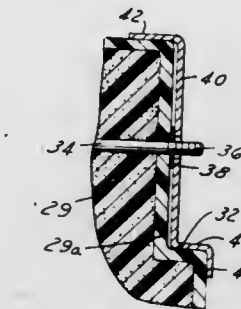
Continuation-in-part of Ser. No. 827,940, Aug. 26, 1977,

abandoned. This application Dec. 8, 1980, Ser. No. 214,028

Int. Cl.³ B63B 35/34, 35/38

U.S. Cl. 114—267

2 Claims



1. A float module for construction of pier assemblies, float platforms and the like which comprises:

- a structure having high buoyancy, weather-resistant, and waterproof characteristics,
- a structural recess formed along parallel edges of said structure open at the top and ends to provide a bench extending along the sides of said structure parallel to and spaced downwardly from the top,
- fastening means embedded in said structure having portions extending into said recess above said bench, and adapted to transfix and lock to a structural element lying in said recess,
- a structural element in the form of a flanged metal plate having a first portion lying against the back of said recess and a flanged portion lying against said bench, said first portion being transfixed by said fastening means, and
- a vertical supporting gusset secured to said first portion of said structural element having a saddle recess on the top portion thereof for receiving and securing a dredge pipe.

4,365,578

SURFACE-EFFECT AEROFOIL BOAT

Rolf Schellhaas, Grossbieberau, Fed. Rep. of Germany, assignor to Gunther W. Jorg, Grossbieberau, Fed. Rep. of Germany

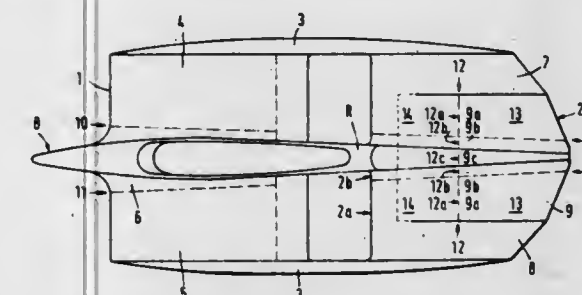
Filed Jul. 25, 1980, Ser. No. 172,241

Claims priority, application Fed. Rep. of Germany, Jul. 31, 1979, 2931020

Int. Cl.³ B63B 1/16

U.S. Cl. 114—272

13 Claims



1. In a surface-effect aerofoil boat having a body, noise portion, tail portion, central axis through the length of said

body, front and rear tandemly arranged aerofoils attached to said body, a vertical fin, a pivotally attached aerodynamic rudder, and a driven propeller mounted for rotation on a propeller axis which is oriented in the general direction of said central axis, the improvement comprising:

- means for subdividing said boat to provide hollow compartments at the stern, at least one of said compartments providing a flotation compartment for said boat;
- means for trimming said boat by flooding and emptying at least a portion of said compartment of said boat with ballast water from a body of water on which said boat is floatable such that pitching-under of the bow of said boat is avoided during take-off and the angle of attack and lift of at least one of said aerofoils is optimized relative to a surface of said body of water for lift-off of said boat clear of said surface;
- means for increasing lift and decreasing drag of said tail portion along a line of contact of an underside of said tail portion with the surface of said body of water during take-off; and
- a gap between said fin and said rudder, said propeller rotating through said gap, and means for reducing the noise generated by rotation of said propeller through said gap.

4,365,579

SURVIVAL CAPSULE MODULE AND METHODS OF CONSTRUCTING AND UTILIZING

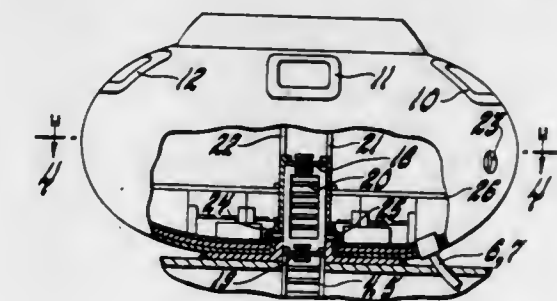
Lorenzo Perez, Jr., P.O. Box 446, Sault Ste. Marie, Mich. 49783

Continuation of Ser. No. 923,164, Jul. 10, 1978, abandoned. This application May 22, 1980, Ser. No. 152,519

Int. Cl.³ B63C 9/02

U.S. Cl. 114—349

6 Claims



- A buoyant survival capsule for a ship, comprising: a buoyant survival capsule body having a substantially oblate spheroidal shape; said body having an inner hull and an outer hull disposed in a fixed, spaced-apart, and substantially coextensive predetermined relationship; first means for supporting said buoyant survival capsule body on a deck of said ship; said first means including a tapered annular hollow conical frustum body firmly attachable to the deck of said ship over a hatch in said deck; second means for providing direct access from the interior of the ship to the interior of said buoyant survival capsule body comprising a second hollow conical member closely receiving and abutting said first means annular conical frustum body and extending inwardly and upwardly therefrom to a position above said first means, and said second means including a hatch chamber received within said second means conical member and forming an upwardly extending continuation of said first means conical body and said second means second conical member with said hatch chamber forming a hollow continuation of the hollow portion of said first means; said hatch chamber extending a substantial distance upwardly into said capsule body and a substantial distance above said first means;

a ladder within said hatch chamber extending from substantially the bottom to the top thereof;
a hatch adjacent the upper end of said hatch chamber for closing the latter.

4,365,580

HULL CONSTRUCTION

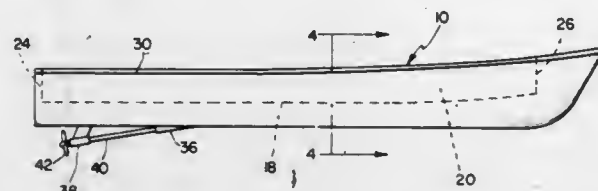
Luther H. Blount, 1 Shipyard La., Warren, R.I. 02885

Filed Apr. 13, 1981, Ser. No. 254,585

Int. Cl.³ B63B 5/24

U.S. Cl. 114—356

17 Claims



1. A hull construction for a marine vessel and the like comprising:

- a metallic inner hull structure of box-like configuration having an elongated bottom wall and upstanding side walls, said inner hull structure being of sufficient rigidity to provide substantially the sole load bearing supporting skeletal structure for said hull construction and defining an inner area in said vessel for receiving a cargo and the like;
- a rigid synthetic foam core which is adhered to the outer surfaces of said inner hull structure and thereby encases said inner hull structure, the outer surfaces of said core substantially defining an outer configuration of said hull construction; and
- outer skin means adhered to the outer surfaces of said core, said skin means substantially covering the outer surfaces of said core to provide a protective covering therefore but not providing structural support necessary to maintain the structural rigidity of said hull construction.

4,365,581

TRAFFIC SIGNALING ATTACHMENT DEVICE FOR BICYCLES

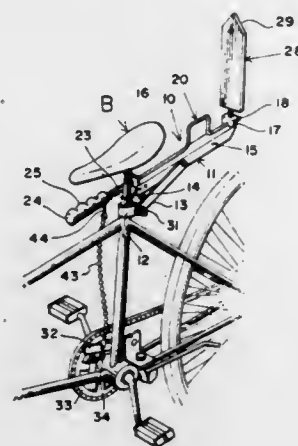
Henry Margiloff, 1817 S. Ocean Dr., West Bldg., PH 28, Hallandale, Fla. 33009

Filed Dec. 28, 1981, Ser. No. 335,106

Int. Cl.³ B60Q 1/30

U.S. Cl. 116—52

5 Claims



1. A traffic signaling attachment device for bicycles each having a conventional bicycle frame, seat, a front and a rear wheel, drive cranking mechanism and crank sprocket wheel comprising, in combination, an elongated supporting framework, means for attaching said supporting framework to a bicycle so that said means for attaching is adapted to extend rearwardly of the bicycle seat above the rear bicycle wheel, an

elongated control rod journaled along the length of said supporting framework, an elongated signal arm member fixed with respect to and extending substantially perpendicularly outwardly of said control rod, means releasably constraining said control rod so that said signal arm member normally extends in a vertically-upward direction, handle means connected to one end of said control rod for releasing said control rod for turning about its longitudinal axis to one or the other, selectively, of opposed, sidewardly-outwardly extending positions, and means for interconnecting said control rod and the bicycle drive cranking mechanism for automatically wagging the sidewardly-outwardly extending signal arm member through an arc of movement at the selected side, said means for interconnecting said control rod and the bicycle drive cranking mechanism comprising a cam lever for being pivotally connected at one end with respect to the bicycle frame, a cam roller for being rotatably journaled with respect to the bicycle crank sprocket wheel and operative to ride along the under-edge of said cam lever during a portion of each rotative cycle of said sprocket wheel for periodically lifting the other end of said cam lever between a lower-most position of rest and an elevated position, resilient means normally urging said cam lever into its position of rest, and a chain interconnecting an outer end portion of said cam lever and the outer end of a connector pin extending radially-outwardly of said control rod in the vertically-downward position when said control rod is in its normal, releasably-constrained position.

4,365,582

DIFFERENTIAL PRESSURE SIGNAL DEVICE

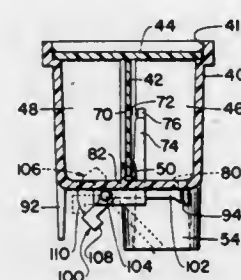
David C. Boyer, Chicago, and William E. Ruehl, Wheeling, both of Ill., assignors to Illinois Tool Works Inc., Chicago, Ill.

Filed Nov. 24, 1980, Ser. No. 209,445

Int. Cl.³ G01L 19/12; G08B 3/00

U.S. Cl. 116—70

10 Claims



1. A differential pressure signal device including a housing, an apertured plate-like member dividing said housing into two chambers, limited aperture means in said housing for exposing one of said chambers to a first pressure source, means connecting the other of said chambers to a second pressure source which may vary between being equal to or less than said first pressure source whereby a differential in pressure between said two chambers may exist when said second pressure source is less than said first pressure source, a resilient elongated flat reed fixed at one end to said plate-like member and adapted to overlie the aperture therein, means adapted to be controlled for exposing said one of said chambers to ambient pressure when the differential in pressure between said two chambers reaches a predetermined level, said means for exposing includes a second aperture in said one of said chambers and a controlled flapper valve means normally closing said second aperture until said differential in pressure reaches said predetermined level at which time said valve means opens and exposes said one of said chambers to ambient pressure, whereby said reed is adapted to provide an audible signal in response to when said differential in pressure reaches said predetermined level.

4,365,583

APPARATUS FOR APPLYING COATING OF MOLTEN METALS

Takahashi Hisashi; Hanai Satoshi, and Yoshida Katsuyoshi, all of Toukai, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Division of Ser. No. 43,096, May 29, 1979, Pat. No. 4,250,207.

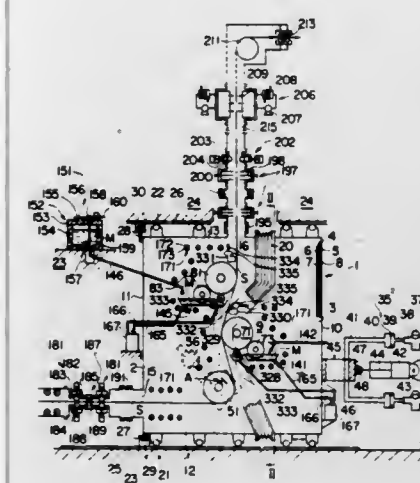
This application Aug. 25, 1980, Ser. No. 181,222

Claims priority, application Japan, May 29, 1978, 53-63317

Int. Cl.³ C23C 1/02; B05C 1/08

U.S. Cl. 118—65

11 Claims



1. An apparatus for applying a coating of molten metal comprising a plating chamber cut off from the atmosphere, at least one rotatable deflector roll horizontally disposed in the plating chamber, the deflector roll being adapted to change the running direction of a strip to be coated, a pair of power-driven coating rolls disposed on both sides of the strip passing through the plating chamber, the deflector and paired coating rolls being positioned so that the strip contacts the coating rolls with a suitable arc of contact, a molten coating metal bath provided adjacent to each coating roll, and at least one pickup roll contacting the coating roll, with the lower portion thereof immersed in molten metal in the molten metal bath, the pickup roll supplying the molten metal so as to form a uniform film thereof on the coating roll, at least one of the coating rolls being shiftably supported so as to be drawn away from the strip surface.

4,365,584

APPARATUS FOR MAKING MIRRORS

Frank M. Workens, Jamestown, N.Y., assignor to Falconer Plate Glass Corporation, Falconer, N.Y.

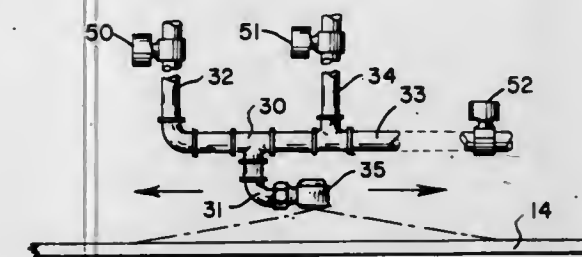
Division of Ser. No. 853,410, Nov. 21, 1977, Pat. No. 4,135,008.

This application Sep. 13, 1978, Ser. No. 941,983

Int. Cl.³ B05D 1/02

U.S. Cl. 118—300

7 Claims



1. An airless apparatus for applying silvering solutions to glass comprising a manifold, an outlet intermediate the ends of said manifold, a reducing solution inlet on said manifold on one side of the outlet, a caustic and silver solution inlet on the manifold on the opposite side of the outlet from the reducing inlet, means for airless delivery of a reducing solution and a caustic and silver solution to said outlet, means for maintaining at least one of a sufficiently higher volume and pressure of

reducing solution in the manifold and at the outlet than the volume of caustic and silver solution to prevent caustic and silver solution from entering the reducer solution inlet side of the manifold and a spray nozzle on said outlet capable of delivering all of the mixed solutions from the manifold through a single orifice in a defined spray pattern.

4,365,585

SPRAYING DEVICES

Donald B. Naylor, Southampton, and Wladyslaw H. Krywiczyn, Fairport, both of England, assignors to British-American Tobacco Company Limited, London, England

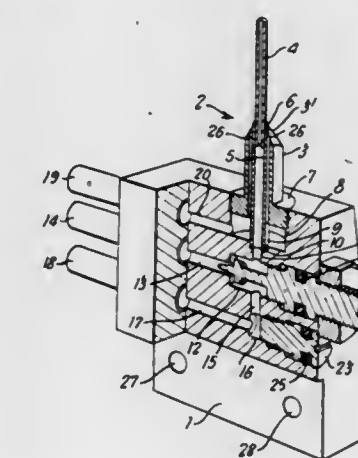
Continuation of Ser. No. 78,579, Sep. 24, 1979, abandoned. This application Apr. 7, 1981, Ser. No. 251,786

Claims priority, application United Kingdom, Oct. 6, 1978, 39576/78

Int. Cl.³ B05B 17/00, 7/16, 15/02

U.S. Cl. 118—302

5 Claims



1. A liquid-spraying device comprising a body, an elongate narrow unshrouded tubular spray tip carried by the body, first and second duct means in the body, via which duct means the liquid and an atomising medium respectively can be supplied to the tip, a third duct means for supplying a cleaning medium, jet means located remotely from the discharge end of said spray tip, connected to the third duct means and arranged to direct the cleaning medium along and around the outside of the tip to the discharge end thereof, a nozzle head connected to the body, the spray tip being mounted on and extending from said head, the body having a plurality of superimposed cavities with means for communicating with, respectively from the lowest cavity upwardly, a supply of the atomising medium, a supply of the liquid to be sprayed and a supply of the cleaning medium, the intermediate cavity, which has means for controlling the supply of the liquid and communicates with the spray tip through an axial passage in the nozzle head, while the highest cavity communicates with the jet means through axially disposed passage means provided in the nozzle head around said axial passage.

4,365,586

DEVELOPING DEVICE

Nagao Hosono, Chofu; Nobuyuki Miyake, Yokohama; Junichiro Kanbe, Tokyo; Shusei Tsukada, and Kozo Arao, both of Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 6, 1980, Ser. No. 118,926

Claims priority, application Japan, Feb. 15, 1979, 54-17738; Feb. 15, 1979, 54-17740

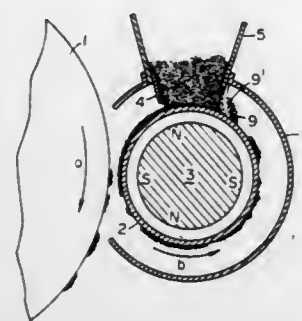
Int. Cl.³ G03G 15/09

U.S. Cl. 118—652

15 Claims

1. A developing device comprising:
developer holding means disposed with a gap with respect to a latent image bearing member for holding and moving developer to a development station;

developer supply means for supplying developer to the surface of said developer holding means; and a developer removing blade adapted to be in contact with the surface of said developer holding means to remove the developer on the surface of said developer holding means, said developer removing blade having developer passage openings adjacent to the portion thereof which is in



contact with the surface of said developer holding means thereby again imparting the removed developer to the surface of said developer holding means at a position which is downstream of said development station with respect to the movement of the developer and which is before the supply of developer is terminated at the developer supply means.

4,365,587

APPARATUS FOR FORMING ORGANIC POLYMER THIN FILMS UTILIZING MICROWAVE INDUCED PLASMAS

Masahiko Hirose, Tokyo, and Yoshimi Akai, Yokohama, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

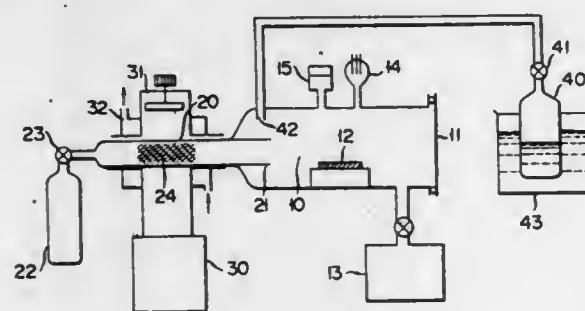
PCT No. PCT/JP79/00193, § 371 Date Mar. 24, 1980, § 102(e) Date Mar. 24, 1980, PCT Pub. No. WO80/00346, PCT Pub. Date Mar. 6, 1980

PCT Filed Jul. 25, 1979, Ser. No. 191,242

Claims priority, application Japan, Jul. 25, 1978, 53-89972 Int. Cl.³ C08F 2/52

U.S. Cl. 118—723

6 Claims



1. An apparatus for forming a thin organic film upon a substrate by means of a plasma comprising:
 - means for generating microwaves;
 - a resonator having a hollow interior portion and connected to said microwave generating means;
 - a tube for discharging said microwaves disposed across and penetrating said resonator for producing a microwave plasma in a plasma forming region of said tube;
 - means connected to a first end portion of said tube for introducing a plasma generating carrier gas into said tube;
 - a reaction chamber connected to and communicating with a second end portion of said tube and disposed apart from said plasma forming region;
 - means for evacuating said reaction chamber connected to said reaction chamber;
 - means for supplying an organic compound monomer into said reaction chamber, said supplying means having an inlet for introducing said monomer into said chamber such that said monomer is polymerized;
 - a substrate disposed within said chamber for supporting said

polymerized monomer disposed nearer said second end portion of said tube than said inlet of said, supplying means; and wherein said substrate is disposed downstream from said inlet and downstream from said second end portion of said tube.

4,365,588

FIXTURE FOR VPE REACTOR

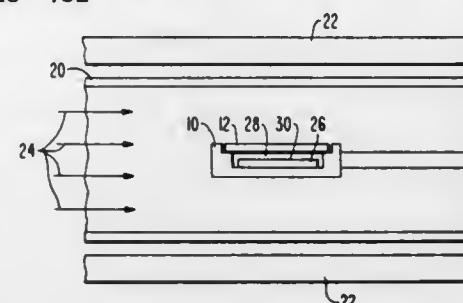
Stuart T. Jolly, Yardley, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 13, 1981, Ser. No. 243,442

Int. Cl.³ C23C 11/00

U.S. Cl. 118—732

7 Claims



1. A fixture for use within an epitaxial deposition reactor, comprising:
 - a box adapted to receive a semiconductor substrate, the box being movable to a position of turbulent reactant gas flow within the reactor; and
 - a porous cover for said box, said cover permitting reactant gas to diffuse therethrough, such that a stagnant mixture of reactant gas is maintained between the substrate and the cover while the box is within the zone of turbulent reactant gas flow.

4,365,589

METHODS OF AND/OR APPARATUS FOR MILKING ANIMALS

Evan M. Phillips, and Thomas D. Millar, both of Hamilton, New Zealand, assignors to AHI Operations Limited, Manukau City, New Zealand

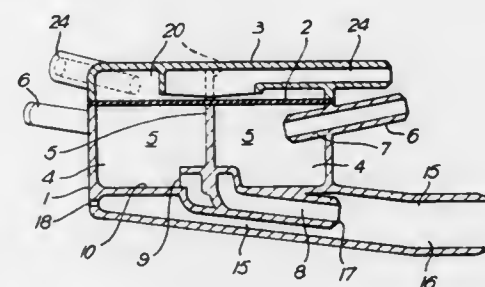
Filed Dec. 8, 1980, Ser. No. 214,427

Claims priority, application New Zealand, Dec. 20, 1979, 192474

Int. Cl.³ A01J 5/04, 5/12

U.S. Cl. 119—14.02

14 Claims



1. A method of milking animals using a milking machine which method includes the steps of directing the fluid emanating from each teat cup of a cluster of teat cups through an inlet into an individual chamber for that teat cup, causing the flow of fluid in each said individual chamber to produce a swirling action such that milk already in the chamber cannot re-enter the fluid inlet from the teat cup to the chamber without a marked change in direction, and directing fluid emanating from each of said individual chambers into a conduit leading to a milk line of the milking machine in a manner such that the

interchange of milk between said teat cups is obviated or minimized.

ually and isolating the shelf compartments from the exterior of said cage rack.

4,365,590

VENTILATED ANIMAL CAGE RACK

Albert P. Ruggieri, Flourtown, Pa.; Frank J. Marinaccio, Ridge-wood; Neil E. Campbell, Hasbrouck Heights, both of N.J.; Wayne Allen, Hatboro, Pa.; Stanley Moun, Westfield; Paul F. Malatesta, Somerset; Joseph J. Pietrowski, Linden, and Leonard H. Schwartz, North Brunswick, all of N.J., assignors to Lab Products, Inc., Maywood, N.J.

Filed Jul. 20, 1981, Ser. No. 284,707

Int. Cl.³ A01K 1/03

U.S. Cl. 119—15

19 Claims

4,365,591

LIVESTOCK HANDLING SYSTEM AND APPARATUS THEREFOR

David R. Wills, Roydon, nr Diss; Ralph E. Green, Hove, and Barry W. Landymore, Brockdish, nr Diss, all of England, assignors to Anglia Autoflow Limited, England

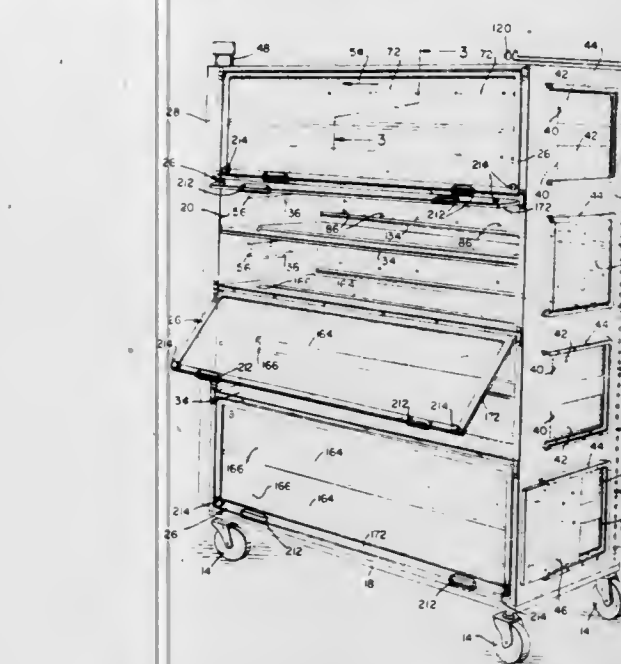
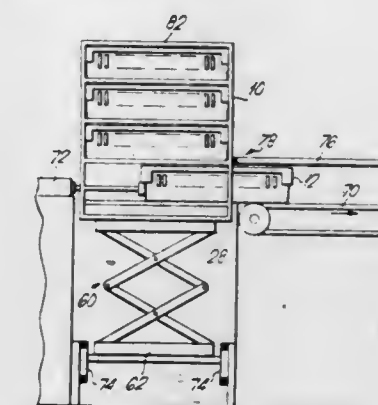
Filed Oct. 19, 1981, Ser. No. 312,862

Claims priority, application United Kingdom, Apr. 1, 1981, 8110236

Int. Cl.³ A01K 31/07

U.S. Cl. 119—82

15 Claims



1. A ventilated animal cage rack comprising:
 - an open-front housing having spaced transverse partition walls extending the width thereof and dividing said housing into a plurality of horizontally-disposed shelf compartments, each compartment having a solid, imperforate ceiling and a solid, imperforate floor and being sized to house a plurality of animal cages having imperforate side and bottom walls and open tops,
 - a plurality of retractable transparent doors closing off the front open end of said housing and cooperating with said partition walls to seal off and isolate the interiors of said shelf compartments from one another,
 - means mounting each of said doors on said housing for individual movement between a closed position covering over at least one of said shelf compartments and an open position providing access to said shelf compartments,
 - a low pressure plenum extending vertically along one side of said housing in communication with an air exhaust system exteriorly of said housing,
 - each shelf compartment having an air outlet opening at one end communicating with said plenum, and an air inlet opening at the opposite end opening exteriorly of said cage rack, whereby air is drawn from the atmosphere surrounding said cage rack through the inlet opening of each shelf compartment and passes horizontally in a laminar low-velocity flow through said shelf compartment to said outlet opening and into said plenum,
 - means for removably mounting a plurality of said animal cages in a transverse row along each of said shelf compartments with the open tops of said cages spaced an appreciable distance below the ceiling of said shelf compartment, the inlet and outlet openings of each shelf compartment being positioned to direct said air flow across the top open ends of the row of cages mounted in said shelf compartment, thereby ventilating each shelf compartment individ-

1. A system for handling livestock comprising:
 - (a) a housing having separate compartments in the form of slideable open topped drawers which can be slide at least from one side thereof completely from the housing, the housing and drawers forming a container,
 - (b) the housing includes a framework which provides guides on which the drawers can slide,
 - (c) the said housing having a top panel which provides a cover for the upper most drawer or drawers,
 - (d) each of the individual drawers below the upper most drawer or drawers being closed off (when in its pushed-in position) from the drawer above by at least the floor of the latter,
 - (e) a transfer conveyor for receiving drawers removed from a container,
 - (f) means for locating a container adjacent the transfer conveyor so that as a drawer is slid out from the container the underside registers with the transfer conveyor,
 - (g) a roof spaced from and above the transfer conveyor for closing off the open tops of the drawers as they are transferred therealong so as to remove the tendency for livestock to jump or fly out of the drawers, and
 - (h) an unloading station towards which the transfer conveyor moves the drawers beneath the said roof.

4,365,592

FAN DRIVE ACTUATOR

Warren G. Bopp, Farmington Hills, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Oct. 24, 1979, Ser. No. 88,217

Int. Cl.³ F01D 7/02

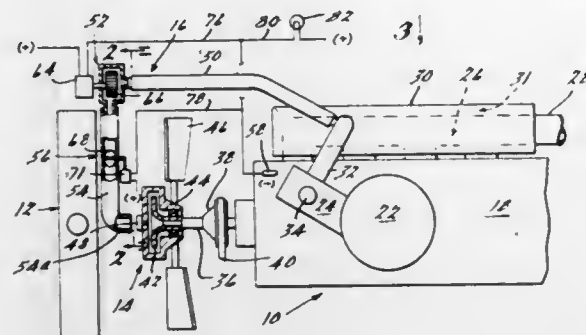
U.S. Cl. 123—41.12

8 Claims

1. A fan drive actuator for use with an engine system of the type including an internal combustion engine having cooling passages containing liquid coolant, an exhaust manifold, a jacket structure surrounding at least a portion of the exhaust manifold to create a heat sink, a carburetor, an air cleaner arranged to deliver air to the carburetor, means for selectively delivering preheated air to the air cleaner from the heat sink, a radiator, a fan drive drivably interconnecting the engine and the fan, and a sensor mechanism operative in response to a predetermined ambient air temperature to cause engagement of

the fan drive to drive the fan and cool the coolant; said actuator including

- A. a thermostatic switch arranged to sense the temperature of the engine coolant;
- B. conduit means arranged to extend from the heat sink to the vicinity of the sensor mechanism;
- C. means operative in response to the sensing of a predetermined coolant temperature by said switch to complete an electrical circuit; and



- D. means operative in response to completion of said circuit to direct heated air from the heat sink through said conduit means to the vicinity of the sensor mechanism, whereby to raise the temperature of the ambient air adjacent the sensor mechanism to said predetermined ambient air temperature and thereby operate the sensor mechanism and engage the fan drive to drive the cooling fan.

4,365,593

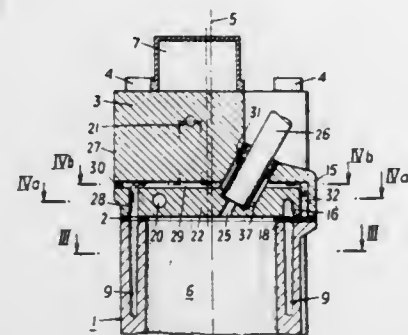
WATER-COOLED INTERNAL COMBUSTION ENGINE
Colin T. Pomfret, Graz, Austria, assignor to Hans List, Graz, Austria

Filed Jun. 15, 1981, Ser. No. 273,642

Claims priority, application Austria, Jun. 16, 1980, 3179/80
Int. Cl.³ F01P 1/02

U.S. Cl. 123—41.32

5 Claims



1. A water cooled multi-cylinder internal combustion engine, comprising a cylinder block and a cylinderhead which is provided with cast channels of a predominantly longitudinal direction in the area of the upper ends of the cylinders, which are open towards the cylinderhead gasket and streamed through by cooling water, and with a bore for the cooling water extending lengthwise through the cylinderhead in the vicinity of the valve guides, wherein only one of the long sides of said cylinderhead is provided with a continuous cast cooling channel which is open towards the cylinderhead gasket and is intended for cooling the upper cylinder ends, wherein said cylinderhead is provided with at least one inlet bore per cylinder on the long side opposite of said open cooling channel, which connects to the cooling water chamber in the cylinder block and ends in a crosshole extending through said cylinderhead in the area of the valve bridges and of the bore holding the spark plug or injection device, wherein all crossholes on the side opposite said inlet bores end in said open cooling channel serving as a collecting channel, and, finally, wherein an additional longitudinal bore is provided on the side of said

inlet bores in said area of the upper cylinder ends, which is separately supplied with cooling water.

4,365,594

WATER-COOLED, MULTI-CYLINDER INTERNAL COMBUSTION ENGINE

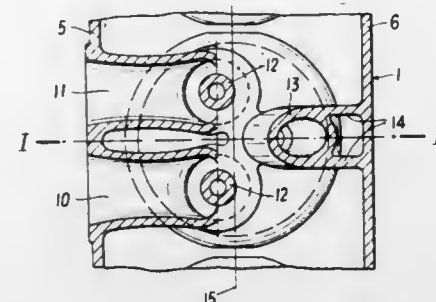
Bertram Obermayer, Othmar Skatsche, and Josef Greier, all of Graz, Austria, assignors to Hans List, Graz, Austria

Filed Aug. 22, 1980, Ser. No. 180,459

Claims priority, application Austria, Aug. 28, 1979, 5758/79
Int. Cl.³ F02F 1/36

U.S. Cl. 123—41.82 R

3 Claims



1. A water-cooled, multi-cylinder internal combustion engine comprising, a cylinder block, a cylinder head having a top end wall, and a cooling jacket, all of a one-piece casting construction, said cylinder head comprising, for each cylinder of said cylinder block, an intake and an exhaust duct both extending from only one longitudinal side wall of said cylinder head and opening substantially into one longitudinal side of said head, valve guide sockets located at said one longitudinal side, an injector socket at an opposite longitudinal side of said cylinder head, at least two fins are provided at said opposite longitudinal side, said ducts, said valve guide sockets, said injector socket and said fins solely interconnecting the end wall of said cylinder and said cooling jacket, whereby an at least approximately equal section modulus for said one longitudinal side wall and for an opposite longitudinal side wall of said cylinder head is assured to thereby promote an even distribution of combustion forces from said end wall of said cylinder to said cooling jacket and to said longitudinal walls of said cylinder head, and to thereby also effect a reduced noise emission from said longitudinal walls, and wherein said fins are spaced from one another extending parallel from said injector socket to said cooling jacket and are provided symmetrically to a plane comprising the cylinder axis and lying at right angles to said longitudinal side walls.

4,365,595

ACTUATION OF VALVES OF INTERNAL COMBUSTION ENGINES

Sanzio P. V. Piatti, 14 Corso Porta Nuova, Milano, Italy

Filed Dec. 19, 1979, Ser. No. 105,230

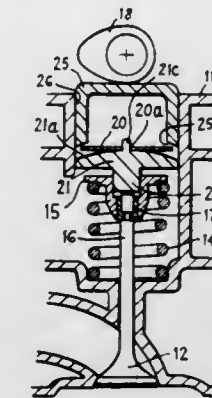
Claims priority, application Italy, Dec. 27, 1978, 31314 A/78
Int. Cl.³ F01L 1/22

U.S. Cl. 123—90.53

10 Claims

1. An internal combustion engine having cam-operated poppet valves which are urged to close on their valve seats by valve springs and having spring means located in the clearance gap in each chain of valve-actuating mechanism between a cam surface and the end of a valve stem, said spring means being constituted by a disc spring comprising at least one thin metal disc located between two relatively movable members in said chain of mechanism, the first of said movable members having a convex surface engaging one face of said disc spring approximately centrally and the second of said movable members having an annular surface engaging the other face of the disc spring around its periphery so that when said members are moved towards one another said convex surface engages progressively increasing areas of the adjacent face of the disc

spring from its centre as the disc spring is progressively deformed about said convex surface, the convex surface and the disc spring cooperating to produce a spring force, as the disc spring is progressively deflected and deformed about said convex surface, which increases at an increasing variable rate from zero when relaxed to a permitted maximum value which corresponds with the maximum relative movement between said two movable members and which has a force-deflection ratio which is low during a portion of its deflection from a relaxed state and which increases very rapidly as said maximum value is approached, and wherein the inner perimeter of said annular surface lies within the outer perimeter of said



convex surface, the disc spring is free of perforations in its working surface and is unrestricted to cooperate with said convex surface such that said spring force of the disc reaches a value in excess of the static force exerted by the valve spring, and begins to open the valve during relative movement between said two movable members less than that required to deflect the periphery of the disc spring to its permitted maximum, the disc spring being partially deflected at an initial adjustment of the valve-actuating mechanism to a position in which the force-deflection ratio is low, whereby variations in the clearance gap during engine operation are automatically compensated for.

4,365,596

ENGINE STARTING DEVICE

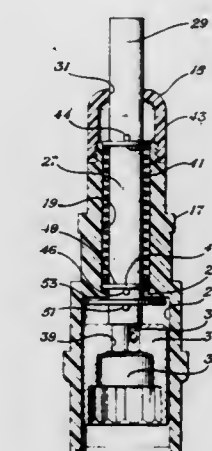
M. C. Bennett, Sr., Rte. 1, Box 587-A, Fort Worth, Tex. 76135

Filed Sep. 18, 1980, Ser. No. 188,316

Int. Cl.³ F02N 11/12

U.S. Cl. 123—179 SE

3 Claims



1. A quick release starting device for an internal combustion engine having a rotary crankshaft, comprising: a portable case having interior sidewalls, said interior sidewalls having a shoulder formed therein; a sliding shaft vertically disposed within said case, said shaft having an upper exposed end adapted to be chucked in a power drill and a lower end; coupling means mounted on the lower end of said shaft for engaging said rotary crankshaft;

a compression spring mounted about said sliding shaft in said case; a fixed spring retainer affixed to the upper end of said sliding shaft above said compression spring located within said case; a sliding spring retainer fitted on the lower end of said shaft below said compression spring and above said coupling means, said sliding spring retainer having an opening therein selected to allow said sliding shaft to pass within said opening but to retain said compression spring; and said sliding spring retainer being engagable with said shoulder formed in the interior sidewalls of said case and said case being engagable with said engine so that said spring is compressed between said fixed and sliding spring retainers when downward pressure is applied on the upper exposed end of said shaft to engage said coupling means and cause said shaft to slide through said sliding spring retainer opening and said spring being relaxed when said pressure is removed to disengage said coupling means.

4,365,597

SPLIT TYPE INTERNAL COMBUSTION ENGINE

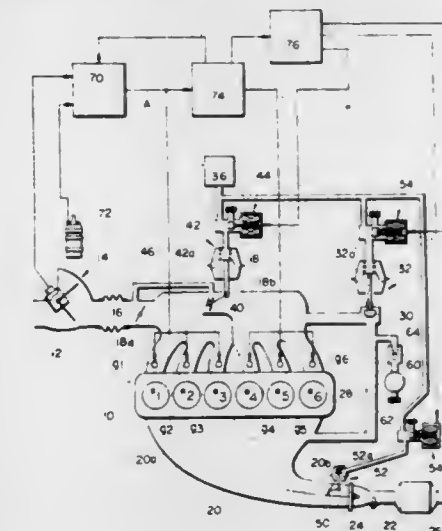
Haruhiko Iizuka, Yokosuka, and Fukashi Sugawara, Yokohama, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Nov. 12, 1980, Ser. No. 206,141

Claims priority, application Japan, Nov. 15, 1979, 54-148213
Int. Cl.³ F02D 17/00

U.S. Cl. 123—198 F

7 Claims



1. An internal combustion engine including first and second cylinder units each including at least one cylinder, an intake manifold divided into first and second intake passages leading to said first and second cylinder units, respectively, an exhaust manifold divided into first and second exhaust passages leading from said first and second cylinder units, respectively; said exhaust manifold connected at its downstream end to an exhaust duct, and control means for providing a control signal to disable said second cylinder unit when the engine load is below a predetermined value, which comprises:

- (a) first normally open valve means located in said second intake passage;
- (b) second normally open valve means located at the outlet of said second exhaust passage;
- (c) means responsive to the control signal from said control means for closing said first and second valve means; and
- (d) pressure control means responsive to the control signal from said control means for supplying a predetermined pressure not less than atmospheric pressure to said second intake passage, thereby maintaining said second intake passage at the predetermined pressure.

4,365,598

INTERNAL COMBUSTION ENGINE

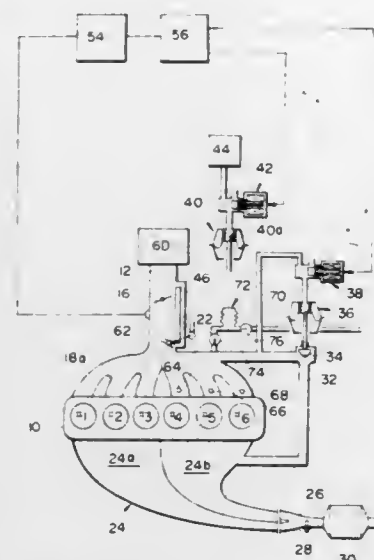
Fukashi Sugawara, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed Feb. 17, 1981, Ser. No. 234,901

Claims priority, application Japan, Feb. 20, 1980, 55-20019 Int. Cl.³ F02D 17/02

U.S. Cl. 123—198 F

6 Claims



1. An internal combustion engine comprising:
 - (a) first and second cylinder units each including at least one cylinder;
 - (b) an induction passage having therein a throttle valve, said induction passage being divided, downstream of said throttle valve, into first and second intake passages leading to said first and second cylinder units, respectively;
 - (c) a normally open stop valve provided at the entrance of said second intake passage;
 - (d) control means responsive to conditions of engine load for closing said stop valve to disconnect said second intake passage from said induction passage when the engine load is below a predetermined value;
 - (e) a main fuel supply unit for supplying a controlled amount of fuel into said induction passage; and
 - (f) an auxiliary fuel supply unit for supplying a predetermined amount of fuel into said second intake passage downstream of said stop valve for a predetermined period of time after the engine load exceeds the predetermined value.

4,365,599

OPEN AND CLOSED LOOP ENGINE IDLING SPEED CONTROL METHOD AND SYSTEM FOR AN AUTOMOTIVE INTERNAL COMBUSTION ENGINE

Kenji Ikeura, Yokosuka, Japan, assignor to Nissan Motor Company, Limited, Kanagawa, Japan

Filed May 5, 1980, Ser. No. 146,427

Claims priority, application Japan, May 9, 1979, 54-55670; May 21, 1979, 54-61510

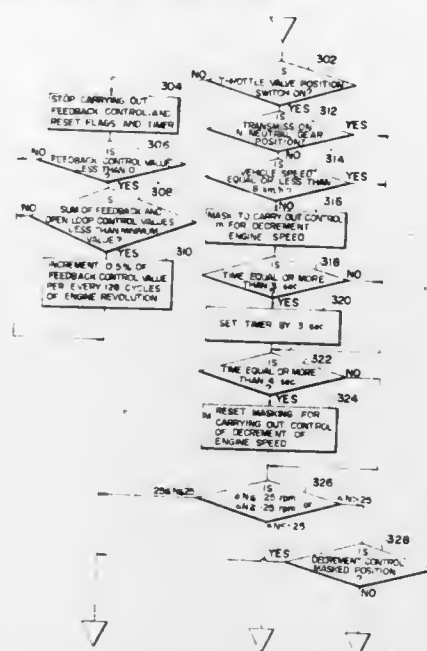
Int. Cl.³ F02B 3/08; F02M 7/12; F02B 75/10; F02D 1/04 U.S. Cl. 123—339

12 Claims

1. In an automotive vehicle having an internal combustion engine and a transmission, said engine having an air intake passage with a throttle valve therein, an engine idling speed control system, comprising:

- a bypass passage which bypasses said throttle valve; means for controlling flow rate of intake air flowing through said bypass passage;
- first sensor means for detecting engine speed;
- second sensor means for detecting a first parameter indicative of a fully closed position of said throttle valve;
- a microcomputer including third sensor means for detecting predetermined engine driving conditions indicative of a stable driving condition of said internal combustion engine, whereat parameters of controlling engine idling

speed are generally at a steady state condition, said predetermined engine conditions including at least one of second, third and fourth parameters, said second parameter being a neutral gear position of said transmission, said third parameter being a vehicle speed less than a given speed, and the fourth parameter being fuel supply in other than a fuel shut off condition; and



said microcomputer closed loop controlling said controlling means based on said engine speed detected by said first sensor means when said second and third sensor means detect said first parameter and said stable driving condition, respectively, and for otherwise open loop controlling said controlling means.

4,365,600

DIESEL THROTTLE VALVE CONTROL SYSTEM

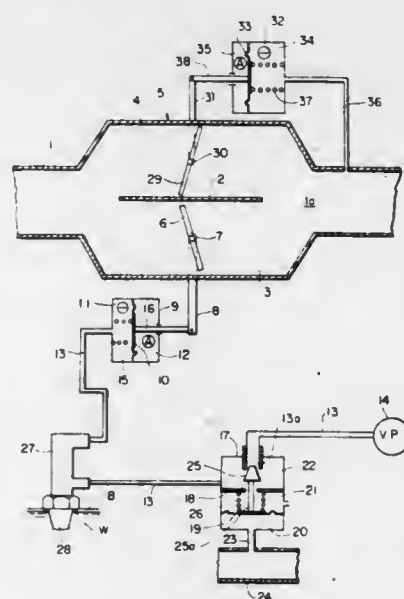
Teruo Nakada, Yokohama, and Mitsuo Iwahara, Ebina, both of Japan, assignors to Isuzu Motors, Limited, Kanagawa, Japan

Filed Aug. 1, 1980, Ser. No. 174,424

Int. Cl.³ F02D 1/04, 1/06

U.S. Cl. 123—339

7 Claims



1. An intake air throttle valve control system for a diesel engine having an intake manifold and an exhaust manifold comprising:
 - intake passage means connected to said intake manifold, said intake passage means being partitioned into a first intake passage and a second intake passage connected in parallel;

a throttle valve disposed in said first intake passage for providing a throttling effect therein;
a negative pressure control valve disposed in said second passage; and
means connected to said negative pressure control valve and responsive to a negative pressure downstream of said first and second passages for maintaining a negative pressure downstream of said first and second passage at a predetermined substantially constant value when said engine is operating at idle speed.

4,365,601

METHOD AND APPARATUS FOR CONTROLLING ROTATION SPEED OF ENGINE

Hisamitsu Yamazoe; Masumi Kinugawa, both of Kariya, and Masaaki Kurii, Kasugai, all of Japan, assignors to Nippon-denso Co., Ltd., Kariya, Japan

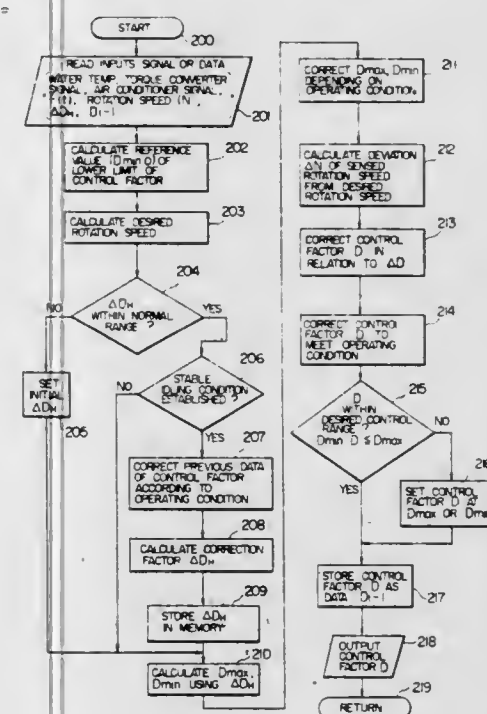
Filed Oct. 15, 1980, Ser. No. 197,275

Claims priority, application Japan, Oct. 17, 1979, 54-134411

Int. Cl.³ F02D 11/10

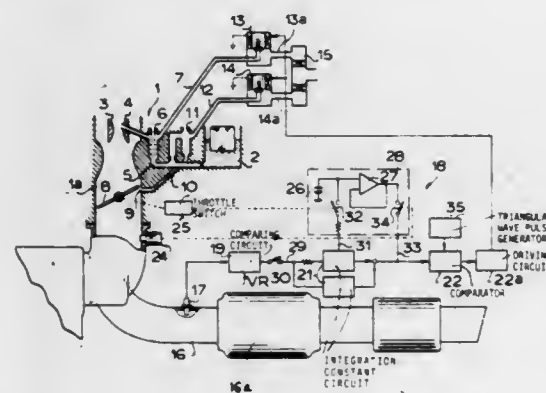
U.S. Cl. 123—339

9 Claims



said air-fuel mixture supply means, the improvement comprising:

- electronic control means comprising,
- a comparing circuit means for comparing an output signal of said detecting means with a reference value corresponding to stoichiometric air-fuel ratio,
- a proportional and integration circuit connected to said comparing circuit means for producing a control signal, and
- driving circuit means for driving said electromagnetic valve means via said control signal for controlling the air-fuel ratio to a value approximately equal to the stoichiometric air-fuel ratio,
- holding circuit means including a capacitor means for being charged by and memorizing a voltage corresponding to said control signal and an amplifier means for being operated by the voltage charged in said capacitor,
- first switch means when actuated for connecting said capacitor means of said holding circuit means to said electronic control means and to said control signal,



second switch means when actuated for disconnecting said detecting means operatively from said electronic control means,

third switch means when actuated for operatively connecting an output of said amplifier means of said holding circuit means to said driving circuit means of said electronic control means,

means for sensing the idling condition and thereupon for actuating said first switch means, whereby said voltage corresponding to said control signal is charged in said capacitor means during the idling condition, and

vacuum switch means for detecting a high vacuum in said intake passage which occurs in such a rapid deceleration that could cause misfiring to occur and for thereupon actuating said second switch means and said third switch means, so that during said rapid deceleration said driving circuit means is operated by the output of said amplifier means for operatively driving said electromagnetic valve means with a control signal substantially equal to said control signal in the preceding idling condition.

4,365,604

SYSTEM FOR FEEDBACK CONTROL OF AIR/FUEL RATIO IN IC ENGINE WITH MEANS TO CONTROL CURRENT SUPPLY TO OXYGEN SENSOR

Kohki Sone, Tokyo, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Feb. 4, 1981, Ser. No. 231,234

Claims priority, application Japan, Sep. 8, 1980, 55-124378

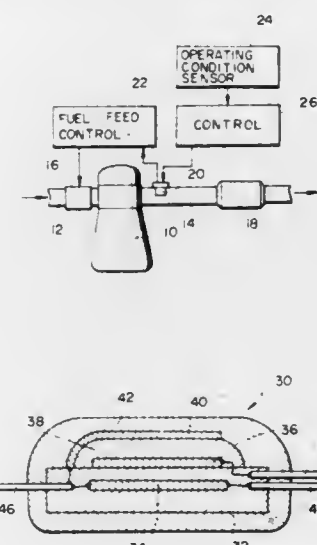
Int. Cl.³ G01N 27/04; F02B 3/00, 3/08; G01N 27/58

U.S. Cl. 123-440

10 Claims

1. In a system for feedback control of the air/fuel ratio of an air-fuel mixture supplied to an internal combustion engine, the control system having: an electrically controllable fuel supplying means provided in the intake system of the engine; an air/fuel ratio detecting probe which is installed in an exhaust passage for the engine and has an oxygen-sensitive element of a concentration cell type having a substrate, a reference electrode layer laid on the substrate, a microscopically porous

layer of an oxygen ion conductive solid electrolyte formed on the substrate so as to cover the reference electrode layer substantially entirely and a microscopically porous measurement electrode layer formed on the solid electrolyte layer and an electric heater; fuel feed control means for providing a control signal to the fuel supplying means to control the rate of fuel feed to the engine so as to maintain a desired air/fuel ratio by utilizing the output of the air/fuel ratio detecting probe as a feedback signal; and power supply means for energizing the electric heater and forcing a DC current to flow through the solid electrolyte layer of the oxygen-sensitive element to cause migration of oxygen ions through the solid electrolyte layer from one of the reference and measurement electrode layers towards the other to thereby establish a reference oxygen partial pressure at the interface between the reference electrode layer and the solid electrolyte layer;



the improvement comprising a sub-system to maintain said reference oxygen partial pressure at an adequate level during operation of the feedback control system, said sub-system comprising: sensor means for producing at least one electrical information signal each representative of momentary values of a parameter of the operating condition of the engine, said parameter being related also to the temperature of the exhaust gas; and voltage and current control means for gradually varying both the intensity of said DC current to be forced to flow through said solid electrolyte layer and the magnitude of a voltage to be applied to said electric heater according as the operating condition of the engine indicated by said at least one information signal varies to thereby prevent significant changes in the magnitude of said reference oxygen partial pressure by the influence of the exhaust gas temperature.

4,365,605

APPARATUS FOR IMPROVING THE ACCELERATION OF AN INTERNAL COMBUSTION ENGINE DRIVEN WITH AN EXHAUST TURBOCHARGER

Wolf Wessel, Oberriexingen; Wilfried Sautter, Ditzingen, and Johannes Brettschneider, Ludwigsburg, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Oct. 27, 1980, Ser. No. 200,654

Claims priority, application Fed. Rep. of Germany, Oct. 31, 1979, 2943950

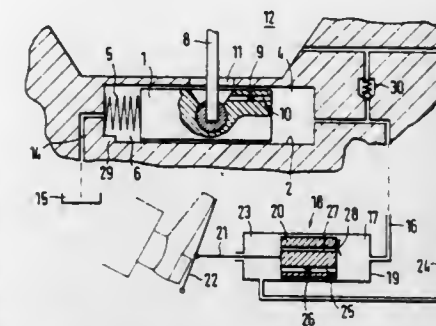
Int. Cl.³ F22B 37/10

U.S. Cl. 123-502

20 Claims

1. Apparatus for improving the acceleration behavior of a self-igniting internal combustion engine driven with an exhaust turbocharger supplied with fuel by an injection pump, comprising means for testing during the operational mode of the

engine as to whether a status of acceleration of a predetermined order of magnitude is present or should be established



and that for this operational case, means for generating an acceleration signal in accordance with which the onset of injection is adjusted toward "early".

4,365,606

ENGINE STARTING APPARATUS FOR AN EXTREMELY COLD CLIMATE

Takuya Endo, Yokohama, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

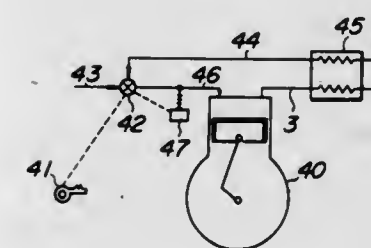
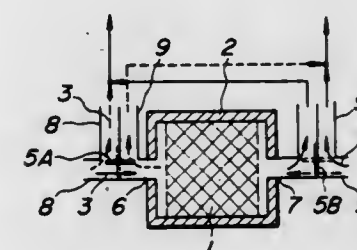
Filed Jan. 17, 1980, Ser. No. 113,066

Claims priority, application Japan, Jan. 17, 1979, 54-4317

Int. Cl.³ F02M 31/00

U.S. Cl. 123-556

8 Claims



1. An engine starting apparatus for an extremely cold climate, comprising a suction conduit passing ambient air to be supplied to the engine, an exhaust conduit passing exhaust gas from the engine, a regenerator having a regenerator body accommodated therein, means to connect the regenerator with the exhaust conduit at least when the engine is in operation to thereby store heat of the exhaust gas in the regenerator body, means to connect the regenerator with the suction conduit at least when starting the engine to thereby heat the suction air, and means to control the temperature of the suction air to be within the range suitable for starting the engine, said regenerator having sufficient heat retention capability to heat the suction air from -30°C . to about 10°C to 20°C . ten hours after engine stop.

4,365,607

HOT-AIR INTAKE SYSTEM OF AN INTERNAL COMBUSTION ENGINE

Yoshikazu Ishikawa, Chofu, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

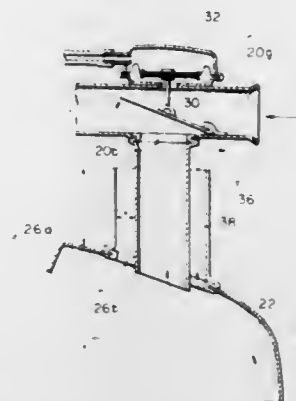
Filed Mar. 11, 1981, Ser. No. 242,422

Claims priority, application Japan, Mar. 12, 1980, 55-32332[U]

Int. Cl.³ F02M 31/00

U.S. Cl. 123-556

5 Claims



1. A hot-air intake system of an internal combustion engine having an air inlet tube through which air to be fed to the engine proper passes and an exhaust manifold through which the combusted gas from the engine proper passes before discharging to the open air, said hot-air intake system comprising: first means defining in said air inlet tube a first opening for ambient air and a second opening for hot air;

second means for changing the ratio of the opening degree of the first opening and that of the second opening in accordance with the temperature of ambient air;

an exhaust manifold cover covering said exhaust manifold with a clearance therebetween, said cover being formed with an opening;

a first straight through tube connected at its one end to the opening of said cover and extending toward the second opening of said air inlet tube with its other end separated from the air inlet tube; and

a second straight through tube disposed in said first straight through tube with a clearance therebetween, said second straight through tube having one end connected to the second opening of said air inlet tube and the other end exposed to the interior of said cover, so that the interior of said cover is in free communication with the open air through said clearance.

4,365,608

CONTROLLING ENGINE EXHAUST GAS RECIRCULATION AND VACUUM INVERTER

Cyril E. Bradshaw, Kalamazoo, and Martin W. Uiltvugt, Battle Creek, both of Mich., assignors to Eaton Corporation, Cleveland, Ohio

Filed Sep. 9, 1980, Ser. No. 185,467

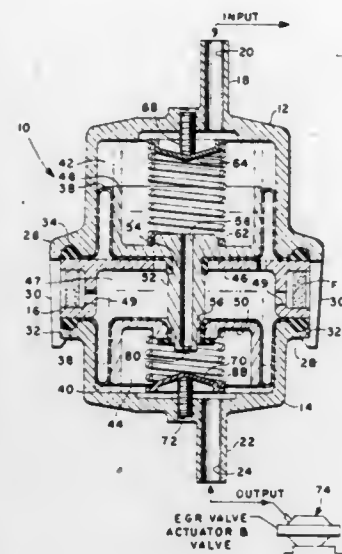
Int. Cl.³ F02M 25/06

U.S. Cl. 123-568

17 Claims

16. In combination with an internal combustion engine having a combustion chamber inlet induction passage and a combustion chamber exhaust discharge passage, movable valve means for providing exhaust gas recirculation (EGR) from said discharge passage to said induction passage, means for sensing fluid pressure changes in said induction passage operative for inverting said changes to provide a source of fluid pressure which changes inversely with changes in induction passage pressure, fluid pressure responsive actuator means for receiving said source of fluid pressure and operative for moving said valve means in response to changes in said fluid pressure source, said movement being controlled such that EGR flow is

provided as a substantially constant percentage of engine air mass flow over a predetermined range of inlet induction pres-



ures and EGR flow is substantially defeated at inlet induction passage pressures outside said range.

4,365,609

DISTRIBUTOR ASSEMBLY HAVING AN IGNITION COIL THEREIN

Kouichi Toyama, Kariya, Yasushi Sugiura, Chiryu, and Michio Adachi, Kariya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

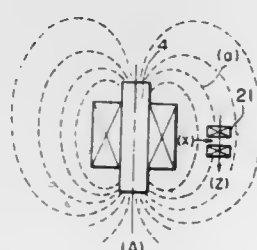
Filed Jan. 16, 1981, Ser. No. 225,530

Claims priority, application Japan, Jan. 23, 1980, 55-7255; Jan. 23, 1980, 55-7256

Int. Cl.³ F02P 1/00

U.S. Cl. 123—635

12 Claims



1. A distributor assembly having an ignition coil, therein for an ignition system of an engine comprising:

- (a) a distributor body having a distributor housing and a cap attached to said distributor housing;
- (b) a rotary shaft disposed in said distributor body adapted to be rotated in synchronism with the rotation of a crankshaft of said engine;
- (c) a signal rotor, attached to said rotary shaft, having gear teeth-like projections about its circumference;
- (d) rotation signal generating means disposed inside said distributor body, facing said projections of said signal rotor, for providing an output signal by detecting the variation in magnetic flux caused by the rotation of said signal rotor, and having its magnetic sensitive direction aligned in the radial direction of said signal rotor when said signal rotor rotates;
- (e) an ignition coil having primary and secondary windings wound around a core, energization of said primary winding being controlled in accordance with said output signal of said rotation signal generating means, said ignition coil being disposed in said distributor body; and
- (f) a distributing mechanism for distributing a high voltage induced in said secondary winding to a plurality of terminals, the number of which equals the number of the cylin-

ders of said engine, a portion of said distributor mechanism being attached to said rotary shaft; said ignition coil being arranged in such a manner than a plane perpendicular to the longitudinal axis of the main magnetic flux generated by the energization of said primary winding is substantially parallel to said magnetic sensitive direction of said rotation signal generating means, and said axis is parallel to said rotary shaft; and said rotation signal generating means being arranged at a substantially midway point of an external magnetic path of a magnetic flux passing through said longitudinal axis of said main magnetic flux within said core of said ignition coil.

4,365,610

ARROW LAUNCHER

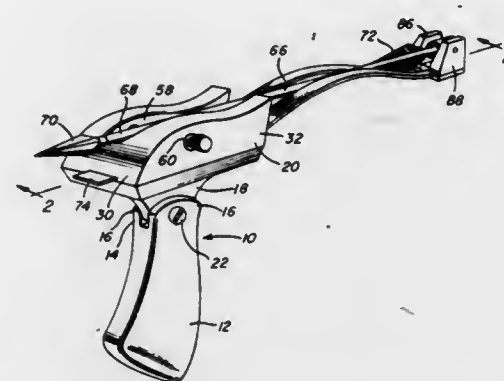
Richard W. Cooper, deceased, late of Hutchison, Kans., and by Ruth E. Cooper, Executrix, 29 Tomahawk Rd., Hutchinson, Kans. 67501

Filed Jun. 29, 1981, Ser. No. 278,621

Int. Cl.³ F41B 3/00

U.S. Cl. 124—5

9 Claims



1. A launcher for an elongated projectile of the type including front and rear end portions and wherein the projectile includes a fletched or similarly equipped rear end, said launcher including a handgrip body held in the users throwing hand, said handgrip including a head portion supported therefrom having front and rear sides and an outer exposed surface extending between said front and rear sides, said head defining a groove therein between said front and rear sides, opening laterally outwardly of said exposed surface and adapted to lengthwise cradle a projectile therein, an elongated flexible and resilient arm having opposite end portions, said arm having sufficient rigidity to be self supporting said head including means for supporting one end portion of said arm with the other end portion of said arm projecting rearwardly from said head, said other end portion of said arm including forwardly opening socket means for seatingly receiving the rear end of a projectile cradled in said groove, said launcher being given a forward arcuate motion to project a projectile.

4,365,611

COMPOUND BOW WITH UNEQUALLY FLEXING ARMS

Jim Z. Nishioka, 1268 Hemlock NW., Salem, Oreg. 97304

Continuation of Ser. No. 22,054, Mar. 19, 1979, abandoned. This application Nov. 7, 1980, Ser. No. 205,008

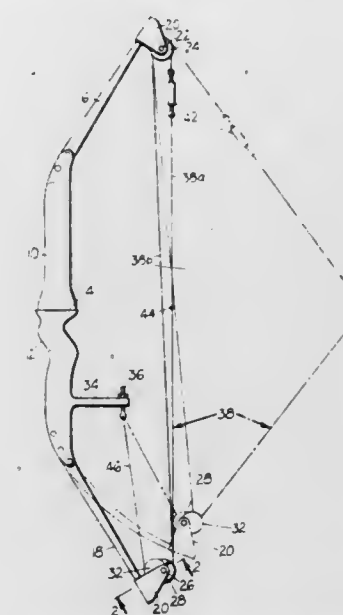
Int. Cl.³ F41B 5/00

U.S. Cl. 124—24 R

7 Claims

1. An archery bow comprising
 - (a) a body portion,
 - (b) a bowstring on said bow movable rearwardly in drawing movements of the bow,
 - (c) said bowstring including a main span and an end span,
 - (d) a nocking point on said main span of said bowstring,
 - (e) projectile guide means on said body portion providing a projectile guiding path which extends rearwardly at substantially a right angle to said body portion,

- (f) first and second oppositely extending bow arms on said body portion having tip ends,
- (g) said first arm flexing substantially more than said second arm during drawing movements of the bowstring main span,
- (h) bowstring guide means comprising a first rotatable guide member on said first arm tip end and a second rotatable guide member on said second arm tip end,
- (i) said second guide member comprising a rotatable pulley supported on said second arm tip end by a centrally located axis for non-eccentric rotation,
- (j) said first rotatable guide member and said rotatable pulley having opposite bowstring engaging sides,
- (k) said projectile guiding path being substantially in rearward alignment with said nocking point in a rest position of the bow,
- (l) said main span of said bowstring extending between said bow arm tip ends and engaging said first rotatable guide member on the first arm tip end and said rotatable pulley on the second arm tip end,



- (m) said main span of said bowstring wrapping over said rotatable pulley on the second arm tip end,
- (n) said end span of said bowstring extending from said rotatable pulley on the second arm tip end to said first rotatable guide member on the first arm tip end,
- (o) both said main and end spans wrapping around said first rotatable guide member in a common direction so that during operation of the bow a rearward drawing movement of said main span will cause said main span and said end span to urge rotation of said rotatable first guide member and also will cause more of said bowstring main span to reel over said rotatable pulley on the second arm tip end than over said first rotatable guide member on the first arm tip end to compensate for the difference in flexing of the arms and to provide a rearward draw of said bowstring which maintains the nocking point in all of such draw movement substantially in rearward alignment with the projectile guiding path provided by said projectile guide means.

4,365,612

DEVICE FOR PROPELLING AN INFLATED BALL BY MEANS OF AN ELASTIC IMPACT

Georges Defosse, Rue de Heuseux, 46, B 4511 Barchon, Belgium

Filed May 7, 1980, Ser. No. 147,598

Claims priority, application European Pat. Off., May 7, 1979, 79200222

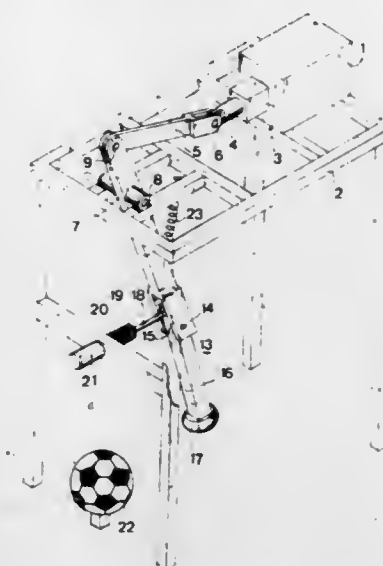
Int. Cl.³ F41B 15/00

U.S. Cl. 124—54

13 Claims

1. A device for the propulsion of balls by elastic impact, comprising:
 - a frame;

a ball support mounted to said frame; an oscillating lever pivotally mounted to said frame for movement through a first arc directed toward said ball support; a ball strike lever pivotally mounted directly to said oscillating lever for movement therewith through a second arc substantially coplanar with said first arc;



a strike mass mounted on said strike lever for striking the ball positioned on said ball mount; and a means connected to said frame for causing said strike lever to move about said strike lever pivot mount after said oscillating lever has moved a limited distance through said first arc thereby giving a higher speed to said strike mass.

4,365,613

HYDRAULIC-LIFT BARBECUE COOKING APPARATUS

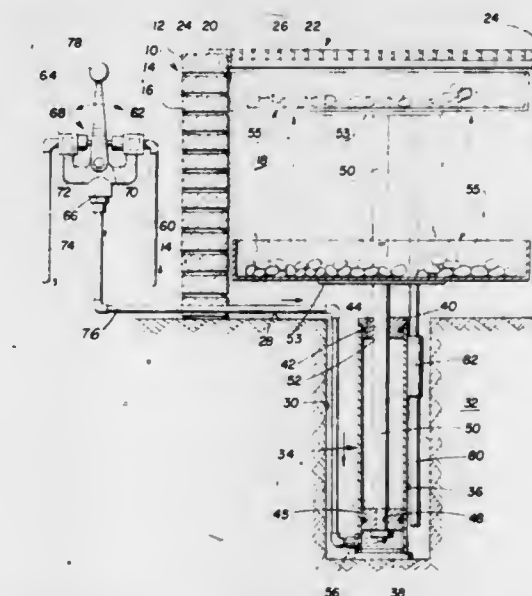
James Seki, 15328 Kenoak Dr., Baldwin Park, Calif. 91706, and Damon J. Chung, 501 Marek Dr., Montebello, Calif. 90640

Filed Apr. 10, 1978, Ser. No. 894,523

Int. Cl.³ A47J 37/00

U.S. Cl. 126—25 A

1 Claim



1. A hydraulic-lift barbecue cooking apparatus supported on a ground surface and operated by a conventional water-pressure system comprising:
 - a superstructure defining a housing;
 - a fire well disposed in said superstructure housing having an upper, open end and a closed bottom, said bottom being closed by said ground surface;
 - a firebox arranged to be movably received in said fire well;
 - a cavity formed in said ground surface directly under said fire well;
 - a hydraulic-lift means located in said cavity to movably

support said firebox within said fire well, whereby said firebox can be moved the full length of said fire well, wherein said lift means comprises:

- a cylindrical housing having a sealed, closed end cap and a piston-cap member;
- a piston head slidable within said housing;
- a piston rod attached to said piston head and having a free end extending outwardly from said piston-cap member;
- a support plate secured to said free end of said piston rod to support said firebox thereon;
- a valve means interconnected between said water-pressure system and said hydraulic-lift means, whereby water pressure is regulated and supplied to said hydraulic-lift means to control the movement thereof, said valve means having an inlet side, an outlet side and a discharge side;
- a plurality of pipes interconnecting said water system to said hydraulic-lift means, said pipes comprising a water-supply pipe connected to said inlet side, a pipe section interconnected between said outlet side and said hydraulic-lift means, and a discharge-pipe line connected to said discharge outlet of said valve means, whereby said water from said hydraulic-lift means is discharged remotely from said hydraulic-lift means; and
- a stabilizing guide means attached to said hydraulic lift to stabilize and guide the up-and-down movement of said firebox,

wherein said stabilizing guide means comprises:

- a stabilizing rod affixed to said support plate; and
- a tube member mounted to the side of said cylindrical housing and adapted to receive said stabilizing rod, whereby said rod moves with said support plate and said piston rod.

4,365,614

FRICTION SPACE HEATER

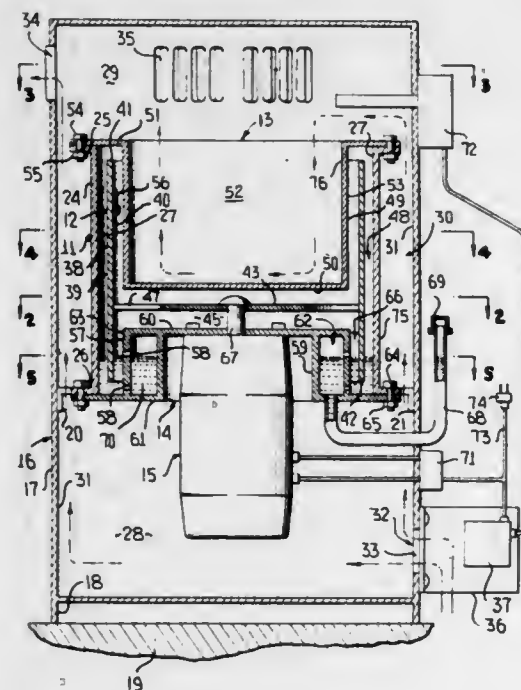
Robert R. Grover, R.F.D. #1, Winchester, N.H. 03470

Filed Mar. 31, 1980, Ser. No. 135,276

Int. Cl. F24C 09/00

U.S. Cl. 126-247

6 Claims



1. An odorless, combustion-less quiet heater comprising; an elongated tubular cylinder with a spoked driving disc attached an intermediate distance within to divide the tubular cylinder into a top recessed portion and a bottom recessed portion;

said tubular cylinder to rotate in a horizontal plane on a vertical axis outwardly of an inner extending convection chamber member having a convection chamber to occupy the said top recessed portion, and outwardly of an inner extending metering chamber member having an annular metering chamber with metering apertures to occupy the said bottom recessed portion, and within an elongated,

cylindrical, outer stationary member with a top rim portion and a bottom rim portion, with the said top rim portion joined to the said convection chamber member, and the said bottom rim portion joined to the said metering chamber member to form outer and inner annular vertical chambers therebetween, having a clearance of about five-sixteenth of an inch, and forming an upper horizontal chamber and a lower horizontal chamber about the said spoked driving disc with a clearance of about three-eighth of an inch in the said upper horizontal chamber and a clearance of about one-half of an inch in the said lower horizontal chamber;

said driving disc on its horizontal axis divides the said heater into an upper portion consisting of said outer and inner annular, vertical, chambers and said convection chamber and a lower portion consisting of said outer and inner annular, vertical chambers and said annular metering chamber;

a supply of oil normally occupying only said lower portions said outer and inner annular, vertical chambers and said annular metering chamber to a predetermined height but adapted to be raised upwardly into the said outer annular, vertical, chamber in a heat generating cycle, and with metering of the said oil from the said annular metering chamber through the said metering apertures cause the heated said oil to overflow in the said upper portion of the said heater, whereby; due to vertex flow and gravitational forces the heated said oil is returned through the said upper portion's said inner annular, vertical, chamber and through the said spoked driving disc to the said lower portion's said inner annular, vertical, chamber in a regenerative cooling cycle, when the said tubular cylinder is rotated on said vertical axis at substantial speed;

and electric motor means for rotating said spoked driving disc and said tubular cylinder on said vertical axis outwardly of said convection chamber member and outwardly of said metering chamber member and within said outer stationary member to heat said oil and transfer said heat to the outer surface of said outer stationary member and supplementary heat to the outer surface of said convection chamber member.

4,365,615

SOLAR HOT WATER HEATER

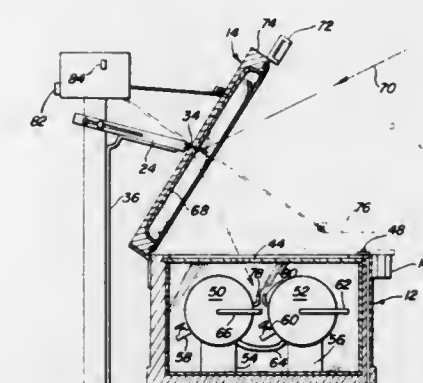
Hubert A. Melvin, Rte. 1, Box 167-A, Tar Heel, N.C. 28392

Filed Feb. 26, 1981, Ser. No. 238,435

Int. Cl. F24J 3/02

U.S. Cl. 126-419

10 Claims



1. A solar hot water heater comprising:

- water storage means including at least one hot water storage tank in fluid communication with inlet and outlet water supply lines;
- container means having said water storage means contained therein;
- lid means supported by said container means and being operable to expose said water storage means to solar

radiation when open and to limit heat loss from said water storage means when closed;

- control means including motor means and responsive to environmental temperature changes and operable for the motor means to open and close said lid means; and
- reflection means provided on said lid means to facilitate a reflection of said solar radiation against said water storage means; said control means further including a thermostat means disposed within a space adjacent said container means and coverable by said lid means and for sensing said environmental temperature changes; said thermostat means being operable to effect selectively a forward and reverse operation of said motor means so as to respectively open and close said lid means.

4,365,616

SELF-ALIGNING SOLAR COLLECTOR

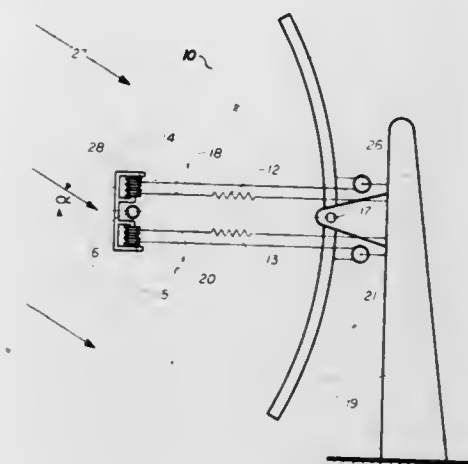
Leonard B. Vandenberg, 710 Sanders Ave., Scotia, N.Y. 12302

Filed Sep. 15, 1980, Ser. No. 187,555

Int. Cl. F24J 3/02

U.S. Cl. 126-424

9 Claims



1. A self-aligning solar energy collection system, including: a solar reflector supported on a frame and disposed to pivot about horizontal pivot axis, said reflector defining an extended focal line for radiation incident normally to said reflector,

- a first tension cable connected at one of its ends to said frame and connected at its other end to said reflector above said pivot axis and extending parallel to and above said focal line, and
- a second tension cable connected at one of its ends to said frame and connected at its other end to said reflector below said pivot axis and extending parallel to and below said focal line,

whereby said tension cables are in thermal equilibrium when said reflector is aligned with the sun, and in thermal disequilibrium when said reflector is out of alignment with the sun so that the consequent force imbalance in said cables effects a corrective rotation of said reflector about said pivot axis.

4,365,617

SOLAR ENERGY HEATING SYSTEM

Eckhard Bugash, 2493 Montclair Ave., and George Kubina, 3262

Armstrong Rd., R.D. No. 2, both of Wooster, Ohio 44691

Filed Oct. 2, 1980, Ser. No. 193,135

Int. Cl. F24J 3/02

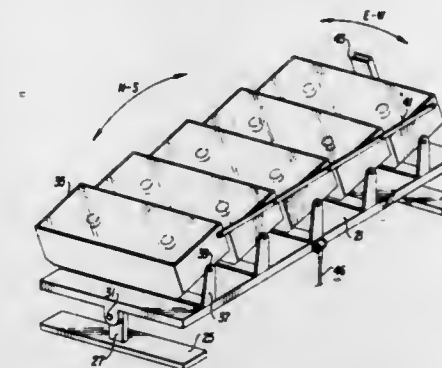
U.S. Cl. 126-425

9 Claims

1. A solar energy heating system for supplying heat to a building structure comprising

- a plurality of parabolic mirror reflectors mounted on a movable base;
- first means mounted on said base in a position so as to intercept

- and absorb the reflected solar energy from said mirror reflectors;
- enclosure means for containing particulate heat absorbing material;
- means for circulating gas in a closed system through said first means so as to be heated thereby;
- means for passing said heated gas downwardly through said particulate material so as to transfer heat to said material;
- means for returning said gas to said first named means after it has passed downwardly through said material;
- means mounted on said base for detecting the position of the sun;
- means responsive to the output of said detector means for moving said base in a north-south and east-west direction so as to direct said reflectors towards the sun;
- said means for moving said base in an east-west direction being a gravity system comprising



- a first fluid container supported from the east side of said base;
- a second fluid container supported from the west side of said base;
- a fluid supply sufficient for filling one of said containers;
- a fluid pump interconnected between said container by means of a flexible conduit for selectively transferring all of said fluid supply to one of said containers, said pump being controlled in response to the output of said detector means; and
- an electromechanical brake responsive to said detector means for controlling the movement of said fluid containers;

heat exchanger means within said particulate material for collecting the heat absorbed by said material; and

means for circulating fluid in a closed system between said heat exchanger means and said building structure.

4,365,618

HELIOSTATIC SOLAR ENERGY CONVERSION SYSTEM

Dedger Jones, 3451 Stonehaven Ct., South, Columbus, Ohio

43220

Filed Dec. 5, 1980, Ser. No. 213,210

Int. Cl. F24J 3/02; A63G 21/00

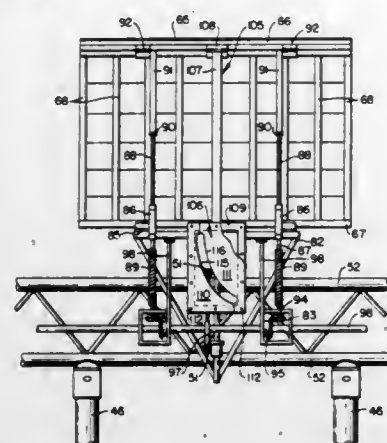
U.S. Cl. 126-425

9 Claims

1. A solar energy conversion system including a field of a plurality of heliostats, a plurality of light reflecting facets on each heliostat, a central receiver a selected distance apart from said heliostats, and positioning means to position each heliostat to focus the rays of the sun on the central receiver, comprising:

- (a) at least one platform supporting a plurality of heliostats with each heliostat constituting a frame having edges and supporting a plurality of reflecting facets fixedly positioned on the frame, which in combination comprise a multi-faceted composite parabolic heliostat surface, with each heliostat focused on the central receiver;
- (b) each platform being constructed of at least one truss member curved to substantially match a circumferential curve with respect to the central receiver, each platform being moveable in a substantially circular path in a horizontal plane about the central receiver as a center, at least one of the curved truss members being supported by a

plurality of rollers mounted on supporting means in the ground; and



(c) each frame pivotally mounted on a platform for movement about two axes, one axis generally tangential to the circumferential curve, and the other axis generally perpendicular to the horizontal plane.

4,365,619

SOLAR ENERGY SYSTEM FOR HEATING AND COOLING OF BUILDINGS UTILIZING MOIST AIR CYCLES

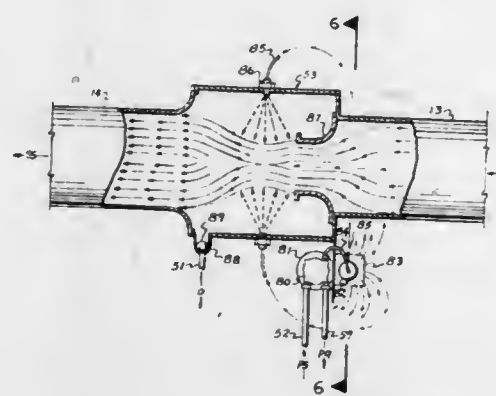
Edward M. Holbrook, 1012 Charity Dr., Virginia Beach, Va. 23455, and Joseph J. Wallace, 1212 King Arthur Dr., Chesapeake, Va. 23323

Division of Ser. No. 878,510, Feb. 17, 1978, Pat. No. 4,182,406. This application Sep. 24, 1979, Ser. No. 77,907

Int. Cl.³ F24J 3/02

U.S. Cl. 126—428

2 Claims



1. For use in a building structure heating system utilizing solar energy and including a solar energy collector, duct means for carrying heated circulatory fluid in the form of moist air to a heat storage tank, and duct means for returning cooled circulatory fluid in the form of moist air from said heat storage tank to said solar energy collector, a fog nozzle-spray pump assembly incorporated in said duct means for returning cooled circulatory fluid in the form of moist air from said heat storage tank to said solar energy collector operable to spray water into said flow of moist air returning from said heat storage tank to said solar energy collector to change the same into a mixture of saturated air and liquid water in the form of a fog.

4,365,620 REVERSIBLE WINDOW FOR SOLAR HEATING AND COOLING

Emmanuel E. Bliamptis, 20 Phinney Rd., Lexington, Mass. 02173

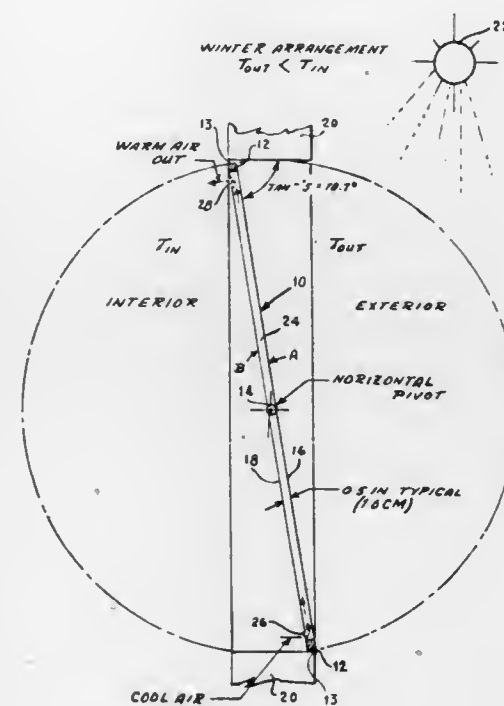
Continuation of Ser. No. 937,019, Aug. 25, 1978, abandoned.

This application Aug. 12, 1980, Ser. No. 177,336

Int. Cl.³ F24U 3/02

U.S. Cl. 126—429

3 Claims



1. In a building structure having a wall of a given thickness and an aperture therein for accommodating a window, the improvement residing in a window in the form of a transparent insulating building panel, said transparent, insulating building panel being reversibly mounted for positioning in said wall commensurate with the outside temperature and having a first set inclination position and a second set inclination position, said transparent, insulating building panel comprising:

a frame having a thickness substantially less than the thickness of said wall, said frame being structured to fit substantially in register with said aperture,

means for pivotally mounting said frame in said aperture about a horizontal axis at the center of said wall, the first frame set inclination position being oriented such that the upper edge of said frame is proximate to the upper interior edge of said aperture and the lower edge of said frame is proximate to the lower exterior edge of said aperture, and the second frame set inclination position being oriented such that the upper edge of said frame is proximate to the upper exterior edge of said aperture and the lower edge of said frame is proximate to the lower interior edge of said aperture,

a pair of spaced apart transparent panels mounted within said frame, one of said transparent panels being capable of transmitting visible and infrared radiation while the other of said transparent panels is capable of transmitting visible radiation and reflecting infrared radiation,

means remote from said horizontal axis for providing passageways from the space between said pair of transparent panels with the outer side of said other of said transparent panels capable of reflecting infrared radiation; and

means for sealing said frame to said wall at said first and second frame set inclination positions.

4,365,621 DEVICE FOR MEMBERS FOR CLOSING BODY PASSAGES

Jan-Olof Brundin, Lindingö, Sweden, assignor to AB Medline, Stockholm, Sweden

PCT No. PCT/SE80/00130, § 371 Date Jan. 4, 1981, § 102(e)

Date Dec. 23, 1980, PCT Pub. No. WO80/02369, PCT Pub.

Date Nov. 13, 1980

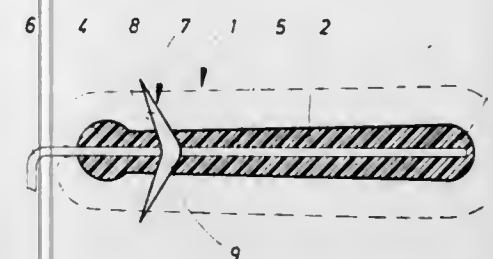
PCT Filed May 5, 1980, Ser. No. 227,068

Claims priority, application Sweden, May 4, 1979, 7903886-5

Int. Cl.³ A61M 31/00

U.S. Cl. 128—1 R

10 Claims



1. A device for the temporary or permanent closing of a body passage or cavity in humans and animals, comprising: a member of a material which swells at least 20% when absorbing body fluids and which is substantially inert to body fluids and surrounding tissue, said member being dimensioned so as to be able to be introduced without any substantial pressure against the walls of the passage or cavity in the unswollen state of the member but to take up the whole cross-section of the passage or cavity in the swollen state and then to be held by pressure against the surrounding wall of the passage or cavity, at least one element incorporated in said device and having a number of external portions extending from a center portion of said element and provided with free ends, the element having its center portion and the innermost parts of the extending portions embedded in said member while the free ends of said portions extend outside the member at least in the unswollen state of the member, said portions being made of a material with such suitable stiffness that said portions spread out in a yielding manner towards the surrounding walls of the passage or cavity in such a manner that the portions tend to lock the member in its introduced position by pressure against the walls by means of said ends, with adaption to the passage or cavity, which ensures securing of the member even before it has developed any direct pressure against the surrounding walls due to its swelling.

4,365,622

MULTIPLE PLATE RESONANT ELECTRODE

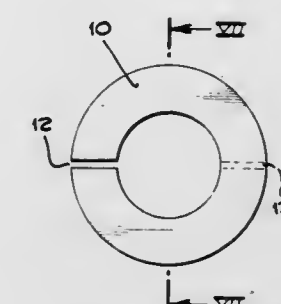
William H. Harrison, Woodland Hills, Calif., assignor to Donald L. Morton & Associates, Los Angeles, Calif.

Filed Sep. 11, 1980, Ser. No. 186,391

Int. Cl.³ A61N 1/42

U.S. Cl. 128—1.3

3 Claims



1. A self-resonant single-turn electrode for use in the treatment of animal tissue by hyperthermia by coupling the electrode to a supply of radio frequency energy, the electrode comprising:

a plurality of planar members of electrically conductive

material shaped in the form of annular discs, said annular discs each having a single slit radially therethrough to form a gap, said discs being stacked concentrically and insulated from one another with dielectric material disposed therebetween, said gap of each of said discs being disposed 180° from the next adjacent ones of said discs, one of said discs having means associated therewith for operative attachment to a supply of radio frequency energy.

4,365,623

APPARATUS TO EXERT TRACTION IN TRACTION THERAPY

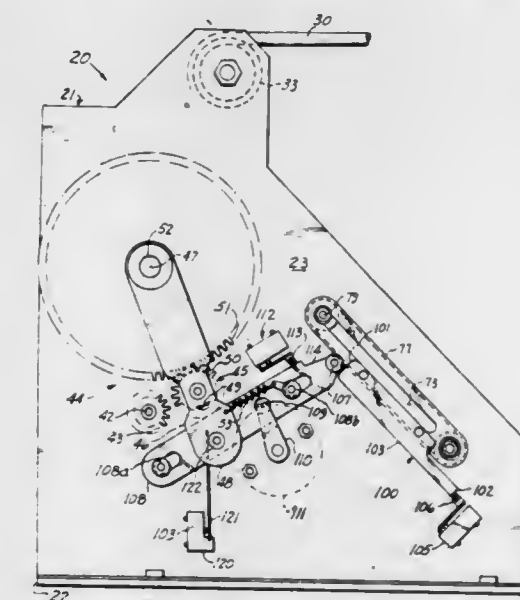
Tru G. Wilhelm, La Quinta; Heinz C. Ross, Fallbrook, and Bradley T. Wilhelm, Murrietta Hot Springs, all of Calif., assignors to Tru-Eze Manufacturing Co., Temecula, Calif.

Filed Mar. 6, 1980, Ser. No. 127,874

Int. Cl.³ A61H 1/02

U.S. Cl. 128—75

20 Claims



1. Apparatus for exerting traction force in traction therapy, said apparatus comprising;

a flexible line by means of which said force is to be exerted; drive means to which said line is engaged for pulling in and paying out said line;

a motor operatively engaged to said drive means; motor control means operatively interposed between said motor and a source of energy for driving said motor, said motor control means having a first and a second control condition for respectively causing said motor to pull in or to pay out said line, and a third control condition where it does neither;

tension sensing means responsive to tension exerted on said line and adapted to provide a signal which is proportional to the value of said tension;

program means comprising circuitry defining a predetermined sequence of motor operations to establish a predetermined sequence of tension values on said line, said program means being operationally coupled to said tension sensing means and to said motor control means to cause said motor control means sequentially to assume appropriate ones of its control conditions so as to attain said predetermined sequence of tension values in said line; and

transmission means including a clutch interposed between said motor and said drive means, and a cam and a cam follower interposed between said clutch and said tension sensing means, said cam and cam follower being so constructed and arranged as to hold said clutch engaged when there is tension in said flexible line above some minimum value.

4,365,624

EXTERNAL BONE-ANCHORING ELEMENT

Henri Jaquet, Le Grand Saconnex, Switzerland, assignor to Jaquet Orthopedie SA, Switzerland

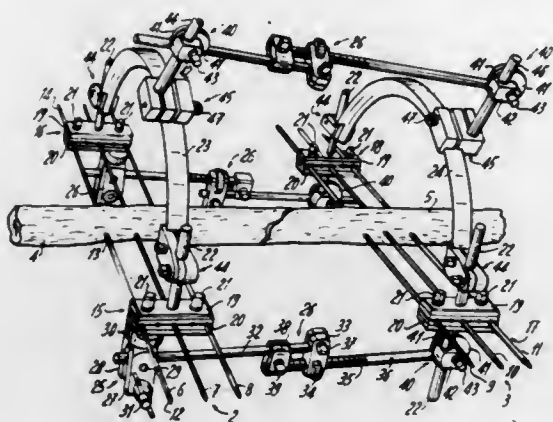
Filed Dec. 27, 1979, Ser. No. 107,546

Claims priority, application Switzerland, Jan. 16, 1979, 386/79

Int. Cl.³ A61F 5/04

U.S. Cl. 128—92 A

39 Claims



1. An external bone-anchoring means, comprising two groups of pins, each group being comprised of at least one pin, or the like, for retaining a bone portion, at least one assembly rod for interconnecting the two groups, and at least one arcuate member of polygonal cross-section connected to the assembly rod adjacent one of the groups of pins, the arcuate member having no discontinuities over its length and having a uniform cross-section over its length for enabling the assembly rod to be connected to the arcuate member anywhere along its length.

4,365,625

EXPANDABLE ORAL AIRWAY

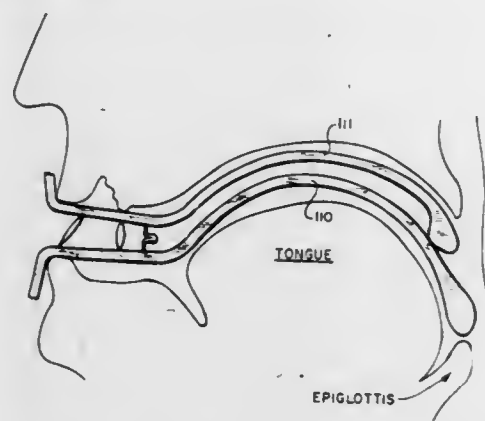
Bruce Rind, 706 NE. 8th Ave., Aberdeen, S. Dak. 57401

Continuation-in-part of Ser. No. 188,172, Sep. 17, 1980. This application Apr. 20, 1981, Ser. No. 255,395

Int. Cl.³ A61M 16/00, 29/00

U.S. Cl. 128—207.14

9 Claims



1. In an expandable oral airway having two elongated airway forming members each having a curved one end portion adapted to fit the contours of the mouth and pharynx of a throat of a patient for effecting insertion and removal of the one end portion of both into and out of the throat of a user and with one member configured to be disposed below the other member, means connecting the two members for pivotal movement in response to a force applied at the other end portions of the members from a contracted state to at least one expanded state, wherein the one end portions are spaced apart relative to the contracted state and holding means disposed on the other end portion of one of said members for releasably holding the other of said members such that the members are maintained in said at least one expanded state, the improvement wherein each other end portion of the two elongated airway forming mem-

bers has a straight section, said straight sections being substantially parallel and in spaced apart relation and wherein the connecting means comprises hinge means at the straight sections including a first rigid element hingedly connected to each airway forming member and substantially perpendicular to both when the airway is in the contracted state and a second rigid element hingedly connected to each airway forming member and extending diagonally therebetween, said second rigid element being disposed between the first rigid element and said holding means and wherein the spacing between the hinge connections of said first and second rigid elements to said airway members is greater at said one airway forming member.

4,365,626

UNIVERSAL SYRINGE

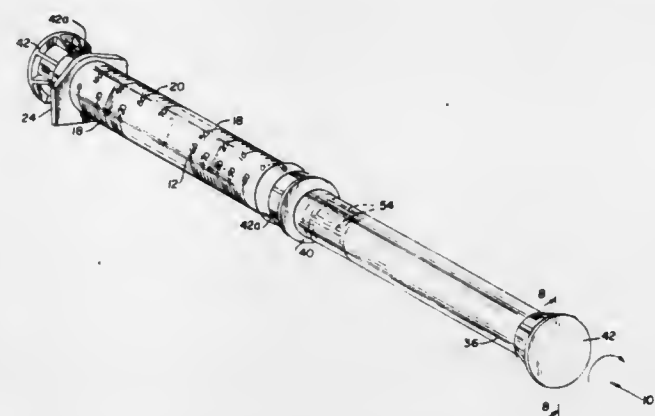
Hugh A. House, 159 Lincoln Rd., Wenonah, N.J. 08090

Continuation-in-part of Ser. No. 88,141, Oct. 25, 1979, abandoned. This application Jul. 9, 1981, Ser. No. 281,842

Int. Cl.³ A61M 5/00

U.S. Cl. 128—218 DA

10 Claims



1. A universal syringe for the application of liquid medicaments comprising, in combination;
 - (a) an elongated cylindrically-shaped vial having outwardly extending lip portions proximate each end thereof and identical piston seals disposed proximate each cylinder end, said piston seals being in intimate frictional contact with the internal walls of said vial and slidable therealong, said vial being adapted to retain said liquid medicament therein;
 - (b) a slidable finger rest encompassing the outer wall of said vial and movable therealong until restrained by said lip portions;
 - (c) cap means adapted to be received on each end of said vial to maintain its sterility; and
 - (d) a needle assembly means, said needle assembly means including;
 - (i) a needle having one end adapted to be inserted into a patient and the other end thereof adapted to be removably retained by either of said vial lips while piercing said piston seal and communicating with said medicament disposed within said vial, and
 - (ii) elongated cylindrically-shaped piston rod means, said piston rod means being hollow and adapted to removably receive said needle therein and when said needle is removed therefrom after being inserted into a piston seal, is adapted to be received by the remaining piston seal to function as a piston rod.

4,365,627

FILTER-TYPE RESPIRATOR CANISTER

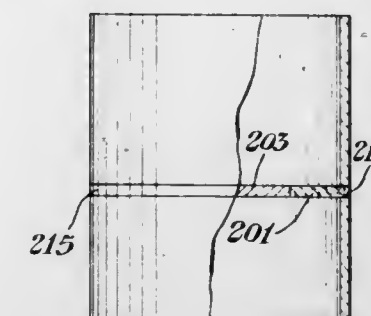
Richard E. Wing, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Sep. 22, 1980, Ser. No. 189,446

Int. Cl.³ A62B 7/00

U.S. Cl. 128—202.22

3 Claims



1. An improved filter-type respirator canister having a housing which has an air inlet; an air outlet; a bed of filtering material, capable of removing one or more air impurities, located within the housing and between the air inlet and the air outlet; and an end-of-service life warning device having an indicator which changes color when exposed to air impurities;

wherein the improvement comprises:

the end-of-service life warning device having a solid center and an air permeable peripheral edge positioned transverse to air flow passage through the housing and attached to and supported by the housing whereby all of the air flowing through the device flows through the peripheral edge of the device; and at least a portion of said peripheral edge containing an indicator which changes color when exposed to air impurities; and said housing being transparent at least adjacent to said indicator whereby said indicator is visible from the exterior of said canister.

4,365,628

AVALANCHE SURVIVAL VEST

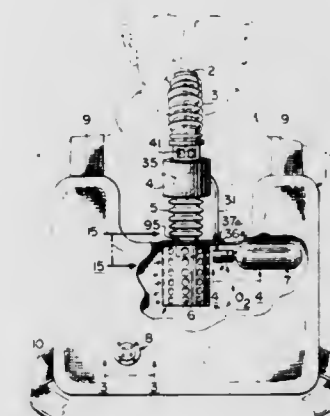
Carl F. Hodel, 1720A Paula Dr., Honolulu, Hi. 96816

Filed Jul. 28, 1980, Ser. No. 173,127

Int. Cl.³ A62B 7/02

U.S. Cl. 128—205.12

6 Claims



1. A breathing apparatus comprising in combination: an air reservoir bag to be worn around the users chest or back, an inhalation duct having one end connected to said reservoir bag, a mouthpiece connected to the other end of said inhalation duct, a CO₂ absorber chamber mounted within the reservoir bag between the inhalation duct and the reservoir air supply to absorb CO₂ from the recycled air, a special set of external breathing ports in said inhalation

duct near said mouthpiece to allow breathing of external atmospheric air, valve means slidably mounted over said ports from a first position in which said ports are open to atmosphere to a second position closing said ports, a cylinder of compressed breathing gas attached to the reservoir bag, said cylinder having a puncturable cap, a spring loaded puncture pin mounted adjacent said cap to puncture said cap when activated, a bite activation means consisting of lever arms built into the mouthpiece and a mechanical cable mechanism connected between said lever arms and said valve means to instantly release the external breathing port valve cover and close the external ports and between said lever arms and said spring loaded puncture pin to simultaneously release said spring loaded puncture pin which will open the compressed breathing gas cylinder allowing the breathing gas to fill the reservoir bag.

4,365,629

PLATELET FREEZING BAG

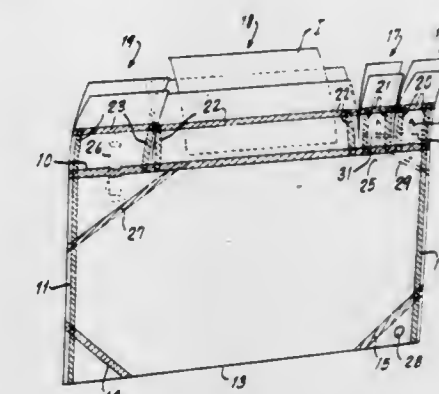
James H. Pert, Glenmont, N.Y.; Peter Unger, Stockholm, Sweden; Hervie L. Harris, East Greenbush, and James C. Pert, Glenmont, both of N.Y., assignors to Hedberg'ska Stiftelsen, Stockholm, Sweden

Continuation of Ser. No. 42,797, May 29, 1979, abandoned. This application Oct. 17, 1980, Ser. No. 197,898

Int. Cl.³ A61M 5/00

U.S. Cl. 128—214 D

1 Claim



1. A freezing bag useful for platelet freezing comprising two pliable layers of polymeric material, said layers defining between them a sealed compartment for receiving platelets to be placed therein for freezing, two needle ports at one end of the sealed top edge of said compartment for introducing material into said compartment, a draining port positioned between said layers at the other end of the sealed top edge of said compartment, the lower end of said draining port extending into said compartment below the sealed top edge thereof being slit longitudinally along two diametrically opposed lines, said two layers of polymeric material being additionally sealed diagonally below said lower end of said draining port to prevent contact of the contents of said compartment with said draining port, the seal thus-provided being burstable, three sealed tabs, said tabs being adapted upon being pulled apart to uncover respectively said needle and said draining ports, said tabs consisting of portions of said pliable layers of polymeric material extending beyond the sealed top edge of said compartment where said needle ports are positioned, said compartment being sealed at the two bottom corners thereof with a diagonal seal to facilitate post-thaw mixing of platelets introduced into said compartment for freezing and a hole provided through said freezing bag at the corner thereof diagonally opposite from said draining port and positioned such that the corresponding bottom diagonal corner seal is located between said hole and the interior of said compartment.

4,365,630

FLASHBACK CHAMBER FOR CATHETER

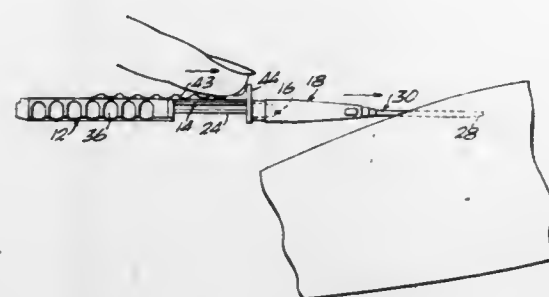
Richard H. McFarlane, 2571 Kaneville Rd., Geneva, Ill. 60134

Filed Mar. 10, 1981, Ser. No. 242,383

Int. Cl.³ A61M 5/00

U.S. Cl. 128—214.4

17 Claims



1. An improved flashback structure for a catheter, said structure comprising; a main body portion including wall means defining a cavity; a member slidably engaged on said main body portion; means, within said cavity, defining a small cross sectional area blood path, said means defining said blood path comprising septum means defining a chamber maze within said body, an elongate hollow needle including a major forwardly extending length exteriorly of said main body portion; means securing said hollow needle to said main body portion, said needle terminating at a sharpened distal end, and including a minor rearwardly extending length secured within said main body portion; said hollow needle being in open communication with the interior of said flashback chamber structure cavity, whereby a fluid, such as blood, will flow through said hollow needle from said sharpened end, and into filling relation of said blood path, and said body portion including vent means to vent the blood path.

4,365,631

FLOWABLE SUBSTANCE APPLICATOR

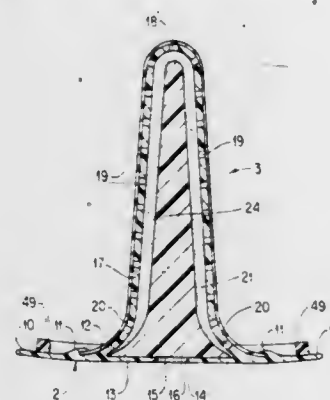
Larry H. Kline, 18 Broad St., Suite 805, Charleston, S.C. 29401

Filed Sep. 8, 1981, Ser. No. 300,027

Int. Cl.³ A61M 3/00

U.S. Cl. 128—235

51 Claims



1. A device for holding a flowable substance and applying said flowable substance to an orifice of a body comprising an applicator section comprising:

- a nozzle, sized and shaped to fit within said orifice of said body, with a sloped base, an elongated section, and a plurality of openings in said sloped base and said elongated section;
- a plunger section within said device, sized and shaped to fit within said sloped base and said elongated section of said nozzle, extending from said sloped base of said nozzle toward said tip of said nozzle; and
- said nozzle and said plunger section being spaced apart to form a cavity which is sized and shaped to fit between said nozzle and said plunger section from said sloped base

through said elongated section, said cavity operative to hold said flowable substance, whereby when said nozzle is placed in said orifice and said plunger section is pressed toward said tip of said nozzle, said flowable substance will be forced from said cavity through said plurality of openings in said nozzle and out from said device into said orifice.

4,365,632

METHOD AND APPARATUS FOR INDUCING IMMUNOLOGICAL AND RESISTANT RESPONSE IN MAMMARY GLANDS

William M. Kortum, 180 Ely Rd., Petaluma, Calif. 94952

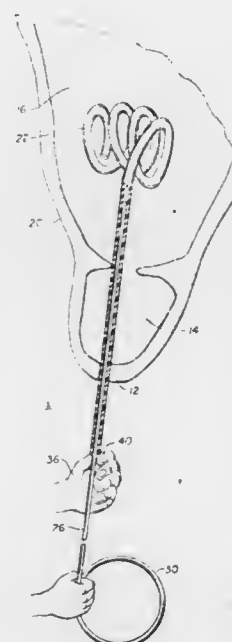
Continuation-in-part of Ser. No. 903,343, May 5, 1978, Pat. No.

4,202,329. This application Dec. 12, 1979, Ser. No. 102,795

Int. Cl.³ A61B 17/00

U.S. Cl. 128—303 R

10 Claims



1. A kit inhibiting bacterial infection in an udder of a milk-producing domestic animal comprising: a plastic non-toxic antigenic device comprising an elongate cylinder having at least one end tapered so that said end may be inserted into the udder through the teat sphincter and be retained in the gland cistern; means comprising a straight hollow tube for introducing said device into the udder; and means comprising a rod disposed within said tube for inserting said device into the gland cistern; said device having an appendage capable of being drawn into said tube; and said inserting means having at one end of said rod a clasp means for attaching to said device appendage, said clasp means being operative to hold said device appendage whenever said one end is within said tube and to release said device appendage whenever one end is external said tube.

4,365,633

PATIENT-OPERATED PACEMAKER PROGRAMMER

James Loughman, Randwick; Christopher N. Daly, Bilgola Plateau, and Ronald A. C. Washington, Seaforth, all of Australia, assignors to Teletronics Pty. Ltd., Lane Cove, Australia

Filed Feb. 22, 1980, Ser. No. 123,916

Int. Cl.³ A61N 1/36

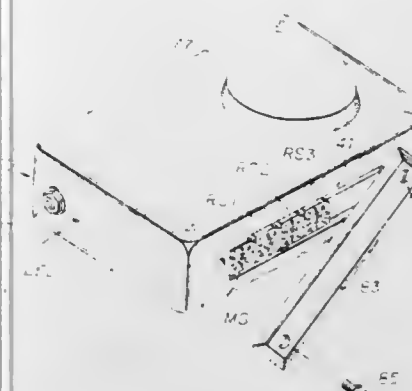
U.S. Cl. 128—419 PG

23 Claims

1. A programming system for a pacemaker, said pacemaker having at least one parameter characteristic of its operation whose value can be changed by an external programming source, said parameter being changeable to any one of a predetermined number of discrete values, comprising:

a physician-operated programmer for transmitting signals to said pacemaker, having manually adjustable means for controlling the changing of said parameter to any selected value of said predetermined number of discrete values; and

a patient-operated programmer for transmitting signals to said pacemaker, having manually adjustable means for controlling the changing of said parameter to any selected value of a group, smaller than said predetermined number, of discrete values,



whereby a patient can control his pacemaker to change to a state selected from a sub-set of the set of states under control of the physician,

said patient-operated programmer including means, normally under control of a physician, for pre-selecting those parameter values in said predetermined number of discrete values which are included in said group, whereby a physician can pre-select those states in the set under his control which are included in the sub-set under control of the patient.

4,365,634

MEDICAL ELECTRODE CONSTRUCTION

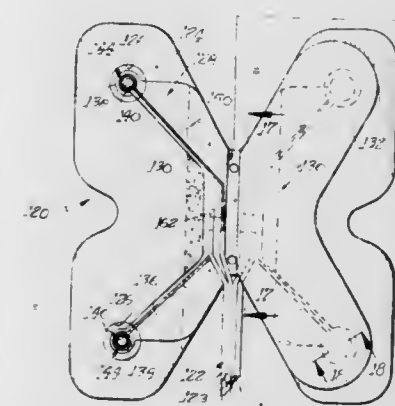
Rex O. Bare, and Earl F. Robinson, both of Lawrence, Kans., assignors to C. R. Bard, Inc., Murray Hill, N.J.

Filed Dec. 6, 1979, Ser. No. 100,904

Int. Cl.³ A61B 5/04

U.S. Cl. 128—640

9 Claims



1. A multi-terminal, disposable medical electrode construction of the type adapted to be adhered to the skin of a patient for operative connection to electrical apparatus such as an electrocardiograph, an electromyograph, nerve or muscle stimulator, or the like, said multi-terminal electrode construction comprising, a pair of separate support members, each having one or more apertures formed therein, and one surface thereof including at least a partial adhesive coating for adhering the electrode to the skin of a patient; a single, semi-flexible sheet of plastic-like material affixed to an opposite surface of each said separate support member; terminal means for transmitting electrical signals on said semi-flexible sheet material, said terminal means providing terminal portions corresponding in number to, and in positional alignment with the apertures

formed in said separate support members, such that the respective support members of said multi-terminal electrode construction are effectively joined in assembled relation by said semi-flexible sheet, with said sheet providing a hinge between the respective separate support members, enabling the support members to flex independently with respect to each other to conform to the contour of the patient.

4,365,635

PRESSURE TRANSDUCING METHODS AND APPARATUS

Ronald Bowman, Laguna Beach, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Filed Mar. 3, 1981, Ser. No. 239,921

Int. Cl.³ A61M 5/00

U.S. Cl. 128—675

25 Claims



1. In a method of keeping gas bubbles out of a circulatory system of a living organism connected via a catheter insertible into said circulatory system to a recipient device having a circular cavity connected to said catheter and tending to retain gas bubbles, the improvements comprising in combination the steps of:

- providing at said circular cavity an opening for injection of said compatible solution;
- providing in said circular cavity a pocket communicating with said opening;
- injecting said compatible solution through said opening into said pocket in said circular cavity;
- forming a unidirectional jet of said injected solution by blocking flow of said injected solution at a closed end of said pocket, thereby forming a pressure head in said pocket, and by ejecting said injected solution through an outlet of said pocket;
- sweeping said ejected solution in a swirling motion along a boundary of said cavity, thereby wiping gas bubbles from said boundary; and
- bleeding gas from said wiped gas bubbles out of said circular cavity.

4,365,636

METHOD OF MONITORING PATIENT RESPIRATION AND PREDICTING APNEA THEREFROM

Kent R. Barker, Cottage Grove, Minn., assignor to Medicon, Inc., Minneapolis, Minn.

Filed Jun. 19, 1981, Ser. No. 275,343

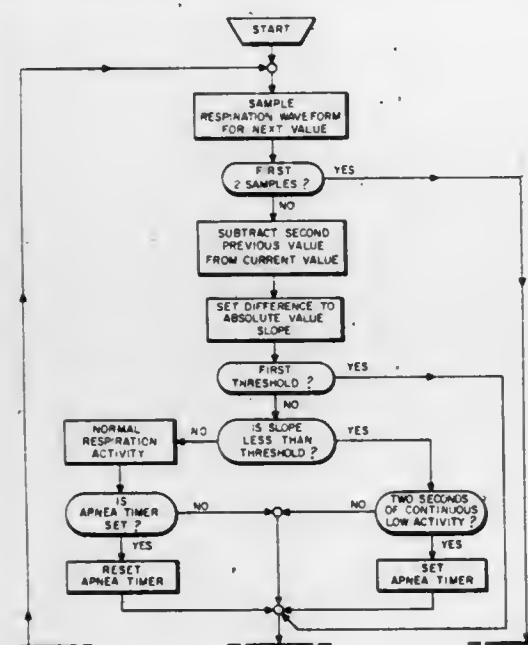
Int. Cl.³ A61B 5/08

U.S. Cl. 128—716

23 Claims

1. A method of monitoring waveforms indicative of patient respiration and activating an alarm upon occurrence of predetermined respiration conditions indicative of apnea, comprising the steps of

- (a) monitoring a respiration waveform and forming a value representative of the instantaneous magnitude of said waveform at regular and continuous time intervals;
- (b) continuously forming the difference between each such value and at least the second previous such value, and developing therefrom a value representative of the instantaneous slope of said waveform;
- (c) collecting such slope values for a first predetermined time which is at least as long in time as one respiration cycle and selecting from the collected slope values the maximum collected slope value;



- (d) continuously repeating step (c) for a second predetermined time which is longer than said first predetermined time, and forming the average of all maximum collected slope values;
- (e) forming a threshold value by selecting a predetermined fraction of said average of step (d);
- (f) comparing subsequent slope values as found in step (b) with said threshold value of step (e) and activating said alarm when said subsequent slope values are less than the threshold value of step (e) for longer than a third predetermined time.

4,365,637

PERSPIRATION INDICATING ALARM FOR DIABETICS
Wilton C. Johnson, Hopkins, Minn., assignor to Dia-Med, Inc., Hopkins, Minn.

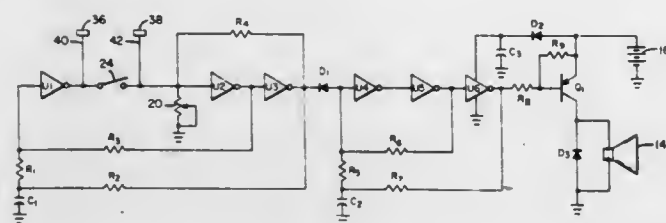
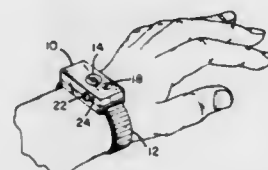
Continuation-in-part of Ser. No. 54,820, Jul. 5, 1979, abandoned.

This application Sep. 29, 1980, Ser. No. 191,699

Int. Cl.³ A61B 5/05

U.S. Cl. 128-734

5 Claims



2. Apparatus contained in a wrist watch type case constructed and arranged for attachment to the wrist of a diabetic

for detecting the onset of insulin shock comprising, in combination:

sensor means constructed and arranged for application to the skin of the wearer; said sensor means comprising a pair of planar electrodes mounted on the back of the case of the apparatus and insulated from each other and said case, said electrodes also being recessed into the back of said case, whereby said case when attached to the arm of the wearer does not bring said electrodes into direct contact with the skin of the wearer, and further whereby said electrodes come into direct contact with perspiration forming on the skin of said wearer in the event of the onset of insulin shock;

detector means connected to said sensor means for providing an output indicative of the onset of insulin shock when the electrodes come into contact with perspiration on the skin of the wearer; and

annunciator means connected to said detector means for receiving the output therefrom and providing an audible output indication of the onset of insulin shock.

4,365,638

APPARATUS FOR ASCERTAINING THE FIRMNESS OF TISSUE

Jean-Luc M. Leveque, Montfermeil, and Andre H. Abrioux, Drancy, both of France, assignors to L'Oreal, Paris, France

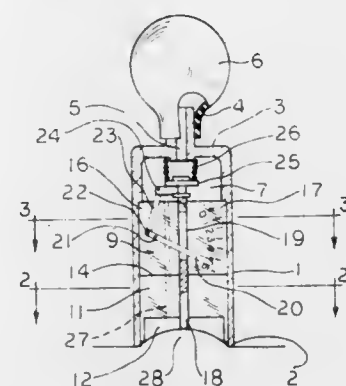
Filed Jan. 26, 1981, Ser. No. 228,443

Claims priority, application France, Feb. 1, 1980, 80 02216

Int. Cl.³ A61B 10/00

U.S. Cl. 128-774

23 Claims



1. In apparatus for ascertaining the firmness of tissue which apparatus comprises: (a) a compartment having an open base capable of being applied on the tissue whose firmness is to be ascertained; (b) means associated with said compartment (a) for establishing depressurized suction therein, which means are effective to cause the deformation of tissue against which the said open base of compartment (a) is applied into a dome-shaped configuration of the tissue into said compartment; and (c) means responsive to the dome-shaped deformation of the tissue of said compartment (a) under said suction effect which are adapted to display an indication responsive to said tissue deformation; the improvement wherein

- (i) said tissue deformation-responsive means (c) comprises an elongate plunger in said compartment (a); there being
- (ii) means within said compartment (a) for mounting said plunger (i) therein for longitudinal displacement thereof perpendicularly to the tissue under the effect of its own deformation;
- (iii) display means cooperative with and indicative of the displacement of said plunger (i) relative to extent of tissue deformation into said compartment (a);
- (iv) means operatively connecting said plunger (i) with said display means (iii); and
- (v) means enabling the visualization and seeing of said display means (iii) from the outside of said compartment (a) in order to facilitate the appreciation and reckoning of the position of the display means in its relative responsiveness to the displacement of said plunger (i).

4,365,639

CATHETER, CARDIAC PACEMAKER AND METHOD OF PACING

Bruce N. Goldreyer, Rancho Palos Verdes, Calif., assignor to Applied Cardiac Electrophysiology, San Pedro, Calif.

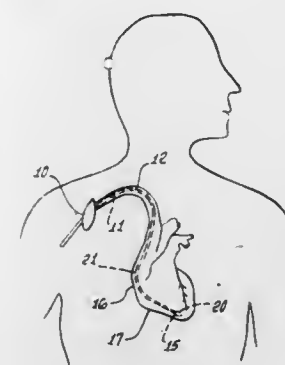
Continuation-in-part of Ser. No. 119,406, Feb. 7, 1980,

abandoned. This application Mar. 11, 1981, Ser. No. 242,705

Int. Cl.³ A61O 1/04

U.S. Cl. 128-786

42 Claims



1. An electrode system for a cardiac pacer comprising a catheter in the form of a single nondiverging filament for insertion into a heart through the vascular system and including in combination:

first stimulating electrode means at the distal end of said catheter for positioning the apex of the right ventricle; second sensing electrode means on said catheter and spaced from said stimulating electrode means for positioning adjacent the wall of the heart atrium and producing signals varying as a function of the cardiac P wave and including at least first and second electrodes mounted in the wall of said catheter equidistant from said distal end and insulated from each other and providing a bipolar signal to said cardiac pacer; and electrical conductor means for connecting said sensing electrode means to a cardiac pacer providing said signals as input and for connecting the output of a pulse generating unit of the cardiac pacer to said stimulating electrode means.

4,365,640

EQUIPMENT FOR SMOKING SMOKABLE OBJECTS

Hans-Walter Lorenz, Hamburg, and Gerd Schumacher, Pinneberg, both of Fed. Rep. of Germany, assignors to B.A.T. Cigaretten-Fabriken GmbH, Hamburg, Fed. Rep. of Germany

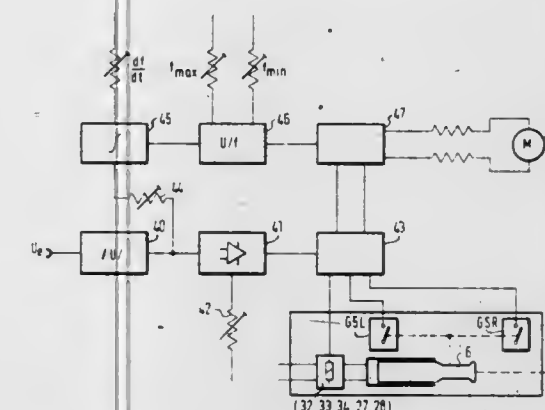
Filed Oct. 6, 1980, Ser. No. 194,353

Claims priority, application Fed. Rep. of Germany, Oct. 4, 1979, 2940280

Int. Cl.³ A24F 13/00, 13/22

U.S. Cl. 131-330

10 Claims



1. An apparatus for simulating a human smoking a smokable object comprising:

- (a) inhaling means for drawing smoke from said object;

- (b) motor means coupled to said inhaling means for driving said inhaling means; and
- (c) control circuit means for controlling the operation of said motor means, said control means including means for receiving an analog signal corresponding to a human draw profile of the smoking of the object, converter means coupled to said receiving means for converting said analog signal to a pulse signal and switching means for applying said pulse signal to said motor means for controlling the operation of said motor means.

4,365,641

CIGARETTE FILTER

Robert R. Johnson, Louisville, Ky., assignor to Brown & Williamson Tobacco Corporation, Louisville, Ky.

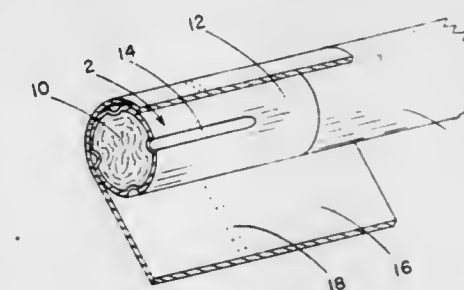
Continuation-in-part of Ser. No. 29,230, Apr. 11, 1979. This

application Mar. 12, 1981, Ser. No. 243,168

Int. Cl.³ A24D 3/00, 3/04, 3/18

U.S. Cl. 131-336

25 Claims



1. A filter cigarette whose filter comprises a porous plug affixed to the end of a cigarette for drawing smoke from the cigarette through the plug, and a plurality of between three and seven ventilating air ducts positioned and distributed circumambiently around said plug, each of said ducts having an air egress opening at the mouth end of the filter and having an air ingress opening exteriorly of the filter cigarette located remote from said end along the filter, said duct being otherwise closed to prevent the ingress of smoke thereto whereby ventilating air is the only gas flowing through said ducts, said filter being additionally characterized by the equation:

$$K = \frac{U A_f}{100n} - A_v$$

wherein K is a number greater than 0.035, A_v is the average cross-sectional area of the individual ducts, A_f is the total cross-sectional area of the filter, n is the number of ducts, and U is the percent ventilation air for the total flow rate through the filter which is between about 60 and about 95 and is defined by the equation:

$$U = \frac{100q_v}{q_v + q_s}$$

wherein q_v is the total flow rate through the ducts and q_s is the flow rate through the plug, and wherein the filter is further characterized by the equation:

$$A_v/A_f < 0.01$$

whereby substantial dispersion of the smoke drawn through the filter is obtained within about a one centimeter distance from the end of the filter when drawn at the rate of 17.5 cc./sec.

4,365,642

COSMETIC APPLICATOR AND ASSOCIATED METHOD

Allan Costa, 23 Horseshoe Rd., Old Westbury, N.Y. 11568

Continuation-in-part of Ser. No. 156,652, Jun. 5, 1980. This

application Jan. 8, 1981, Ser. No. 223,337

Int. Cl.³ A45D 40/30

U.S. Cl. 132—88.5

15 Claims



1. In an applicator for a liquid such as mascara, eyebrow lotion or the like comprising a handle, a stem attached to the handle and applicator means on said stem, the improvement wherein said applicator means comprises a flexible tape element secured to said stem and including a plurality of filaments projecting from said tape element and extending entirely around said stem, said filaments being of hook shape and oriented randomly on said tape element for holding droplets of liquid by surface tension of the liquid and for applying the liquid to the hair by contacting the hook shape filaments holding the liquid droplets to said hair to break the surface tension and comb means on said tape element integrated with said hook shape filaments and operatively positioned with respect thereto for combing the hair after application of the liquid by said filaments.

4,365,643

FUSE DEVICE FOR A WHEEL EQUIPPED WITH A PNEUMATIC TIRE

Jean Masclet, Paris, and Roger Papay, Bourg-la-Reine, both of France, assignors to Messier-Hispano-Bugatti, Montrouge, France

Filed Nov. 3, 1980, Ser. No. 203,540

Claims priority, application France, Nov. 13, 1979, 79 27878

Int. Cl.³ F16K 17/38, 17/14

U.S. Cl. 137—70

4 Claims

1. A fuse device for deflating a pneumatic tire in response to an excessive increase in pressure, comprising a screw member having a head and a channel therethrough;

said channel including first, second and third bores of small, medium and large cross-sections, respectively;

at least one transverse air evacuation passage extending from said second bore to the outside of said device in said head;

a piston slidably mounted in said channel, said piston including two parts of different cross-sections corresponding to said first and second bores;

one of said parts being relatively large and being slidably disposed in said second bore;

the other of said parts being smaller and slidably disposed in said first bore;

said smaller part having a peripheral groove;

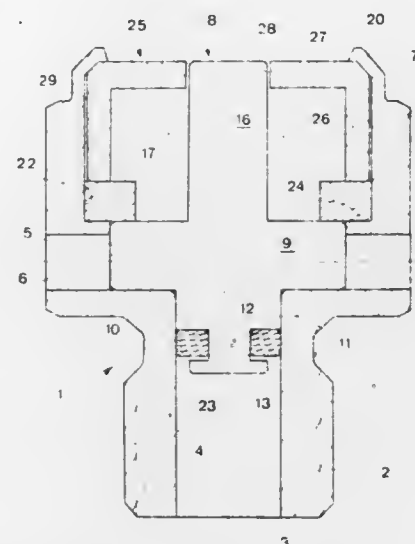
a gasket in said groove adapted to prevent escape of air through said lateral passage;

said large part of said piston including a projecting section extending into said third bore;

a cylindrical stop member in said third bore;

said stop member including at one end thereof an opening receiving said projecting section, and, at its other end, a peripheral shoulder; and,

an annular disk in said third bore between said large part of



said piston and said peripheral shoulder, said disk consisting of a material capable of breaking up upon the application thereon of a pressure exceeding a predetermined amount;

whereby when said predetermined air pressure against said piston is exceeded said disk breaks up to allow said piston to rise in said third bore and said gasket to enter said second bore thereby allowing air to escape through said transverse passage while fragments of said disk escape through said channel without blocking said channel.

4,365,644

AUTOMATIC TIMER VALVE FOR CONTROLLING THE OUTPUT OF IRRIGATION PLANT

Virginio Maggioni, Rosta, Italy, assignor to Centro Ricerche Fiat S.p.A., Turin, Italy

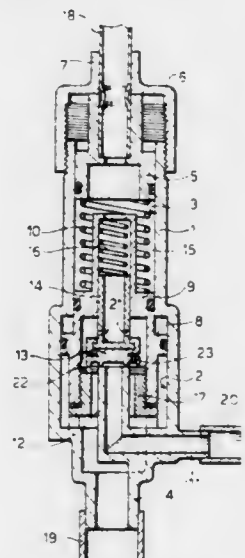
Filed Apr. 15, 1980, Ser. No. 140,544

Claims priority, application Italy, Apr. 26, 1979, 67880 A/79

Int. Cl.³ F16K 11/14

U.S. Cl. 137—102

8 Claims



1. An automatic timer valve for controlling the output of an irrigation plant comprising a hollow body having opposing end walls, inlet and outlet means extending through said end walls for communicating the interior of said hollow body with

a source of water under pressure and irrigator outlets, respectively, a one piece differential area piston slidably housed within said hollow body to define with said end walls an inlet chamber and an outlet chamber, a spring disposed in said inlet chamber for urging said piston towards said outlet chamber which is defined by the major diameter part of said piston, drain means extending through said body for connecting said outlet chamber with the outside, passage means extending through said piston to interconnect said chambers and valve means operatively associated with said passage means and said drain means for normally maintaining said passage means open and said drain means closed, whereby upon buildup of a back pressure in said outlet means said piston is moved against the force of said spring causing said valve means to close said passage means and open said drain means thereby communicating said outlet means with said drain means.

4,365,645

THREE-WAY FLOW-REGULATING VALVE

Walter Wohlrab, Weissenburg, Fed. Rep. of Germany, assignor to Krauss-Maffei Aktiengesellschaft, Munich, Fed. Rep. of Germany

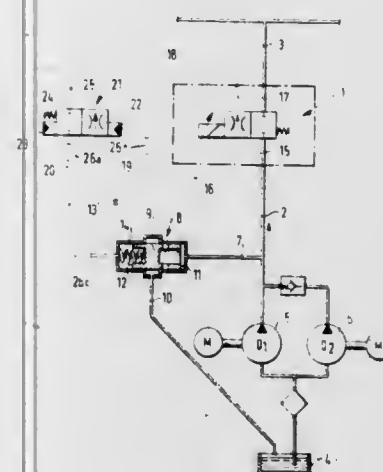
Filed Aug. 18, 1981, Ser. No. 293,990

Claims priority, application Fed. Rep. of Germany, Sep. 12, 1980, 3034377

Int. Cl.³ G05D 11/00

U.S. Cl. 137—117

1 Claim



1. In a system for delivering a fluid to a load and comprising a reservoir, at least two pumps for selectively delivering fluid to said load and connected to a pressure line running to said load, and a throttle valve having an inlet and an outlet and connected in said pressure line for controlling the flow of fluid through said throttle valve, the improvement which comprises a three-way flow-regulating valve assembly for preventing surges in the rate of flow of fluid to said valve resulting from combined delivery of fluid from said pumps, said flow-regulating valve assembly comprising:

a pressure-relief valve having a slidable valve body establishing communication between a first port connected to said pressure line and a second port connected to said reservoir, said body having a first effective cross section exposed to fluid pressure in a first chamber communicating with said first port and a second cross section effective in a direction opposite that of the first effective cross section and exposed to fluid pressure in a second chamber, and a spring isolated from system fluid pressure biasing said body into a position blocking communication between said first and second ports when the pressures in said chambers are equal; and

a two-port two-position servovalve in a bypass loop around said throttle valve having a pair of ports respectively connected directly to said inlet and said outlet, a valve member shiftable between a first position blocking communication between the ports of said servovalve and a second position enabling throttle flow through said servovalve between the port connected to said outlet, said

servovalve being provided with fluid pressure control means including a first conduit branch connected to said inlet and effective to urge said member into said second position and another conduit branch connected to said outlet and effective to urge said member into said first position, and a spring biasing said member into said first position, said second chamber being connected with said inlet for pressurization by fluid at the pressure thereof and upstream of the throttle formed by said member in said second position whereby, when the pressure differential across said throttle valve exceeds the biasing force of the servovalve spring, the servovalve moves to the second position thereof to thereby relieve the fluid pressure in said second chamber through said servovalve and allow fluid pressure at said first port to open said pressure-relief valve to admit fluid from said first chamber to said reservoir.

4,365,646

VALVE ASSEMBLY

Michael J. Sandling, Barnstable, England, assignor to Xomox Corporation, Cincinnati, Ohio

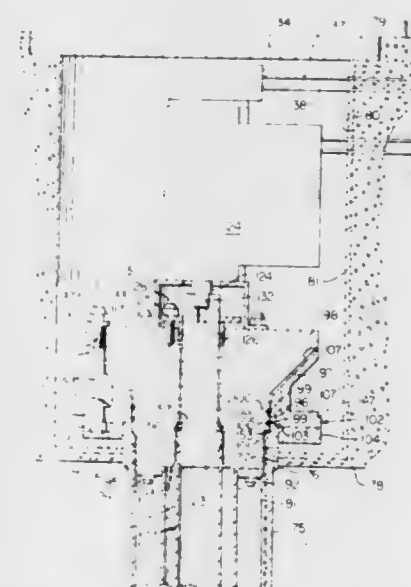
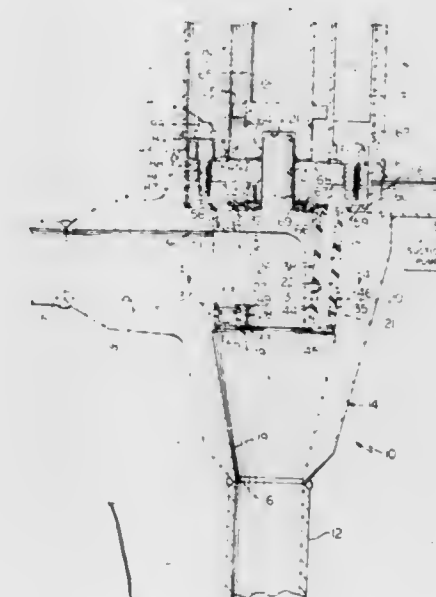
Filed Dec. 22, 1980, Ser. No. 219,346

Claims priority, application United Kingdom, Jan. 8, 1980, 8000539

Int. Cl.³ F16K 5/02

U.S. Cl. 137—375

22 Claims

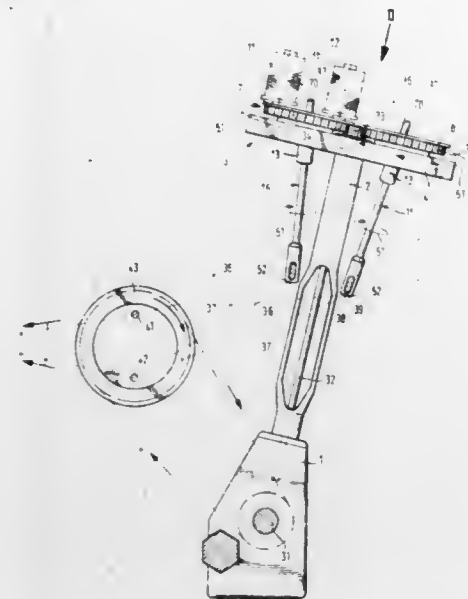


1. A valve assembly including:

a housing;

a valve unit disposed in said housing for controlling the flow of fluid through said housing;

at least one rotatable disk-shaped element;
a stationary bearing part having said disk-shaped element rotatably mounted thereon and an oblique bore extending therethrough;
a thread reserve bobbin pair mounted on said element;
a thread twisting tube extending from said element through



said bore for receiving and twisting a pair of threads from said bobbin pair upon rotation of said element;
a non-rotational joint between said mandrel and said element to prevent relative rotation between said mandrel and said element; and
a twisting system for receiving the pair of threads from said mandrel for passage to a shed in a weaving machine.

4,365,653

APPARATUS FOR COUPLING A HARNESS-MOTION TO A HARNESS FRAME OF A LOOM

Erhard Freisler, Bubikon, and Paul Haltmeier, Brugg, both of Switzerland, assignors to Ruti Machinery Works Ltd., Ruti, Switzerland

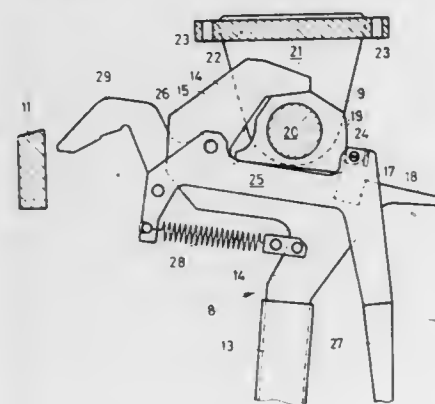
Filed Sep. 23, 1980, Ser. No. 189,822

Claims priority, application Switzerland, Sep. 28, 1979, 8783/79

Int. Cl.³ D03C 13/00, 9/00

U.S. Cl. 139—88

12 Claims



1. An apparatus for coupling a harness-motion to a harness frame of a loom, having a hook, said hook having a jaw with a hook jaw surface adapted to receive a correspondingly shaped counterpiece, and having a resting surface for the counterpiece, said resting surface adjoining the hook jaw surface.

4,365,654

THREAD MONITORING APPARATUS FOR TEXTILE MACHINES

Gabriella F. Viniczay, Steinach, and Kurt Huber, Arbon, both of Switzerland, assignors to Aktiengesellschaft Adolph Saurer, Arbon, Switzerland

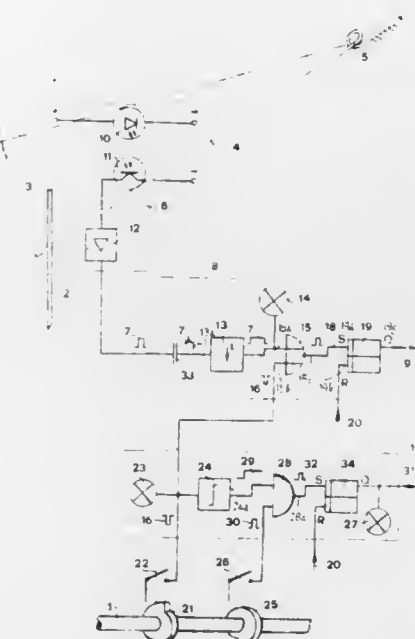
Filed Aug. 28, 1980, Ser. No. 182,456

Claims priority, application Switzerland, Sep. 17, 1979, 8373/79

Int. Cl.³ D03D 51/34

U.S. Cl. 139—370.2

10 Claims



1. A weft thread-monitoring apparatus, especially for shuttleless looms, comprising:
a thread feeler encompassing a thread scanner which can be transversely pivoted relative to the movement of the monitored weft thread;
a first electrical circuit arrangement with which there is operatively connected said thread feeler;
said first electrical circuit arrangement serving for generating a fault signal;
said first electrical circuit arrangement including means defining a measuring field generating a thread signal;
said thread feeler moving through said measuring field;
a circuit stage cooperating with said first electrical circuit arrangement for comparison of the thread signal with a machine-controlled reference signal;
said thread scanner comprising a feeler pin which passes in contactless manner through the measuring zone and can be rocked by the weft thread against the action of a restoring spring;
a blocking circuit stage for suppressing a continuous signal generated by the measuring field arranged forwardly of the circuit stage serving for comparison of the thread signal with the machine-controlled reference signal;
a further circuit arrangement to which there is simultaneously infed said machine-controlled reference signal;
said further circuit arrangement serving to generate a further fault signal;
said further circuit arrangement comprising a circuit stage for comparison of the reference signal infed by means of a threshold value switch with at least one further machine-controlled reference signal.

4,365,655

FLAME RETARDANT WOVEN FABRICS

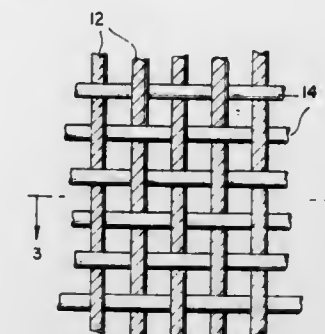
Arthur L. Feinberg, R.F.D. 1, Putnam Valley, N.Y.

Continuation-in-part of Ser. No. 75,430, Sep. 14, 1979, abandoned, which is a continuation of Ser. No. 955,013, Oct. 26, 1978, abandoned. This application Sep. 15, 1980, Ser. No. 186,832

Int. Cl.³ D03D 15/12

U.S. Cl. 139—426 R

1 Claim



1. A flame retardant woven fabric comprising a warp interwoven with a weft, the threads of said warp being comprised substantially exclusively of a staple fiber, said staple fiber being polyester, and the threads of said weft being comprised substantially exclusively of a matrix fiber, said matrix fiber being about 50% vinyl and about 50% vinyon, and constituting between 50-75% by volume of the total content of such fabric, said fabric being constructed and arranged to pass standard DOC FF5-74 after 50 launderings.

4,365,656

IRONLESS ROTOR WINDING FOR ELECTRIC MOTOR, METHOD AND MACHINE FOR MAKING THE SAME

Yuji Takahashi, 609-3 Horinishi, Hatano-shi, Kanagawa-ken, Japan

Division of Ser. No. 41,182, May 21, 1979, Pat. No. 4,320,319.

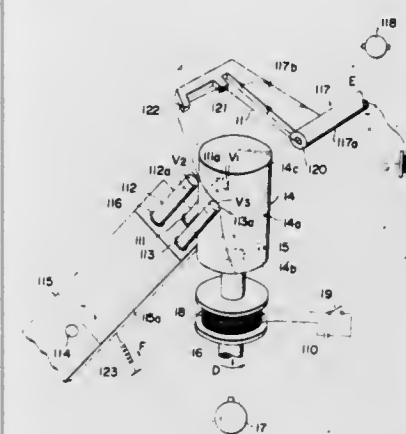
This application Jul. 18, 1980, Ser. No. 170,147

Claims priority, application Japan, May 31, 1978, 53-64375; Jun. 6, 1978, 53-67312

Int. Cl.³ H02K 15/04

U.S. Cl. 140—92.1

10 Claims



1. A method for making a cup-shaped ironless motor winding for insertion in an electric motor, comprising winding a plurality of winding turns over a mandrel having a cylindrical periphery and at least one end portion such that each turn of said winding includes a first winding portion wound across said one end portion; a second winding portion wound onto the cylindrical periphery of said mandrel at an angle of inclination with respect to the axis of revolution of said cylindrical mandrel and a third winding portion wound circumferentially onto the mandrel along the peripheral edge of the cup-shaped winding whereby the overall rigidity of said ironless rotor winding is increased.

4. A machine for making an ironless cup-shaped rotor wind-

ing for an electric motor, comprising: a mandrel having a cylindrical rotor forming periphery and at least one adjacent end face, means for forming at least one retractable projection upon the surface of said mandrel, means for repetitively winding a wire across said adjacent end face onto the cylindrical periphery at an inclined angle with respect to the axis of revolution of said mandrel and against said at least one retractable projection, and means for selectively retracting said at least one retractable projection and indexing said mandrel.

4,365,657

MACHINE FOR THE MANUFACTURE OF REINFORCING BODIES FOR CONCRETE PIPES

Georg Pfender, Kisslegg, Fed. Rep. of Germany, assignor to MBK Maschinenbau GmbH, Kisslegg, Fed. Rep. of Germany

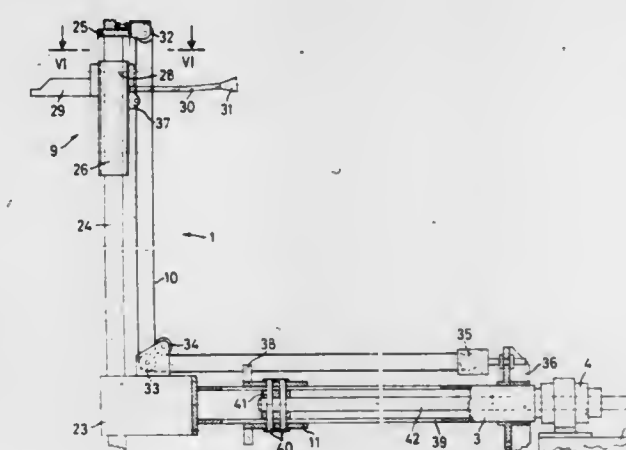
Filed Oct. 23, 1980, Ser. No. 199,735

Claims priority, application Fed. Rep. of Germany, Nov. 16, 1979, 2946297

Int. Cl.³ B21F 27/10

U.S. Cl. 140—112

3 Claims



1. A machine for the manufacture of reinforcing bodies for concrete pipes, having longitudinal bars and wires wound over and welded at the points of intersection of said bars, comprising:

a fixed main disc;
a support disc mounted coaxially and synchronized with the main disc, and displaceable in the axial direction;
guide means carried by and radially displaceable on the main disc, said guide means providing a welding rest for the longitudinal bars;
a carriage transversely displaceable relative to the axis of the discs;
a welding device disposed on the carriage to make welds successively on the longitudinal bars;
traction means engaged to the guide means;
roller means for guiding the traction means into the radial and axial directions;
axially directed hydraulic cylinder means for driving the traction means; and
transversely directed hydraulic cylinder means for driving the carriage, synchronized with the axially directed cylinder means such that the guide means and the welding device are radially synchronized.

4,365,658

WOVEN CLOTH BASKET

S. Marie Stevens, P.O. Box 95, Ephraim, Utah 84627

Filed Oct. 2, 1980, Ser. No. 193,127

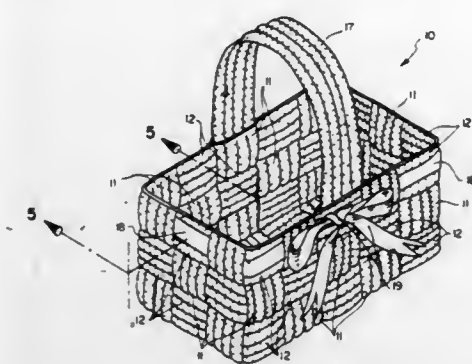
Int. Cl.³ B65D 30/04, 37/00

U.S. Cl. 150—48

4 Claims

1. A woven fabric basket comprising sidewalls formed of woven vertical and horizontal strips of quilted cloth wherein

each of the strips is made of two narrow, elongate pieces of cloth having batting disposed therebetween with the pieces of



cloth being stitched together by multiple, spaced, stitched seams running longitudinal of the pieces of cloth.

4,365,659

PNEUMATIC SAFETY TIRE

Akira Yoshida, Itami, and Masanori Kan, Amagasaki, both of Japan, assignors to The Toyo Rubber Industry Co., Ltd., Osaka, Japan

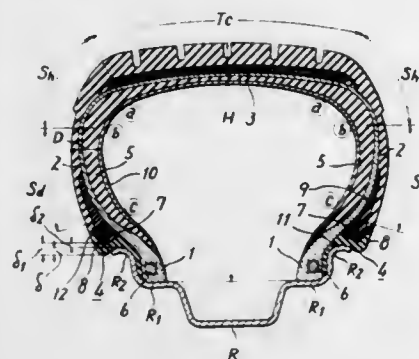
Filed Oct. 3, 1977, Ser. No. 839,014

Claims priority, application Japan, Oct. 2, 1976, 51-118732

Int. Cl.³ B60C 17/00

U.S. Cl. 152-354 R

12 Claims



1. In a pneumatic tire and wheel rim assembly, said tire comprising a pair of axially spaced-apart annular beads, a side wall extending radially outwardly from each of the beads, a shoulder at the radially outer end of each of the side walls and an annular tread crown extending between said shoulders, said wheel rim having an axially extending rim base, bead seats at the opposite ends of said rim base and terminating in radially outwardly directed rim flanges, the improvement which comprises: said tire has at least one annular projection of high rigidity in the circumferential direction, said projection being located on the axially outer side of said wheel rim outside of its associated bead and adjacent to its associated rim flange, said annular projection being made of rubber and being reinforced with an annular rigid reinforcement, said projection being of smaller diameter than and projecting radially inwardly of its associated rim flange a distance such that the largest radius of its associated rim flange is from 2 to 7 mm larger than the smallest radius of said projection under conditions of atmospheric internal pressure and no load on the tire; two elastic side reinforcement layers which respectively extend along and cover the interiors of the side walls and the corresponding shoulders of the tire, said elastic side reinforcement layers being made of a rubber whose surface temperature increase is in the range of 3° to 12° C., measured by ASTM-D632-58A using a Goodrich flexometer, said elastic side reinforcement layers being shaped so that they are thickest at said shoulders of said tire and their thicknesses gradually decrease toward said tread crown and toward their associated side wall; a protective rubber layer covering the interior surface of said tire including said side reinforcement layers and being vulcanized together with said side reinforcement layers, said protective

rubber layer containing more than 30% of halobutyl rubber, so that on deflation of the tire during running thereof the beads of the tire do not separate from the rim, the cornering force remains high and the side walls of the tire do not undergo excessive heat build-up and are resistant to failure due to wrinkling, cracking or abrasion.

4,365,660

ROLLER BLIND

Johann-Georg Henkenjohann, Verl, Fed. Rep. of Germany, assignor to Johann Henkenjohann, Fed. Rep. of Germany

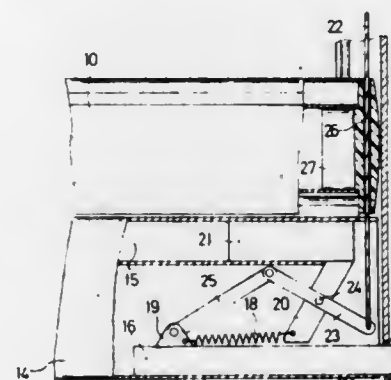
Filed May 13, 1981, Ser. No. 263,141

Claims priority, application Fed. Rep. of Germany, May 22, 1980, 3019566

Int. Cl.³ E06B 9/08

U.S. Cl. 160-133

8 Claims



1. A roller blind comprising: a plurality of hollow laminated strips, which strips are attached to one another and are guided at their lateral ends in two guide rails; end pieces inserted into at least one of the ends of each of the hollow, laminated strips so as to close off the end, each end piece defining a vertical bore therethrough such that the bores are aligned when the strips are attached to one another; a locking mechanism located in an end bar acting as the lowermost laminated strip having a bolt movable between a retracted, unlocked position and an extended, locked position wherein it engages an opening in one of the guide rails; spring means biasing the bolt into its extended, locked position; and a cord extending through the end piece bores which causes the bolt to move into its retracted, unlocked position.

4,365,661

ENHANCED VAPORIZATION/CONDENSATION HEAT PIPE

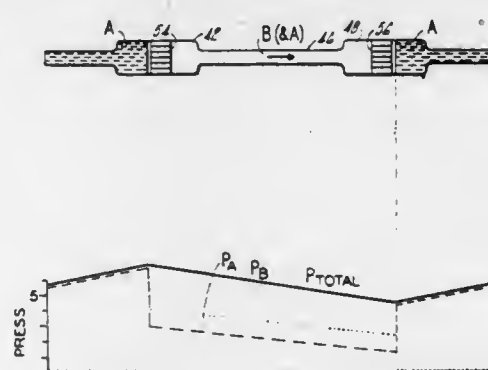
Robert Tripodi, Warehouse Point, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Jan. 19, 1981, Ser. No. 226,274

Int. Cl.³ F28D 15/00

U.S. Cl. 165-1

19 Claims



1. An enhanced vaporization/condensation type of heat pipe comprising a closed-circuit fluid conduit having a heat source position at a first temperature in heat exchange relation with a

heat source and a heat sink position in heat exchange relation with a heat sink, said heat sink position being at a second temperature lower than said first temperature, first and second catalyst means within the conduit substantially at the heat source and the heat sink positions respectively, and a transport fluid within the conduit, said transport fluid being selected to enter said heat source position as a liquid and to be vaporized thereat, said vaporized transport fluid being reversibly, endothermically at least partially reacted catalytically to thereby reduce the vapor pressure of said transport fluid and enhance said vaporization of said fluid and to provide at least some reaction product, the thermal energy absorbed from the heat source by vaporization of said transport fluid being at least fifty percent of the total thermal energy removed from the heat source by the transport fluid, said reaction product and any remaining vaporized transport fluid being transported to said heat sink position, said reaction product being exothermically reacted catalytically at said heat sink position to reform transport fluid, any said vaporized transport fluid being condensed at the heat sink position thereby to release thermal energy to the sink and return the transport fluid to the liquid form, and the liquid transport fluid being returned to the heat source position for completing and repeating the cycle.

4,365,662

METHOD FOR CHARGING AND DISCHARGING A LATENT-HEAT STORAGE MEDIUM AND HEAT STORAGE

Heinz Reusch, Höxter, and Robert Kreikenbohm, Stadoldendorf, both of Fed. Rep. of Germany, assignors to Stiebel Eltron GmbH & Co. KG, Holzminden, Fed. Rep. of Germany

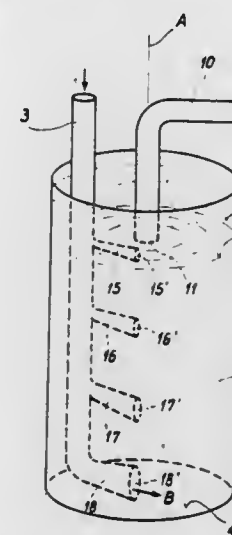
Division of Ser. No. 949,026, Oct. 6, 1978, This application Jun. 25, 1981, Ser. No. 278,006

Claims priority, application Fed. Rep. of Germany, Oct. 10, 1977, 2745492; Jul. 17, 1978, 2831325

Int. Cl.³ F28D 17/00

U.S. Cl. 165-10

5 Claims



1. A heat storage unit, including:
a cylindrical vertically arranged storage tank;
a mass of normally solid, liquefiable heat storage material contained within said tank;
a mass of heat carrier liquid immiscible with said heat storage material and at least partially filling said tank;
an exit conduit extending into said tank and terminating centrally thereof within said mass of heat carrier liquid;
an inlet conduit extending into said tank and terminating within said tank in plural discharge openings spaced vertically of said tank and spaced radially from the vertical axis thereof, at least one of said openings being located within said mass of heat carrier liquid and spaced from said heat storage material when said material is in a solidified condition;
each of said openings being oriented in a direction substantially perpendicular to a radius of the tank and in the same general direction as each other for a flow of heat carrier

liquid therethrough to induce a rotary circulatory motion within the contents of said tank.

4,365,663

METHOD AND SYSTEM FOR CONTROLLING A VEHICLE-MOUNTED AIR CONDITIONER

Yozo Inoue, Chiryu; Kiyoshi Hara, and Yoji Ito, both of Kariya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya and Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, both of, Japan

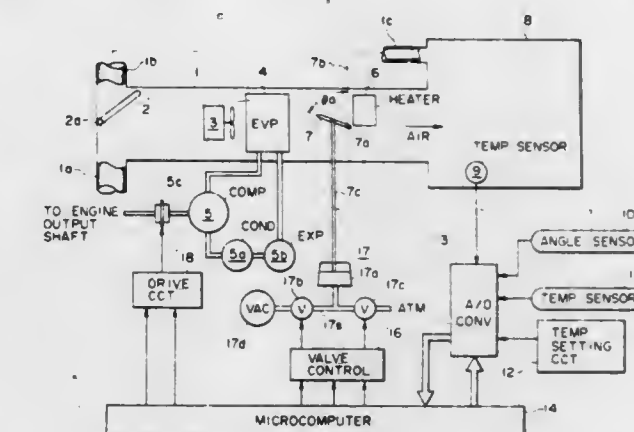
Filed Jan. 7, 1981, Ser. No. 223,083

Claims priority, application Japan, Jan. 16, 1980, 55-3813

Int. Cl.³ F25B 29/00; B60H 3/00

U.S. Cl. 165-12

6 Claims



1. A method for controlling a vehicle-mounted air conditioner having an evaporator for cooling air directed toward the interior of the vehicle, a compressor controllably coupled in the presence of a control signal to a prime mover of the vehicle for supplying pressurized refrigerant to said evaporator to increase its cooling capacity or decoupled in the absence of said control signal from said prime mover to decrease the cooling capacity of said evaporator, a heating unit located downstream of said evaporator and partially occupying the passage of said cooled air for directing warm air toward said vehicle interior, and means for adjusting the amount of said cooled air presented to said heating unit relative to the amount of said cooled air directed to said vehicle interior, comprising the steps of:

- measuring the amount of time elapsed from the instant when said compressor is changed from a first condition in which the compressor is coupled to said prime mover to a second condition in which the compressor is decoupled from said prime mover, or when said compressor is changed from said second condition to said first condition; and
- controlling said adjusting means to gradually vary the amount of said cooled air presented to said heating unit as a function of time when said measured amount of time reaches a predetermined value.

4,365,664

OSMOTICALLY PUMPED HEAT PIPE WITH PASSIVE MIXING

Algerd Basiulis, Redondo Beach, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Oct. 20, 1980, Ser. No. 198,748

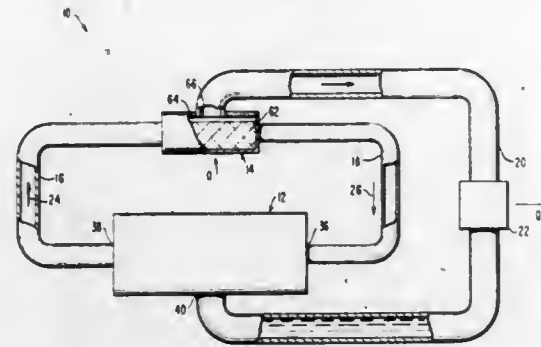
Int. Cl.³ F28D 15/00

U.S. Cl. 165-40

15 Claims

1. An osmotically pumped heat pipe comprising solution and solvent reservoirs, an osmotic pump with solvent-permeable membrane material separating said reservoirs, an evaporator, a solvent vapor-liquid path coupled between said evaporator and said solvent reservoir, a condenser in said solvent vapor-liquid path, separate solution paths respectively carrying lean and rich mixtures of said solution and respectively coupled

between said solution reservoir and said evaporator, and means associated with at least one of said solution paths capable of



inducing a pressure in said rich solution mixture path which is higher than that which is in said lean solution mixture path.

4,365,665 HEAT SINK

Masakazu Nakamura, Amagasaki, Japan, assignor to Sumitomo Precision Products Company, Ltd., Amagasaki, Japan

Division of Ser. No. 94,096, Nov. 4, 1979, Pat. No. 4,270,604.

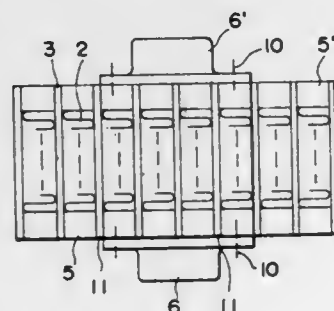
This application Mar. 20, 1981, Ser. No. 245,912

Claims priority, application Japan, Nov. 17, 1978, 53/159302

Int. Cl.³ F28F 13/00

U.S. Cl. 165—80 B

9 Claims



1. An improved heat sink comprising:
 - a plurality of continuous corrugated fins which each have opposed end edges;
 - a plurality of separator sheets having end edges at opposite sides thereof, the end edges of said sheets being spaced further apart than said end edges of said fins, said fins and said sheets being stacked in alternating relationship with said end edges of all said corrugated fins and all of said sheets positioned on opposite sides of the stack, the end edges of each of said corrugated fins being disposed inwardly of the stack relative to the end edges of all of said sheets;
 - a plurality of side bars, each side bar having opposed outer and inner edges, there being a respective side bar for each said end edge of each said corrugated fin, the inner edge of each side bar being disposed in contacting relationship relative to the corresponding corrugated fin end edge, the outer edges of said side bars and the end edges of said sheets forming a flat, smooth surface on at least one of the opposite sides of the stack, said flat, smooth surface being adapted for having a heat source mounted thereon; and
 - brazing means interconnecting said corrugated fins, separator sheets and side bars together for efficient heat conductivity.

4,365,666

HEAT EXCHANGER

Rolf Seifert, Laakbaum 16, 5608 Radevormwald, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 789,834, Apr. 22, 1977, Pat. No.

4,183,400. This application Oct. 2, 1979, Ser. No. 81,119

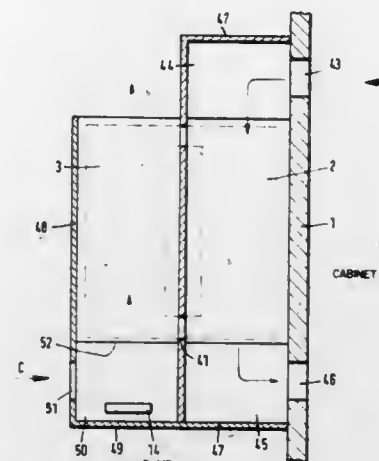
Claims priority, application Fed. Rep. of Germany, May 12, 1979, 2919267

The portion of the term of this patent subsequent to Jan. 15, 1997, has been disclaimed.

Int. Cl.³ F28D 15/00

U.S. Cl. 165—104.29

7 Claims



1. In a heat exchanger for removing heat from a cabinet comprising: a heat-receiving element for receiving heat from outside of itself adapted to be positioned in a sealed air-exchange relationship with the inside of the cabinet and having an inner hollow space, a inlet means, outlet means, and heat exchange surfaces; heat-dissipating element adapted to be positioned outside the cabinet and having an inner hollow space, inlet means, outlet means, and heat exchange surfaces; means connecting the corresponding inlet means and outlet means of the heat-receiving element and the heat-dissipating element to form a closed cycle in which a liquid circulates; and means for circulating the liquid in the closed cycle between the heat-receiving element and the heat-dissipating element; the improvement wherein the circulating means has no mechanical parts which directly contact the liquid and comprises: an air-liquid siphon consisting of one of the elements; an air moving pump; and an air supply means connecting said air moving pump to said air/liquid siphon; at least said heat-dissipating element further comprises a vertical uptake pipe integrally formed with said hollow space having said inlet means near its bottom and an overflow at its upper area which terminates into the hollow space, said outlet means of the heat-receiving element being connected to said inlet means of the heat-dissipating element, said outlet means of the heat-dissipating element extends from the lower area of the hollow space of the heat-dissipating element for removing the liquid from the same and supplying it to the heat-receiving element, and said heat-dissipating and heat-receiving elements are both constructed as an air-to-air heat exchanger.

4,365,667

HEAT EXCHANGER

Toshio Hatada; Takao Senshu; Akira Arai; Fumio Harada, all of Shimizu; Atsushi Matsuzaki, Tokyo; Hajime Futawatari, Shimizu; Yutaka Imaizumi, Yaizu, and Sumiyoshi Takeda, Shimizu, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 5, 1980, Ser. No. 118,723

Claims priority, application Japan, Feb. 7, 1979, 54/12263

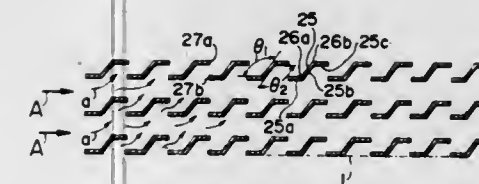
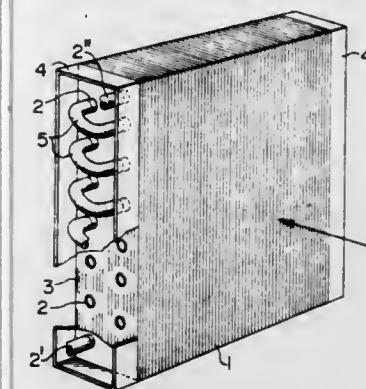
Int. Cl.³ F28F 1/22

U.S. Cl. 165—152

8 Claims

1. A cross finned tube heat exchanger comprising:

- a multiplicity of fin plates of a suitable area arranged in substantially parallel, closely spaced relation; and
- a plurality of heat transfer tubes passing through aligned openings in said fin plates and kept in intimate contact with said fin plates to allow a heat transfer medium flowing through said heat transfer tubes to exchange heat with another heat transfer medium flowing across the surfaces of said fin plates; wherein the improvement comprises: a multiplicity of stepped louvers formed on a wall of each fin plate between the adjacent heat transfer tubes of the same row, said stepped louvers having, in a direction substantially at right angles to a direction of flow of the heat



- transfer medium across the surfaces of the fin plates, thin strips of substantially similar width, said thin strips being formed from the plane of each of said fin plates into stepped louvers generally at right angles to the direction of flow with said another heat transfer medium, said stepped louvers having at least two walls disposed substantially parallel to one another and at least one tilting rise wall connecting said at least two walls, said strips connected at their ends to each of said plates said stepped louvers each having a rear edge varying in vertical position from a front edge of the next following stepped louver in a given row.

4,365,668

SIDE WALL CLAMP FOR DOWNHOLE TOOLS

Gary R. Bright, Tulsa, Okla., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Filed Mar. 11, 1981, Ser. No. 242,664

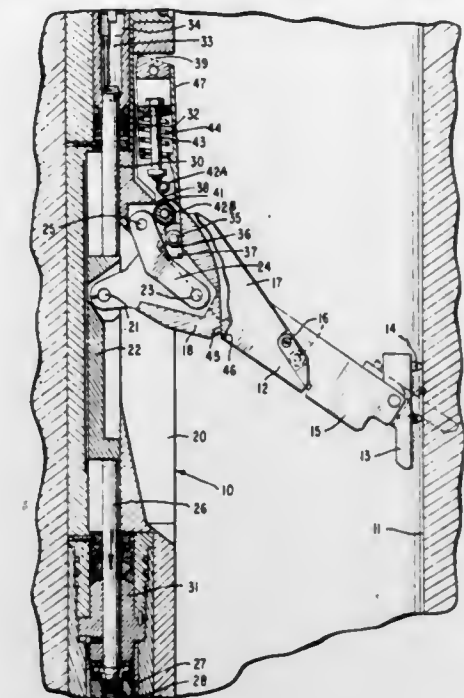
Int. Cl.³ E21B 23/00

U.S. Cl. 166—214

4 Claims

4. In a downhole tool, a side wall clamping apparatus comprising an arm having means at one end for engaging the opposite side of the bore hole from said tool, a rotator element supporting the other end of said arm, actuator means carried by said tool and connected to said rotator whereby movement of said actuator means causes movement of said rotator and the arm carried thereby, said arm and said rotator each having normally abutting surfaces which together constitute a sear

- holding said arm in extended position with respect to said rotator, and means for maintaining said surfaces in abutting



- relationship except when said tool is moved upwardly relative to said arm to release the sear.

4,365,669

NON-SOLVENT BONDED PLASTIC WELL SCREEN ASSEMBLY

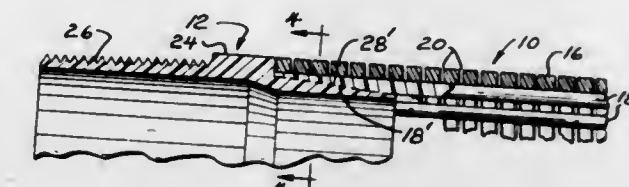
Walter R. Wagner, Minneapolis, and Henry E. Benson, Long Lake, both of Minn., assignors to UOP Inc., Des Plaines, Ill.

Filed Jan. 29, 1981, Ser. No. 229,391

Int. Cl.³ B29C 27/08; E21B 43/08; F16L 47/02

U.S. Cl. 166—231

5 Claims



1. A non-solvent bonded assembly of a rigid thermoplastic well screen formed of helical wire wraps bonded to a series of circumferentially spaced longitudinal rods and at least one end fitting characterized in that the end fitting and well screen have substantially the same outer diameter, while the fitting has a reduced diameter inner sleeve portion which is telescopically received within one end of the well screen and intimately fused thereto, the plane of fusion between said sleeve portion and said well screen being generally conically tapered along the major portion of the region of telescopic overlap, said sleeve portion having a maximum outer diameter which is greater than the minimum inner diameter of the well screen, said assembly having a fused mixture of the plastic of the sleeve portion and the plastic of the longitudinal rods in the circumferential locations which are between the rods and radially outward of the line of fusion.

4,365,670

METHODS OF FORMING ISOCYANATE POLYMERS FOR EARTH-SEALING OPERATIONS

Homer C. McLaughlin, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Division of Ser. No. 17,639, Mar. 5, 1979, Pat. No. 4,264,486.

This application Jun. 2, 1980, Ser. No. 155,714

Int. Cl.³ C08G 18/14, 18/22; E21B 31/13

U.S. Cl. 166—295

4 Claims

1. A method of sealing an area comprising mixing and placing in said area an isocyanate polymer forming mixture having a controllable gelation time in the presence of water said mixture comprising a di- or polyisocyanate compound, an alcoholic or acidic compound and a catalyst, tributyl titanate, wherein the catalyst, in the presence of water, does not promote additional foaming nor decrease the gelation time of said isocyanate polymer forming mixture.

4,365,671

WELL SYSTEM

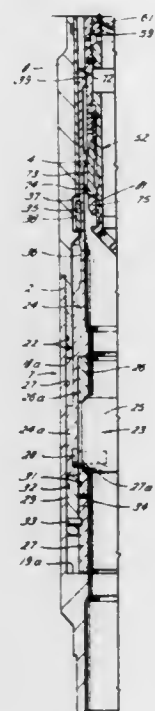
Olen R. Long, Celina, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.

Filed Nov. 28, 1980, Ser. No. 211,270

Int. Cl.³ E21B 34/14

U.S. Cl. 166—318

7 Claims



1. A well completion system comprising:
 - a foot valve including;
 - a body having a bore therethrough,
 - a valve member and seat controlling flow through the bore, an actuator positioning the valve member in open position when the actuator is moved to down position and positioning the valve member in closed position when the actuator is in up position, and upwardly and downwardly facing rigid shoulders on said actuator;
 - a standing valve in said foot valve including; a body positioned in the bore of the foot valve,
 - a valve member and seat permitting upward flow through the body and preventing downward flow through the body, seal means on the exterior of the body sealing between the standing valve and the foot valve body,
 - downwardly facing no-go shoulder means on the standing valve body engageable with the upwardly facing shoulder on the foot valve actuator to move the foot valve to open position as the standing valve is landed in the foot valve,
 - upwardly facing means on the standing valve body engageable with said downwardly facing shoulder on the foot valve actuator for moving the foot valve to closed position as the standing valve is withdrawn from the foot valve,
 - said upwardly facing means provided by lugs movable be-

tween retracted and extended position as the standing valve is inserted into the foot valve bore to permit the lugs to move past the downwardly facing shoulder on the actuator, means holding said lugs in extended position engaging said downwardly facing shoulder during upward movement of the standing valve and foot valve until the foot valve is moved to closed position, and releasing means releasing the lugs to move to a retracted position upon continued upward movement of the standing valve to withdraw the standing valve from the foot valve.

4,365,672

AUTOMATIC ALTERNATING MARKER SYSTEM

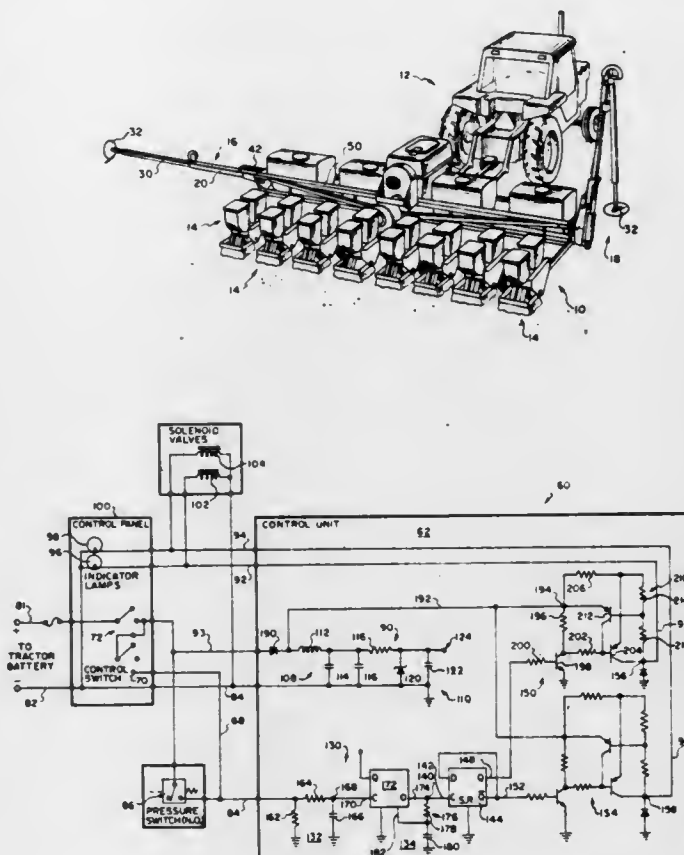
Edward L. Robinson, Jr., Naperville; Randolph G. Fardal, Chicago, and David Anderson, Country Club Hills, all of Ill., assignors to International Harvester Co., Chicago, Ill.

Filed Jun. 5, 1980, Ser. No. 156,537

Int. Cl.³ A01B 25/00, 63/10

U.S. Cl. 172—2

12 Claims



1. An agricultural planter assembly which has a plurality of planter units, which is adapted to be mechanically and hydraulically coupled to a tractor, and which has hydraulically actuated, first and second, extendable markers, each mounted on one side of the planter assembly, for marking, respectively, the track that a tractor wheel should follow on a return planting sweep of the planter assembly for planting properly spaced adjacent rows, said assembly having electrical control circuit means for enabling extension of the first marker and retraction of the second marker upon the raising of the planter units and the turning of the tractor 180°, and enabling extension of the second marker and retraction of the first marker upon the next raising of the planter units and the next turning of the tractor 180°, said electrical control circuit means including operating means therefor for sensing the raising of the planter units, a toggle bistable multivibrator having an input coupled to the output of said sensing means, and logic-output-powered hydraulic valve means, which are in circuit with the sensing means and electrical control circuit means, associated with each of the markers for controlling each one by extending and retracting that marker automatically in response to raising of

4,365,674

TANDEM DISC ROW MARKER

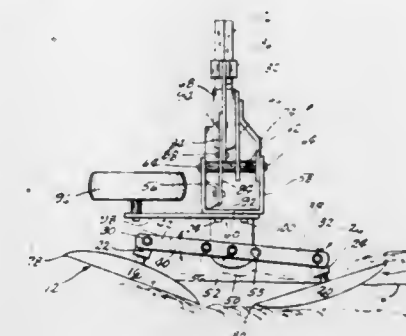
Henry K. Orthman, Lexington, Nebr., assignor to Orthman Manufacturing Co., Inc., Lexington, Nebr.

Filed Feb. 2, 1981, Ser. No. 230,389

Int. Cl.³ A01B 69/02, 17/00

U.S. Cl. 172—126

11 Claims



the planter unit, said bistable multivibrator having first and second outputs, said first output being coupled for applying power when at logic one to the valve means associated with the first marker for extending the latter and said second output being coupled for withholding power when at logic zero to the valve means associated with the second marker for retracting the latter, and vice versa, said second output being at logic zero when said first output is at logic one and vice versa whereby only a certain marker extends on alternate raisings of the planter units and only the other marker has extension on each remaining one of the raisings of the planter units.

TILLER HEAD WITH SHIFTABLE BLADES

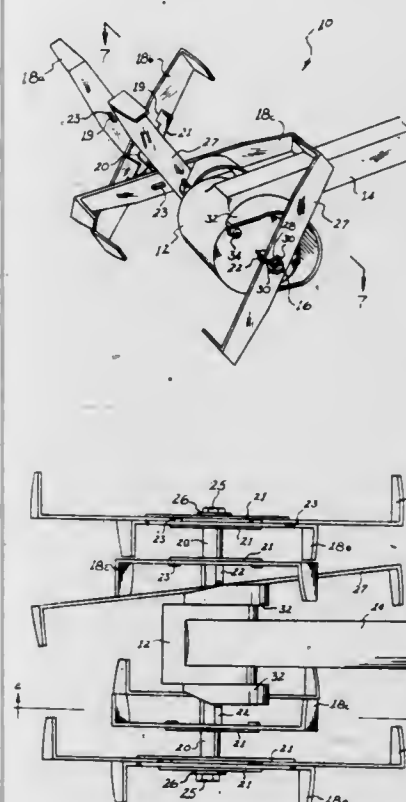
Arnold T. Faulkner, R.R. #2, Box 443, Berrien Springs, Mich. 49103

Filed Sep. 10, 1981, Ser. No. 300,892

Int. Cl.³ A01B 33/02, 33/14

U.S. Cl. 172—95

4 Claims



1. In a tiller head including a housing, a rotatable shaft journaled in said housing, a plurality of blades mounted on said shaft and rotating with the shaft, the improvement comprising means mounting one of said blades on said shaft for oscillating movement wherein the ends of the blade shift laterally relative to the shaft, cam means for urging said one blade into said oscillatory movement during shaft rotation, said mounting means including a sleeve fitted over said shaft in a rotative relationship with the shaft, said sleeve having opposite drive tabs extending radially from said shaft, said one blade having a central opening therein, said opening accommodating said shaft and said sleeve and having slots in its periphery receiving said sleeve drive tabs to lock said one blade for rotation with the shaft, said sleeve including retaining means for preventing longitudinal movement of said blade along said sleeve at said blade opening while permitting said oscillatory movement of said blade ends.

4,365,675

PILE DRIVING ASSEMBLY

Alan G. MacKinnon, Newcomerstown, Ohio, assignor to Foundation Equipment Company, Newcomerstown, Ohio

Filed Sep. 24, 1979, Ser. No. 78,456

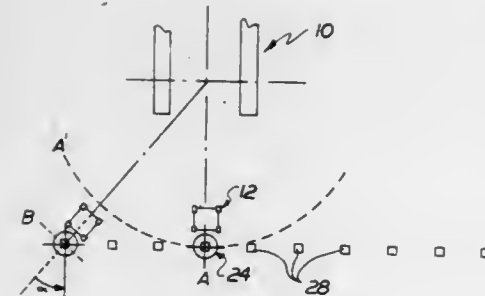
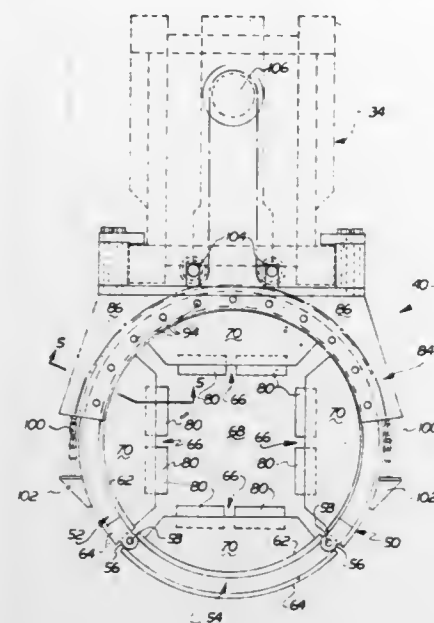
Int. Cl.³ B25D 17/28; E21B 1/00

U.S. Cl. 173—105

7 Claims

1. A pile driver assembly for a noncircular pile, comprising: a lead, a hammer assembly supported for longitudinal movement along said lead, a helmet at the lower terminus of said hammer assembly having pile mating components with a non-circular internal configuration for receiving the upper end of the pile, a pile guide supported for longitudinal movement along said lead and having pile mating components with a noncircular internal configuration for receiving the pile immediately the length thereof, the pile mating components of each of said helmet and pile guide being rotatable in response

to rotation of the pile, and a pile rotator supported proximate the lower end of said lead having a noncircular internal config-



uration for receiving the pile; said pile rotator comprising means for centering and rotating the pile.

4,365,676

METHOD AND APPARATUS FOR DRILLING LATERALLY FROM A WELL BORE

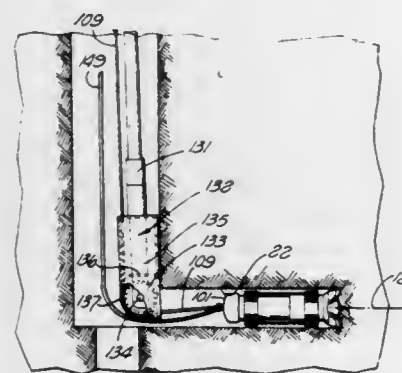
George I. Boyadjieff, Anaheim, and Andrew B. Campbell, San Marino, both of Calif., assignors to Varco International, Inc., Orange, Calif.

Filed Aug. 25, 1980, Ser. No. 180,695

Int. Cl.³ E21B 4/18, 7/04; E21C 1/10, 5/11

U.S. Cl. 175-61

38 Claims



8. The method that comprises:
lowering into a main well bore a drilling unit and a carrier holding said unit, with said drilling unit and carrier extending generally longitudinally of the main well bore as they are lowered;
turning both the carrier and the drilling unit held thereby within the well from said generally longitudinally extending position to a position of extension more transversely of the main well bore;

advancing said drilling unit from said carrier to drill a hole extending laterally from the main well bore; and
actuating the drilling unit to grip the wall of said hole and apply reactive forces from the drilling unit thereto as the hole is drilled.

13. A drilling unit comprising:

a drilling element;
first drilling means for engaging a bore wall to transmit reactive forces thereto;
a piston and cylinder structure operable alternately to first advance said drilling element relative to said gripping means to drill a portion of a hole and then advance said gripping means in preparation for a next drilling step;
said piston and cylinder structure containing different cylinder chambers for exerting force to advance the drilling element and gripping means respectively, and having more cylinder chambers for advancing the drilling element than for advancing the gripping means.

4,365,677

EARTH BORING APPARATUS

Lloyd J. Owens, Seattle, Wash., assignor to The Robbins Company, Kent, Wash.

Division of Ser. No. 31,856, Apr. 20, 1979, Pat. No. 4,270,618.

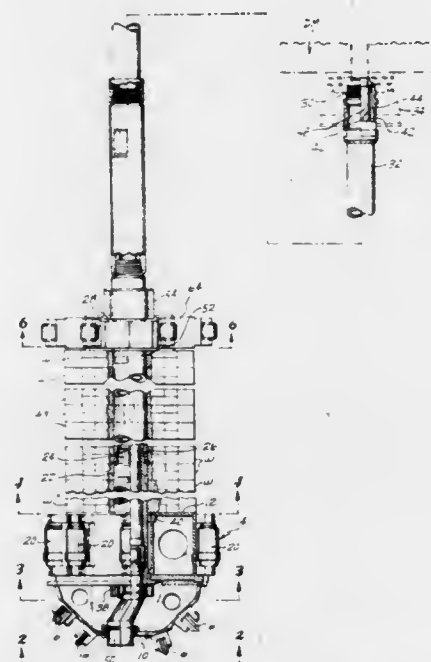
This application Mar. 23, 1981, Ser. No. 246,375

The portion of the term of this patent subsequent to Jun. 2, 1998, has been disclaimed.

Int. Cl.³ E21C 9/00

U.S. Cl. 175-173

8 Claims



1. An apparatus for boring a bore hole and reaming it back to a larger diameter comprising:
a rotatable powered drive stem having a diameter substantially less than the diameter of the bore hole;
a stabilizer frame detachably connected to the lower end of said drive stem, said stabilizer frame having peripheral portions extending outwardly a substantial distance beyond said drive stem to contact against the bore wall to center said stabilizer frame within the bore hole;
a bore formed cutterhead and a bore enlarging reamer; and
said stabilizer frame further including mounting means for selectively detachably connecting said bore forming cutterhead and said bore enlarging reamer to the side of said stabilizer frame opposite said drive stem, said mounting means having attachment points associated with corresponding points on said cutterhead and said reamer for attaching said cutterhead and reamer to said stabilizer frame, said mounting means attachment points located at substantial distances radially outwardly of said drive stem.

4,365,678

TUBULAR DRILL STRING MEMBER WITH CONTOURED CIRCUMFERENTIAL SURFACE

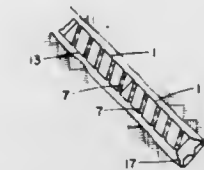
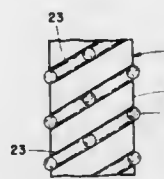
John L. Fitch, Dallas, Tex., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Nov. 28, 1980, Ser. No. 210,914

Int. Cl.³ E21B 17/16, 17/22

U.S. Cl. 175-323

6 Claims



1. An elongate tubular member, such as a section of drill pipe or drill collar, adapted to be connected at its opposite ends in a drill string for the drilling of a borehole, comprising continuous contour-forming means having recessed surface portions depending below the circumferential outer surface of said tubular member being arranged in the outer circumference thereof and extending along the axis of said tubular member for producing a downwardly acting longitudinal thrust responsive to rotational movement of said tubular member along the surface of the borehole; a plurality of rollers arranged within said contour-forming means and spaced along the circumferential outer surface of said tubular member; and a low-friction surface coating material covering said recessed surface portions to facilitate the upward displacement of drilling mud or fluid through said borehole about said tubular member.

4,365,679

DRILL BIT

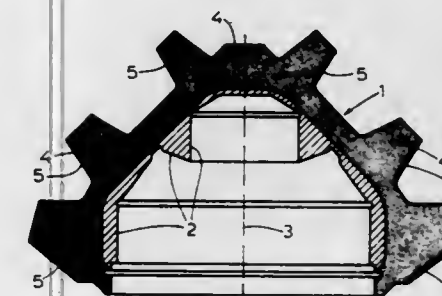
Hans B. van Nederveen, Bosch en Duin, and Martin B. Verburgh, Amersfoort, both of Netherlands, assignors to SKF Engineering and Research Centre, B.V., Nieuwegein, Netherlands

Filed Dec. 2, 1980, Ser. No. 212,068

Int. Cl.³ B21K 5/02; E21B 10/22, 10/50

U.S. Cl. 175-371

4 Claims



1. A drill bit with cutting teeth for drilling in rock comprising:
a core member having raceways for rolling elements for rotation of the drill bit,
a supporting layer exteriorly shaped to define cutting teeth and formed of highly compacted sintered powder material of substantially 90% density, isostatically bonded to said core member,
a wear resistant layer applied by thermal spraying and cov-

ering only the portions of the cutting teeth which upon drilling directly contact the rock,
said wear resistant layer and said supporting layer being isostatically compacted hot which combined are of substantially 99% density,
said layers having a solid bond therebetween providing a drill bit of superior mechanical properties including high resistance to wear and chipping.

4,365,680

FORCE MEASURING DEVICE

Dietrich Gottstein, Lechnerstrasse 8, D-8026 Ebenhausen, and Christian Nitschke, Savoyenstr. 4, 8 München 19, both of Fed. Rep. of Germany

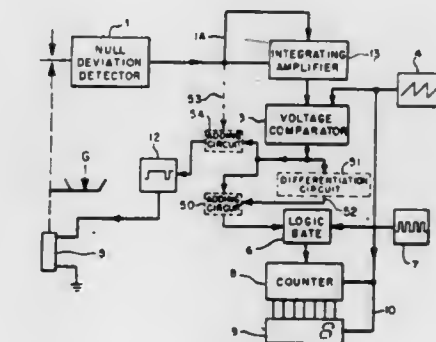
Filed Jun. 19, 1980, Ser. No. 160,969

Claims priority, application Fed. Rep. of Germany, Jun. 25, 1979, 2925503; Jun. 25, 1979, 2925504

Int. Cl.³ G01G 7/00, 3/14

U.S. Cl. 177-212

28 Claims



1. A device for measuring forces comprising:
a coil that moves in a magnetic field in response to the forces being measured;
null deviation detector means, coupled to said coil, for producing position signals corresponding to the difference in position of said coil from a null position;
integrating control means, coupled to said null deviation detector means, having a variable integration constant for integrating said position signals to produce a compensation pulse;
means for varying the integration constant dependent upon the position of said coil, such that a large deviation of said coil from said null position would cause a large integration constant and a slight deviation of said coil from the null position would cause a small integration constant;
means, coupled to said integrating control means, for restoring said coil to said null position in response to said compensation pulse;
conversion means, coupled to said integrating control means; for converting said compensation pulse into a display signal indicating the numerical value of the forces being measured; and
a display unit for displaying the numerical value of the forces being measured in response to said display signal.

4,365,681

BATTERY SUPPORT STRUCTURE

Harmahendar Singh, Sterling Heights, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 22, 1980, Ser. No. 218,936

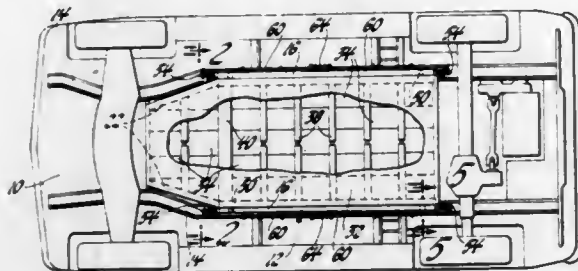
Int. Cl.³ B60K 1/04

U.S. Cl. 180-68.5

3 Claims

1. A structure for supporting a plurality of batteries in rows beneath a vehicle, comprising,
a structural frame located beneath the vehicle and having a pair of side rails running longitudinally of the vehicle,
a plurality of pairs of aligned I-type beams running generally transversely of the side rails, each beam of each aligned

pair being cantilevered from a respective side rail and running approximately to the center of support structure, each cantilevered beam having a lower and an upper flange, the upper flanges of each parallel pair of cantilevered beams being spaced apart a distance slightly greater than the width of the row of batteries supported therebetween



with the lower flanges thereof being spaced apart a distance less than such width so as to underlie and support the lower edges of a row of batteries supported thereon, the upper flanges of the cantilevered beams being located between adjacent rows of batteries and means releasably mounting the frame to the vehicle.

4,365,682

SUSPENSION SYSTEM FOR OPERATOR COMPARTMENT

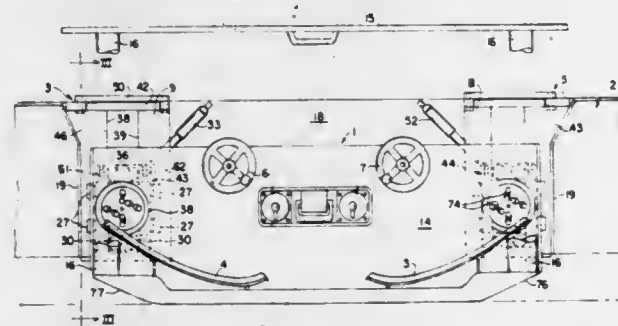
G. Robert Frey, Franklin; Joseph A. Rogus, Snow Shoe; Paul R. Johnson, Reno, and Richard A. King, Emlenton, all of Pa., assignors to Joy Manufacturing Company, Pittsburgh, Pa.

Filed Dec. 24, 1980, Ser. No. 219,648

Int. Cl.³ B62D 33/06

U.S. Cl. 180—89.13

10 Claims



1. A suspension system for the operator compartment of a mine vehicle having a frame, said system comprising track members arranged in a substantially vertical plane and rigidly secured to the frame of the vehicle, first means for supporting the operator compartment on said track members, said first means permitting vertical movement of each end of said operator compartment in a linear path along said track members, second means for limiting such vertical movement and third means cooperating with said first means to permit vertical movement of one end of said compartment with respect to the other in an arcuate path.

4,365,683

POWER ASSISTED VEHICLE STEERING SYSTEM

Frederick J. Adams, Clevedon, England, assignor to Cam Gears Limited, Hitchin, England

Filed May 12, 1981, Ser. No. 262,954

Claims priority, application United Kingdom, May 14, 1980, 8015929

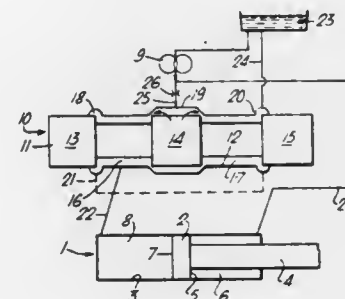
Int. Cl.³ B62D 5/06

U.S. Cl. 180—132

3 Claims

1. A power assisted vehicle steering system comprising a pressure biased piston and cylinder device actuation of which effects in the power assistance, the piston of said device having axially opposed faces with different effective pressurised areas of which the face with the smaller effective area communicates with a first piston chamber and the face with the larger effective

area communicates with a second piston chamber; pump means having an output from which fluid under pressure is derived for actuating the piston and cylinder device; valve means which is adjustable in response to a steering manoeuvre to control flow of fluid under pressure from the pump output to the piston and cylinder device for providing power assistance consistent with said manoeuvre, said valve means deriving fluid under pressure from the pump output by way of restrictor means and having a neutral condition in which the first and second piston chambers and the pump output communicate with exhaust by way of control port means in the valve



means, said second piston chamber communicates with the pump output by way of said restrictor means and said control port means, and said first piston chamber communicates with the pump output upstream of said restrictor means and said control port means, and wherein the restrictor means is arranged so that with the valve means in its neutral condition the fluid pressure in the second piston chamber having suffered a pressure decrease effected by the restrictor means and the control port means provides an axial force on the larger piston face which substantially balances an opposing axial force on the smaller piston face provided by the fluid pressure in the first piston chamber.

4,365,684

POWER ASSISTED GEAR ASSEMBLY

Robert Turner, Rayleigh, England, assignor to Cam Gears Limited, Hertfordshire, England

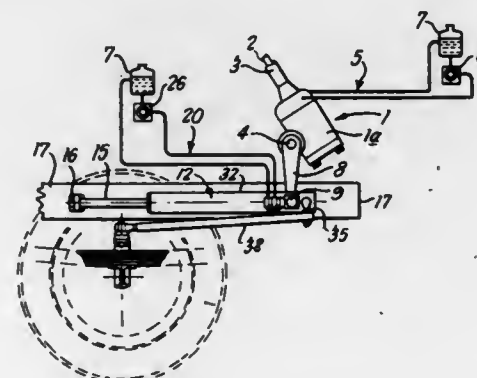
Filed Jul. 23, 1980, Ser. No. 171,340

Claims priority, application United Kingdom, Jul. 23, 1979, 7925593

Int. Cl.³ B62D 5/08

U.S. Cl. 180—133

10 Claims



1. A power assisted steering gear assembly comprising, input means,

steering linkage means displaceable to provide a steering output in response to a steering input applied to said input means,

a displaceable component, displacement of which in response to said steering input effects displacement of said linkage means,

a first power fluid system connected to said displaceable component to provide power assist for the displacement of said displaceable component,

a second power fluid system connected to said steering linkage means to provide power assist to said steering linkage means,

said first power fluid system comprising a fluid source and a fluid pressure operated means associated with said displaceable component and said second power fluid system comprising a fluid source and a fluid pressure operated means associated with said steering linkage and

an auxiliary valve means located in one of said first and second power fluid systems and controlling fluid flow from the power source to the fluid pressure operated means in said one of said first and second power fluid systems in response to the pressure of the fluid flow in the other of said first and second power fluid system so as to render ineffective power assist from said one of said first and second fluid power systems when said pressure in said other of said first and second power fluid systems exceeds a predetermined amount, and to provide power assist from said one of said first and second power fluid systems when said pressure in said other of said first and second power fluid systems is below a predetermined amount or ceased to exist.

4,365,685

EQUIPMENT FOR INFLUENCING THE JACKKNIFING ANGLE OF ARTICULATED MOTOR VEHICLES

Istvan Ratsko; Jozsef Ivony; Jenő Madi, and György Karasz, all of Budapest, Hungary, assignors to Autopari Kutató Intézet and Ikarus Karosszeria és Jarmugyar, both of Budapest, Hungary

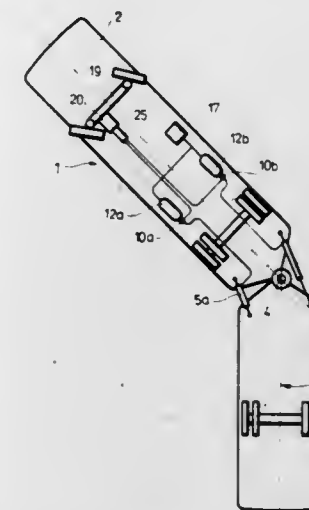
Filed Aug. 21, 1980, Ser. No. 180,093

Claims priority, application Hungary, Aug. 21, 1979, AU-429; Aug. 21, 1979, AU-430

Int. Cl.³ B62D 5/08, 5/10

U.S. Cl. 180—135

10 Claims



1. In an apparatus for influencing the jackknifing angle of an articulated motor vehicle, when the vehicle units are in articulated coupling with each other, of the type having a hydraulic piston device with pairs of cylinders with two working spaces arranged outside the longitudinal centerline of the motor vehicle, the piston of which is connected to one vehicle unit, and the cylinder to the other vehicle unit, each working space being connected through a hydraulic valve unit to the hydraulic space of a hydropneumatic energy source, the valve unit having a parallel connected check valve and choke valve closing from the direction of the working space toward the

hydropneumatic energy source, the improvement comprising a sensing element for sensing the steering angle of the front axle of the vehicle and for producing an actuating signal in response thereto and wherein the choke valve comprises an adjustable transfer cross sectional closing element connected to the sensing element and responsive to the actuating signal for changing the position of one of the choke valves to increase choking.

4,365,686

TRANSMISSION SHAFT FOR A FRONT WHEEL DRIVE VEHICLE HAVING AN AUTOMATIC GEAR BOX

Michel A. Orain, Conflans-St. Honorine, France, assignor to Glaenger Spicer, Poissy, France

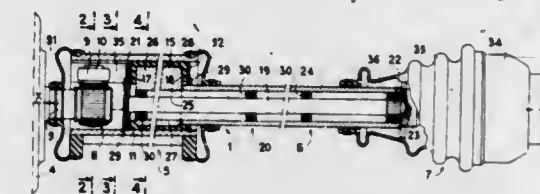
Filed Dec. 5, 1979, Ser. No. 100,405

Claims priority, application France, Dec. 18, 1978, 78 35576

Int. Cl.³ B60K 17/30

U.S. Cl. 180—256

8 Claims



1. A structure comprising in combination transmission shaft means, a vehicle front wheel drive comprising a front wheel, brake means for said wheel and an engine-automatic gear box-differential assembly which has an output shaft, said output shaft carrying a male member of a slidable tripod-type joint, said assembly being liable to produce a drag torque on said output shaft when the engine is idling and said brake means hold the wheel stationary, a tulip element of said slidable tripod type joint, the tulip element being in the form of a tubular sleeve whose internal cross-sectional shape comprises three lobes, the lobes co-operating with respective rollers of said male member in a first part of the longitudinal length of the sleeve, the shaft means comprising a first transmission element which has a high torsional elasticity, first connecting means connecting one end of the first transmission element to rotate with said tulip member, an opposite end of the first transmission element being connected to rotate with said front wheel, a second transmission element which has a torsional elasticity lower than said high torsional elasticity and is coaxial with the first transmission element and has one end connected to rotate with said front wheel, and second connecting means connecting an opposite end of the second transmission element to said tulip member, said second connecting means allowing a limited angular rotational play between said opposite end of the second transmission element and said tulip member between two predetermined relative positions corresponding to positive values of vehicle driving torque applied to said shaft means by said output shaft, said drag torque having a value which is between said two values, said second connecting means comprising radial projections on the second transmission element which are evenly circumferentially spaced apart, are respectively of smaller angular extent than said lobes and are respectively received in said lobes in a second part of the longitudinal length of the sleeve.

4,365,687

CONTROLLER FOR ELECTRIC TRACTION MOTOR

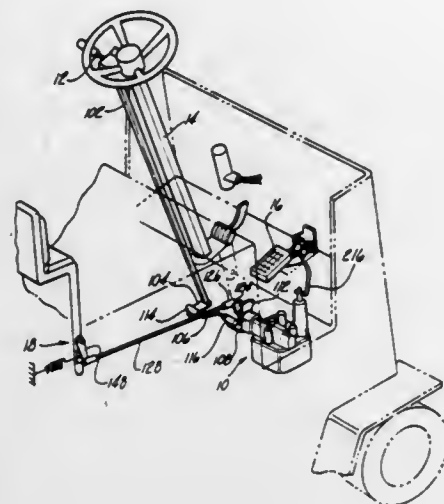
James J. Bauer, Richland, Mich., assignor to Clark Equipment Company, Buchanan, Mich.

Filed Feb. 27, 1981, Ser. No. 239,095

Int. Cl.³ G05G 11/00

U.S. Cl. 180—315

3 Claims



1. A controller for use in a vehicle having an electric traction motor,
 - a controller housing including a switch support member and an actuator support member,
 - said actuator support member being a unitary body defining first and second passages extending orthogonally relative to each other in said body,
 - an actuator spool slidably disposed in said first passage and adapted for axial movement from a neutral position to forward, reverse or park position,
 - detent means coacting between said spool and said unitary body for holding said spool in said forward, reverse or park position,
 - said switch support member being a box connected with said unitary body with said first passage extending parallel to one wall of the box and said second passage extending perpendicular to said wall,
 - forward, reverse and brake switches mounted in said box adjacent said wall and being adapted for selective actuation for selecting forward or reverse drive or brake actuation,
 - a coupling member connected with said spool and adapted for connection with a manually actuatable selector for selectively moving the spool to neutral, forward, reverse or park position,
 - cam means on said spool for selectively actuating said forward, reverse or brake switch when said actuator spool is in said forward, reverse or park position, respectively,
 - an actuator plunger slidably disposed in said second passage in said body and adapted to be connected with the accelerator pedal of said vehicle,
 - a start switch and a speed control member mounted in said box,
 - said speed control member having an elongated body extending perpendicular to said wall of the box and having a control plunger extending axially of said elongated body,
 - said actuator plunger coacting with said control plunger for axial movement thereof and actuation of said start switch when the accelerator pedal is depressed.

4,365,688

SPEAKER CABINET

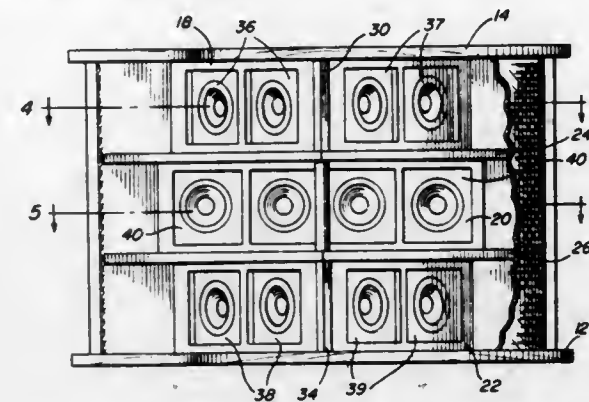
William G. Blose, 201 Walnut St., Punxsutawney, Pa. 15767

Filed Mar. 12, 1981, Ser. No. 242,845

Int. Cl.³ H05K 5/00

U.S. Cl. 181—145

12 Claims



1. An acoustic system comprising:
 - a speaker support means having a plurality of tiers forming airtight spaces containing a plurality of sound dispersing speakers positioned within said speaker support means, a topmost tier of said speakers and a bottommost tier of said speakers each utilizing speakers divergently aligned with one another;
 - sound chamber means associated with said airtight spaces of said plurality of sound dispersing speakers, said sound chamber means serving to modify the tonal quality of sound emitted by said plurality of speakers;
 - sound obstructing means including material covering means performing as a sound insulation means associated with said support means and forming sound panel means positioned between adjacent tiers of said plurality of tiers serving to selectively prevent an interference of dispersed sound between said plurality of speakers; and
 - sound directing means serving to direct said dispersed sound in a desired direction.

4,365,689

TILTING MARINE LADDER

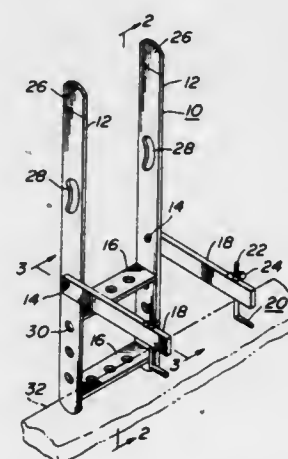
Francis Dever, 8208 Central Ave., Sea Isle City, N.J. 08243

Filed Feb. 6, 1981, Ser. No. 232,339

Int. Cl.³ E06C 1/36

U.S. Cl. 182—97

9 Claims



1. A tiltable, portable, pivotable marine type ladder which comprises:
 - (a) two parallel support members having a top end and a bottom end;
 - (b) two pivot means, each of the pivot means disposed on each of the support members at a location approximately midway between the top and the bottom end of the support members;

- (c) a plurality of horizontal stairs connecting the support members at positions between the bottom end of the support members and the pivot means;
- (d) two parallel struts, each of the struts having a pivotable end and an outer end, the pivotable end of each of the struts pivotally connected to each of the pivot means;
- (e) a locking means attached to the outer end of each of the struts and the locking means capable of being secured to a marine structure, said marine structure being adjacent to a body of water;
- (f) a counterweight balance located above the pivot means on each of the support members, the counterweight balance being of a sufficient weight so as to be able to tilt the support members from a horizontal position to a vertical position when an initial vertical downward force is applied to the bottom ends of the support members so as to at least partially submerge the support members in the body of water, and also to automatically tilt the support member back to its horizontal position out of the water when the force is released upon activation by said water.

4,365,690

SPRING CARTRIDGE FOR SPRING OPERATED RE-WIND MECHANISM

Robert J. Zavatkay, Torrington; George W. Kurasz, Bristol, and Robert R. Devaux, Northfield, all of Conn., assignors to Barnes Group Inc., Bristol, Conn.

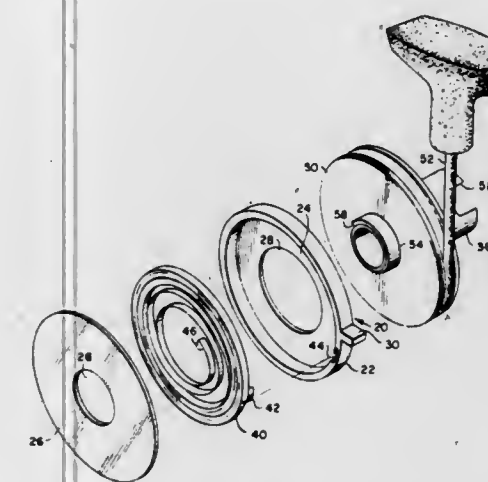
Division of Ser. No. 957,724, Nov. 6, 1978, Pat. No. 4,261,437.

This application Sep. 30, 1980, Ser. No. 192,620

Int. Cl.³ F16F 1/12; F03G 1/00

U.S. Cl. 185—45

1 Claim



1. As a new article of manufacture, a spring cartridge for insertion into an open circular recess, which includes an outwardly extending radial slot, in an engine to form part of a re-wind mechanism, comprising a cylindrical casing of substantially the same diameter and depth as the recess and having a peripheral wall and sides of different appearances and having a central opening which is concentric with the peripheral wall, a backwound spiral spring within the casing with its outer convolution bearing against the peripheral wall of the casing and connected thereto, the inner end of the spring having an abutment formed thereon which is positioned within the central opening in the casing, and a tang connected to the peripheral wall and extending outwardly therefrom and having substantially the same size and shape as the radial slot of the recess.

4,365,691

INTEGRATED ELEVATOR CAB FIXTURE

Ernest M. Bevilacqua, Wilton; Allan L. McCroskery, Weston, both of Conn., and Theodore N. Knerr, New York, N.Y., assignors to Otis Elevator Company, Farmington, Conn.

Filed Feb. 2, 1981, Ser. No. 230,974

Int. Cl.³ B66B 9/00

U.S. Cl. 187—1 R

3 Claims



1. An elevator cab for transporting passengers including a control panel attached to one cab wall,
 - a first surface containing a plurality of control buttons, the first surface being oriented upward at a first angle from a cab wall from a first distance from the cab floor,
 - a second surface containing an information display device, the second surface being vertically above the first surface and oriented downward, at a second angle from the cab wall, from a second distance above the floor,
 - the first distance being selected such that the majority of buttons on the first surface are substantially at eye level for a first group of passengers standing within reaching distance of the panel,
 - the first angle being such that the viewing angle relative the first surface is oriented towards a second group of passengers standing within reaching distance of the panel,
 - the second distance being such that the display is above the eye level of both said first and second groups, and
 - the second angle being such that the viewing angle of the display is oriented downward towards both groups and first and second of passengers.

4,365,692

ELEVATING CATWALK

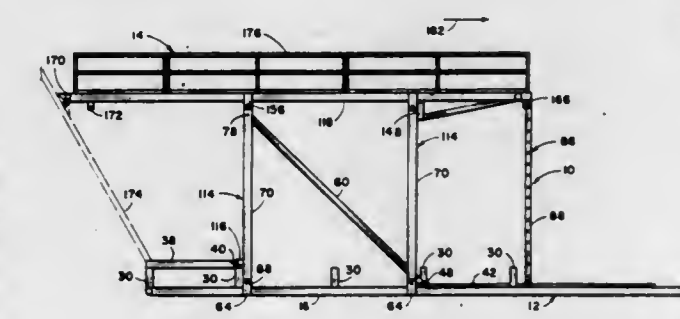
Gary W. Craig, and Jack W. Langston, both of Tulsa, Okla., assignors to Loffland Brothers Company, Tulsa, Okla.

Filed Dec. 4, 1980, Ser. No. 212,891

Int. Cl.³ B60S 13/00

U.S. Cl. 187—8.72

6 Claims



1. An elevating catwalk apparatus comprising base means, a catwalk assembly pivotally secured to the base means and movable between an elevated position and a lowered position with respect thereto, lifting link assembly means pivotally interposed between the base means and catwalk assembly and responsive to a longitudinal force on the catwalk assembly in one direction for elevating of the catwalk assembly and a

longitudinal force in an opposite direction for lowering of the catwalk assembly, and pivotal and slidable brace means interposed between the base means and at least one lifting link assembly means for securing the lifting link assembly in the elevated position of the catwalk assembly, and wherein the base means comprises a plurality of mutually parallel spaced beam members providing a skid for facilitating moving of the elevating catwalk apparatus from site to site, and including rail means secured to the inboard side of at least one of the beam members for slidably receiving at least one end of the brace means therein.

4,365,693

HIGH VISIBILITY LIFT APPARATUS

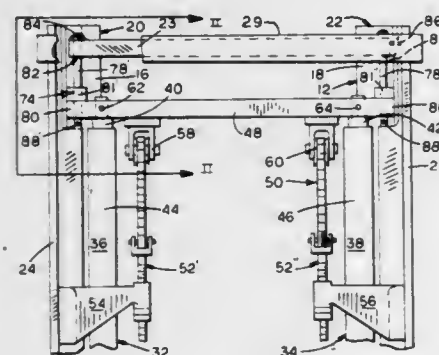
Milford D. McVeen, Highland Heights, Ohio, assignor to Towmotor Corporation, Mentor, Ohio
PCT No. PCT/US80/01326, § 371 Date Oct. 3, 1980, § 102(e)
Date Oct. 3, 1980, PCT Pub. No. WO82/01181, PCT Pub.
Date Apr. 15, 1982

PCT Filed Oct. 3, 1980, Ser. No. 266,011

Int. Cl.³ B66B 9/20

U.S. Cl. 187-9 E

16 Claims



1. Apparatus (10), comprising:

- a frame (28);
- a first member (12) mounted on and movable relative to said frame (28);
- a second member (14) mounted on and movable relative to said first member (12) and movable relative to said frame (28);
- first and second lifting elements (32, 34) each having a movable lifting portion (40, 42) and each being connected to said frame (28), said lifting portions (40, 42) each being movable between a first position at which said second member (14) is movable thereby and said first member (12) is free from being movable and a second position at which said first and second members (12, 14) are both movable thereby, and being movable one relative to the other;
- a load sharing member (48) connected to said lifting portions (40, 42) of both of said first and second lifting elements (32, 34) and being movable partially about each of said connections with said lifting portions (40, 42) in response to relative movement of said lifting elements (32, 34), and being movable relative to said first member (12) in response to at least one of said lifting portions (40, 42) moving from its first position toward its second position and movable with said first member (12) in response to at least one of said lifting portions (40, 42) being at its second position; and
- means (50) for interconnecting said first and second lifting elements (32, 34) and said second member (14) for moving said second member (14) in response to moving at least one of said lifting portions (40, 42) of said first and second lifting elements (32, 34).

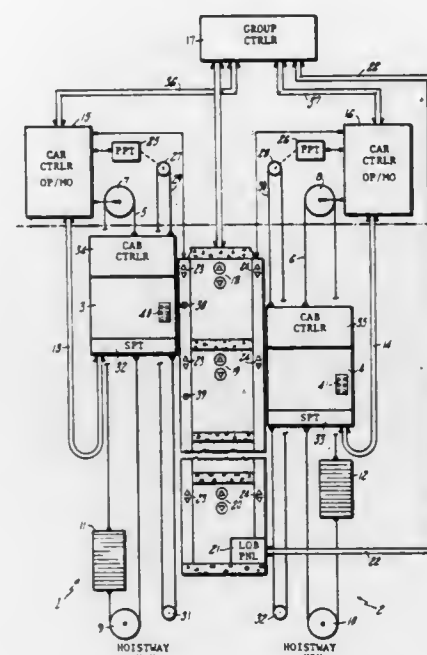
4,365,694
PREVENTING ELEVATOR CAR CALLS BEHIND CAR
Joseph Bittar, Simsbury, Conn., assignor to Otis Elevator Company, Farmington, Conn.

Filed Feb. 13, 1981, Ser. No. 234,078

Int. Cl.³ B66B 1/16

U.S. Cl. 187-29 R

2 Claims



1. An elevator, including a shaftway having access to a plurality of floor landings in a building, comprising:

- a car;
 - motion means for moving and stopping said car in the shaftway for servicing the landings;
 - transducer means associated with said motion means for providing movement signals indicative of the movement of said car along the shaftway;
 - a car call panel in said car including passenger-actuable means for providing car call button signals indicative of landings at which elevator stops are requested by passengers and means for providing visual indications to the passengers of landings for which car calls have been requested; and
 - signal processing means interconnected with said motion means and responsive to said movement signals and said car call button signals for providing committable floor signals indicative of the next floor landing at which the car could be stopped from the car position and velocity determined from said movement signals, for providing registered car call signals in response to said car call button signals, for periodically eliminating selected ones of said registered car call signals, for providing signals to said motion means to cause movement of said car to landings corresponding to said registered car call signals, and for providing advance signals indicative of the direction of movement of said car in the shaftway;
- characterized by:
said signal processing means comprising means responsive to said committable floor signals and said advance signals to provide said registered car call signals only for landings indicated by said car call button signals at which the car can be stopped as it moves along the shaftway in its present direction of movement.

4,365,695

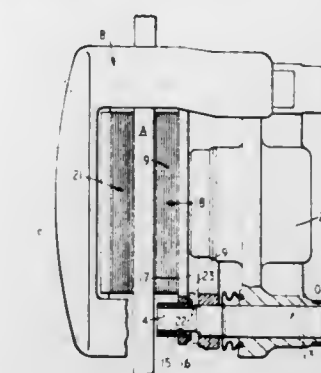
DISC BRAKE AND FRICTION PAD ASSEMBLY THEREFOR

Heinrich B. Rath, Vallendar, Fed. Rep. of Germany, assignor to Lucas Industries Limited, Birmingham, England
Filed Jun. 24, 1980, Ser. No. 162,639

Claims priority, application United Kingdom, Jun. 26, 1979, 7922203

Int. Cl.³ F16D 65/02

U.S. Cl. 188-73.39



1. A spot-type disc brake comprising a caliper and torque plate, a friction pad assembly comprising a backing plate with a pad of friction material secured thereto being slidably supported on at least one pin having a portion which extends through an aperture in the backing plate, a sheath covering at least the extended portion of the pin to protect same, said sheath also passing through said aperture and extending towards the plane in which the face of the pad of friction material remote from the backing plate lies, said sheath lying within the periphery of the disc so as to be abraded by the disc as the pad wears away, and said sheath, during use, at all times covering all of the extended portion of the pin to protect all of the sliding surface thereof throughout the wear life of said friction material.

4,365,697

FRICTION CLUTCH

Rudolf Hönemann, Ottersweier, Fed. Rep. of Germany, assignor to Luk Lamellen und Kupplungsbau GmbH, Buhl, Fed. Rep. of Germany

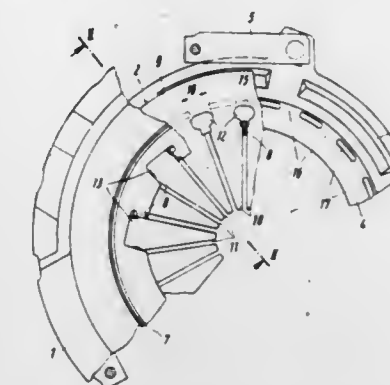
Filed Jul. 3, 1980, Ser. No. 165,545

Claims priority, application Fed. Rep. of Germany, Jul. 6, 1979, 2927391

Int. Cl.³ F16D 13/44

10 Claims U.S. Cl. 192-89 B

12 Claims



1. A friction clutch, comprising a diaphragm spring including a ring-shaped base and tabs extending radially inwardly from the base and separated by slots terminating radially outwardly in hole-like cutouts, a clutch part having a first roll-off support at one side of the spring, a substantially circular discrete second roll-off support at the other side of the spring, the second roll-off support being acted upon by the spring when the clutch is disengaged and the first roll-off support being acted upon by the spring when the clutch is engaged, and holding means securing the second support to the clutch part, the second support engaging the spring radially outwardly of the cutouts and having, in the vicinity of each of the cutouts, an interruption facing the spring and extending along at least 50% of the length of the respective cutout, as considered in the circumferential direction of the clutch.

4,365,696

ONE-PIECE LOCKING CLUTCH

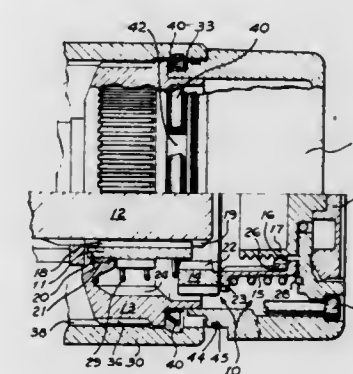
Thomas M. Telford, Gladstone, Oreg., assignor to Warn Industries, Inc., Kent, Wash.

Filed Nov. 24, 1980, Ser. No. 209,647

Int. Cl.³ F16D 11/04

U.S. Cl. 192-67 R

7 Claims



1. In combination with a vehicle wheel hub of the type having an opening for insertion of a clutch mechanism, a clutch housing including a clutch mechanism operable to lock and unlock the vehicle axle to the vehicle wheel hub, said clutch housing being secured to the vehicle wheel hub by a lock ring disposed around the clutch housing engaging an annular groove within the vehicle wheel hub opening, said lock ring in its at rest state having an outside diameter smaller than the inside diameter of the vehicle wheel hub opening.

4,365,698

MULTIPLE DISCHARGE CHUTE

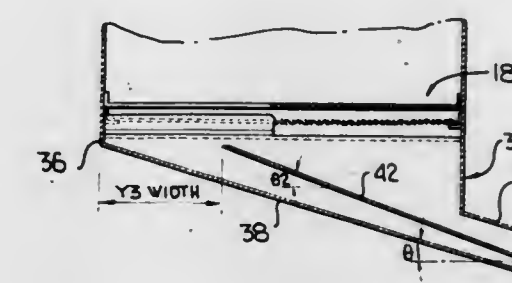
Jerry L. Godwin, Hagerstown, Md., assignor to Kennecott Corporation, Stamford, Conn.

Filed Oct. 21, 1980, Ser. No. 199,360

Int. Cl.³ B65G 11/00

U.S. Cl. 193-2 B

9 Claims



1. A discharge chute operate to flow granular material there-through, wherein said chute is, in operation, subjected to a continuous, generally vertical vibrating action, said chute comprising an upper housing portion adapted for receiving granular material, a bottom wall underlying said housing and extending lengthwise of said housing, said bottom wall starting at one end of said housing and sloping downwardly and generally towards the other end of said housing adapted for receiving granular material from a first portion of said housing, and at least one second sloping wall interposed between said bottom wall and said housing, said second wall starting at a point

of said housing between said housing ends and sloping downwardly and generally towards said other end of said housing for receiving granular material from at least one second portion of said housing terminating at said housing other end, said bottom wall and said sloping second wall providing substantially increased flow capacity within substantially the same chute volume thereby permitting a lesser chute angle of slope, said first wall and said second wall being positioned such that the depth of granular material thereon is generally equivalent to the vertical dimension of said vibrating action.

4,365,699

APPARATUS FOR HANDLING MATERIALS BY MEANS OF A BALL BEARING-MOUNTED TABLE

Jean-Benoit Dussud, Meylan, France

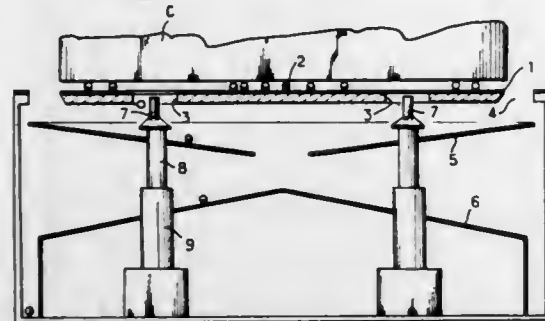
Filed Dec. 29, 1980, Ser. No. 220,699

Claims priority, application France, Jan. 14, 1980, 80 00689

Int. Cl.³ B65G 13/00

U.S. Cl. 193—35 SS

4 Claims



1. Apparatus for handling a load comprising a table with a horizontal plate and three nonaligned passages having walls below the plate and opening onto the plate, a plurality of ball bearings of the same diameter which roll freely on the plate and on which a load may be displaced, three retractable supports with tops and means for raising the supports through the respective passages until their tops attain a higher level than the tops of the ball bearings, so that the load becomes disengaged from the ball bearings, the distance, at any point, between the walls of a passage and the corresponding support being always greater than the diameter of the ball bearings so that the ball bearings may still fall through the passages when the supports are raised.

4,365,700

MONEY RECEIVING AND DISPENSING SYSTEM

Katsuhiko Arimoto, Omihachiman, and Masahiro Fujimoto, Kusatsu, both of Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan

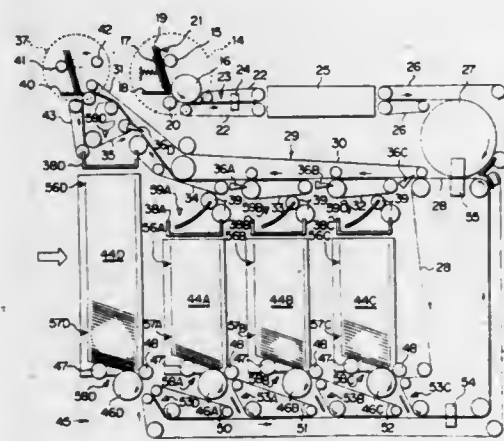
Filed Aug. 8, 1980, Ser. No. 176,690

Claims priority, application Japan, Aug. 24, 1979, 54-108459

Int. Cl.³ G07D 11/06

U.S. Cl. 194—2

6 Claims



1. A money receiving and dispensing system, comprising:

a plurality of money cases for storing monies of several denominations, respectively;
a stock money cartridge removably mounted in the system for collectively storing monies available in the system;
a plurality of entering means each for entering monies into the corresponding one of said money cases and stock money cartridge;
a plurality of feeding means for respectively feeding the monies stored in said money cases and stock money cartridge;
a money receiving means for receiving the money deposited into the system to store the received money in one of said money cases and stock money cartridge;
a money dispensing means for dispensing the money fed by one of said feeding means;
detecting and generating means for generating a money supply signal when the quantity of monies in any of said money cases has decreased to a certain level; and
means, in response to the generation of said money supply signal, for feeding the monies stored in said stock money cartridge, distributing the corresponding ones of the fed monies into the particular money case and returning into said stock money cartridge any monies of denominations other than the denomination corresponding to said particular money case.

4,365,701

NEWSPAPER VENDING MACHINE

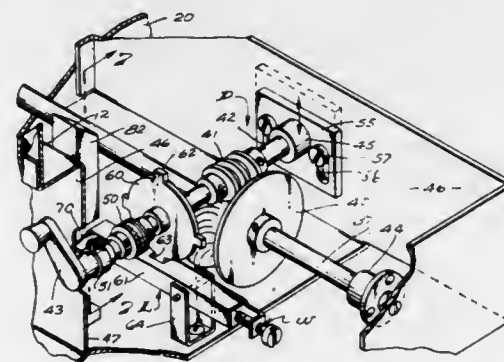
Currie Armstrong, and Clarence E. Christophersen, both of 255 W. Torrance Blvd., Carson, Calif. 90745

Filed Feb. 17, 1981, Ser. No. 234,981

Int. Cl.³ G07F 11/28

U.S. Cl. 194—22

8 Claims



1. A coin-operated newspaper vending machine comprising an elongate vertical cabinet with top and bottom ends, laterally spaced vertical sides, a vertical back and a vertical front wall spaced forward from said back, a flat, smooth, forwardly and upwardly disposed newspaper support plate within the cabinet and having a lower forward edge spaced rearward from the front wall and inclined forwardly and downwardly at an angle at which a newspaper supported in flat engagement atop the plate and newspapers in stacked engagement above the plate will slide forwardly and downwardly from engagement with each other and from the plate, a discharge opening in the front wall below the support plate and a panel spaced rearward of the front wall and below the support plate to direct newspapers moving forwardly and downwardly from the support plate to said discharge opening, stop means releasably engaging the lower forward edges of newspapers above the support plate and including an elongate vertical stop post spaced rearward from the front wall and having an upper portion engaging the lower forward edges of said newspapers, manually operable drive means intermittently operable to move the stop post down to disengage the uppermost newspaper above the support plate, latch means releasably locking the drive means and including a trigger disposed in the path of newspapers moved forwardly and downwardly from above the plate, a stop part in said drive means, a movable latch part shiftable into and out of engagement with the stop part, means between

the trigger and the latch part to move the latch part into stopped engagement with the stop part when the trigger is moved in advance of a newspaper, and a coin mechanism with a coin-receiving slot accessible at the front of the cabinet and operable to receive and to release predetermined coinage deposited in the machine and to engage and move the latch part out of engagement with the stop part.

4,365,702

APPARATUS FOR TRANSPORT AND TEMPORARY STORAGE OF CIGARETTES OR THE LIKE BETWEEN PRODUCING AND PROCESSING MACHINE

Gerhard Tolasch; Horst Bäse, both of Hamburg, and Jürgen Bantien, Hamwarde, all of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. KG, Hamburg, Fed. Rep. of Germany

Continuation of Ser. No. 6,221, Jan. 24, 1979, abandoned, which is a continuation of Ser. No. 804,338, Jun. 7, 1977, abandoned.

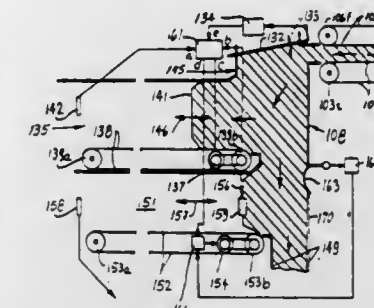
This application Mar. 14, 1980, Ser. No. 130,392

Claims priority, application Fed. Rep. of Germany, Sep. 10, 1976, 2640719; Nov. 17, 1976, 2652363

Int. Cl.³ B65G 1/00

U.S. Cl. 198—347

22 Claims



1. In an apparatus for transporting streams of cigarettes, filter rod sections or analogous rod-shaped articles from at least one producing machine to at least one consuming machine, the combination of storing means including a plurality of variable-capacity reservoirs, said reservoirs including a first surge bin and a second surge bin disposed below said first surge bin, each of said surge bins having an opening which constitutes an inlet during admission of articles into and an outlet during evacuation of articles from its interior; a first transporting unit including means for feeding articles into said surge bins when the output of said producing machine exceeds the requirements of said consuming machine; a second transporting unit having means for conveying articles from said surge bins to said consuming machine when the requirements of the consuming machine exceed the output of said producing machine; and control means for effecting the admission of articles into said first surge bin ahead of said second surge bin and the evacuation of articles from said second surge bin ahead of said first surge bin.

4,365,703

STORING ROD-LIKE ARTICLES

Dennis Hinchcliffe, London, and Eric A. Luddington, Ringwood, both of England, assignors to Molins Limited, London, England

Continuation of Ser. No. 973,704, Dec. 27, 1978, abandoned.

This application Aug. 10, 1981, Ser. No. 291,463

Claims priority, application United Kingdom, Jan. 11, 1978, 1017/78

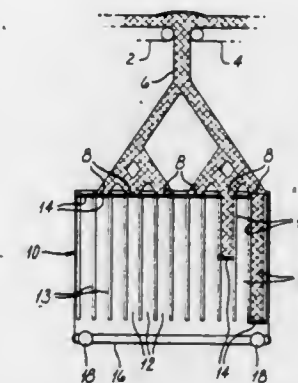
Int. Cl.³ B65G 1/04

U.S. Cl. 198—347

20 Claims

1. A conveyor system for rod-like articles of the tobacco industry, comprising conveyor means for moving articles as a continuous, multi-layer stream and having spaced means defining a plurality of outlets through each of which a substantially-continuous flow of said articles may be selectively delivered, movable reservoir means including a plurality of adjacent substantially-vertical compartments disposed in line in the

direction of movement thereof and movable into registration with said conveyor means so that at least two compartments are positioned simultaneously adjacent at least two of said outlets so that each may receive a substantially-continuous multi-layer stream of articles moving downwards from said conveyor means, means for bounding a leading end of a stack



4,365,704

LOG ALIGNMENT APPARATUS

Carl-Johan Stenvall, 5264 Sikfors, Älvsbyn, Sweden (S-942 00)

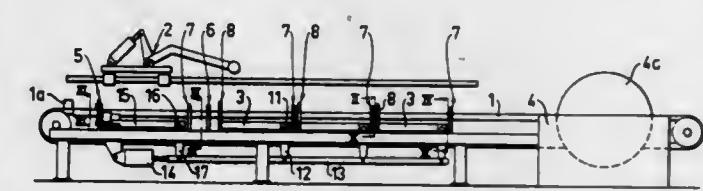
Filed Oct. 24, 1980, Ser. No. 200,404

Claims priority, application Sweden, Oct. 29, 1979, 7908741

Int. Cl.³ B65G 47/24

U.S. Cl. 198—395

7 Claims



1. An apparatus for automatically aligning logs to be fed into a sawing machine for being sawn in relation to a predetermined vertical longitudinal plane through the sawing machine, the apparatus comprising members for carrying a log in said vertical longitudinal plane, a device for turning the log, sensing members connected to an evaluation and control unit, said sensing members being capable by outside sensing of the log to record in said unit any change of the log center in relation to said longitudinal plane during a turning of the log through one revolution, at least one of said sensing members being arranged for sensing the change of the log center in a vertical direction, at least one of the remaining sensing members being located in spaced relationship with respect to the at least one vertical sensing member and being arranged for sensing the change of the log center in a lateral direction in relation to the vertical longitudinal plane, each of the sensing members comprises two sensing arms arranged symmetrically in relation to the vertical longitudinal plane and interconnected for simultaneous movement, said arms being urged into abutting engagement with the log for sensing the same, and said unit on the basis of information obtained from the sensing members determines the optimum alignment position and permits the turning device to turn the log into the optimum alignment position.

4,365,705

PROCESS AND APPARATUS FOR CONTINUOUSLY LOADING PALLETES WITH CERAMIC ARTICLES

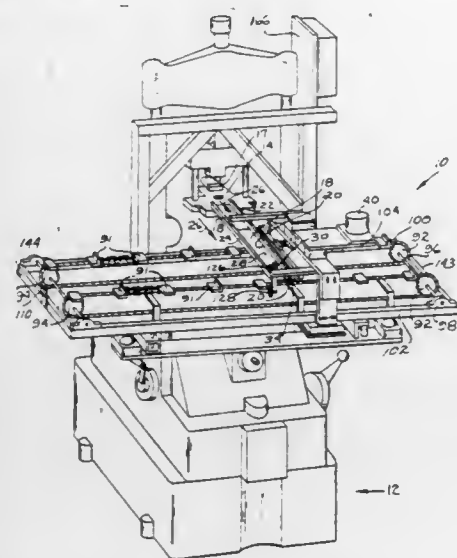
Joseph W. Zinck, Bryant, and Steven L. Affolder, Berne, both of Ind., assignors to CTS Corporation, Elkhart, Ind.

Filed Sep. 2, 1980, Ser. No. 183,244

Int. Cl.³ B65G 47/53, 47/78

U.S. Cl. 198—424

17 Claims



1. An apparatus for automatic, damage free handling of impact sensitive, friable unfired briquetted substrates supplied to said apparatus by a briquetting press means, comprising means for receiving the briquetted substrates and including substantially linear guide means proportioned to receive the briquettes which are advanced under continuous compression derived by serial nonbending engagement of the substrates along the line of movement with said guide means maintaining the alignment of said substrates and a bottom support base having a low friction surface characterized by a smooth nonresistant path uniformly nonimpeding to a slideable nonbuckling advancement of the plurality of aligned substrates advanced on said low friction surface, means for retracting a portion of said bottom support base so that upon retraction said guide means maintains the alignment of said aligned substrates to effect damage free vertical discharge of said aligned substrates, receiving sensor means for determining when the guide means is filled with aligned substrates, conveyor means disposed below said guide means and moving transversely thereto, carrying means disposed on said conveyor means, and position sensor means for determining the position of the carrying means relative to said guide means whereby said carrying means is positioned for receiving said aligned substrates upon discharge from said guide means which is disposed over said carrying means.

4,365,706

DEVICE FOR CLEANING CONVEYOR BELTS

Donald F. Bright, Scunthorpe, England, assignor to Champion Conveyor Components Limited, Doncaster, England

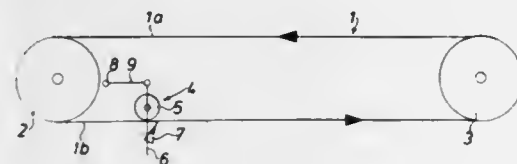
Filed Jan. 2, 1981, Ser. No. 218,283

Claims priority, application United Kingdom, Jan. 5, 1980, 8000345; May 30, 1980, 8017715; May 30, 1980, 8017716; Jul. 12, 1980, 8022851

Int. Cl.³ B65G 45/00

U.S. Cl. 198—499

14 Claims



1. A cleaning device for use in continuous cleaning of a

conveyor belt, said device comprising a cleaning member mounted on a lever which can move angularly about a pivot axis extending transverse to the run of the belt and said lever also carries a pressure member which is arranged to contact the face of the belt opposite to the face to be cleaned, the arrangement being such that when the belt is stationary the device is in a rest position with the cleaning member out of cleaning contact with the belt and when the belt moves the movement of the belt causes the pressure member to move the lever angularly about said pivot axis to an operative position in which the cleaning member is urged into cleaning contact with the surface of the belt.

4,365,707

DEAD SHAFT BEARING FOR CONVEYORS

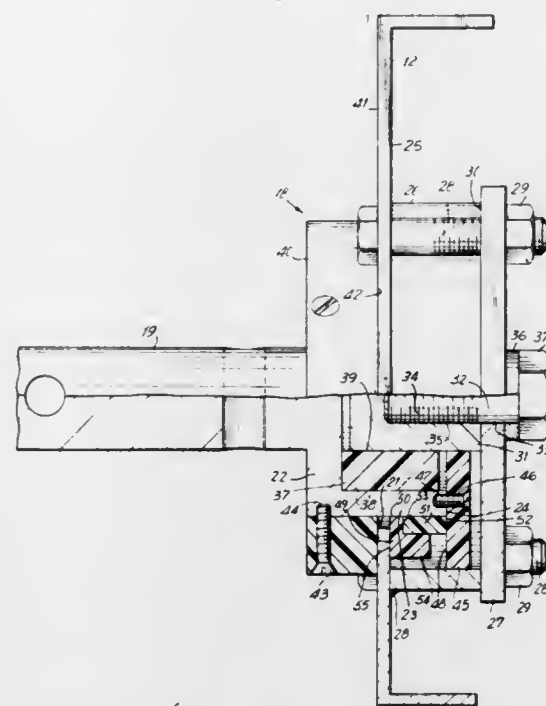
Dennis E. Kemp, Jr., P.O. Box 167, South Orange, N.J. 07079

Filed Feb. 9, 1981, Ser. No. 232,579

Int. Cl.³ B65G 33/32

U.S. Cl. 198—672

14 Claims



1. A leakproof dead shaft bearing assembly for a screw conveyor or the like comprising a trough and wall having inner and outer surfaces and a through-going aperture, an auger support shaft having an auger attachment section at one end and a hollow cylindrical bearing mounting cup at the other, said cup extending through said aperture and having a mouth portion, a back plate mounted on said outer surface of said wall in parallel spaced relation thereto, a dead shaft section mounted on said back plate coaxially with said auger support shaft, said section extending into said cup through said mouth portion, an annular bushing member of anti-frictional material interposed between said cup and said dead shaft section, an annular wiper disk of anti-friction material surrounding and axially movably mounted on said cup, said disk including a seal surface abutting said outer surface of said end wall surrounding said aperture, and an annular elastomeric gland member having an inner diameter portion frictionally engaging and defining a seal surface with said cup, said gland member having a side surface biased against said wiper disk whereby said disk is rotatably coupled to said cup section and yieldably urged against said outer surface of said trough wall surrounding said aperture.

4,365,708

PROMOTIONAL PHONOGRAPH RECORD ALBUM

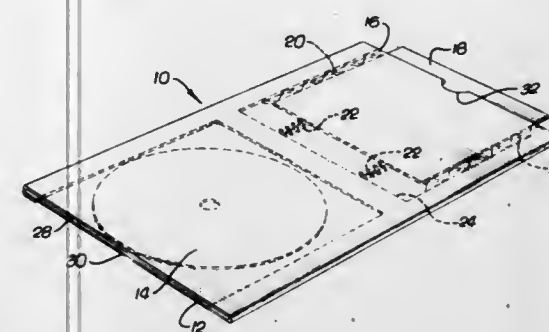
Philranzo M. Tyus, 18450 Ingomar St., Reseda, Calif. 91335

Continuation-in-part of Ser. No. 86,817, Oct. 22, 1979, abandoned. This application Dec. 29, 1980, Ser. No. 220,767

Int. Cl.³ B65D 85/57; G11B 3/84

U.S. Cl. 206—309

6 Claims



1. A phonograph record album comprising: a first compartment for holding a phonograph record; and a second compartment, coplanar with said first compartment, for holding an information card, said second compartment including side guides for maintaining lateral alignment of said card as it is moved into and out of said compartment, and further including card retention means for preventing complete removal of said card from said second compartment.

4,365,709

COMBINATION GAUZE PACKAGE AND GAUZE SPONGE DISPENSER

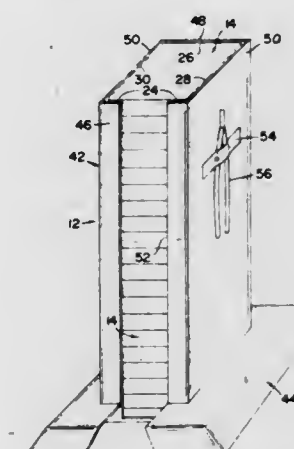
Thomas R. Lester, 105 Valencia Ct. N., Plant City, Fla. 33566

Filed Sep. 18, 1981, Ser. No. 266,375

Int. Cl.³ B65D 83/08, 5/70

U.S. Cl. 206—362

6 Claims



1. A combination gauze package and gauze sponge dispenser for storing and dispensing singly a plurality of gauze sponges, said gauze package comprising an elongated package for retaining a plurality of gauze sponges in stacked array including a preformed tear portion, said preformed tear portion comprises a top tear portion substantially horizontal plan and a front tear portion in a substantially vertical plane intersecting said top tear portion, and said gauze sponge dispenser comprising a hollow elongated body vertically supported on a base wherein said gauze sponge dispenser is correspondingly configured to said gauze package to receive said gauze package therein, said hollow elongated body including a slot formed on one vertical side thereof in registry with a portion of said preformed tear portion, said base including an opening formed therein adjacent the lower end of said slot such that a fully closed gauze package is inserted into said gauze sponge dispenser and said preformed tear portion is removed along the side and top portions partially exposing the plurality of stacked

array of gauze sponges to permit the serial removal of the uppermost gauze sponge from the top of said gauze sponge dispenser.

4,365,710

UNITIZED PALLETES

Elmer G. Swanson, Salinas, Calif., assignor to Champion International Corporation, Stamford, Conn.

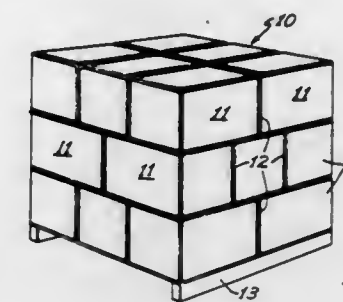
Continuation of Ser. No. 657,489, Feb. 12, 1976, abandoned.

This application Nov. 6, 1978, Ser. No. 958,280

Int. Cl.³ B65D 19/38

U.S. Cl. 206—386

3 Claims



1. A unitized, self-sustaining pallet-load of containers made from a fibrous substrate which is wax-treated, comprising: a support located at the bottom of said pallet-load; at least one layer of said containers placed in a predetermined array on said support; said containers each having a predetermined pattern application on at least the underside thereof of an adhesive of the type having a base polymer which is an ethylene vinyl acetate copolymer which is included in a blend of synthetic resins modified with mineral oils and microcrystalline wax.

4,365,711

VIDEO CASSETTE STORAGE AND SHIPPING CONTAINER APPARATUS

Jerry M. Long, 382 Riverside Ave., Ben Lomond, Calif. 95005, and James A. Womack, 957 Verona, Livermore, Calif. 94550

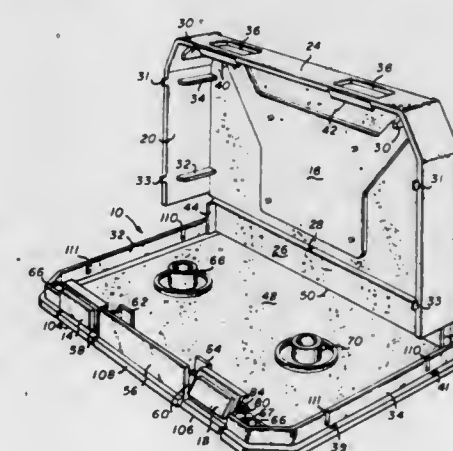
Continuation-in-part of Ser. No. 1,227, Jan. 5, 1979, abandoned.

This application Dec. 26, 1979, Ser. No. 107,176

Int. Cl.³ B65D 43/16

U.S. Cl. 206—387

10 Claims



1. Cassette storage and shipping container apparatus comprising: a unitary molded plastic body including a closure portion including keeper means formed on one side thereof, a back portion joined at one edge to said closure portion by an integrally formed first living hinge means formed on another side of said closure portion opposite said one side,

a base portion joined to another edge of said back portion opposite said one edge by an integrally formed second living hinge means, and

a first locking portion joined to an edge of said base portion other than the edge thereof defined by said second hinge means by an integrally formed third living hinge means, said first locking portion including a button-like projection extending outwardly therefrom and forming a push button when said first locking portion is rotated about said third hinge means and into a position substantially normal to said base portion, said first locking portion further including another projection disposed between said button-like projection and said third hinge means and extending outwardly therefrom, and

a resilient means engaged with said base portion and operative to hold said first locking portion in said substantially normal position while biasing same outwardly relative to said base portion and about said third hinge means, whereby when said back portion is rotated about said second hinge means into a position substantially normal to said base portion, and said closure portion is rotated about said first hinge means into a closed position in overlying generally parallel relationship to said base portion, said button-like projection lockingly engages said keeper means and secures said closure portion in said closed position thereby forming a closed chamber for containing a cassette, and whereby when a force is applied to said button-like projection causing it to rotate about said third hinge means and out of locking engagement with said keeper means, said another projection engages an edge of said closure portion and urges it away from said base portion thereby allowing said apparatus to be opened.

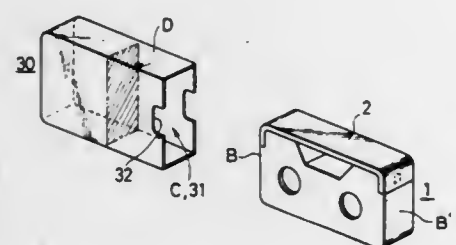
4,365,712

MAGNETIC TAPE CASSETTE RECEIVING CASING
Kengo Oishi, and Osamu Suzuki, both of Odawara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Dec. 8, 1980, Ser. No. 214,163
Claims priority, application Japan, Dec. 19, 1979, 54-175898[U]

Int. Cl.³ B65D 85/67, 85/672

U.S. Cl. 206—387

5 Claims



1. A storage case for receiving and protecting a substantially rectangularly shaped cassette having a rotatable cover member comprising, a shell of solid flexible material conforming to the shape of said cassette, an opening being formed in a side surface of said storage case, said side surface corresponding to either of side walls of said cassette except for a front surface covered by said rotatable cover member and a rear wall directly opposite said front surface, and inner dimensions of a transverse surface in central portions of said case inside said opening being slidably smaller than the outer dimensions of the side walls of said cassette to hold said cassette inside said storage case.

4,365,713

CASSETTE TAPE CASE MAGAZINE
Kenji Ekuan, Tokyo, Japan, assignor to Alfa & Associates, Inc., Tokyo, Japan

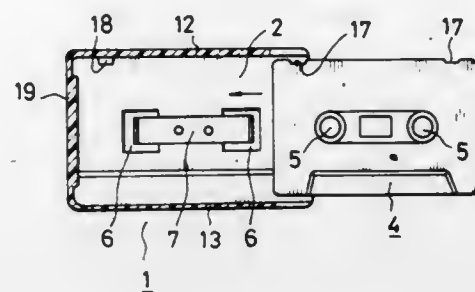
Filed Nov. 25, 1981, Ser. No. 325,017

Claims priority, application Japan, Jun. 18, 1981, 56-88777[U]

Int. Cl.³ B65D 85/672

U.S. Cl. 206—387

7 Claims



1. A cassette tape case magazine device for housing a cassette tape case having a pair of holes therein for receiving tape drive shafts and at least one recording claw hole, a pair of substantially flat and broad opposing side walls, a pair of narrow top and bottom walls joining said side walls together, an end wall interconnecting said side and top and bottom walls at one end thereof, the end of said magazine opposite to said end wall being open for permitting the entrance of said tape case into said magazine, a flexible U-shaped retainer mounted on one of said side walls and having a pair of projections extending from the inner surface of said one side wall, said projections respectively fitting into said pair of holes in the tape case in retaining engagement therewith, and a detent formed on the inner surface of one of said top and bottom walls, said detent fitting into the claw hole of said case in retaining engagement therewith.

4,365,714

ONE-PIECE SHEETSTOCK BLANK AND A PACKAGE MADE THEREFROM

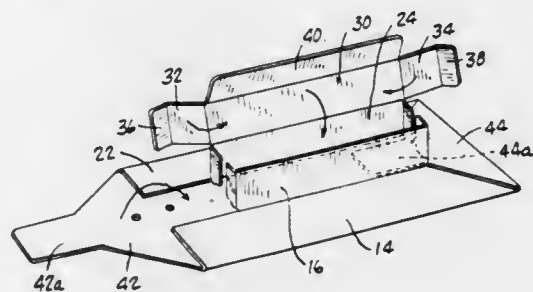
John S. Doyel, 404 W. 20th St., New York, N.Y. 10011

Filed Jul. 14, 1981, Ser. No. 283,336

Int. Cl.³ B65D 73/00

U.S. Cl. 206—461

2 Claims



1. A one-piece sheetstock blank foldable along scorelines to form a package comprising a flat rectangular base and a parallelepiped-shaped hollow container which extends forwardly from the base and has its backside at the base, has its left, right, top and bottom sides extending forwardly from the base and has its front side parallel to and spaced from the base, said base having a peripheral portion which is made up of at least two thicknesses of the sheetstock and surrounds the container to the left, top, right and bottom thereof, said one-piece blank comprising:

- a rectangular base panel coextensive with said flat base and having top, bottom, left and right sides;
- a rectangular first left panel extending to the left of the base

panel and separated therefrom by a scoreline, wherein when the blank is folded to form said package said first left panel is folded over the base panel at said scoreline to form together with the base panel a double thickness portion of the flat base which is to the left of the container;

a rectangular second left panel extending to the left of the first left panel and separated therefrom by a scoreline, a first flap and a second flap which extend up and down, respectively, from the top and bottom ends, respectively, of the second left panel and are separated therefrom by respective scorelines, wherein when said blank is folded to form said package, said second left panel forms the left side of the container and said first and second flaps are concealed behind and extend along the top and bottom sides of the container, respectively;

a rectangular first right panel extending to the right of the base panel and separated therefrom by a scoreline, wherein when the blank is folded to form said package the first right panel is folded over the base panel at the last recited scoreline to form, together with the base panel, a double thickness portion of the flat base which is to the right of the container;

a rectangular second right panel extending to the right of the first right panel and separated therefrom by a scoreline, and a third flap and a fourth flap which extend up and down, respectively, from the top and bottom ends, respectively, of said second right panel and are separated therefrom by respective scorelines, wherein when the blank is folded to form said package said second right panel forms the right side of the container and said third and fourth flaps are concealed behind and extend along the top and bottom sides of the container, respectively;

a rectangular third right panel extending to the right of the second right panel and separated therefrom by a scoreline, a fourth flap and a fifth flap extending up and down, respectively, from the top and bottom ends of the third right panel and separated therefrom by the respective scorelines, a sixth flap extending up from the top end of the fourth flap and separated therefrom by a scoreline and a seventh flap extending down from the bottom end of the fifth flap and separated therefrom by a scoreline, wherein when the blank is folded to form said package the third right panel forms the front side of the container, the fourth and fifth flaps from the top and bottom sides of the container, respectively, and the sixth and seventh flaps are concealed into the container and extend over and along the flat base toward each other;

a fourth right panel which extends to the right of the third right panel and is separated therefrom by a scoreline, wherein when the blank is folded to form said package, the fourth right panel is concealed into the container and extends behind and along the inside of the left side thereof;

a top flap extending up from the base panel and separated therefrom by a top scoreline, and a bottom flap extending down from the base panel and separated therefrom by a bottom scoreline, wherein in the folding of the blank to form said package and after the folding as recited of the first left and first right panels, the top and bottom flaps are folded along the top and bottom scorelines respectively over respective parts of the first left panel and first right panel and over the base panel to form respective portions of the flat base which are at least two thicknesses of the sheetstock and extend above and below the container, respectively, wherein the top extremity of the top flap and the bottom extremity of the bottom flap are concealed within said container, extending toward each other along the base panel.

4,365,715

PACKAGE ASSEMBLY AND METHOD OF PACKAGING
Alwin Egli, Beringen, Switzerland, assignor to SIG-Schweizerische Industrie-Gesellschaft, Neuhausen am Rheinfall, Switzerland

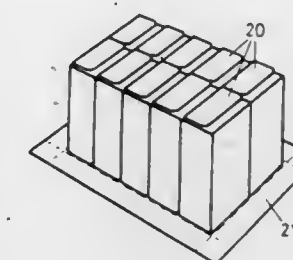
Filed Feb. 6, 1981, Ser. No. 232,418

Claims priority, application Switzerland, Feb. 15, 1980, 1275/80

Int. Cl.³ B65D 85/72, 51/16; B65B 63/02

U.S. Cl. 206—524.8

10 Claims



1. A package assembly comprising in combination:
(a) a group formed of a plurality of individual, gas-pervious packages;
(b) a gas-imperious wrapper surrounding said group airtight; and
(c) a one-way pressure relief valve affixed to said wrapper for discharging gases from the space between said wrapper and said individual packages.

4,365,716

PEELABLE SEAL

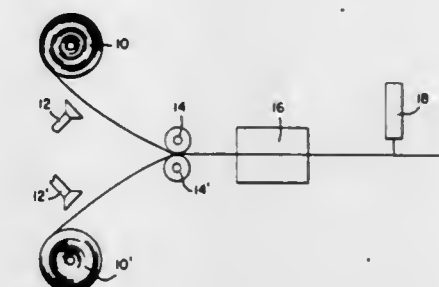
William E. R. Watt, Barto, Pa., assignor to Pharmachem Corporation, Bethlehem, Pa.

Division of Ser. No. 964,453, Nov. 29, 1978, Pat. No. 4,264,392, which is a continuation of Ser. No. 830,051, Sep. 2, 1977, Pat. No. 4,183,434. This application Oct. 20, 1980, Ser. No. 189,033

Int. Cl.³ B32B 31/20; C09J 5/02

U.S. Cl. 206—632

9 Claims



1. A peelable seal which is formed with at least two extruded polyolefin film members by the simultaneous application of controlled heat and pressure to said film members at the portion to be sealed, wherein at least one surface of at least one of the polyolefin film members at the portion to be sealed is oxidized by treatment with corona discharge so that the surface crystals formed by extrusion are modified whereby the simultaneously applying of controlled heat and pressure softens the modified crystals at the contacting surface to partially fuse the crystals at the contacting surface while maintaining the integrity of the crystals, and the modified crystals form an interface between the polyolefin film members at the seal portion.

5. A flexible container comprising a polyolefin film and a peelable seal according to claim 1 said container having a substantial portion of its periphery weld sealed.

4,365,717

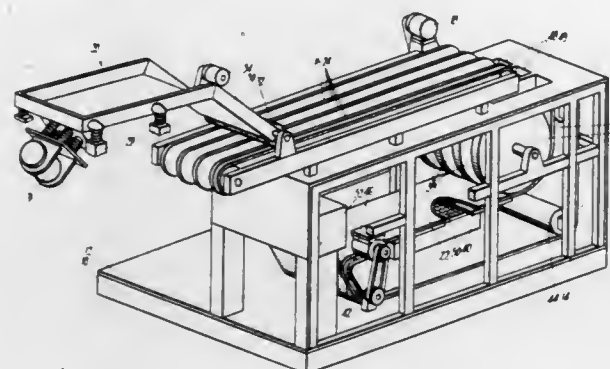
FEED APPARATUS AND METHOD

Alan M. Stone, Victoria, Australia, assignor to Sphere Investments Limited, Nassau, The Bahamas
Continuation of Ser. No. 218,463, Dec. 22, 1980, abandoned, which is a continuation of Ser. No. 24,776, Mar. 28, 1979, abandoned. This application Oct. 5, 1981, Ser. No. 308,592
Claims priority, application South Africa, Apr. 24, 1978, 78/2327; Jun. 7, 1978, 78/3250

Int. Cl.³ B07C 5/02

U.S. Cl. 209—539

5 Claims



5. A method for feeding objects in such a way that they are arranged into a plurality of primary moving streams of spaced apart objects comprising forming said primary streams of objects on a first moving support surface having a horizontal component of motion; projecting the objects in said primary stream from the first moving support surface and allowing the projected objects to move in a downwardly curving free flight trajectory in which they move unimpeded with a horizontal component of movement and are accelerated downwardly by gravity whereby to increase their spacing in the direction of movement; catching the projected objects on a second support surface by moving said second support surface downwardly in the path of said free flight trajectory such that the objects impinge smoothly on the second support surface; and carrying the objects on said second moving support surface through an arcuate path which curves against the direction of the horizontal component of movement of the objects in the free flight trajectory and thence along a straight path as a plurality of parallel secondary streams of spaced apart objects, whereby the objects are stabilized on the second support surface by centrifugal action during movement through said arcuate path.

4,365,718

TICKET METERING AND THROAT BARRIER MODULE

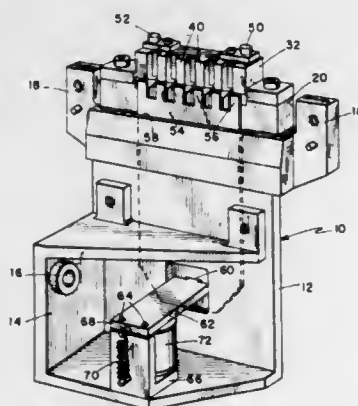
Darrell V. Howerton, San Diego, Calif., assignor to Cubic Western Data, San Diego, Calif.

Filed Dec. 1, 1980, Ser. No. 211,030

Int. Cl.³ B07C 5/04

U.S. Cl. 209—586

6 Claims



1. A ticket metering module for detachably mounting in interfacing relation to an adjacent ticket processing machine

for controlling the receipt of tickets into a ticket processing machine, said module comprising:

- a base support frame;
- housing means including first and second plate members mounted on said support frame and cooperatively positioned for defining a ticket metering passage having an inlet and outlet and a generally rectangular cross-sectional configuration of a predetermined dimension;
- said housing including finger means projecting outwardly at said inlet and said outlet for cooperative interfacing of said passage with a like ticket passage of adjacent ticket processing modules; and
- a barrier member reciprocally mounted adjacent the inlet of said passage and selectively movable transverse of said passage and into blocking and nonblocking positions across said inlet for selectively blocking the passage of a ticket into said passage.

4,365,719

RADIOMETRIC ORE SORTING METHOD AND APPARATUS

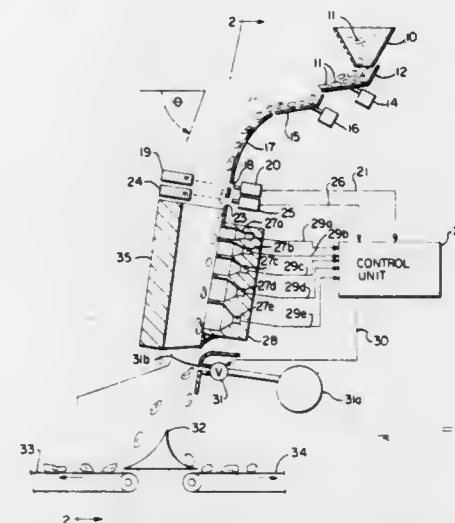
Leonard Kelly, 3 Oakwood Rd., Peterborough, Ontario K9J 1N2, Canada

Filed Jul. 6, 1981, Ser. No. 280,235

Int. Cl.³ B07C 5/346

U.S. Cl. 209—589

9 Claims



1. A method for sorting particles of radioactive material which includes the steps of arranging the particles in a single line moving in one direction; successively discharging the particles into a gravity-accelerated trajectory; providing, along the trajectory, means for determining individual particle velocity and means for identifying the time at which each particle occupies a predetermined position in the trajectory, and for producing signals representative of the velocity and time-position determination; providing, along the trajectory, a plurality of radiation detectors arranged so that each detector is consecutively exposed to each particle for producing signals representative of counts of the radiation activity of each particle; accumulating counts from the plurality of detectors for each particle; diverting from the trajectory selected ones of the particles to form two streams of particles, one stream including particles whose accumulated counts exceed a predetermined number and the other including the remainder; and separately collecting the particles from the two streams.

4,365,720

TOOL HOLDER

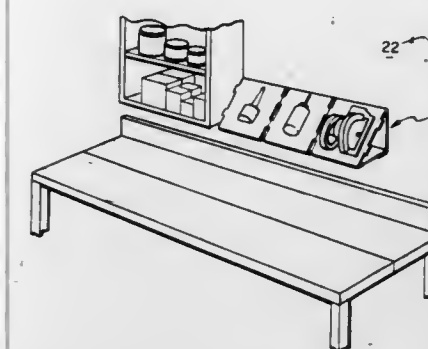
Edward S. Kaneshiro, 452 Harbor Ter., Bartlett, Ill. 60103

Filed Aug. 25, 1980, Ser. No. 181,058

Int. Cl.³ A47F 5/08

U.S. Cl. 211—60 T

3 Claims



1. A tool holder for storing and displaying tools, said tool holder being of a three-piece construction formed from sheet material which is folded and assembled to form a generally right angle triangle, said tool holder having a back wall which has an upper end portion which is folded at a generally 45 degree angle and a lower end portion which is folded at a generally 90 degree angle, said back wall including means for removably affixing said tool holder to a support surface, a top wall which has end portions which are folded at a generally 45 degree angle, and a bottom wall, one of said end portions of said top wall being overlapped with the upper end portion of the back wall and said bottom wall being seated on the lower end portion of the back wall and the other one of said end portions of said top wall to thereby support said top wall to provide a sloped surface, said top wall having a cut-out therein proportioned to receive and support therein a tool.

4,365,721

CHILD RESISTANT CLOSURE AND CONTAINER ASSEMBLY

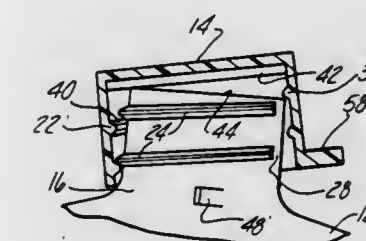
Gary V. Montgomery, Evansville, Ind., assignor to Sunbeam Plastics Corporation, Evansville, Ind.

Filed Jul. 10, 1981, Ser. No. 282,044

Int. Cl.³ B65D 55/02

U.S. Cl. 215—217

11 Claims



1. A container and closure assembly comprising: a container having a neck member forming an opening into said container, a closure for closing said opening having a cylindrical skirt member fitting over said neck member, complementary threads on the exterior of said neck member and the interior of said skirt member and being engageable with each other to close said container, said threads on one of said members being interrupted over a predetermined arcuate span to form a gap, said threads on the other of said members forming a first threaded portion having an arcuate span less than said predetermined span and a second threaded portion, said complementary threads being simultaneously engageable to permit rotation of said closure into sealing engagement with the neck member of said container, said closure being rotatable to a predetermined location relative to said container in which said

first threaded portion is in alignment with said gap whereby said cap can be tilted to an open position.

4,365,722

REMINDER CLOSURE

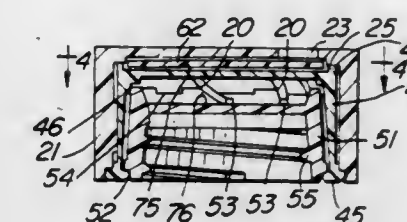
Steven G. Kramer, 60 El Verano Way, San Francisco, Calif. 94127

Filed Jun. 26, 1981, Ser. No. 277,985

Int. Cl.³ B65D 55/02

U.S. Cl. 215—220

23 Claims



1. A closure member for a container, including in combination: an inner housing having means for mounting to the container, indicia means disposed in a relatively stationary manner on said inner housing and adapted to rotate with said inner housing, an outer housing rotatably mounted on and adapted to nest about said inner housing and having at least one indicator station means thereon aligned with said indicia means on said inner housing effective to pass freely the indicia thereon past said indicator station means for viewing, at least one first abutment means mounted on one of said inner or outer housings, between said inner and outer housings, and at least one second abutment means mounted to the other of said inner or outer housings opposite said one of said housings having at least one first abutment means, said second abutment means positioned to engage each of said first abutment means during rotation of said outer housing in a manner effective to stop rotation of said inner and outer housings relative to each other in one direction when said first and second abutment means are engaged, and yielding resist rotation of said inner and outer housings relative to each other in the opposite direction when said second abutment means is so engaged with at least one of said first abutment means, and said indicia being so disposed on said indicia means on said inner housing that said indicia are visible and aligned with said indicator station means when said first and second abutment means are engaged.

4,365,723

PEDESTAL HOUSING FOR CABLE TELEVISION COMPONENTS

Michael A. Palermo, 1165 S. Beecham Rd., and James L. Mason, 1169 S. Beecham Rd., both of Williamstown, N.J. 08094

Filed Jul. 22, 1981, Ser. No. 286,098

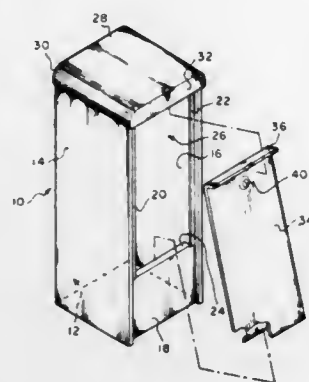
Int. Cl.³ H02G 3/08; B65D 6/00

U.S. Cl. 220—3.8

3 Claims

1. A substantially rectangularly shaped housing for cable television components comprising: a rear wall, a pair of side walls, a top wall and a lower partial front wall, all of said walls being rigidly secured together; the front of said housing having an opening therein above said partial front wall; said top wall extending forwardly of said housing and overlying said opening, said partial front wall and the forward edges of each of said side walls, the front end of said top wall extending downwardly;

a cover member having a size slightly larger than said opening and being adapted to cover and close the same; said cover member including a rearwardly and downwardly extending flange secured to the lower portion of the back thereof, said flange being adapted to fit over and behind



the upper edge of said partial front wall after the uppermost portion of said cover member is positioned within the forward extension of said top wall, and locking means for preventing the unauthorized removal of said cover member.

4,365,724

ATTACHING CLOSURE TO CONTAINERS

Richard G. Walden, Childrey, Near Wantage, England, assignor to Metal Box Limited, Reading, England

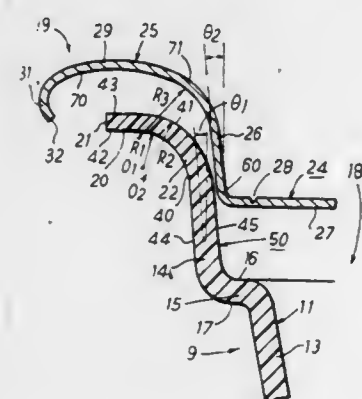
Filed Dec. 17, 1980, Ser. No. 217,565

Claims priority, application United Kingdom, Dec. 21, 1979, 7944037

Int. Cl.³ B65D 8/04

U.S. Cl. 220—67

1 Claim



1. In combination, a plastics container and a metal end closure, the end closure having a seaming ring which comprises a frustoconical chuck wall, an arcuate seaming panel which extends radially outwardly from the chuck wall to a free edge provided by a peripheral curl and an end panel which is radially inboard of the chuck wall, the plastics container having a base and an upstanding integral side wall with a seaming ring defining a mouth of the container, the seaming ring being adapted for double-seaming engagement to the seaming ring of the end closure, the container seaming ring comprising a frustoconical seaming wall, a substantially radially outwardly directed flange providing a free peripheral edge to the container, an arcuate wall portion joining the seaming wall and the flange and an annular shoulder axially spaced from said flange and radially inboard of said seaming wall, the arrangement being such that, when the closure is in position for seaming, the seaming rings of the container and closure are in substantially continuous mutual contact along the whole axial length of the container seaming ring, with the container seaming wall generally adjacent to and in contact with the chuck wall of the closure and with the arcuate wall portion and flange of the container generally adjacent to and in contact with the seaming panel of the closure within the curl thereof but with the end

panel and annular shoulder being in axially spaced relationship, the seaming wall and chuck wall defining a respective seaming wall angle and a chuck wall angle, the degrees of which are measured relative to the respective container axis and closure axis, said seaming wall angle lies within the range of up to 5°, said chuck wall angle lies within the range 5° to 9°, the difference between the seaming wall angle and the chuck wall angle of the container and end closure respectively lying within the range of 2° to 4°, the closure making an interference fit in the container over the whole length of the closure chuck wall, the negative clearance where the interference occurs lies within 0.1% and 1.0% of the appropriate value of the container diameters, said seaming wall and flange being of substantially constant material thickness, and in the seamed condition, the seaming rings of the container end closure remain in substantially continuous mutual contact along the whole axial length thereof while the end panel and annular shoulder remain in axially spaced relationship.

4,365,725

BASKET WITH SWING AWAY DOUBLE LOCKING HANDLE

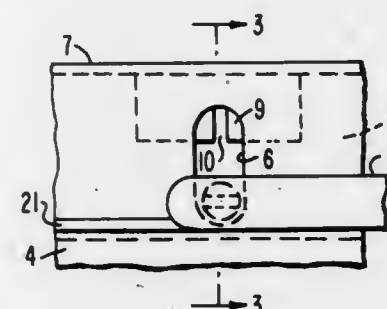
William Pfeifer, Springdale, Pa., assignor to Dravo Corporation, Pittsburgh, Pa.

Filed Jul. 28, 1981, Ser. No. 287,710

Int. Cl.³ B65D 25/28, 25/32

U.S. Cl. 220—96

10 Claims



1. A basket and a U-shaped handle extending across the basket which can be locked into a vertical position by lifting up on the handle and which can be unlocked and rotated to a stowed position when released comprising:

the basket having side walls, each side wall having an upper edge and a first vertically disposed slot therethrough, located beneath the upper edge;

a locking means supported by the basket and positioned opposite the first slot and having a second vertically disposed slot with an open lower end, the second slot being horizontally aligned with the first slot;

the U-shaped handle comprising two substantially parallel legs depending from opposite ends of a hand grasping base portion, the free ends of the legs terminating in outwardly directed locking tabs, each locking tab comprising a support bar adjacent the respective leg and a locking bar axially aligned with the support bar, the locking bar having a flat side oriented parallel to a plane formed by the legs of the handle and being slidable within and closely fitting with the second slot, the support bar being slidably and rotatably received in the first slot in the side wall of the respective basket, the first vertical slots being of such a length that with the support bars of the locking tabs on the legs located at the bottom of the first slots the handle can be rotated between a generally horizontal position and a vertical position and such that when the handle is lifted while in the vertical position the locking bars enter the open ends of the second vertical slots in the locking means providing locking action to prevent rotation of the handle, the flat sides of the locking bars furnishing additional contact area with the second vertical slots.

4,365,726

PRESSURE VESSELS CLOSURE MEANS

Michael Broderick, Dublin, Ireland, assignor to Odenberg Investments Limited, Blackrock, Ireland

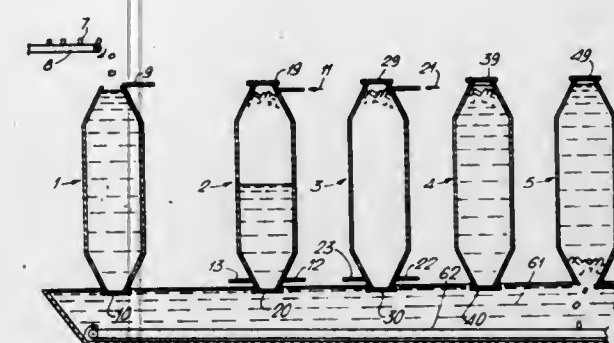
Filed Sep. 21, 1981, Ser. No. 304,094

Claims priority, application Ireland, Sep. 25, 1980, 2010/80

Int. Cl.³ B65D 55/00, 43/20

U.S. Cl. 220—211

10 Claims



1. A closure for a large sized opening in a pressure vessel, the opening having a peripheral sealing edge, comprising
(a) a lid movable in a longitudinal direction relative to the opening between an open position of the lid and a covering position in which the lid is aligned with the opening but spaced apart from the sealing edge of the opening and displaceable in a direction perpendicular to the longitudinal direction between the covering position and a sealing position in which the lid is in sealing engagement with the edge of the opening,
(b) bearings fixed to the lid,
(c) at least two shafts rotatably mounted in the bearings and coupled for rotation together,
(d) rollers mounted on the shafts, said rollers being eccentric relative to said bearings,
(e) a support surface or surfaces extending in said longitudinal direction, said rollers travelling thereon during movement of the lid between its open and covering positions,
(f) drive means for moving the lid in the longitudinal direction and for applying torque to the shafts in one sense during closing movement of the lid and in the opposite sense during opening movement of the lid,
(g) at least one follower member fixedly secured to one of the shafts and
(h) guide means engageable by the follower member or members or preventing rotation of the coupled shafts at least during a closing movement of the lid from its open position to its covering position, and for permitting rotation of the coupled shafts when the lid is in the covering position, the rotation of the shafts displacing the lid in said perpendicular direction between the covering position and the sealing position by the relative eccentricity of said rollers and bearings.

4,365,727

DEVICE FOR SQUEEZING-OUT VISCOUS MATERIALS FROM TUBES MADE OF PLASTICS

Mark Shmelkin, Haemek st. 1/4, Nesher, Israel

Filed Aug. 13, 1980, Ser. No. 177,636

Int. Cl.³ B65D 35/28

U.S. Cl. 222—97

3 Claims

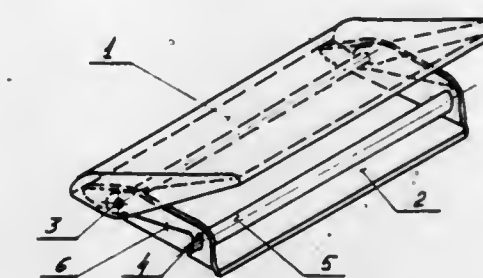
1. A device for squeezing out viscous material from tubes made of plastic comprising:

first and second generally rectangular frames with first and second end flanges and side flanges provided about their perimeters;

a hinge axle passing through the side flanges of both frames to pivotally secure the frames together along the first end flanges thereof;

a squeezing roll with ends being inserted in slots provided in the side flanges of the second frame adjacent the second

end flange thereof, both ends of said squeezing roll being provided with holes;
a spring, a transverse part of which is positioned along the



second end flange of the first frame and the arms of which are positioned along the side flanges of the second frame, the ends of said arms being secured in the holes provided in said squeezing roll.

4,365,728

LIQUID DISCHARGE APPARATUS

Sadao Tokorozawa, Nakai, and Toyoji Shimizu, Oi, both of Japan, assignors to Pilot Man-Nen-Hitsu Kabushiki Kaisha, Tokyo, Japan

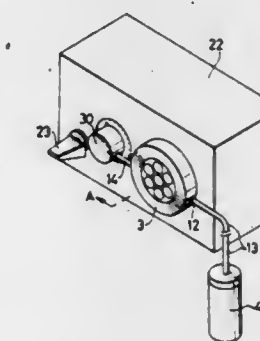
Filed Mar. 7, 1979, Ser. No. 18,394

Claims priority, application Japan, Mar. 13, 1978, 53-28391

Int. Cl.³ B67D 5/54; B43K 5/02

U.S. Cl. 222—209

9 Claims



1. An open loop system for selectively controlling and discharging liquid from a pressurized reservoir comprising: peristaltic pump means having a depression and delivery system including forced feed means comprising an elastic tube (13) having an air intake end (14) for introducing air, pusher means (11) mounted for rotation on a drive shaft, said pusher means sequentially engaging said tube and squeezing and releasing said tube to produce an output, a continuously driven A.C. motor (2) connected to said drive shaft, speed setting means comprising a closed loop voltage control system (1) electrically connected with said A.C. motor for varying the rotational speed of said motor to regulate the output of said peristaltic pump in accordance with user demand, an air discharge end (15) of said elastic tube located within said pressurized liquid reservoir (18), to deliver the regulated output of said pump, and liquid discharge means (20) integral with said pressurized liquid reservoir discharging fluid from said reservoir in accordance with the user demand thereof as established by said speed setting means.

4,365,729 ATOMIZER

Tadao Saito; Takao Kishi, and Yoshiyuki Kakuta, all of Tokyo, Japan, assignors to Yoshino Kogyosho Co., Ltd., Tokyo, Japan

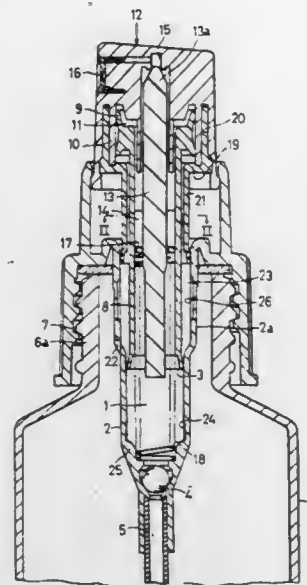
Filed Dec. 9, 1980, Ser. No. 214,957

Claims priority, application Japan, Sep. 22, 1980, 55-131981

Int. Cl.³ B05B 9/00

U.S. Cl. 222—321

5 Claims



1. An atomizer comprising: pressurizing means including a first cylinder and a first piston partly for sucking up a liquid from a liquid container through a check valve into a pressurizing chamber and partly for pressurizing the same; a second piston disposed above and connected to the first-named piston through a cylindrical member, the second-named piston being made to have a larger diameter than that of the first-named piston; a second cylinder receiving the second-named piston in a slidable manner while forming an actuating chamber having communication with said pressurizing chamber; a valve member connected to both the first- and second-named pistons; an atomizing head including a communication hole, which is to be opened and closed by said valve member, and a nozzle, which has communication with said communication hole, for depressing the first- and second-named pistons through their abutment engagements with said valve member; and a spring upwardly urging the first- and second-named piston in a manner to expand said pressurizing chamber, whereby, when the pressure in said pressurizing chamber is boosted by a pumping action, the second-named piston is moved down against the urging force of said spring so that said communication hole is opened thereby to atomize the liquid out of the nozzle,

wherein the improvement resides: in that an annular stopper is provided on the lower end portion of the second-named cylinder thereby to make it possible to regulate the stroke, in which the second-named piston is moved in the direction to expand said actuating chamber; in that the first-named cylinder has a larger diameter at its upper portion than at its lower portion; in that said stopper has its lower portion merging into a depending cylinder; and in that said depending cylinder has its lower portion slidable in the larger-diameter portion of the first-named cylinder.

4,365,730

DYNAMIC PRESSURE RELIEF DEVICE FOR STORAGE ELEVATION

Morris J. Ezban, 57-10 Junction Blvd., Elmhurst, N.Y. 11373

Continuation-in-part of Ser. No. 649,530, Jan. 15, 1976,

abandoned. This application Jun. 29, 1977, Ser. No. 811,374

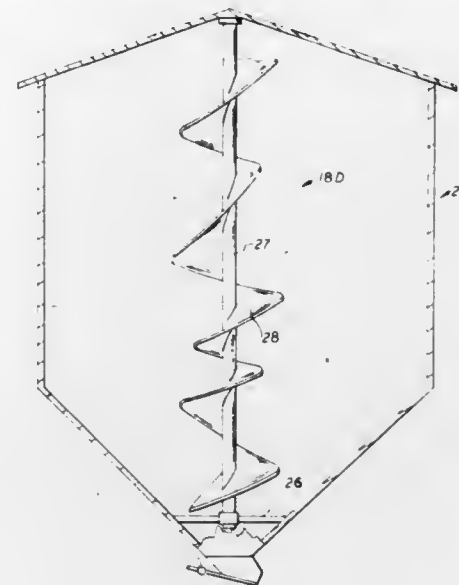
Int. Cl.³ B65D 83/06

U.S. Cl. 222—547

6 Claims

5. A storage elevator building for storage grain or granular material comprising: an elongated storage bin having vertically extending circum-

scribing side walls in which a supply of said material is adapted to be stored, means defining a discharge opening disposed adjacent the lower end of the bin whereby said material is discharged therefrom, means defining a closure for said opening and a pressure relief means disposed in said bin for relieving the dynamic pressures exerted on the vertically extending side walls of the bin by the stored material during the discharge of said material thereby enabling said side walls to be sized to resist a loading which is less than the sum of the lateral forces normally acting on said side walls due to the static



pressures imparted to said side walls by said stored material and the increase in said lateral forces due to the dynamic pressures otherwise imparted on said side walls in the absence of said pressure relief means by the flow of said material during discharge, and to enhance the flow of material during a discharge of said material through said opening, said pressure relief means comprising a screw which extends longitudinally along the interior of said bin in spaced relationship to said vertically extending side walls so that a rotational motion is imparted to the stored material during the discharge of said material wherein the pitch of said screw varies along its axis.

4,365,731

REFRACTORY STRUCTURES

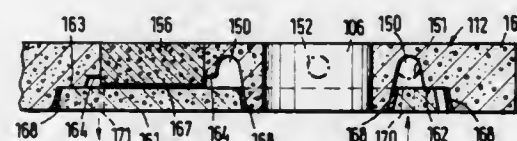
Hans R. Fehling, Zug, Switzerland, and Horst Hase, Wiesbaden, Fed. Rep. of Germany, assignors to Didier-Werke, A.G., Wiesbaden, Fed. Rep. of Germany

Continuation of Ser. No. 763,160, Jan. 27, 1977, abandoned. This application Aug. 26, 1980, Ser. No. 181,476

Int. Cl.³ B22D 37/00

U.S. Cl. 222—600

28 Claims



1. A refractory structure comprising a unitary body of refractory concrete material defining at least one discharge passage for molten metal passing through the body, at least one reinforcing element having at least one of its entire sides in intimate contact with said body and interlocked mechanically with the refractory concrete with which it is in intimate contact, the reinforcing element being separated by refractory concrete material from any surface of the refractory structure

which contacts the molten metal in use, and means defining at least one duct for a working fluid in the body out of communication with said discharge passage when open.

4,365,732

METHOD AND APPARATUS FOR SETTING MARKINGS IN A FABRIC

Yasuo Nakano, Yasudashi, Japan, assignor to Kabushiki Kaisha Bon'ni, Hyogoken, Japan

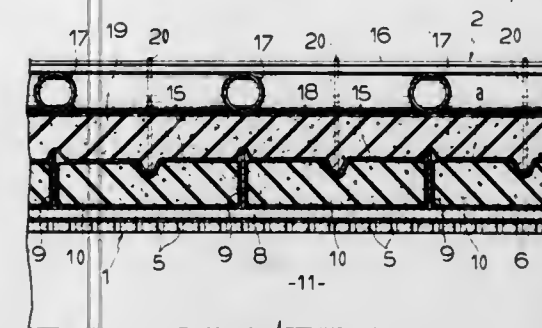
Filed Sep. 19, 1980, Ser. No. 188,750

Claims priority, application Japan, Sep. 25, 1979, 54-123622

Int. Cl.³ A47F 7/00; D06F 71/34

U.S. Cl. 223—57

3 Claims



1. A method for setting markings in a fabric by pressing the fabric between pressing surfaces having a pattern thereon, the improvement comprising:

adjusting hard ridges having good heat conductivity in accordance with a predetermined pattern, said hard ridges being disposed on at least one pressing surface and said pressing surface being covered with a cushion member; pressing a fabric between the pressing surfaces whereby an edge of each of said hard ridges is pressed against the cushioning member of the opposing pressing surface through said fabric; feeding heat steam to said fabric and hard ridges through said cushioning members; thereafter feeding hot air to said fabric and hard ridges through said cushioning members; and removing said hot air under vacuum suction for cooling down said fabric and said hard ridges.

4,365,733

SYSTEM FOR PASSING ELONGATED PAPER THROUGH A REPRODUCING APPARATUS

Thomas A. McNew, P.O. Box 82432, Oklahoma City, Okla. 73148

Filed May 7, 1981, Ser. No. 261,583

Int. Cl.³ B65H 17/42; G03B 27/58

U.S. Cl. 226—109

41 Claims

1. A system for passing long, fan-folded documents and copy paper through a reproducing apparatus comprising:

a collapsible, upright stand including: a pair of opposed, parallel, vertically extending lower side frame members; a plurality of roll supporting elements in said lower side frame members; a pair of horizontally extending floor plates connected to, and extending from, said lower side frame members; a pair of opposed, parallel, vertically extending upper side frame members hingedly connected to said lower side frame members for pivotation from a position above, and in coplanar alignment with, said lower side frame members to a position alongside of, and parallel to, said lower side frame members; paper guide means above said upper side frame members; and a support rod extending between said upper side frame

members and detachably connected to, and supporting, said paper guide means;

a reproducing apparatus adjacent said upright stand and having said paper guide means extending into contact therewith;

a document feed tray engaged with the upper side of said reproducing apparatus for feeding thereto an elongated document to be copied; and

a document collection tray engaged with the upper side of said reproducing apparatus at a location horizontally spaced from said feed tray for receiving a copied document from said reproducing apparatus.

4,365,734

SPLICING MACHINE AND METHOD

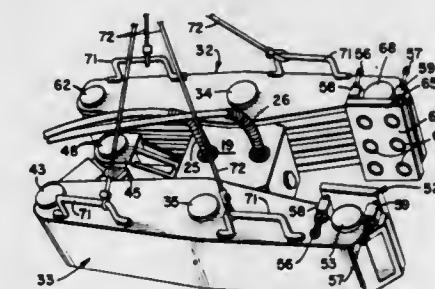
Roderick E. Harris, Miami, Fla., assignor to Gang-Nail Systems, Inc., Miami, Fla.

Filed Mar. 4, 1980, Ser. No. 127,033

Int. Cl.³ B27F 7/15

U.S. Cl. 227—152

6 Claims



1—A splicing machine for applying fasteners for joining together wooden members, said machine comprising a frame, two side by side lever arms each arm being pivotally coupled to said frame at a location intermediate its ends, said lever arms having releasable fastener mounting means on one pair of adjacent ends for holding fasteners to be driven into the wooden members and having the other pair of adjacent ends operably connected to a motor mounted on said frame, said motor being a fluid pressure motor having a reciprocable output rod connected by toggle link means to said other pair of ends of said lever arms and being capable of being actuated for rocking both arms between one position wherein said one pair of adjacent ends is separated for mounting the fasteners thereon and another position wherein the arms are rocked to drive said fasteners into the wooden members disposed between them, said lever arms having longitudinally grooved and ribbed inner sides facing each other and said frame being correspondingly interfittingly grooved and ribbed so that said arms are strengthened against forces acting perpendicular to the pivot axis of said lever arms, said rod of said motor being fixed to a multiple clevis member presenting alternate grooves and ribs, said clevis member being connected to said other pair of ends of said arms by associated pivoted toggle links, said toggle links being interleaved with said ribs of said clevis member and extending between the clevis member and each arm and said fastener mounting means maintaining such fasteners to be driven into the wooden members in a substantially parallel relationship and said fastener mounting means including opposed platens mounted for limited rocking on said one pair of lever arm ends and being able to transmit the driving force for driving the fasteners into the wooden members.

4,365,735

FORMING A POCKET WELT

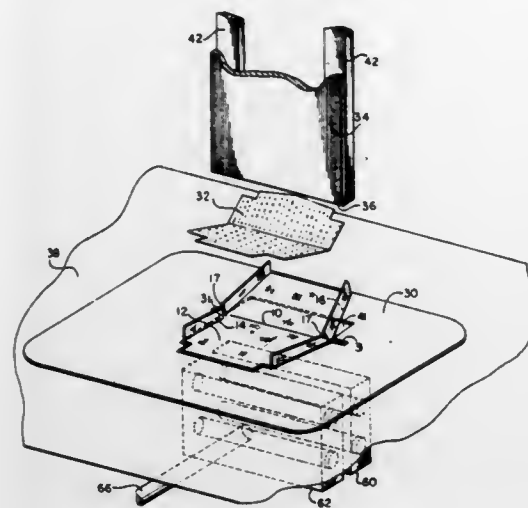
Raymond A. Princiotta, 208 N. Concord Ave., Havertown, Pa. 19083, and Antonio Salvucci, 131 Windswept Dr., Feasterville, Pa. 19047

Filed Sep. 22, 1980, Ser. No. 189,050

Int. Cl.³ A41H 33/00

U.S. Cl. 228—38

11 Claims



1. A method of forming a pocket welt from fabric having a finished surface and an opposite unfinished surface which comprises:

- cutting the fabric into pieces having opposite sides and a top and bottom, then
- positioning the fabric within an opening in a template, the template being positioned on a work surface so that its finished surface is faced downwardly, the surface having a multiplicity of holes therein through which air may be drawn creating a partial vacuum, then
- securing the fabric to the work surface by creating a partial vacuum, then
- folding the sides of the fabric inwardly along predetermined lines, then
- folding the fabric inwardly about a predetermined line passing between the sides of the fabric by forcing the fabric through a slot in the surface by a blade which is adapted to pass through the slot, so that it is positioned between two platens located below the surface, then
- withdrawing the blade, the fabric being maintained between the platens due to its resilience, and then
- pressing the fabric to form creases in the fabric at the folds by causing the platens to move toward each other.

4,365,736

METHOD OF MANUFACTURING HIGH STABILITY JOINT

James E. Stumm, 4983 Southcrest Ave., San Diego, Calif. 92110 Division of Ser. No. 84,106, Oct. 12, 1979, Pat. No. 4,330,221. This application Apr. 27, 1981, Ser. No. 257,702

Int. Cl.³ B23K 31/02

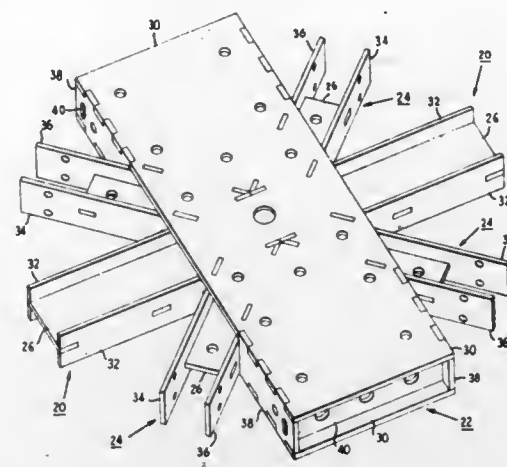
U.S. Cl. 228—121

6 Claims

1. A method for joining a plurality of structural elements having tabs and slots thereon to form a structural member comprising the steps of:

- (a) coating each element with an electroless nickel plating;
- (b) coating said nickel plating with a wetting coat selected from a group of electroless coatings consisting of tin and gold;
- (c) flowing molten solder over said wetting coat while said element is suspended in an acidified ethylene glycol solution;
- (d) interlocking said elements together with the tabs of one

element engaged in mating slots of the other element to form said structural member; and



(e) heating the mating surfaces of the interlocked surfaces to reflow the solder sufficiently to obtain a structural bond.

4,365,737

CONTAINER FOR LOOSE MATERIAL

Kaarlo Marvia, Vantaa, Finland, assignor to Suomen Sokeri Osakeyhtiö, Finland

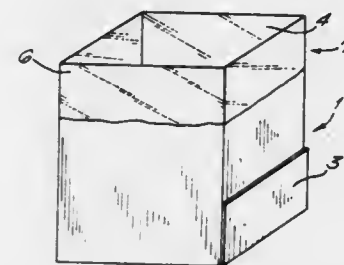
Continuation of Ser. No. 711,162, Aug. 3, 1976, abandoned. This application Dec. 13, 1977, Ser. No. 860,047

Claims priority, application Finland, Aug. 5, 1975, 752220

Int. Cl.³ B65D 5/12

U.S. Cl. 229—17 R

3 Claims



1. A container for bulk goods in powder, crystalline and particulate form comprising:

- (a) a rigid collapsible box having side walls, a top portion and a bottom;
- (b) a hose fabricated from a flexible material, said hose having a uniform cross section approximately equal to an interior cross section of said box at said side walls, said hose having a length longer than said side walls of said box, said hose being open at opposite ends to provide an open top section and an open dumping section with a container section disposed between said top and dumping sections;
- (c) said hose being disposed inside said box with said top section being positioned adjacent to said top portion of said box, said container section being juxtapositioned to at least three of said side walls of said box and against said bottom of said box, and said dumping section being folded upwardly from said bottom of said box and being juxtapositioned between said container section and a fourth side wall of said box in a sandwiched arrangement therebetween;
- (d) said top section of said hose including means for permitting the bulk goods to be supplied into said container section of said hose through said top portion of said box, said means including a portion of said hose top section for folding over an upper edge of said top portion of said box when said box top portion is in an open position;
- (e) said fourth side wall being provided with opening means adjacent to said box bottom for allowing said dumping

section of said hose to be pulled out therethrough when said container section is to be emptied, where said dumping section is pulled out to an outwardly extending position at a lower part of said fourth side wall adjacent to said box bottom; and

- (f) said opening means including a detachable gate member disposed at said lower part of said fourth side wall, said detachable gate member having a length equal to width of said fourth side wall.

4,365,738

KNOCK DOWN CONTAINER PACKAGE AND METHOD OF MAKING SAME

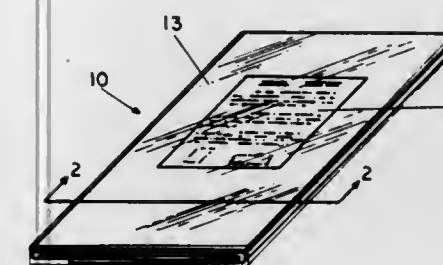
Mark Densen, 18 Blackburn Pl., Summit, N.J. 07901

Filed Sep. 15, 1980, Ser. No. 186,906

Int. Cl.³ B65D 5/32, 65/16

U.S. Cl. 229—23 R

3 Claims



1. A knock down container package comprising a plurality of blanks of sheet material, each of said blanks having predetermined foldlines about which the respective blanks can be readily folded to define a component part of a body and cover of container in the assembled position of said respective blanks, each of said blanks having an outer surface and an inner surface, indicia means disposed on the inner surface of at least one of said blanks, said blanks being disposed in their respective knock-down position in superposed relationship whereby the inner surface of said blank having said indicia means is disposed inner side up on the other of said blank, and wrapping means having a see through portion enwrapping said superposed blanks whereby said see-through portion overlies said indicia means, and one of said blanks having a pair of foldlines to effect the folding of said one blank in the knock-down position so that the superposed blanks in the superposed knock-down position are substantially equal in width and length in the knock down package position.

4,365,739

TAKE-OUT CARTON WITH LOCKING COVER

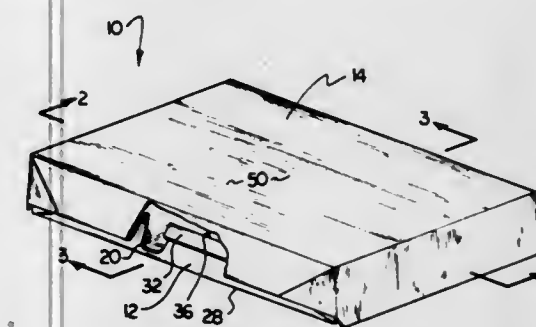
George P. Webinger, Robbinsdale, Minn., assignor to Champion International Corporation, Stamford, Conn.

Filed Oct. 6, 1980, Ser. No. 194,415

Int. Cl.³ B65D 5/32

U.S. Cl. 229—32

7 Claims



1. In a food take-out carton comprising a tray and a cover for said tray:

- said tray having a bottom panel and a plurality of pairs of

opposed upstanding side wall panels defining a closed side wall;

at least one of said opposed upstanding side wall panels having a side wall panel flange hingedly connected thereto along its top edge and extending outwardly and downwardly;

said cover having a shape similar to that of said tray and including a top panel and a plurality of pairs of opposed outwardly and downwardly extending side closure panels each corresponding to a side wall panel of said tray and defining a closed side of said carton with its corresponding side wall panel;

at least the side closure panel associated with said one upstanding side wall panel having a closure panel flap hingedly connected to its lower edge along substantially the entire length thereof and folded back upon the inside surface of said side closure panel in face to face engagement therewith such that it engages and holds the side wall panel flange.

4,365,740

MAILBOX SIGNAL OR FLAG ASSEMBLY

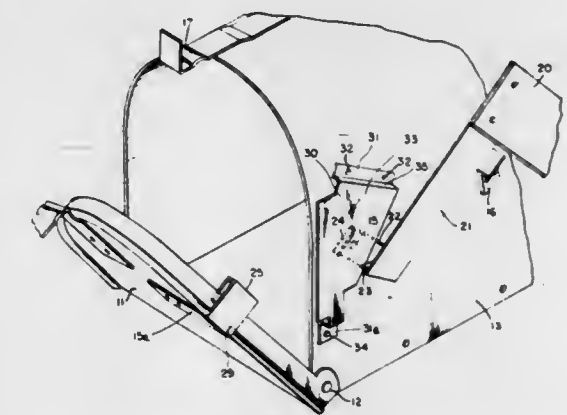
John A. Whitley, 203 Randolph Ave., and Lacy A. Rowe, 1851 Skycoc Dr., both of Salem, Va. 24153

Filed Aug. 25, 1980, Ser. No. 180,887

Int. Cl.³ A47G 29/12

U.S. Cl. 232—35

4 Claims



1. For use with a mailbox having a front door hinged at the lower portion thereof and comprising a body portion having sidewalls; a signal assembly comprising a signal flag having a signal standard, or support of elongated strap material bent intermediate its ends to provide a signal carrying arm, an intermediate double bend portion and an attaching arm offset from and extending at an angle to said signal carrying arm, pivot means for pivotally mounting said attaching arm portion to one side of the mailbox, said attaching arm of said signal standard including a pawl portion at one end for abutting contact with a signal latching member carried by said mailbox door, said signal latching member including a leaf spring portion extending across the front of said door and a latching portion extending at an angle to the mailbox door toward said pawl portion for cooperation with the pawl portion of the attaching arm to hold said signal carrying arm in upright position; and weather cover means for protecting the pivot means and associated mechanism from the elements comprising a box-like structure secured to the side of the mailbox and having a cover spaced from the mailbox side wall and overlying said pivot means and said attaching arm portion and open sides, said attaching arm extending through one of said open sides and swingable therein, said other side of said cover being open to permit said latching portion of said latching member to extend therethrough into abutting contact with said pawl portion of said attaching arm, said intermediate double bend portion forming a bight about said cover on said one open side to permit the attaching arm to extend into the weather cover means while the signal standard remains outside of said cover, said bight being engageable with said cover on said one open

side to limit upward movement of said signal carrying arm, said pawl portion contacting said latching portion of said signal latching member when said mailbox door is closed and said signal carrying arm is raised, said latching member being yieldable upon manual manipulation of said signal carrying arm to permit said signal arm to be lowered from its raised and latched position while said door remains closed.

4,365,741

CONTINUOUS CENTRIFUGAL SEPARATION OF COAL FROM SULFUR COMPOUNDS AND MINERAL IMPURITIES

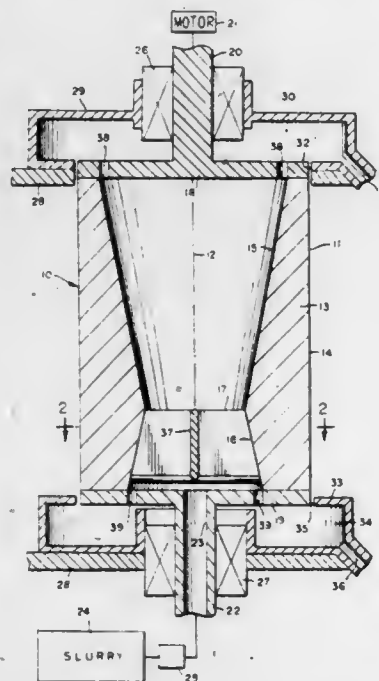
Raymond T. Greer, Ames, Iowa, and Ronald F. Gibson, Gainesville, Fla., assignors to Iowa State University Research Foundation, Inc., Ames, Iowa

Filed Jan. 30, 1981, Ser. No. 230,013

Int. Cl.³ B04B 11/00

U.S. Cl. 494—37

17 Claims



1. A method for separating finely-divided particles of similar size but different densities, comprising the steps of continuously introducing a stream of an aqueous slurry of said finely-divided particles having different densities into an inlet at the lower end of a centrifuge chamber while said chamber is rotating about a vertical axis; said chamber having upper and lower frusto-conical surfaces arranged with the apexes at the reduced ends of such frusto-conical surfaces meeting along an annular horizontal apex line disposed along a plane intermediate the upper and lower ends of said chamber; imparting rotational action to said stream as it passes through said inlet; controlling the rotational and inflow rates of said stream so that a first fraction of slurry particles having densities below a selected density will follow trajectories leading towards the frusto-conical surface above said apex line and whereas a second fraction of particles having densities greater than said selected density will follow trajectories leading to said frusto-conical surface below said apex line; and continuously withdrawing said lighter and heavier fractions from said chamber while said centrifuge is in operation.

4,365,742

HEATING SYSTEM

George R. Cogar, R.D. 3, Frankfort, N.Y. 13340

Filed Apr. 14, 1980, Ser. No. 139,703

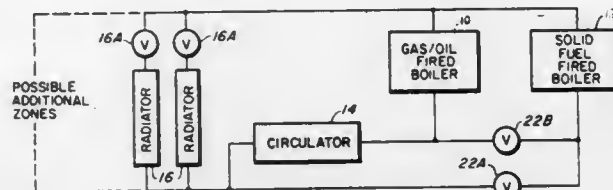
Int. Cl.³ F24D 3/00

U.S. Cl. 237—81

7 Claims

7. A method for heating at least one zone and for supplying domestic hot water wherein a fluid fuel burning heater and boiler assembly is coupled in parallel with a solid fuel burning heater and boiler assembly and wherein a circulator pump

having an inlet and an outlet is coupled in series with said at least one zone for receiving zone return fluid, comprising: closing first and second water valves when said fluid fuel boiler is fired, said first valve being coupled between said outlet and the solid fuel boiler and said second valve coupled between said inlet and the solid fuel boiler; opening said first valve and closing said second valve in a



solid fuel mode upon demand for heat from said at least one zone; closing said first valve and opening said second valve in said solid fuel mode in the absence of zone demand; and activating said circulator pump in the absence of zone demand if in said solid fuel mode and the temperature of the fluid fuel boiler falls below a predetermined value and upon zone demand.

4,365,743

RAILROAD-HIGHWAY CROSSING DECK COMPONENT

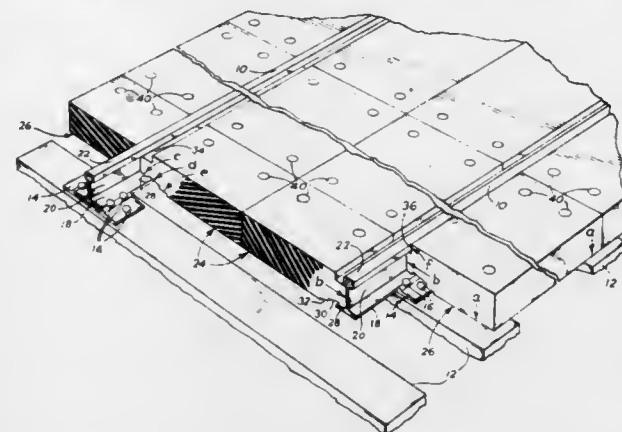
Lorn L. Trickel, 8806 NE. Thompson, Portland, Oreg. 97220, and William H. Stultz, 9424 N. Burr St., Portland, Oreg. 97203

Filed Mar. 19, 1981, Ser. No. 245,257

Int. Cl.³ E01B 2/00, 26/00; E01C 9/04

U.S. Cl. 238—8

6 Claims



1. For use in a highway railroad crossing including a pair of spaced rails, a plurality of rail-supporting ties, and a plurality of tie plates spiked to the ties and securing the rails thereto, each rail comprising a horizontal base, an intermediate vertical web, and a rail head; a deck component comprising:

- a flat pad of molded, comminuted rubber, the pad being dimensioned to lie adjacent a rail with its undersurface supported on and bearing against the ties and its upper surface lying at an elevation, substantially parallel to tread surface of the rail head, to provide a smooth, traffic-crossing surface,
- one lateral edge surface being contoured and dimensioned to form a foot and bear against substantially the entire web of each rail,
- the undersurface perpendicular to said lateral edge surface and immediately adjacent thereto, said foot being contoured and dimensioned to provide an elongated surface adapted to bear against each adjacent rail base,
- the undersurface parallel to and immediately adjacent each foot being recessed to provide a channel dimensioned and contoured to form a channel ceiling adapted to bear against the tie plate-spike assembly associated with the rail, thereby stabilizing the deck,
- the upper surface perpendicular to and immediately adjacent said lateral edge surface being recessed to pro-

vide a channel dimensioned and contoured to receive the rail head, and when positioned between the rails to receive also wheel flanges, and

(f) securing means for attaching the pad to the ties.

4,365,744

ANCHOR LOCK FASTENING ASSEMBLY

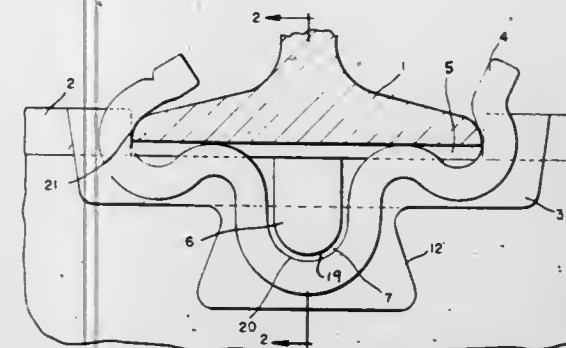
Hans-Heiner Moehren, 514 Holly Rd., Yeadon, Pa. 19050

Filed Sep. 19, 1980, Ser. No. 188,866

Int. Cl.³ E01B 9/48, 9/64, 13/02

U.S. Cl. 238—323

19 Claims



1. A substantially load free anchor lock fastening assembly which comprises an anchor lock and a rail anchor, said anchor lock forming part of a plate or attachment to a tie or rail support, and containing an engaging and locking portion for providing a loose connection with the rail anchor, and said rail anchor being unitary and containing portions adapted to engage with the base of a rail and loosely engage the anchor lock so as to enable the rail anchor to control both the vertical and the longitudinal positions of the rail without exerting compressive forces between the rail and the rail support, said substantially load free fastening of the rail leaving the rail free to float.

4,365,745

DIAPHRAGM PUMP

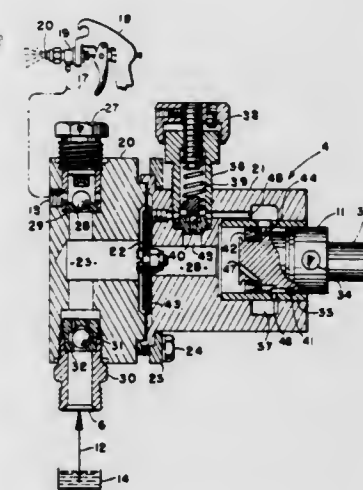
Louis Beck, 6399 Crossview Rd., Seven Hills, Ohio 44131

Filed Feb. 5, 1981, Ser. No. 231,746

Int. Cl.³ B05B 9/03

U.S. Cl. 239—124

3 Claims



1. An airless spray system comprising a hydraulically actuated pump of the piston-diaphragm type in which a piston reciprocating in an actuating chamber filled with actuating liquid reciprocates a flexible diaphragm to pump liquid to be sprayed out of a pumping chamber through an outlet check valve and to draw in liquid from a supply source into said pumping chamber through an inlet check valve; an airless spray gun having a flexible hose connected to the pump outlet, said hose having a volumetric capacity many times larger than

the displacement of said piston and being resiliently expansible and contractible to constitute a pressure storage vessel to receive an excess of liquid during the pressure stroke of said piston and diaphragm to maintain a substantially constant rate of discharge of liquid from said spray gun during the pressure and return strokes of said diaphragm and piston, said actuating chamber having a restricted pressure control valve which when open provides a restricted orifice to bleed actuating liquid into an actuating liquid reservoir when the liquid pressure in said pumping chamber and actuating chamber exceeds that for which said pressure control valve has been set and prior to the time that said piston reaches the end of its pressure stroke, said valve when open providing for completion of the pressure stroke of said piston without substantial drop in pressure in said chambers so that during a succeeding return stroke return movement of said diaphragm is arrested by a stop wall of said actuating chamber prior to the completion of the return stroke of said piston, said actuating chamber having an inlet-outlet valve which opens in response to a partial vacuum in said actuating chamber during the terminal portion of the return stroke of said piston for flow of actuating liquid from said reservoir into said actuating chamber and which remains open during the initial portion of the pressure stroke of the piston to expel actuating liquid from said actuating chamber into said reservoir; said inlet-outlet valve comprising a packing ring slidably sealed in a cylinder in said actuating chamber and on a reduced diameter extension of said piston to provide a lost motion connection between positions closing and opening passages in said piston and cylinder intercommunicating said reservoir and actuating chamber.

4,365,746

SWIRL INJECTION VALVE

Yasusi Tanasawa, Nagoya; Norio Muto, Aichi; Akinori Saito, and Kiyomi Kawamura, both of Nagoya, all of Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi, Japan

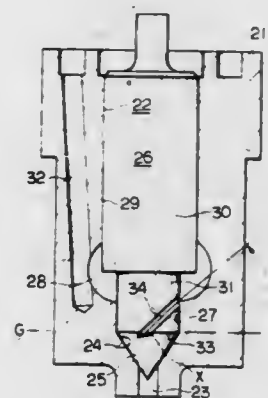
Filed Jun. 11, 1980, Ser. No. 158,460

Claims priority, application Japan, Jun. 20, 1979, 54-77665; Jun. 20, 1979, 54-84303[U]

Int. Cl.³ F02M 61/06

U.S. Cl. 239—125

33 Claims



1. A swirl injection valve comprising: a nozzle body comprising a hollow cylindrical body having a bore and a bottom portion on which a nozzle port and a valve seat are formed; a needle valve member, slidably inserted and reciprocally moved within said bore of said nozzle body, having a cylindrical surface of axially constant radius and a tip portion for seating on said valve seat and controlling opening and closing of said nozzle port; a swirl chamber formed upstream of said nozzle port and defined between an inner wall of said nozzle body and an outer wall of said needle valve member; a fuel supply passage formed within said nozzle body and connected to a fuel supply source; and inclined passage means wherein said inclined passage means

further comprises at least one short passage connected to said swirl chamber and said fuel supply passage and tangentially opened to said swirl chamber at a predetermined inclined angle, said at least one short passage being provided substantially exclusively on said cylindrical surface of axially constant radius and being extended, when projected on a plane normal to the center axis of said needle valve member, within the range of 0 to 180 degrees with respect to the center angle about the center axis of said needle valve member, such that when said needle valve member is moved from a seated position of said valve in an opening direction fuel from said fuel supply passage is tangentially supplied to said swirl chamber from said inclined passage means and a swirling flow of the fuel is formed within said swirl chamber, so that the swirling flow of the fuel is injected from said nozzle port.

4,365,747

ELECTROMAGNETICALLY ACTUATABLE FUEL INJECTION VALVE

Heinrich Knapp, Leonberg; Rudolf Sauer, Benningen; Waldemar Hans, Bamberg; Mathias Linssen, Schesslitz; Jürgen Peczkowski, Bamberg, and Rudolf Krauss, Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

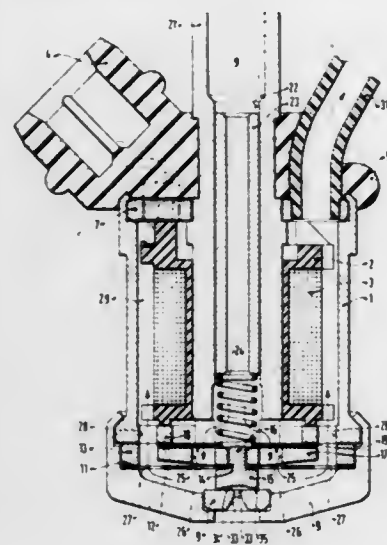
Filed Jul. 11, 1980, Ser. No. 167,623

Claims priority, application Fed. Rep. of Germany, Sep. 8, 1979, 2936425

Int. Cl.³ F02M 51/08

U.S. Cl. 239—125

22 Claims



1. An electromagnetically actuable fuel injection valve for fuel injection systems of internal combustion engines including a housing, a core surrounded by a magnetic coil, a flat armature having opposed sides guided by at least one diaphragm means having a portion received in said housing, said flat armature firmly connected with a movable valve element disposed in proximity to a fixed valve seat and means for feeding fuel under pressure to said valve seat, characterized in that said at least one diaphragm means further includes plural means defining openings to a fuel discharge duct in said housing for emission of fuel from said housing in excess of said fuel metered through said valve seat.

4,365,748

SELF-DRIVEN MOBILE CENTER PIVOT IRRIGATION SYSTEM

Robert R. Emrich, Box J, Indianola, Nebr. 69034

Filed Sep. 26, 1980, Ser. No. 191,173

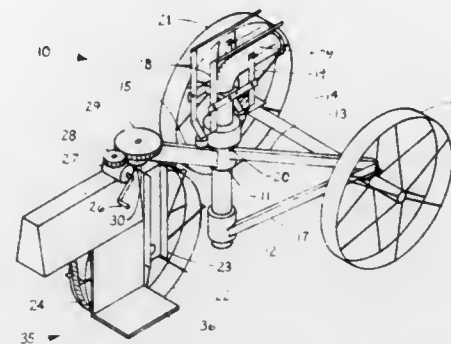
Int. Cl.³ B05B 3/12

U.S. Cl. 239—177

5 Claims

1. A mobile, operably and transportably self-propelled center pivot irrigation unit comprising:
a self-driven first carriage including a plurality of ground wheels;

an operator support station on said self-driven first carriage; operator controlled steering means on said first carriage at said operator station for steerably moving at least one of said ground wheels;
an irrigation pipeline pivotally connected to said first carriage;
irrigation water dispensing means in fluid communication with said irrigation pipeline and mounted thereon;
a second wheel mounted carriage operably supporting said irrigation pipeline;
means for changing the direction of travel of said second wheel mounted carriage with respect to said irrigation pipeline whereby the wheels of said second carriage may



be positioned to travel parallel to the axis of said irrigation pipeline and whereby the wheels of said second carriage may also be positioned to travel perpendicular to the axis of said irrigation pipeline;
means for connecting said irrigation pipeline to an irrigation water source;
a disengageable first drive means operably mounted on said irrigation unit for propelling said second carriage in a circular path about said carriage; and
said first carriage including a second drive means fixedly mounted on said irrigation unit for drivingly rotating at least one of said ground wheels to propel said unit in a linear direction of travel.

4,365,749

CENTER-PIVOT IRRIGATOR

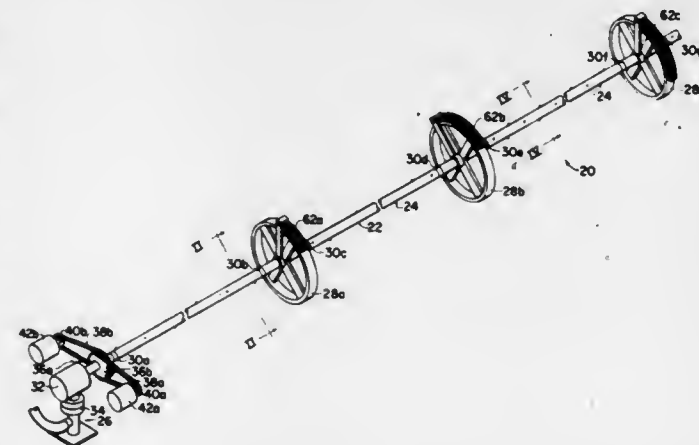
Franklin D. Bowen, Rte. #2, Box 104, Terrell, Tex. 75160

Continuation of Ser. No. 114,042, Jan. 17, 1980, abandoned. This application Feb. 12, 1981, Ser. No. 233,828

Int. Cl.³ B05B 3/12

U.S. Cl. 239—177

10 Claims



1. A method of sprinkler irrigating the ground of a field about a center pivot, comprising:
(a) horizontally rotating an elongate irrigation pipe by applying torque from said center pivot to said pipe;
(b) intermittently connecting to said pipe each respective wheel of a plurality of support wheels mounted along the length of said pipe, said wheels being freely rotatable about said pipe when not connected thereto;

- (c) intermittently rolling each said wheel along the ground a respective designated distance through revolutions of said pipe to thereby arcuately move said pipe about said pivot point with the entire structure of said pipe being effectively maintained in elongated posture;
- (d) pumping water under pressure into said irrigation pipe; and
- (e) sprinkling water in substantially even distribution along the length of said pipe from a plurality of sprinklers disposed along said pipe and rotating with said pipe.

4,365,751

TRIGGER TYPE LIQUID INJECTOR

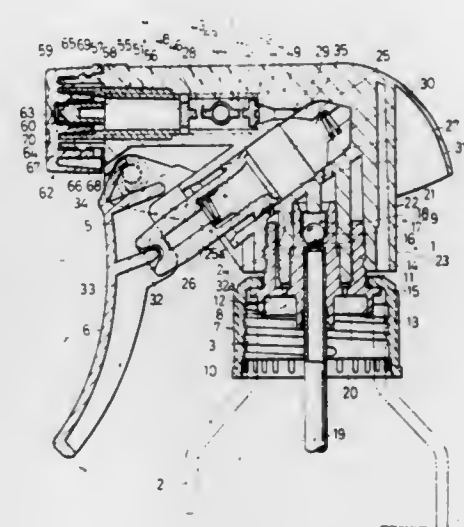
Tadao Saito, and Takaharu Tasaki, both of Tokyo, Japan, assignors to Yoshino Kogyosho Co., Ltd., Tokyo, Japan
Filed Dec. 24, 1980, Ser. No. 220,073

Claims priority, application Japan, Sep. 26, 1980, 55-133741; Oct. 1, 1980, 55-139800[U]; Oct. 6, 1980, 55-142537[U]; Oct. 15, 1980, 55-146519

Int. Cl.³ B05B 9/043

U.S. Cl. 239—333

6 Claims



4,365,750

ADJUSTABLE SPRINKLER SYSTEM

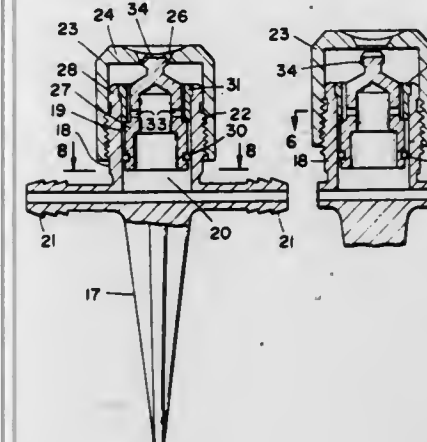
David Carlberg, Los Altos, Calif., assignor to Engineering Systems Corporation, Santa Clara, Calif.

Continuation-in-part of Ser. No. 110,653, Jan. 9, 1980, abandoned. This application Dec. 24, 1980, Ser. No. 219,847

Int. Cl.³ B05B 1/12

U.S. Cl. 239—276

1 Claim



1. A sprinkler device, including a tapered base member adapted to be inserted in earth, a housing secured superjacent to said base member and including an upwardly opening chamber therein, means for supplying water to said chamber, a cap disposed about said housing, first means for securing said cap to said housing in selectively variable height relationship thereto, a jet aperture in an upper end of said cap, an arbor rotatably disposed in said chamber, second means for selectively varying the rate of flow of water from said housing through said upwardly opening chamber and through said jet aperture, a tapered head extending upwardly from said arbor and adapted to extend into said jet aperture to control the water spray pattern emanating therefrom, said first means selectively varying the vertical position of said head with respect to said aperture to vary said spray pattern, said first and second means functioning mutually independently, said second means including a bushing secured in said chamber and disposed about said arbor, and said bushing including an interior annular surface having a plurality of longitudinally extending slots of increased radius, said arbor having a plurality of radial flow passages extending therethrough and positioned for variable registration with said slots, said arbor being rotatable to position said flow passages with respect to said longitudinally extending slots.

1. A trigger type liquid sprayer, comprising:
a pumping means for effecting suction of a liquid from a container, said pumping means comprising a cylindrical pump chamber, a spring and a piston member movable within said cylindrical pump chamber against the biasing force of the spring,
a trigger mechanism for effecting movement of said piston member;
a suction valve for regulating the flow of said liquid into said cylindrical pump chamber from a liquid container;
means for regulating the movement of said liquid from said cylindrical pump chamber, said means for regulating comprising a nozzle mounted on the end of a horizontally oriented injection cylinder, said injection cylinder comprising a discharge valve, a small diameter cylinder, an intermediate diameter cylinder, a large diameter cylinder, and a circular plug, said discharge valve being positioned in the intermediate diameter cylinder and including an elastic ring with first and second diametrically opposed horizontal extensions, said first horizontal extension terminating in a valve structure for regulating the flow of said liquid through said intermediate diameter cylinder from said small diameter cylinder, a discharge port being disposed in said injection cylinder opposite said nozzle, said second horizontal extension terminating in a plate structure which regulates the flow of said liquid from said intermediate diameter cylinder to said large diameter cylinder, the end of said large diameter cylinder furthest from said plate structure being fitted with said circular plug, said circular plug having orifices for allowing passage of said liquid from said large diameter cylinder to said nozzle structure;
said large diameter cylinder being lined with a hollow cylindrical member having an opening therethrough, said cylindrical member extending between said discharge valve and said circular plug.

4,365,752

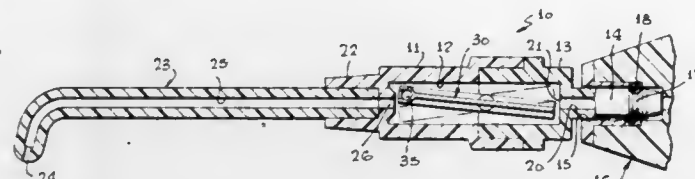
WATER PULSATING UNIT FOR ORAL SYRINGE
Avery Waisbren, 5429 Santa Monica Blvd., Los Angeles, Calif. 90029, and Arthur F. Kelson, 11701 Foster, Los Alamitos, Calif. 90720

Filed May 4, 1981, Ser. No. 260,067

Int. Cl.³ B05B 1/08

U.S. Cl. 239—381

1 Claim



1. A device for producing a pulsating stream from a main stream of pressurized water comprising the combination of: a body having inlet and outlet ports on opposite sides of a central cavity; said inlet port adapted to be connected to a source of pressurized water and said outlet port arranged to carry a discharge nozzle; rotary valve means movably carried on said body within said body cavity for yieldably interfering with flow of pressurized water conducted from said inlet port to said outlet port whereby a sequential series of pulsating water discharges from said nozzle in response to oscillatory rotary movement of said valve means; said valve means is a flutter valve pivotally carried on said body within said cavity; said flutter valve comprises an elongated member having pivots outwardly projecting in a lateral direction approximately mid-way between its opposite ends; said flutter valve member has movable opposite ends terminating in equally close proximity to said inlet and said outlet ports respectively; a weight carried on said valve member end in close proximity to said outlet port; said valve member is pivoted in response to the main fluid stream pressure whereby the main fluid stream pressure alternately strikes against one side and then the other side of said valve member at its end opposite to said end carrying said weight; and said valve member further includes a pair of spaced apart ribs carried on the opposite sides thereof respectively.

4,365,753

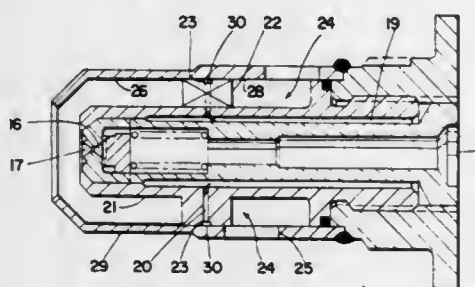
BOUNDARY LAYER PREFILMER AIRBLAST NOZZLE
Curtis F. Harding, Parma, and Harold C. Simmons, Richmond Heights, both of Ohio, assignors to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Aug. 22, 1980, Ser. No. 180,284

Int. Cl.³ B05B 7/10

U.S. Cl. 239—404

6 Claims



1. A fuel nozzle comprising an air shroud having a smooth cylindrical inner peripheral surface, a member within said air shroud and cooperating with said inner peripheral surface to define an air shroud annulus, a fuel source within said member, means for conveying fuel from said fuel source to said inner peripheral surface and for evenly distributing a film of fuel on

said inner peripheral surface, said means including a totally enclosed passage extending from said fuel source radially outwardly and terminating at said inner peripheral surface, a swirler vane disposed within said air shroud annulus and arranged at a predetermined angle relative to the longitudinal direction, and said passage includes a passage portion extending radially through said swirler vane and terminating at another passage portion cooperatively defined by said swirler vane and said inner peripheral surface.

4,365,754

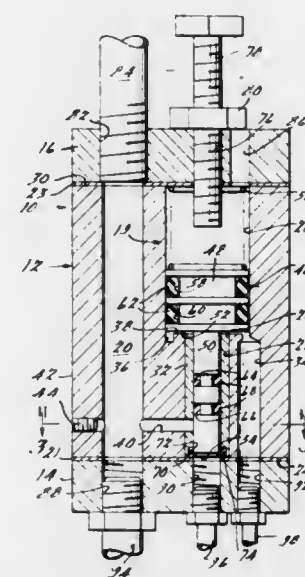
SPRAY ASSEMBLY CONSTRUCTION
Walter E. Levine, and Allan B. Heath, both of Port Huron, Mich., assignors to Acheson Industries, Inc., Port Huron, Mich.

Filed Jun. 19, 1980, Ser. No. 161,060

Int. Cl.³ B05B 7/12

U.S. Cl. 239—412

19 Claims



1. In a spray apparatus for selectively applying one or more fluid to the working surfaces of forming apparatus, improved valve means for controlling the flow of said one or more fluids comprising:

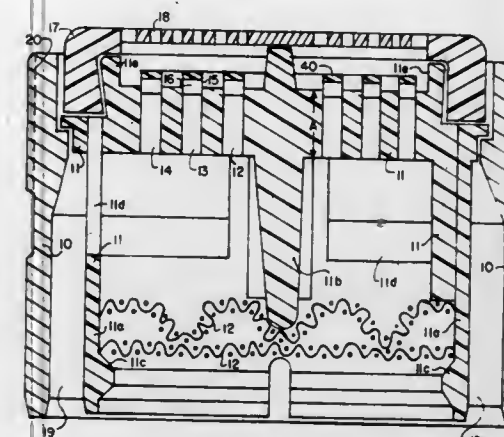
- a main body housing;
- a first elongated fluid passageway extending substantially linearly through said main body housing and having an inlet at one end and an outlet at the other end;
- a second fluid passageway spaced from said first passage extending into said housing and having an inlet at one end thereof;
- a substantially unrestricted connecting passage having one end opening into said first fluid passage intermediate the ends thereof and the other end opening into said second fluid passage;
- valve means disposed within said second fluid passage and movable into and out of overlying relationship to said port so as to selectively control fluid flow from said second fluid passage to said first fluid passage via said connecting passage; and
- actuating means for selectively moving said valve means out of overlying relationship, said actuating means being operable independently of fluid flow through said first fluid passageway whereby said fluid flow through said first passage may continue after movement of said valve member into overlying relationship to said port thereby enabling said fluid flow to evacuate said connecting passage.

4,365,755

AERATOR WITH REDUCED NOISE
Elie P. Aghnides, 2 E. 61st St., New York, N.Y. 10021
Filed Dec. 30, 1980, Ser. No. 221,475
Int. Cl.³ E03C 1/08

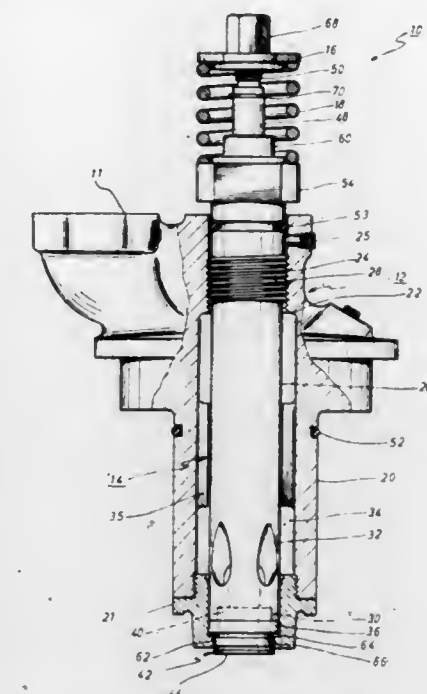
U.S. Cl. 239—428.5

9 Claims



1. In a faucet aerator of the type which employs an upstream disc having a multiplicity of chambers therein, the longitudinal dimensions of which chamber being parallel with the general direction of water flow, each chamber having a plurality of opposing entrance openings at the upstream end of the chamber, and screen means downstream of the chambers for mixing the water with air and discharging the water as a coherent jet containing numerous small bubbles, said aerator defining an air passage means extending from the atmosphere to the space between the chambers and the screen means, the improvement comprising: said disc having at least 36 of said chambers, said chambers each having a length of at least 0.75 mm, and a cross-sectional area less than 0.8 mm², and each said chamber having at least two entrance openings, the aggregate cross-section of which entrance openings is about equal or exceeds the cross-section of the chamber to which the openings communicate, whereby to provide a low-noise aerator.

(c) a keeper ring threadably engaged with the stem threads of the valve; and



(d) an external spring between said keeper ring and said valve cage, said external spring biasing the valve in the closed position.

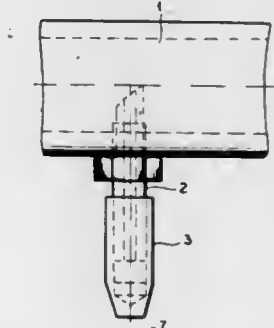
4,365,757

WATER FEEDING HEAD

Dobos Alajos; Gyula Kiss; Bela Gaspar; Geza Imre; Julia Jony nee Acs; Istvan Forian; Istvan Ijjas; Ferenc Liptak, and Vilma Bisits nee Zsilinszky, all of Budapest, Hungary, assignors to Agrober Mezogazdasagi es Elelmiszeripari Tervezo, Beruhazasi Vallalat, Budapest, Hungary
Continuation of Ser. No. 85,796, Oct. 17, 1979, abandoned. This application May 20, 1981, Ser. No. 265,560
Int. Cl.³ B05B 1/18

U.S. Cl. 239—567

3 Claims



1. A drop-feed irrigation system for row crop watering comprising:

- at least one pipeline spaced above the ground to be watered and for delivering water at a pressure of no more than 0.75 m water column and provided with a plurality of tubular bodies spaced along said pipeline and extending downwardly therefrom, each of said tubular bodies having a tapering configuration; and
- respective one-piece nozzles interchangeably mounted on said tubular bodies, each of said nozzles being formed with a cylindrical portion having a bore open at one end for receiving said respective tubular body and communicating therethrough with said pipeline, said nozzle being further formed with a plurality of orifices, each having a diameter greater than 0.6 mm and formed at the other end of said nozzle and communicating with said bore, at least two of said orifices being directed laterally and substan-

4,365,756

FUEL INJECTION VALVE ASSEMBLY FOR RECIPROCATING GAS ENGINE
Timothy Z. Fisher, 16222 Tibet Rd., Friendswood, Tex. 77546
Filed Aug. 11, 1980, Ser. No. 176,980
Int. Cl.³ B05B 1/30

U.S. Cl. 239—533.2

33 Claims

1. A fuel injection valve assembly for use in a reciprocating gas engine, comprising:

- (a) a valve cage adapted for mounting on the body of the engine by insertion of a cylindrical lower portion thereof into an opening in the engine body leading to a combustion chamber of the engine, said valve cage having a cartridge-receiving bore with threads at the end of the bore nearer the outside of the engine;
- (b) a valve cartridge having
 - (1) a stem housing with outside threads engaging the threads of the cartridge-receiving bore, a valve seat at the end opposite the outside threads, and at least one fuel seat port between the outside threads and the valve seat, the port being adapted for the flow of fuel from an annular space, between inside wall of said valve cage and the outside of said valve cartridge, to a combustion chamber of the engine;
 - (2) a valve with a substantially frustoconical element, the surface of which having a valve face adapted to fit tightly against the face of the valve seat, a valve stem attached to the frustoconical element and passing through the stem housing, the stem threads at the opposite end of the valve stem from the frustoconical element;

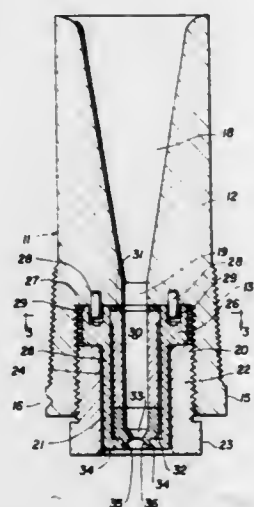
tially radially with respect to the axis of said nozzle, said orifices being axially spaced from the lower end of the respective tubular body, said orifices of said nozzle being so oriented and said tubular bodies being so positioned along said pipeline that water carried therein is discharged therefrom in a trickling stream onto said ground at a continuous network of watering points along said pipeline.

4,365,758 DESCALING NOZZLE

Edward J. Schaming, P.O. Box 1070, Butler, Pa. 16001
Filed Apr. 28, 1981, Ser. No. 258,284
Int. Cl.³ B05B 1/20

U.S. Cl. 239—590

7 Claims



1. A descaling nozzle comprising a threaded body for placement in a threaded opening of a pressurized fluid header, the screw-threads of said body being near the forward end of the body and the body being elongated and extending substantially rearwardly of the screw-threads, whereby the body can extend deeply into the interior of a header, the body having a rear forwardly tapering venturi entrance passage for fluid, a restricted throat forwardly of the entrance passage and an enlarged forward threaded recess forwardly of said throat, the body having a permanent indicator element on the exterior thereof near its forward end to facilitate precise angular alignment of the nozzle orifice when the descaling nozzle is assembled with a header, a nozzle tip unit disposed within said threaded recess of said body and including a nozzle tip having a spray orifice, precision angle locator means for said orifice on said body and nozzle tip unit, and a threaded retaining sleeve for the nozzle tip unit engaged in said threaded recess of the body and having a through bore receiving said tip unit, and said tip unit including an enlarged head within the threaded recess and inwardly of the threaded retaining sleeve and being clamped between the rear end of the retaining sleeve and the opposing end wall of the threaded recess.

4,365,759 ROTARY TYPE ELECTROSTATIC SPRAY PAINTING DEVICE

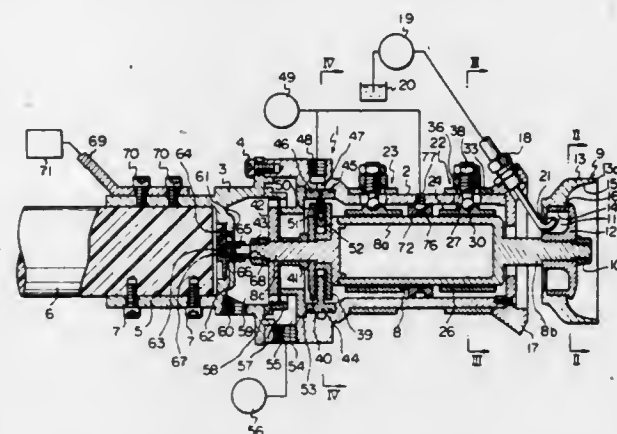
Teru Morishita, Shizuoka; Matsuyoshi Sugiyama, Susono, and Toshikazu Suzuki, Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan
Filed Oct. 10, 1980, Ser. No. 195,792
Claims priority, application Japan, May 21, 1980, 55-66366
Int. Cl.³ B05B 5/04; F16C 7/04, 17/10

U.S. Cl. 239—703

15 Claims

1. A rotary type electrostatic spray painting device comprising:
a metallic housing;
a metallic rotary shaft rotatably arranged in said housing and having a front end and a rear end;

a cup shaped metallic spray head fixed onto the front end of said rotary shaft and having a cup shaped inner wall;
feeding means for feeding a paint onto said cup shaped inner wall;
drive means cooperating with said rotary shaft for rotating said rotary shaft;
a pair of spaced radial air bearings arranged in said housing and cooperating with said rotary shaft for radially supporting said rotary shaft under a non-contacting state when said rotary shaft is rotated at a speed which is higher than a predetermined speed;
compressed air feeding means for producing compressed air;
a static pressure radial air bearing arranged between said spaced radial air bearings in said housing and cooperating



with said rotary shaft, said static pressure radial air bearing being connected to said compressed air feeding means and feeding the compressed air into a clearance between said static pressure radial air bearing and said rotary shaft for radially supporting said rotary shaft under a non-contacting state when said rotary shaft is rotated at a speed which is lower than the predetermined speed;
non-contact type thrust bearing means arranged in said housing and cooperating with said rotary shaft for axially supporting said rotary shaft under a non-contacting state;
a generator generating a negative high voltage and having an output connected to said housing,
electrode means arranged in said housing and electrically connecting said output to said spray head.

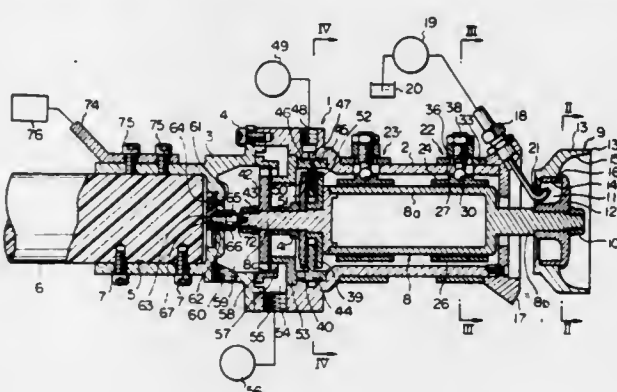
4,365,760 ROTARY TYPE ELECTROSTATIC SPRAY PAINTING DEVICE

Matsuyoshi Sugiyama, Susono; Teru Morishita, Shizuoka, and Toshikazu Suzuki, Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan
Filed Oct. 23, 1980, Ser. No. 200,025

Claims priority, application Japan, May 23, 1980, 55-67912
Int. Cl.³ B05B 5/04

U.S. Cl. 239—703

20 Claims



1. A rotary type electrostatic spray painting device comprising:

a metallic housing;
a metallic rotary shaft rotatably arranged in said housing and having a front end and a rear end;
a cup shaped metallic spray head fixed onto the front end of said rotary shaft and having a cup shaped inner wall;
feeding means for feeding a paint onto said cup shaped inner wall;
drive means cooperating with said rotary shaft for rotating said rotary shaft;
non-contact type radial bearing means arranged in said housing and cooperating with said rotary shaft for radially supporting said rotary shaft under a non-contacting state;
non-contact type thrust bearing means arranged in said housing and cooperating with said rotary shaft for axially supporting said rotary shaft under a non-contacting state;
a generator generating a negative high voltage and having an output connected to said housing;
electrode means arranged in said housing and electrically connecting said output to said spray head, and;
a slide plate fixed onto the rear end of said rotary shaft and having a rear face and a front face which is in continuous contact with said electrode means.

4,365,761 APPARATUS AND METHOD FOR DEFIBERING UNCONVENTIONAL MATERIAL

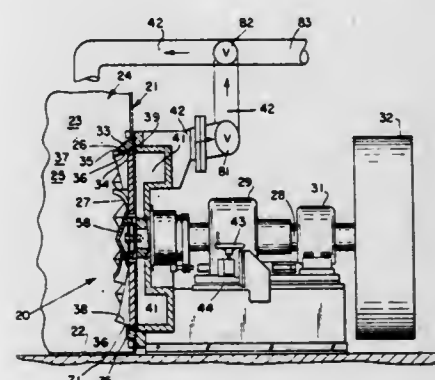
Donald W. Danforth, Andover, Mass., assignor to Bolton - Emerson, Inc., Lawrence, Mass.

Filed Mar. 6, 1980, Ser. No. 127,873

Int. Cl.³ B02C 23/36

U.S. Cl. 241—21

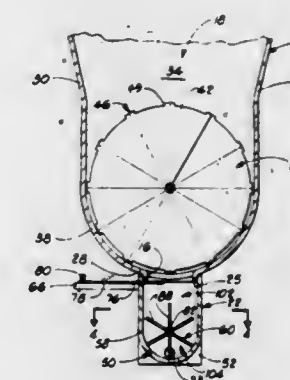
16 Claims



1. A vortical circulation pulper comprising:
a stock container having a bottom wall and a side wall;
a bladed and channeled stator in one of said walls and a vortical-circulation rotor; rotatable within said stator to vortically circulate stock in said container;
said stator having a truncated conical, bladed and channeled underface, a smaller open end facing into said container and a larger open end facing away from said container;
said rotor being shaped in an annular, symmetrical, pattern of alternate triangular, peaks and valleys, each peak having a stock reduction, acquisition edge;
vortical circulation vanes on said rotor, each having an outer stock reduction bladed edge thereon, extending from an outer tip to a high point thereon said edges jointly outlining a truncated conical, bladed outer face;
the truncated conical, bladed and channeled underface of said stator and the truncated conical bladed outer face of said rotor forming a truncated-conical stock reduction interface;
said rotor vanes having spaces therebetween and said stator valleys constituting acquisition spaces, for receiving large chunks of said stock;
and the outer, stock reduction bladed edges of said rotor vanes cooperating with the stock reduction acquisition edges of the peaks of said stator at a predetermined acquisition angle to successively impart a scissors-like impact to said chunks received in said acquisition spaces to progress.

sively reduce the size thereof for entering said stock reduction interface.

4,365,762
MATERIAL MOVING APPARATUS
Tom C. Hoshall, 1001 Enterprise Ave., Suite 13, Oklahoma City, Okla. 73128
Continuation-in-part of Ser. No. 29,642, Apr. 13, 1979, Pat. No. 4,273,296. This application Jun. 11, 1981, Ser. No. 272,663
Int. Cl.³ B02C 13/288
U.S. Cl. 241—60
6 Claims



1. A material moving apparatus, comprising:
a hopper having an upper end and a lower end, a material receiving opening being formed in the upper end, the hopper having a chamber and a material discharge opening, material being dischargeable into the chamber through the material receiving opening and the material being movable from the chamber through the material discharge opening, the lower end portion of the hopper being formed on a radius;
a hopper blade assembly disposed in the hopper chamber for shredding the material discharged into the hopper chamber, the hopper blade assembly cooperating to shred the material and cooperating to move the material from the hopper chamber through the material discharge opening, comprising:
a shaft rotatably mounted and extending through a portion of the hopper chamber;
at least two blades, each blade being connected to the shaft and extending a distance radially therefrom terminating with an outermost end; and
means to rotatably drive the shaft, thereby rotating the blades within the hopper chamber, the lower end portion of the hopper being formed on the radius and shaped to provide a minimum clearance between the outermost ends of the blades of the hopper blade assembly and the lower end portion of the hopper;
a blower assembly receiving the material discharged through the hopper material discharge opening and forcibly discharging the received material through a blower discharge, the blower assembly comprising:
an air lock having an inlet chamber communicating with the hopper material discharge opening; an outlet chamber wherein the blower discharge is formed; and means, forming a substantially hermetic seal between the inlet and outlet chambers of the air lock, for transferring material received in the inlet chamber to the outlet chamber; and means for injecting air into the outlet chamber of the airlock; and
a discharge conduit connected to the blower discharge and receiving the material discharged from the material discharge opening, the material being discharged from the material moving apparatus via the discharge conduit.

4,365,763

DISCHARGE ZONE FASTENING ASSEMBLY FOR GRINDING MILL

Rhual L. Guerguerian, La Salle, Canada, assignor to Dominion Engineering Works Limited, Lachine, Canada

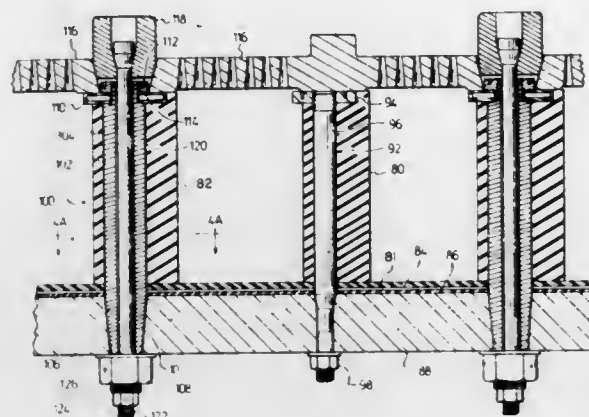
Filed Sep. 22, 1980, Ser. No. 189,173

Claims priority, application Canada, Oct. 26, 1979, 338548

Int. Cl.³ B02C 17/18

U.S. Cl. 241—70

21 Claims



1. In a grinding mill hollow drum structure having a discharge head portion, and a plurality of discharge channel members, a fastening assembly for securing each of said discharge channel members to said discharge head portion, comprising at least one rigid cantilever post means having a body portion and a securing stem portion that adjoins the body portion at one end thereof, said securing stem portion being mechanically releasably secured in fixed relation to said discharge head portion independently of said channel members whereby said body portion of each said posts provides a transverse cantilevered load bearing capability for supporting one of said discharge channel members.

4,365,764

SUCTION APPARATUS FOR REMOVING FIBER MATERIAL

Hans-Jürgen Marx, Monchen-Gladbach, Fed. Rep. of Germany, assignor to Trützschler GmbH & Co. KG, Monchen-Gladbach, Fed. Rep. of Germany

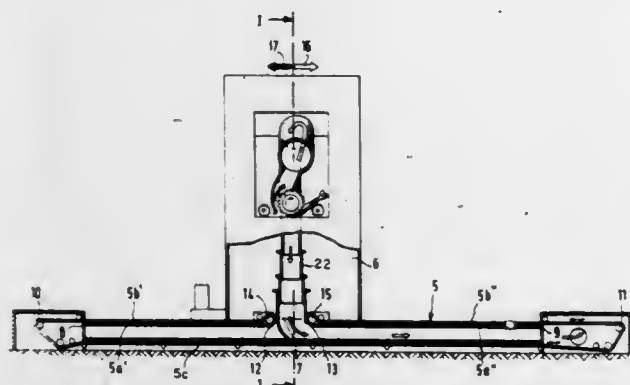
Filed Aug. 29, 1980, Ser. No. 182,603

Claims priority, application Fed. Rep. of Germany, Nov. 7, 1979, 2944889

Int. Cl.³ B65G 53/26, 53/52

U.S. Cl. 241—101 A

4 Claims



1. In a fiber bale opener including a truck arranged for back-and-forth displacement along a travelling path, an opening mechanism carried by said truck and arranged for removing fiber from the top of fiber bales positioned along said travelling path and a suction apparatus for carrying away, by an air stream, fiber removed from the bales by the opening mechanism, said suction apparatus including a suction duct having a length extending in the direction of said travelling path and a throughgoing slot on one side thereof, extending parallel to

said length, said suction apparatus further having a flexible cover belt extending over said slot for sealing the inside of said duct from the environment, said cover belt defining an interstice within said truck; said interstice travelling with said truck and providing a passage for the fiber from said opening mechanism to the inside of said suction duct; the improvement wherein said cover belt has first and second ends stationarily held at opposite ends of said travelling path; said suction apparatus having first, second, third and fourth belt deflecting means; said first and second belt deflecting means being carried by said truck and being situated from one another at a distance determining a length dimension of said interstice; said third and fourth belt deflecting means being supported at opposite ends of said travelling path adjacent the respective said first and second ends of said cover belt; said cover belt extending from said first end thereof to said first deflecting means and being trained thereabout; said cover belt extending from said first deflecting means to said third deflecting means and being trained thereabout; said cover belt extending from said third deflecting means to said fourth deflecting means and being trained thereabout; said cover belt extending from said fourth deflecting means to said second deflecting means and being trained thereabout; said cover belt extending from said second deflecting means to said second end; said cover belt extending in two superposed layers between said first end and said first deflecting means and between said second end and said second deflecting means.

4,365,765

LUBRICATED CAM DRUM

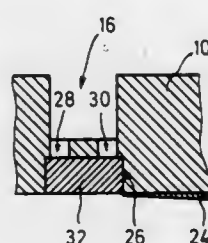
Ruedi Schneeberger, and Andreas Schwander, both of Seuzach, Switzerland, assignors to Rieter Machine Works, Ltd., Winterthur, Switzerland

Filed Jan. 22, 1980, Ser. No. 114,206

Int. Cl.³ B65H 54/28

U.S. Cl. 242—43 R

19 Claims



1. A traverse cam drum for a winding machine thread traversing mechanism comprising said drum and a thread guide member having a slider portion which co-operates with an external groove in the drum so that the thread guide member is reciprocated longitudinally of the cam drum during rotation of the latter about its axis, said drum comprising a closable space within the drum adapted to contain a supply of lubricant in use, a passage communicating said space with said groove such that centrifugal force acting on lubricant in said space in use will tend to force it along said passage to the groove, and a porous body in an inner portion of the passage with said body being spaced from said groove to avoid contact with said slider portion, the pores of the body providing through-flow channels which permit a limited flow of a given lubricant to pass through the passage to the groove at a given rotational speed of the drum.

4,365,766

BOBBIN LOCKING DEVICE

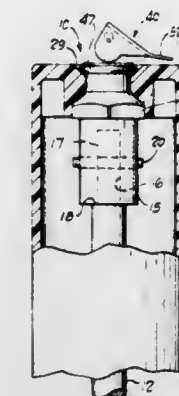
Jerry R. Boyd, Washington, N.C., assignor to Washington Instrument, Inc., Washington, N.C.

Filed Aug. 4, 1980, Ser. No. 174,879

Int. Cl.³ B65H 54/54

U.S. Cl. 242—46.2

20 Claims



1. In a roving machine of the type including a plurality of bobbins which are rotatable at relatively high speeds to wind thread thereon, the improved bobbin drive comprising:

- (a) a spindle member;
- (b) a bobbin member; and
- (c) a member interconnecting assembly comprising:
 - (i) a body drivably connected to one of the members and having torque transmitting surfaces located relative to and coactable with complementary surfaces on the other of the members to transfer torque transmitting forces between the body and the other member;
 - (ii) a deformable retainer movably coupled to said body;
 - (iii) an overcenter cam movably coupled to said body and being coactable with the retainer and having retainer compression and retainer release positions; and,
 - (iv) the retainer when the cam is in its compression position being deformed into a lock producing position securing the body and the other member in torque transmitting relationship, with a force which includes an axial vector urging the members together, when the cam is in its release position being in an uncompressed condition to permit removal of the bobbin from the spindle.

4,365,767

APPARATUS FOR LAMINATING AND COILING INSULATION BLANKETS

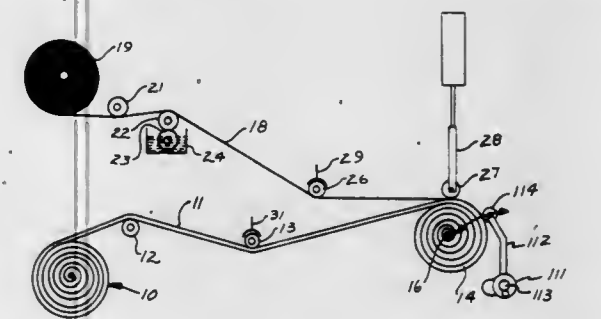
Floyd D. Bentimere, c/o Heleron Corporation, 9055 Freeway Dr., Macedonia, Ohio 44056

Filed Feb. 2, 1981, Ser. No. 230,533

Int. Cl.³ B65H 17/02, 23/10

U.S. Cl. 242—67.1 R

15 Claims



1. A tensioning and compression apparatus for use in the production of rolls of faced insulation blankets, comprising a frame, a powered roll journaled on said frame for rotation about a first axis and around which a blanket is coiled, a tension and compression roll supported on said frame for movement toward and away from said powered roll and journaled for rotation about a second axis substantially parallel to said first

axis, a piston and cylinder actuator mounted on said frame and connected to said tension and compression roll operable to apply a force to said tension and compression roll as a blanket is being coiled on said powered roll, said actuator producing a controlled force of engagement between said tension and compression roll and the outer surface of the blanket being coiled on said powered roll, and pressure control means connected to supply a separately controlled positive pressure to each of the two ends of said cylinder, said force of engagement being a function of the relationship between the positive pressures being applied to said cylinder ends.

4,365,768

CABLE REEL ADAPTER

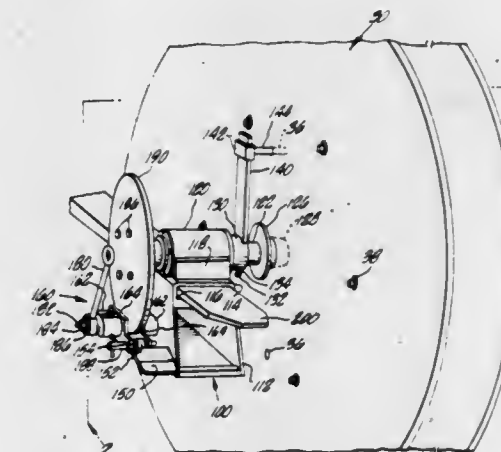
Harold F. Woodruff, 2340 Avocado Ter., Hacienda Heights, Calif. 91745

Filed Mar. 12, 1981, Ser. No. 242,726

Int. Cl.³ B65H 75/40, 57/38

U.S. Cl. 242—86.7

7 Claims



1. An apparatus for supporting a reel having material wound thereabout to facilitate rotation of the reel for dispensing of the material, the apparatus comprising:

- (a) two reel support assemblies, one for supporting each end of the reel, each reel support assembly comprising:
 - (i) a support member,
 - (ii) a bearing retaining unit integral with the support member;
 - (iii) an axle rotatably supported by the bearing retaining unit in a substantially horizontal position with respect to the ground;
 - (iv) a spindle mounted upon the axle and adapted to receive the reel; and
 - (b) a braking assembly comprising:
 - (i) a braking disk affixed to the axle of one of the reel support assemblies,
 - (ii) a caliper assembly adapted to produce a braking force upon the braking disk to occasion controlled rotation of said axle having the disk affixed thereto;
 - (iii) a braker arm connected to said axle having the disk affixed thereto, the braker arm having means operative therewith for engaging the reel, whereby the braker arm selectively imparts a torque opposite the direction of rotation of the reel to brake the reel,
- wherein each support member includes means for receiving the forks of a forklift truck.

4,365,769

MAGNETIC TAPE CASSETTE

Shigemasa Shoji, Tokyo, Japan, assignor to TDK Electronic Co., Ltd., Tokyo, Japan

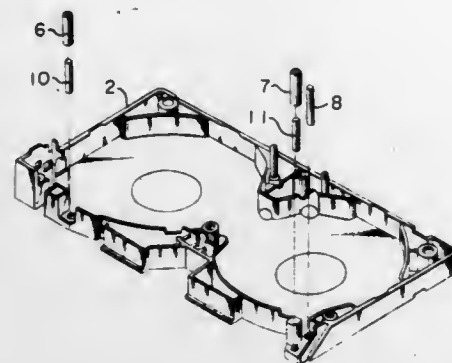
Filed Dec. 3, 1980, Ser. No. 212,614

Claims priority, application Japan, Jan. 14, 1980, 55-3246[U]

Int. Cl.³ B65H 27/00; G03B 1/04

U.S. Cl. 242-199

1 Claim



1. A magnetic tape cassette which comprises a tape guide coated with nickel-tin alloy plating on the surface in slide contact with a magnetic tape.

4,365,770

FIXED POSITION VARIABLE FREQUENCY PENDULAR-TYPE VIBRATION ABSORBER

Kenneth C. Mard, Stratford, Conn., and S. John Washburn, Jupiter, Fla., assignors to United Technologies Corp., Hartford, Conn.

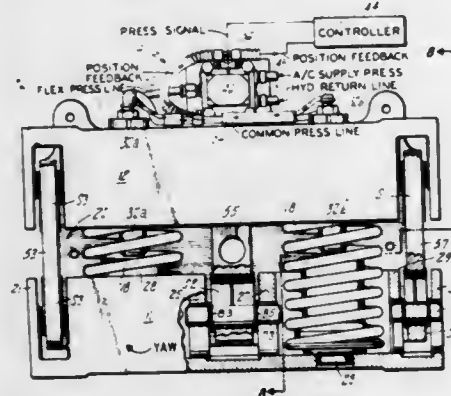
Continuation-in-part of Ser. No. 931,084, Aug. 4, 1978,

abandoned. This application Oct. 29, 1980, Ser. No. 201,864

Int. Cl.³ B64D 47/00; F16F 9/02

U.S. Cl. 244-17.11

20 Claims



1. A variable frequency vibration absorber adapted to be fixedly attached to a vibration prone system to cooperate with the principal vibration excitation source which primarily generates vibrations in a given direction so as to control system vibrations and comprising:

- base means,
- two mass means of selected equal mass,
- pendular connecting means having a pendular arm of length "a" connecting said mass means in opposed positions to said base means for support from and allochiral, pendular motion in said given direction,
- spring means operatively connected to said mass means in preloaded condition to exert a force "F_{nr}" on said mass means to thereby establish the natural frequency thereof and of the vibration absorber, and to also cause said mass means to move in coincident, allochiral pendular motion so that motion of said mass means produces additive forces in said given direction to absorb the vibration force established by said principal source, and so that all other forces so produced mutually cancel, said spring means also being of selected spring rate "K_s" to compensate for the spring rate reduction caused by pendular motion of the

pendular connecting means and said mass means and thereby provide an essentially linear spring rate acting on said mass means for angles of pendular motion "θ" of at least ±45°, so that the natural frequency of the vibration absorber is substantially constant throughout this range of operation, and wherein "K_s" is selected according to the equation:

$$K_s = F_{nr}/a \left[\frac{\left(1 - \frac{\sin \theta}{\theta}\right) \left(\frac{\theta}{2 \sin \theta}\right)}{(1 - \cos \theta)} \right]$$

control means responsive to the frequency of the vibrations generated by the principal vibration excitation source and operatively connected to said spring means to vary the force exerted thereby and thereby the natural frequency of said mass means as a function of the vibration frequency generated by said excitation source to thereby maintain the proper relationship between the mass means natural frequency and the principal source generated frequency to control system vibration.

4,365,771

INPLANE NODALIZATION SYSTEM

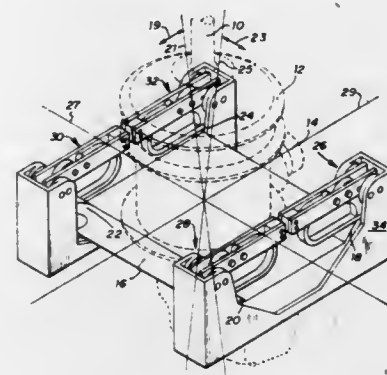
Dennis R. Halwes, Arlington, Tex., assignor to Textron, Inc., Providence, R.I.

Continuation of Ser. No. 15,229, Feb. 26, 1979, abandoned. This application Mar. 23, 1981, Ser. No. 246,295

Int. Cl.³ B64C 27/00; F16F 15/10

U.S. Cl. 244-17.27

5 Claims



1. A helicopter transmission mount for providing isolation in multiple degrees of freedom to reduce inplane and vertical vibrations existing from forces developed in the helicopter rotor and transmitted to the helicopter fuselage through the transmission, comprising in combination:

- a rigid beam having a pivot axis;
- first bearing means joined to said beam at a drive point thereof;
- means for connecting the transmission to said first bearing means for driving said beam by the rotor induced vibrations;
- second bearing means connecting the fuselage to said beam;
- said second bearing means coaxial with the pivot axis of said beam; and
- said first and second bearing means along with said rigid beam being selected to be combined to establish the pivot axis of the transmission mount at said second bearing means.

4,365,772

AIRCRAFT HAVING BUOYANT GAS BALLOON

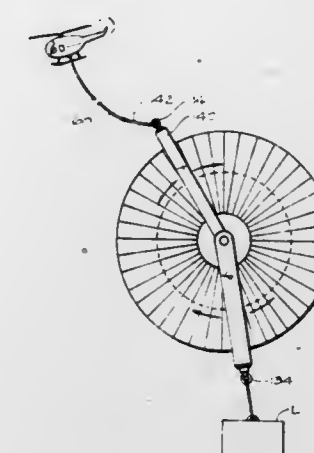
Frederick D. Ferguson, Box No. 1151, Station B, Ottawa, Ontario, Canada

Division of Ser. No. 64,286, Aug. 6, 1979, abandoned. This application Dec. 16, 1981, Ser. No. 331,414

Int. Cl.³ B64B 1/56, 1/66

U.S. Cl. 244-33

3 Claims



1. An aircraft comprising:
 - a spherical non-elastic balloon for containing a buoyant gas and having essentially fixed dimensions and shape when inflated,
 - a rigid load supporting yoke including two arms each with an upper end suspended from said balloon at opposite sides to the centre of the balloon, said suspension means allowing rotation of the balloon relative to the load supporting yoke,
 - a rigid towing yoke having two arms and having a central attachment means for a tow bar or cable,
 - means pivotably connecting outer ends of the towing yoke arms to the upper ends of the load supporting yoke in such manner that the towing yoke can be pivoted relative to the load supporting yoke about a horizontal axis passing through the centre of the balloon from a towing position in which the towing yoke extends upwardly from its connection with the load supporting yoke, to a tethered position wherein the towing yoke extends downwardly from said connection with the load supporting yoke and allows said attachment means to be used to tether the balloon to the ground, said towing yoke being dimensioned relative to the balloon so as to be pivotable through at least 180° relative to the load supporting yoke.

4,365,773

JOINED WING AIRCRAFT

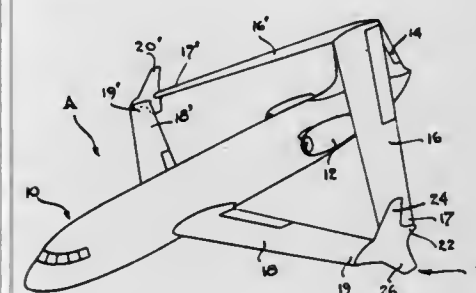
Julian Wolkovitch, 2109 Prestonwood Dr., Arlington, Tex. 76012

Continuation of Ser. No. 29,034, Apr. 11, 1979, abandoned. This application Sep. 22, 1980, Ser. No. 189,069

Int. Cl.³ B64C 39/08, 3/00

U.S. Cl. 244-45 R

5 Claims



1. An aircraft comprising:

- a fuselage having an extended fin in proximity to the rearward end thereof;
- a first pair of airfoils connected to said fin; and
- a second pair of airfoils connected to said fuselage forward of and at a lower elevation than said first pair of airfoils, each of said first pair of airfoils is connected to a corresponding airfoil of said second pair by a streamlined element wherein the extended ends of said first pair of airfoils are in generally the same elevational plane as those corresponding portions of said second pair of airfoils which are fastened to the streamlined elements;
- each airfoil has a cross-section construction for at least part of its span having four corner portions in generally a quadrilateral disposition where a first set of diagonally opposing corner portions is strengthened to resist the out-of-plane component of lift load which may be defined as that component of lift load directed perpendicular to a straight line formed by joining the centroids of areas of corresponding airfoils of said first and second pairs, and said first set of diagonally opposing corner portions is stronger than a second set of diagonally opposing corner portions, said first set of diagonally opposing corner portions being located near the upper part of the forward portion and the lower part of the trailing portion of each airfoil; and
- the elevational distance between the connection of said first pair of airfoils to said fin and second pair of airfoils to said fuselage is sufficiently great to provide a relatively large tilt angle.

4,365,774

CONVERTIBLE DELTA WING AIRCRAFT

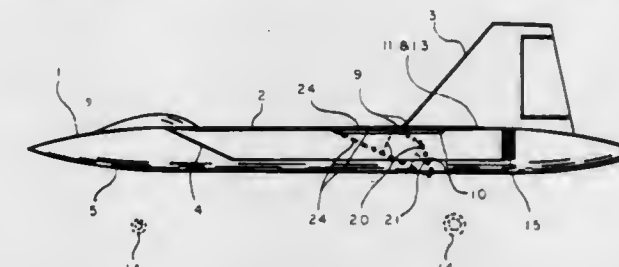
Paul K. Coronel, P.O. Box 134, Kailua-Kona, HI. 96730

Filed Aug. 8, 1980, Ser. No. 176,586

Int. Cl.³ B64C 3/38, 3/54

U.S. Cl. 244-46

10 Claims



1. An aircraft with a compound flap system comprising of a set of initial flaps pivotably attached to the trailing edges of a set of fixed wings, a set of dependent flaps pivotably attached to the rear of the initial flaps, a concomitant stabilizer located immediately to the rear of the dependent flaps forming the rear portion of the wing during high-speed flight, and achieving independence and performing as a horizontal stabilizer during actuation of the flap system; the flap system including a means of creating slots between the fixed wing and initial flaps, initial flaps and dependent flaps; an operating mechanism of the flap system comprising parallel initial flap supports attached at one end to the initial flaps, and at the other end to an actuation arm pivotably attached to the fixed wings; the flap supports being actuated through the movement of sliding support actuators located within the actuation arm, the dependent flaps being connected to a rear flap support by a pivotably attached dependent flap support which lowers the dependent flap as the initial flap supports are lowered; the flap system being driven by a flap actuation mechanism utilizing a power source.

4,365,775

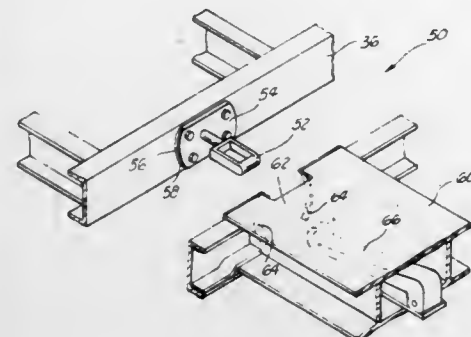
COWL STRUCTURE ALIGNMENT AND SHEAR DEVICE
Jerry L. Glancy, Wichita, Kans., assignor to The Boeing Company, Seattle, Wash.

Filed Dec. 8, 1980, Ser. No. 214,185

Int. Cl.³ B64D 29/06

U.S. Cl. 244—53 R

8 Claims



1. An improved latch for securing together a pair of hinged cowlings surrounding an aircraft engine, the latch comprising: a mounting plate secured to one of the hinged cowlings; a latch keeper secured to the mounting plate and extending outwardly therefrom; a latch housing secured to the other hinged cowl, the latch housing having a mounting plate opening therein, the opening dimensioned so the sides of the opening bear against the sides of the mounting plate when the mounting plate is received therein, the mounting plate opening being sufficient in size to receive the mounting plate therein so the hinged cowlings may be disposed adjacent to each other when in a latched position, the mounting plate having sides with the edge of the sides of the mounting plate beveled for ease in guiding the mounting plate into the mounting plate opening when the hinged cowlings are secured together; and means for releasably engaging the keeper and securing the cowlings together during the operation of the aircraft, the means for releasable engaging the keeper attached to the latch housing.

4,365,776

DOUBLE SAFETY MANUALLY RELEASABLE STRAP CONNECTOR

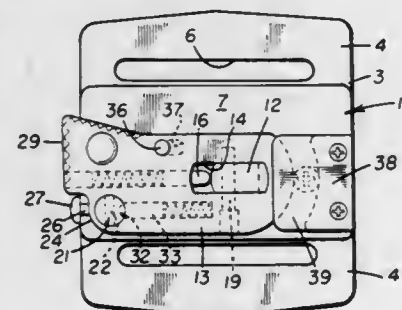
John A. Gaylord, San Diego, and Kenneth A. Marks, Cherry Valley, both of Calif., assignors to H. Koch & Sons, Div. of Gulf & Western Mfg. Co., Anaheim, Calif.

Filed Apr. 17, 1981, Ser. No. 255,322

Int. Cl.³ B64D 17/30; A44B 11/25

U.S. Cl. 244—151 A

12 Claims



1. In a double safety manually operated strap connector device comprising:
a female member;
a strap holder on said female member;
a male member insertable into said female member;
a strap holder on said male member;
rotatable inter-connecting means in said female member releasably interlocking with said male member;
manipulatable operating means on the female member for

rotating said inter-connecting means into and out of inter-connecting attitude;
the improvement of a turning element projecting to the outside of said female member from said inter-connecting means;
a lever on said female member for turning said turning element for rotating said inter-connecting means, said lever being slidable and turnable on said female member;
a first latching device on said lever releasably engaging said female member to prevent turning of said lever and being releasable by sliding said lever;
a second latching device on said lever locking said lever against sliding;
manipulatable means for releasing said second latching device thereby to permit sliding of said lever so as to release said first latching device and permit sliding and turning said lever for rotating said inter-connecting means for engaging an disengaging said male member.

4,365,777

TRAIN APPROACH DETECTOR

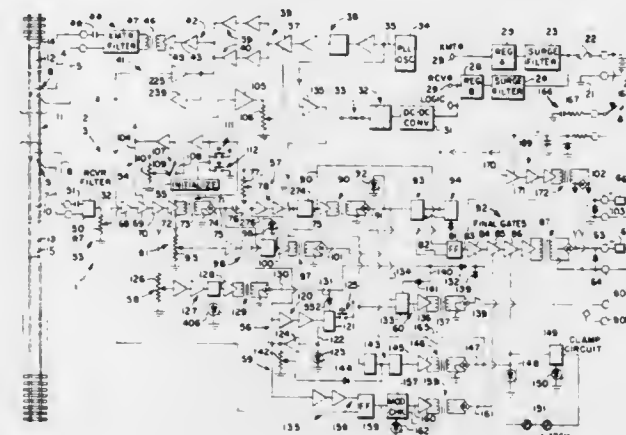
Willard L. Geiger, Chagrin Falls, Ohio, assignor to Modern Industries Signal Equipment, Inc., Cleveland, Ohio

Filed Aug. 17, 1979, Ser. No. 67,321

Int. Cl.³ B61L 1/02, 1/12, 21/06

U.S. Cl. 246—130

88 Claims



1. A circuit for developing an AC output signal, comprising input means for providing an input AC signal, plural channel means for dividing such input AC signal into plural respective AC signals, modulating means for modulating one of such respective AC signals, combining means for summing such modulated AC signal and at least another one of such respective AC signals to obtain a combined AC signal, filter output means for filtering such combined AC signal to produce such AC output signal, and coupling means for coupling such AC output signal to a track and detector means also coupled to such track for responding to changes in such AC output signal as an indication of at least one of the passing of a vehicle on the track and the condition of the track.

4,365,778

ROD-TYPE SUPPORT FOR SUSPENSION SYSTEMS FOR SHELVES AND SIMILAR OBJECTS

Pierre Joussemet, 5, boulevard Suchet, 75016 Paris, France

Filed Nov. 19, 1979, Ser. No. 95,800

Claims priority, application France, Oct. 23, 1979, 79 26211

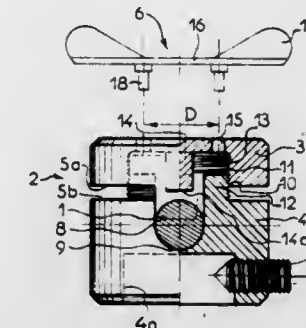
Int. Cl.³ F16M 13/00

U.S. Cl. 248—229

13 Claims

1. A rod-type support device for supporting a shelf or other object on a rod extending between two spaced anchoring means, the support device comprising a front member and a back member receiving the rod between them, the front member only having in its rear face a groove to receive the rod, means for assembling the front and back members to clamp the rod between them and means for fastening to said support device said object to be supported, said assembling means

comprising an externally threaded cylindrical portion projecting integrally from the rear face of said front member and bifurcated by said groove and a complementary internally threaded cavity formed in the front face of said back member into which said externally threaded projecting portion of said front member is screwed, means for rotating said back member relative to said front member to screw it onto said externally threaded projecting portion of said front member, and a stud



provided centrally of said cavity of said back member and having an inner end in the same plane as an annular front face of said back member around said cavity, said rod being pressed against the bottom of said groove in said front member by pressure exerted at three spaced contact points aligned in a direction parallel to the rod axis, a first point consisting of the inner end of said stud and the other two points consisting of diametrically opposed portions of said annular front face of said back member.

4,365,779

TILT AND ROTATE APPARATUS FOR A DISPLAY MONITOR

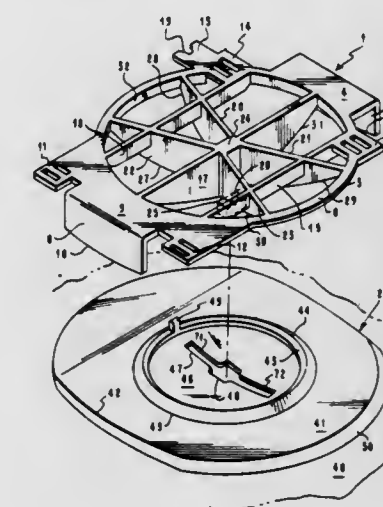
Bobbie D. Bates, and Ralph A. Haus, both of Austin, Tex., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Jun. 16, 1980, Ser. No. 159,553

Int. Cl.³ A47G 29/00

U.S. Cl. 248—371

7 Claims



1. An apparatus for permitting, and limiting the extent of, tilting and rotating of a display monitor, said apparatus comprising in combination:

- a top portion having a spherically contoured surface, a key means extending from said surface, and wings adjacent said surface,
 - extending outwardly and downwardly from said surface a sufficient extent to limit vibration of said monitor, and
 - having bottom surfaces which are arcuate in shape and have a curvature matching that of said contoured surface of said top portion; and
- (b) a bottom portion having

- (1) a contoured surface for mating with said contoured surface of said top portion and having an annular lip,
- (2) a lock adapted to be engaged by said key for limiting the extent of tilting of said monitor,
- (3) means extending from said bottom portion for engaging said top portion and limiting the extent of rotation of said monitor, and
- (4) a plate extending circumferentially from said annular lip, and being of a sufficient size to be contacted by said arcuate shaped bottom surfaces during tilting and rotating of said monitor to limit vibration of said monitor for the extent of rotation of said monitor when said top and bottom portions are connected.

4,365,780

REMOVABLE INSERT FOR FORMING HOLES IN CONCRETE AND THE LIKE

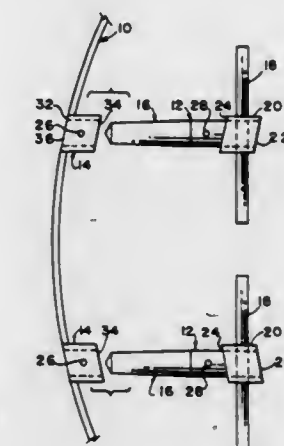
Craig B. Williams, Fayetteville, Ga., assignor to M. A. Industries, Inc., Peachtree City, Ga.

Filed Mar. 23, 1981, Ser. No. 245,873

Int. Cl.³ E02B 00/00

U.S. Cl. 249—11

8 Claims



1. In a concrete insert to be positioned on and from one side of a concrete form prior to the pouring of concrete, such as forming step holes in a manhole, for removal to provide an opening in the concrete from one side thereof after the concrete has sufficiently cured:

- a concrete insert assembly comprising an elongated, rigid concrete insert member for positioning through and from one side of the concrete form so as to be supported in place at the time the concrete is formed for subsequent removal therefrom to provide a hole in the concrete,
- an open insert retaining member attached to said concrete form on one side thereof to receive said insert member inserted therethrough for rotation therein so that said insert member projects through said form into the area in which concrete is poured for linear movement from said open retaining member and also projects in the other direction on the other side of the form, said retaining member having a cam edge on the external end providing a cam surface,
- a cam member on said insert member for cam engagement with the cam surface on said retaining member whereby said cam member is positioned against said cam surface in a selected position at the time the concrete is poured whereby rotation of said insert member, such as by manual movement from a tool, brings said cam member into engagement with said cam surface thereby causing linear displacement of said insert member to disengage and dislodge same from said concrete.

4,365,781

METHOD AND APPARATUS FOR CASTING TUBULAR BODIES

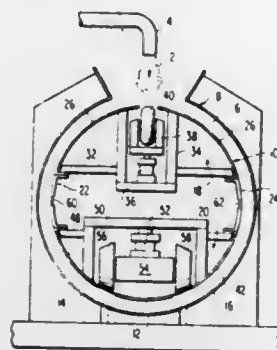
Johannes Johansson, Caracas, Venezuela, assignor to Lagoven, S.A., Caracas, Venezuela

Filed Apr. 2, 1981, Ser. No. 250,325

Int. Cl.³ E21D 10/00

U.S. Cl. 249—11

13 Claims



1. A collapsible internal form for use in casting a fluent solidifiable material such as concrete, comprising, a plurality of sections which are movable toward and away from each other from an expanded position which they assume when fluent material is cast thereabout to a contracted position which they occupy when the form is removed from a solidified body of cast material, each of said sections having a rigid outer casting face, a pusher member and an actuator means, each of said pusher members being movable relative to its respective section from a retracted position to an extended position where it projects outwardly beyond the face and bears against a solidified body of cast material, each of said actuator means being operable to move a pusher member from its retracted position to its extended position and to produce reaction forces which move the respective section toward its contracted position, said pusher members having their extended positions located so as to hold the casting faces of the sections in spaced relationship from the solidified body of cast material formed thereby.

4,365,782

MOULDING TOOL

Bengt Persson, Göteborg, Sweden, assignor to Br. Perssons Cementvarufabrik AB, Sweden

Continuation of Ser. No. 124,671, Feb. 26, 1980, abandoned.

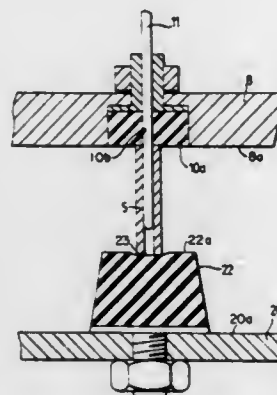
This application Oct. 19, 1981, Ser. No. 313,030

Claims priority, application Sweden, Mar. 1, 1979, 7901847

Int. Cl.³ B28B 7/06, 7/16, 23/00

U.S. Cl. 249—91

2 Claims



1. A moulding tool for moulding an article from vibrated concrete, the article having embedded therein an object adapted to receive a pin to locate the object, said moulding tool comprising:

a body member and a cover member cooperating to define a

mould cavity having internal surfaces and adapted for vibration to vibrate concrete therein;

a resilient sealing and dampening member in a first one of said body member and said cover member, having an open passage therethrough, and having an exposed surface facing said mould cavity and coplanar with a first internal surface of said mould cavity;

a pin member slidingly but sealingly passing through said sealing and dampening member open passage and normally extending from said sealing and dampening member open passage into said mould cavity and adapted to receive an object to be embedded in the moulded article to retain the object within the mould cavity adjacent said sealing and dampening member, said sealing and dampening member dampening vibration of said body member and said cover member to protect said pin member and the object from such vibrations, said pin member capable of being withdrawn from the object to a position within said sealing and dampening member open passage; and

a resilient member extending into said mould cavity from the other one of said body member and said cover member and having a surface positioned opposite said sealing and dampening member to form a mould core for engaging the object while the object is retained by said pin member to depress said resilient member surface in the area immediately adjacent the object to retain the object in such position even after said pin member is withdrawn therefrom to the position within said sealing and dampening member open passage, with said sealing and dampening member dampening vibrations from said pin member and the object as the concrete is vibrated and cooperating with said resilient member to seal the interior of the object from the concrete;

said cover member being removable from said body member to permit removal from the mould cavity of the moulded article with the object embedded therein while said sealing and dampening member and said resilient member remain with their respective ones of said body member and said cover member.

4,365,783

MOLD FOR MAKING A TOOTH POSITIONING AND RETAINING APPLIANCE WITH AIR HOLES

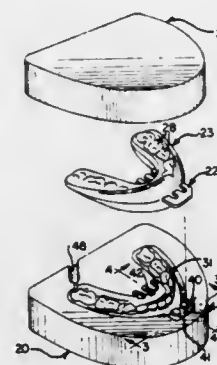
Peter C. Kesling, Green Acres, LaPorte, Ind. 46350

Continuation of Ser. No. 87,313, Oct. 22, 1979, abandoned, which is a division of Ser. No. 902,874, May 4, 1978, Pat. No. 4,195,046. This application Aug. 13, 1981, Ser. No. 292,668

Int. Cl.³ B29C 1/12, 1/14

U.S. Cl. 249—124

6 Claims



1. A mold for making an arch-shaped resilient tooth positioning appliance having a body with upper and lower archways for teeth with air holes extending through the body and between the archways to allow the wearer to breathe through the mouth when the appliance is worn on the teeth, said mold comprising a body having a pair of mating mold sections, models of the upper and lower arches and arch-shaped cavities formed in the body sections for molding the appliance body and upper and lower archways, and an insert removably dis-

posable between the sections and across the cavities for molding the air holes, said insert being comb-shaped and having a plurality of fingers extending from a head portion, at least one of said sections having mating recess portions for receiving the head portion and a part of the fingers adjacent thereto and the free ends of the fingers for retaining the insert in a predetermined position during the molding process.

4,365,784

APPARATUS FOR OBTAINING A TEST CORE

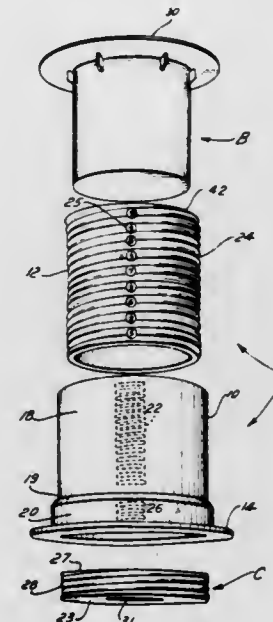
Joseph R. De Stasio, 710 Shore Rd., Spring Lake Heights, N.J. 07762

Filed Feb. 10, 1981, Ser. No. 233,293

Int. Cl.³ B28B 7/10; B29C 1/16

U.S. Cl. 249—139

20 Claims



1. Apparatus for obtaining a test core from a concrete layer poured on a form comprising an outer member, having an open bottom and top, an inner member, having a closed bottom and open top, and being adapted to be inserted within said outer member so as to receive concrete therein, and a cap member, having means thereon alternatively adapted to engage and close said bottom of said outer member, and to cover said top of said outer member, so as to provide a support for a location determining member.

4,365,785

ROCKER-ARM HAVING PERPENDICULAR GEOMETRY AT VALVE MID-LIFT

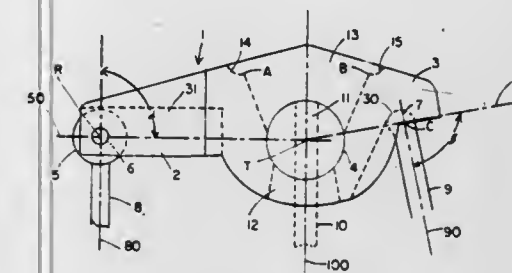
James M. Miller, 1688 Indiana Dr., Galesburg, Ill. 61401

Filed Dec. 1, 1980, Ser. No. 211,638

Int. Cl.³ F01L 1/18; F16K 31/44

U.S. Cl. 251—231

16 Claims



1. In a roller-tip rocker-arm for moving a valve of an internal combustion engine, wherein said rocker-arm is adapted for pivotal movement about a horizontal axis of a trunnion mounted in the body of said rocker-arm, said rocker-arm has on a nose portion thereof, spaced from said trunnion, a rotatable horizontal roller having an axis parallel to said axis of said trunnion, said roller being adapted to contact and abut the end

of a stem of a valve during the length of travel of said valve stem, with a valve to which said stem is connected being lifted from a seat therefor when said stem is depressed by said roller, and said rocker-arm has on a tail portion thereof, spaced from said trunnion and removed from said roller side of said arm, an arcuate surface adapted to contact and abut the cooperatively shaped end of a pushrod, which reciprocates along a fixed given axis with said tail of said rocker-arm being lifted by said pushrod, which, in turn, causes said roller to depress said valve stem, during the length of upward travel of said pushrod, the improvement comprising:

- positioning said roller and arcuate surface so that, at the point wherein said valve is lifted one-half of the total length of travel of the valve stem from its valve seat by the motion of said rocker-arm,
- the axis of said valve stem defines an angle of essentially 90 degrees with an axis intersecting said axes of said roller and trunnion,
- the axis of said end of said pushrod defines an angle of essentially 90 degrees with an axis intersecting said trunnion and the center of said arcuate surface, and
- means for adjusting said rocker-arm to simultaneously maintain the essentially 90 degree angles α and β at the one-half valve lift point.

4,365,786

CONSTRUCTION MOVING, POSITIONING AND HOLDING TOOL

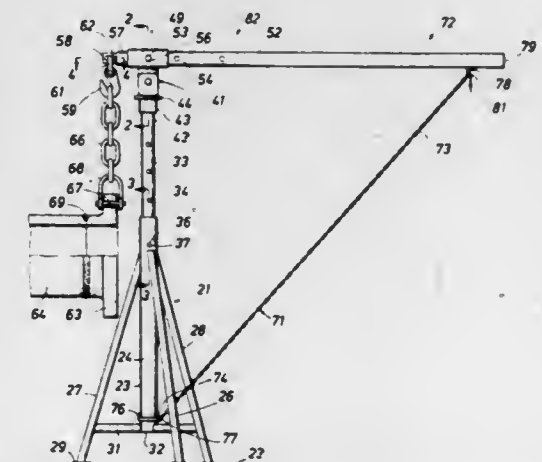
James L. Osteen, 2012 Jeridona, LaMarque, Tex. 77568

Filed Nov. 28, 1980, Ser. No. 211,420

Int. Cl.³ E21B 19/00

U.S. Cl. 254—30

9 Claims



1. A manual tool for moving, positioning and holding a workpiece relative to a selected work area comprising:

- a wide stance base operably positioned on the selected work area and said base having a tubular support with divergent legs carrying flat surfaces adapted to rest upon planar surfaces on a work area;
- a tubular upright extension received within said tubular support on said base;
- pin means cooperating with openings in said upright extension and said tubular support for securing said upright extension at predetermined positions within said base;
- a head mounted atop said upright support, said head carrying a pin received within the end of said upright extension whereby said head can rotate about the axis of said extension, and said head carries a tubular socket interconnected by a pivoted joint to said pin whereby said tubular socket can pivot transversely to said upright extension;
- a tubular operating lever intermediate its first and second ends within said socket, a workpiece support means provided at the first end of said lever and a hand gripping portion provided at the second end of said lever;

- (g) anchor means extending between said base and the second end of said lever for retaining said lever in a selected attitude relative to said upright extension;
- (h) pin means cooperating with openings in said tubular socket and said lever whereby the length of said lever between said head and said workpiece support means can be adjusted between several predetermined positions; and
- (i) said lever adjacent said tubular socket carries a safety portion adapted to bend before sufficient force can be applied to said hand grip portion to exceed the safe load limit of the tool.

4,365,787

PIPE STRING LIFT SYSTEM

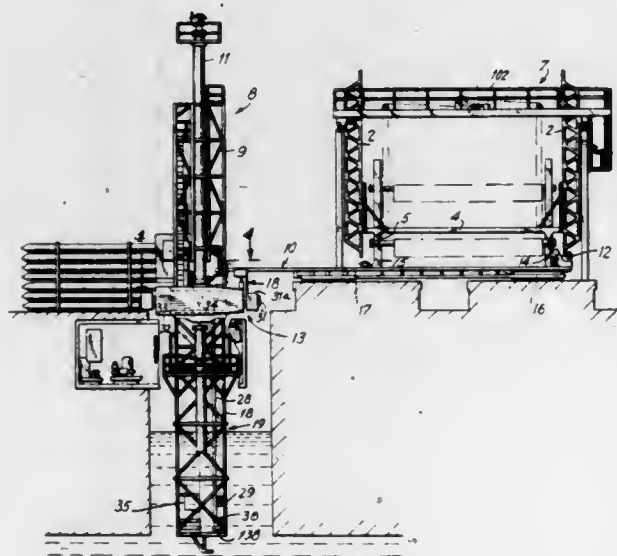
John P. Latimer, Newport News, Va., assignor to Deepsea Ventures, Inc., Gloucester Point, Va.

Filed Dec. 28, 1979, Ser. No. 108,122

Int. Cl.³ B66F 1/00

U.S. Cl. 254—106

7 Claims



1. A system for lifting and supporting a string of downwardly extending pipe from a surface vessel, the system comprising a platform, pivotally connected to a surface vessel about two horizontal, transverse axes of rotation, the platform having a central opening therethrough;

a hoist carriage, reciprocally, vertically, movably supported by the platform and having a central opening therethrough, in line with the central opening of the platform; first pipestring support means and second pipestring support means secured to the platform and hoist carriage respectively, and so arranged thereon that the first and second support means are in close-coupled relationship when the hoist carriage is in a position immediately adjacent the platform;

the first and second pipestring support means each comprising: a plurality of hydraulically activated, reciprocally, radially movable support plates spaced about the central openings; mechanical stop means for predetermining the distance each support plate can move radially inwardly to a supporting position, enabling presetting of the support plates for pipe of varying outer diameters; and mechanical locking means for mechanically locking the support plates into its radially inwardmost, preset, supporting position;

whereby a pipestring is vertically moved between the surface vessel and the ocean floor by being alternately engaged and supported by the first and second support means, on complementary sets of close-coupled surfaces on the segments of the pipestring.

4,365,788
PROCESS AND APPARATUS FOR DETERMINING THE LEVEL OF MOLTEN METAL IN A METALLURGICAL VESSEL, THE TEMPERATURE OF THE MOLTEN METAL AND THE EXTENT OF WEAR OF THE REFRACTORY LINING OF THE VESSEL

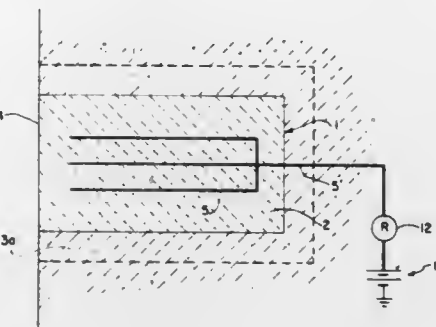
Franz-Rudolf Block, Roetgen, Fed. Rep. of Germany, assignor to Didier-Werke AG, Wiesbaden, Fed. Rep. of Germany
Filed Apr. 23, 1982, Ser. No. 371,490

Claims priority, application Fed. Rep. of Germany, Apr. 28, 1981, 3116688

Int. Cl.³ H05B 7/18

U.S. Cl. 266—44

20 Claims



1. A process, for use in a metallurgical container having a refractory lining and containing molten metal, of measuring at least one parameter indicative of at least one of the level of said molten metal within said container, the temperature of said molten metal, and the extent of wear of said refractory lining, said process comprising:

providing a plurality of combination electrodes, each including a refractory body having the property of high electrical conductivity at normal temperatures of said molten metal, and electrical conductor means embedded within said refractory body;

positioning said plurality of combination electrodes at various positions of said refractory lining, with refractory material having a low electrical conductivity positioned between said combination electrodes;

connecting a power source to said electrical conductor means of said plurality of combination electrodes, whereby there occur first electrical resistances through said refractory bodies from the interior of said metallurgical container to said electrical conductor means and second electrical resistances between said electrical conductor means; and

measuring values of said first and second resistances as parameters indicative of at least one of said level of said molten metal within said container, said temperature of said molten metal, and the extent of wear of said refractory lining.

4,365,789

APPARATUS FOR THE DIRECT REDUCTION OF IRON IN A SHAFT FURNACE USING GAS FROM COAL

John C. Scarlett, Toledo, Ohio, and Charles W. Sanzenbacher, Charlotte, N.C., assignors to Midrex Corporation, Charlotte, N.C.

Division of Ser. No. 187,024, Sep. 15, 1980, Pat. No. 4,331,470. This application Oct. 5, 1981, Ser. No. 308,700

Int. Cl.³ F27B 1/28

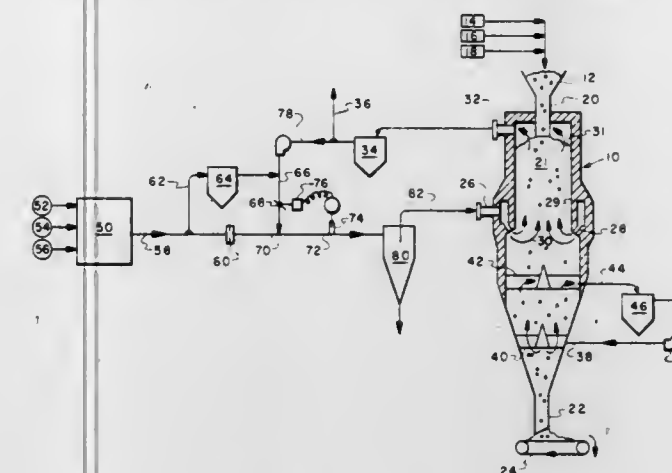
U.S. Cl. 266—87

3 Claims

1. Apparatus for the direct reduction of iron oxide and production of fuel gas comprising:

- (a) a solid fossil fuel gasifier for producing a hot gasifier gas;
- (b) cooling means communicating with said gasifier for cooling a portion of said hot gasifier gas and tempering said gas, said cooling means comprising a hot gasifier gas conduit communicating with said gasifier, said conduit having therein a restrictive orifice for creating a resistance

- to gas flow therethrough, a gas by-pass conduit communicating with said hot gas conduit at a first by-pass junction on the upstream side of said orifice and a second by-pass junction on the downstream side of said orifice, said by-pass conduit having therein a hot gas cooler;
- (c) a hot gas cyclone communicating with said cooling means for removing particulate material from said tempered gas and forming a clean tempered gas;
- (d) a temperature monitoring device in said hot gas conduit downstream from said second by-pass junction, and a valve in said by-pass conduit downstream from said cooler, said valve being connected to and responsive to output signals from said temperature monitoring device;



- (e) a continuous gravity flow shaft furnace containing a burden comprising iron oxide, solid fossil fuel and limestone, having burden feed means at its upper end and product removal means at its lower end, along with an intermediate tempered gas introducing means and spent gas removal means near its upper end above the burden stockline;
- (f) a cooler scrubber communicating with said spent top gas removal means for forming clean cool fuel gas; and
- (g) a recycle gas conduit communicating with said top gas cooler scrubber and said hot gas conduit for recycling cleaned top gas to said shaft furnace.

4,365,790

PLANT FOR PRODUCING ENAMELED WIRE USING AN INLINE PROCESS

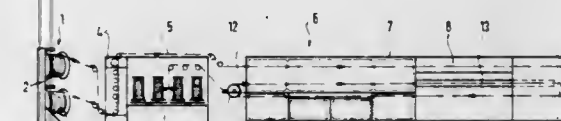
Miklos Horvath, and Hans-Peter Pichler, both of Graz, Austria, assignors to Mag Maschinen und Apparatebau Gesellschaft mbH, Graz, Austria

Filed May 19, 1981, Ser. No. 265,125

Int. Cl.³ C23D 9/00

U.S. Cl. 266—103

17 Claims



1. In a plant for producing enameled wire using an inline process for processing wire coming from a wire pay-off system, having in order, a wire drawer, a bare wire annealer, an enamel dope coater, an enamel processing unit and an enameled wire take-up unit, wherein the improvement comprises the plant having a common oven housing within which the bare wire annealer and the enamel processing unit are placed as single processing stage, a retort, structures having within them a drying space and joined thereto a curing space, a return shaft and a blower for blowing hot air current in a single circuit in counter current with respect to said wire.

4,365,791

COIL SPRING HAVING A SMALL AXIAL AND RADIAL OVERALL SIZE

Michel A. Orain, Conflans-St. Honorine, and Roger P. Thiault, Saint-Ouen-l'Aumône, both of France, assignors to Glaenger Spicer, Poissy, France

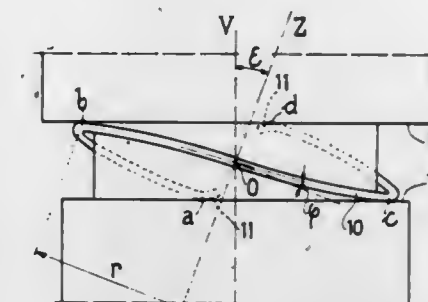
Continuation of Ser. No. 115,938, Jan. 28, 1980, abandoned. This application Jan. 13, 1982, Ser. No. 339,056

Claims priority, application France, Feb. 19, 1979, 79 04113

Int. Cl.³ F16F 1/34

U.S. Cl. 267—166

10 Claims



1. In a structure comprising a trunnion of a homokinetic joint, a shoulder on the trunnion, a roller rotatably and axially slidably mounted on the trunnion and having an annular end face confronting said shoulder, and means for biasing the roller axially outwardly of the trunnion away from the shoulder; the improvement wherein said roller biasing means comprise a helical coil spring of metal wire coaxial with said trunnion and said roller and freely rotatably mounted for operation in a given compressed condition between the shoulder and the roller and in contact with the shoulder and the end face of the roller, the coil spring having a small axial and radial overall size and comprising a single coil of said wire whose overall size axially of the spring is equal to the thickness of said wire in the maximum possible compressed condition of the spring and whose maximum deflection between a free uncompressed condition of the spring and said maximum possible compressed condition of the spring is substantially between 6 and 10 times said overall size in said maximum possible compressed condition, the roller having an axial position relative to the shoulder in operation of the homokinetic joint which is such that said given compressed condition is substantially but not quite said maximum possible compressed condition, the coil spring having end portions having surfaces which confront said shoulder and said end face of the roller but extend at an angle relative to a plane perpendicular to the axis of the spring which is less than the helix angle of the rest of the spring in the compressed condition of the spring.

4,365,792

HYDRAULIC MOULD CLAMP

Roy W. Johns, Dromana, Australia, assignor to Johns Consolidated Limited, Clayton, Australia

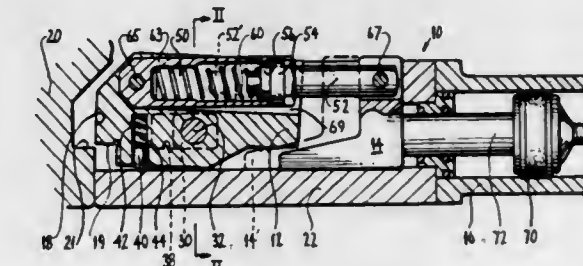
Filed Nov. 12, 1980, Ser. No. 206,238

Claims priority, application Australia, Aug. 26, 1980, PE5249

Int. Cl.³ B23Q 3/08

U.S. Cl. 269—24

13 Claims



1. A clamp comprising a clamping member provided with a

clamping surface for engaging a portion of a workpiece, means for locating the clamping member so that the clamping surface is adjacent the workpiece, means for pivoting the clamping member to clamp the clamping member against the workpiece wherein said pivoting means comprises a wedging member which is engageable with the clamping member to pivot the clamping member into clamping engagement with the workpiece wherein said locating means moves said clamping member to a position adjacent the workpiece and said pivoting means is moveable relative to said clamping member when the clamping member is adjacent the workpiece said pivoting means forming part of the locating means so that the relative movement between the locating means and the clamping member causes the pivoting means to engage the clamping member and pivot the clamping member into engagement with the workpiece; and wherein said pivoting means further comprises a wedging member, and biasing means disposed between the clamping member and the wedging member for maintaining a constant distance between the wedging member and clamping member until the clamping member ceases to move whereupon continued movement of the locating means causes said wedging member to move relative to the clamping member against the bias of said biasing means so that a wedging surface on the wedging member engages the clamping member to pivot the clamping member to clamp against the workpiece.

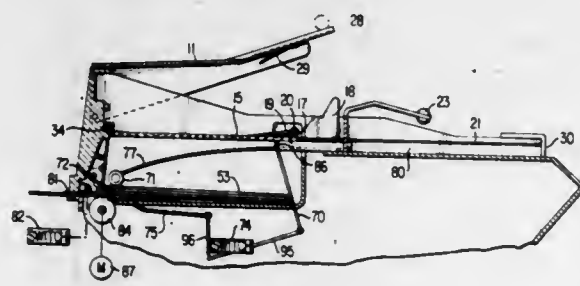
4,365,793

SHEET FILM FEEDER

Gerardus J. Van Blokland, and Henry J. Bailey, both of Fairfax, Va., assignors to Oldelft Corporation of America, Fairfax, Va.
Filed Nov. 6, 1979, Ser. No. 91,702
Int. Cl.³ B65H 3/06, 1/06

U.S. Cl. 271-3.1

11 Claims



5. A film feeding device for receiving a stack of individual film sheets and feeding the sheets individually to a film processor comprising:

a holder for receiving and holding a film storing magazine, a cavity below said holder, said cavity having an upward opening for receiving a stack of film sheets from the film storing magazines and an exit opening for discharging said film sheets,

a planar slide in the holder, between the magazine and said cavity for opening the film storing magazine in a light-tight manner and for opening said upward cavity opening in a light-tight manner,

means for moving said planar slide from between the magazine and said upward cavity opening,

a closure for closing said cavity exit in a light-tight manner, and

transport means associated with said cavity for moving the film sheets individually through said exit closure,

said transport means comprising a powered roller below said cavity at said cavity exit opening, rotatable in the direction of said cavity exit opening, a stacking arm pivoted from below said cavity towards the interior of said cavity as said planar slide covers over said upward cavity opening, and an arm and roller which moves into said cavity as said planar slide covers over said upward cavity opening.

4,365,794

TOGGLE ARM INVERTER

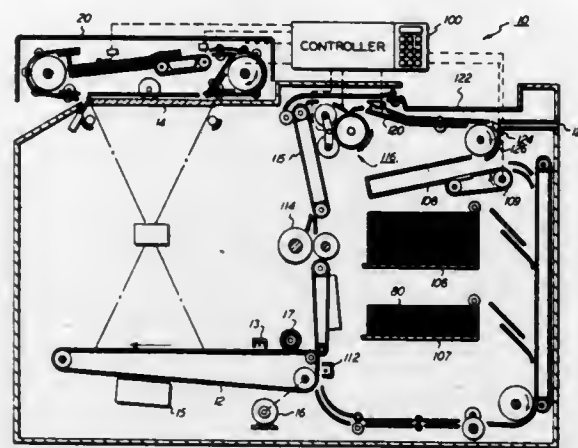
George J. Roller, Rochester, NY, assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 2, 1980, Ser. No. 193,227

Int. Cl.³ B65H 29/00

U.S. Cl. 271-186

4 Claims



1. Inverter device having an inverting path for use in a sheet conveying apparatus, comprising:
first roller means mounted on a first shaft for forwarding a sheet into said inverting path;
second roller means mounted on a second shaft for forwarding a sheet out of said inverting path, said first and second shafts being supported by brackets that are pivotally connected to a rotatable third shaft;
reversible drive means connected to said third shaft; and
pivot means for drivingly connecting either said first or second roller means to said sheet as a result of actuation of said reversible drive means.

4,365,795

SHEET ORTHOGONAL-CONVEYING METHOD AND DEVICE

Osamu Fukushima, and Takashi Koizumi, both of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

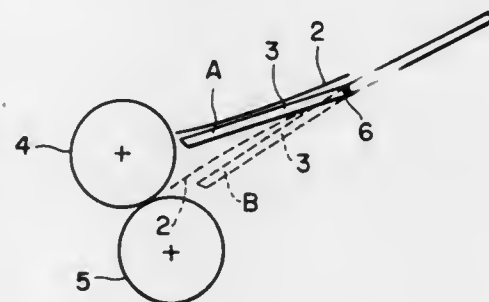
Filed Oct. 17, 1980, Ser. No. 198,040

Claims priority, application Japan, Oct. 22, 1979, 54/136076

Int. Cl.³ B65H 9/00

U.S. Cl. 271-236

10 Claims



1. A sheet orthogonal-conveying method in which a sheet guided while sliding under its own weight is positioned with the front edge thereof orthogonal to the direction of advancement of said sheet and is then conveyed with a pair of rollers comprising the steps of: sliding said sheet downwardly at an angle such that the front edge of said sheet sliding down under its own weight comes in contact with a smooth surface of one roller of said pair of rollers so that said sheet is stopped by said one roller with said front edge orthogonal to said direction of advancement; and reorienting a plane of said sheet to introduce said front edge of said sheet between said pair of rollers to be conveyed thereby in said direction of advancement.

5. A sheet orthogonal-conveying device in which a sheet

sliding down under its own weight is positioned with the front edge thereof orthogonal to the direction of advancement of said sheet and is then conveyed with a pair of rollers comprising: a pair of rollers having smooth surfaces, a nip being continuously formed between said rollers, and said rollers being rotated in a direction so as to convey said sheet in said direction of advancement; and a guide member for disposing said first edge of said sheet sliding down into contact with one roller of said pair of rollers at an angle so as to stop said sheet, said guide member being shiftable to a position to introduce said sheet into said nip between said pair of rollers after said front edge of said sheet has been brought into contact with said one roller to stop said sheet.

4,365,796

TICKET EXIT DRIVE MODULE

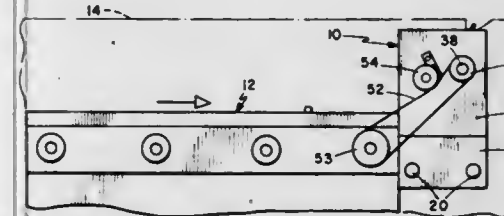
Gregory E. Miller, Escondido, Calif., assignor to Cubic Western Data, San Diego, Calif.

Filed Dec. 1, 1980, Ser. No. 211,027

Int. Cl.³ B65H 5/02

U.S. Cl. 271-274

10 Claims



1. A ticket exit drive module for detachably mounting as a unit in interfacing cooperation with a transport module in a ticket processing system, said module comprising:

housing means defining a ticket passage having an inlet for interfacing with and receiving a ticket from an adjacent transport module and an exit for returning a ticket to a patron,

said housing including: an upper guide plate and a lower guide plate cooperatively defining said ticket passage, a pair of vertically disposed end plates supporting said guide plates therebetween, one of said end plates including mounting means for detachable mounting on a vertical support panel, and

drive means extending into said passage for engaging and driving a ticket along said ticket passage.

4,365,797

SPEED COMPENSATED TIMING CIRCUIT FOR ACTUATING A SHEETER MACHINE

Donald C. Fitzpatrick, Chatham, N.Y.; Peter A. Gerard, and John F. Davison, both of Dalton, Mass., assignors to Beloit Corporation, Beloit, Wis.

Filed Feb. 7, 1980, Ser. No. 119,353

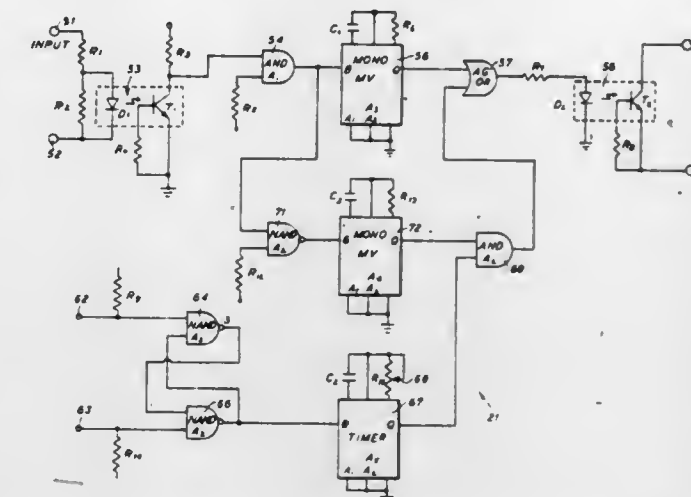
Int. Cl.³ B65H 29/58

U.S. Cl. 271-303

2 Claims

1. Means for actuating at the proper time a gate device which receives a plurality of moving sheets which are spaced apart, comprising means for measuring the velocity of said sheets, a sheet detector mounted so as to be energized by the spacing between said sheets, said gate device spaced a known distance from said sheet detector, a gate actuator connected to said gate means for actuating it, and control means receiving inputs from said means for measuring velocity and said sheet detector and supplying an output to said gate actuator to actuate it and wherein said control means includes a first AND gate, a first NAND gate, first and second monostable multivibrators and a timer, the output of said sheet detector connected

to said first AND gate, the output of said first AND gate connected to said first multivibrator and to said first NAND gate, the output of said first NAND gate connected to said



second multivibrator, a second AND gate receiving the outputs of said timer and said second multivibrator, and a first OR gate receiving the outputs of said first multivibrator and said second AND gate.

4,365,798

NOVELTY MIRROR

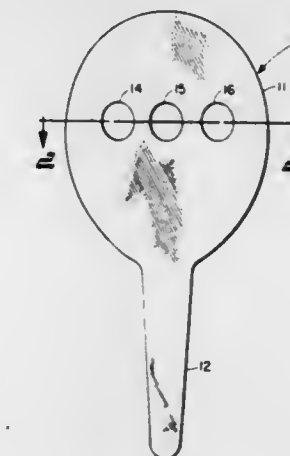
Robert M. Shields, and Ted A. Shields, both of 4815 Topeka Dr., Tarzana, Calif. 91356

Filed Jun. 30, 1981, Ser. No. 279,035

Int. Cl.³ A63J 3/00

U.S. Cl. 272-8 M

7 Claims



1. A novelty mirror which includes three holes therethrough wherein the holes farthest apart are spaced approximately the distance between the eyes of the user and at least one reflective surface of sufficient size to reflect a substantial portion of a human face, said holes include a center hole equally spaced between said farthest apart holes and said three holes are in substantial horizontal alignment.

4,365,799

FOLDING SLIDE AND PLATFORM STRUCTURE

Edward D. O'Brian, 2125 W. Falmouth, Anaheim, Calif. 92801, and William M. Plachy, 182 Cerco Rosado, San Marcos, Calif. 92069

Continuation-in-part of Ser. No. 963,377, Nov. 24, 1978, abandoned. This application Nov. 4, 1980, Ser. No. 203,878

Int. Cl.³ A63G 21/00; A63B 17/00

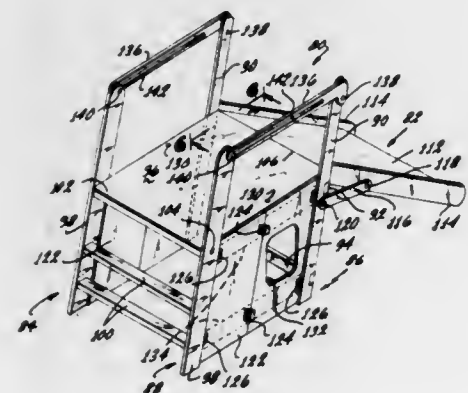
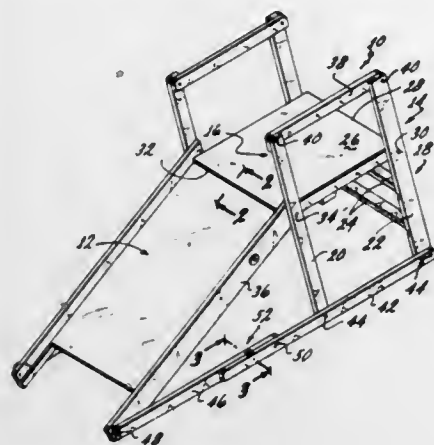
U.S. Cl. 272-56.5 R

15 Claims

1. A structure having an elongated slide normally located at an angle to the horizontal and a support normally located to hold the upper end of said slide in its normal position, said

structure having sides which are spaced from one another, in which the improvement comprises:

said support including two sets of legs, one leg of each of said sets being located at each of said sides of said structure, said support also including link means and a platform extending horizontally in its normal position, said link means connecting said sets of legs so as to permit said sets of legs to be moved between their normal position and a folded position in which they are adjacent to one another, said platform having an end pivoted to at least one of said sets of legs, the other end of said platform being pivoted to the upper end of said slide, and other link means connecting said support and said slide and being connected to said support so as to automatically



transfer motion from said support to said slide when said support is moved between its normal position and a folded position so as to concurrently move said slide so that it is moved from its normal position to a folded position in which it extends adjacent to legs of said sets of legs, one of said link means being pivotally connected between the sets of legs and the other of said link means being pivotally connected between said slide and one of said sets of legs and extending outwardly from said support generally toward said slide, either one of said link means being foldable whereby on the folding thereof the sets of legs are moved parallel to one another so that said slide and said support are folded relative to one another.

4,365,800

MARTIAL ARTS STRIKER DEVICE

Hugh W. Hay, and John L. Hay, both of 1 Pennant Mews, London W.8, England

Filed Oct. 17, 1979, Ser. No. 85,539

Claims priority, application United Kingdom, Oct. 24, 1978, 41654/78

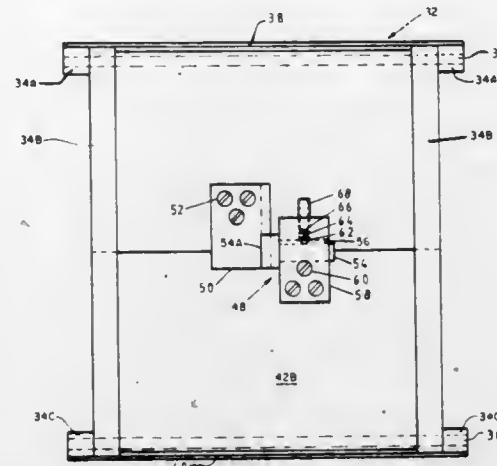
Int. Cl.³ A63J 5/00

U.S. Cl. 272-76

2 Claims

1. A device comprising a frame, a striker member having first and second parts which are each pivotally mounted to the

frame, and locking means for locking the first and the second parts of the striker member together until the striker member is struck by a limb of a person with a force which is sufficiently large to operate the locking means whereupon the first and the second parts of the striker member will separate and pivot about the frame, the locking means having a first lock portion which is secured to the first part of the striker member and a second lock portion which is secured to the second part of the striker member, the first lock portion having a lip protruding therefrom and the second lock portion comprising a part secured to the second part of the striker member, and having a



bore formed therein, a rod member having a head with a slot formed therein for receiving the lip, a rod protruding from the head and having a groove formed therein, said rod being rotatable in said bore, and a ball member which is biased into position in the groove, whereby the ball member acts in the groove to maintain the first and second parts of the striker member together until such time as the striker member is struck with the said sufficiently large force whereupon the ball member is caused to move out of the groove to allow said rod to rotate in said bore thereby allowing the first and the second parts of the striker member to separate and pivot about the frame.

4,365,801

ELEVATIONAL PLATFORM FOR BALANCE BEAMS AND LIKE ARTICLES

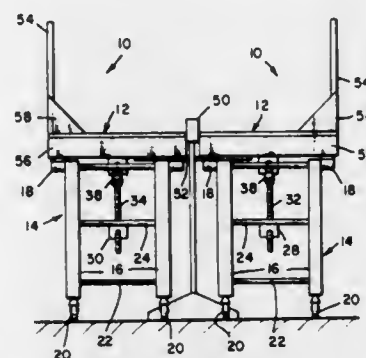
John A. Medina, 40721 22nd St. W., and George G. Pendergast, 39007 Vananbev Way, both of Palmdale, Calif. 93550

Filed Oct. 2, 1980, Ser. No. 193,291

Int. Cl.³ A63B 7/08

U.S. Cl. 272-111

15 Claims



1. A pair of platforms in combination with a balance beam for use in training gymnasts, in which each platform comprises: a generally rectangular deck having an end-to-end length which approximates that of the balance beam and a side-to-side width of lesser dimension than that of the length, so as to enable each said platform at its side to be placed respectively on each side of the balance beam; two pairs of legs respectively hinged at a first of their paired ends to said deck at its ends, wheels at a second of their leg

ends, crossbars respectively pivoted between said paired legs, and nuts respectively coupled to said cross-bars generally at their centers; and means coupled to said nuts for pivoting said leg pairs towards and away from each other and thereby for lowering and raising said deck so as to place each said platform deck at any selected height with respect to the balance beam.

15. A method for training a gymnast on a balance beam set at a predetermined height, comprising the steps of supporting at least one height adjustable substantially rigid platform alongside and at the predetermined height of the balance beam for properly training the gymnast and for enabling a trainer to move about the platform safely during the training, and thence gradually lowering the height of the platform with respect to that of the balance beam in sequential steps while continuing the training at each step.

4,365,802

DEFORMATION-PREVENTING SWINGABLE MOUNT FOR BASKETBALL GOALS

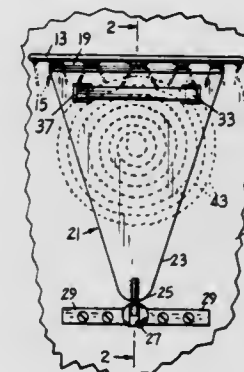
Arthur H. Ehrat, Farmers Elevator Co., Lowder, Ill. 62662

Filed Jul. 26, 1976, Ser. No. 708,581

Int. Cl.³ A63B 63/08

U.S. Cl. 273-1.5 R

11 Claims



1. A basketball-goal assemblage comprising: support structure for relatively immovable attachment to a basketball backboard, relatively movable goal-ring structure yieldably swingably connected to said support structure, and means interacting between said structures to hold said structures in normal positions against normal game-applied forces but yieldable to permit shock-absorbing swinging of said goal-ring structure for minimizing goal damage from abnormal forces applied thereagainst.

11. A basketball-goal assemblage comprising: support structure for relatively immovable attachment to a basketball backboard, relatively movable goal-ring structure yieldably swingably connected to said support structure, means interacting between said structures to hold said structures in their normal relative positions against their relative movement by normal game-applied forces but yieldable with initially rapidly decreasing force-resistance to permit shock-absorbing swinging of said goal-ring structure for minimizing goal damage from abnormal forces applied thereagainst, and relatively weak force-applying means for returning said goal-ring structure to its normal interacting-means-held position.

4,365,803

GAME TABLE

George A. Barnes, Seattle, Wash., and Walter J. Sirois, Beaverton, Oreg., assignors to Victory Games, Inc., Issaquah, Wash.

Filed Dec. 31, 1980, Ser. No. 221,525

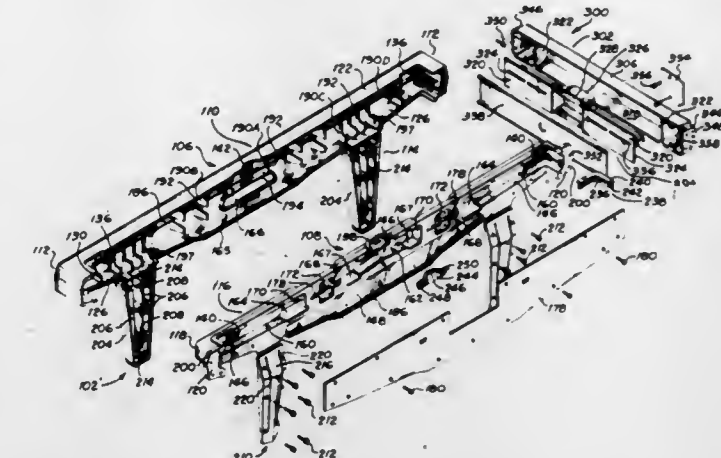
Int. Cl.³ A63D 15/00

U.S. Cl. 273-5 R

28 Claims

15. In a game table construction having a bed assembly including a rectangular bed and cushions extending along the edge portions of the bed, the improvement comprising: a table frame for supporting the bed assembly, said frame

disposed outwardly from and closely surrounding the edge portions of the bed, said table frame including: hollow side structures extending along and spaced slightly outwardly from the side edge portions of the bed assembly and including portions defining an integral siderail, apron, ball runs in cooperation with the adjacent edge portions of the bed and ball storage compartment;



hollow end structures extending along the end edge portion of the bed assembly; and a pair of hollow leg structures integrally constructed with and extending downwardly from each of said side structures.

4,365,804

KEEPER FOR A GAME MISSILE AND A GAME IMPLEMENT

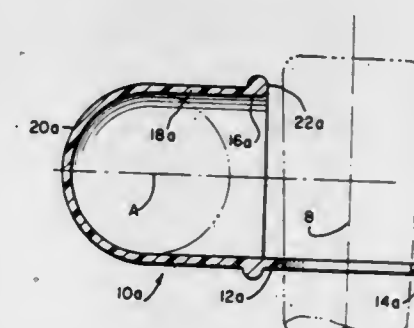
Stephen R. Melvin, 13 Highland Ave., Montville, N.J. 07045

Filed Jan. 22, 1981, Ser. No. 227,173

Int. Cl.³ A63B 47/00

U.S. Cl. 273-25

6 Claims



1. A keeper, for a game missile and a game implement, comprising:

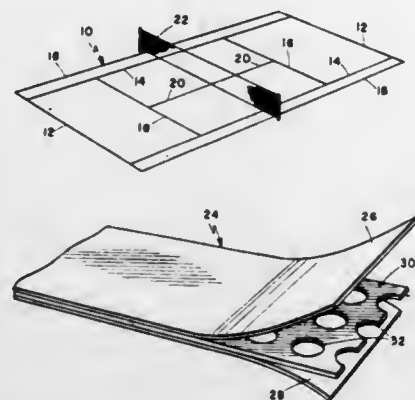
a first annulus; a second annulus coupled to said first annulus; wherein one of said first and second annuli has an inside diameter substantially corresponding to a cross-sectional dimension of a game missile; the other of said first and second annuli has an inside diameter substantially corresponding to a cross-sectional dimension of a game implement; a sleeve integral with said one annulus; a hemispheric cup integral with said sleeve; said sleeve defining a straight cylinder, and being tangential to said cup; said cup, sleeve and other annulus being formed of a common material and having a substantially common material thickness of a given dimension; said one annulus, sleeve and cup have a common, first axis; said other annulus has a second axis; said other annulus has an axial length of said given dimension, corresponding to said material thickness; and

said cup, sleeve, and annuli are of one-piece construction.

berance projecting at least partially inwardly of said wall towards the center of the racket head and being closed except

4,365,805
SYSTEM FOR MONITORING TENNIS COURT BOUNDARY LINES
Carl Levine, 17214 Merlot Pl., Poway, Calif. 92064
Filed Dec. 17, 1980, Ser. No. 217,431
Int. Cl.³ A63B 61/00
U.S. Cl. 273—31

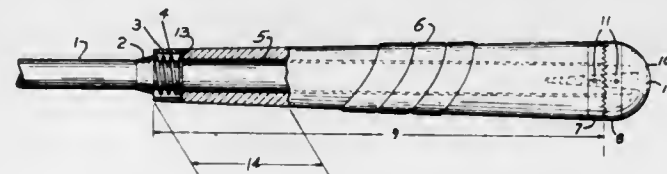
10 Claims



for said perforations, the geometric center of the perforations lying in the plane of stringing.

4,365,807
GOLF CLUB INCLUDING ROTATABLE GRIP
Phillip J. Melby, 211 N. Delaware, Mason City, Iowa 50401
Continuation-in-part of Ser. No. 174,114, Jul. 31, 1980, abandoned. This application Mar. 30, 1982, Ser. No. 363,540
Int. Cl.³ A63B 53/16
U.S. Cl. 273—81 C

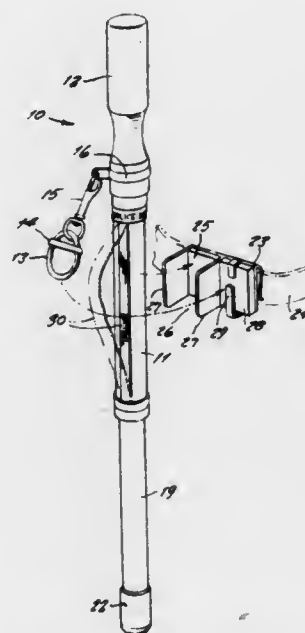
7 Claims



6. A golf club and grip therefor comprising a rotatable unitary grip held non-rotating by means of toothed sections held meshed together by means of a spring in compression.

4,365,808
POLICEMAN'S NIGHT-STICK
Sergio J. Perez, 311 W. 97th St., New York, N.Y. 10025
Filed Mar. 17, 1981, Ser. No. 244,655
Int. Cl.³ F41B 15/06
U.S. Cl. 273—84 R

2 Claims



1. A policeman's night stick, comprising in combination: a tubular steel shaft secured at one end to a hardwood handle from which a steel spike protrudes through said shaft; a compression coil inside said shaft, retaining a slidable sheath around a pointed end of said spike; and a removable end cap on

4,365,806
RACKETS
Cedric N. Reid, 19 Westminster Croft, Brackley, Northamptonshire, England, and George W. Anderson, c/o Elite Sports International Ltd., Flying Horse Rd., Downpatrick, County Down, Northern Ireland
Filed May 21, 1981, Ser. No. 266,127
Claims priority, application United Kingdom, May 20, 1980, 8016673
Int. Cl.³ A63B 51/00, 49/02
U.S. Cl. 273—73 C

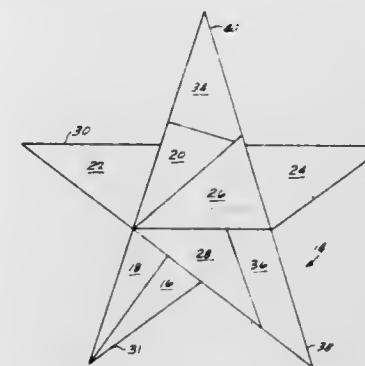
7 Claims

1. A racket for a game, comprising a strung head portion defined by a rigid frame, and a handle portion connected to or an extension of the frame, wherein the frame comprises an imperforate wall extending around the greater part of the racket head, and, integral with the wall, a rigid fixed section substantially coextensive with said wall, said fixed section having perforations at intervals to receive the stringing, said rigid fixed section being formed as an elongate hollow protu-

said sheath, for preventing retractable sliding of said sheath and exposure of said spike's pointed end; a thumb receiving ring suspended from said handle; a rubber band bonded diametrically across said ring for holding a thumb against an inner edge of said ring; an elastic back hand strap along a side of said shaft; and a belt clip with magnetic means for holding said night stick thereto.

4,365,809
THREE-FIGURE DISSECTION PUZZLE
Dixie B. Barry, 3850 Atlantic Ave., Space 184, Highland, Calif. 92346
Filed Mar. 9, 1981, Ser. No. 241,480
Int. Cl.³ A63F 9/10
U.S. Cl. 273—157 R

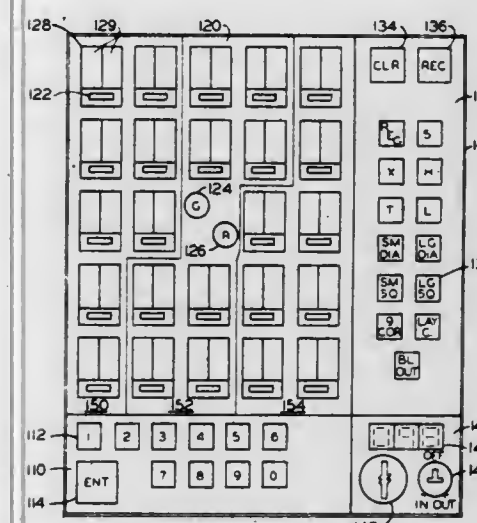
5 Claims



1. A puzzle comprising a plurality of basic geometric pieces shaped to be combinable to form, alternatively, a rectangle, square or five-pointed star, said basic pieces being three right triangles, four isosceles triangles and two quadrilaterals, which pieces being subdividable to increase the number of pieces combined to form, alternatively, said rectangle, square or five-pointed star.

4,365,810
GAMING BOARD
John Richardson, San Diego, Calif., assignor to Selectro-Vision, Ltd., San Diego, Calif.
Filed Sep. 28, 1979, Ser. No. 79,807
Int. Cl.³ A63F 3/06
U.S. Cl. 273—237

13 Claims

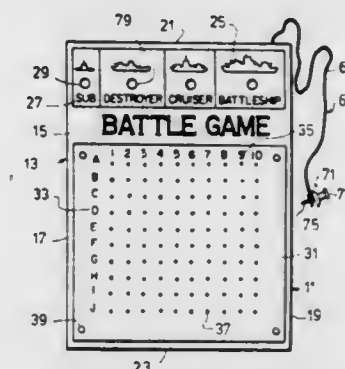


1. A chance based gaming board comprising: display means including means for visually displaying a plurality of symbols in a predetermined array of symbol display locations; computer means including a control program stored in a nonvolatile read only memory means, data processor means controlled by said control program, data storage means including a plurality of symbol storage locations, said storage locations storing a single game board and

means for generating and outputting one or more control signals; input switch means for enabling the manual selection of one of a plurality of symbols; array-symbol switch means including a plurality of actuable array-symbol switches, each switch positioned adjacent a respective one of said symbol display locations for enabling the manual selection of one of said symbols in said array of symbol display locations; means for selecting a first game mode, said processor means and control program acting in response thereto to generate control signals such that the present state of said input switch means is periodically sensed, to cause said data storage means to store said sensed symbols in a selected sequence in said symbol storage locations, and to generate control signals such that said display means is caused to display said sensed symbols in corresponding symbol display locations; and means for selecting a second game mode, said processor means and control programs acting in response thereto to generate control signals such that each actuation of an array-symbol switch means is sensed to cause the identity of said sensed switch to be stored in said data storage means and to generate one or more control signals such that said display means is caused to indicate that the sensed array-symbol switch corresponding to the symbol display location has been selected and to further visually display the stored array-symbol switch states in a manner which differs from the manner in which the non-selected array-symbol switch symbol display locations are displayed.

4,365,811
BATTLE TYPE GAME AND KIT FOR CONSTRUCTION THEREOF
Casey S. Krzes, 1198 Meadow La., Grand Island, N.Y. 14072
Filed Dec. 17, 1979, Ser. No. 104,017
Int. Cl.³ A63F 3/00
U.S. Cl. 273—238

6 Claims



1. A kit for making a game of the battleship type which comprises a plurality of electrically conductive thumbtack type contact members of metal, with substantially flat heads and pointed shanks, and an electrically conductive headed and pointed probe, having a conductive pointed metal shank, electrically conductive wires, a plurality of electrically actuable signals, a surface member, a circuit board member and a plurality of grid sheets to be individually held in place on top of and as part of the surface member, all of which are assemblable into a game in which contact of the point of the probe with a head of a thumbtack type contact member, made when the probe passes through a grid sheet and the rest of the surface member, actuates the signal when a battery or other source of electricity is included in the electric circuit which is completed by such contact, including a plurality of synthetic organic polymeric plastic washers for use as holding means for holding conducting wires in contact with the thumbtack type contact members and the probe, which washers include openings smaller than the shank diameters of the thumbtack type contact members and the probe so that after installation on such shanks

the resiliency of the washer material holds the washers in place.

4,365,812

GAME BOARD AND APPARATUS

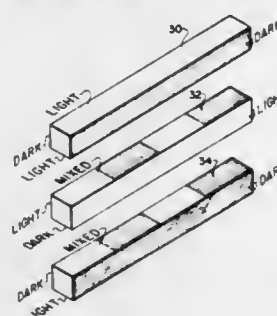
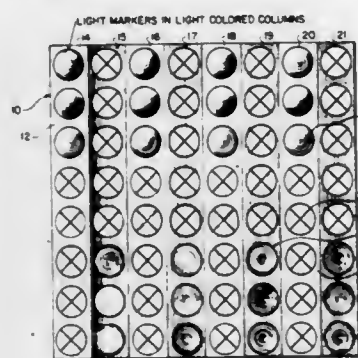
Leonard J. Martini, 2801 Ocean Front Walk, F, San Diego, Calif. 92109

Filed Jun. 1, 1981, Ser. No. 244,125

Int. Cl.³ A63F 3/00, 9/04

U.S. Cl. 273—243

1 Claim



1. A game apparatus comprising:

- a game board means having a plurality of columns adjacently aligned and each column segmented by a plurality of holes and each column being distinguishable from adjacent columns by markings;
 - a plurality of marker means adapted for emplacement in the said holes of the columns and said marker means being grouped by markings; and
 - chance means for initiating and directing the movement of said marker means between said holes within and across said columns, and said chance means including plurality of indicia corresponding to the markings of the said columns and said markers, wherein said chance means is comprised of three sticks each having four sides distinguished by either of the two colors or markings of the said columns and said markers, or a mixture of the two colors or markings of the said columns and said markers, wherein: The first stick has distinguishable sides alternating between the two colors or distinguishable markings of the said columns and markers, the second stick has one side distinguishable by a mixture of the two colors or distinguishable markings of the said columns and markers, the opposite side distinguishable by the lighter of the two colors or distinguishable markings of the said columns and markers, and the remaining two sides distinguishable by the darker of the colors or distinguishable markings of the said columns and markers; and
- the third stick has one side distinguishable by a mixture of the two colors or distinguishable markings of the said columns and markers, the opposite side distinguishable by the darker of the two colors or distinguishable markings of the said columns and markers, and the remaining two sides distinguishable by the lighter of the two colors or distinguishable markings of the said columns and markers.

4,365,813

WORD GAME

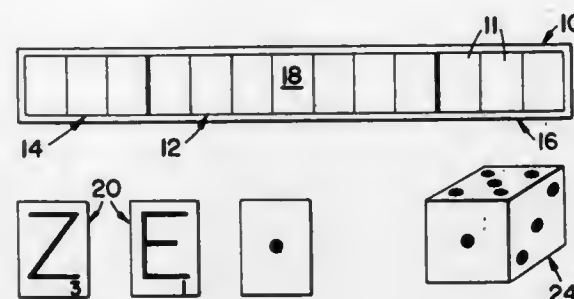
Ernest Hirsch, 155 Sharene La., #309, Walnut Creek, Calif. 94569

Filed Sep. 5, 1978, Ser. No. 939,838

Int. Cl.³ A63F 3/00

U.S. Cl. 273—272

26 Claims



1. A word building game apparatus, comprising:

- a plurality of indicators, each displaying a letter of an alphabet, or being universally useful as any letter of the alphabet, a numerical value being associated with each lettered indicator, a ratio of lettered to universally useful indicators being at least about 10 to 1;
 - a playing surface defining a plurality of playing spaces thereon in a single integrated linear array for receiving one or more of said playing indicators at a turn of a player, to generate a first number determined by the values associated with at least a portion of the playing indicators in position on said playing spaces following said player's turn;
- means for generating a second number by chance from a selected set of numbers; and
- means for changing the player's score, at his turn, in an amount determined by the values of both said first and second numbers.

4,365,814

BATTING GAME

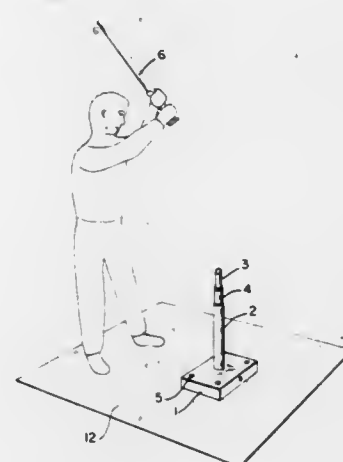
Roy M. Robinson, Rte. 7, P. Box 457, Lexington, N.C. 27292

Filed Apr. 27, 1981, Ser. No. 257,941

Int. Cl.³ A63B 67/00

U.S. Cl. 273—317

6 Claims



1. A game device comprising:

- a base;
- an elongated open-ended hollow tube disposed upright on said base and comprising a first cylinder of larger diameter mounted vertically on said base and a second smaller cylinder of essentially the same outside cross section as the inside cross section of said larger cylinder, said smaller cylinder having one end attached within the upper, open end of said larger cylinder.

- an elongated projectile adapted to fit in the open end of said tube and be ejected therefrom;
- means for ejecting said projectile from said tube in response to downward pressure on the projectile in the tube, said means being disposed in said tube and adapted to engage said projectile when placed in the tube.

4,365,815

MEANS PROVIDING COOLANT BETWEEN ELEMENTS OF RADIAL FACE SEALS

Peter A. J. Scott, Rugby, England, assignor to Associated Engineering Limited, Warwickshire, England

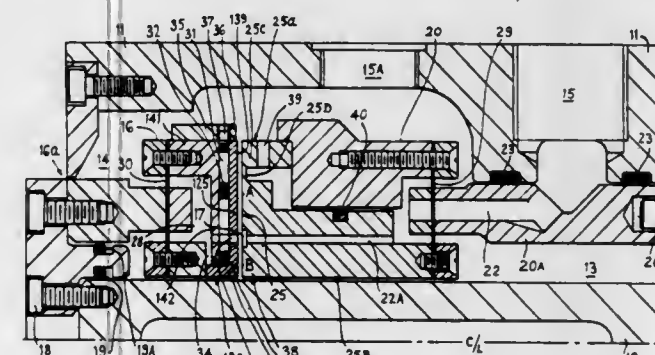
Continuation-in-part of Ser. No. 77,433, Sep. 20, 1979, Pat. No. 4,290,613. This application Jan. 12, 1981, Ser. No. 224,366

Claims priority, application United Kingdom, Sep. 22, 1978, 37715/78; Jan. 11, 1980, 8001039

Int. Cl.³ F16J 15/16, 15/34

U.S. Cl. 277—22

7 Claims



- A positive clearance radial face seal comprising two sealing members mounted respectively on relatively rotatable shaft and housing members and each having opposed portions defining annular sealing faces having a radial clearance therebetween forming a communicating path between regions of higher and lower pressures, wherein at least one of the sealing members has a cavity behind its sealing face and defined, at least in part, by the portion of the material of the sealing member behind said sealing face, a porous thermally-conductive mass having interconnecting pores located in said cavity and in intimate thermal contact with the material of said portion, and said cavity having inlet means and outlet means for flowing a cooling fluid through the interconnecting pores of the porous mass in the cavity.

4,365,816

SELF-DAMPING BELLOWS SEAL ASSEMBLY

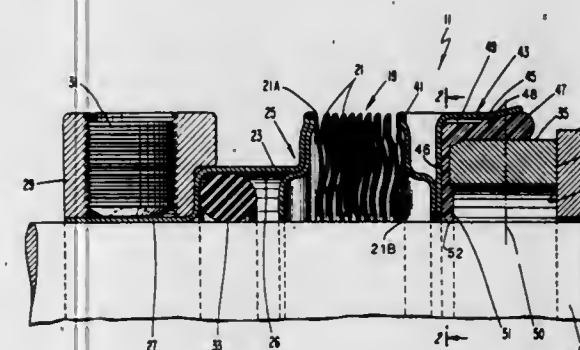
Norman E. Johnson, Barrington, and Daniel F. Vasconcellos, East Greenwich, both of R.I., assignors to EG&G Sealol, Inc., Warwick, R.I.

Filed Oct. 29, 1980, Ser. No. 202,344

Int. Cl.³ F16J 15/36

U.S. Cl. 277—88

22 Claims



- A self-damping bellows seal assembly for use with a rotatable shaft and a stationary member having an opening through which said shaft extends, said seal assembly providing a fluid

pressure seal between said shaft and said stationary member, said seal assembly including a flexible metal bellows having a plurality of convolutions and adapted to surround said shaft, means for securing one end of said bellows with respect to said shaft, an annular face seal adapted to sealingly engage a radial face on said stationary member, an annular metal part welded at one end to said bellows and having an axial portion surrounding said face seal and a flexible annular member interposed between said face seal and the axial portion of said annular part, said flexible annular member being adapted to closely surround said shaft and to actively operate to dampen vibration in said bellows.

4,365,817

SELF ALIGNING SEGMENTED SHAFT SEAL

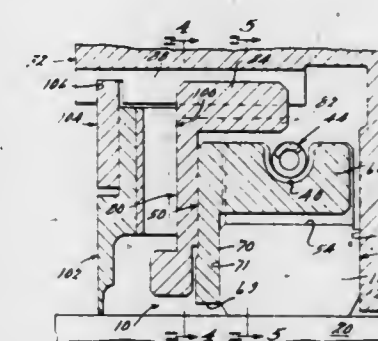
Arthur M. Davis, Wixom, Mich., assignor to Williams Research Corporation, Walled Lake, Mich.

Filed Apr. 17, 1981, Ser. No. 255,314

Int. Cl.³ F16J 15/32

U.S. Cl. 277—188 R

6 Claims



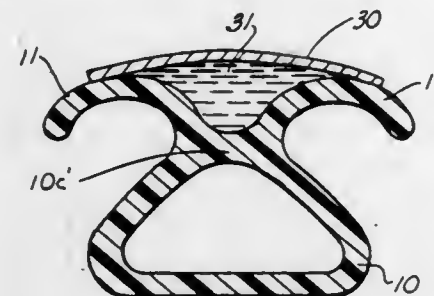
1. A segmented seal comprising

- a cylindrical seal housing having a radially extending end face and an axially extending radially inwardly opening groove in the cylindrical wall thereof;
- a plurality of seal segments having first radial faces, respectively, slidably engaged with the radial end face on said housing in sealing engagement, arcuate radially inner faces engageable with a shaft in slidable sealing engagement, and second radially extending faces spaced from the first faces thereon, respectively;
- first resilient means biasing said seal segments radially inwardly;
- a first retainer ring having a radial face slidably engaged with the second faces on said seal segments, said first retainer ring having a first axially extending lug thereon engageable with at least one of said segments to preclude relative circumferential movement between said segments and said first retainer yet permit relative radial movement therebetween, said first retainer ring having a second axially extending lug thereon;
- a second retainer ring having an axially extending slot therein for the acceptance of the second lug on said first retainer ring, said second retainer ring having a radially extending lug thereon engaged in the axial slot in said housing;
- second resilient means for biasing said second retainer axially against said first retainer, said first retainer against said segments, and said segments against the end face on said housing; and
- means engaged with said housing for axially positioning and retaining said second resilient means, second retainer, first retainer, and segments relative to the end face on said housing.

4,365,818

SELF-LUBRICATING PIPE JOINT SEAL WITH RUPTURABLE MEMBRANE

Wilbur E. Tolliver, 364 Hamilton Dr., Holland, Mich. 49423
Division of Ser. No. 113,358, Jan. 18, 1980, Pat. No. 4,296,933,
which is a division of Ser. No. 40,273, May 17, 1979, Pat. No.
4,209,179. This application Jul. 27, 1981, Ser. No. 287,253
Int. Cl.³ F16J 15/32, 15/40, 15/54
U.S. Cl. 277-237 R

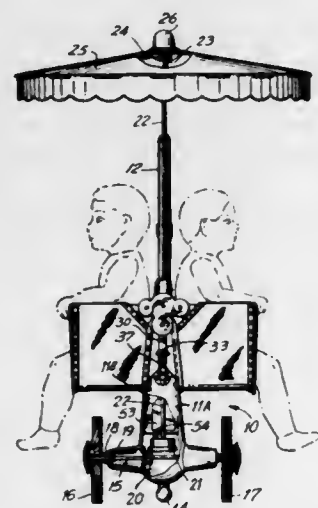


1. A self-lubricating pipe joint seal fitting between and sealing connecting pipe joint members which are slid into each other to form a pipe joint comprising: a reservoir means in said seal for containing a lubricant; and means for releasing said lubricant from said reservoir means as said pipe joint members are slid into each other to form said pipe joint, said pipe joint seal being annular and said reservoir means comprising a cavity that extends generally circumferentially around said seal and contains said lubricant therein and wherein said means for releasing said lubricant from said cavity comprises a rupturable membrane on said cavity, said membrane being ruptured and releasing said lubricant from said cavity as said pipe sections are slid into each other to form said pipe joint.

4,365,819

MERRY-GO-ROUND STROLLER

Philip D. Bart, 9864 NW. 13th Ct., Coral Springs, Fla. 33065
Filed Sep. 22, 1980, Ser. No. 189,643
Int. Cl.³ B62B 7/02
U.S. Cl. 280-47.41



1. A merry-go-round stroller for receiving, transporting and rotating at least one doll when the stroller is moved on a floor surface, the stroller comprising: a chassis, a drive axle rotatably mounted on said chassis, first and second wheels rotatably mounted to said chassis to roll on said floor surface, at least the first of said wheels coupled to and rotatable with said drive axle, a shaft rotatably mounted on said chassis is generally upwardly extending orientation, said shaft having lower and upper axially-spaced parts and an intermediate part therebetween, first means coupling said axle and said lower part of said shaft in rotational drive relationship, a canopy secured to said upper part of said shaft and rotatable therewith, and a seat defining two adjacent receptacles each of which has a base for

4 Claims

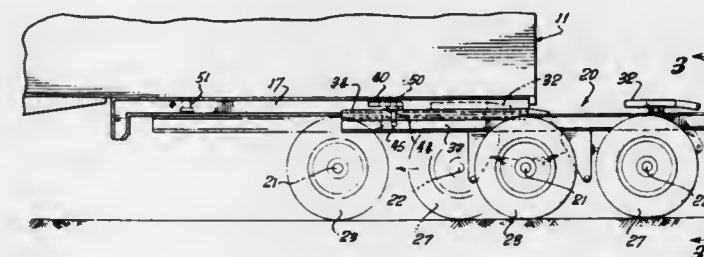
supporting said dolls and an upward facing opening, said seat comprising a frame formed by a generally rectangular first band orientated in a generally vertical plane which separates said receptacles, said first band having top and bottom parts and opposite end parts, and a generally rectangular second band oriented in a generally horizontal plane with opposite side parts and opposite end parts, said end parts of said first and second bands secured together, said second band at least partially defining the shape of said receptacle openings, said top and bottom parts of said first band each having an aperture, said apertures being axially aligned with said intermediate part of said shaft extending therethrough, and means for fixedly securing said first band to said intermediate part of said shaft for rotation therewith, whereby rotation of said first wheel, when said stroller is moved on said floor surface, rotates said axle, thereby rotating said shaft, seat and canopy.

4,365,820

TRAILER CONNECTING RUNNING GEAR

Donald L. Rush, 2239 Kern, San Bernardino, Calif. 92405
Continuation-in-part of Ser. No. 941,383, Sep. 12, 1978,
abandoned. This application Sep. 8, 1980, Ser. No. 185,180
Int. Cl.³ B62D 53/08
U.S. Cl. 280-411 C

5 Claims



1. A running gear and trailer combination for tractor-drawn trailers, recreational vehicles and the like, especially useful for multiple trailers, said combination comprising:

a trailer support frame affixed to the underside of a trailer body, said trailer support frame having a support surface extending to about the rear of the trailer; and
a running gear member having a fifth wheel, said running gear member being slidably attached to said trailer support frame by attachment means in a manner to permit both the longitudinal sliding of the running gear member with respect to the trailer support frame and the vertical support of the trailer support frame along substantially the entire overlapping portion of the running gear member and the trailer support frame and a locking means comprising a double fifth wheel having a pair of jaws, one jaw facing forward and one jaw facing rearward, and a pair of king pins affixed to the underside of the trailer to hold the double fifth wheel in a forward position or a rearward position, said running gear member having at least two rails slidably held to the trailer support frame by said attachment means to prohibit the rotational movement of the running gear member with respect to the trailer support frame.

4,365,821

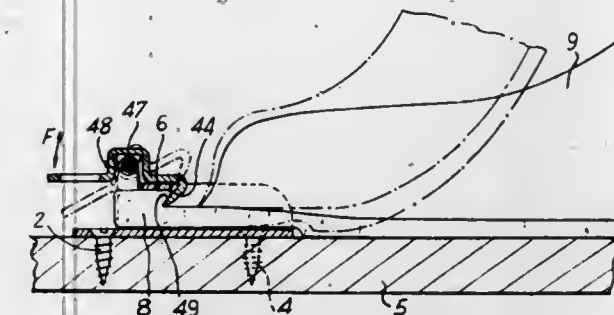
SKI BINDING

Armand Kreyenbuhl, Samoens, France, assignor to Adidas Fabrique de Chaussures de Sport, Landersheim, France
Continuation-in-part of Ser. No. 666,589, Mar. 15, 1976, Pat. No. 4,108,467. This application May 12, 1977, Ser. No. 796,239
Claims priority, application France, Jul. 2, 1976, 76 20262; Nov. 16, 1976, 76 34449; Feb. 11, 1977, 77 03904; Mar. 8, 1977, 77 06692; May 3, 1977, 77 13355
Int. Cl.³ A63C 9/00
U.S. Cl. 280-615

16 Claims

5. A ski binding, especially of the touring or cross country type, in which the ski boot is held by a front extension of the

sole of the boot which engages itself in an archplate secured to the ski, said archplate having a stationary horizontally extending upper part and defining an area whose form corresponds in width and height to that of the extension of the sole, fastening means connected to the archplate and including a fastening



element movable downwardly from above said extension of the sole and engageable with an upwardly opening stop surface situated on an upper portion of the extension between the front of the archplate and the body of the boot to fasten the boot to the ski.

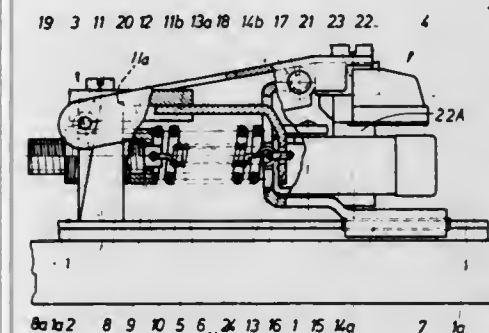
4,365,822

FRONT OR REAR JAW

Theodor Nitschko, and Franz K. Edinger, both of Vienna, Austria, assignors to TMC Corporation, Baar, Switzerland
Filed Sep. 12, 1980, Ser. No. 186,787

Claims priority, application Austria, Sep. 19, 1979, 6135/79
Int. Cl.³ A63C 9/08
U.S. Cl. 280-625

10 Claims



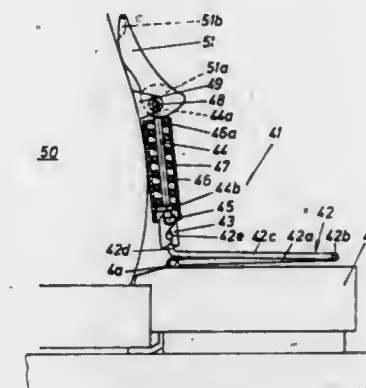
1. A front or rear jaw of a release ski binding, comprising: elongated track means adapted to be fixedly secured to a ski; upstanding abutment means at one end of said track means; support means mounted on said track means for movement along the length thereof; sole holder means mounted on said support means for movement between a ski boot holding position and a ski boot release position; first resilient means for resiliently resisting a movement of said sole holder means from said ski boot holding position toward said ski boot release position; second resilient means engaging and extending between said support means and said abutment means for resisting movement of said support means toward said abutment means; and said first and second resilient means having oppositely directed active force directions whereby upon a movement of said support means toward said abutment means against said active force direction of said second resilient means the magnitude of force in the opposite active force direction of said first resilient means is reduced to thereby facilitate a movement of said sole holder means toward said ski boot release position with less resistance to said movement being provided by said first resilient means.

4,365,823

SAFETY-STRAPLIKE CONNECTING MEMBER

Heinz Wittmann, Vienna, Austria, assignor to TMC Corporation, Baar, Switzerland
Division of Ser. No. 31,493, Apr. 19, 1979, Pat. No. 4,312,519.
This application Mar. 12, 1981, Ser. No. 243,113
Claims priority, application Austria, Apr. 21, 1978, 2897/78
Int. Cl.³ A63C 9/00
U.S. Cl. 280-637

3 Claims



1. A retaining device adapted for use with a ski having a ski binding mounted thereon releasably securing a ski shoe to the ski, said device comprising:

elongated connecting means having one end secured to said ski binding and having a first portion thereof remote from said one end located at a first location adjacent said ski boot;
a bearing part mounted to said ski boot;
a holding rod supported on said bearing part and extending downwardly therefrom;
a pair of hook-shaped parts pivotally supported on said holding rod adjacent the lower end thereof for movement between an open position spaced angularly from each other and a closed position adjacent each other, said hook-shaped parts being positioned at said first location and in secure gripping engagement with said first portion of said connecting means when said ski boot is releasably secured to said ski by said ski binding and said hook-shaped parts are in said closed position;
a hollow cylinder coaxially encircling said holding rod and having an open lower end, said cylinder being axially movable with respect to said holding rod between an elevated position in which the lower end of said cylinder is spaced above said hook-shaped parts and a depressed position in which the lower end of said cylinder surrounds said hook-shaped parts and maintains said hook-shaped parts in said closed position;
resilient means cooperable with said holding rod and said cylinder for continuously urging said cylinder upwardly relative to said holding rod; and
a lever pivotally supported on said bearing part and having a cam surface which engages the upper end of said cylinder, said cam surface effecting movement of said cylinder from said elevated position to said depressed position against the force of said resilient means in response to pivotal movement of said lever.

4,365,824

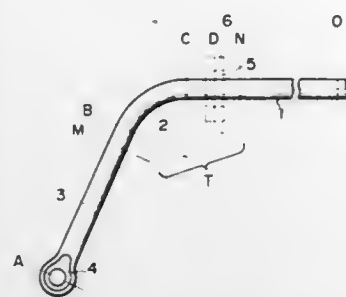
STABILIZER FOR VEHICLE

Akira Ohno; Toshiaki Sato, and Kanji Inoue, all of Yokohama, Japan, assignors to NHK Spring Co., Ltd., Yokohama, Japan
Filed Sep. 2, 1980, Ser. No. 183,387
Claims priority, application Japan, Sep. 7, 1979, 54-114974
Int. Cl.³ B60G 21/02
U.S. Cl. 280-689

6 Claims

1. A stabilizer for a vehicle, the stabilizer being a single, one piece, unitary structure, comprising:
a torsion section coupled to the vehicle, said torsion section having opposite ends;

curved sections integrally extending from the respective opposite ends of said torsion section, said curved sections being heat treated to increase the mechanical strength of said curved sections; and



arm sections each respectively integrally extending from each of said curved sections and having a free end coupled to a vehicle suspension;
at least major portions of said torsion section and said arm sections not being heat treated.

4,365,825

VEHICLE, ESPECIALLY A CAB-OVER-ENGINE COMMERCIAL VEHICLE

Josef Merkle, Esslingen, Fed. Rep. of Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

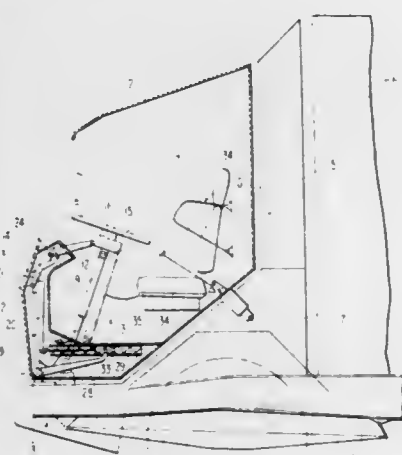
Filed Mar. 7, 1979, Ser. No. 18,332

Claims priority, application Fed. Rep. of Germany, Mar. 7, 1978, 2809664

Int. Cl.³ B62D 1/18; B60R 21/02

U.S. Cl. 280—777

39 Claims



1. A vehicle having a steering assembly which includes a steering wheel and a steering column, the steering wheel being disposed substantially horizontally in a normal operating position and the steering column extending essentially vertically, characterized in that means are provided for automatically and positively displacing the steering wheel from the normal operating position into at least one passenger protective position as a function of at least one of a predetermined deceleration of the vehicle and a deformation of the front of the vehicle, said displacing means includes a locking means for locking the steering wheel in the normal operative position, means are provided for automatically releasing the locking means so as to enable the steering wheel to automatically shift to the protective position, a steering drive means is provided for mounting the steering assembly in the vehicle, the steering drive means includes a pair of rod means with one rod means forming an upper rod means and the other rod means forming a lower rod means, the upper rod means is articulated to a structural component of the vehicle substantially at a level of a dashboard means of the vehicle with the lower rod means being articulated in an area of one of a floor and frame of the vehicle.

4,365,826 STEERING COLUMN SUPPORTING STRUCTURE FOR MOTOR VEHICLE

Toru Iriyama, Hiroshima, Japan, assignor to Toyo Kogyo Co., Ltd., Horishima, Japan

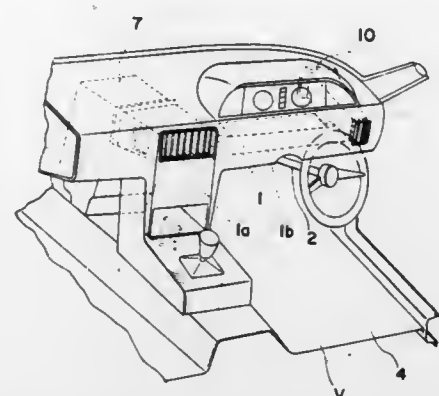
Filed Aug. 15, 1980, Ser. No. 178,631

Claims priority, application Japan, Aug. 21, 1979, 54-115470[U]

Int. Cl.³ B62D 1/16

U.S. Cl. 280—779

8 Claims



1. A steering column supporting structure for use in a motor vehicle including a dash panel constituting a front wall of a cab for the motor vehicle, a floor panel extending rearwardly from the lower edge of the dash panel to constitute a vehicle floor and having a floor tunnel portion extending in a longitudinal direction of the vehicle body at a central portion of the motor vehicle so as to be raised into the cab, an inner side panel extending from a front edge of a door opening at the side wall of the cab to a side edge of the dash panel and forming a closed cross sectional structure together with a hinge pillar outer panel, and a steering column provided in the forward portion of the cab at a central portion with respect to the driver's seat and rotatably housing a steering shaft therein, said steering column supporting structure comprising a steering column supporting member constituted by a long closed cross-section hollow duct bent so as to have a vertical portion provided in the forward part of the cab and extending generally perpendicularly with respect to the vehicle floor at approximately a central portion of the vehicle body, and a horizontal portion extending from the upper end of said vertical portion and laterally toward the side wall of the motor vehicle adjacent to the driver's seat in a direction approximately horizontal with respect to the vehicle floor, said vertical portion being rigidly connected, at its lower end, to said floor tunnel portion of said vehicle floor, said horizontal portion being rigidly connected, at its other end at the side wall of the motor vehicle adjacent to the driver's seat, to said inner side panel, said steering column being fixed to approximately a central part of said horizontal portion for being supported thereat.

4,365,827

DRIVE WIRE FOR PASSIVE RESTRAINT SYSTEMS

Juichiro Takada, 3-12-1, Shinmachi, Setagayaku, Tokyo, Japan

Filed Mar. 13, 1981, Ser. No. 243,476

Claims priority, application Japan, Mar. 24, 1980, 55-037318[U]

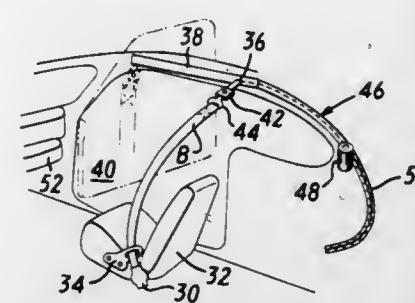
Int. Cl.³ B60R 21/10

U.S. Cl. 280—804

4 Claims

1. In a passive vehicle occupant restraint belt system having a belt transfer member engaging a portion of a belt and driven by a drive wire along a guide rail between release and restraint locations, the improvement in the drive wire comprising (a) a length of raked wire adapted to be driven by a drive device and including a stranded wire core and a helically wound tooth wire; (b) a length of transfer wire having a stranded wire core and a covering of a durable polymeric material, the transfer wire being coupled to the belt transfer member and being no shorter than the distance along the guide rail between the

release and restraint positions, and (c) a butt splice connection between the raked wire and the transfer wire that includes a pressed-on metal collar adjacent the end of each stranded wire core, a band of polymeric material on each core adjacent the



collar and a pressed-on coupling sleeve surrounding and joining the collars and also embracing the polymeric material bands, whereby concentrated stresses adjacent the collars are minimized.

4,365,828

SKATE GUARD

Bradley G. Hall; Gwendolyn L. Hall, both of 60 Redcar Ave., Islington, Ontario, Canada (M9B 1K1), and Valbory Grant, 1321 Redbank Cres., Oakville, Ontario, Canada

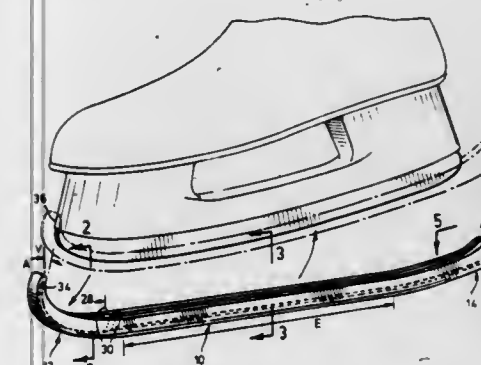
Filed Feb. 14, 1980, Ser. No. 121,455

Claims priority, application Canada, Feb. 21, 1979, 322040

Int. Cl.³ A63C 3/12

U.S. Cl. 280—825

23 Claims



1. A skate guard shaped to extend longitudinally along the bottom edge of a skate blade, said guard being shaped to define an upwardly opening groove running longitudinally therealong said groove being of a length to receive a skate blade, said groove over a longitudinal extent before blade insertion narrowing toward its upper opening to a transverse dimension less than the thickness of a skate blade, said guard being made of flexible resilient material whereby when a skate blade is inserted in said groove, the material of said guard is resiliently biased outwardly by said blade and bears inwardly thereon to grip it, whereby said guard attaches to said blade without longitudinal stretching and wherein the inward pressure by the material on each side of said groove is the sole means of securing said guard to said skate, means adjacent one end of said groove to prevent longitudinal movement therepast of the corresponding end of a skate blade inserted in said groove, wherein said guard is shaped to define a bearing extent over a longitudinal extent of its lower surface, said guard being shaped so that said bearing extent is concave downward in transverse cross section, defining spaced bearing ridges running longitudinally along said guard on each side of a concavity, whereby under downward pressure of said guard on a supporting surface said spaced ridges cause the guard mate-

rial on each side of said groove to press more firmly on said blade.

4,365,829

SEWER TAPPING APPARATUS

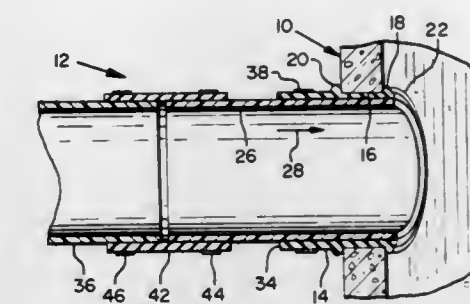
Dwight W. Fowler, 3865 SE. River Rd., Hillsboro, Oreg. 97123

Filed Sep. 4, 1979, Ser. No. 72,202

Int. Cl.³ F16L 3/04

U.S. Cl. 285—162

9 Claims



1. A sewer tap for making connection to a main sewer line in the form of a substantially cylindrical pipe, said tap comprising:

a cylinder having a first and a second end, said cylinder being formed of elastomeric material and being smaller in diameter than said main sewer line,

said main sewer line having an aperture in the side thereof for receiving said first end of said elastomeric cylinder with said elastomeric cylinder extending outwardly away from the side of said main sewer line,

an interior branch pipe within said elastomeric cylinder having an exterior radius slightly larger than the interior radius of said aperture in said main sewer line minus the unstressed thickness of said elastomeric cylinder where the latter is received in said aperture in said main sewer line, said interior branch pipe extending into said aperture in said main sewer line for compressing said elastomeric cylinder against the inside edge of said aperture to form a seal and being held in compression within said elastomeric cylinder,

said branch pipe where it extends within said elastomeric cylinder having a substantially uniform outside diameter therealong to define the outside surface of a right circular cylinder, said elastomeric cylinder where it is received in said aperture and where it receives said branch pipe outwardly from the side of said sewer main having a substantially uniform inside diameter therealong to define the inside surface of a right circular cylinder for longitudinally receiving said branch pipe in sliding relation there-within, adapting said branch pipe to be driven into said elastomeric cylinder to achieve predetermined sealing relation, said branch pipe also extending outwardly from said second end of said cylinder, and further including a branch pipe extension joined to said branch pipe outwardly of said cylinder.

4,365,830

SAFETY LATCH FOR WASHER CLOSURE

Philip D. Paulson, Toronto, Canada, assignor to Inglis Limited, Mississauga, Canada

Filed Jun. 9, 1980, Ser. No. 157,465

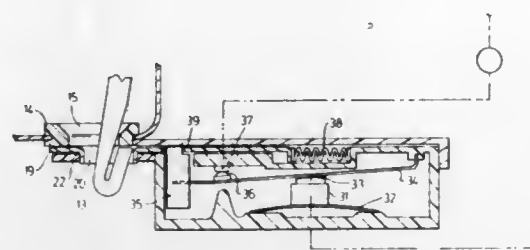
Int. Cl.³ E05C 19/06

U.S. Cl. 292—89

19 Claims

1. In an appliance for cleaning and treating clothes having a housing, a door and a closure for said door, said closure comprises means for impeding access to a handle portion for said door, a catch means for releasably securing said door shut and means for locking said catch means, said impediment means being manually movable to gain access to said handle where

such movement release said catch when unlocked, the arrangement being such that when said catch means is locked, movement of said impediment means to gain effective handle access is prevented, said locking means having a time delay release for locking said catch to thereby preclude access to said handle.



4,365,831

CHANNEL LATCH

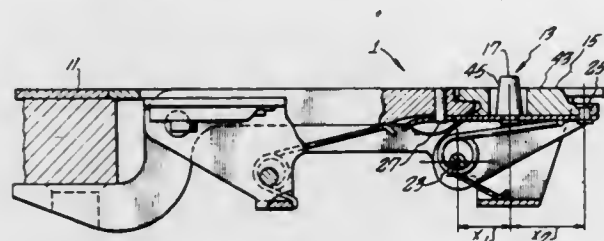
William R. Bourne, Anaheim, Calif., assignor to Hartwell Corporation, Placentia, Calif.

Filed Apr. 4, 1980, Ser. No. 137,555

Int. Cl.³ E05C 3/02

U.S. Cl. 292—229

10 Claims



1. A latch assembly comprising:
 - a latch bolt means adapted for pivotal movement about a fixed latch bolt pivot;
 - latch trigger means adapted for pivotal movement and between at least first and second preselected latch trigger means positions, about a fixed latch trigger pivot, said latch trigger means including a latch trigger means engagement means and said latch bolt means including a latch bolt means engagement means for engaging said latch trigger means engagement means, said latch trigger means engagement means adapted for engaging said latch bolt means engagement means when said latch trigger means is at said first latch trigger means predetermined position and for disengaging said latch bolt means engagement means at said second latch trigger means predetermined position;
 - a latch actuator assembly including a latch trigger actuator biasing means operatively linking said latch bolt means and said latch trigger means and being anchored at one end to said latch actuator assembly and which urges engagement of said latch bolt means and said latch trigger means;
 - a latch trigger means biasing means positioned about said fixed latch trigger pivot for urging said latch trigger means to assume said first latch trigger means predetermined position; and
 - a reciprocable latch trigger actuator connected to said latch trigger actuator biasing means for opposing the urging of such biasing means and for disengaging said latch bolt means and said latch trigger means upon reciprocation thereof.

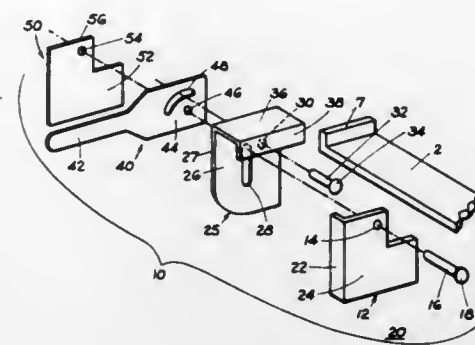
4,365,832
HOLD DOWN LATCH ASSEMBLY FOR HATCH COVERS
Marc A. Treppier, Florissant, Mo., assignor to ACF Industries, Incorporated, New York, N.Y.

Filed Jan. 29, 1981, Ser. No. 229,377

Int. Cl.³ E05C 5/00

U.S. Cl. 292—256,5

7 Claims



1. A hatch cover latch assembly comprising: a handle pivotably mounted about a mounting pin; said handle including an elongated latch slot; a locking member including an extension which in one position is located over and holds in place a hatch cover; a latch pin extending from said locking member into said elongated latch slot in the handle; a mounting pin slot provided in said locking member which receives said mounting pin; said mounting pin supported by a flange located adjacent to said latch which includes a flange surface which guides said locking member during vertical movement between open and closed positions; said locking member including a latch surface which engages said flange surface as the locking member is lifted by said handle and said latch pin from the closed position toward open position and prevents rotation of the locking member during such vertical movement, whereby when said handle pivot pin bottoms out in the bottom of said locking member mounting pin slot, said locking member rotates with said handle to a position which no longer obstructs the cover, whereby said cover may be opened; and whereby said locking member may be returned to a closed, engaged position by rotation of said handle in the opposite direction whereby said locking member moves with said handle until said latch surface engages said flange surface whereby said locking member descends vertically to a closed, engaged position with said cover.

4,365,833

SEALING DEVICE

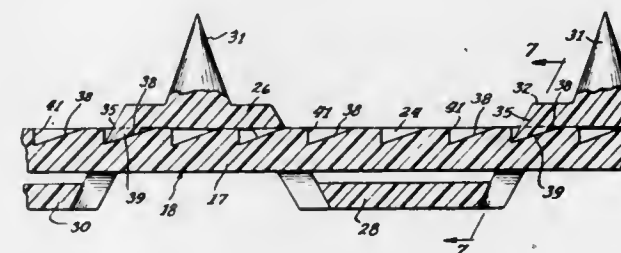
Ralph G. Burnett, Kenosha, Wis., assignor to American Casting and Manufacturing Company, Plainview, N.Y.

Filed Apr. 2, 1980, Ser. No. 137,016

Int. Cl.³ B65D 33/34

U.S. Cl. 292—318

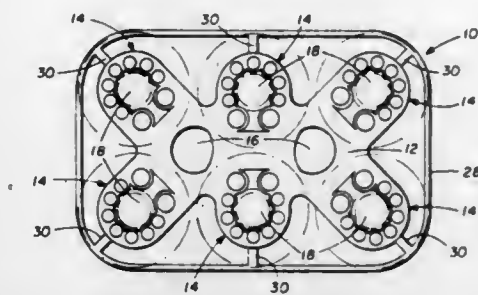
8 Claims



1. A sealing device for a receptacle having at least one open end, which receptacle consists at least in part of deformable material adjacent the open end thereof, so that the material may be gathered together to form a neck, said sealing device comprising a relatively thin band of flexible material which is of sufficient strength that it is manually severable only by cutting through the same,

said band comprising an elongated, flat body portion and a pair of end portions at the extremities thereof, a plurality of serrations formed on the side of the flat body portion of the band which faces the receptacle when secured thereto, one end portion of the band being substantially flat, means on the other end of the band for cooperating with said serrations to lock the band in a circumferentially closed position when secured to the receptacle, said last means comprising a plurality of opposed panels forming slits therethrough of the band, certain of said edges being formed with surfaces to conform with at least a portion of the serrations when the one end of the band is inserted through said slits and the band is manually tightened about the neck of the receptacle, and transverse and spaced apart rounded protuberances formed on the extremity of said other end of the band on the side thereof opposite the serrations to provide a sliding bearing surface for the band when secured to the receptacle and also providing a space thereafter for the insertion of a cutting tool to afford removal of the band from the receptacle without injury to the receptacle.

defined by a plurality of substantially cylindrical segments adapted to releasably receive and retain a bottle by its neck, each of said openings including a wide portion and a narrow slot portion;



the cylindrical segments bounding said wide portion being relatively smaller in diameter than the cylindrical segments bounding said narrow slot portion.

4,365,834

LIFTING TACKLE

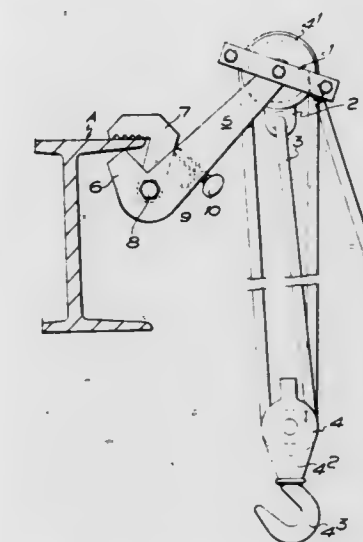
William B. Parkinson, and Trevor Lamprell, both of Atherton, England, assignors to Lifting Gear Hire Limited, Manchester, England

Filed Nov. 24, 1980, Ser. No. 209,689

Int. Cl.³ B66D 3/00

U.S. Cl. 294—85

1 Claim



1. A lifting tackle comprising a pulley block sheave, a hook sheave suspended therefrom, a pair of parallel arms supporting the pulley block sheave, the free ends of the arms being bent at right angles to form one member of a pair of gripping jaws, a member of L shape forming the second jaw of the pair, a spindle extending between the arms on which the L shaped jaw is pivoted to engage the upper surface of a flange of a girder, a support arm affixed to the parallel arms with a bolt screwed therethrough to form a stop for the L shaped jaw before or after attachment to the flange of the girder, the weight of the hook sheave and load depending from the block bringing the jaw integral with the arms into engagement with the opposite surface of the flange to grip the flange between the pair of jaws.

4,365,835

CONTOUR BOTTLE CARRIER

Albert G. B. Quelch, 5841 Melshire Dr., Dallas, Tex. 75230

Filed Aug. 11, 1980, Ser. No. 177,244

Int. Cl.³ B65D 71/00

U.S. Cl. 294—87.2

16 Claims

1. A bottle carrier comprising:
 - a frame;
 - a plurality of predetermined openings within said frame

4,365,837

INERTIAL LOCK

Ned W. Mizelle, Lexington, Ky., assignor to Hoover Universal, Inc., Saline, Mich.

Filed Mar. 5, 1981, Ser. No. 240,773

Int. Cl.³ B60R 21/10; B60N 1/02

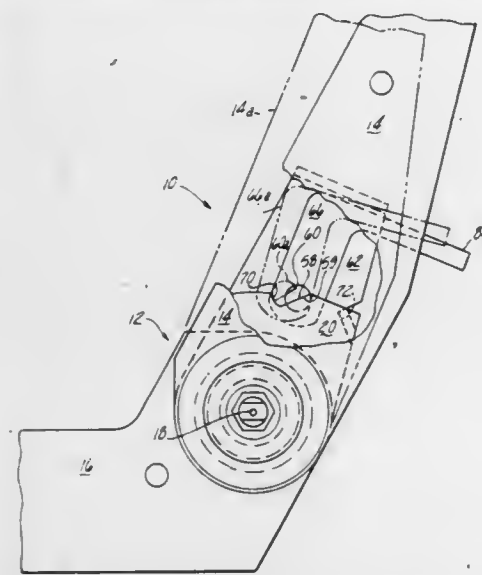
U.S. Cl. 297—216

8 Claims

1. An inertial lock mechanism for preventing relative movement between a first object and an adjacent second object over

which said first object is normally movable in a constrained path, said mechanism comprising:

- (a) a lock pin pivotally mountable to said first object for pivotal movement about an axis perpendicular to said constrained path, said lock pin having a generally flat surface in a plane parallel to said lock pin axis;
- (b) biasing means for urging pivoting of said lock pin about said lock pin axis toward a position in which said flat surface is essentially parallel to said constrained path; and
- (c) a frame member mountable to said second object in registration with said lock pin, said frame member having an angular surface angularly disposed with respect to said position to which said flat surface is biased and engageable with said flat surface so as



to stop relative movement of said first object at one end of said constrained path and rotate said lock pin against said biasing means, said frame member further having a stop surface protruding into the path of said lock pin, engageable with said lock pin only when said lock pin is angularly displaced from said biased position, so as to stop relative movement of said first object in a second and essentially opposite direction along said constrained path, said stop surface and said angular surface being sufficiently spaced apart so as to permit said biasing means to overcome inertia and pivot said lock pin out of engageable relationship with said stop surface except when a predetermined amount of acceleration of said first object causes rapid movement of said lock pin from said angular surface to said stop surface.

4,365,838

INERTIA SEAT BACK LOCK

Alan D. Berg, Oxford, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 31, 1980, Ser. No. 202,493

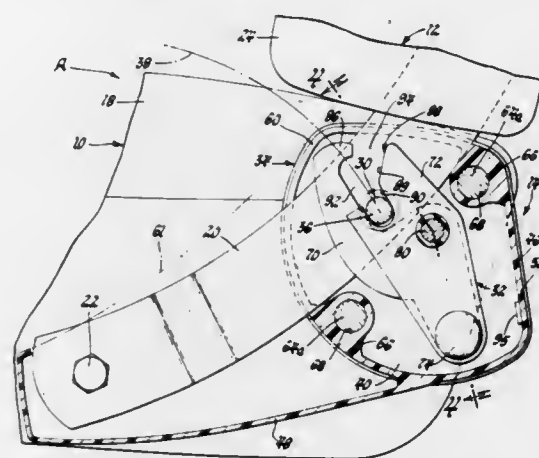
Int. Cl.³ B60N 1/02

U.S. Cl. 297-379

4 Claims

1. A seat assembly for an automotive vehicle comprising: a seat which is adapted to be mounted to vehicle structure, a seat back which is pivotally supported for movement between a fully upright position and a forward position in which it generally overlies said seat, said seat back having a striker means extending transversely of its side which is movable in unison with the back rest through a given arcuate path, an inertia responsive latch means pivotally supported intermediate its ends for movement in opposite directions, said latch means having a latch at one end and first and second cam follower surfaces spaced from said latch and respectively defining with said latch a slot means having first and second slot portions, said second slot portion

extending at an obtuse included angle with said first slot portion, said latch means being gravity biased toward an unlatched position in which said latch is out of the path of movement of the striker means, said striker means sequentially engaging said first cam follower surface and then said second cam follower surface of said latch means to respectively cam and hold the latter against its gravity bias in a latched position in which the latch is disposed within the path of movement of the striker means when the seat back is returned to an upright position, said second cam follower surface extending along the path of movement of said striker means an extent such that the



striker means will hold the latch means in its latched position when the seat back is in its fully upright position as well as when the seat back is in an upright position slightly forwardly of its fully upright position due to an inability to be moved to its fully upright position, said latch means being movable by gravity toward its unlatched position upon said striker means disengaging the second cam follower surface as the seat back is slowly pivoted toward its forward position, and said latch means, due to inertia forces, remaining in its latched position where the latch is engaged by the striker means, even though the latter is disengaged from the second cam follower surface, when the seat assembly is subjected to rapid deceleration forces so that further forward movement of the seat back is prevented.

4,365,839

CHAIR CONSTRUCTION WITH PROTECTIVE CUSHIONING FOR EXPOSED STRUCTURAL PROJECTIONS

Alex Strassle, Kirchberg, Switzerland, assignor to Intercollektion Development SA, Kirchberg, Switzerland

Filed Oct. 18, 1977, Ser. No. 843,303

Claims priority, application Switzerland, Jul. 11, 1977, 8531/77

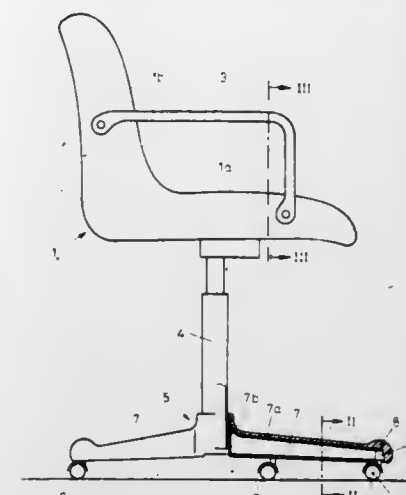
Int. Cl.³ A47C 7/54; A47B 91/00

U.S. Cl. 297-411

4 Claims

1. A chair construction including a seating member, armrests, a plurality of radially oriented foot projections, and a support column connecting the foot projections to the seating member, characterized in that the armrests and foot projections comprise U-shaped members stamped and formed from

sheet metal, all of the portions of said armrests and foot projections which are exposed after assembly of said chair construc-



tion being completely, permanently and unremovably encased prior to said assembly with a layer of soft elastic material.

4,365,840

SEAT WITH BACK CUSHION ATTACHMENT

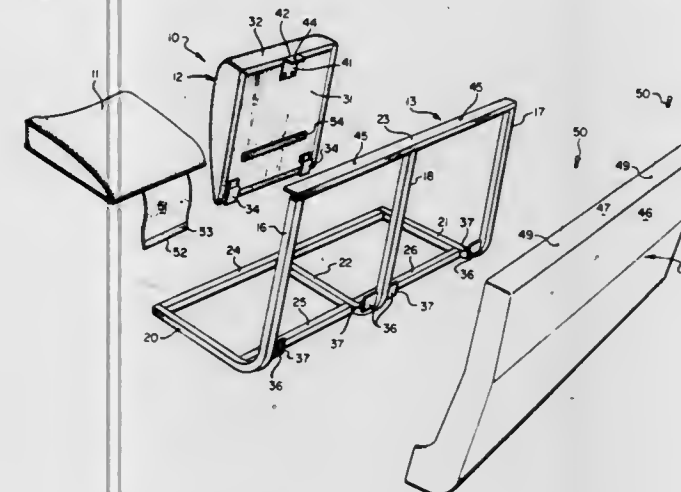
Norman J. Kehl, Elk Grove Village, and Richard C. Magnuson, Island Lake, both of Ill., assignors to Coach & Car Equipment Corporation, Elk Grove Village, Ill.

Filed Oct. 30, 1980, Ser. No. 202,051

Int. Cl.³ A47C 4/02

U.S. Cl. 297-443

7 Claims

**1. A seat comprising:**

- a frame including a pair of spaced-apart vertically extending members and an immovable upper cross member extending between the upper parts of said vertically extending members;
- a back cushion having a front surface portion, a rigid rear member and a top surface portion extending rearwardly from said front surface portion and terminating at said rear member;
- a pair of spaced-apart clips adjacent the bottom of said rear member, each of said clips depending from said rear member and terminating at a free end;
- and a pair of spaced apart tabs located adjacent the bottom of one of said vertically extending frame members;
- each of said clips comprising means for hookingly engaging one of said tabs from above and for mounting said back cushion for essentially pivotal movement about said tabs between a relatively forwardly inclined first position and a relatively upright second position;
- each of said clips being composed of resilient, springable material;
- each of said tabs being composed of rigid material;
- each clip comprising means for gripping a respective tab when said back cushion is in its upright position.

4,365,841

GRAVITY DUMP WAGON

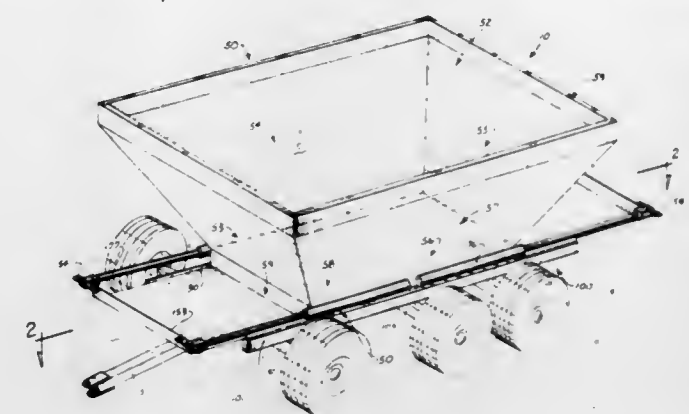
Bruce I. McLaughlin, Glidden, Iowa, assignor to Scranton Manufacturing Co., Inc., Scranton, Iowa

Filed Apr. 18, 1980, Ser. No. 141,368

Int. Cl.³ B60P 1/56

U.S. Cl. 298-27

1 Claim



1. A gravity dumping utility wagon having an open wagon body mounted on a framework which is comprised of a plurality of horizontally disposed, elongated beams, said framework being supported by a plurality of wheels, comprising:

- a plurality of closure members slideably disposed in a horizontal plane below said framework, said closure members being operatively connected to a means for horizontally opening and closing said closure members; said opening and closing including a plurality of hydraulic cylinders fluidly connected to a source of hydraulic fluid and having actuating rods for reciprocation mounted therein extending from one end of said cylinders; said plurality of hydraulic cylinders being disposed in opposite pairs such that one end of each cylinder is attached to said framework while each said actuating rod is attached to a portion of a closure member;
- a plurality of substantially equi-length axles, and a pivotal means for pivotally rotating a front axle of said plurality of axles in perpendicular, horizontal and vertical planes; said pivotal means comprising:
 - a first rectangular plate, horizontally disposed in the front of said wagon, and secured beneath said horizontally disposed beams;
 - a second rectangular plate including a plurality of downwardly disposed apertured flanges positioned at its forward and rearward ends, said apertured flanges including a pivot pin aperture disposed in axial alignment between said flanges; said second plate further comprising a plurality of downwardly disposed stabilizing flanges positioned at its sides;
 - securing means for rotatably securing said second plate beneath said first plate, said securing means comprising a vertical journal post secured at the midpoint of said second plate, a journal aperture disposed in the center of said first plate and a means for securing said journal post within said journal aperture; and
 - a vertical pivot means for pivotally securing said second rectangular plate to said front axle; said vertical pivot means comprising:
 - a plurality of bearing flanges disposed at the midpoint of said front axle, on the forward and rearward sides thereof, and including bearing apertures centrally disposed above said front axle and in corresponding axle alignment between said bearing flanges;
 - a plurality of cylindrical pivot bearings, a first pivot being disposed on the forward side of said forward bearing flange, a second pivot bearing disposed at the rearward side of said rearward bearing flange, said first and second bearings disposed in axial alignment with said bearing apertures; and

a pivot pin pivotally secured through said pivot pin apertures, said bearing apertures and said pivot bearings.

4,365,842

LUBRICANT PUMPING ECCENTRIC IN FLOOR STRIPPING MACHINE

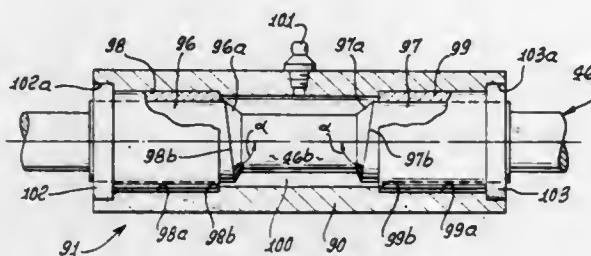
Palmer Grasse, 1407 Lee Dr., Glendale, Calif. 91201

Filed Nov. 6, 1981, Ser. No. 318,827

Int. Cl.³ A47L 11/12

U.S. Cl. 299—37

9 Claims



1. For use in power-operated floor stripping apparatus that includes a frame, a drive carried on the frame, wheels supporting the frame, a handle to guide the frame, and a cutting blade carried by a head which is pivotally mounted to the frame, the improvement comprising

- (a) a connecting element having a first tubular part and a second tubular part, said parts having spaced, parallel axes, said second tubular part pivotally connected to the head,
- (b) a drive shaft extending within said first tubular part, said shaft operatively connected to the drive to be rotated thereby,
- (c) said drive shaft carrying two axially spaced eccentrics to be rotated by the shaft, there being a lubricant receiving space located directly between said eccentrics,
- (d) and two annular bearings respectively carried by and within said first tubular part, said bearings respectively receiving said spaced eccentrics to oscillate said first tubular part, said head and said blade as said eccentrics are rotated by the shaft,
- (e) said eccentrics having oppositely facing end faces which flare radially outwardly and axially away from said space, to urge and guide lubricant toward said bearings.

4,365,843

BLADE HOLDER IN OSCILLATED HEAD FOR FLOOR STRIPPING MACHINE

Palmer Grasse, 1407 Lee Dr., Glendale, Calif. 91201

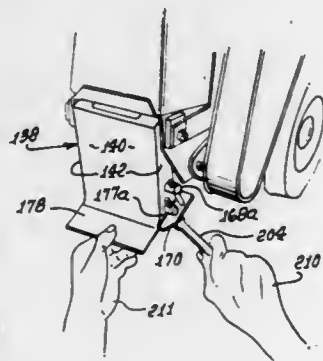
Continuation-in-part of Ser. No. 318,827, Nov. 6, 1981. This

application Dec. 10, 1981, Ser. No. 329,523

Int. Cl.³ A47L 11/12

U.S. Cl. 299—37

10 Claims



1. For use in power-operated floor stripping apparatus that includes a frame, a drive carried on the frame, wheels supporting the frame, a handle to guide the frame, and a cutting blade

carried by a head which is pivotally mounted to the frame, the improvement comprising

- (a) a connecting element, having a first tubular part and a second tubular part, said parts having spaced, parallel axes, said second tubular part pivotally connected to the head,
- (b) a drive shaft extending within said first tubular part, said shaft operatively connectible to the drive to be rotated thereby,
- (c) said drive shaft carrying two axially spaced eccentrics to be rotated by the shaft, there being a lubricant receiving space located directly between said eccentrics,
- (d) two annular bearings respectively carried by and within said first tubular part, said bearings respectively receiving said spaced eccentrics to oscillate said first tubular part, said head and said blade as said eccentrics are rotated by the shaft,
- (e) said head consisting of lightweight metal and having two flanges interconnected by a web, the flanges being locally thickened to substantial extent to define two lugs forming bearing openings for a pivot shaft connected to the frame,
- (f) and a blade holder plate attached to the head at the bottom side thereof, two shafts extending parallel to said head web and through said head flanges to provide shaft projections exteriorly of said flanges, and fasteners extending through said holder plate and having threaded shanks in threaded engagement with threaded openings in said shaft projections, the fasteners having heads below said holder plate to be rotated for clamping the blade between the plate and the head bottom side.

4,365,844

BRAKING CORRECTING VALVE FOR A DUAL BRAKING CIRCUIT

Jean J. Carre, Le Raincy, and Christian Riquart, Paris, both of France, assignors to Societe Anonyme D.B.A., Paris, France

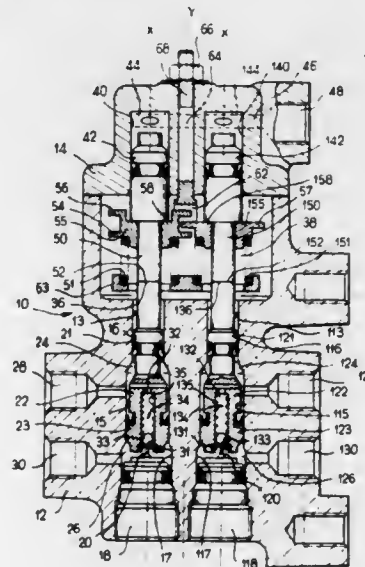
Filed Jan. 19, 1981, Ser. No. 226,309

Claims priority, application France, Jan. 30, 1980, 80 02015

Int. Cl.³ B60T 8/26, 11/34, 17/18

U.S. Cl. 303—6 C

7 Claims



1. A braking correcting valve for a motor vehicle dual braking circuit comprising: a body, two parallel bores in said body defining between them an axis of symmetry, each of said bores communicating with a corresponding inlet port and outlet port, two pistons slidable in said bores, controlling the flow of a pressure fluid between one of said inlet ports and the outlet port corresponding thereto, each of said pistons having an end portion which projects outwardly of said body, and a distributor assembly which is capable of generating, from an actuating force, two pilot forces acting on said end portions to urge the pistons inwardly of the body in the direction of establishing said flow of fluid, said pressure fluid urging the pistons out-

wardly of the body in the direction of interrupting the flow of fluid, characterized in that said distributor assembly comprises: a cover which is fixed with respect to said body, two thrust members which are slidable in said cover parallel to said pistons and capable of coming into abutment with the end portions of said pistons, said actuating force being divided into two equal actuating half-forces which are each applied to one of the two thrust members for urging said pistons inwardly of said body, resilient means for producing a reaction force opposed to said actuating half-forces, and a transmission assembly for distributing said reaction force in the form of two reaction half-forces each applied to one of said thrust members, whereby each thrust member is subjected to opposite forces defining an actuating half-force, and a reaction half-force, the resultant of which constitutes said pilot force, said transmission assembly comprising two transmission elements which are fixed with respect to each of said thrust members, one of said transmission elements comprising two axially separated radial projections and the other said transmission elements comprising a radial projection which projects between the radial projections of the first transmission element and being capable of coming into engagement with one of said two radial projections when the relative axial displacement between the two pistons exceeds a predetermined value.

4,365,845

HYDRAULIC BRAKE PRESSURE CONTROL VALVE

Masami Aono, Yokohama, Japan, assignor to Tokico Ltd., Kawasaki, Japan

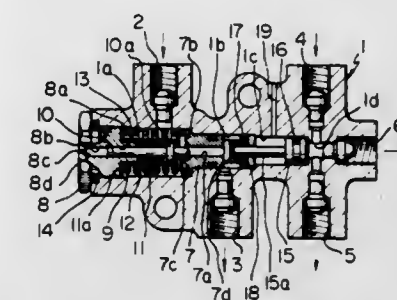
Continuation of Ser. No. 87,298, Oct. 22, 1979, abandoned. This application Oct. 2, 1981, Ser. No. 308,174

Claims priority, application Japan, Oct. 20, 1978, 53-144213

Int. Cl.³ B60T 8/26

U.S. Cl. 303—6 C

2 Claims



- 1. A hydraulic brake pressure control valve comprising:
 - a housing having a first inlet for being supplied with hydraulic pressure fluid under pressure and a first outlet and a second inlet for being supplied with hydraulic pressure fluid under pressure;
 - a valve piston slidably disposed in said housing and having a passage therethrough connecting said first inlet and said first outlet;
 - an actuating piston slidably disposed in said housing for being acted on by the hydraulic pressure fluid from said second inlet and having a rod extending therefrom and abutting said valve piston for urging the valve piston toward said first inlet under the pressure of the hydraulic pressure fluid acting on said actuating piston;
 - a first spring urging said valve piston toward said actuating piston and preventing movement of said valve piston at pressures less than a pressure P_1 ;
 - a valve seat on said valve piston at the end of the passage opening toward said first inlet;
 - said housing further having a bore therein, one end of said bore opening to the atmosphere and the other end being exposed to the pressure of the hydraulic pressure fluid from said inlet;
 - a valve body being slidably and sealingly mounted in said bore and projecting out of the other end of said bore and cooperating with said valve seat;
 - a second spring engaged with said valve body and urging said valve body toward said valve seat and preventing

movement of said valve body at pressures less than pressure P_2 which is greater than pressure P_1 ; and a retainer normally retaining said valve body at a predetermined position in the housing.

4,365,846

DUAL-CIRCUIT PRESSURE CONTROL VALVE FOR HYDRAULIC BRAKE SYSTEMS

Bernd Schopper, Hattersheim; Peter Tandler, Falkenstein; Herbert Hartmann, Wiesbaden, and Manfred Reuter, Weilmuenster, all of Fed. Rep. of Germany, assignors to ITT Industries, Inc., New York, N.Y.

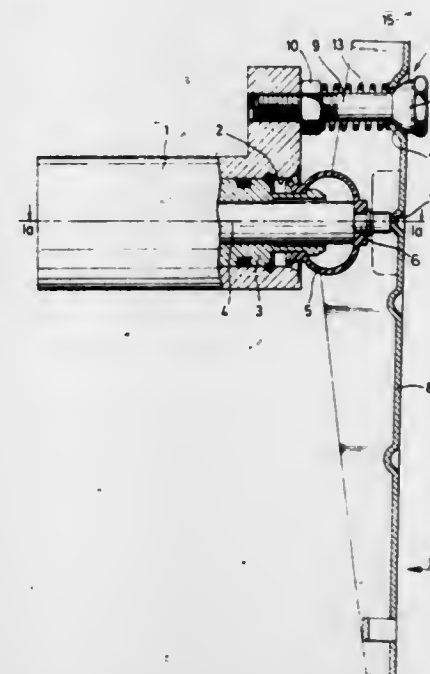
Filed Mar. 2, 1981, Ser. No. 239,732

Claims priority, application Fed. Rep. of Germany, Apr. 2, 1980, 3012765

Int. Cl.³ B60T 17/00

U.S. Cl. 303—56

9 Claims



- 1. A dual-circuit pressure control valve for hydraulic brake systems comprising:
 - a housing;
 - two control pistons disposed in said housing in a parallel side-by-side relationship, each of said two pistons being assigned to a different one of two brake circuits and loaded by a single common, adjustable preloading force; and
 - a lever having a longitudinal axis supported in a mount fastened to said housing acting on each of said control pistons to distribute said preloading force evenly thereto, said lever being tiltable about an axis parallel to said two pistons and about said longitudinal axis, said lever bearing against said mount at at least one support point disposed approximately in said longitudinal axis.

4,365,847

PROCESS AND DEVICE FOR BRAKING A WHEEL BY INTEGRATED PRESSURE PULSES

Henri Martin, Saint Nazaire, France, assignor to Societe Nationale Industrielle Aerospatiale, Paris, France

Filed Mar. 13, 1981, Ser. No. 243,347

Claims priority, application France, Mar. 25, 1980, 80 06576

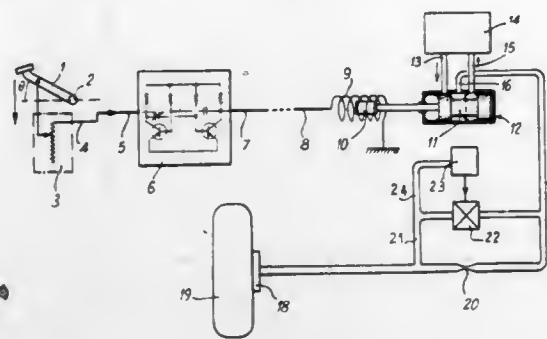
Int. Cl.³ B60T 8/00

U.S. Cl. 303—93

15 Claims

- 1. A process for braking a wheel, particularly of an aircraft taxiing on the ground, by means of a brake supplied with fluid under pressure from a source under stable pressure, and via a control member actuated voluntarily, said process comprising the steps of:
 - converting the actuation of said control member into a first temporal sequence of electrical pulses at constant fre-

quency, such that the duration of each of them is a function of the instantaneous amplitude of said actuation, converting said first sequence of pulses into a corresponding second temporal sequence of fluid pressure pulses, such



that with each electrical pulse is associated a pressure pulse representative of said electrical pulse, integrating the pressure pulses of said second sequence in order to obtain a mean pressure, and applying said mean pressure to said brake.

4,365,848

CONNECTION LINK FOR ENDLESS CHAINS OF TRACKED EQUIPMENT

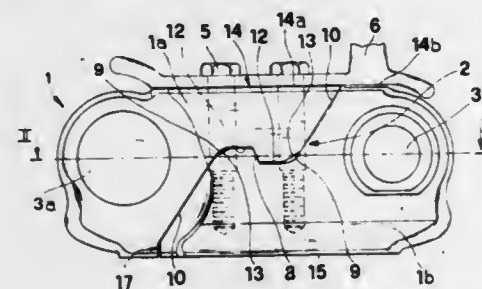
Walter Grilli, Modena; Aldo Crotti, and Giuseppe Barchetti, both of Castelnovo, all of Italy, assignors to Italtactor I.T.M. S.p.A., Castelvetro, Italy

Filed May 28, 1980, Ser. No. 154,100

Claims priority, application Italy, Jul. 9, 1979, 28976/79[U] Int. Cl.³ B62D 55/28

U.S. Cl. 305—54

19 Claims



1. An endless chain connection link for tracked equipment, of the type comprising first and second mutually complementary link portions, each of said link portions including a bushing seat adapted to connect a plurality of said links together into a chain, said link portions of said connection link being separated by a parting line along only part of which the two link portions are in contact, each of said link portions comprising a single tooth and a single space arranged thereon in such a way that the tooth of one portion is contained in the space of the other portion in the assembled together condition of said link portions, said connection link comprising a shoe and screw means, the two link portions being connected to each other by said screw means which also secure said shoe to the connection link, characterized in that: said link has a median longitudinal plane containing the axes of said seats, each link portion tooth being defined by a pair of side surfaces (10) and (8) and a land (12) therebetween, the contact between said link portions occurring only on said side surfaces (10) and (8) of the tooth, the contact between the two side surfaces (8) of the teeth occurring along a common contact surface which intersects said median longitudinal plane; and said common contacting surface defining a straight line which is approximately equidistant from the axes of said seats, which is symmetrical relative to said median plane, which is at an angle with respect to said median plane so as to form obtuse angles with said lands (12) and which is approximately perpendicular to the tractive force exerted on said link portions when the assembled link is placed in use in a chain on a piece of tracked equipment.

4,365,849 HYDRODYNAMIC SHAFT BEARING WITH CONCENTRIC OUTER HYDROSTATIC SQUEEZE FILM BEARING

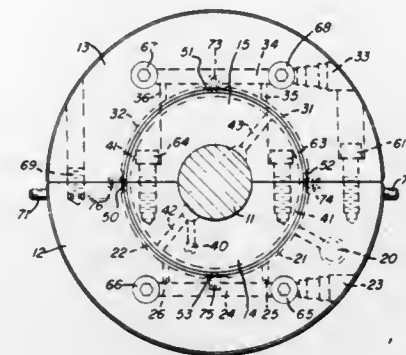
John D. Halloran, East Amherst, N.Y., assignor to Joy Manufacturing Company, Pittsburgh, Pa.

Filed Feb. 19, 1981, Ser. No. 235,372

Int. Cl.³ F16C 7/04, 35/00

U.S. Cl. 308—9

9 Claims



1. An inner elongated cylindrical bearing member having a central axially extending through bore therein for rotatably supporting a shaft in hydrodynamic relationship; an outer elongated bearing member having a central axially extending through bore axially encompassing said inner bearing member with the inner surface of said outer bearing member being radially spaced from the outer surface of said inner bearing member to form a chamber therebetween; said bores having generally coincident central axis; sealing means cooperable with said bearing members in axially spaced relationship whereby said chamber is a closed volume chamber; at least one of said members having at least three pockets therein in hydraulic communication with said chamber and extending radially with respect to said chamber and are equiangularly spaced with respect to said central axis; said outer member having first passageway means therein to permit supplying of pressurized hydraulic fluid to said pocket and said chamber; and second passageway means in said inner bearing member for placing said chamber in fluid communication with said bore of said inner bearing member establishing a hydraulic fluid flow path from such chamber to said bore in said inner bearing member whereby a path is formed for pressurized hydraulic fluid to enter said pockets through said first passageway and to flow through said chamber to form a hydrostatic bearing for supporting said inner member and to flow from said pockets to said second passageway and to flow through said second passageway to said bore of said inner bearing to form a hydrodynamic bearing for supporting such shaft.

4,365,850

CLUTCH THRUST BEARING UNIT WITH GUIDED ELASTIC SELF-ALIGNMENT

Daniel Perrichot, Guyancourt, and Maurice Faurie, Alfortville, both of France, assignors to SKF Compagnie d'Applications Mecaniques, Clamart, France

Filed Jan. 28, 1981, Ser. No. 229,234

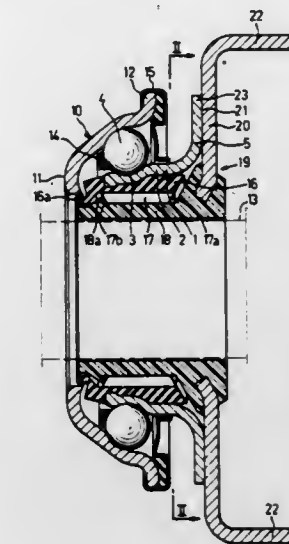
Claims priority, application France, Feb. 1, 1980, 80 02278 Int. Cl.³ F16C 19/10

U.S. Cl. 308—26

9 Claims

1. A guided self-aligning clutch release bearing mountable on a guide tube in a clutch assembly, comprising: an anti-friction bearing with rolling parts; an outer bearing-race ring and an inner bearing-race ring slidably axially with respect to the guide tube, one of said bearing-race rings having a first radial flange having two diametrically opposite radial extensions;

an elastic sleeve on the interior of said inner bearing-race ring, having a plurality of resilient internal projections substantially parallel to the bearing center line, sloping relative to the radial direction; a rigid guide socket having at least a portion thereof lying radially inwardly of the inner bearing-race ring and in direct slidable contact with the guide tube, said portion being also in direct external contact with said resilient projections, said guide socket having a second radial flange in frictional guiding contact with the first radial flange of said one bearing-race ring,



said internal projections of said elastic sleeve comprising means for permitting radial movement of said inner bearing-race ring and for restoring said inner bearing-race ring to concentric relation with the portion of said guide socket which is contacted by said projections, and at least one stop means protruding axially in the direction of the bearing and adapted to contact one of said radial extensions upon rotation of said one bearing-race ring, said stop means being disposed where it will not jam the movement of the radial flange toward the stop means.

4,365,851

LUBRICANT RECIRCULATION SYSTEM FOR THE BEARING OF A ROTATING SHAFT

Helmuth Andres, Kiel; Karl-Heinz Fichtner, Strande, and Hans-Siegfried Fisher, Kiel, all of Fed. Rep. of Germany, assignors to Anschutz & Co., GmbH, Kiel-Wik, Fed. Rep. of Germany PCT No. PCT/DE79/00146, § 371 Date Aug. 15, 1980, § 102(e) Date Jul. 22, 1980, PCT Pub. No. WO80/01304, PCT Pub. Date Jun. 26, 1980

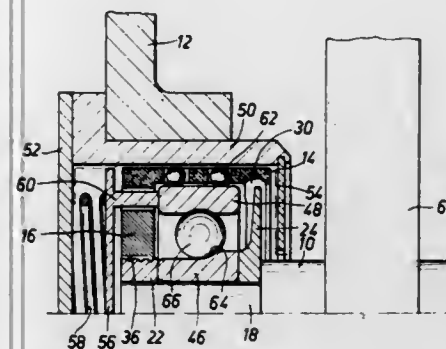
PCT Filed Dec. 14, 1979, Ser. No. 204,363

Claims priority, application Fed. Rep. of Germany, Dec. 15, 1978, 2854298

Int. Cl.³ F16C 33/66

U.S. Cl. 308—187

8 Claims



1. A lubricant recirculation system for a bearing of a rotating shaft (10, 18) having a lubricating surface rotating with the shaft;

a slinger disk (24, 26) adjoining the surface rotating with the shaft; a lubricant reservoir (14, 16) comprising porous material at least in part surrounding the circumference of the slinger disk; and means for returning the lubricant from the reservoir to the bearing surface, wherein, the means for returning the lubricant from the reservoir to the bearing surface includes a surface formed on said porous material lubricant reservoir (14, 16) in alignment with a surface rotating with the shaft and axially adjoining the bearing surface, said surface on the porous material lubricant reservoir being spaced from the bearing (20-24) rotating with the shaft (10, 18) and defining a slot (36) therebetween, so that said slot (36) will be bounded on one side by a surface (32) axially adjoining the bearing surface rotating with the shaft and on the other side by a porous surface of the porous material lubricant reservoir (14, 16); said slot (36) forming, upon rotation of the shaft, a pumping chamber of a dynamic pump transporting lubricant from the reservoir to said bearing part, the slinger disk supplying the lubricant, which has passed through the bearing (20-24) back to the porous material lubricant reservoir, for recirculation by said dynamic pump; wherein the bearing is a ball bearing and the porous lubricant reservoir (14) is shaped as a cage bounding the slot on the outside and the cage (14) forming the lubricant reservoir includes guiding balls (62) therein, the lubricant reservoir cage being located between the outer race (48) of the ball bearing, on the shaft (10) and the housing (12), the inner race of the ball bearing being positioned on the shaft (10) and wherein the lubricant reservoir (14) shaped as the cage (14) has a flange (16) which is located adjacent to said ball bearing and which has an inner surface delimiting the slot (36).

4,365,852

SNAP CAGE OF PLASTIC MATERIAL FOR BALL BEARINGS

Rudolf Fingerle, Esslingen, Fed. Rep. of Germany, assignor to SKF Kugellagerfabriken GmbH, Schweinfurt, Fed. Rep. of Germany

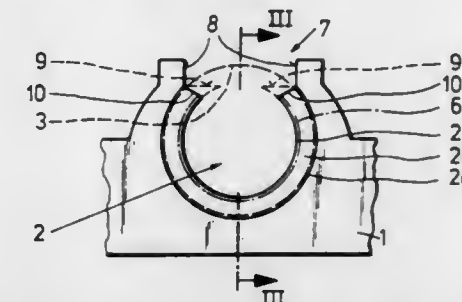
Filed Dec. 19, 1980, Ser. No. 218,111

Claims priority, application Fed. Rep. of Germany, Dec. 24, 1979, 2552252

Int. Cl.³ F16C 33/38

U.S. Cl. 308—201

2 Claims



1. A plastic snap cage for ball bearings, comprising an annular ring having a plurality of pockets for receiving a ball therein, uniformly spaced about the periphery thereof, each of said pockets having an opening formed at one front edge of said ring limited by planar surfaces extending parallel and symmetrically to a radial line across the entire width of the cage and defining the inside width of the pocket opening, each of said pockets being provided in the radial direction with a cylindrical first section conforming to the diameter of the ball and open towards the outer circumference of the cage, an adjacent conically tapering section forming a bearing surface for the ball, and adjacent to the latter a cylindrical, axially

short third section, said pocket opening having surface wall sections extending in depth in a radial plane to the first cylindrical section up to the inside width of said first cylindrical section.

4,365,853

ARTICLE FOR STORING AND DISPENSING DETERGENT COMPOSITIONS UTILIZING SEPARATE TABLETS OF COMPONENTS

Robert L. Ehrlich, Wyckoff, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

Division of Ser. No. 722,988, Sep. 13, 1976, Pat. No. 4,099,912, which is a continuation of Ser. No. 470,258, May 15, 1974, abandoned. This application Jun. 30, 1978, Ser. No. 920,936

Int. Cl.³ B65D 83/04

U.S. Cl. 312-42

3 Claims

1. A dispensing article for dispensing a detergent composition in the form of a plurality of separate units of at least two different detergent composition components as selected by the operator to produce an efficient washing composition for the type of laundry being washed in the washing machine which comprises a holder which holds from 2 to 10 receptacles for storing and dispensing a plurality of separate units of the detergent composition components with units of only one detergent composition component being present in each receptacle, each said receptacle being a vertical tube having a filling opening at the top, retaining means at the bottom, viewing openings or a transparent section therein through which the unit contents of the receptacle may be viewed, wall sections at the lower end of the tube defining an opening through which units can be removed transversely, one by one, as desired and being sized to dispense units each having a weight of 5 to 30 grams, a volume of 4 to 20 milliliters and a density of 0.8 to 2 g./ml; means on a wall of each receptacle for attachment of said receptacle to said holder; said means being adapted to be readily removable from said holder; and means for fastening the holder to a wall or to a washing machine in a convenient location for dispensing.

4,365,854

CABINET CONSTRUCTION

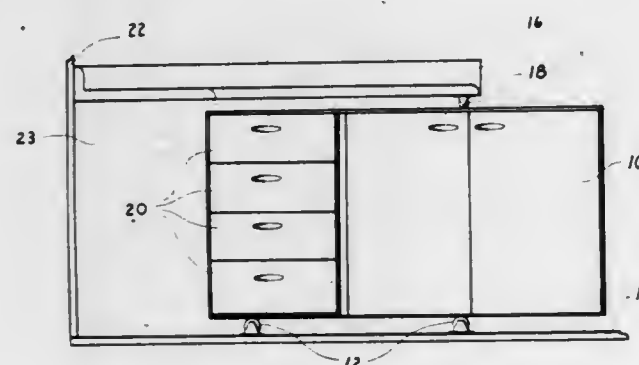
Gary G. Waller, 818 Sommerville St., Shakopee, Minn. 55379

Filed Aug. 25, 1980, Ser. No. 180,940

Int. Cl.³ A47B 53/00, 91/00

U.S. Cl. 312-250

2 Claims



1. A cabinet construction which comprises a fixed cabinet, a cabinet movable parallel to its facing which is adjacent and perpendicular to the fixed cabinet so at a retracted position a portion of the facing of the movable cabinet abuts one end of the fixed cabinet, and at an extended position, the facing of the movable cabinet is accessible, further comprising a countertop and a roller mounted on the underside of the countertop to support the countertop by bearing upon the top of the movable cabinet.

4,365,855 STORAGE FACILITY SUCH AS A FILE HAVING A FLEXIBLE ROTATABLE COVER

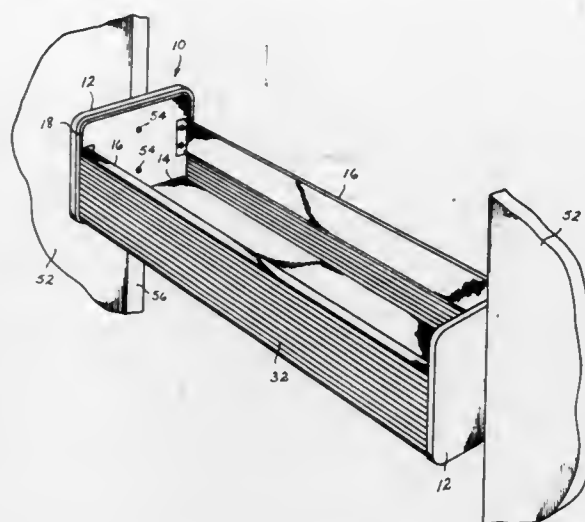
Edward H. Mark, U.S. 31 North, Niles, Mich. 49120

Filed May 19, 1980, Ser. No. 150,716

Int. Cl.³ E06B 9/14

U.S. Cl. 312-297

3 Claims



1. A storage facility comprising a pair of spaced parallel plates having opposing side faces, a brace part extending between said end plates from one side face to the other side face thereof, each end plate having a peripheral continuous groove formed in its side face circumscribing said brace part at the end plate, a flexible cover extending between said end plates and including peripheral edges each fitted within a said peripheral groove, means for connecting said end plates to a vertical support whereby the storage facility will be suspended for use, each peripheral groove constituting guide means wherein said cover can be rotated about said brace part into various operative positions, said cover constituting at least two sides of said storage facility in all operative positions of the cover, each end plate including an end edge, said means for connecting said end plates including a slot formed in each plate at its side face paralleling said plate end edge, a bore extending from said plate end edge to said slot, catch means for supporting engagement with said vertical support, a threaded screw connecting said catch means to said end plate at its end edge and extending through said bore into said slot, a nut turned onto said screw within said slot in compression with said end plate to secure the screw within said bore.

4,365,856

ELECTRIC CONNECTOR FOR COAXIAL RIBBON CABLE

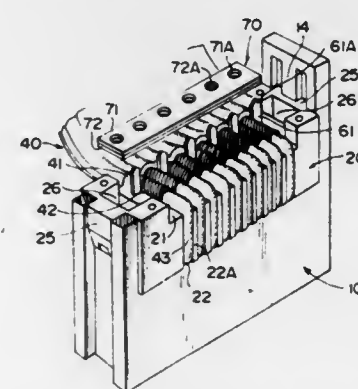
Hirokatsu Yaegashi, and Shinichi Watanabe, both of Ohsaki, Japan, assignors to Hirose Electric Co., Ltd., Tokyo, Japan

Filed Jul. 9, 1980, Ser. No. 166,993

Int. Cl.³ H01R 4/66

U.S. Cl. 339-14 R

5 Claims



1. An electric connector for coaxial ribbon cable comprising

a guide block for positioning one end of a coaxial ribbon cable to be terminated, a cable clamp coupled to the guide block for clamping the coaxial ribbon cable and a housing having the body of a ground contact disposed in the center thereof and at least one signal contact disposed therein on at least one side of the body of the ground contact, said ground contact being provided with a predetermined number of contacting sections, said contacting sections being located in the same line as said signal contacts are arranged, whereby the top ends of said ground contact and said signal contacts can be terminated to the outer conductors and the inner conductors respectively, of the one end of said coaxial ribbon cable as positioned in said guide block when said coaxial ribbon cable is terminated to said electric connector, said guide block being formed so that the one end of the coaxial ribbon cable is wrapped about the guide block, with the exposed outer conductors of the one end of the coaxial ribbon cable being positioned in the top surface of the guide block and the portion of the one end of the coaxial ribbon cable from which at least the outer conductors are removed being positioned in the bottom surface of the guide block, said top end of said ground contact comprising a plurality of legs extending from said body of said ground contact to about the level of said top surface of said guide block and arranged at the same pitch as that of the coaxial ribbon cable, and said top ends of said signal contacts comprising a terminating section extending to about the level of said bottom surface of said guide block and having a wire receiving slot.

4,365,857

CONNECTOR HAVING POLARITY

Kouji Watanabe, Yokohama, and Hiroshi Tokudome, Kawasaki, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

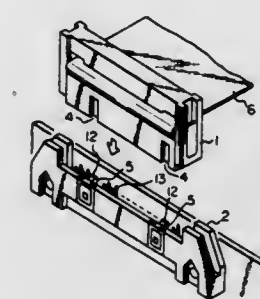
Filed Aug. 29, 1980, Ser. No. 182,669

Claims priority, application Japan, Aug. 31, 1979, 54-110213

Int. Cl.³ H01R 13/645

U.S. Cl. 339-17 C

14 Claims



1. A connector having polarity comprising:

a jack;

a plug having a side wall; and

at least one polar key element, wherein said polar key element has a handle plate, a frame, two connecting bridges which connect said handle plate and said frame, a thin portion formed on each of said bridges near the connecting portion with said frame, a bar-like polar key supported on said frame adjacent to the space between said two bridges, and a projection which is formed on the upper end of said bar-like polar key and projects upward therefrom; and wherein the side wall of said plug is inserted between said bar-like polar key and said frame for positioning said polar key element thereon.

4,365,858

MOLDED PROTECTION CAP

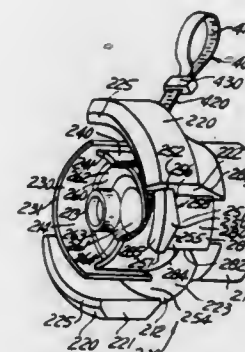
James J. Karol, Unadilla, N.Y., assignor to The Bendix Corporation, Southfield, Mich.

Filed Mar. 3, 1981, Ser. No. 239,956

Int. Cl.³ H01R 13/44

U.S. Cl. 339-36

7 Claims



1. A molded protection cap (200) for an assembly of the type including an electrical cable (50) joined in electrical circuit relationship to a contact terminal (130) mounted in an electrical connector (100) such that a forward end of the terminal is exposed for mating and faces forwardly, said connector including a pair of locking lugs (150) being provided with a radially inwardly directed lip (154), said protection cap (200) characterized by:

an integrally molded body (210) including a pair of walls (220) and a pair of rigid latch (280) members extending axially forward therefrom to define a cavity (214); and a resilient member (260) disposed in the cavity and configured for biasing against the forward end of the connector and providing a cover for protecting the exposed mating end of the contact terminal;

each wall (220) having first and second longitudinal wall ends (221, 222) with the first wall ends (221) being spaced from the second wall ends (222) to define a separation therebetween sized to dispose one latch member therein; each said latch member (280) having first and second longitudinal latch edges (281, 282) with the first of said latch edges (281) being adjacent to the second of said wall ends (222) and the second of said latch edges (282) being spaced from the first of said wall ends (221);

each said latch member further including a radially outwardly directed ridge (250) having a lateral sidewall (251) cooperating with the first of said wall ends (221) to define a keyway (254) for allowing axial approach and retreat of the locking lug and for preventing rotation of the lug and the connector relative to the cap and a V-shaped portion for engaging the lip, the V-shaped portion including a pair of ramps (255, 256) which slope from the first and second latch edges respectively to meet at a peak (257) medial of the latch and which allow relative rotation between the cap and the connector while substantially preventing relative axial retreat of the connector from the cap;

a lug locking recess (258) being defined between the peaks (257) and the second ends (222) of the walls, whereby for assembly each lug (150) is guided forwardly in the keyway (254) and rotated from the keyway, thus causing each lip (154) to bear against the first ramp (255) and the connector and cap to advance axially towards one another, further rotation advancing the lip (154) over and beyond the peak (257) whereupon the resilient member (260) biases the lug (150) into a locked relation in the recess (258).

4,365,859

COAXIAL TAP CONNECTOR

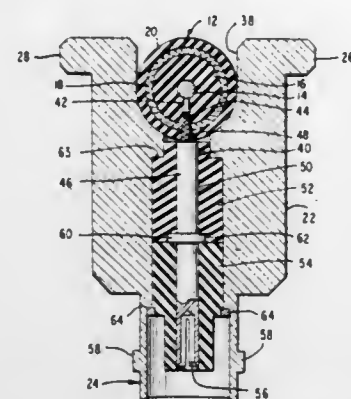
Harold G. Hutter, Brookfield, and Leonard J. Francis, Waterbury, both of Conn., assignors to Bunker Ramo Corporation, Oak Brook, Ill.

Filed Aug. 22, 1980, Ser. No. 180,278

Int. Cl.³ H01R 11/20, 33/00

U.S. Cl. 339—97 P

6 Claims



1. A simple low-cost coaxial cable tap adapted for toolless installation upon a coaxial cable in the field without interrupting the cable comprising:

a housing forming a U-shaped support channel for receiving and aligning an intact section of a coaxial cable, said housing including a coaxial connector element affixed thereto for detachable engagement with a mating coaxial connector element;

contact means in the bottom of said channel for piercing and making an electrical contact solely with the outer conductive shield of said coaxial cable when said coaxial shield is pressed into said channel;

an elongate contact mounted in said housing and extending radially into said U-shaped channel for piercing said cable and making electrical connection with the central conductor thereof when said cable is pressed into said channel, said elongate contact including an insulated stem for preventing electrical connection with said shield, and a barbed head for minimizing movement of said center connection once made; and

cover means for said housing for closing said U-shaped channel and for maintaining said cable slightly compressed therein.

4,365,860

INTEGRAL HOUSING INSULATION-PIERCING CONNECTOR

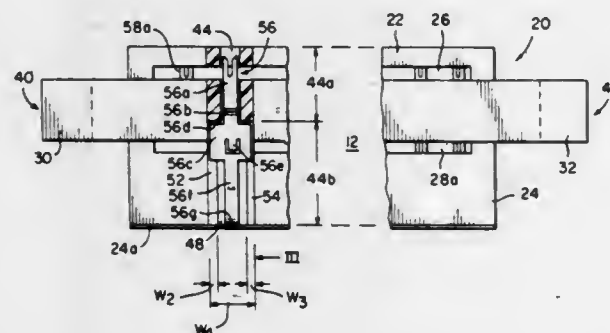
Amir-Akbar Sadigh-Behzadi, Van Nuys, Calif., assignor to Thomas & Betts Corporation, Raritan, N.J.

Filed Dec. 30, 1980, Ser. No. 221,395

Int. Cl.³ H01R 11/20, 13/514

U.S. Cl. 339—97 P

15 Claims



1. An electrical connector for insulation-piercing termination of multiconductor flat cable, said connector comprising an upstanding housing having a cover integral with a base and a channel bounded by said cover and said base for receiving said

cable, a plurality of slots accessible at the underside of said base and extending therethrough and into said cover, each such slot having an identical geometric boundary over an extent thereof in said cover and said base adjacent said channel, and a plurality of contacts, each such contact being insertable at such base underside into one of said slots and having an insulation-piercing end portion of geometry compatible with residence thereof in said slot extent.

4,365,861

WIRE TERMINAL

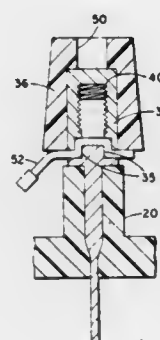
William C. Gore, Elgin, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Dec. 29, 1980, Ser. No. 221,072

Int. Cl.³ H01R 9/10

U.S. Cl. 339—202

6 Claims



1. An electrical connector comprising a bolt and a cap said bolt comprising an axially extending member having a first maximum external lateral dimension, a laterally extending flange having a second maximum external lateral dimension, said flange forming a first reference surface in a first plane said member having a longitudinal slot extending axially thereto, the bottom of said slot forming a second reference surface in a second plane axially removed from said first plane, said first and second reference surfaces being interconnected by generally axially extending walls, said member having an external thread on a portion thereof; said cap having an internal thread on a portion thereof which forms a first maximum internal lateral dimension and will mate with the external thread on said bolt, a recess at one end of said cap defining a second maximum internal dimension which is greater than said first maximum internal lateral dimension, said recess further defining a shoulder at the point of maximum extent into the cap and an annular internal surface extending toward said one end, such that a wire may be inserted in said slot and the cap threadingly engaged with said bolt so the wire will be deflected into a non-linear path at least partially engaging a portion of axially extending walls with a portion of the wire effectively clamped between said second reference surface on the bolt and the shoulder of the cap recess.

4,365,862

OPTICAL SWITCH

Hiroshi Terui, and Morio Kobayashi, both of Mito, Japan, assignors to Nippon Telegraph & Telephone Public Corporation, Tokyo, Japan

Filed Jan. 5, 1981, Ser. No. 222,650

Claims priority, application Japan, Jan. 18, 1980, 55-3474; May 2, 1980, 55-59179; Jun. 7, 1980, 55-76861; Oct. 6, 1980, 55-138766

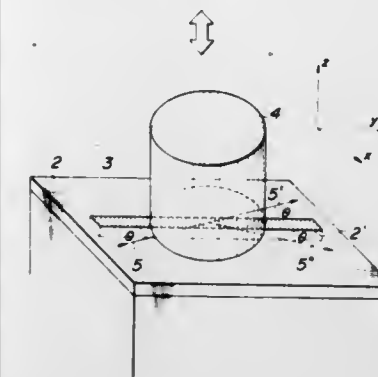
Int. Cl.³ G02B 5/14

U.S. Cl. 350—96.13

19 Claims

1. An optical switch comprising:
a substrate with a refractive index n_1 which is transparent with respect to a guided light beam;
an optical waveguide film with a refractive index n_2 which is formed on said substrate;
a low-refractive-index region with a refractive index n_2' which

is smaller by a predetermined value than said refractive index n_2 formed at a predetermined location in said optical waveguide film;
a movable dielectric chip with a refractive index n_4 which is transparent with respect to said guided light beam and a relative distance of which is adjustable relative to a plane including said low-refractive-index region and a vicinal area of said optical waveguide film in the vicinity of said low-refractive-index region; and



an intermediate layer with a refractive index n_3 which is disposed between said plane and said movable dielectric chip, wherein said refractive indices n_1 , n_2 , n_2' , n_3 and n_4 have a relationship of $n_2 > n_2' > n_4 > (n_1, n_3)$, and effective refractive indices of said optical waveguide film and said low-refractive-index region are varied by changing a distance between said plane and said movable dielectric chip, so that the guided light beam incident to said low-refractive-index region is deflected.

4,365,863

OPTICAL SWITCH FOR A VERY LARGE NUMBER OF CHANNELS

Georges J. G. Broussaud, Colombes, France, assignor to Le Materiel Telephonique Thomson-CSF, Colombes, France

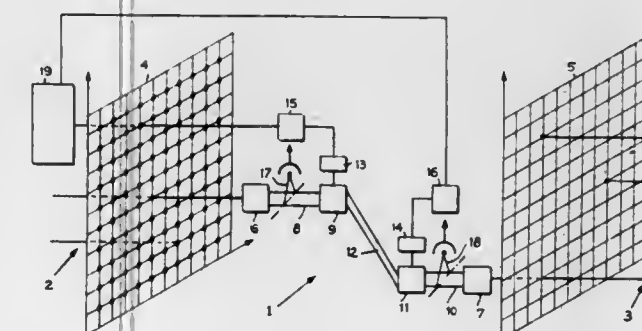
Filed May 29, 1980, Ser. No. 154,298

Claims priority, application France, May 30, 1979, 79 13766

Int. Cl.³ H04B 9/00

U.S. Cl. 350—96.15

7 Claims



1. A bidirectional optical switching system for selectively interconnecting a first group of optical fibers and a second group of optical fibers, the ends of the fibers in each group being coplanar and arranged in an array, the two arrays facing one another and having a space therebetween, said bidirectional optical switching system comprising:

a plurality of propagation mode converters, with one converter being associated with each fiber of each array, for receiving the optical signal from the associated fiber and producing an output optical signal;

a plurality of deflectors with one deflector being associated with each propagation mode converter, for receiving the output signal from the associated propagation mode converter;

at least one control interface being associated with at least one deflector, for controlling the associated deflector;

at least one logic circuit, with each logic circuit being associ-

ated with at least one control interface, for driving the associated control interface;

a plurality of address detectors, with one address detector being associated with each propagation mode converter and each of said detectors located between each associated mode converter and each said mode converters associated with one of said deflectors, said address detectors extracting address data from said output optical signal and controlling said logic circuit in response thereto, so that said control interface causes said deflector to switch the output optical signal to a desired optical fiber of the opposite array.

4,365,864

OPTICAL FIBRE MULTIPOINT COUPLERS

Andrew G. Cowley, Eastleigh; David N. Payne, Southampton, and Paul M. Watson, Porchester, all of England, assignors to National Research Development Corporation, London, England

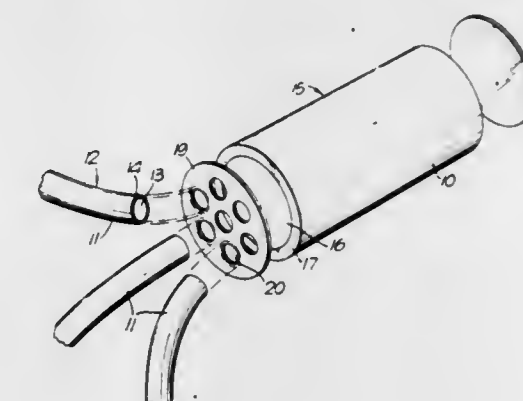
Filed Aug. 1, 1980, Ser. No. 174,444

Claims priority, application United Kingdom, Aug. 10, 1979, 7927916

Int. Cl.³ G02B 5/14, 5/16, 5/172

U.S. Cl. 350—96.16

14 Claims



1. An optical fibre coupler for use with an array of fibres each including a cladded central core, the coupler including a mixer-rod having a layer of highly reflective material located on a fibre array connection surface on the mixer-rod, the layer being non-continuous, arranged to reflect internally of the mixer-rod and containing apertures corresponding to fibre core positions when the fibre array is coupled.

4,365,865

HYBRID CABLE CONSTRUCTION

Kenneth M. Stiles, San Dimas, Calif., assignor to Sea-Lag Corporation, Pasadena, Calif.

Filed Jan. 30, 1981, Ser. No. 229,663

Int. Cl.³ G02B 5/16

U.S. Cl. 350—96.23

11 Claims

1. A hybrid cable construction having an axis and windings which comprises a plurality of optical fibers helically wound with a plurality of sheathed metal conductors formed of a metal core surrounded by an adherent sheath of fiber-reinforced resin, the optical fibers and sheathed metal conductors wound in the cable to a lay angle which substantially satisfies the expression:

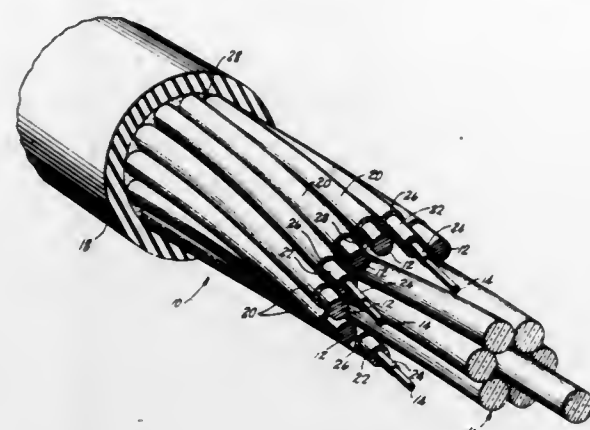
$$R_c = \frac{\text{Pitch Diameter}}{2(\sin \theta)^2}$$

wherein

R_c = radius of curvature of a given winding of the cable and is greater than 5 cm;

Pitch Diameter = diameter of the cable at a given winding; and

θ = lay angle of a winding to the axis of the cable.



4,365,866

LIGHT MASKING DEVICE

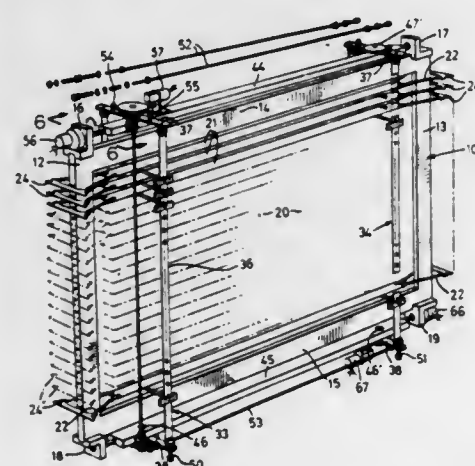
Peter Softly, Toronto, Canada, assignor to Invisible Optics Inc., Toronto, Canada

Filed Dec. 10, 1980, Ser. No. 214,710

Int. Cl.³ G02B 27/00

U.S. Cl. 350—276 R

11 Claims



1. A light masking device for improving image contrast on a video display screen under conditions of high ambient light, comprising a support frame adapted to be positioned in front of the screen and an optical filter supported thereby, the optical filter comprising a grating of spaced, elongated planar slats extending horizontally across the width of the screen, the slats being differentially inclined from the horizontal in the directions of their widths so as to converge on a horizontal line at a selected height and a selected distance from the screen, wherein the slats are pivotally connected to the support frame for pivotal movement about respective horizontal axes, the device further comprising linkage means interconnected with the slats for differentially adjusting the inclinations of the slats for selectively adjusting the position of said horizontal line on which the inclined slats converge.

4,365,867

ELECTRICALLY ADJUSTABLE APPARATUS FOR MOTOR VEHICLE REAR VIEW MIRROR

Roland Siefert, Im Herrengarten 6, D-7737 Bad Dürkheim, Fed. Rep. of Germany

Filed Dec. 18, 1980, Ser. No. 217,759

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1979, 2952084

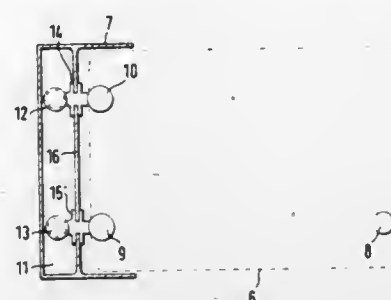
Int. Cl.³ G02B 7/18

U.S. Cl. 350—289

19 Claims

1. An electrically operated adjustable apparatus for a motor vehicle rear view mirror having a mirror casing and including therein a mirror support to which the mirror casing is connected via a first fixed junction point and two further junction

points, one of said further junction points being located on a first straight line through said first fixed junction point and said two further junction points being located on a second straight line which is perpendicular to said first straight line, further including electric motor drive means linked by gear means to said further junction points for moving said mirror support so



as to vary the distance between the mirror casing and mirror support, the electric motor drive means and the gear means being located in a separate housing of the casing on one side of said support, the housing having a housing wall at said one side thereof containing two slots therein in which driving means of said gear means for said further junction points are mounted for sliding movement along said slots.

4,365,868

LIQUID CRYSTAL DEVICE FOR DIRECT DISPLAY OF ANALOG INFORMATION

Kenneth J. Richardson, Hudson, Ohio, assignor to Eaton Corporation, Cleveland, Ohio

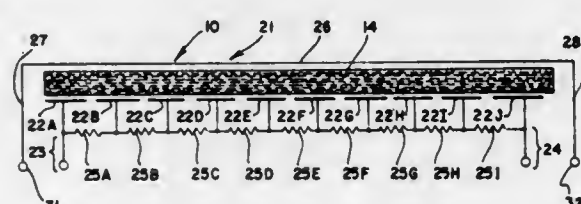
Continuation of Ser. No. 811,308, Jun. 29, 1977, Pat. No. 4,193,669. This application Mar. 17, 1980, Ser. No. 131,171

The portion of the term of this patent subsequent to Mar. 18, 1997, has been disclaimed.

Int. Cl.³ G02F 1/13

U.S. Cl. 350—334

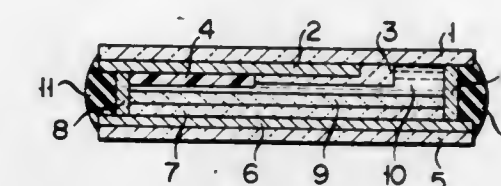
7 Claims



1. A liquid crystal device for the display of analog information in images and patterns receiving a signal whose instantaneous voltage represents the analog information, comprising: a front and a back transparent plate, a layer of liquid crystal material sandwiched between said front and back transparent plates, transparent conducting means applied to selected portions of the side of both said front and back transparent plates adjacent said liquid crystal material including at least two physically separate, distinct segments applied to one said transparent plate and at least one conducting plate applied to the opposite said transparent plate, said conducting plate having the same potential thereacross whereby all electrical connections to said conducting plate effectively provide only a single electrical terminal, and means for having a voltage gradient impressed transversely across said transparent plate on which said distinct segments are applied including a resistor network formed out of the same material utilized to form said distinct segments and located on said transparent plate on which said distinct segments are applied, said resistor network having at least one physically separate, distinct resistor interposed between each said distinct segment such that said transparent plate on which said distinct segments are applied has only two terminals, said resistor network permitting a

bidirectional flow of current through said segments, the maximum potential in said voltage gradient never exceeding the maximum voltage of said signal containing the analog information, the signal containing the analog information connected to one terminal of said transparent plate on which said distinct segments are applied and to said conducting plate.

a counter electrode spaced apart from said display electrode; an electrolyte disposed between said two electrodes; and



a cermet layer formed on said counter electrode and consisting of WO_3 and Ta.

4,365,869

LARGE-SCREEN VISUALIZATION DEVICE

Michel Hareng, and Serge Le Berre, both of Paris, France, assignors to Thomson-CSF, Paris, France

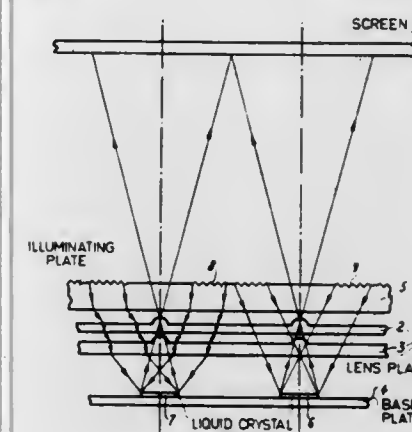
Filed Feb. 11, 1980, Ser. No. 120,127

Claims priority, application France, Feb. 13, 1979, 79 03637

Int. Cl.³ G02F 1/13

U.S. Cl. 350—345

8 Claims



1. A device for visualizing an image on a large screen, which comprises:

a plurality of liquid crystal visualization cells spread out in a plane so as to visualize each one a piece of said image; a transparent plate forming a light-guide substantially parallel to the plane of said cells;

means for injecting into said transparent plate light radiation which is propagated therein in a guided manner;

light path modifying means arranged in one face of said transparent plate for extracting from said transparent plate said light radiation and for selectively illuminating said cells, said cells having a metallic bottom and operating by reflection;

a screen for visualizing by transparency substantially parallel to the plane of said cells and situated at a small distance therefrom;

a plurality of lenses for projecting separately onto said screen the pieces of image written into said cells to reform on this screen the complete image, said lenses being arranged for collecting back scattered light radiation emerging from said cells, said back scattered radiation being selectively transmitted to said screen.

4,365,870

ELECTROCHROMIC DISPLAY DEVICE

Hiroshi Morita, Machida, and Keiko Miyai, Yokohama, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Oct. 27, 1980, Ser. No. 201,193

Claims priority, application Japan, Oct. 29, 1979, 54-138656

Int. Cl.³ G02F 1/17

U.S. Cl. 350—357

2 Claims

1. An electrochromic display device comprising:

a display electrode;

an electrochromic material layer formed on said display electrode;

4,365,872

EYE FUNDUS CAMERA HAVING WORKING DISTANCE DETECTING DEVICE

Kazuo Nunokawa, Tokyo, Japan, assignor to Tokyo Kogaku Kikai Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 29, 1980, Ser. No. 116,815

Claims priority, application Japan, Jan. 30, 1979, 54-9542

Int. Cl.³ A61B 3/14, 3/10

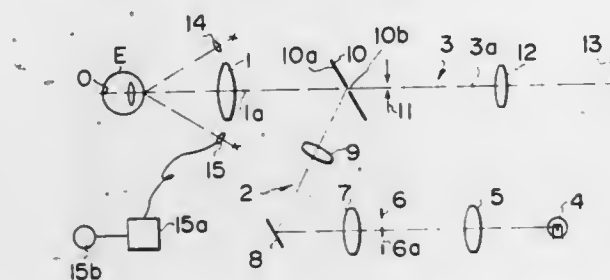
U.S. Cl. 351—208

6 Claims

1. Eye fundus camera including objective lens means having an optical axis and adapted to be placed a distance from a patient's eye, an illumination system for projecting an illumina-



tion light through the objective lens means, an imaging optical system for focusing a light bundle as reflected at fundus of the patient's eye on an imaging plane, said illumination system including annular aperture means having a substantially ring-shaped light transparent portion in conjugate with pupil of the patient's eye with respect to the objective lens means and reflecting means having a substantially ring-shaped reflecting surface located on the optical axis of the objective lens means substantially in conjugate with the pupil of the patient's eye with respect to the objective lens means so that the illumination light that is passed through the annular aperture means is focused on the reflecting surface of the reflecting means and then directed through the objective lens means to the patient's eye, working distance detecting means including light source means located at one side of the optical axis of the objective



lens means for projecting a working distance detecting light in a plane containing the optical axis of the objective lens means so that the working distance detecting light intersects the optical axis at a point which is apart from the objective lens means by a predetermined distance and light sensing means located symmetrically with the light source means with respect to the optical axis of the objective lens means, said annular aperture means being provided, in a plane corresponding to the plane containing said light source means and said light sensing means at least at a side corresponding to a side where the light sensing means is located, with masking means for masking a portion of said transparent portion of the annular aperture means said masking means being located such that light from the illumination source is blocked by said masking means so as to not interfere with said distance detecting means.

4,365,873

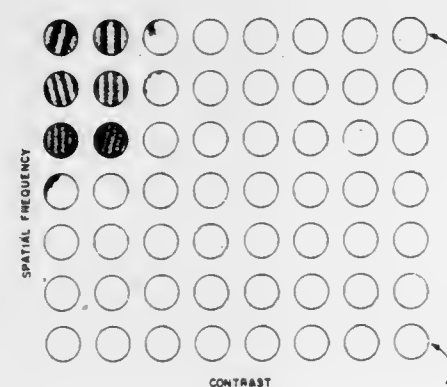
SPATIAL FREQUENCY AND CONTRAST SENSITIVITY TEST CHART

Arthur P. Ginsburg, 132 Lonsdale Ave., Dayton, Ohio 45419
Continuation of Ser. No. 98,084, Nov. 28, 1979, abandoned. This application Jul. 14, 1981, Ser. No. 282,997

Int. Cl.³ A61B 3/02

U.S. Cl. 351-239

17 Claims



1. A vision sensitivity evaluation apparatus by which the concurrent effects of contrast sensitivity and spatial frequency are ascertained, comprising:

- a visually perceivable chart having a multiplicity of patches being systematically organized over the face of the chart into a plurality of groups;
- each patch comprised by a grating of alternating light and

dark regions being calibrated such that its contrast distribution varies between peaks and troughs of luminance and its pattern integrates a substantially constant contrast luminance level with a substantially constant spatial frequency;

said gratings in one group of patches having substantially equal contrast levels which differ from the respective contrast levels of the gratings in other groups of patches; said gratings in a different one group of patches having substantially equal spatial frequencies which differ from the respective spatial frequencies of the gratings in other different groups of patches; and said grating of each patch having a particular perceivable orientation, depending upon the threshold of visual sensitivity of a normal observer, which renders its detection by the observer subject to verification.

4,365,874

OCULOTORSIONMETER

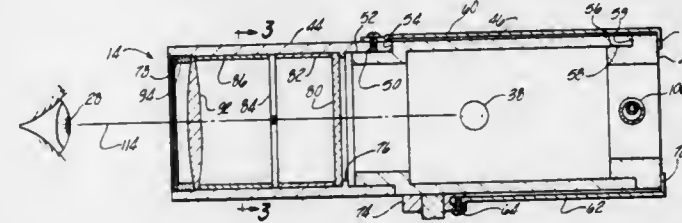
Wanda O. Milburn, 1745 Westridge, Ann Arbor, Mich. 48105, and T. Dean Clack, 1162 Warrington Dr., Ann Arbor, Mich. 48103

Filed Sep. 11, 1980, Ser. No. 186,259

Int. Cl.³ A61B 3/02

U.S. Cl. 351-243

14 Claims



1. An oculotorsionometer for measuring torsional rotation of a patient's eyeball about the visual axis of the eyeball comprising:

- a frame mountable to the patient so as to be fixed with respect to the patient's skull,
- afterimage means mounted on said frame so as to create a transitory bright image visible to the patient for imprinting the retina of the patient's eye with an afterimage,
- target image means visible to the patient and rotatably mounted on said frame for rotation about said visual axis so as to permit the patient to align a target image with said afterimage, and
- measuring means engaged by said target image means so as to indicate the angular displacement of said target image means relative to a preset reference position.

4,365,875

MOTION PICTURE CAMERA

Noritsugu Hirata, Yokohama, and Hiroyuki Takimoto, Urawa, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 31, 1978, Ser. No. 929,240

Claims priority, application Japan, Aug. 12, 1977, 52-97294; Aug. 23, 1977, 52-101259; Aug. 23, 1977, 52-101262

Int. Cl.³ G03B 9/10, 21/36, 31/02

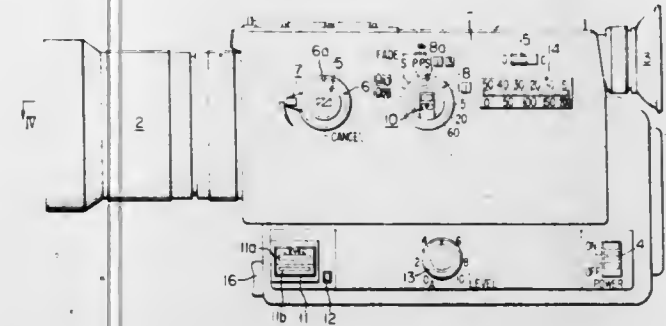
U.S. Cl. 352-25

29 Claims

1. A motion picture camera comprising:

- (a) a power source circuit;
- (b) a photographing operation control circuit for controlling a photographing operation including a film feeding operation;
- (c) a power source operating member;
- (d) means for applying power from said power source circuit to said photographing operation control circuit, in response to the operation of said power source operating member, said control circuit assuming an operative state by the power application;

- (e) trigger operation means, said photographing operation control circuit with the power applied thereto being operated in response to the operation of said trigger operation means;
- (f) fade means for performing a fade-out operation for gradually decreasing, from a normal level, the quantity of light incident on the film, or a fade-in operation for gradually increasing, to the normal level, the quantity of the incident light;



- (g) fade operating means, said fade means being operated in response to the operation of said fade operating means;
- (h) a signal forming circuit for forming a power connection signal when power is applied to said photographic operation control circuit; and
- (i) a control circuit responsive only to the power connection signal to perform, independently of the operation of said fade operating means, the fade-in operation through said fade means.

4,365,876

MOTION PICTURE CAMERA

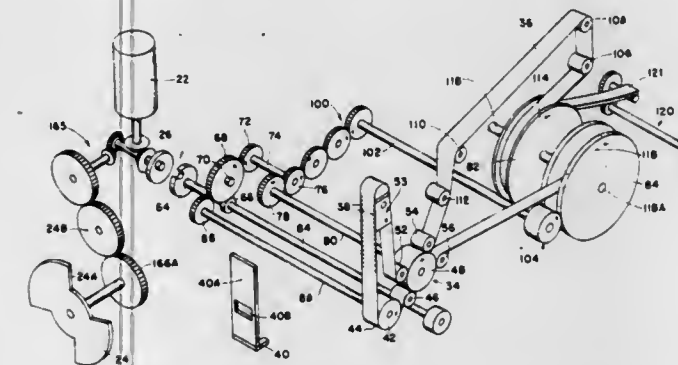
Rouel R. Campbell, 7064 E. 52nd St., Tulsa, Okla. 74145

Filed Sep. 22, 1978, Ser. No. 944,919

Int. Cl.³ G03B 1/00

U.S. Cl. 352-84

8 Claims



1. A high speed motion picture camera comprising a power section operably connected with a film carrying section, release means cooperating between the two sections for selective disengagement therebetween and operable by one hand for facilitating said disengagement, a shutter means operably connected with the power section, said film carrying section including a film drive apparatus for moving the film from a film supply reel to a film take-up reel, means provided in the film drive apparatus for forming a film loop, a film gate for receiving the film loop therethrough, stationary register pin means provided in the film gate means for intermittent engagement with the film loop during exposure of a single frame of the film during activation of the shutter means, eccentric means engagable with a portion of the film loop in a beater action for intermittently pulling a preselected length of the film through the film gate and for intermittently engaging the film with the register pin means, yieldable compensating means receiving the film loop thereover for compensating for inconsistencies in the film and maintaining the film taut in the stopped position of the loop, said compensating means includ-

ing film engaging spring means complementary to the size of the film for receiving the film thereagainst and applying yieldable pressure thereon for maintaining said taut condition therefor, and wherein the film drive means includes positive drive means engagable with the take-up reel for driving thereof, and wherein the positive drive means comprises a relatively small diameter roller engagable with the outer periphery of the take-up reel, said roller member being yieldably engaged with the reel for reducing the driving engagement pressure therebetween.

4,365,877

FIELD FLATTENER LENS ELEMENT ASSEMBLY

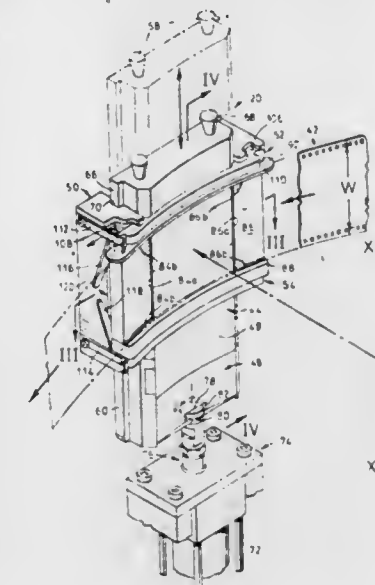
William C. Shaw, Streetsville, Canada, assignor to IMAX Systems Corporation, Toronto, Canada

Filed Aug. 6, 1981, Ser. No. 290,630

Int. Cl.³ G03B 1/00

U.S. Cl. 352-184

12 Claims



1. A film support element assembly for a projector, camera and like apparatus having a rolling loop film transport mechanism, the assembly being adapted to support a film in relation to an aperture of said apparatus and comprising:

- an elongate lens element having a film support surface across which successive portions of a film of known width can be laid during transportation of said film in a film transport path including said aperture;
- means supporting said lens element for movement in a direction generally normal to said path between first and second positions in which respectively different portions of said film support surface are disposed in said film path; and,
- first and second wiper elements extending transversely of and in contact with said film support surface on respectively opposite sides of said film path, said elements being adapted to wipe said surface and trap debris which has accumulated thereon, upon movement of the lens element relative to said wiper elements, and said wiper elements being removable for disposal of trapped debris;
- said film support surface of the lens element being continuous and of uniform cross-sectional shape and having a length sufficiently in excess of twice the width of the film that said movement of the lens element between its first and second positions will cause the relevant wiper element to traverse the entire extent of a said portion of the film support surface moving out of said film path.

4,365,878

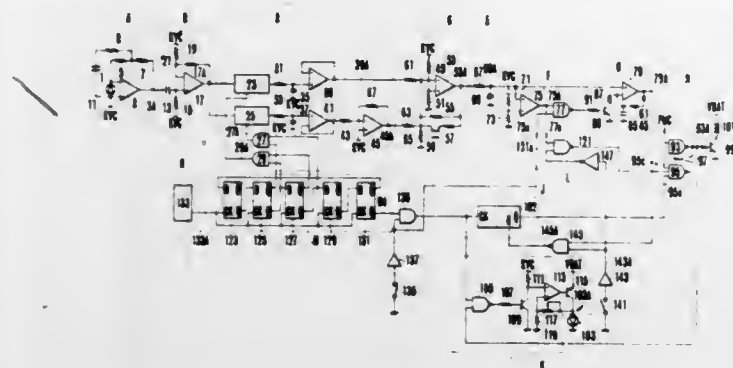
SIGNAL PROCESSING CIRCUITRY FOR A DISTANCE MEASURING SYSTEM

Ryuji Tokuda, Tokyo, Japan, and Bernhard H. Andresen, Dallas, Tex., assignors to Canon, Inc., Tokyo, Japan and Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 94,418, Nov. 15, 1979, Pat. No. 4,300,824. This application May 1, 1981, Ser. No. 286,010 Int. Cl.³ G03B 3/10

U.S. Cl. 354-25

9 Claims



1. A signal processing circuit for a distance measuring system having a light measuring circuit for converting light from an object to be measured into an electrical signal, comprising:
 - (A) peak detecting means for serially comparing the electrical signal to detect a peak signal and for holding only the following peak signal having a signal level exceeding the signal level of the preceding peak, and
 - (B) output means for generating the following peak signal as distance information when the following peak signal is held for a time interval longer than a predetermined time.

4,365,879

EXPOSURE CONTROLLING DEVICE ADAPTED TO CAMERAS USING INTERCHANGEABLE LENSES

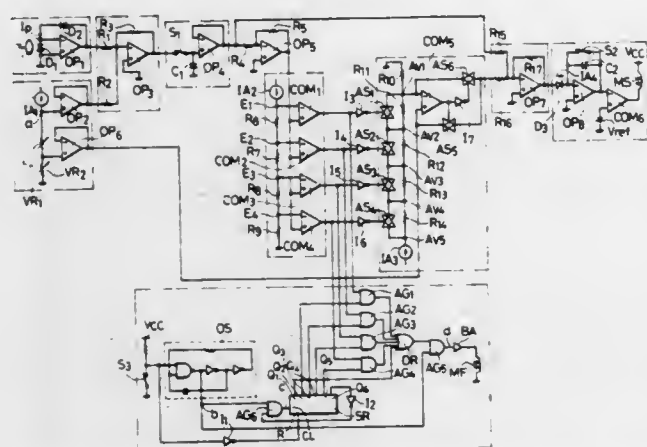
Yasuo Ishiguro, Tokyo, Japan, assignor to Copal Company Limited, Tokyo, Japan

Continuation of Ser. No. 185,444, Sep. 9, 1980, abandoned. This application Feb. 16, 1982, Ser. No. 348,744

Claims priority, application Japan, Sep. 14, 1979, 54-118142 Int. Cl.³ G03B 7/08

U.S. Cl. 354-38

3 Claims



1. An exposure controlling device for use with cameras using interchangeable lenses comprising:
 - a first means for determining an exposure value for a field of view to be photographed by measuring the light from the field of view after that light has passed through a photographing lens having a predetermined F-number and a fully opened diaphragm aperture,
 - a second means connected to said first means for establishing a plurality of predetermined exposure zones and determining to which one of these exposure zones said exposure value belongs, the second means including a plurality of

comparing circuits each having a first input terminal connected to said first means and a second input terminal respectively connected to one of a plurality of reference voltage sources each providing a different voltage, only one of said comparing circuits containing within its range a voltage corresponding to an exposure value determined by said first means thereby determining an exposure zone, a third means connected to said second means for determining a diaphragm value for said photographing lens in response to the exposure zone determined by said second means, the third means including a plurality of gate circuits each one having a first input terminal respectively connected to an output terminal of its respective comparing circuit and a second input terminal respectively connected to one of a plurality of pulse generating circuits providing a predetermined number of pulses per unit time, only said gate circuit connected to said operated comparing circuit being operated to pass a corresponding number of pulses to a diaphragm control element thereby to determine a diaphragm aperture corresponding to said discriminated exposure zone, and

a fourth means connected to said third means for determining an exposure time by comparing said diaphragm value determined by said third means with the F-number of said photographing lens, the exposure time being determined (a) from said exposure value and diaphragm value when said diaphragm value is larger than said F-number and (b) from said exposure value and said F-number when said diaphragm value is smaller than said F-number.

4,365,880

INDICATOR FOR CAMERA

Masayoshi Kiuchi, Yokohama; Masaharu Kawamura, Kawasaki, and Hiroyasu Murakami, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

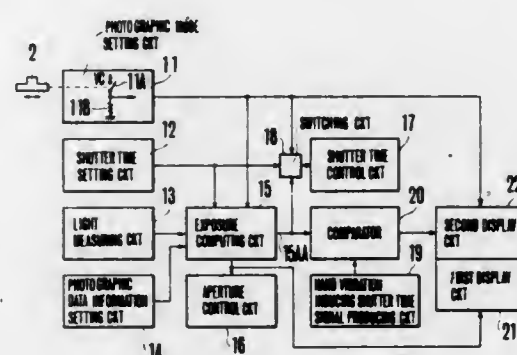
Filed Mar. 10, 1981, Ser. No. 242,240

Claims priority, application Japan, Mar. 11, 1980, 55-31229[U]

Int. Cl.³ G03B 17/18

U.S. Cl. 354-60 L

8 Claims



1. An indicator for a camera comprising:
 - (a) indicating means responsive to mode signals for displaying an indicating state which is variable in accordance with various photographic mode signals to be received; and
 - (b) control means connected to said indicating means to change the indicating state of said indicating means in response to a first signal indicative of that a shutter time value obtained in longer than a hand vibration inducing shutter time value.

4,365,881

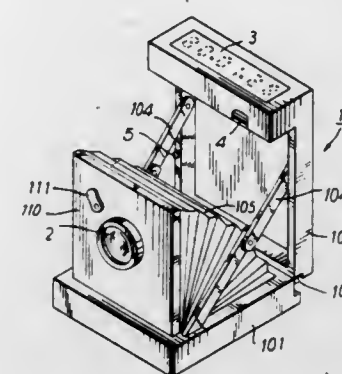
PHOTOGRAPHIC CAMERA WITH TIMEPIECE

Kiyoaki Hazama; Kazuo Shiozawa, and Koichi Matsumoto, all of Hachioji, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 47,830, Jun. 12, 1979, abandoned. This application Mar. 6, 1980, Ser. No. 127,766 Claims priority, application Japan, Jun. 19, 1978, 53-73293 Int. Cl.³ G03B 29/00, 17/04, 17/24

U.S. Cl. 354-76

7 Claims



1. In a camera having a shutter release means and a built-in electronic timepiece,
 - a camera housing comprising a body and a cover hingedly connected with each other so that the cover is movable between a first position in which the camera housing is collapsed to a box-like configuration and a second position in which the housing is open for taking photographs,
 - a data displaying portion disposed on an external surface of the camera housing,
 - an objective lens on the housing and disposed for the taking of photographs when the cover is in said second position, said lens being concealed within the camera housing in said first position of the cover,
 - data displaying means positioned at the data displaying portion of the housing,
 - a driver circuit for generating time and other data signals and having an output connected to the data displaying means, and
 - means for selecting the data signals appearing at the output of the driver circuit and fed for display to the data displaying means while the housing is collapsed so that the camera is useful as a table clock and is function as a camera is concealed in said collapsed condition of the housing.

4,365,882

COLOR STANDARD METHOD AND APPARATUS

Lynnford E. Disbrow, 1400 W. Bruneau, Kennewick, Wash. 99336

Filed Jun. 29, 1981, Ser. No. 278,644

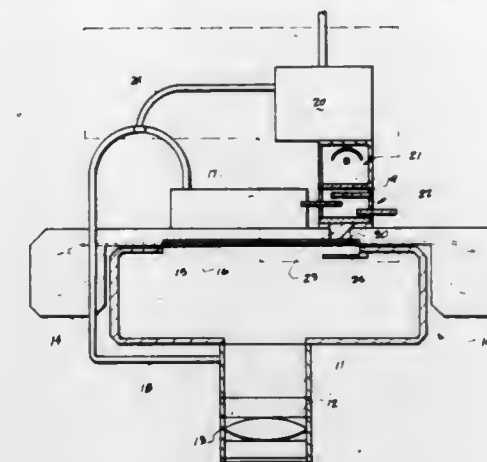
Int. Cl.³ G03B 17/24, 27/76

U.S. Cl. 354-106

2 Claims

1. A method of comparing color values in an aerial photograph of a land area to a known standard, comprising the following steps:
 - selecting a plurality of filters matching averaged individual color components expected in vegetation as portrayed in the land area when photographed;
 - photographing the land area by exposure of a film frame under ambient lighting conditions;
 - simultaneously exposing an area of film within the frame to a preselected color pattern by transmission of repeatable light and color values from a known light source through said plurality of filters;
 - and developing the film by subjecting the frame and adjacent

area to identical processing steps, whereby comparisons can be made between the resulting average color values por-



trayed in the developed area of film and those in the developed frame adjacent to it.

4,365,883

FOCUSING SCREEN HOLDING DEVICE

Yukio Takaoka, Asaka; Keisuke Haraguchi, Ranzan, and Shiyouchi Yamaka, Kamifukuoka, all of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

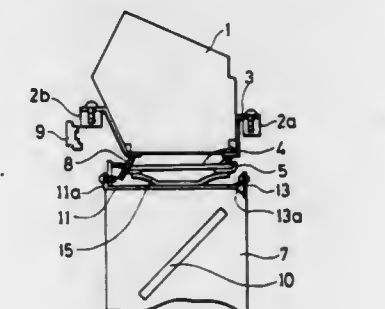
Filed Jul. 20, 1981, Ser. No. 284,743

Claims priority, application Japan, Sep. 11, 1980, 55-129666[U]

Int. Cl.³ G03B 13/00, 19/12

U.S. Cl. 354-152

3 Claims



1. A focusing screen holding device for a single-lens reflex camera having a focusing screen, comprising:
 - a focusing screen holding frame;
 - a plurality of focusing adjusting screws for adjusting a position of said focusing screen;
 - a focusing screen retaining spring; and
 - a hinge having first and second leaves, said focusing screen holding frame being mounted on said first leaf, said first leaf having a hook at an outer end thereof, said second leaf being secured to a mirror box of said camera so that said focusing screen holding frame is swingable about a shaft of said hinge, said hook being engagable with said mirror box so that said focusing screen holding frame is fixedly secured to said mirror box, said focusing screen retaining spring being located between said first leaf and said focusing screen holding frame, said focusing screen retaining spring exerting a depressing force on said focusing screen, said focusing screen being accessible through an opening of a lens mount to adjust and replace said focusing screen, said focusing adjusting screws being positioned so as to be accessible and adjustable through said opening in said lens mount.

4,365,884

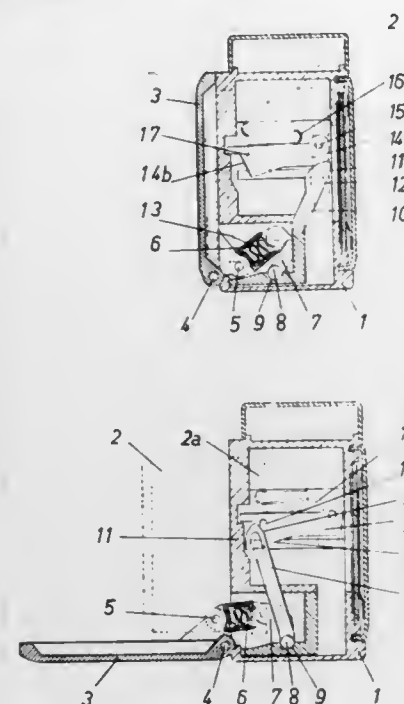
STILL CAMERA WITH RETRACTING OBJECTIVE Helmut Knapp, Biebertal, Fed. Rep. of Germany, assignor to MINOX GmbH, Giessen, Fed. Rep. of Germany Filed May 21, 1981, Ser. No. 265,779

Claims priority, application Fed. Rep. of Germany, May 29, 1980, 3020340

Int. Cl.³ G03B 17/04

U.S. Cl. 354-187

7 Claims



1. In a still camera having a housing, a fold up cover, a retracting objective and a drive connection between these components acting within the light tight camera space on an objective mount so that the objective is advanced when the cover is opened and retracted when the cover is shut, the improvement comprising the following features in combination:

- (a) said drive connection divided into outer drive links (4-5, 6, 7) and inner drive links (10, 11);
- (b) said outer drive links (4-5, 6, 7) connected with said cover (3) so as to positively control said cover;
- (c) said inner drive links (10, 11) connected with said objective mount (2) so as to positively control said mount; and
- (d) a connection between the outer and inner drive links consisting of a round shaft (8) supported in a bore (9) of said housing (1) with a light tight snug fit.

4,365,885

APPARATUS FOR REMOVING UNNECESSARY CHARGES ON A PHOTOSENSITIVE MEMBER IN AN ELECTROPHOTOGRAPHIC SYSTEM

Masaji Nishikawa, Hachioji, Japan, assignor to Olympus Optical Company Limited, Tokyo, Japan

Continuation of Ser. No. 952,131, Oct. 17, 1978. This application
 Aug. 28, 1980, Ser. No. 184,059

Claims priority, application Japan, Oct. 24, 1977, 52-126749
 Int. Cl.³ G03G 15/00; G03B 27/76

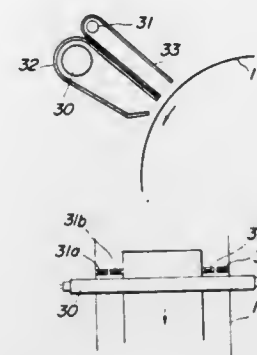
U.S. Cl. 355-3 R

3 Claims

- 1. An electrophotographic apparatus comprising:
 an endless photosensitive member arranged movably at a constant speed;
 means for uniformly charging the photosensitive member;
 means for projecting an image of a document to be copied onto the uniformly charged photosensitive member to form an electrostatic charge latent image;
 first lamp means for illuminating at least one side edge of the photosensitive member in a non-pictorial area to remove undesired charge thereon;
 second lamp means for illuminating a non-pictorial area of the photosensitive member between a rear edge and a front edge of the photosensitive member viewed in the

moving direction thereon, said second lamp means including an elongated discharge lamp extending in the direction transverse to the moving direction of the photosensitive member;

said first and said second lamp means having an intensity lower than that associated with said projecting means during the formation of the latent image;
 developing means for developing the latent image with toners to produce a toner image;
 transferring means for transferring the toner image onto an image receiving means, said transferring means including a biased transfer roller and a member for biasing the image receiving means;



fixing means for fixing the transferred toner image onto the image receiving means to form a copy;
 means for repeatedly activating said developing, transferring and fixing means for the same and single latent image once formed on the photosensitive member to form a plurality of copies;
 means for erasing the latent image after a given number of copies have been formed; and
 means for controlling said first and second lamp means during a formation of a plurality of copies in such a manner that undesired charge injected from the biased transferring means onto the non-pictorial areas of the photosensitive member is removed photoelectrically.

4,365,886

ELECTROSTATIC COPYING APPARATUS WITH AN ATTACHMENT TO ENABLE TWO-SIDED COPYING Reiji Murakami, and Shunichi Nakajima, both of Yokohama, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Mar. 4, 1981, Ser. No. 240,382

Claims priority, application Japan, Mar. 5, 1980, 55-27634
 Int. Cl.³ G03G 15/00

U.S. Cl. 355-3 SH

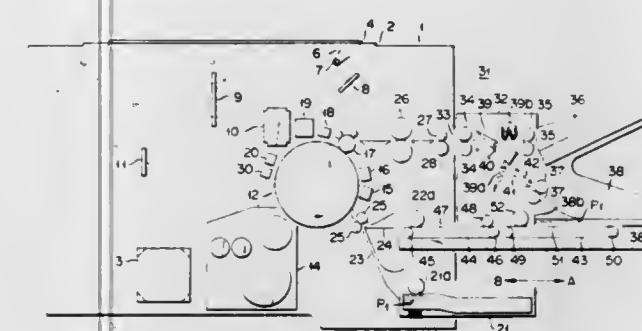
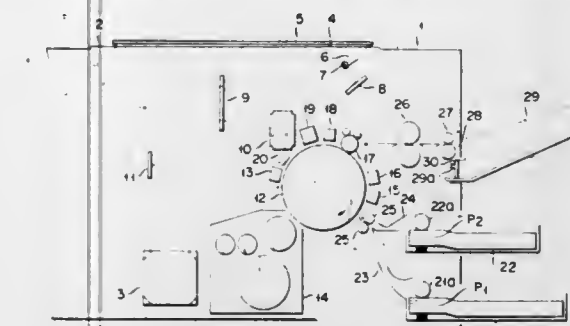
8 Claims

1. An electrostatic copying apparatus comprising a main copying device and an auxiliary copying device removably coupled with said main copying device, said main copying device comprising:

- first and second paper supply trays holding recording papers;
- a main housing having a paper supply opening into which said first paper supply tray is inserted and a paper exhaust opening;
- a copying mechanism provided in said main housing for copying an image onto said recording paper;
- first and second paper supply means provided in said main housing for selectively supplying the recording papers from said first and second paper supply trays to said copying mechanism; and
- means provided in said main housing for leading the copied recording paper to said paper exhaust opening, and said auxiliary copying device comprising:
 an auxiliary housing which may be removably coupled with said main housing, while said first paper supply tray is separated from said main housing;

first and second auxiliary paper exhaust trays provided in said auxiliary housing;

a selective paper supply mechanism provided in said auxiliary housing for selectively supplying the recording paper, which is supplied from said main housing through



said paper exhaust opening to said auxiliary housing, to said first and second auxiliary paper exhaust trays; and a transfer mechanism which cooperates with said first paper supply means for transporting the recording paper from said second auxiliary paper exhaust tray to said copying mechanism through said paper supply opening.

4,365,887

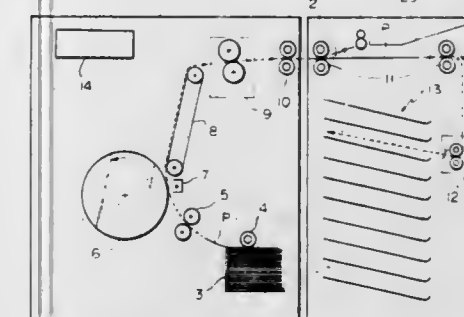
SHEET DISTRIBUTION METHOD AND APPARATUS Yohtaro Kakitani; Tamaki Kaneko; Sunao Ikeda; Tugio Okuzawa; Hideo Kikuchi, and Kunio Hibi, all of Tokyo, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Sep. 22, 1980, Ser. No. 189,453

Claims priority, application Japan, Apr. 14, 1980, 55-48094
 Int. Cl.³ G03G 15/00

U.S. Cl. 355-14 R

15 Claims



9. A sheet distribution apparatus for use with a copying machine comprising:

- a plurality of bins into which a plurality of sets of copies produced by the copying machine during a copying operation or cycle are distributed;
- stop switch means for stopping the copying operation or cycle in the copying machine;
- interrupt switch means for interrupting the copying operation or cycle;
- a first means for inhibiting production of a next copy or copies while continuing a feeding operation of copies into

the bins when at least one of the stop switch and interrupt switch means is depressed;

a second means for stopping the feeding operation of the copies when a number of the copies fed from the copying machine is equal to a number of the copies stored in the bins; and

a third means for releasing the copying operation from being stopped to permit production of a next copy or copies.

4,365,888

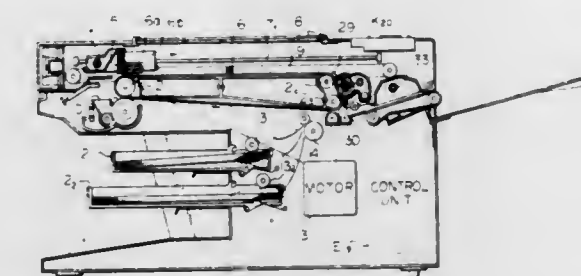
ELECTROSTATIC COPYING APPARATUS Masao Hosaka; Yoshitaka Ogino, and Nobuyuki Yanagawa, all of Tokyo, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Oct. 29, 1980, Ser. No. 201,872

Claims priority, application Japan, Nov. 5, 1979, 54-143048
 Int. Cl.³ G03G 15/00

U.S. Cl. 355-14 R

18 Claims



1. An electrostatic copying apparatus including a photoconductive member, imaging means for forming an electrostatic image of an original document on the photoconductive member, developing means for developing the electrostatic image to form a toner image, transfer means for transferring the toner image to a copy sheet and a drive motor for driving the photoconductive member, characterized by comprising:
 mark means provided on the photoconductive member;
 sensor means for sensing the mark means and producing signals in response thereto;

pulse generator means driven by the motor for generating timing pulses;

counter means for counting the timing pulses;
 control means for controlling the imaging means, developing means and transfer means in accordance with predetermined counts in the counter means; and

compensation means for resetting the counter means in response to a first signal from the sensor means, sensing a count in the counter means in response to a second signal from the sensor means and, when the sensed count is different from a predetermined value, setting the counter means to the predetermined value;

the compensation means further comprising alarm means and means for energizing the alarm means when, in response to the second signal from the sensor means, the count in the counter means is outside a predetermined range which contains the predetermined value.

4,365,889

DOCUMENT HANDLING UNIT

Morton Silverberg, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Nov. 10, 1980, Ser. No. 205,473

Int. Cl.³ G03G 15/04; B65H 1/30

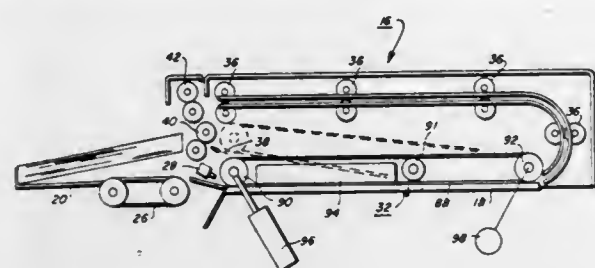
U.S. Cl. 355-14 SH

10 Claims

1. An apparatus for moving documents in a recirculating path from a stack to an imaging station, including:

- means for feeding successive bottommost documents from the stack to the imaging station with one side of the document being facedown at the imaging station;
- means above the imaging station for transporting an exiting document from the imaging station simultaneously with

said feeding means feeding a next successive entering document thereto;
 means for pivoting said transporting means to space at least a portion of both said transporting means and the exiting document from the imaging station;
 means for advancing the exiting document from said transporting means to the top of the stack, said advancing means comprising at least two paths one of the paths positioning the exiting document on top of the stack with said one side facedown and the other of the paths position-



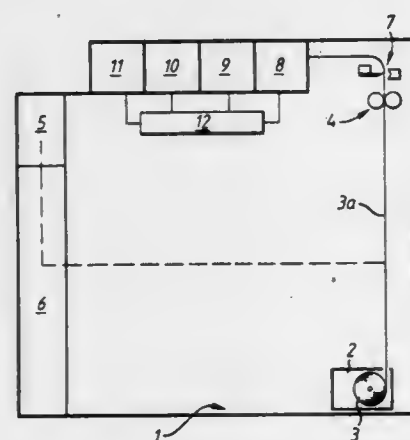
ing the exiting document on top of the stack with said one side face up; and
 means for controlling said transporting means for transporting the exiting document along a selected one of the paths of said advancing means, said controlling means comprising means for driving said transporting means in a first direction to advance the document along one of the paths of said advancing means and in a second direction, opposed to the first direction, to advance the document along the other of the paths of said advancing means.

4,365,890

PROCESS AND APPARATUS FOR PHOTOGRAPHICALLY ENLARGING AND DEVELOPING AN IMAGE

Albert G. Himbury, 31 Camberwell Rd., London SE 5, England
 Filed Nov. 12, 1980, Ser. No. 206,113
 Int. Cl.³ G03B 29/00

U.S. Cl. 355—28



1. A process for photographically enlarging and developing an image which comprises drawing unexposed light-sensitive material under tension from a roll of such material to a substantially vertically disposed image receiving location by means of feed rollers located downstream of said location and engaged with said material to support and locate said unexposed material in tension at said location, exposing said unexposed material supported under tension at said location by said feed rollers to an enlargement of the image to be reproduced, driving said feed rollers to advance said exposed material beyond said feed rollers to draw a further length of unexposed material from said roll under tension to said location and locate and support said further length of unexposed material at said location, and severing said material advanced beyond said feed rollers downstream of said feed rollers whilst retaining said further

length of material at said location supported and located under tension by engagement with said feed rollers.

3. Apparatus for photographically enlarging and developing an image comprising a light-tight housing, a light-tight enclosure within said housing for storing a roll of unexposed light sensitive material, means for projecting an enlargement of the image to be reproduced to a substantially vertically disposed image receiving location within said housing, a pair of feed rollers in said housing disposed downstream of said location operable to draw unexposed material from said roll under tension to said image receiving location and to support and locate said material suspended under tension at said location in a substantially vertical plane for exposure to said projected enlarged image and to advance exposed material from said location beyond said feed rollers after exposure and to present a further length of unexposed material at said location supported under tension, and severing means for severing the exposed material advanced beyond said feed rollers whilst maintaining said further length of material engaged and supported under tension by said feed rollers.

4,365,891

COPY CAMERA FOCUSING

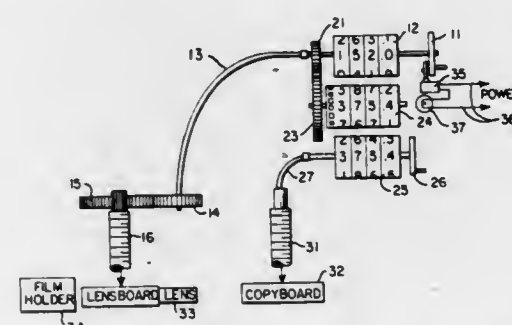
Endel Uiga, Rockaway, N.J., assignor to Cordell Engineering, Inc., Peabody, Mass.

Filed Jul. 15, 1981, Ser. No. 283,623

Int. Cl.³ G03B 27/36, 27/38

U.S. Cl. 355—59

11 Claims



1. In a copy camera having lens means for focusing the image of an object location separated therefrom by an object distance upon an image plane separated therefrom by an image distance to establish a predetermined ratio of image size to object size with said ratio being linearly and nonlinearly related to said image distance and object distance, respectively, apparatus comprising,

means for adjusting said image distance to establish a predetermined value for said ratio,
 means responsive to adjustment of said image distance for displaying said ratio in numerical form with digits each being the same as those specifying said value,
 and means responsive to the setting of said image distance for providing an indication of said object distance for attaining the displayed ratio value while sharply focusing the image of the object at that object distance in a plane at that image distance.

4. A method of manipulating a copy camera having lens means for focusing the image of an object location separated therefrom by an object distance upon an image plane separated therefrom by an image distance to establish a predetermined ratio of image size to object size with said ratio being linearly and nonlinearly related to said image distance and object distance respectively, means for adjusting said image distance to establish a predetermined value for said ratio, means responsive to adjustment of said image distance for displaying said ratio in numerical form with digits each being the same as those specifying said value, and means for adjusting said object distance to the indication provided by said means responsive to the setting of said image distance which method includes the steps of,

adjusting said image distance to establish said predetermined value for said ratio,

observing said indication of said object distance for attaining the displayed ratio value and the visual display representative of object distance,
 and adjusting the object distance until the latter two indications coincide.

4,365,892

APPARATUS FOR MAKING A COPY IN ONE OF THREE SIZES OF X-RAY FILM

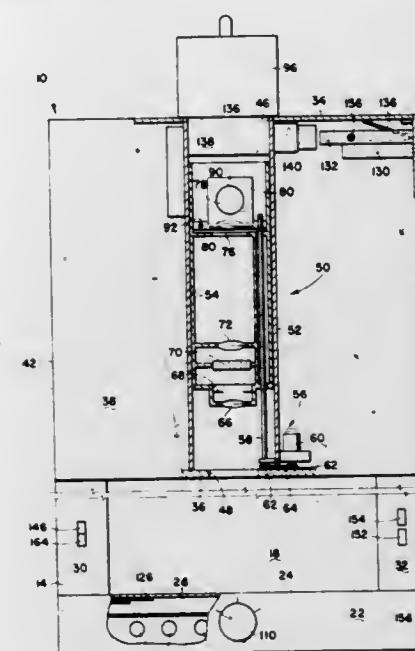
Norman L. Bartlett, 7017 E. 66th Ct., Tulsa, Okla. 74133

Filed Oct. 26, 1979, Ser. No. 88,545

Int. Cl.³ G03B 27/52

U.S. Cl. 355—63

1 Claim



1. An apparatus for making a photographic reduction of various sized film negatives having a light box, an upper housing positioned above said light box and being provided with an opening in the bottom thereof, a camera spaced within said housing and in communication with said opening, and a film container, with film mounted therein, being attached to said housing in optical communication with said camera; said light box comprising: a cabinet with a plurality of light sources spaced therein, and

a translucent panel attached to the top of said cabinet;

said camera comprising:

a first open-ended housing;
 a second open-ended housing spaced within said first housing and being adapted to slide there within;
 a primary lens, diaphragm, and shutter means in optical alignment with said film;

at least two secondary lenses, each of different focal lengths mounted within said second housing above said primary lens, each of said secondary lenses being individually positioned within said camera from a first position out of optical alignment with said primary lenses to a second position in optical alignment therewith;

means to provide movement to said second housing;

means to pivot said secondary lenses;

means to advance said film; and

control means mounted within said apparatus to place said second housing and said secondary lenses in predetermined positions to produce a reduced image upon said film for each of various sized film negatives, a secondary camera mounted to said first housing of said camera whereby identification information is exposed on a peripheral portion of said film simultaneously as an exposure is made by said camera.

4,365,893

SUPPORTING MECHANISM OF A DOCUMENT COVER LID FOR A COPYING APPARATUS

Hiroshi Kimura, Neyagawa; Masahiko Hisajima, Osaka; Yutaka Shigemura, Takarazuka, and Yoichiro Irie, Suita, all of Japan, assignors to Mita Industrial Company Limited, Osaka, Japan

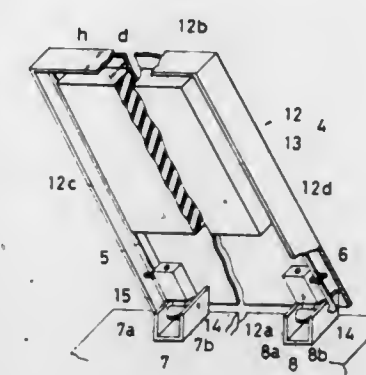
Filed Dec. 18, 1980, Ser. No. 218,013

Claims priority, application Japan, Dec. 21, 1979, 54-167022

Int. Cl.³ G03B 27/62

U.S. Cl. 355—75

8 Claims



1. A supporting mechanism for supporting a document cover lid of a copying apparatus of the type wherein the cover lid is movable between a lowered position covering an upper surface of the copying apparatus and a raised position uncovering the surface, said supporting mechanism comprising:

a support member adapted to be fixed to a cover lid and having a base;

means for mounting said base of said support member on an upper portion of a copying apparatus so that said support member is pivotally movable about a horizontal axis;

a positioning member adapted to be mounted on the upper portion of the copying apparatus, said positioning member having a cylindrical first friction surface formed by a peripheral surface of said positioning member, said peripheral surface being arranged coaxially about a center line of said positioning member extending parallel to said horizontal axis;

a contact member mounted on said support member and movable therewith, said contact member having a partially cylindrical second friction surface extending parallel to said horizontal axis;

means for biasing said contact member toward said positioning member such that said second friction surface is in contact constantly with said first friction surface; and

said positioning and contact members being positioned and dimensioned such that, when said support member is pivoted about said horizontal axis to the lowered position of the cover lid, said first and second friction surfaces are in mutual contact at a position lower than a horizontal line extending transversely through said center line of said positioning member, and said biasing means and said contact member thereby create a force adapted to press the cover lid downwardly against the upper surface.

4,365,894

METHOD FOR CONTROLLING TONER CONCENTRATION

Hiroya Nakamura, Hachioji, Japan, assignor to Konishiroku Photo Industry Co., Ltd., Japan

Filed May 28, 1980, Ser. No. 154,146

Claims priority, application Japan, May 31, 1979, 54-66856

Int. Cl.³ G03G 15/00, 27/32

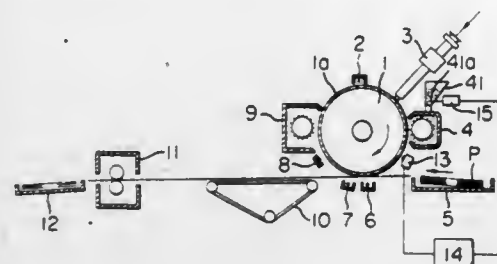
U.S. Cl. 355—77

3 Claims

1. A method of controlling the concentration of toner used in an electrophotographic recording apparatus having a member for receiving and retaining an electrostatic image, reproducing means for receiving information supplied in the form of an electric signal and for impressing an electrostatic image of

said electric signal information on said member, and a developing means for developing an electrostatic image carried on said member, said method comprising the steps of:

- energizing the reproducing means to form a reference density region on said member,
- synchronizing the energization of said reproducing means with the signals supplied thereto so that the electrostatic image and the reference density region are sequentially formed on said member,
- developing the reference density region by the same means for developing the electrostatic image,



sensing the toner density of the developed reference density region, producing signals representative of the sensed toner density, comparing said produced signals with signals representative of a desired toner density, producing a signal representative of the difference between the signal representative of said sensed toner density and the desired toner density, adding toner in accordance with said last-mentioned signal and varying at least one parameter of the reference density region in accordance with said last-mentioned signal.

4,365,895

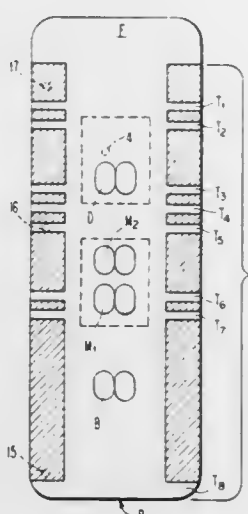
METHOD, APPARATUS AND FILM STRIP OF PARTICULAR DESIGN FOR RAPID TEST OF A FILM PROCESSOR

Gary S. Shaber, Villanova, Pa., and Charles W. Buenzli, Jr., Richardson, Tex., assignors to Probex, Inc., Villanova, Pa.
Filed Dec. 3, 1980, Ser. No. 212,742

Int. Cl.³ G01N 21/86, 21/59

U.S. Cl. 356—444

13 Claims



1. In a method for determining the status of a photographic film processor said method including the steps of
 - a. exposing a test pattern on the film to produce, upon development, at least three test areas comprising a high density area, a medium density area and an unexposed base fog area
 - b. developing said film in said processor
 - c. measuring the density of said high density area portion of the film with a density measuring means in which said film is received to determine if it is too light, or acceptable;

measuring the density of the base fog area to determine if it is too dark or acceptable; measuring the density of the medium density area to determine if it is too light, too dark, or acceptable

- d. logically operating upon the results of step (c) by utilizing said results as inputs to logic circuitry to produce the output indications indicative of the operational status of the film processor,
- the improvement consisting of: determining a first reference output signal strength of the density measuring means with no film received therein; determining additional reference output signal strengths ratiometrically related to said first reference signal strength, said additional reference signal strengths being indicative of predetermined limits of densities of said film test areas; and measuring said film test area densities sequentially with a single density measuring means and comparing the densities measured thereby with said additional reference output signal strengths.

4,365,896

OPTICAL ATTENUATION MONITOR SYSTEM AND METHOD

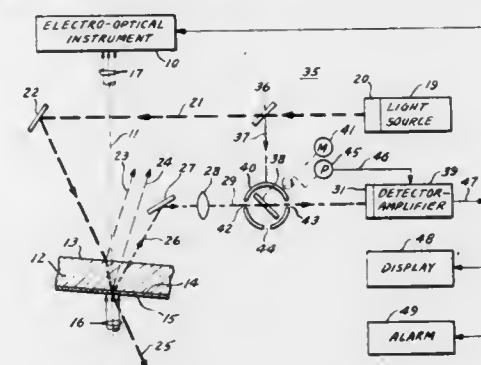
Frederick A. Mihalow, Allentown, Pa., assignor to Bethlehem Steel Corp., Bethlehem, Pa.

Filed Apr. 3, 1980, Ser. No. 136,847

Int. Cl.³ G01N 21/47

U.S. Cl. 356—446

26 Claims



1. Optical attenuation monitor apparatus for determining the surface condition of a radiation transmissive viewing window, comprising:

- (a) means for producing a main light beam of monochromatic radiation and directing same angularly through said window from a first side to a second side where variable light-scattering attenuating objects also collect on the second surface and produce light radiation backscatter of the same wavelength, all reflected and refracted radiation from said main light beam being undetected;
- (b) collecting only the light radiation backscatter from the second side surface through said window and causing same to form a variable-intensity light radiation backscatter beam; and
- (c) light radiation detector means responsive only to the light radiation backscatter beam for producing an output signal that varies as a function of the window second side surface attenuation condition.

4,365,897

SEPARABLE BLADE AGITATOR WITH CLIP-ON IMPELLERS

Franklyn J. Amorese, 39 Peck Rd., Greece, N.Y. 14468, and Vincent J. Piarulli, 86 Cherry Creek La., Greece, N.Y. 14626
Continuation of Ser. No. 52,809, Jun. 28, 1979, abandoned. This application May 20, 1981, Ser. No. 265,526

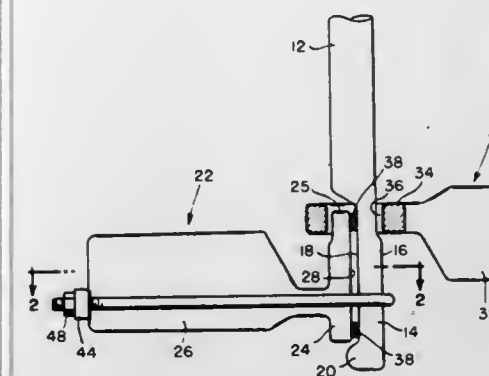
Int. Cl.³ B01F 13/00

U.S. Cl. 366—343

6 Claims

1. A separable blade agitator comprising:

- (a) a glass coated shaft terminating as an axially extending mounting shaft,
- (b) a first glass coated impeller mounted to said mounting shaft and including an axially extending mounting base portion corresponding with said axially extending mounting shaft,
- (c) a second glass coated impeller mounted to said mounting shaft and including a hub defining an axial bore embracing said mounting shaft and said mounting base portion of said first impeller, and



- (d) spacer means disposed between said mounting shaft and the ends of said mounting base portion of said first impeller to space said mounting shaft and said mounting base portion apart by an amount to effect an interference fit of said hub over said mounting shaft and said mounting base portion, whereby said hub compresses said mounting base portion and said mounting shaft toward each other, between said spacer means, to rigidly clamp said shaft and said first and second impellers together.

4,365,898

TIME-CORRECTING MECHANISM FOR ELECTRONIC TIMEPIECE

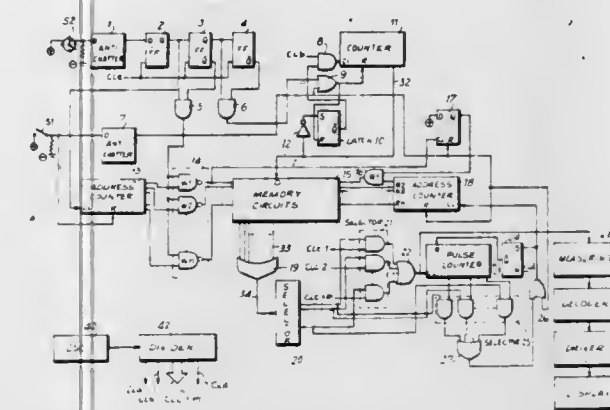
Youichi Wakai, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Continuation-in-part of Ser. No. 99,170, Nov. 30, 1979, abandoned. This application Jan. 31, 1980, Ser. No. 117,413
Claims priority, application Japan, Dec. 5, 1978, 53-150858; Feb. 2, 1979, 54-11729

Int. Cl.³ G04C 9/00

U.S. Cl. 368—187

19 Claims



1. A time-correcting mechanism for a digital electronic timepiece having a high-frequency standard oscillator and a divider network receiving signals therefrom, said divider network outputting lower-frequency clocking and time-keeping signals, time-measuring circuits and means for display, comprising:

rotary switching means including contacts, said contacts opening and closing to produce switching signals when said rotary switching means is rotated; circuit means for sensing said switching signals and deter-

mining the speed of rotation of said rotary switching means;

circuit means for inputting supplemental pulses into said time-measuring circuits for correcting said display, said supplemental pulses being provided by said divider signals, the number of said supplemental pulses being selected in correspondence with said rotational speed of said rotary switching means; and

memory means for storing rotational speed data generated by said circuit means for sensing rotational speed, said circuit means for inputting supplemental pulses being adapted to read-out said stored data after said rotary switching means is stopped from rotating.

4,365,899

GEAR TRAIN OF AN ELECTRONIC TIMEPIECE

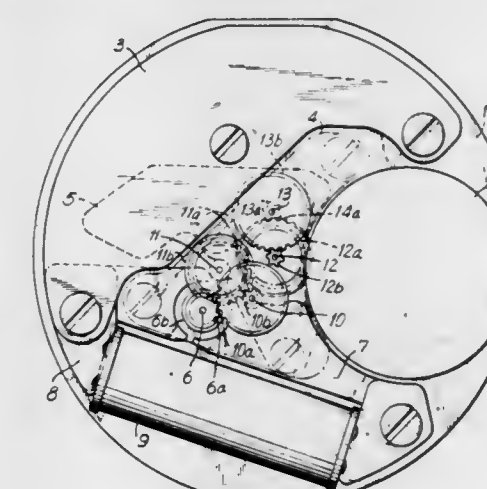
Kenichi Ushikoshi, and Imao Hiraga, both of Suwa, Japan, assignors to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan
Continuation of Ser. No. 862,480, Dec. 21, 1977, abandoned.

This application May 19, 1980, Ser. No. 151,075

Int. Cl.³ G04B 19/02

U.S. Cl. 368—220

11 Claims



1. Gear train of an electronic timepiece including a rotor, a battery for powering said rotor, a time-standard generator, time-indicating hands including at least a seconds hand, a plate and an opposed bridge for holding the pivots of the gears in said gear train, said plate having an outer edge, said gear train comprising a plurality of wheel composites in successive stages for transferring the power of said rotor to said time-indicating hands, each of said wheel composites including a wheel and a smaller pinion fixed to a common pivot for rotation together, one of said wheel composites being a seconds wheel composite including a seconds wheel, also termed a fourth wheel, for positioning said seconds hand and another of said composites including a wheel pinion at an earlier stage engaging said fourth wheel, an earlier stage being a component in said gear train between said fourth wheel and said rotor, and wherein said battery is disposed between said fourth wheel and said outer edge of said plate and the periphery of said battery lies proximate said fourth wheel composite and proximate said outer edge of said plate, the module of at least one of said fourth wheel and of said wheel pinion in the earlier stage engaged therewith is smaller than the modules of all other wheels in said gear train, a module of a wheel being the diameter of the pitch circle divided by the number of gear teeth in same, said fourth wheel having a number of teeth greater than at least 30, and all of the wheel composites constituting the gear train being supported on the common pivot to said plate and said opposed bridge.

4,365,900

PRINTING PLANE ADJUSTING MECHANISM

Helmut Gottsmann, Nuremberg, and Rolf Theilen, Furth, both of Fed. Rep. of Germany, assignors to Triumph Adler, A.G., Nuremberg, Fed. Rep. of Germany

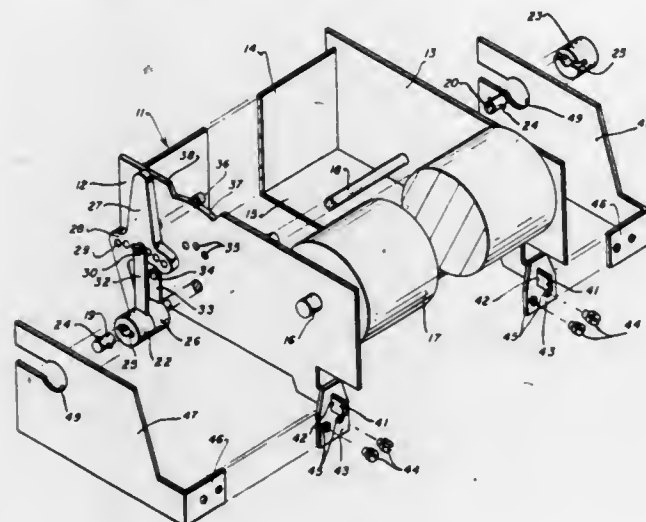
Filed Oct. 2, 1980, Ser. No. 193,394

Claims priority, application Fed. Rep. of Germany, Jun. 3, 1980, 3008539

Int. Cl.³ B41J 11/20

U.S. Cl. 400—57

2 Claims



1. In combination, a paper handling assembly having side plates, a platen defining a printing plane rotatably supported between said side plates, a control shaft rotatably supported by said paper handling assembly side plates, a frame member for mounting said paper handling assembly having side plates outwardly of said paper handling assembly side plates, circular cams eccentrically mounted on the ends of said control shaft, circular openings in said frame member side plates for rotatably supporting said cams when said paper handling assembly is mounted on said frame member, one of said cams having an arm radially extending therefrom, an adjusting lever rotatably mounted on said control shaft adjacent said arm, locking detent means on said arm and said lever for adjustably locking said lever to said arm at a predetermined angular orientation thereby, when said said paper handling assembly is mounted on said frame, to establish a predetermined normal position of said paper handling assembly relative to said frame member, and handle means on said lever for rotating said lever and via said arm said control shaft to adjustably position said paper handling assembly relative to said frame member.

4,365,901

MATRIX PRINTER WITH AUTOMATIC PRINTING HEAD ADJUSTMENT

Lothar Haubrich, Siegen, and Heinrich Dürr, Wilnsdorf, both of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 22, 1981, Ser. No. 266,570

Claims priority, application Fed. Rep. of Germany, May 22, 1980, 3019515

Int. Cl.³ B41J 3/12

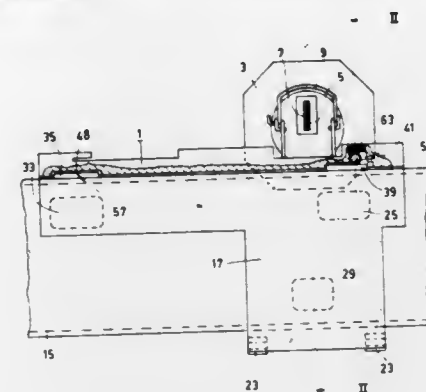
U.S. Cl. 400—124

5 Claims

1. A matrix printer having a combination of a carriage and a printing head which is mounted thereon, said combination being movable to and fro along a paper guide, said printing head having a first printing position for printing character elements during a pass from left to right and a second printing position for printing character elements during a pass from right to left, the character elements of a given printing element

in the printing head printed on the paper during the movement of the printing head to the right being displaced over a distance which amounts to a part of the vertical distance between two successive printing elements in the printing head with respect to the character elements of the same printing element which are printed on the paper during the movement to the left, characterized in that:

a chamber is formed by the combination of said carriage and said printing head;



a position changer is located within said chamber; and said printer further includes: means to displace said position changer relative to said combination by a variation of the impulse of movement of the printing head, the printing head being in one printing position before said impulse variation and in another printing position after said impulse variation.

4,365,902

WIRE MATRIX PRINT HEAD

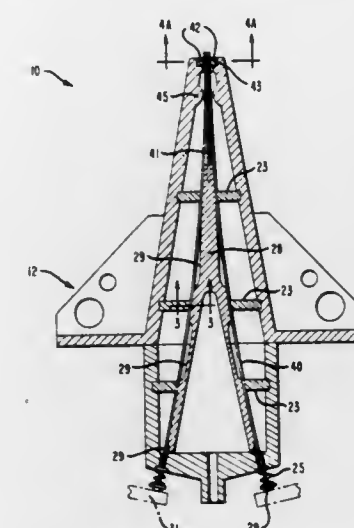
Horst H. Biedermann, Augsburg; Ferdinand Hermann, Neuauess; Ernst Pechinger, Meitingen, and Emil L. F. Sereinigg, Augsburg, all of Fed. Rep. of Germany, assignors to NCR Corporation, Dayton, Ohio

Filed Jun. 22, 1981, Ser. No. 276,440

Int. Cl.³ B41J 3/12

U.S. Cl. 400—124

2 Claims



1. A wire print head comprising: an elongated, tapered, central member having a plurality of recessed portions spaced longitudinally along the outer surface thereof; a plurality of relatively laterally outwardly extending portions spaced longitudinally along the outer surface of the tapered, central member, the recessed portions alternating with the outwardly extending portions along the central member, and each of the relatively outwardly extending portions having a plurality of laterally open longitudinal grooves extending therealong and aligned with corresponding laterally open longitudinal grooves of at least one other of the laterally extending portions;

a plurality of print wires, each of the print wires being positioned in a set of the aligned grooves in the laterally outwardly extending portions, each of the sets of aligned grooves defining a substantially planar curve; a plurality of print wire bridge members spaced apart longitudinally along the elongated, tapered, central member, each of the bridge members being opposite one of the laterally outwardly extending portions, respectively, and comprising a cap across the laterally open grooves in the respective laterally outwardly extending portion for retaining each of the print wires easily slidable within its respective groove in the respective laterally outwardly extending portion; means for imparting axial movement to selected ones of the print wires to effect printing, each of said wires having a printing end and an opposite end, the printing ends of the wires being located in two closely spaced parallel rows and the opposite ends of the wires being spaced outwardly and apart from each other, each of the sets of laterally open longitudinal grooves accommodating one of the print wires being located to be along a planar curve between the print end of the wires and the opposite end thereof; a thin, substantially flat spacer positioned between the two parallel rows close to the print end of the wires to maintain the two rows substantially parallel to each other; and wire guide means positioned on opposite sides of the parallel rows to maintain the wires in each of the rows in a fixed, laterally spaced relationship.

4,365,903

LOCKABLE KEY WITH LUMINESCENT DISPLAY FOR OFFICE TYPEWRITERS AND TELEPRINTERS

Karl S. Zeller, and Heinz Thormann, both of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

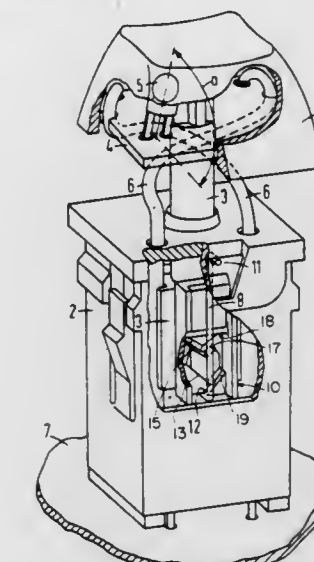
Filed Aug. 19, 1980, Ser. No. 179,547

Claims priority, application Fed. Rep. of Germany, Aug. 22, 1979, 2933983

Int. Cl.³ B41J 5/12, 29/18

U.S. Cl. 400—490

4 Claims



1. A key with luminescent display for use in keyboard arrays comprising: a depressible hollow key button at least partially comprised of light-transmissive material and having a slide extending downwardly therefrom; a key base slidably receiving and supporting said slide and having a bias means normally urging said key button to a non-actuated position; a circuit board having a light emitting diode mounted thereon which is received in said hollow key button, said circuit board having a pair of recesses respectively disposed at sides thereof; a pair of flexible wires extending through said key base and

through said recesses in said circuit board into said hollow key button and electrically connected to said circuit board inside said key button for supplying power to said light emitting diode, said flexible wires forming a crossed-over loop between said circuit board and said key base; and means for temporarily connecting said flexible wires to a source of power upon depression of said key button.

4,365,904

LINESPACING APPARATUS

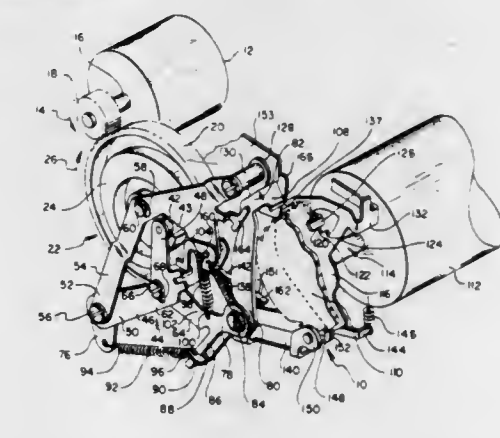
Hans W. Mueller; Richard E. Shattuck; Albert H. Cryder, all of Cortland, and John L. Nelson, Ithaca, all of N.Y., assignors to SCM Corporation, New York, N.Y.

Filed Apr. 14, 1981, Ser. No. 254,034

Int. Cl.³ B41J 19/92

U.S. Cl. 400—568

6 Claims



1. A linespacing apparatus for linespacing a platen including an electric motor, slip clutch means, driving connection means connecting the electric motor and the slip clutch means, cam means, linkage means including a cam follower driven by the cam means, and ratchet means mounted on the platen engaged and rotated by the linkage means for rotating the platen a selected amount in response to rotation of the electric motor, the cam means comprising: a face cam having a first profile surface to engage and drive the cam follower; said face cam having a second profile surface which includes an abutment wall portion engaged by the cam follower to limit rotating motion of said face cam for limiting the drive of the linkage means; and said first profile surface includes a straight wall portion forming an initial position for the cam follower, said straight wall portion and said abutment wall portion form a passageway for the cam follower to move from said abutment wall portion to said straight wall portion.

4,365,905

CLAMPING DEVICE FOR FORM FEED MECHANISMS

Werner Jung, Morton Grove, Ill., assignor to Teletype Corporation, Skokie, Ill.

Filed Aug. 21, 1980, Ser. No. 180,212

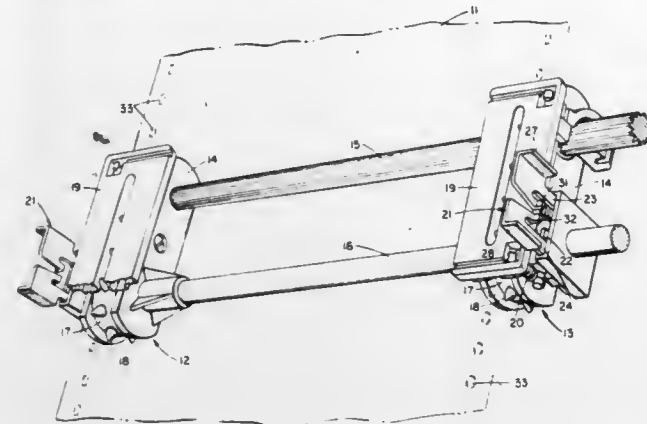
Int. Cl.³ B41J 11/32; A44B 21/00

U.S. Cl. 400—616.2

2 Claims

1. A printer tractor having a frame and an endless belt for advancing a record medium through a printing machine, said printer tractor mounted on a guide shaft extending through said frame, and said printer tractor being laterally movable along said guide shaft for adjustment of position to accommodate different widths of said record medium, the printer tractor including a clamping device comprising: a one piece metal stamping including two parallel arms each having a free end extending in a first direction and each arm being a mirror image of the other, and a member joining said two arms, said joining member having a substantially circular shape and located between and apart from said arms, said joining member and said parallel arms defining a keyhole shaped opening facing in the opposite

direction from said first direction, said keyhole shaped opening includes a substantially circular portion having a diameter sufficiently smaller than the diameter of said guide shaft so as to insure a positive interference fit between said clamping device and said guide shaft and a



small rectangular portion located below and interconnected with said circular portion and wherein movement of said parallel arms towards each other applies a separating force at the rectangular portion of the opening enlarging said circular portion thereby disengaging said clamping device from said guide shaft.

4,365,906

RIGGING TERMINAL ASSEMBLY

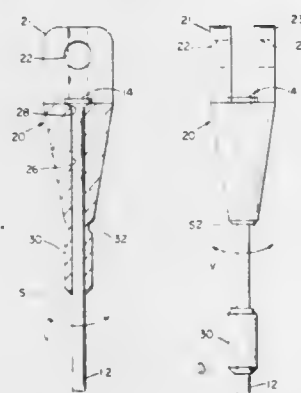
Kenneth L. King, 100 Robin Rd., Weston, Mass. 02193

Filed Mar. 2, 1981, Ser. No. 239,549

Int. Cl.³ F16D 9/00; F16P 5/00

U.S. Cl. 403—2

5 Claims



1. A sailboat rigging fatigue indicating terminal assembly for receiving and retaining the end of a tensioned metal rigging rod or the like subject to fatigue caused by vibration, comprising

- a fitting having securing means at its securing end and an internal bore extending from its opposite rod receiving end toward said securing end surrounding and securing said rod and having
- at its rod receiving end a fatigue indicating portion defined by a weakened area spaced inwardly from its rod receiving end
- whereby
- breakage of said fitting at said weakened area releases said fatigue indicating portion from the remainder of said fitting to indicate decreased fatigue life of said rod.

4,365,907

FASTENING DEVICES

George A. Berry, Ashwell, England, assignor to International Computers Limited, London, England

Continuation of Ser. No. 813,518, Jul. 7, 1977, Pat. No.

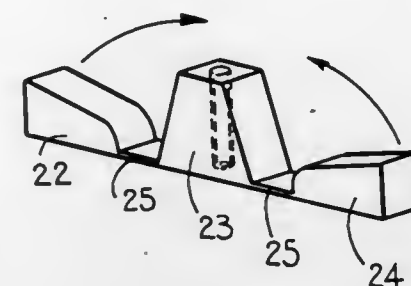
4,190,375. This application Nov. 24, 1978, Ser. No. 963,211

Claims priority, application United Kingdom, Jul. 23, 1976, 30714/76

Int. Cl.³ F16B 7/00

U.S. Cl. 403—12

1 Claim



1. An internally fitting re-usable fastening device of unitary construction comprising; a central block-like wedge element having a bottom surface and a top surface both such surfaces being of rectangular cross-section and two pairs of opposed side-walls, the walls of one such pair being inclined inwardly from the bottom surface to the top surface to provide relatively inclined first wedge surfaces; two similar end block-like wedge elements each including a base surface and a top surface of rectangular cross-section which is inclined to the base surface to provide a second wedge surface; and a flexible connection between the wider end of the central element and the narrower end of each of the end elements, each flexible connection comprising a flexible web which extends the full length of the central block edge defined between the bottom surface and the adjacent inclined side and the full width of the narrower part of the wedge of the associated end element as a contiguous extension of said bottom and base surfaces, each such flexible web being of such length that the associated end element can be readily caused to abut the central element to provide an operative setting in which the respective first and second wedge surfaces thereof in face-to-face contact and such that relative movement is possible between the central and end elements along the directions of the co-operating wedging surfaces, said central element being adapted to receive means whereby following introduction of the element on to the end of a tubular member when in said operative setting the central element can be displaced relative to the end elements so that the relative displacement forces the end elements outwardly into locking engagement with the adjacent walls of the tubular member.

4,365,908

FOLDING JOINT FOR INTERCONNECTING ELONGATE MEMBERS

Robert Thiboutot, Lac St. Charles, Canada, assignor to Les Entreprises Rotot Ltee, Comte de Bellechasse, Canada

Filed Dec. 17, 1980, Ser. No. 217,219

Int. Cl.³ F16C 11/00; F16D 1/12, 3/00

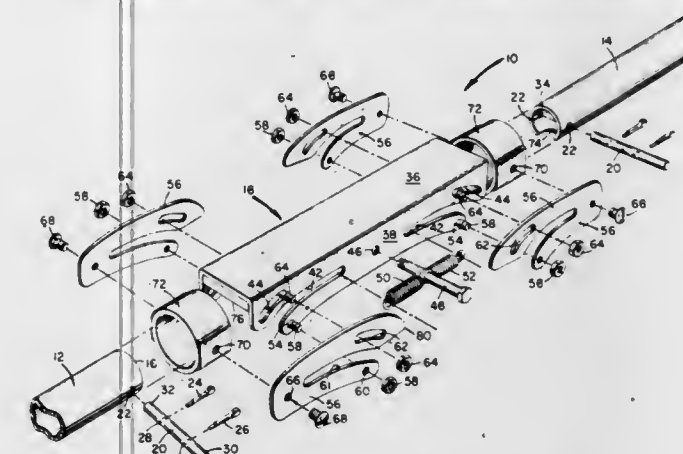
U.S. Cl. 403—102

6 Claims

1. A joint for interconnecting confronting end portions of two elongate members so that the elongate members are movable between a first position in which the elongate members are coaxial and their confronting end portions are spaced a first predetermined distance from each other and a second position in which the elongate members are parallel with each other and spaced apart by a second distance greater than said first predetermined distance, said joint comprising:

- a central block member having a base and a flange protruding downwardly from a side edge of the base, the flange having a pair of guide passages formed therein that extend

inwardly and upwardly from lower outer edges thereof and respective cam slot formed within the flange above each of the entrances to the guide passages;
a guide member pivotally connected to each lower outer edge of said flange below the entrances to the guide passages, each guide member having a guide passage with an entrance that communicates with the entrance to one of the guide passages in the flange and a cam slot that at least partially overlaps the respective cam slot in the flange, the guide passages in the flange and guide member cooperating with each other to define a guide path traversing 90°, the cam slots in the flange and guide member being shaped to cooperate with each other to limit movement of said



guide member to positions corresponding to the first and second positions of the elongate members;
a pin received in and cooperating with overlapping portions of said cam slots for limiting movement of said guide member;
follower means carried by the confronting end portion of each elongate member received in said guide path for guiding movement of the elongate member between its first and second positions;
guide means for slidably receiving and guiding said elongate member;
means for connecting said guide means to said guide member; and holding means for releasably holding said elongate members in said first positions.

4,365,909

COUPLING CLAMP AND A METHOD OF MANUFACTURE THEREFOR

Gerard Stephan, Croissy, France, assignor to Nadella, France

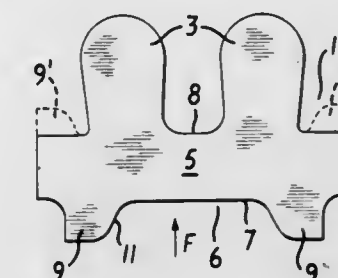
Filed Nov. 9, 1979, Ser. No. 92,841

Claims priority, application France, Nov. 15, 1978, 78 32226

Int. Cl.³ F16C 11/06; F16D 1/12; F16J 1/16

U.S. Cl. 403—157

11 Claims



1. In a coupling device which is made from a single piece of a sheet metal or tubing blank and comprises an axially extending tubular body portion which defines a socket for axially receiving a transmission member, and two spaced-apart lugs which extend from said body portion and define an axially extending throughway slot in said body portion and are provided for receiving clamping means for urging said lugs toward each other for clamping said body portion onto said transmission member; the improvement comprising an integral

tab on at least one of said lugs which tab extends directly toward said other lug a distance less than the width of said slot in a plane substantially perpendicular to said tubular body.

4,365,910

STRUT SUPPORT APPARATUS

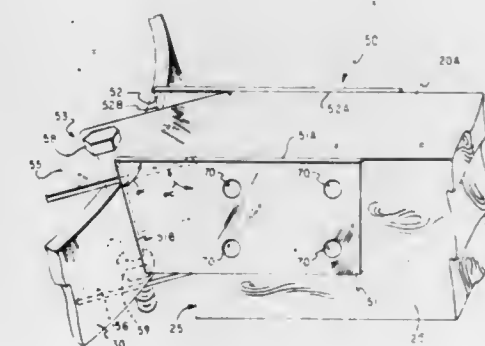
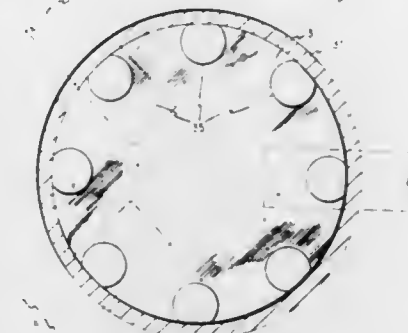
R. Gary Ford, Memphis, Tenn., assignor to Steelcraft Corporation, Memphis, Tenn.

Filed May 15, 1980, Ser. No. 178,393

Int. Cl.³ F16D 1/00, 3/00

U.S. Cl. 403—172

18 Claims



1. Apparatus for joining a plurality of struts at a vertex, comprising:

- a plurality of strut supports, each including: a pair of substantially parallel spaced side plates for receiving and securing one of said struts with a longitudinal face of said strut aligned with a pair of longitudinal edges of said side plates, and a clamp having a generally rectangular base plate mounted and secured across said side plates and substantially perpendicular to said longitudinal edges of said side plates such that an end face of said strut can abut against said base plate, said clamp having a pair of generally parallel flanges extending away from said strut at an oblique angle with respect to said base plate; and
- a tubular hub to which a plurality of said clamps are joinable by engaging said hub within the flanges of said clamps; whereby each strut is joinable to said hub at an angular relationship with respect to the plane of said hub that is defined by said oblique angle.

4,365,911

SURFACE DRAINAGE CULVERT

Shelton R. Rossberg, Houston, Tex., assignor to Ramco Steel, Inc., Houston, Tex.

Continuation-in-part of Ser. No. 168,309, Jul. 10, 1980. This application Jul. 16, 1981, Ser. No. 284,065

Int. Cl.³ E02B 11/00; E01F 5/00

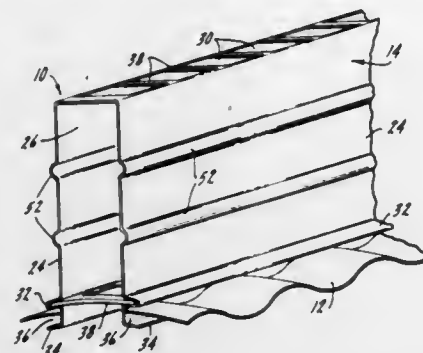
U.S. Cl. 405—43

24 Claims

1. In a surface drainage culvert comprising a pipe section which is cut longitudinally forming an aperture along its upper surface and having an upstanding, longitudinal grate assembly received within the aperture, the improvement comprising

- a. the aperture consisting of a plurality of longitudinally

- spaced slots in the pipe with unslotted pipe portions separating each said slot,
- b. said grate assembly consisting of
- a pair of spaced, parallel sidewalls extending outwardly from the pipe above said aperture, said sidewalls forming therebetween an inlet drainage passage which accepts drainage water inflow at the top of the passage and discharges drainage water through said aperture into the pipe section at the bottom of the passage,



- stiffener means at the top of said drainage passage extending between said sidewalls to maintain the spacing of said sidewalls at the top of said drainage passage, and
 - a longitudinal guide formed in said sidewalls adjacent the bottom of said drainage passage, and
- c. spacer means situate in said guide to maintain the spacing of said sidewalls at the bottom of said drainage passage.

4,365,912

TENSION LEG PLATFORM ASSEMBLY

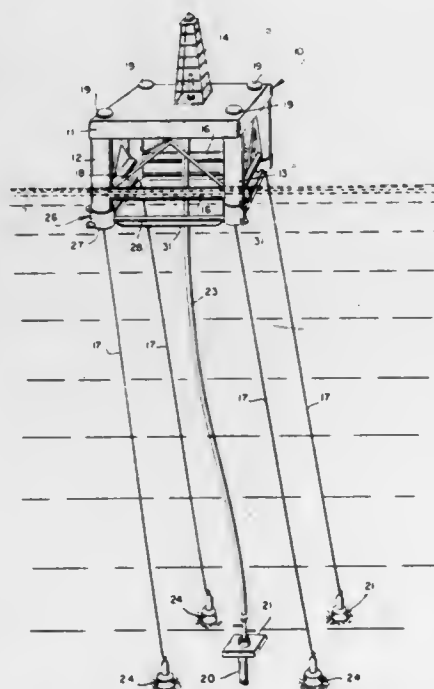
Robert B. Burns, Huntington, N.Y., assignor to Texaco Development Corporation, White Plains, N.Y.

Filed Dec. 22, 1980, Ser. No. 218,607

Int. Cl.³ E02B 3/00, 15/04

U.S. Cl. 405—60

10 Claims



- The combination with a tension leg marine structure adapted for drilling a well bore into the ocean floor at a drilling site in an offshore body of water, and including;
 - a vessel having a buoyancy controlled hull,
 - a plurality of anchors positioned at the ocean floor in said body of water and spaced about said well bore,
 - hold down tensioning means extending between and detachably connecting said vessel hull with the respective plurality of anchors, to maintain the vessel in substantially vertical alignment with the well bore, of
 - a collar detachably depending from the hull and having

guide means thereon adapted to slidably engage the hold down tensioning means, whereby said collar can be detached from the hull and controllably lowered to engage said anchors at the ocean floor and surround a well bore from which an uncontrolled stream of effluent fluid is flowing,

a cap having an enclosure thereon, which cap is adapted to be guidably lowered to the ocean floor and fixedly engage said collar, whereby to align said enclosure above said well bore thus confining said uncontrollably flowing effluent fluid stream.

4,365,913

METHOD AND DEVICE FOR BUILDING IN THE GROUND VERTICAL WALLED STRUCTURES STARTING FROM A SUBTERRANEAN CONDUIT

Jacques Bonvoisin, Liege, Belgium, assignor to Compagnie International des Pieux Armes Frankignoul, Liege, Belgium

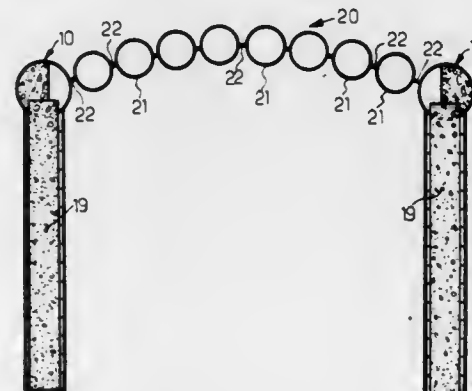
Filed Feb. 14, 1979, Ser. No. 12,107

Claims priority, application Belgium, Feb. 21, 1978, 185318; Jun. 5, 1978, 188318

Int. Cl.³ E21D 9/04

U.S. Cl. 405—132

14 Claims



- A method of building in the ground vertical-walled structures, such as a subterranean tunnel, starting from the subterranean conduits, comprising the steps of: driving horizontally into the ground, two parallel lines of tubes, spaced a predetermined distance from one another; in constructing beneath each line of tubes corresponding vertical walls; and interconnecting the two lines of tubes through a certain number of intermediate parallel lines of tubes driven horizontally into the ground, in which the tubes are tightly connected to the parallel adjacent tubes in such a manner that the two parallel lines and the intermediate lines of tubes form the roof of a tunnel, to be formed between said vertical walls.

4,365,914

TRANSVERSE POST-TENSIONED TENDON INTERCONNECTING SYSTEM FOR MARINE FLOATS

Wesley W. Sluys, Bellingham, Wash., assignor to Builders Concrete, Inc., Bellingham, Wash.

Filed Oct. 20, 1980, Ser. No. 199,049

Int. Cl.³ B63B 35/00

U.S. Cl. 405—221

9 Claims

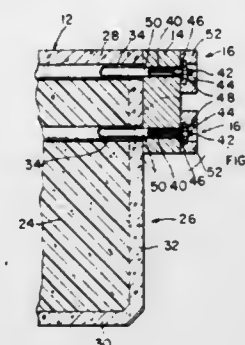
- A system for interconnecting a row of marine floats, comprising:

respective rigid wales running along the upper side edges of said floats and extending between adjacent floats to bridge the junction therebetween;

a plurality of relatively thin tendons extending transversely through said floats, each terminating in respective fastening means for tensioning said tendons to force said wales against said floats, said tension causing sufficient elongation of said tendons to maintain a force between said wales and float as said wales undergo shrinkage; and

rigid shear-reinforcing sleeves surrounding at least some of said tendons and projecting into said wales to resist shear

forces generated between said floats and wales, said reinforcing sleeves being isolated from said fastening means so



that the tension of said tendons is not imparted to said sleeves.

4,365,915

FLUID RAIL CONVEYING APPARATUS

John W. Neumann, Birmingham, Mich., assignor to Occidental Chemical Corporation, Warren, Mich.

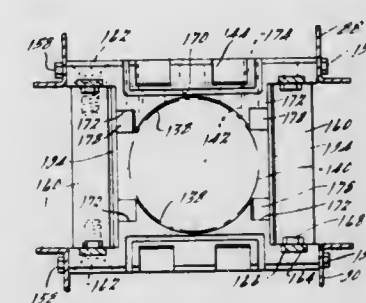
Division of Ser. No. 822,428, Aug. 8, 1977, Pat. No. 4,144,021, which is a division of Ser. No. 649,836, Jan. 16, 1976, abandoned.

This application Dec. 14, 1978, Ser. No. 969,426

Int. Cl.³ B65G 51/02

U.S. Cl. 406—88

5 Claims



- An apparatus for conveying articles comprising a framework, a plurality of longitudinally extending members defining a rail supported by said framework, each of the members formed with a supporting surface oriented in opposed relationship with respect to the supporting surface of the other side members and formed with a transverse configuration conforming substantially to the configuration of an article adapted to be conveyed therebetween, each of said members formed with a plurality of ports in the supporting surfaces thereof, means defining a plenum connected to said members and disposed in communication with the plurality of said ports therein, supply means for supplying a fluid under pressure to said plenum for discharge from said ports for supporting and conveying an article along said rail on a cushion of fluid in spaced relationship relative to said supporting surfaces, and baffles defining a shroud extending between said members along a portion of the length thereof to restrict escape of fluid discharged from said ports laterally between said supporting surfaces to impart an axial flow pattern to said fluid along the tunnel formed in both a forward and rearward direction with the rearward flow opposing the translatory movement of the articles being conveyed effecting a deceleration thereof upon approaching the upstream end of said shroud.

4,365,916

TURNING TYPE MULTI-SPINDLE ATTACHMENT
Eiji Miyakawa, Tokyo, Japan, assignor to Miyakawa Industry Co., Ltd., Seki, Japan

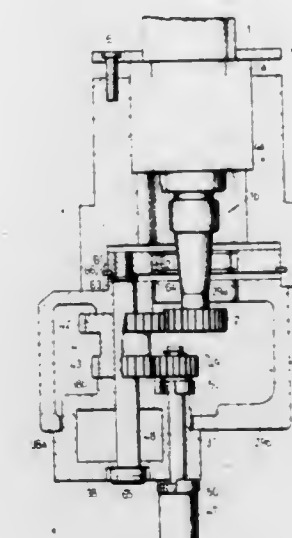
Filed Aug. 12, 1980, Ser. No. 177,475

Claims priority, application Japan, Feb. 26, 1980, 55-23999[U]

Int. Cl.³ B23B 39/20

U.S. Cl. 408—46

3 Claims



- A turning-type multi-spindle attachment for a drilling or tapping machine having a spindle in a spindle quill with an outer periphery, said attachment comprising:

a mounting cylinder 4 non-rotatably attachable to the outer periphery of the spindle quill 1, said mounting cylinder having an axis, a central bore extending therethrough and a lower portion including a recess concentric with and larger in diameter than said central bore, said recess having an inner circumferential periphery;

a body 28 positioned relative to said lower portion such that a turning position thereof is adjustable, said body having an upper face;

a snap ring 61 mounted on said inner periphery of said recess, said snap ring having an upper face;

a support ring 62 positioned in said recess adapted to engage said upper face of said snap ring 61, said support ring having a lower face;

a plurality of turnable members 38 rotatably mounted on said body 28, each of said turnable members being in the form of a substantial cylinder having a central portion and being adapted to rotatably support a drill 51 or tap at a position eccentric to said control portion;

a plurality of mounting bolts 65, each extending through said central portion of one of said turnable members and through said body and being threadably inserted into said support ring from below, thereby adjustably mounting said turnable members to said body and said body to said mounting cylinder whereby, upon loosening of said bolts, said turnable members can be rotated relative to said body and said body can be rotated relative to said mounting cylinder and, upon tightening of said bolts, said body is clamped to said mounting cylinder and said turnable members are fixed to said body; and

a gear transmission mechanism housed in said body interconnecting the spindle to the drills or taps supported in the plurality of turnable members.

4,365,917

WORK-HOLDING DEVICE

Pierre Harmand, 9 Rue Malaz, F-74600 Seynod, France
PCT No. PCT/FR79/00124, § 371 Date Sep. 8, 1980, § 102(e)
Date Sep. 8, 1980, PCT Pub. No. WO80/01365, PCT Pub.
Date Jul. 10, 1980

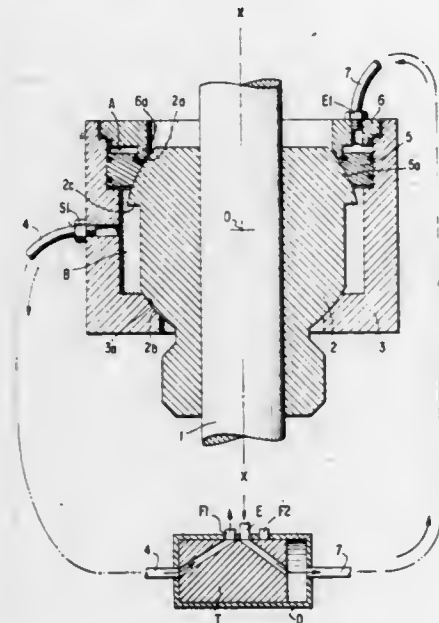
PCT Filed Dec. 13, 1979, Ser. No. 214,001

Claims priority, application France, Jan. 8, 1979, 79 00310

Int. Cl.³ B23C 3/05

U.S. Cl. 409—201

6 Claims



1. An adjustable guide for a tool holder for use in high precision machining comprising:

- a housing;
- a guide seat located within said housing and having an internal surface;
- a guide element positioned within said housing and having an internal surface, said guide element being movable with respect to said housing;
- a casing disposed in said housing and positioned between said guide seat and guide element, said casing having a center portion and first and second end portions having outer surfaces shaped to mate with the internal surfaces of said guide seat and guide element respectively;
- actuating means for engaging the internal surface of said guide element with the second end portion of said casing; and
- means for delivering fluid to said housing, said casing having a lifting means contacted by said fluid, said fluid supporting said casing when the internal surface of said guide element is out of engagement with the second end portion of said casing to permit displacement of said casing to a predetermined position.

4,365,918

MOBILE RAIL CONTOURING MACHINE

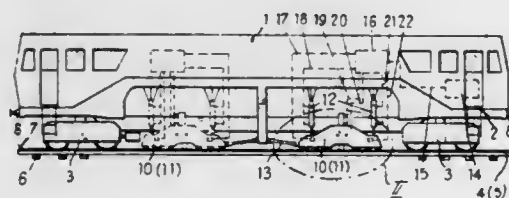
Josef Theurer, Vienna, Austria, assignor to Franz Plasser Bahn-
baumischen Industriellgesellschaft m.b.H., Vienna, Austria
Filed Apr. 21, 1980, Ser. No. 142,441

Claims priority, application Austria, Aug. 14, 1979, 5537/79

Int. Cl.³ B23D 1/20; E01B 31/15

U.S. Cl. 409—296

19 Claims



1. A mobile rail contouring machine mounted on a railroad

track for continuous movement in an operating direction, the track including two rails each having a rail head defining a gage side, a field side and a running surface, the gage and field sides extending from the running surface to a lower edge of the rail head, the machine being arranged for continuously removing such running surface irregularities as ripples, corrugations and overflow metal during the continuous movement and comprising

- (a) a frame running on the track on undercarriages having flanged wheels engaging the gage and field sides in a zone adjacent the running surface,
- (b) a rail contouring tool mounting linked to the frame,
- (c) a drive means for vertically adjusting the mounting relative to the running surface of the rail head of one of the rails and for pressing the mounting thereagainst,
- (d) guide roller means for vertically and laterally guiding the mounting along said rail head without play, the guide roller means including
 - (1) a guide roller laterally guiding the mounting along a selected one of the sides of the rail head and engaging the selected rail head side in a region extending from the lower edge to below the zone adjacent the running surface, and
 - (2) two additional guide rollers vertically guiding the mounting along the running surface of said rail head, the additional guide rollers engaging the running surface and each having an axis extending substantially parallel to the track plane,
- (e) a rail contouring tool head including a tool holder, the tool head being mounted on the mounting for displacement in relation thereto and the tool holder including clamping means, and
- (f) a rail contouring cutting tool replaceably mounted in the clamping means of the tool holder, the tool holder detachably carrying
 - (1) a cutting blade having a cutting edge for planing a selected profile of the rail head.

4,365,919

FREIGHT SECURING APPARATUS

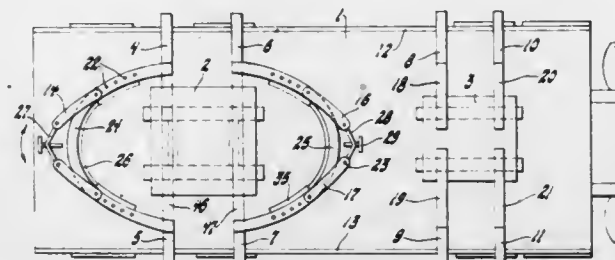
Larry L. Mehki, 14385 Cedar St., Monroe, Mich. 48161

Filed Dec. 19, 1979, Ser. No. 105,036

Int. Cl.³ B60P 7/10, 7/12; B61D 3/16, 45/00

U.S. Cl. 410—120

11 Claims



1. An apparatus for securing loads; comprising:
- a structure adapted to vertically support a load;
 - first means connected to said structure for securing loads to said structure;
 - said first means including a pair of facing elongated unitary adjustable, cushioning load-contacting members;
 - each of said members being pivotally mounted on said structure adjacent a lower end of the respective members for movement in a vertical plane extending lengthwise of said structure and for simultaneous movement in an arc-like path with respect to said structure and with respect to the pivotal mounting of said member;
 - whereby said members can be moved simultaneously upwardly and inwardly with respect to a load carried on said structure;
 - second means interconnecting and extending between said load-contacting members of said first means for removably, adjustably and tightly securing at least a portion of

said adjustable cushioning load-contacting members against a load for removably, adjustably and tightly, securing said load to said external structure;

said second means comprising an elongated element movable lengthwise of at least one of said members and fastenable thereto at locations along the latter member;

adjustable means attachable to at least one of said members for urging said second means along one of said members;

whereby when said members are adjustably positioned with respect to a load carried on said structure, said second means can be urged along at least one of said members and said second means can be attached to the member it is urged along in a position such as to secure said members tightly against said load and said load against said structure.

6. An apparatus for securing loads, comprising:

- first means connected to an external structure having a load thereon;
- said first means including two first facing rigid arcuate members;
- said two first facing rigid arcuate members each being pivotally mounted on said structure adjacent a lower end of the respective members for movement in a vertical plane extending lengthwise of said structure and for simultaneous movement in an arc-like path with respect to said structure and with respect to the pivotal mounting of said members whereby said members can be moved simultaneously upwardly and inwardly with respect to a load carried on said structure;
- second means for removably and tightly securing at least a portion of said two first rigid arcuate members of said first means against said load; and
- said second means extending between and interconnecting said two first rigid arcuate members and including a second rigid arcuate member which adjustably interconnects said two first rigid arcuate members for removably, adjustably and tightly securing said load against said external structure.

4,365,920

LOADER-UNLOADER SYSTEM FOR WORKPIECES

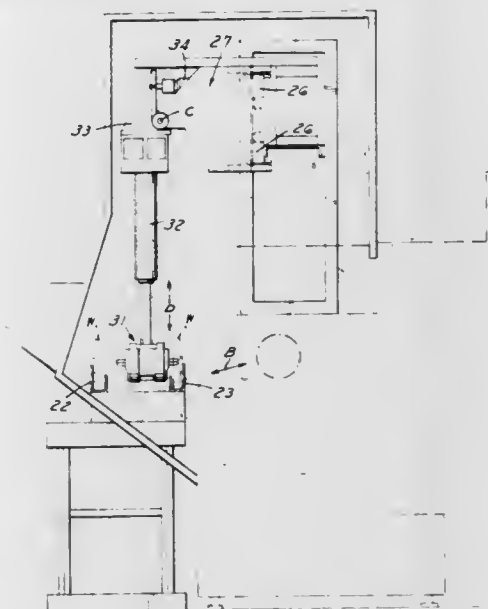
Wendell D. Morgan, Salem, Ill., assignor to Acco Industries, Inc., Trumbull, Conn.

Filed May 21, 1980, Ser. No. 152,108

Int. Cl.³ B66C 1/54

U.S. Cl. 414—224

15 Claims



1. A loader-unloader system for loading and unloading workpieces into the holding means of a machine tool wherein each workpiece is held in position about a longitudinal axis during which various machine operations may be performed on the tool comprising

a loading means adapted to deliver articles in succession to a loading position,

an unloading means adapted to receive workpieces,

a loader-unloader assembly comprising

means defining a track extending along an axis parallel to the axis of the machine,

a carriage movable along said track means,

means for moving said carriage back and forth along said track means,

a loader-unloader head assembly mounted on said carriage,

means on said carriage for mounting said head assembly for movement into and out of position adjacent said holding means of said machine tool and for reciprocating movement toward and away from the said holding means,

said head assembly comprising a multiplicity of radially extending fingers,

means for mounting said fingers on said head assembly for generally linear movement radially toward and away from one another for gripping and releasing a workpiece, comprising a multiplicity of levers pivoted on said head, each said lever supporting a finger,

and means for moving said levers and thereby moving said fingers toward and away from one another in said generally linear path.

4,365,921

FORKLIFT VEHICLE

Gerardus J. Brouwer, Keswick, and William Arnold, Sutton
West, both of Canada, assignors to Brouwer Turf Equipment
Limited, Keswick, Canada

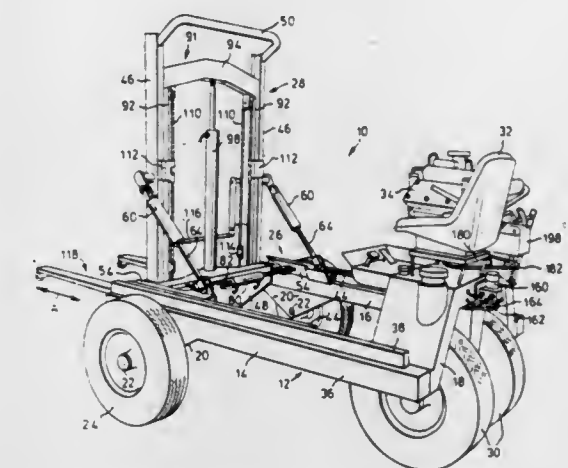
Filed May 29, 1980, Ser. No. 154,567

Claims priority, application Canada, Jun. 21, 1979, 330327

Int. Cl.³ B65G 67/04

U.S. Cl. 414—347

35 Claims



1. A self propelled forklift vehicle comprising:

- (a) a frame defining an elongated space open at one end thereof and extending to the ground,
- (b) wheels mounted on said frame for supporting and driving said vehicle,
- (c) a fork tower, and forks mounted on said fork tower,
- (d) means mounting said fork tower on said frame with said forks positioned in said space and for horizontal movement of said fork tower on said frame,
- (e) power means connected between said fork tower and said frame and operable for moving said fork tower on said frame to move said forks horizontally through said space,
- (f) means connected between said fork tower and said forks for raising and lowering said forks and for driving said forks substantially below the level of the bottoms of said wheels, whereby to raise said vehicle above the ground on said forks, so that said vehicle can be moved by driving said forks below the bottoms of said wheels and then operating said power means to produce relative movement between said fork tower and said frame while said vehicle is thus raised.

33. A vehicle comprising: a pair of forks facing outwardly for supporting a loaded pallet, said pallet being of predetermined length, said forks including retaining means for resisting movement of said pallet outwardly off said forks when said pallet is supported by said forks, means for moving said forks in a substantially horizontal plane inwardly and outwardly over a distance at least equal to said predetermined length, between an extended outer position and a retracted inner position, gate means movable between a first fixed position in which said gate means is located just above said pallet when said forks are in said extended position and blocks the contents of said pallet but not said pallet from moving inwardly and a second position in which said gate means does not obstruct movement of said pallet and its contents inwardly or outwardly, means for selectively moving said gate means between said first and second positions, and means operable for withdrawing inwardly said forks, with said pallet retained thereon, from said extended position to said retracted position while said gate means is in said first fixed position so that said contents of said pallet are blocked by said gate means from moving inwardly, thereby fully removing said pallet from beneath said contents and hence fully discharging said contents from said pallet.

4,365,922

SIDE-LOADING DUMP UNIT

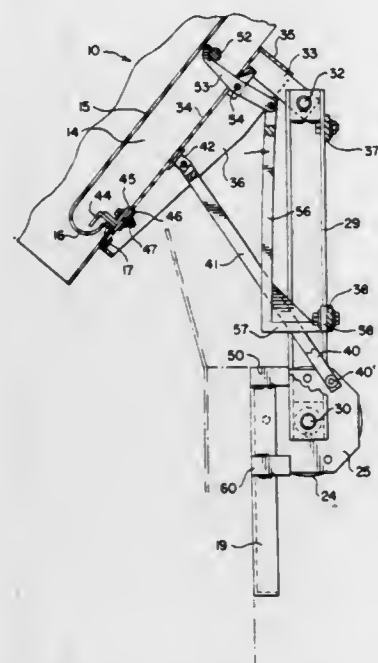
Ernest D. Borders, Statesville, N.C., assignor to Rubbermaid Applied Products Inc., Statesville, N.C.

Filed May 4, 1981, Ser. No. 260,104

Int. Cl.³ B65F 3/02

U.S. Cl. 414-406

12 Claims



1. Receptacle dumping mechanism for lifting and inverting a receptacle, comprising a frame rotatably mounted on the side of a waste collector, a face plate pivoted on the bottom of said frame and having a saddle at its upper end, means to rotate said frame to lift and invert a receptacle supported on said saddle, and a push link pivotally connected at one end to the waste collector and at the other end to the face plate for swinging the upper end of the face plate away from the frame as the frame is rotated to lift and invert a receptacle supported on said saddle.

4,365,923
COMBINATION TRAILER/LAUNCHER FOR BOATS
AND OTHER VEHICLES, AND METHODS OF
CONSTRUCTING AND UTILIZING SAME

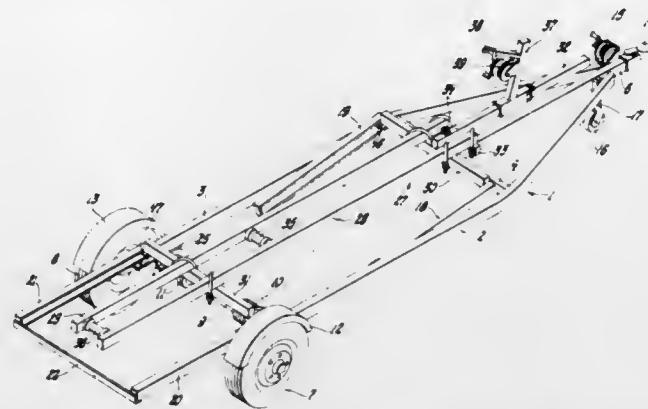
Renso Lubbers, Bokellia, Fla., assignor to Colu Industriez, Inc., Portage, Ind.

Filed Mar. 3, 1980, Ser. No. 126,558

Int. Cl.³ B60P 3/10

U.S. Cl. 414-483

11 Claims



1. An apparatus for selectively loading and transporting and unloading an object comprising:

a main frame having means for transporting said apparatus; a second frame for supporting an object, said second frame being movably supported by said main frame; said main frame comprising a forward section and a guide bar frame pivotally connected to said forward section for pivotal movement about an axis transverse of said forward section and pivotal movement with respect to said second frame transverse of said second frame;

means movably supporting said second frame on said guide bar frame for movement of said second frame longitudinally of said main frame and along said guide bar frame transversely of said axis with said means movably supporting said second frame on said guide bar frame being movable from a location forwardly of said axis to a locations rearwardly thereof;

whereby upon movement of said second frame longitudinally relative to said main frame, said guide bar frame will pivot downwardly with respect to said forward section of said main frame when said means movably supporting said second frame on said guide bar frame moves rearwardly of said axis and said guide bar frame will pivot upwardly with respect to said forward section when said means movably supporting said second frame moves forwardly of said axis; and

means supporting said second frame on said forward sections of said main frame for movement along said forward section of said main frame simultaneously with movement of said second frame along said guide bar frame and while said guide bar frame pivots downwardly with respect to said forward section, whereby said second frame is supported by and moves along said forward section of said main frame while said second frame moves along said guide bar frame as the latter pivots.

4,365,924

DISABLED PERSON TRANSFER DEVICE

Maurice C. Brigman, 616 S. West St., Royal Oak, Mich. 48067, and Edward C. Sikes, Springville, Tenn., assignors to Maurice C. Brigman, Royal Oak, Mich.

Filed Aug. 1, 1980, Ser. No. 174,520

Int. Cl.³ B60P 1/48; B60N 1/02

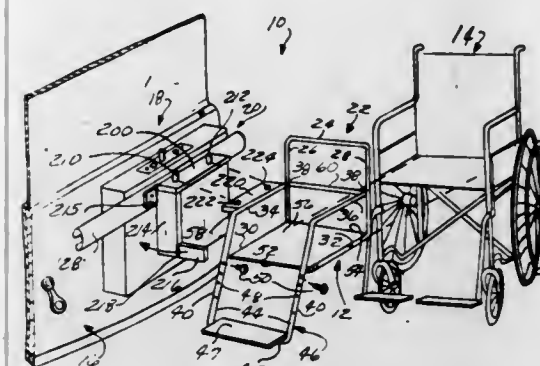
U.S. Cl. 414-549

11 Claims

1. A device for transferring a person from a wheelchair to a vehicle having a door comprising:

a removable seat associated with the wheelchair; an actuator adapted to be attached to the vehicle door; and means for releasably engaging the seat with the actuator;

the actuator being movable relative to the door to move the seat into or out of the vehicle, the actuator comprising: a pair of vertically-extending spaced tracks adapted to be mounted on the vehicle door; a pair of vertically movable members slidably engaging the vertically extending tracks and vertically movable therealong; a pair of transversely movable members disposed parallel to each vertically movable member and vertically movable therewith;



an arm interconnecting each transversely movable member and an associated vertically movable member, each arm being hinged at opposed ends to the vertically movable member and the transversely movable member, respectively;

a horizontal track extending between and fixedly attached to the transversely movable members;

a horizontally movable member slidably engaging and movable along the horizontal track; and

means for moving the horizontally movable member in a horizontal, vertical and transverse direction relative to the vehicle door.

4,365,925

MANHOLE COVER LIFTER

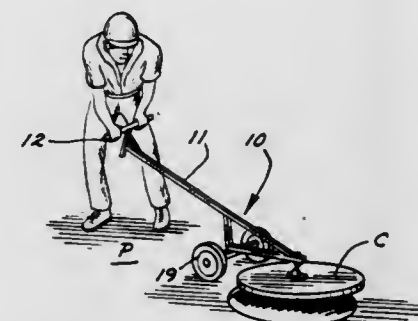
Sylvester A. Girtz, 8332 - 32nd Ave. North, Crystal, Minn. 55428

Filed Jul. 28, 1980, Ser. No. 172,668

Int. Cl.³ B66F 11/00

U.S. Cl. 414-684.3

1 Claim



1. A manhole cover lifting device comprising an elongate inclined rigid lever having a first lower end with fastener means for attachment to a manhole cover and also having a second upper end with a depending foot thereon to prevent the upper end of the lever and a workman's hands thereon from engaging the ground, and elongate handle affixed on the upper end of the lever and extending transversely thereof at a location in superposed relation with respect to the upper end of the handle, a depending rigid strut affixed to the lever intermediate the ends and having a lower end with means mounting an elongate horizontal axle extending transversely of the strut and of the lever, said axle having a pair of ground engaging wheels thereon providing a fulcrum for the

lever, both the lever and the strut being formed of rigid steel tubing and being welded together, an elongate rigid steel insert bar concealed and affixed within the tubing of the rigid lever adjacent the depending strut and extending in both longitudinal directions along the lever from the strut, an elongate lifter bar extending generally along the lever and in oblique relation thereto, one end of the lifter bar being affixed to the lower end of said strut and the other end of the lifter bar being affixed to the lower end of the lever, said lifter bar spanning across a distance approximating one-half the diameter of a manhole cover, and said fastener means including a rigid plate suspended upon a bail, said bail being secured to said first lower end of said lever said plate having an elongate slot through one side thereof to releasably receive an upright stud secured to the manhole cover, and means for securing said stud to the manhole cover, including an elongate rigid bar having a length approximating the diameter of a manhole cover, said stud being affixed to the bar approximately mid-way along the length of the bar, and said bar having a pair of depending hook-like protuberances depending therefrom for engaging recesses in the manhole cover for lifting the cover.

4,365,926

FREE-HANGING LOAD CARRIER FOR BOOM, WITH BRAKE

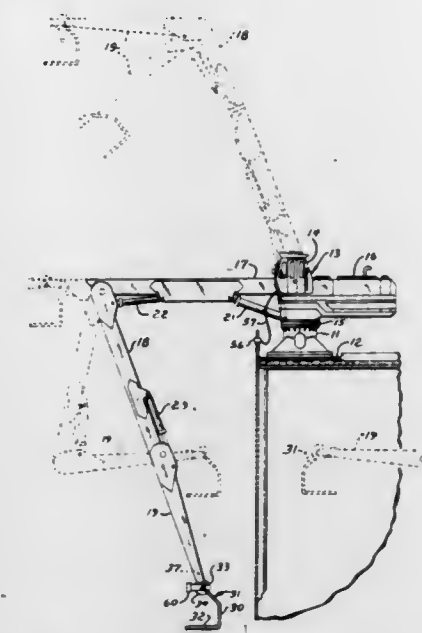
Wilburn K. Brown, Morton Grove, Ill., assignor to Pettibone Corporation, Chicago, Ill.

Filed Dec. 28, 1976, Ser. No. 755,051

Int. Cl.³ B66C 1/24

U.S. Cl. 414-685

4 Claims



1. Material-handling apparatus including a boom-part and a lift fork hanging from the end thereof, and power means for manipulating the boom-part during use with a vertical angular swing substantially exceeding 180°;

said lift fork being a rigid structure including tines for slipping under a load and extensions to a point above a mid-zone of the tine length at which the fork is pivotally suspended from the boom-part; a brake disc angularly locked to the lift fork and pivotal about the pivotal axis thereof; and braking means carried by the boom-part and operable by remote control for quick application at will for seizing the brake disc to lock the load carrier firmly to the boom-part at any one of a wide variety of angularities with respect thereto during material handling, and for quick full release to allow the load carrier to hang naturally.

4,365,927

SLASH RECOVERY SYSTEM

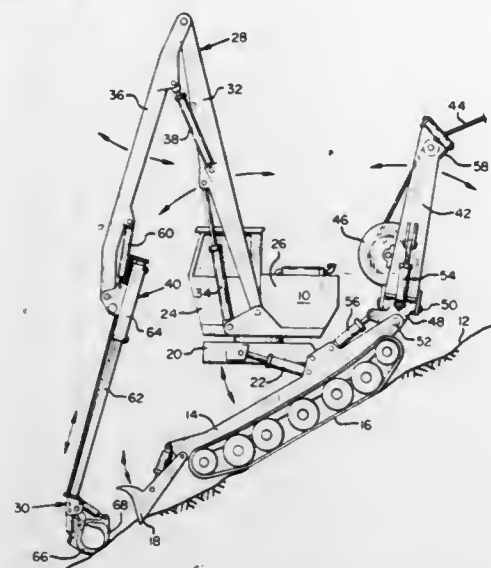
Ray B. Schenck, Box 94, Grays River, Wash. 98621

Filed May 2, 1980, Ser. No. 146,376

Int. Cl.³ B66D 3/00; B66C 21/02

U.S. Cl. 414—729

5 Claims



1. A vehicle for use with a cable anchored uphill on a logging slope comprising:
 - traction means supporting the vehicle for movement along the slope,
 - a winch mounted rearwardly on the vehicle for reeling in the cable to pull the vehicle uphill with assistance from the traction means,
 - a source of power carried on the vehicle for driving the traction means and the winch,
 - an elongated boom disposed on the vehicle and having means at an end remote from the vehicle for gathering slash from the logging slope, and
 - a tail boom adapted to guide the cable onto the winch, the tail boom being pivotable both laterally and longitudinally.

4,365,928

FLUID POWER CONNECTOR SYSTEM FOR MANIPULATOR

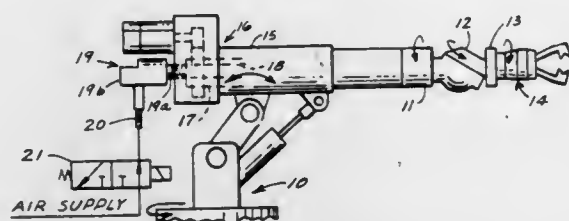
Oliver L. Baily, Cincinnati, Ohio, assignor to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed May 4, 1981, Ser. No. 260,386

Int. Cl.³ B25J 17/02

U.S. Cl. 414—735

3 Claims



1. In a manipulator having a reference base, an end effector with a tool end movable with respect to said reference base, a multi-axis joint system linking said base to said end effector through a joint housing, an improved apparatus for connecting fluid motive power from said base to said end effector, wherein the improvement comprises:
 - (a) a plenum chamber within said joint housing, and said joint housing is split into a plurality of relatively movable housing parts;
 - (b) means for ducting fluid from a fluid source into said plenum chamber, said means for ducting fluid being connected to one of said plurality of housing parts;
 - (c) an end effector power train component connected to said housing and extending into said plenum chamber, said

- power train component being connected to another of said plurality of housing parts;
- (d) a fluid duct within said power train component in fluid communication with said plenum chamber and said tool end of said end effector;
- (e) means for sealing said component with said housing; and
- (f) means for sealing said housing parts with one another.

4,365,929

VERTICAL WIND TURBINE POWER GENERATING TOWER

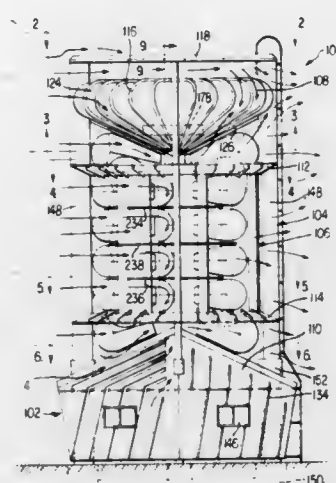
Philip Retz, 1783 Lanier Pl., NW., Washington, D.C. 20009

Filed Jan. 16, 1981, Ser. No. 225,781

Int. Cl.³ F03D 3/04

U.S. Cl. 415—2 R

37 Claims



1. A wind-power generating apparatus, comprising:
 - (a) a frame;
 - (b) a rotor mounted within said frame for rotation about a vertical axis of rotation, said rotor comprising a plurality of circumferentially spaced wind-gathering elements, including:
 - (i) a plurality of radially extending scoops arranged in columns; and
 - (ii) a plurality of radially extending curved blades; said blades and columns of scoops being alternately disposed about said rotor, and said rotor having an open axial center for allowing free air flow diametrically through said rotor; and
 - (c) air-flow channeling means for directing air flow toward said rotor.

4,365,930

ELECTRIC FAN

Masato Ogura; Noriyasu Horio, and Kinzo Suzuki, all of Nakat-sugawa, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 5, 1981, Ser. No. 240,941

Claims priority, application Japan, Mar. 31, 1980, 55-42483[U]

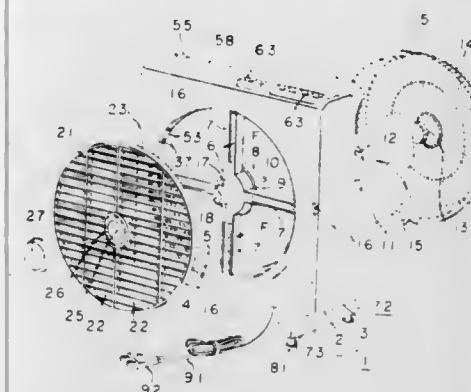
Int. Cl.³ F03D 3/02

U.S. Cl. 415—61

6 Claims

1. An electric fan which comprises:
 - a casing having an air supply opening formed at a front part of said casing and an air suction opening formed at a rear part of said casing and an air passage formed in said casing from said air suction opening to said air supply opening;
 - a plurality of fan blades placed in said air passage or near said air suction opening forming an inlet for providing air flow in said air passage from said air suction opening to said air supply opening during driving of said fan blades;
 - first motor means for driving said fan blades disposed in said casing;
 - an air directing grille for covering said front part of said air

- supply opening of said casing, said air directing grille having a peripheral edge portion and supported on said casing in a gyratory manner and including a plurality of slits formed therein for distributing said air flow through said grille;
- single rotating means placed in said casing for engaging said peripheral edge portion of said air directing grille;
- second motor means for rotating said rotating means in said casing for turning said air directing grille via said rotating means;
- means for applying and regulating said rotating means to said peripheral edge portion of said air directing grille within a predetermined pressure range and being disposed in said casing such that said rotating means is brought into contact with said peripheral edge portion of said air directing grille under said predetermined pressure range and



- such that said pressure range ensures rotation of said rotating means upon jamming of said air direction grille, wherein said means for applying and regulating said rotating means further comprises:
 - a spring mounted to said front casing;
 - a fixture plate disposed on said front casing and connected to said spring;
 - means for pivotably connecting said fixture plate to said front casing; and
 - means for mounting said second motor means on said fixture plate such that said means for applying and regulating said rotating means ensures continuous contact between said peripheral edge portion of said air directing grille and said rotating means irrespective of surface irregularities or deformations in said peripheral edge portion of said air directing grille.

4,365,931

FLUID DISPLACEMENT DEVICE

Jorge P. M. Dellacha, Cramer 4538, Buenos Aires, Argentina

Filed Jul. 16, 1980, Ser. No. 169,344

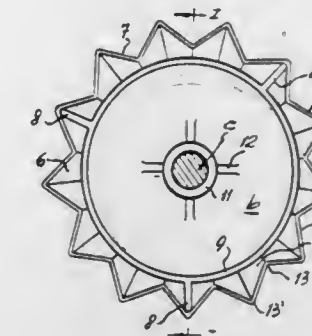
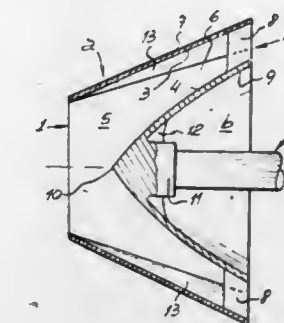
Int. Cl.³ F01B 1/36

U.S. Cl. 415—90

6 Claims

1. A device for moving fluids comprising:
 - at least one rotatable covering defined by a tubular wall having a truncated configuration which has a minor base which defines a fluid inlet and a major base which at least partially defines a fluid outlet, said covering being provided with longitudinally-extending channel-forming ribs which begin at said inlet, get gradually deeper and end at said outlet; and
 - a core which is concentrically disposed relative to the axis of rotation of said covering and which has a surface of revolution which is disposed in a non-parallel manner to the wall of said covering and which converges progressively

towards the same so as to define therebetween an annular channel tapering in a direction towards said major base of



said covering, the latter of which in cooperation with said core defines said fluid outlet.

4,365,932

PUMPING DEVICE FOR DIPHASIC FLUIDS

Marcel Arnaudeau, Paris, France, assignor to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Dec. 17, 1980, Ser. No. 217,294

Claims priority, application France, Dec. 17, 1979, 79 31031

Int. Cl.³ F04D 19/02

U.S. Cl. 415—199.5

14 Claims



1. A pumping device for a diphasic fluid which comprises a liquid phase and an undissolved gaseous phase, this device comprising at least one hollow casing having inlet and outlet openings for the fluid, at least a rotor rotatably mounted in said casing, said rotor comprising a hub and at least a blade integral with said hub, said blade having a leading edge on the side of said inlet opening and a trailing edge on the side of said outlet opening, wherein a line representing the intersection of the outer surface of said blade with a cylindrical surface coaxial to said hub is inclined relative to a reference plane perpendicular to the rotor axis by a substantially constant angle having a first value throughout a first portion of the outer surface of said blade corresponding to about two thirds of the hub length, the line representing the intersection of the inner surface of said blade with said cylindrical surface having four successive portions, comprising a first portion of the inner blade surface

whereon the angle between the profile of the inner blade surface and the reference plane decreases from a second value to a third value greater than said first value, said first portion of the inner blade surface extending over substantially one third of the hub length, said second value being at most equal to 150% of said third value, a second portion of the inner blade surface whereon said angle is substantially constant and equal to said third value, said second portion extending over 30 to 40% of the hub length, a third portion of the inner blade surface whereon said angle continuously increases from said third value to a fourth value at most equal to twice said third value, said third portion extending over 10 to 20% of the hub length, and a fourth portion of the inner blade surface whereon the line of intersection of the inner blade surface with said cylindrical surface is such that the respective profiles of the inner and outer surfaces of the blade intersect each other on the trailing edge of the blade, the difference between said first and third values being comprised between 0° and 10°, the arithmetic average value of said first and second values corresponding to an angle whose trigonometric tangent is substantially equal to $\omega R/V_z$, wherein ω represents the speed of angular rotation of the hub, R the radius of said cylindrical surface, and V_z the axial flow velocity of the fluid at the level of the leading edge of the blade.

4,365,933

AXIAL VANE RING CONSISTING OF CERAMIC MATERIALS FOR GAS TURBINES

Manfred Langer, Gifhorn; Heinz Burfeindt, Wolfsburg, both of Fed. Rep. of Germany, and Patrick Stuart, London, England, assignors to Volkswagenwerk Aktienbesellschaft, Wolfsburg, Fed. Rep. of Germany

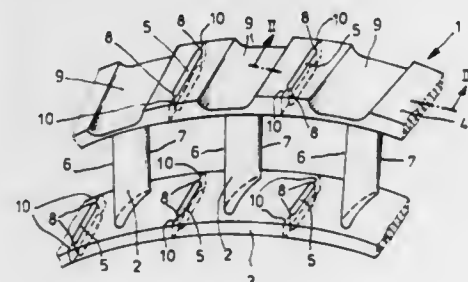
Filed Nov. 13, 1979, Ser. No. 93,815

Claims priority, application Fed. Rep. of Germany, Nov. 16, 1978, 2849747

Int. Cl.³ F01D 9/02

U.S. Cl. 415-117

10 Claims



1. A ceramic vane ring for a turbine, comprising a plurality of ceramic turbine vanes radially extending between and joined with radially inner and outer ceramic cover rings, each of said cover rings having a radial stress relief slit arranged between each vane, said slits extending substantially in the axial direction of said ring and arranged at least in the same axial location as the trailing edge of said vanes, and wherein the radially outer surface of said outer cover ring is provided with stress relief grooves in the vicinity of the junction of said vanes and said outer ring.

4,365,934

WIND MACHINE

H. Carl Mason, 4421 SW. Coast, Lincoln City, Ore. 97367

Filed Jun. 15, 1981, Ser. No. 273,931

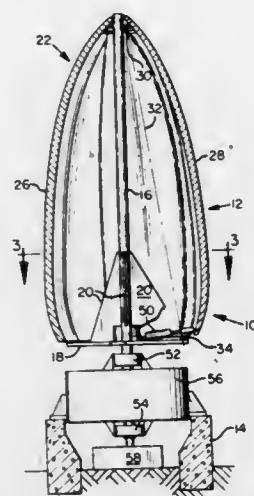
Int. Cl.³ F03D 7/06

U.S. Cl. 416-17

6 Claims

1. A wind-driven machine comprising: an elongate hollow shell body disposed with the longitudinal axis thereof in an upright position, said body being shaped as a rounded cone and having the smaller diameter end thereof located over its larger diameter end, an internal support for said shell body and means rotatably

supporting the base of said support for rotation about an axis corresponding to the longitudinal axis of the body, power-generating means connected to and driven by said support, said hollow shell body being formed by plural elongate shell segments which follow one another in a direction extending circumferentially of the body and each segment extending from adjacent the top end to adjacent the bottom end of said body, each shell segment in longitudinal cross section curving outwardly and downwardly progressing downwardly from the top end thereof and in transverse cross section having a concave side facing inwardly and a convex side facing outwardly, each shell segment having



leading and trailing edges and being pivotally mounted for pivotal movement about an axis extending adjacent the trailing edge thereof from adjacent the top to adjacent the bottom of the shell segment between a closed position where the segment imparts part of the cone shape of the body and an open position where the trailing edge of the shell segment moves outwardly and the segment is disposed transversely of its closed position, an opening existing along the leading edge of the shell segment between the leading edge and said support with the segment moved from its closed position, and means for producing pivotal movement of said segments rotated to rotational movement of said support.

4,365,935

WIND-DRIVEN PRIME MOVER

Chousei Zukeran, 7-20, Midori 1-chome, Tsurumi-ku, Osaka Osaka-shi, Osaka-fu, Japan

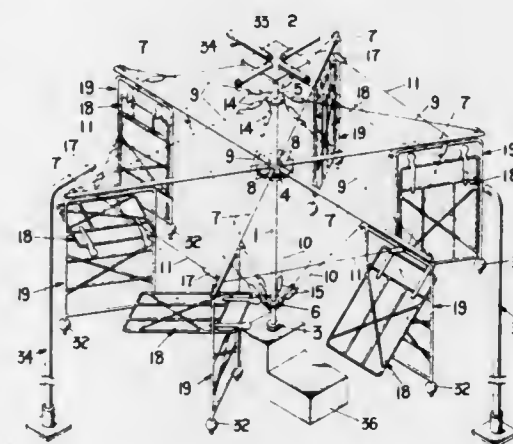
Filed Dec. 10, 1980, Ser. No. 215,112

Claims priority, application Japan, Dec. 12, 1979, 54-161821

Int. Cl.³ F03D 7/06

U.S. Cl. 416-117

5 Claims



1. A vertical type wind-driven prime mover comprising a vertically extending main shaft rotatably supported in bearings, a plurality of horizontal support arms equispaced and radially extending from said main shaft, a rectangular wind

receiving plate support body frame pivotally connected to the outer end portion of each of said arms, a rectangular wind receiving plate pivotally connected to each of said support frame bodies so that these plates are swingable only on the same one side of the respective support frame bodies, and a weight attached to each of said support frame bodies to maintain the latter substantially vertical until the wind speed reaches a given value, wherein the sum of the horizontal widths of the wind receiving plates is approximately equal to the radius of rotation of said horizontal support arms and the vertical height of each wind receiving plate is $\frac{1}{2}$ -1 times said width; each wind receiving plate is pivotally supported by the associated wind receiving plate support frame body through a pivot bar at the transverse center of gravity of said wind receiving plate, and a counterweight is provided on the upper frame portion of the outer frame of said wind receiving plate; and said weight is removably mounted on the lower end of the outer frame of each wind receiving plate support frame body.

4,365,936

LAMINATED ELASTOMERIC BEARING UNIT

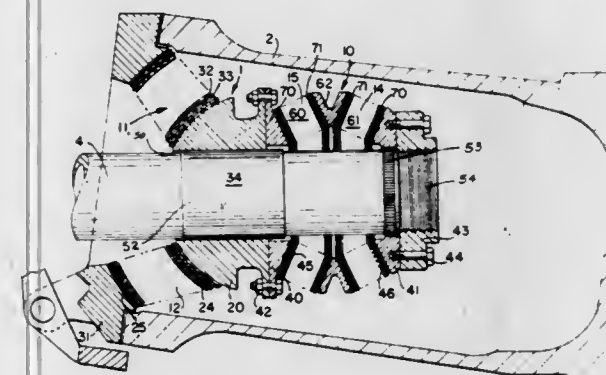
Seymour A. Hatch, Bensenville, Ill., assignor to Chicago Rawhide Manufacturing Company, Elgin, Ill.

Filed Dec. 6, 1979, Ser. No. 100,841

Int. Cl.³ B64C 27/38

U.S. Cl. 416-134 A

18 Claims



1. An elastomeric bearing assembly comprising a first member adapted to be operatively coupled to the support shaft of a rotor blade mounted for rotation in conjunction with the hub of a helicopter and forming a first frusto-conical surface, a second member adapted to be coupled to the shaft and forming a second frusto-conical surface spaced from said first surface, a pair of frusto-conical elastomeric bearing sections disposed between said first and second surfaces, one of said frusto-conical bearing sections being bonded to the first surface and the other section being bonded to the second surface, said frusto-conical bearing sections each having a plurality of alternating and bonded frusto-conical layers of elastomeric and non-extensible material and having planar surfaces, an intermediate member separating said first and second frusto-conical bearing sections, said first and second frusto-conical bearing sections being arranged to receive the resultant force vectors from an applied load in a direction normal to the planar surfaces of said layers of elastomeric and non-extensible material, said frusto-conical sections being disposed along an axis normal to said planar surfaces which is at an angle less than 45 degrees to an axis extending parallel to the support shaft of the rotor blade, a spherical bearing section adapted to be coupled to the blade support shaft and mounted in serial relationship to said first and second frusto-conical surfaces, and means forming a centering bearing operatively coupled to at

least a portion of said spherical bearing section and in bearing relationship with the support shaft.

4,365,937

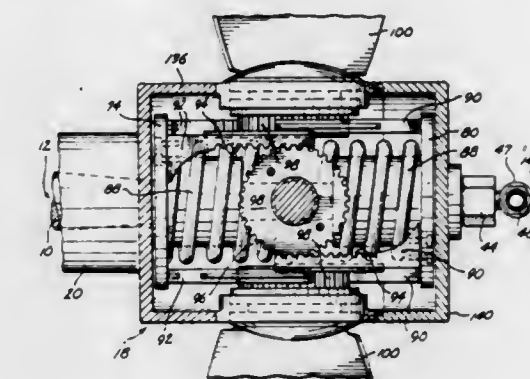
ADJUSTABLE PITCH PROPELLER DRIVE

Harold L. Hiebert, deceased, late of Port Townsend, Wash., and by Shirley M. Hoff, executrix, 31009 44th Ave. South, Federal Way, Wash. 98003

Continuation-in-part of Ser. No. 97,491, Nov. 26, 1979, abandoned. This application Apr. 22, 1981, Ser. No. 256,582 Int. Cl.³ B63H 3/08

U.S. Cl. 416-157 R

68 Claims



1. An adjustable pitch propeller comprising a hollow hub, a plurality of adjustable pitch propeller blades mounted on said hub, each of said blades having an inner portion which is located within said hub, and an improved mechanism for adjusting the pitch of said propeller blades, comprising:

a pair of axially movable abutments spaced axially apart within said hub; compression spring means positioned between said abutments, with each end of said spring means bearing against one of said abutments, said spring means normally biasing both of the abutments axially outwardly; a mechanical drive means interconnected between each abutment and the inner end portion of each blade, each said mechanical drive means functioning to apply a pitch changing rotational force on its blade in response to an axial movement of its abutment; and means for applying an axially inward force on said abutments for moving both abutments axially inwardly together, in opposition to the force of said spring means, for the purpose of rotating the propeller blades in a first direction, with the energy that is stored in such spring means when it is compressed serving to rotate the propeller blades in the opposite direction when the axially inwardly directed force is removed from the abutments, whereby movement of both abutments results in the spring means being compressed at each end.

4,365,938

MODULAR LOW HEAD HIGH VOLUME WATER PUMP AND AQUACULTURE SYSTEM

Archie F. Warinner, P.O. Box 68, Sorrento, La. 70778

Filed Jan. 14, 1980, Ser. No. 111,721

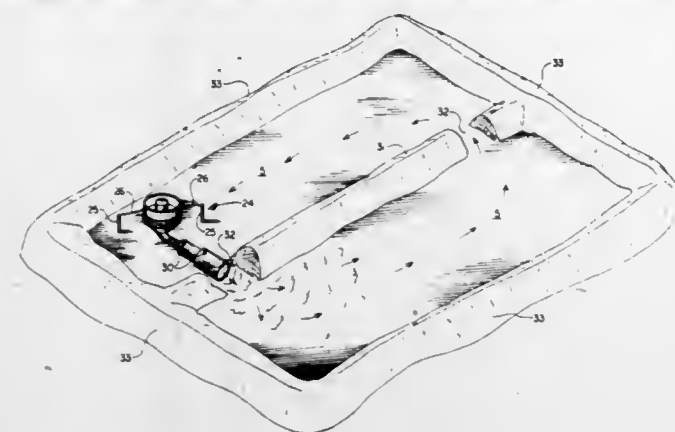
Int. Cl.³ F04B 21/00

U.S. Cl. 417-54

2 Claims

1. A method for culturing aquatic life in a contained body of water open to the atmosphere, said method comprising the steps of establishing a contained body of water having a central divider with openings at each end of said central divider for passage of water and aquatic life species, placing a low head, low flow-rate high volume modular floating water pump system in one of said openings, said modular floating water pump system comprising an anchored float means supporting water pump means having water intake means in communication with said water body, and outlet means communicating with a series of submerged concentrically disposed conduits in end to

end relation, each succeeding conduit having its outlet end interposed in the inlet end of the next larger conduit which inlet is open to said water body so that water flow through one conduit causes reduced pressure at said next larger conduit inlet thereby causing water in said body outside of said next larger conduit to flow into said next larger conduit inlet whereby the amount of water flowing through said conduit is



increased in direct proportion to the ratio of the increase in the cross-sectional area of the respective successive conduits and the rate of flow is inversely proportional to said ratio, and circulating said water by means of said system whereby said aquatic life can exist in a moving body of water which brings food and oxygen to said aquatic life and prevents water stagnation.

4,365,939

FUEL INJECTION PUMPING APPARATUS

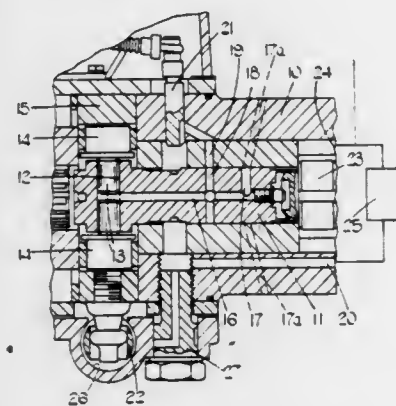
Robert T. J. Skinner, High Wycombe, England, assignor to Lucas Industries Limited, Birmingham, England
Filed Jun. 11, 1980, Ser. No. 158,629

Claims priority, application United Kingdom, Jul. 6, 1979, 7923684

Int. Cl.³ F04B 49/00, 19/00, 29/00

U.S. Cl. 417—221

7 Claims



1. A fuel injection pumping apparatus comprising a body part in which is mounted an injection pump including an angularly adjustable cam having cam lobes, and a plunger which is mounted in a rotary part and which is adapted to be moved inwardly by the action of the cam lobes as the part rotates, passage means for conveying fuel to and from a bore containing the plunger, a piston contained within a cylinder, means connecting the piston to said cam so that axial movement of the piston within the cylinder will impart angular movement to the cam, means biasing the piston towards one end of the cylinder to retard the timing of delivery of fuel from the bore, passage means for supplying liquid under pressure to said one end of the cylinder, a valve member which controls the flow of liquid both into and out of said one end of the cylinder and the flow of liquid from the other end of said cylinder, a first one way valve positioned in said last named passage means, said first one way valve acting to prevent the sudden flow of liquid through said passage means from said one end of the cylinder as the cam lobes impart inward movement to the plunger as

well as movement to said piston, and a second one way valve through which liquid can flow into the other end of the cylinder, said second one way valve acting to prevent a sudden flow of liquid out of the other end of the cylinder as the cam lobes allow outward movement of the plunger as well as movement of the piston.

4,365,940

ROTARY PISTON PUMP OF AXIAL TYPE

Toshio Hosokawa, 6-1-303 Kanamachi 1-chome, Katsushika-ku, Tokyo, Japan (125)

PCT No. PCT/JP79/00105, § 371 Date Feb. 14, 1980, § 102(e)
Date Feb. 7, 1980, PCT Pub. No. WO80/00096, PCT Pub. Date Jan. 24, 1980

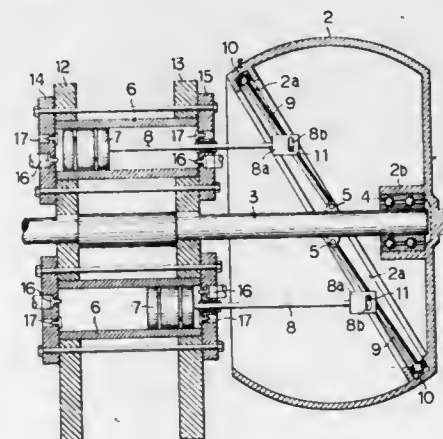
PCT Filed Apr. 24, 1979, Ser. No. 190,866

Claims priority, application Japan, Jun. 14, 1978, 53-70973;
Jan. 17, 1979, 54-3067

Int. Cl.³ F04B 1/18

U.S. Cl. 417—269

10 Claims



1. A rotary pump of the axial type comprising:
a frame;
a drive shaft rotatably mounted with respect to said frame;
a plurality of cylinders arranged parallel to and distributed symmetrically around an axis of said shaft, connected to said frame;
a piston slidably mounted in each cylinder for axial reciprocal motion therein, each piston having a piston rod extending substantially axially therefrom;
valve means connected to each cylinder for supplying fluid to and from each cylinder with motion of each respective piston therein;
a flywheel of rotary drum shape coaxially connected to said drive shaft having a coaxial surface with respect to said shaft axis and an oblique groove extending around said surface, said flywheel having an open end for receiving each piston rod, said coaxial surface being an inner arc shaped surface of said flywheel which carries said oblique groove; and
connecting means connecting each piston rod to said groove so that rotation of said shaft and flywheel axially moves each piston in its respective cylinder, said connecting means comprising a fixed shaft coaxial with said drive shaft, a hinge for each piston connected to said fixed shaft substantially at a center of a radius of curvature of said coaxial surface arc, a lever for each hinge having one end connected to said hinge for movement of a respective lever thereabout and an opposite end, a roller connected to each opposite end of each lever rotatably supported in said oblique groove, and a grip connected between each piston rod and an intermediate portion of a respective lever.

4,365,941

SCROLL COMPRESSOR PROVIDED WITH MEANS FOR PRESSING AN ORBITING SCROLL MEMBER AGAINST A STATIONARY SCROLL MEMBER AND SELF-COOLING MEANS

Kenji Tojo, Oaza Shimoinayoshi; Taisei Hosoda, Ohiramachi; Masato Ikegawa, and Masao Shiibayashi, both of Oaza Shimoinayoshi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

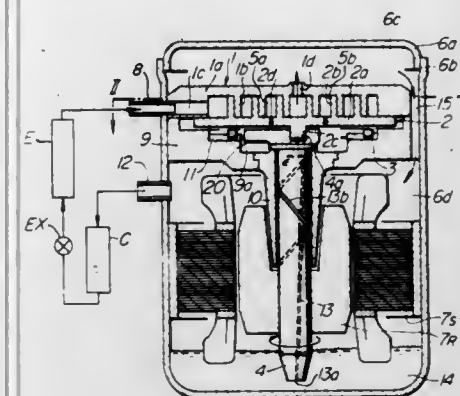
Filed Apr. 30, 1980, Ser. No. 145,574

Claims priority, application Japan, May 9, 1979, 54-55732

Int. Cl.³ F04B 35/04, 39/06, 39/12; F04C 18/02

U.S. Cl. 417—372

11 Claims



1. A scroll compressor for use in at least one of a refrigeration cycle and a media compression, the scroll compressor comprising:

a stationary scroll member including an end plate, an involute wrap extending at right angles to said end plate, and a discharge port opened at a starting end of said involute wrap;

an orbiting scroll member comprising an end plate, an involute wrap extending at right angles to said end plate of said orbiting scroll member and in mesh with said involute wrap of said stationary scroll member;

a suction port;

a rotation-preventing means for preventing a rotation of said orbiting scroll member;

a frame means jointed to said end plate of said stationary scroll member on a side in which is extended said involute wrap, said frame means defining a space in which said orbiting scroll member and a backpressure chamber is disposed;

a driving shaft extending through said frame means;

bearing means having at least a bearing mounted on said frame to support said driving shaft, said bearing means being disposed so as to be exposed to the backpressure chamber at one end thereof and to an exterior of said frame member at the other end thereof, said bearing means cooperating with said frame means and said driving shaft to seal the backpressure chamber from the exterior of the frame means;

a balancing weight means;

a power transmission means for transmitting a rotation of said driving shaft at a position offset from an axis of rotation thereof to said orbiting scroll member so as to cause an orbiting motion thereof;

a motor means drivably coupled to said driving shaft;

a casing means for enclosing therein said stationary and orbiting scroll members, said frame means, said bearing means, said driving shaft, and said motor means in a gas-tight manner;

a compressed media discharged through said discharge port being circulated through an interior of said casing means before the media flows into a next stage; and

means for connecting said back pressure chamber with intermediate compression chambers defined between said stationary and orbiting scroll members.

4,365,942

LIQUID HELIUM PUMP

Curt Schmidt, Karlsruhe, Fed. Rep. of Germany, assignor to Kernforschungszentrum Karlsruhe GmbH, Karlsruhe, Fed. Rep. of Germany

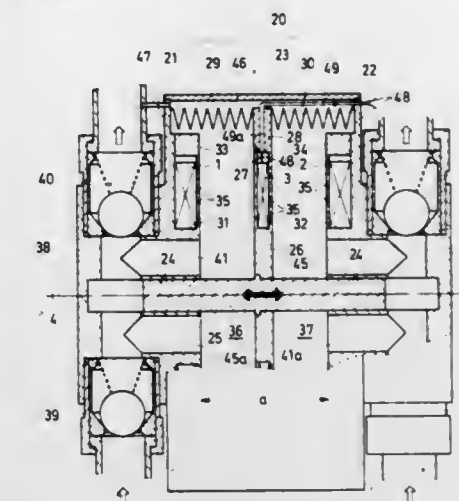
Filed Dec. 15, 1980, Ser. No. 217,518

Claims priority, application Fed. Rep. of Germany, Jan. 29, 1980, 3003024

Int. Cl.³ F04B 45/00

U.S. Cl. 417—412

8 Claims



1. In a pump for driving a liquid, including a pump housing defining a pumping chamber and having opposite first and second end walls bounding said pumping chamber; a piston arranged in the pumping chamber for alternating motion towards and away from the end walls; said piston having a piston axis extending parallel to the path of motion of said piston; inlet means and outlet means for providing a passage for the liquid into and out of the pumping chamber; and an electromagnetic drive means for reciprocating said piston, whereby liquid is drawn into and driven out of said pumping chamber through said inlet means and said outlet means, respectively, the improvement comprising

(a) first and second energizing coils mounted on the first and second end walls for generating a first and a second electromagnetic field in said pumping chamber; said energizing coils being at a predetermined distance from one another across said pumping chamber and further being coaxial with said piston axis;

(b) a control coil fixedly mounted on said piston for generating a third electromagnetic field in said pumping chamber; said control coil being coaxial with said piston axis; said energizing coils and said control coil forming part of said electromagnetic drive means for generating, in said pumping chamber, an electromagnetic force propelling said piston back and forth between said end walls; and

(c) a bellows affixed to peripheral regions of said piston and to said end walls; said bellows enclosing said pumping chamber.

4,365,943

MULTICHANNEL PUMP

Emmett L. Durrum, Menlo Park, Calif., assignor to Eldex Laboratories, Inc., Menlo Park, Calif.

Continuation-in-part of Ser. No. 27,877, Apr. 6, 1979,

abandoned. This application Dec. 22, 1980, Ser. No. 219,421

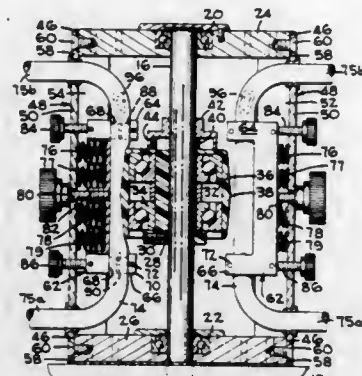
Int. Cl.³ F04B 23/04, 43/08

U.S. Cl. 417—429

14 Claims

1. A pump for liquids comprising a tube, said tube being elastically deformable and defining a generally linear passage in an undeformed state, an inlet check valve disposed in said passage for affording liquid flow thereinto, an outlet check valve disposed in said passage and spaced therealong from said inlet valve to define a chamber between said check valves, means for periodically deforming said tube at said chamber to

effect outflow of liquid from said chamber through said outlet check valve, said deforming means retracting from said tube to permit restoration of said tube to an undeformed state and to effect inflow of liquid to said chamber through said inlet check valve, and means for adjustably positioning said tube toward and away from said deforming means so as to effect adjustment



of the amount of deformation and the quantity of liquid delivered in response thereto, said positioning means including a U-shaped member having a base portion and two side portions that extend from opposite edges of said base portion and are spaced from one another to receive said tube therebetween, said U-shaped member and said tube being removable.

4,365,944

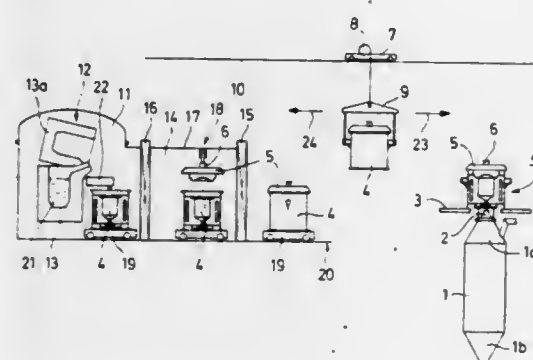
PLANT WITH A TUNDISH FOR PRODUCING METAL POWDER

Heinz Pajonk; Franz Höhne, both of Bruchköbel, and Rolf Ruthardt, Hanau, all of Fed. Rep. of Germany, assignors to Leybold Heraeus GmbH, Cologne, Fed. Rep. of Germany
Filed Jun. 24, 1981, Ser. No. 276,772
Claims priority, application Fed. Rep. of Germany, Jun. 30, 1980, 3024709; Jun. 30, 1980, 3024752

Int. Cl.³ B22D 23/08

U.S. Cl. 425-7

9 Claims



1. In a plant for producing metal powder from metal melts, having a first chamber with means for converting a melt stream initially into liquid and then solid metal particles in a non-oxidizing atmosphere, a tundish with a closable floor opening and mountable on the first chamber for emptying thereinto and means for filling the tundish with metal melt, the improvement comprising: the tundish comprising a transporting vessel having a removable cover for maintaining a non-oxidizing atmosphere therein during transportation and discharge into the first chamber and means forming a second chamber spaced apart from the first chamber and enclosing the filling means for maintaining a non-oxidizing atmosphere, the means forming the second chamber comprising at least one lock into which the tundish can be brought and from which it can be removed and drive means for raising the cover for the filling procedure of the tundish.

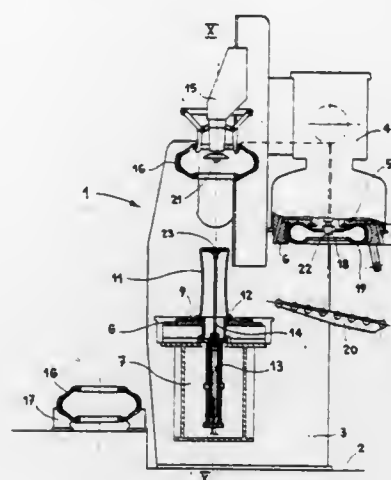
4,365,945

VULCANIZING PRESSES FOR TIRES

Bruno Salvadori, Cormano, Italy, assignor to Societa' Pneumatici Pirelli S.p.A., Milan, Italy
Filed Sep. 3, 1981, Ser. No. 299,214
Claims priority, application Italy, Oct. 31, 1980, 25682 A/80
Int. Cl.³ B29H 5/02, 5/06

U.S. Cl. 425-43

12 Claims



1. A press for vulcanizing a vehicle tire comprising upper and lower platens, upper and lower mold sections associated with said upper and lower platens, respectively, means for moving the upper platen of the press vertically and then laterally relative to the lower platen, a radially expandable sack-shaped bladder having an upper closed and an opposite open end which is connected to said lower mold section between the lower mold section and a gripping surface said closed end being adopted to contact the said upper platen of the mold, a first fluid-dynamic control member comprising a first cylinder connected to the lower section of the mold, a piston slidably disposed in the cylinder and having a piston rod with the rod extending in a vertical position in the center at the inside and in contact with the closed end of the bladder, characterized by the fact of comprising actuating means for varying vertically the position of the first cylinder relative to the position of the open end of the bladder sealed and fixed between said lower mold section and said gripping surface.

4,365,946

APPARATUS FOR CONTINUOUSLY PROCESSING RUBBER, ELASTOMERS, PLASTICS AND LIKE MATERIALS WHICH CAN BE VULCANIZED OR CROSS-LINKED

Dietmar Anders, Hanover, Fed. Rep. of Germany, assignor to Hermann Berstorff Maschinenbau GmbH, Hannover Kleefeld, Fed. Rep. of Germany
Filed Jan. 27, 1981, Ser. No. 228,787
Claims priority, application Fed. Rep. of Germany, Feb. 1, 1980, 3003614

Int. Cl.³ B29F 3/08

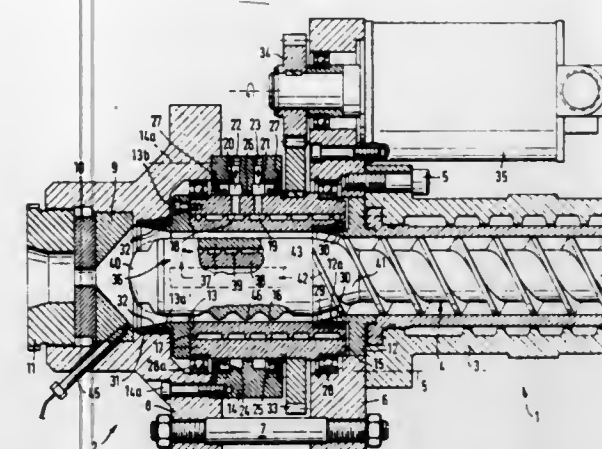
U.S. Cl. 425-144

11 Claims

1. Apparatus for continuously processing rubber, elastomers, plastics and the like materials which can be set by heat, comprising:

- (a) an extruding cylinder and an extruding screw mounted for rotation therein,
- (b) means for driving said screw,
- (c) an elongated mandrel disposed coaxially with said screw and secured to the downstream end of said screw for rotation therewith,
- (d) jacket means surrounding a substantial portion of the length of said mandrel and spaced therefrom to provide an axially extending annular opening in which the material is vulcanized, and
- (e) means for rotating said jacket means at an adjustable

speed in a direction opposite to the direction of rotation of said screw and mandrel,



whereby the relative rotary movement of said mandrel and said jacket means permits the temperature to be controlled in said annular opening between said jacket means and said mandrel so as to achieve optimum vulcanisation of the material.

4,365,947

APPARATUS FOR MOLDING STRESS CONTROL CONES INSITU ON THE TERMINATIONS OF INSULATED HIGH VOLTAGE POWER CABLES

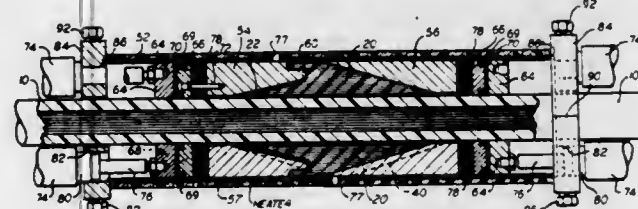
George Bahder; Carlos Katz, both of Edison; Attila F. Dima, Piscataway, and Adolf S. Knott, Roselle, all of N.J., assignors to GK Technologies, Incorporated, General Cable Company Division, Greenwich, Conn.

Filed Jul. 14, 1978, Ser. No. 924,873

Int. Cl.³ B29C 3/00, 27/22; H01B 17/12; H02G 7/04

U.S. Cl. 425-384

14 Claims



1. Apparatus for molding, at its place of use on the termination of an insulated high voltage power cable, a tapered-surface stress control cone having a semi-conducting shield on one of its tapered surfaces, wherein the molding is made from a stress-control blank or preform provided on said cable, said preform approximating the shape of said resulting stress control cone, said apparatus comprising:

- a split cylindrical enclosure having end flanges, and being of such length that it is adapted to surround said preform and at least portions of said cable that extend beyond opposite ends of the tapered surfaces of said preform,
- means to heat said enclosure,
- a pair of slidable split complementary molding members within said enclosure and being adapted to surround said portions of said insulated cable within said enclosure, said molding members having inner confronting tapered faces extending from the surface of said cable to the inner surface of said enclosure for molding said preform to its final shape upon the application of heat and pressure,
- a pair of pressurizer end plates fitting within said cylindrical enclosure and spaced from one another along the length of the enclosure and beyond the outer faces of said mold members, said end plates having central openings through which said insulated cable passes and being adapted to transmit forces by sliding movement to said molding members during the molding of said stress control cone,

means to apply forces on said end plates for transmittal to said molding members, and
means to provide a fluid under pressure within said enclosure during the cooling of said molded stress control cone to prevent the formation of voids therein.

4,365,948

APPARATUS FOR THE CONTINUOUS MANUFACTURE OF FINNED TUBULAR SECTIONS MADE OF SYNTHETIC MATERIAL, AND FINNED TUBULAR SECTIONS

Jacques Chaplain, Sevres, France, assignor to Armosig S.A., La Celle Saint Cloud, France

Filed Apr. 16, 1979, Ser. No. 30,430

Claims priority, application France, Apr. 24, 1978, 78 12033
Int. Cl.³ B29D 23/18

U.S. Cl. 425-417

12 Claims

1. An apparatus for continuous extrusion of tubular sections of thermoplastic material, the tubular section having a smooth inner surface and an annularly finned outer surface, said apparatus comprising a tubular extrusion die assembly having an axis formed by an outer die part and an inner die plunger in combination with two sets of chills each defining a casting cavity position, said chill having grooves of circular cross section alternating with ribs also of circular cross section thereby defining annular fins, conveyer means, for each said set of chills, for continuous displacement thereof along closed loop paths comprising a rectilinear forward branch extending parallel to the axis of said die assembly and on each side of an outlet opening of said die assembly, pairs of chills formed by one said chill from each said set of chills defining successive casting rings, a smoothing mandrel in line with said die plunger of said die assembly, said smoothing mandrel and said chills together defining said casting cavity for the desired tubular section, the improvement wherein the said chills and smoothing mandrel defining a minimum average tubular section wall thickness, and the radius of the circular cross section of said grooves of said chills being substantially smaller than the radius of the circular cross section of the ribs thereby reducing the weight of the resulting tubular section for a given level of mechanical property.

4,365,949

CO-EXTRUSION DIE APPARATUS FOR CO-EXTRUDING PLASTICS MATERIALS

David D. Nash, Brownhills, England, assignor to Durapipe Limited, Cannock, England

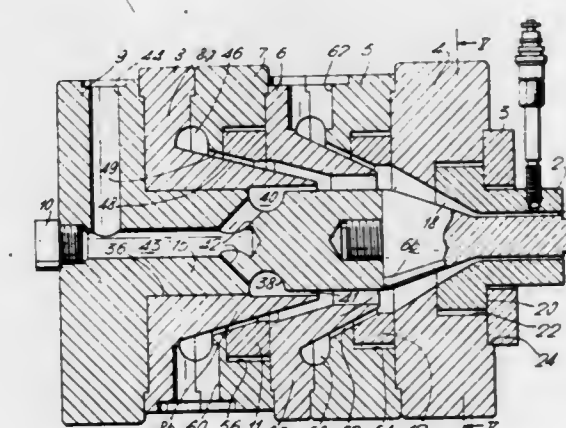
Filed Apr. 4, 1980, Ser. No. 137,472

Claims priority, application United Kingdom, Apr. 6, 1979, 7912286

Int. Cl.³ B29D 23/04, 9/00; B29F 3/04

U.S. Cl. 425-463

8 Claims



1. An extrusion die for use in extruding hollow plastics products of the kind comprising a plurality of concentric layers of different composition and/or characteristics, the die comprising a central mandrel extending along a longitudinal axis of

the die and having a tip portion and an outer die structure encircling the mandrel, the die having an annular extrusion outlet and an annular-section extrusion passage extending to said annular extrusion outlet, said extrusion passage being defined between the mandrel and the outer die structure, said annular extrusion outlet of the die being defined by said outer die structure around said tip portion of the mandrel, the die having therein a first annular plenum chamber encircling the mandrel, a first portion of said extrusion passage extending from said first plenum chamber towards said extrusion outlet, the die further having therein a second annular plenum chamber, encircling the longitudinal axis of the die and disposed at a position which is further along said longitudinal axis from said extrusion outlet than said first annular plenum chamber, and an annular-section supply passage, also encircling said longitudinal axis of the die and extending from the second plenum chamber to meet said annular section extrusion passage in a junction therewith which is closer to said annular extrusion outlet than said first plenum chamber, an annular slot extending around the wall of the extrusion passage and providing the junction between the extrusion passage and said annular-section supply passage which extends from said second plenum chamber, the die including a duct extending through part of said mandrel to the first annular plenum chamber for the supply of plastics thereto, and a further duct extending to said second plenum chamber for the supply of plastics thereto, said outer die structure comprising a plurality of interengaged annular members each having a central axial opening through which the mandrel extends, a first said annular member having a portion, more remote from the extrusion outlet, which closely embraces the mandrel and a portion, nearer the extrusion outlet, which is spaced radially outwardly from the mandrel, to define, with the mandrel, said first annular plenum chamber and said first portion of said annular extrusion passage, said first annular member including a part extending from an axial position further from said annular extrusion outlet than said first plenum chamber, towards said extrusion outlet and which part tapers externally in the direction towards said extrusion outlet, an annular lip being formed at the end of said externally tapering part which is nearest the extrusion outlet, said annular lip encircling and being spaced from the mandrel, said tapering part of said first annular member defining the radially inner wall of the annular-section supply passage which extends from the second plenum chamber, a further portion of said die structure defining the opposing radially outer wall of said supply passage, said outer wall also decreasing in diameter in the direction towards the extrusion outlet, said further portion of said die structure including at least one further said annular member engaging said first annular member and defining therewith said second annular plenum chamber, the die further including a control ring incorporated in said outer die structure, the annular-section supply passage which extends from the second plenum chamber including an annular gap defined between said tapering portion of the first annular member and said control ring incorporated in said outer die structure, means being provided for adjustment of said control ring transversely of the longitudinal axis of the die.

4,365,950

BLOW MOLDING CLAMP ASSEMBLY

Ieuan L. Harry; Suppayan M. Krihsnakumar, both of Nashua; Walter R. Jolly, Merrimack, and Martin H. Beck, Brookline, all of N.H., assignors to The Continental Group, Inc., Stamford, Conn.

Filed Mar. 16, 1981, Ser. No. 244,469

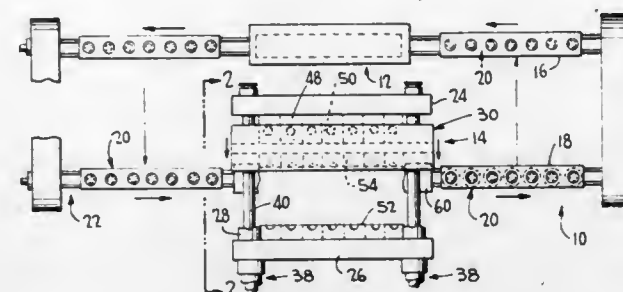
Int. Cl.³ B29C 17/07

U.S. Cl. 425—534

7 Claims

1. A clamp assembly for simultaneously blow molding a plurality of preforms arranged in a row and supported by a carrier, said clamp assembly comprising a frame including transverse slide means, a clamp member mounted on said transverse slide means for back and forth transverse movement, a pair of plural cavity mold units, one of said mold units being positioned in said frame on each side of said clamp mem-

ber, each of said mold units being longitudinally split and including two mold halves, one mold half of each mold unit being fixed relative to said frame and the other mold half of each mold unit being movable with said clamp member, the spacing of said fixed mold halves being one wherein when one



mold unit is closed the other is fully open, and a carrier support positioned on each side of said clamp member for transverse movement with said clamp member to position and support preforms with said mold units, and means for transversely reciprocating said clamp member to close one mold unit while opening the other mold unit.

4,365,951

DEVICE FOR COMBUSTION OF A VOLATILE FUEL WITH AIR

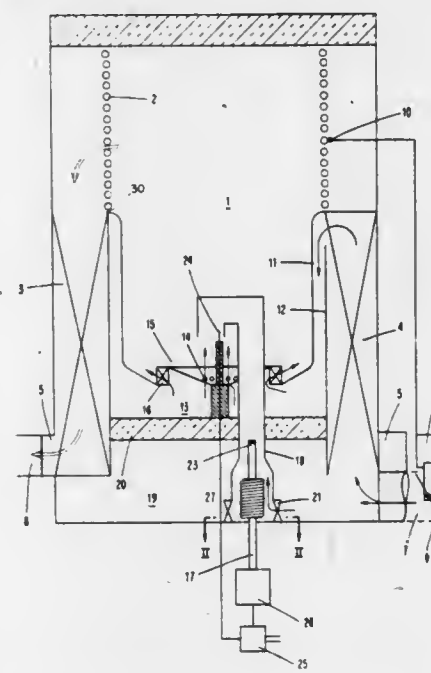
Jan Alpkvist, Spindelgatan 2, SE-58258 Linköping, Sweden

Filed Jun. 13, 1980, Ser. No. 159,448

Int. Cl.³ F23N 5/00

U.S. Cl. 431—82

4 Claims



1. A device for combustion of a volatile fuel with air of the kind comprising a combustion chamber, means for preheating a substantial part of combustion air by exchanging heat with exhaust gases leaving the device, a tube for introducing fuel into said chamber and for introducing a small part of combustion air together with the fuel, said tube extending within and terminating in said chamber in a direction towards an air inlet for the preheated air supplied to said combustion chamber, characterized in that said tube is provided with means for providing substantially complete volatilization and mixing of the fuel with said combustion air part in said tube, said volatilization and mixing means including angularly displaced air inlet openings at the tube inlet limited by walls inclined relative to the radial directions so as to cause a combined rotary and axially directed air flow in said tube and means for forming a fuel film on the inside surface of said tube at a point distant from the tube termination, said film being moved toward the tube termination by said rotary and axial air flow in said tube

and volatilizing and mixing with said air flow, and wherein said device further includes means for measuring the temperature of said volatilized and mixed fuel and air exiting said tube and for controlling the amount of fuel admitted to said tube using said temperature measurement.

4,365,952

LIQUID GAS BURNER

Yoshimi Ohmukai, Hirakata; Toshiro Ogino, Osaka; Kinichi Adachi, Takarazuka, and Hisanori Nishiguchi, Nayagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Mar. 18, 1980, Ser. No. 131,548

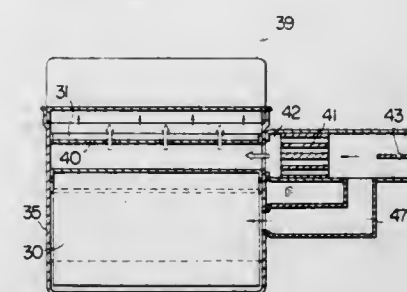
Claims priority, application Japan, Mar. 20, 1979, 54-32745;

Apr. 17, 1979, 54-47611

Int. Cl.³ F23D 11/44

U.S. Cl. 431—208

4 Claims



1. A liquid fuel burner comprising:
a porous member including at least a fuel receiving section for receiving liquid fuel and a fuel evaporation section for evaporating liquid fuel transferred from said fuel receiving section;
a fuel supplying device for supplying said liquid fuel to the fuel receiving section of said porous member;
a hot air supply pipe having a multiplicity of air passage ports therein surrounded by the fuel evaporation section of said porous member, air from said pipe passing through said ports into said fuel evaporation section;
an air-flow rate adjusting device located within said hot air supply pipe, said adjusting device controlling the rate at which air is supplied to said fuel evaporation section;
a heater for heating air within said hot air supply pipe to a substantially constant temperature for supply to said fuel evaporation section, said constant temperature being independent of a change in the air flow rate and the temperature of the air before heating;
a mixing chamber disposed downstream from the fuel evaporation section of said porous member, the hot air supplied to said fuel evaporation section and the gaseous fuel evaporated from said fuel evaporation section by said hot air being mixed without burning in said mixing chamber; and
a burning space disposed downstream from said mixing chamber, said heater maintaining said fuel evaporation section at a constant temperature after ignition of said fuel in said burning space irrespective of changes in the rate of evaporation of said fuel from said fuel evaporation section.

4,365,953

COOLER FOR COMBUSTIBLE MATERIAL

Jürgen Bostelmann, Rosengarten, Fed. Rep. of Germany, assignor to Claudius Peters AG, Fed. Rep. of Germany

Filed Jul. 16, 1980, Ser. No. 169,276

Claims priority, application Fed. Rep. of Germany, Jul. 17, 1979, 2928752

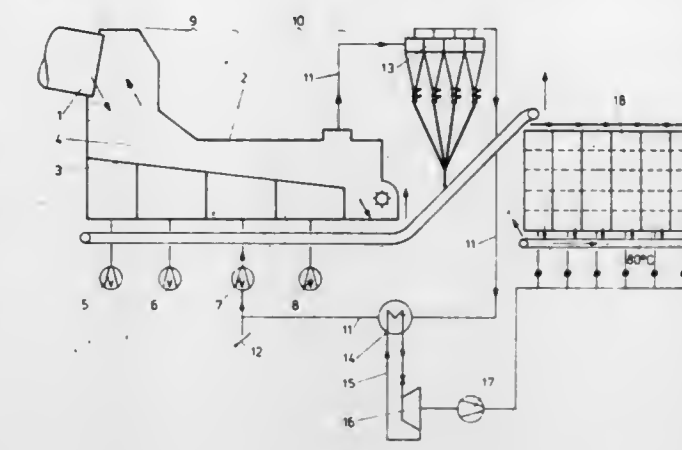
Int. Cl.³ F27D 15/02

U.S. Cl. 432—78

6 Claims

1. A cooler for combustible material, comprising:
a cooling grate divided into sections;
first cooling air circulating means connected with the grate

sections to circulate cooling air therethrough to cool the material;
means associated with a first section to feed completely the cooling air circulated through that section to a burner as air for combustion;
second cooling air circulating means associated with a further section to circulate cooling air through the further section;



said second cooling air circulating means including a blower;
a turbine connected with the blower to drive the blower; and
a steam generator associated with the further cooling section to utilize the waste heat of the cooling air circulated through the further cooling section, to generate the steam used to drive the turbine.

4,365,954

CONTINUOUS FURNACE FOR FIRING CERAMIC ARTICLES

Fritz Petzi, Nuremberg, Fed. Rep. of Germany, assignor to Ludwig Riedhammer GmbH & Co. KG, Nuremberg, Fed. Rep. of Germany

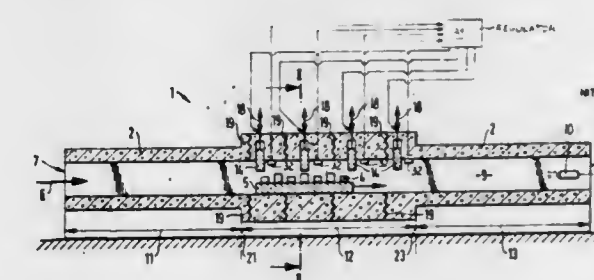
Filed May 1, 1981, Ser. No. 259,693

Claims priority, application Fed. Rep. of Germany, May 2, 1980, 3016852

Int. Cl.³ F27B 5/04, 9/04, 7/00

U.S. Cl. 432—198

6 Claims



3. In a continuous electric tunnel furnace including a tunnel through which articles to be fired are passed in a direction of feed; said tunnel having an inlet and an outlet at opposite longitudinal ends thereof and a roof and opposite side walls; said tunnel further including a length portion constituting a sintering zone; and means for generating a nitrogen stream in the zone of said outlet and for orienting the nitrogen stream against said direction of feed; the improvement comprising a gate projecting from said roof into said tunnel in said sintering zone in an orientation transverse to said direction of feed; said gate being slidable in a direction towards or away from said roof and having opposite lateral bounding edges being spaced from said side walls; further comprising setting means for adjusting the height position of said gate; said setting means including regulating means for adjusting the height position of

said gate as a function of the oxygen content of the furnace atmosphere in said sintering zone.

4,365,955

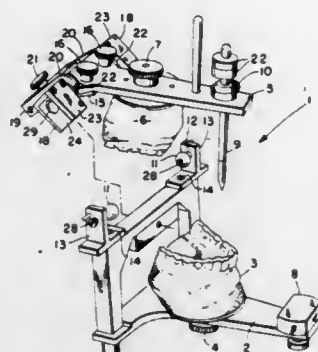
DENTAL ARTICULATOR

Michael Tradowsky, 10370 Blair La., Kirtland, Ohio 44094
Filed May 4, 1981, Ser. No. 260,406

Int. Cl.³ A61C 11/00

U.S. Cl. 433—57

7 Claims



1. A dental articulator comprising mandibular and maxillary frames adapted to mount a dental patient's respective lower and upper dental casts, said frames having interengaged condylar elements on opposite sides thereof corresponding to the patient's temporomandibular joints for movement of said maxillary frame relative to said mandibular frame to positions corresponding to the check bites of lateral excursions of the patient's jaw; said condylar elements comprising horizontally spaced apart condylar spheres having axially outwardly extending coaxial horizontal stem portions fixed to said mandibular frame, and condylar guide elements angularly adjustably secured on opposite sides of said maxillary frame; said guide elements having axially and radially outwardly open radially extending grooves including parallel upper and lower walls slidably embracing the respective spheres to define, upon movement of said maxillary frame to the aforesaid positions, a pivot for the rotating sphere and a condylar path for the orbiting sphere, each groove having a bottom wall which, in centric position of said maxillary frame, is axially spaced from the associated sphere to establish a maximum bodily side shift of said maxillary frame when moved to the aforesaid positions; and an axially inwardly extending adjusting screw in threaded engagement with and extending through each stem portion and sphere; each screw having an axially outer end accessible for turning of said screw and having an axially inner end movable toward or away from the associated bottom wall responsive to turning of said screw thereby to adjust the bodily side shift to a predetermined value between zero and maximum.

4,365,956

CLEANING CUP

Ronald L. Bailey, St. Peters, Mo., assignor to Young Dental Manufacturing Company, Hazelwood, Mo.

Filed Oct. 23, 1978, Ser. No. 953,474

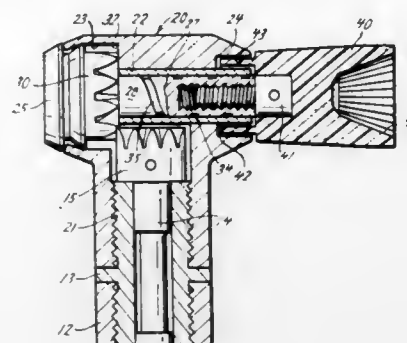
Int. Cl.³ A61C 1/05, 3/06

U.S. Cl. 433—115

9 Claims

1. In a dental device: a handpiece having a head; a shaft rotatably mounted in the head, the head being open at one end to expose the shaft for connection of a dental tool to the shaft; a circular recess in the open end of the head concentric with the shaft; a dental tool mounted on the head, connecting means between the tool and the shaft for rotation of the tool by the shaft; a flexible rubber-like skirt on the tool and unitary therewith, the skirt being separate from the connecting means and the skirt projecting from the end adjacent to the connecting means so that the connecting means transmits thrust forces from the tool to the shaft independently of the skirt, the skirt extending into the recess to engage the circular wall thereof sealingly by centrifugal force during rotation of the tool, said connecting means allowing the tool to be detached and at-

tached to the shaft so that the skirt moves freely within the circular recess during attachment and detachment of the tool



4,365,957

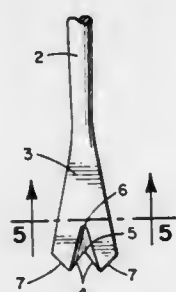
DUAL PURPOSE PERIODONTAL SURGICAL INSTRUMENT

Asha Das, 113-16 76th Rd., Forest Hills, N.Y. 11375
Filed Jun. 17, 1981, Ser. No. 274,539

Int. Cl.³ A61C 3/02

U.S. Cl. 433—144

11 Claims



1. A surgical instrument which comprises a handle, a shank and a cutting head, wherein said cutting head comprises at least three surgical cutting blades inclusive of:

- two interior surgical cutting blades each possessing terminus points at one end of said blades and forming a V-shaped apex at the confluence of the end opposite of the ends of said terminus points; and
- at least one exterior surgical blade having a first end initiating at the terminus point of one of said interior blades and having a terminus point in a straight line with respect to said first end.

4,365,958

COMBINED DENTAL DRILL AND ANCHOR PIN

David G. Vlock, New York, N.Y.

Filed Jun. 17, 1981, Ser. No. 274,834

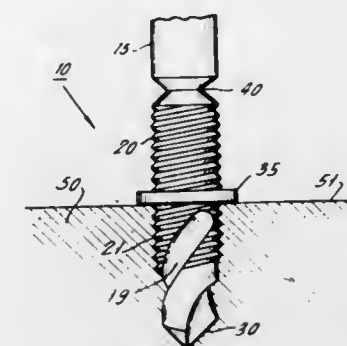
Int. Cl.³ A61C 5/08

U.S. Cl. 433—225

6 Claims

1. A dental device combining a drilling end with an anchor pin for the purpose of performing in a single step drilling a pin hole in tooth dentin and retaining the anchor pin within the tooth structure; which comprises a drill, positioned at one end thereof, an integrally connected anchoring pin, stop means positioned on said anchoring pin, and a trailing shank at the other end for attaching said combined drill-anchoring pin device to a powered dental hand piece wherein said trailing

shank is provided with a shearing point adjacent to the protruding portion of the anchor pin, which is scored or grooved,



4,365,960

PROBE IMPACT SENSOR FOR A SIMULATOR
John T. Reed, New Milford, Pa., and John C. Stubbart, Boxborough, Mass., assignors to The Singer Company, Binghamton, N.Y.

Filed Dec. 19, 1979, Ser. No. 105,065

Int. Cl.³ G09B 9/08

U.S. Cl. 434—38

5 Claims

so as to eliminate damaging the tooth when the stop means is adjacent to the tooth.

4,365,959

TANK-GUN LOADING SIMULATOR FOR TRAINING PURPOSES

Robert Caurant, Igny, and Alain Leduc, Rambouillet, both of France, assignors to Thomson-CSF, Paris, France

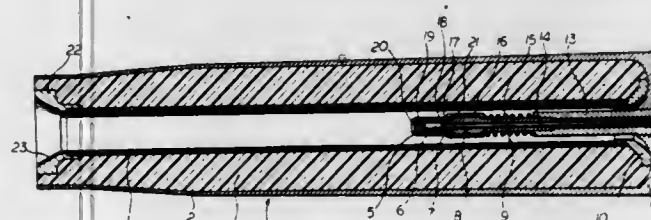
Filed Jul. 31, 1981, Ser. No. 288,731

Claims priority, application France, Oct. 10, 1980, 80 21679

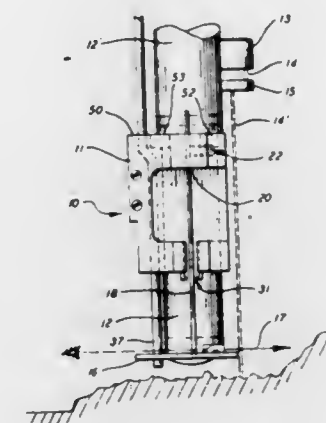
Int. Cl.³ F41F 27/00

U.S. Cl. 434—24

5 Claims



1. A tank-gun loading simulator for training purposes, wherein the said simulator comprises:
an ammunition, formed of a shell and a case connected together by a system which can be released by applying pressure to the case at the point where in a real shell the detonator would be placed;
a breech, recoil and return of which are guided by two roller slides, under pressure from a first hydraulic jack;
a breech wedge containing, instead of an actual hammer, an electromagnet release system, which applies thrust to the case;
a primary mechanism mounted on the breech, which raises the breech wedge by means of a first spring, transmitting to the breech-opening lever, through this first spring and a second spring, a force of resistance equal to the force applied by the gun-loader to open the breech, and operating a second mechanism where the breech is opened manually;
said second mechanism making the extractors pivot out of the breech through the effect of the first mechanism and during manual opening of the breech;
a cradle, comprising:
a breech jacket inside which the breech effects its recoil and return movements on roller slides,
two flanges supporting the jacket, and separated from each other by a strut on which the first jack presses, bearings pivoting in elevation in these flanges,
a second jack pivoting in elevation, fixed to one of the flanges and to the base of the simulator;
and a shell separator mounted on the cradle, which separates the shell and the case, and moves the shell to the position in which it is gripped by a chain conveyor, as soon as the breech wedge has re-ascended after loading of ammunition.



1. In a simulator having an optical probe for movement relative to a model board surface with which an obstruction is associated that can be contacted by said probe, an impact sensor comprising:

- electrical switch means supported by said optical probe for movement therewith for actuation when said optical probe comes within a predetermined distance to said obstruction,
 - bumper means connected with said switch means to affect the actuation of said electrical switch means, said bumper means being generally and substantially curved about said optical probe for engaging said obstruction when approached from substantially any direction, including sideways, and
 - resilient connector means interconnecting said bumper means with said electrical switch means to actuate said switch means when said bumper means engages said obstruction,
- whereby said electrical switch means is maintained in a non-actuation condition until said optical probe comes within said predetermined distance to said obstruction.

4,365,961

FRICTION CLUTCH INCLUDING ROLLING BODIES FOR TRANSMITTING A LIMITED TORQUE

Walter Weilenmann, Schaanwald, and Nikolaus Frick, Schaan, both of Liechtenstein, assignors to Hilti Aktiengesellschaft, Schaan, Liechtenstein

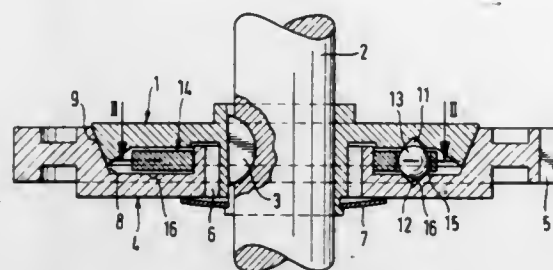
Filed Dec. 11, 1980, Ser. No. 215,405

Claims priority, application Fed. Rep. of Germany, Dec. 12, 1979, 2949990

Int. Cl.³ F16D 7/02

U.S. Cl. 464—36

6 Claims



1. Friction clutch for the transmission of a limited torque comprising a first disc-shaped driving member having a friction surface, a second disc-shaped driving member having a friction surface, a spring biasing said first and second driving members together with said friction surfaces thereon disposed in frictional contact, said first and second driving members being coaxially rotatable, and said first and second driving members being disengageable from frictional contact when a predetermined driving torque is exceeded, each of said first and second disc-shaped driving members having a facing surface directed toward said facing surface on the other one of said first and second drive members, a plurality of rolling bodies positioned between said facing surfaces, each said facing surface having a plurality of indentations formed therein with each indentation arranged to receive one of said rolling bodies, said indentations in said facing surfaces disposed opposite one another so that one said rolling body engages in a pair of said indentations when said first and second driving members are in frictional contact and when said first and second driving members rotate relative to one another as the predetermined driving torque is exceeded, said rolling bodies move out of said indentations in at least one of said driving members as said driving members move in the axial direction against the force of said spring, and an annular cage is positioned between said facing surfaces of said first and second driving members with said rolling bodies mounted in said cage for maintaining said rolling bodies equiangularly spaced apart and in a desired radial spacing relative to the axes of said driving members.

4,365,962

SAFETY CLUTCH FOR POWER-OPERATED HAND-HELD TOOL

Wolfgang Regelsberger, Weissenburg, Fed. Rep. of Germany, assignor to Hilti Aktiengesellschaft, Schaan, Liechtenstein

Filed Nov. 3, 1980, Ser. No. 203,478

Claims priority, application Fed. Rep. of Germany, Nov. 2, 1979, 2944275

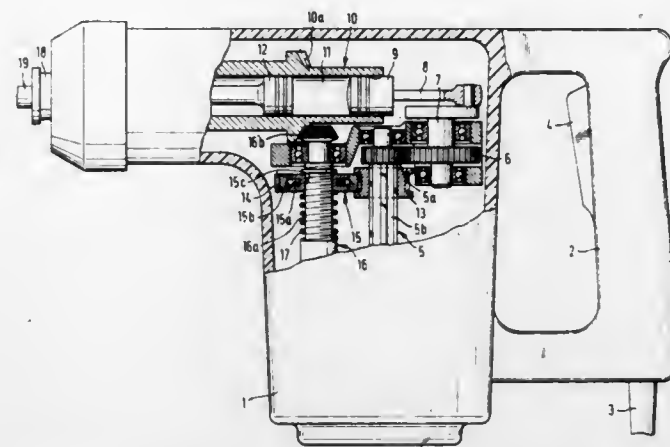
Int. Cl.³ F16D 9/00

U.S. Cl. 464—39

6 Claims

1. Motor-operated hand-held tool, such as a hammer drill, comprising a work spindle, a drive train including a drive motor and a drive spindle for transmitting driving force from said drive motor to said drive spindle, said drive train includes a shaft and a safety clutch positioned on said shaft for interrupting the transmission of driving force to said work spindle in the event a torque overload is developed, said shaft being threaded for at least an axially extending portion of the length thereof, a gear ring spaced outwardly from said shaft, said safety clutch arranged to releasably engage said gear ring and said shaft, said safety clutch comprises a hub mounted on said shaft within said gear ring and clutch members releasably interengaging said

gear ring and hub, means for interengaging said hub with said thread on said shaft, and a spring acting on said hub for preventing said hub from being rotated relative to said shaft and screwed on said thread for movement in the axial direction



4,365,963

SPEED CHANGE PULLEY

Jacques J. M. Thirion de Briel, Levallois-Perret, France, assignor to Societe Anonyme Francaise du Ferodo, Paris, France

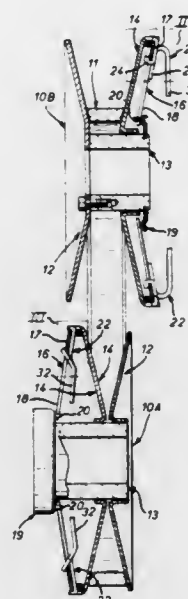
Filed Jul. 3, 1979, Ser. No. 54,407

Claims priority, application France, May 7, 1978, 78 20025

Int. Cl.³ F16H 11/06

U.S. Cl. 474—13

22 Claims



1. A speed change pulley of the type comprising two oppositely and coaxially disposed side plates each having a frusto-conical portion, one of said side plates being a movable side plate and the other of said side plates being a fixed side plate, said movable side plate being biased by resilient return means and mounted for axial movement relative to the fixed side plate, said resilient return means comprising an annular diaphragm having a peripheral portion which forms a resilient washer of the Belleville washer type and which is in abutment against said movable side plate and a central portion which is divided into radially extending fingers and which is in abutment against a component axially fast with said fixed side plate, at least one weight member projecting from said diaphragm for increasing the sensitivity of said diaphragm to centrifugal speed, and engagement means provided on said diaphragm cooperable with complementary opening means provided on the movable side plate, said engagement means comprising at

least one engagement member constituting a component formed separately from said diaphragm and fitted thereon, characterized by said one engagement member being integral with said one weight member.

4,365,964

COMBINATION COUPLING AND SHEAVE

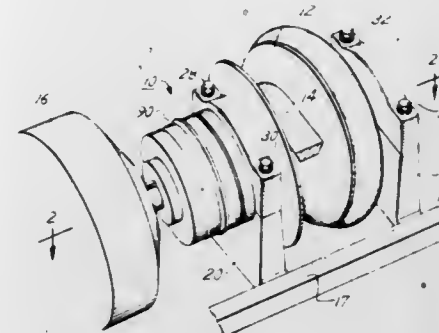
Edward F. Krome, Jr., Columbus, Ind., assignor to Reliance Electric Company, Columbus, Ind.

Filed Oct. 29, 1980, Ser. No. 201,734

Int. Cl.³ F16H 11/04

U.S. Cl. 474—28

11 Claims



1. Combination coupling and sheave in a variable speed belt drive, comprising a variable pitch sheave having a shaft, an axially slidable flange mounted on said shaft and a fixed flange in axial relationship with said slidable flange, bearings at each end of said shaft, a coupling connected to said shaft and having a hub journaled in one of said bearings and having an end facing said fixed flange, a means for securing said hub to said shaft, and means extending generally parallel with said shaft for securing said fixed flange to said end of said hub for rotation therewith.

4,365,965

V-BLOCK BELT

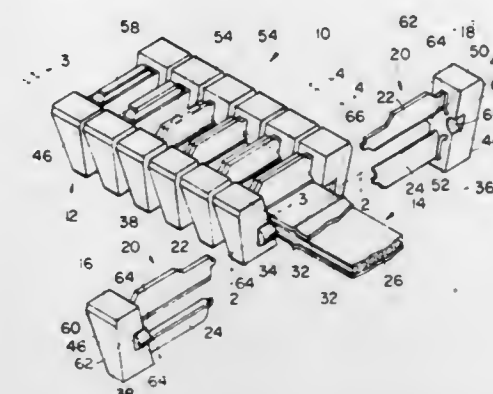
Paul E. Russ, Sr., Littleton, Colo., assignor to The Gates Rubber Company, Denver, Colo.

Filed Sep. 8, 1980, Ser. No. 184,712

Int. Cl.³ F16G 5/16

U.S. Cl. 474—244

4 Claims



1. In a power transmission belt of the type having a plurality of V-blocks attached to a load carrying member, each block having two elastomeric portions that form two V-sides with frictional driving surfaces, the improvement in the elastomeric portion comprising:

two oppositely facing sides interconnecting with a V-side and oriented transversely to the load carrying member, one of the oppositely facing sides having an integrally molded rib and the other oppositely facing side having an integrally molded rib-receiving socket, the rib and socket each having generally cylindrical surface portions juxtaposed and oriented transversely to the load carrying member and ribs and sockets of successive V-blocks interdigitating with each other and defining pivot points and means for enhancing torsional rigidity of the belt.

CHEMICAL

4,365,966

PROCESS FOR MODIFYING CELLULOSIC FABRICS FOR IMPROVED HEAT TRANSFER PRINTING

Joseph S. Bruno, Chalmette, and Eugene J. Blanchard, New Orleans, both of La., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Sep. 15, 1981, Ser. No. 302,008
Int. Cl.³ C09B 67/00

U.S. Cl. 8—471 12 Claims

1. A process for modifying cotton-containing fabric by in situ polymerization to form a polyamide for improved heat transfer printing with disperse dyestuff, said process comprising:

- (a) treating the fabric with an aqueous solution of a diamine;
- (b) treating the fabric with a diacid chloride in an organic solvent to form a polyamide;
- (c) rinsing and drying the fabric;
- (d) heat transfer printing the fabric with a paper containing disperse dyestuff.

4,365,967

METHOD OF TREATING, ESPECIALLY DYEING, WHITENING OR FINISHING, TEXTILE FABRICS

Christian Guth, Basel, and Jörg Binz, Reinach, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Dec. 8, 1980, Ser. No. 214,306

Claims priority, application Switzerland, Dec. 14, 1979, 11095/79; May 21, 1980, 3961/80

Int. Cl.³ D06P 1/613; D06M 13/26, 13/18, 15/30

U.S. Cl. 8—477 30 Claims

1. A method of treating a textile fabric with a foam, comprising the steps of preparing a foam with a blow ratio of (6 to 20):1 from a composition which contains

- (a) 1 to 4 g./l. of an anionic or non-ionic surfactant, or a mixture thereof, as foam stabilizer,
- (b) 0.1 to 1 g./l. of a polyether siloxane, having an antifoam action at elevated temperature and having a cloud point in the range of 20° to 70° C., as foam regulator.
- (c) water, and
- (d) dye, fluorescent whitening agent or finishing agent, applying said foam continuously in the form of at least one layer to the textile fabric and subjecting the fabric to a steam treatment.

4,365,968

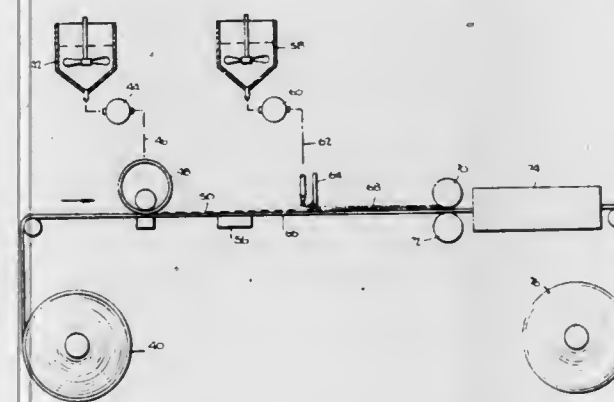
METHOD OF TREATING TEXTILE MATERIALS

Razmic S. Gregorian, Aiken; Chettoor G. Nambodri, and John D. Johnson, both of North Augusta, all of S.C., assignors to United Merchants & Manufacturers, Inc., New York, N.Y.

Continuation of Ser. No. 943,829, Sep. 19, 1978, abandoned. This application Mar. 6, 1981, Ser. No. 241,335

Int. Cl.³ B41M 1/10; D06M 1/00, 13/34

U.S. Cl. 8—477 17 Claims



14. A process for dyeing textile materials which comprises the steps of:

- (a) preparing a foamed dye containing composition which includes a reactive material therein;
- (b) applying said foamed dye containing composition to said textile material;
- (c) collapsing said foamed dye containing composition;
- (d) preparing a second foamed composition containing therein a material suitable to interact with said reactive material in said foamed dye containing composition;
- (e) coating said textile material containing said foamed dye containing composition with said second foamed composition, said second composition being coated over said foamed dye containing composition prior to fixation of said foamed dye containing composition;
- (f) collapsing said second foamed composition so as to achieve penetration of said dye into said textile material;
- (g) allowing said reactive material in said foamed dye containing material to interact with the material in said second foamed composition; and
- (h) thereafter drying and fixing the dye in said textile material.

4,365,969

METHOD FOR QUANTITATIVE ANALYSIS OF CHEMICAL COMPOSITION OF INORGANIC MATERIAL

Jury A. Karpov, ulitsa Svobody, 3, kv. 44, Moscow; Boris P. Burylev, ulitsa Moskovskaya, 2, korpus 1, kv. 117, Krasnodar; German G. Glavin, Profsojuznaya ulitsa, 33, kv. 155; Valeria E. Kvin, Lipetskaya ulitsa, 20, kv. 336, both of Moscow; Vasily V. Kovalev, Shemonaikhinsky raion, poselok Per-vomaisky, ulitsa Metallurgov, 3, kv. 56, Vostochno-Kazakh-stanskaya oblast; Konstantin J. Natanson, 3 Dorozhny proezd, 9, korpus 1, kv. 107, Moscow; Vladimir V. Orlov, I Koptelsky pereulok, 14, kv. 20, Moscow; Lev B. Kuznetsov, Rostovskaya naberezhnaya, 5, kv. 245, Moscow; Anatoly M. Zaitsev, Leninsky prospekt, 52, kv. 87, Moscow; Valentin E. Kartsev, ulitsa Ostrovityanova, 41, korpus 1, kv. 323, Moscow; Vladimir M. Morozov, Dobroslobodskaya ulitsa, 16, korpus 3, kv. 17, Moscow, and Gennady G. Kovalev, Tashkentskaya ulitsa, 16, korpus 1, kv. 21, Moscow, all of U.S.S.R.

Filed Jan. 5, 1981, Ser. No. 222,506

Int. Cl.³ G01N 31/00

U.S. Cl. 436—75 18 Claims

1. A method for the quantitative chemical analysis of an inorganic material selected from the group consisting of metals, alloys, metalloids, and compounds thereof, which comprises:

- (a) charging a sample of said inorganic material into a molten bath of a metal and a non-volatile halide, wherein the non-volatile metal halide forms a liquid layer on the surface of the metal, and whose temperature at the beginning of thermal dissociation exceeds the melting point, said inorganic material and said non-volatile halide being of different composition;
- (b) melting said inorganic material in the molten bath, thereby forming one or more volatile halides from the inorganic material;
- (c) extracting said volatile halides into a gaseous phase and quantitatively determining the elemental chemical composition of said volatile halides.

4,365,970

SPECIMEN TEST SLIDE AND METHOD FOR TESTING OCCULT BLOOD

Paul J. Lawrence, Campbell, and Charles W. Townsley, San Jose, both of Calif., assignors to SmithKline Instruments, Inc., Sunnyvale, Calif.

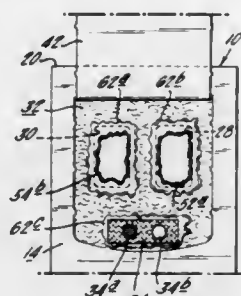
Filed May 1, 1981, Ser. No. 259,757

Int. Cl.³ G01N 33/72

U.S. Cl. 436—66 5 Claims

1. In an occult blood specimen test slide having a front panel, a rear panel, said front panel having one or more openings, sheet means carrying a test reagent between the front and rear

panels underlying each of said openings, a hinged cover adapted to overlie a portion of the front panel and said openings and flap means in the rear panel opposite said openings and pivotable to expose the underside of the sheet, the improvement comprising: an area positioned on a portion of the



sheet means facing the rear panel and isolated from the openings in the front panel, said area including a positive and negative monitor, said positive and negative monitors including the test reagent and said positive monitor additionally including a compound that reacts to environmental conditions in a manner similar to hemoglobin.

4,365,971

PRESSURE DISPENSABLE GELLED ALCOHOL FUEL
John A. Monick, Teaneck, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

Continuation of Ser. No. 937,385, Aug. 28, 1978, abandoned, which is a continuation of Ser. No. 596,346, Jul. 16, 1975, abandoned. This application Aug. 27, 1979, Ser. No. 70,074. The portion of the term of this patent subsequent to Apr. 14, 1998, has been disclaimed.

Int. Cl.³ C10L 7/04

U.S. Cl. 44—7 C

4 Claims

1. A shape-retaining mass of a fuel gel composition in a pressure-tight container equipped with valve means and comprising by weight about 60% to 90% of alcohol, with a major proportion being ethanol and the remainder being a C₃-C₄ alcohol; about 0.5 to 1.75% by weight of a hydrophilic, cross linked carboxy vinyl polymer neutralized with a weak amine base as the gelling agent; about 3.5% to 11% of water, and about 5% to 30% of a C₃-C₅ hydrocarbon propellant (a) or about 0.5 to 2% of a propellant (b) selected from the group consisting of nitrogen, carbon dioxide and air, or mixtures of (a) and (b), said propellant being effective to provide a pressure of 12 p.s.i.g. to about 100 p.s.i.g. in said container, said composition having a viscosity whereby it is dispensed from said container in gel form upon actuation of the valve means and upon contact with the surface of wood or charcoal sets up and forms a mass of gel including entrained propellant.

4,365,972

FUEL COMPOSITION

Rodney L. Sung, Fishkill; William M. Sweeney, and Benjamin J. Kaufman, both of Wappingers Falls, all of N.Y., assignors to Texaco Inc., White Plains, N.Y.

Filed Nov. 5, 1981, Ser. No. 318,533

Int. Cl.³ C10L 1/26

U.S. Cl. 44—53

23 Claims

1. A fuel composition for internal combustion engines comprising

- (a) a major portion of a fuel containing (i) at least one alcohol selected from the group consisting of ethanol and methanol and (ii) gasoline in amount of 0-5 volumes per volume of alcohol; and
- (b) a minor wear-inhibiting amount of, as a wear-inhibiting additive, a quaternary ammonium reaction product of (i) an amide of an amino carboxylic acid and (ii) as a phosphorus ester, a di-hydrocarbyl phosphate.

4,365,973

MIDDLE DISTILLATE FUEL ADDITIVE

Glenn E. Irish, Fullerton, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Filed Dec. 18, 1980, Ser. No. 217,915

Int. Cl.³ C10L 1/22

U.S. Cl. 44—56

24 Claims

1. A middle distillate fuel oil having improved cold flow, cetane and anti-icing properties which comprises a mixture of a major amount of a middle distillate hydrocarbon stock and a minor amount of a cold flow additive, wherein said cold flow additive comprises:

- (A) from 3 to 24 percent by volume of an ethylene-vinyl acetate copolymer, a vinyl acetate homopolymer, a vinyl acetate-acrylic ester copolymer, or a vinyl acetate-methacrylic ester copolymer, or a mixture thereof, wherein the alkyl group of the ester contains from 6 to 16 carbon atoms, said copolymers and homopolymers having molecular weights within the range of from 800 to 120,000,
- (B) from 4 to 41 percent by volume of a paraffinic nitrate, or a mixture of paraffinic nitrates, wherein the paraffinic group contains from 4 to 16 carbon atoms,
- (C) from 2 to 15 percent by volume of an aliphatic alcohol having from 1 to 6 carbon atoms, or a mixture thereof, and
- (D) from 12 to 91 percent by volume of an aromatic solvent having a gravity within the range of from 25° to 32° API, and boils within the range of from 275° to 550° F.

4,365,974

APPARATUS FOR SOLUBILIZING AND OXIDIZING OF PEAT

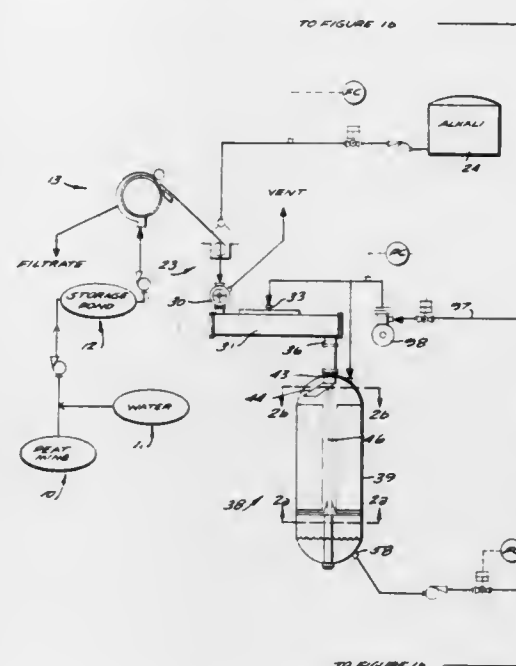
Carl L. Elmore; Erwin D. Funk, and Ted M. Poulin, all of Glen Falls, N.Y., assignors to Kamyr, Inc., Glen Falls, N.Y.

Filed Aug. 28, 1980, Ser. No. 182,314

Int. Cl.³ C10J 3/00

U.S. Cl. 48—111

2 Claims



1. Apparatus for producing a fuel gas from slurried peat and the like, comprising: a cylinder mould for forming the slurried peat or the like to a desired consistency; a repulper operatively connected to said cylinder mould for mixing alkali with the slurry; a steam mixer connected to said repulper for heating the slurry to solubilization temperature for phenolic polymers therein, while pressurizing it;

a solubilizer comprising a vertically oriented pressure vessel divided into a plurality of elongated vertical compartments having substantially circular sectors in cross-section with means for progressively feeding slurried peat or the like into each of the compartments, in turn, at the top thereof, and means for progressively effecting emptying

of each of the compartments at the bottom thereof after a predetermined retention time within the compartment so that as one compartment is being emptied another compartment is being filled, said solubilizer operatively connected to said for oxidizing the solubilized peat comprising means; means defining a liquid-transporting substantially vertical wave path having an inlet and an outlet, means for introducing oxygen at the bottoms of segments of the wave path, and means for exhausting off-gas from the tops of segments of the wave path so that the wave path is maintained above atmospheric pressure, said path wave inlet being connected to said solubilizer; means for circulating coolant, from an inlet around said wave path to an outlet, to remove exothermic heat while preventing mixing of the coolant and the solubilized peat or the like circulating in the wave path; means for cooling the oxidized solubilized peat to a temperature appropriate for fermentation, cooling said means connected to the wave path outlet; means for aerobically fermenting the cooled, oxidized, solubilized peat or the like to produce an off-gas including a fuel gas, said fermenting means operatively connected to said cooling means; and means for scrubbing the gas produced by said fermenting means to produce fuel gas, said scrubbing means operatively connected to said fermenting means.

4,365,975

USE OF ELECTROMAGNETIC RADIATION TO RECOVER ALKALI METAL CONSTITUENTS FROM COAL CONVERSION RESIDUES

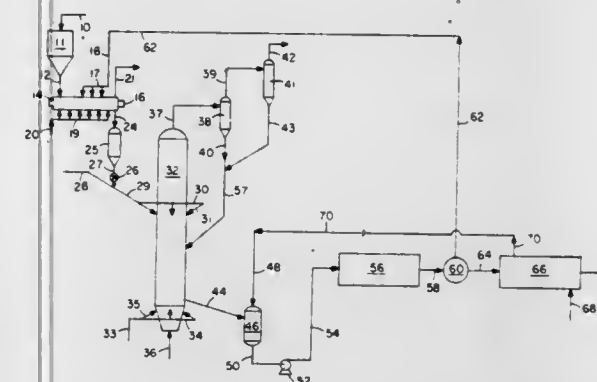
Rollie B. Williams, and Ramachandra A. Nadkarni, both of Baytown, Tex., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Jul. 6, 1981, Ser. No. 280,750

Int. Cl.³ C10J 3/54

U.S. Cl. 48—197 R

12 Claims



1. In a process for the conversion of a solid carbonaceous feed material in the presence of an alkali metal-containing catalyst into liquids and/or gases wherein particles containing alkali metal residues are produced, the improvement which comprises:

- (a) treating said particles containing said alkali metal residues with electromagnetic radiation having a frequency between about 0.10 MHz and about 10⁵ MHz in the presence of water or other aqueous medium to produce particles depleted in alkali metal constituents and an aqueous solution enriched in water-soluble alkali metal constituents; and
- (b) using at least a portion of the water-soluble alkali metal constituents present in said aqueous solution formed in step (a) in said conversion process as at least a portion of the alkali metal constituents comprising said alkali metal-containing catalyst.

4,365,976

PROCESS FOR SEPARATING DUST FROM DISTILLATION GASES

Heinz Frohnert, Bottrop, and Klaus Steude, Dorsten, both of Fed. Rep. of Germany, assignors to Veba Oel Development, Inc., Gelsenkirchen-Buer, Fed. Rep. of Germany

Filed Jun. 24, 1981, Ser. No. 277,028

Claims priority, application Fed. Rep. of Germany, Jun. 25, 1980, 3023727

Int. Cl.³ B03C 3/01; C10G 35/10

U.S. Cl. 55—4

4 Claims

1. A process for removing dust free of condensed higher hydrocarbon materials from distillation gases containing condensable higher hydrocarbon materials comprising subjecting said distillation gases to electrostatic precipitation at a temperature above the dew point of said condensable higher hydrocarbon materials.

4,365,977

DRILLING MUD DEGASSER

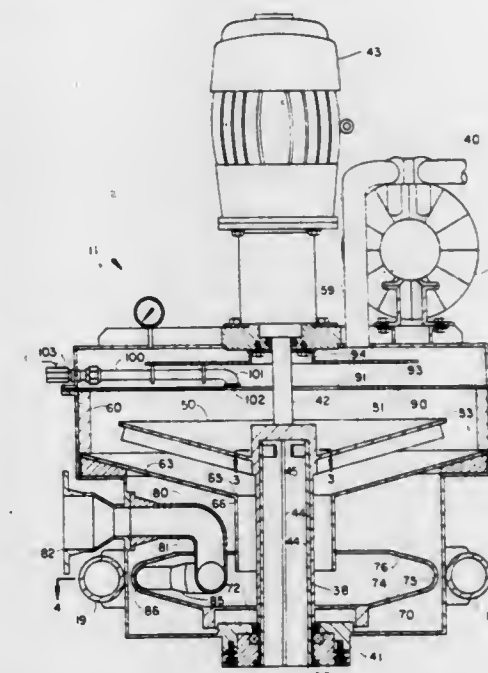
Gary L. Egbert, Houston, Tex., assignor to NL Industries, Inc., New York, N.Y.

Filed Feb. 3, 1981, Ser. No. 231,150

Int. Cl.³ B01D 19/00

U.S. Cl. 55—41

8 Claims



1. A drilling mud degasser, which comprises: a pressure vessel; means for creating a substantial vacuum in said pressure vessel; a rotor having a vertically oriented axis rotatably mounted in said pressure vessel, said rotor having a conical surface which extends radially outwardly from said axis and upwardly toward a rim; means for depositing drilling mud on said surface of said rotor; means for rotating said rotor about said axis to accelerate and force drilling mud deposited on said surface in a turbulent thin film upwardly and outwardly on said surface toward said rim; an impingement ring mounted within said pressure vessel about and radially spaced apart from said rim for the impingement thereon of drilling mud from said rotor; and means for collecting drilling mud impinging upon said impingement ring.
8. A method for degassing a drilling mud containing entrained gas, said method comprising:
 - (a) flowing a drilling mud containing entrained gas upwardly in a vertical, cylindrical inlet zone under conditions of centrifugal rotation and substantial vacuum for disengaging gas therefrom and for introducing said mud

- into a conical degassing zone having a downwardly directed apex located within a degassing vessel maintained at a substantial vacuum;
- (b) centrifugally rotating said mud in said conical degassing zone, forming a thin, turbulent film of said mud flowing radially upward and outward for disengaging gas therefrom and imparting radial momentum to said mud;
- (c) impinging said radially flowing mud upon an impingement ring within said degassing vessel for desengaging gas therefrom and stopping said mud's radial flow;
- (d) removing degassed mud from said degassing vessel; and
- (e) removing disengaged gas from said degassing vessel.

4,365,978

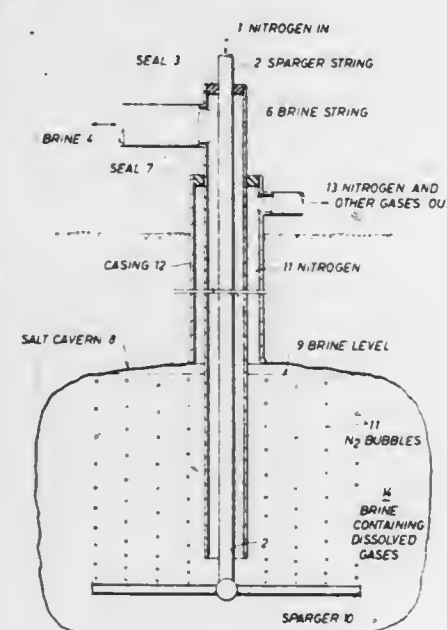
STORAGE OF LIQUID HYDROCARBONS IN SALT DOME CAVERNS

Paul R. Scott, Brazoria, Tex., assignor to Shell Oil Company, Houston, Tex.

Continuation-in-part of Ser. No. 133,755, Mar. 25, 1980, abandoned. This application May 7, 1981, Ser. No. 261,406
Int. Cl.³ B01D 19/00; E02D 27/00

U.S. Cl. 55—47

9 Claims



SCHEMATIC DEPICTING THE USE OF NITROGEN TO DECONTAMINATE BRINE IN A SALT CAVERN

1. A process for decontaminating water in an underground cavern, said water containing at least one contaminating gas from the group consisting of oxygen and carbon dioxide, comprising bubbling a decontaminating gas into the water to displace some of the water from the cavern, reducing the pressure of the decontaminating gas filling the volume left above the water, allowing the contaminating gas to pass from the water into the decontaminating gas and passing the decontaminating gas and contaminating gas out of the underground cavern.

4,365,979

WATER PRODUCING APPARATUS

Tetsu Takeyama; Kenkoku Azuma; Akira Ikeda; Toshie Yamamoto, and Shigebo Katsurada, all of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Sep. 2, 1980, Ser. No. 183,458

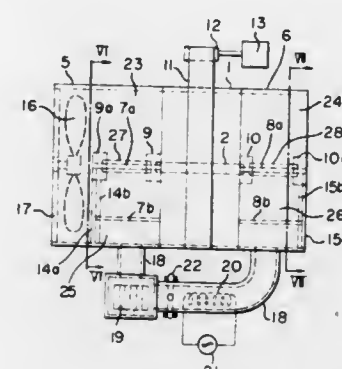
Claims priority, application Japan, Sep. 3, 1979, 54/113393
Int. Cl.³ B01D 53/06

U.S. Cl. 55—181

8 Claims

1. A water producing apparatus for extracting water from moisture-laden ambient air comprising:
 - a rotatable adsorbent column containing a plurality of circumferentially spaced chambers packed with an adsorbent for adsorbing moisture;
 - a first member adjacent one end of said adsorbent column, said first member including a first desorbent section of a

- first predetermined size and a first adsorbent section of a second predetermined size;
- a second member adjacent an opposite end of said adsorbent column, said second member including a second desorbent section of a first predetermined size and a second adsorbent section of a second predetermined size;
- a driving device for intermittently turning said adsorbent column relative to said first and second members wherein at least one of said circumferentially spaced chamber is in air-tight communication with both said first desorbent section and said second desorbent section and a remainder of said plurality of circumferentially spaced chambers is in flow through communication with said first adsorbent section and said second adsorbent section;



- means for passing ambient air through said remainder of said plurality of circumferentially spaced chambers wherein moisture from the ambient air is adsorbed on said adsorbent;
- means for removing the moisture from the adsorbent in said at least one circumferentially spaced chamber in communication with said first and second desorbent sections; and
- means for varying the number of chambers in communication with said first and second desorbent sections which further comprises a first, second, third and fourth closing plate which are positioned substantially transverse to the longitudinal axis of said adsorbent column and are disposed within said first and second member, respectively, and wherein said first and second closing plates are slidable so as to contact one another and said third and fourth closing plates are slidable so as to contact one another.

4,365,980

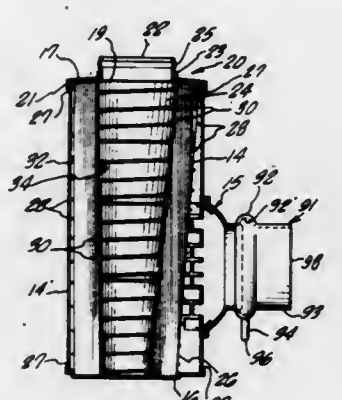
AIR FILTER ASSEMBLY

Robert M. Culbert, Manhattan Beach, and Charles E. Miller, San Marino, both of Calif., assignors to Farr Company, El Segundo, Calif.

Filed Aug. 20, 1981, Ser. No. 294,806
Int. Cl.³ B01D 50/00, 46/52

U.S. Cl. 55—315

7 Claims



1. A filter assembly particularly adapted for use as an air intake filter on large trucks comprising a cylindrical walled housing having a closed end, an open end and at least one air inlet aperture in the sidewall thereof, said open end defining a

first annular sealing surface disposed about a central air outlet aperture; a hollow offset frustoconically-shaped filter element formed of a pleated filter medium disposed within said housing with one end thereof being in sealing engagement with said closed end of said housing, the other end in sealing engagement with said first sealing surface about said air outlet aperture and the portion of said filter element facing said air inlet aperture in said housing tapering inwardly from said first annular sealing surface on said open end of said housing to said closed end; and a removable air inlet bonnet adapted to be releasably secured to said housing externally adjacent said air inlet aperture in the sidewall thereof, said bonnet defining a hollow substantially frustoconically body portion, one end of said body portion defining a second annular sealing surface and the other end thereof terminating in a tubular air intake extension and means for releasably securing said second sealing surface against said housing and about said air inlet aperture therein.

4,365,981

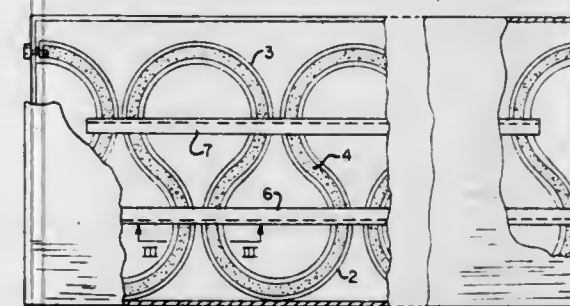
GAS FILTER

John B. McDonough, Allison Park, Pa., assignor to Mine Safety Appliances Company, Pittsburgh, Pa.

Filed Jul. 1, 1981, Ser. No. 279,589
Int. Cl.³ B01D 53/14, 46/30

U.S. Cl. 55—497

3 Claims



1. A gas filter comprising two uniformly spaced nesting screens extending within a frame structure along a serpentine path, each of the screens having laterally spaced areas curved in one direction lengthwise of said path and alternating with laterally spaced areas curved in the opposite direction and integrally joined thereto to thereby provide each of the screens with a continuous curvature without any flat surfaces from end to end of said serpentine path and the lateral ends of the screens being secured to the frame structure, and granular filtering material filling the space between the screens to form a serpentine filter bed of continuous curvature.

4,365,982

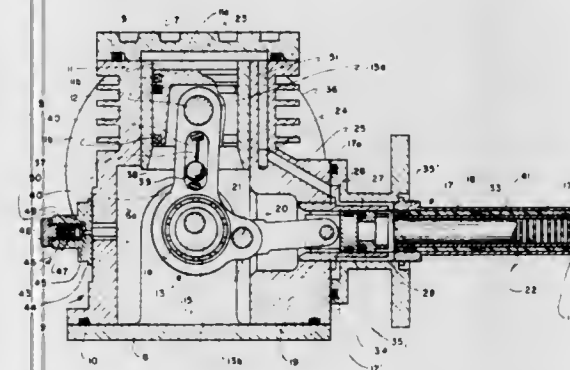
CRYOGENIC REFRIGERATOR

Peter Durenec, Annandale, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 30, 1981, Ser. No. 335,925
Int. Cl.³ F25B 9/00

U.S. Cl. 62—6

5 Claims



1. An improved cryogenic refrigerator including a housing,

an electric motor mounted on said housing and having a rotor and a rotor shaft, a drive shaft in said housing, means for transmitting torque from said rotor shaft to said drive shaft, whereby said drive shaft has an eccentric cam thereon, and whereby a master piston rod is journaled on said cam and has first and second orthogonal arms, a compression cylinder in and a cooling head on said housing, said cooling head having a cylinder therein and having a flange end mounted to said housing and a cold finger end directed away from said housing, a compression piston in said compression cylinder and having a piston pin thereon journaled to said first arm, a regenerator-displacer piston in said cooling head cylinder and having a piston pin, a connecting rod with a pin on one end journaled to said second arm of said master rod and journaled on the other end to the pin of said regenerator-displacer piston, whereby said cooling head includes a cold cap at said cold finger end and an expansion chamber defined by an end of said regenerator-displacer piston and by said cold cap, whereby said regenerator-displacer piston is hollow and is filled with porous heat-exchange material, a cryogen passageway between said compression cylinder and the cylinder of said cold finger, whereby said compression cylinder, said passageway, and the cylinder of said cold finger and the porous spaces of said heat-exchange material are filled with a cryogen, whereby said drive shaft rotates said rotor shaft rotates and, through said master piston rod, causes said pistons to reciprocate in their cylinders, the improvement comprising:

- a rotor shaft on said motor which is in the form of a torsion bar extending through said rotor and affixed thereto at the end of said rotor away from said housing.

4,365,983

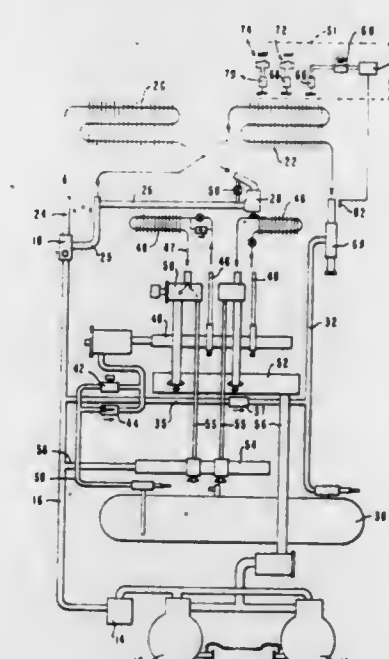
ENERGY SAVING REFRIGERATION SYSTEM

Fayez Abraham, and Edward Bowman, both of Niles, Mich., assignors to Tyler Refrigeration Corporation, Niles, Mich.
Division of Ser. No. 57,350, Jul. 13, 1979, Pat. No. 4,286,437.

This application Mar. 4, 1981, Ser. No. 240,465
Int. Cl.³ F25B 41/00

U.S. Cl. 62—81

6 Claims



1. A method of operating a refrigeration system having compressor means, condenser means, receiver means, evaporator means and suction means, the method including the steps of:
 - compressing gaseous refrigerant having a relatively high compressor discharge temperature and relatively high compressor discharge pressure;
 - condensing the compressed gaseous refrigerant to a liquid by cooling the refrigerant ideally to a pre-selected liquid temperature level of higher than approximately 45° F.

when the refrigerant passes through the condenser means so that the liquid leaving the condenser means is sub-cooled and sensing the temperature of the liquid leaving the condenser means and controlling the operation of cooling the refrigerant in dependence upon the temperature of the liquid;

maintaining the pressure in the condenser means at a level where the gaseous refrigerant will condense to a liquid at a temperature above the pre-selected cooling temperature level for the liquid leaving the condenser means; evaporating the liquid refrigerant at a substantially lower pressure than the compressor discharge pressure; returning the evaporated refrigerant to the compressor; defrosting the evaporator means by conducting gaseous refrigerant from the compressor means to the evaporator means during a first time period; and terminating the flow of gaseous refrigerant to the evaporator means at the end of the first time period and delaying reinitiation of the flow of liquid refrigerant to the evaporator means during a second time period so as to allow for condensation from around the evaporator means to drain.

4,365,984

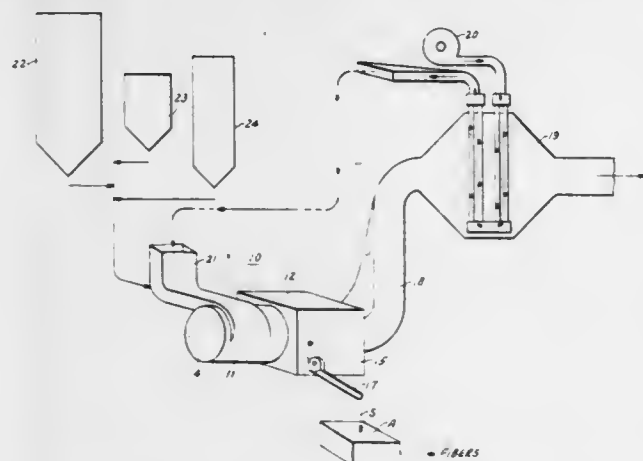
MINERAL WOOL AND PROCESS FOR PRODUCING SAME

Kenneth H. Gee, Bethlehem, Pa., assignor to Bethlehem Steel Corporation, Bethlehem, Pa.

Continuation-in-part of Ser. No. 228,420, Jan. 23, 1981, abandoned. This application Mar. 26, 1982, Ser. No. 362,210
Int. Cl.³ C03B 37/01

U.S. Cl. 65—2

10 Claims



1. A process for producing mineral wool wherein a molten slag substantially free of metallic iron and suitable for fiberizing into mineral wool is formed in a cyclone-type furnace having a combustion zone, a collecting zone and an exhaust gases-combustion air heat exchanger, the process comprising:

(a) feeding

(i) a first particulate material containing organic combustibles and inorganic non-combustibles and characterized by a composition comprised of between: about 49-62 weight percent silica, about 21-27 weight percent alumina, about 1.0-3.0 weight percent lime, about 0.5-3.0 weight percent magnesia, about 2.5-19 weight percent iron oxides, about 0.3-4.0 weight percent sulfur, a size consist of 100 weight percent -200 mesh and at least about 70 weight percent -325 mesh, and a heating value of about 10 mega J per kilogram of molten slag produced, and

(ii) a second particulate material containing fluxstone and characterized by a size consist of 100 weight percent -200 mesh and at least about 30 weight percent -325 mesh, and

(iii) preheated air into the combustion zone of the cyclone-like furnace,

(b) substantially instantaneously burning the organic combustibles and melting and reacting the inorganic non-com-

combustibles and fluxstone to form a molten slag on the walls of the collecting zone,

(c) collecting the molten slag in the bottom of the collecting zone,

(d) passing waste combustion gases formed in the furnace through a heat exchanger to thereby heat incoming combustion air used in the process,

(e) discharging the molten slag from the collecting zone, and

(f) fiberizing the molten slag to form mineral wool.

4,365,985

METHOD OF PRESS BENDING A PAINTED GLASS SHEET

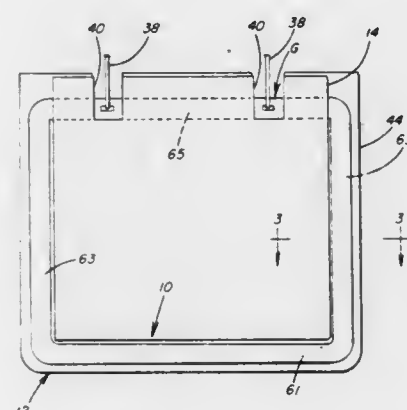
John C. Slabach, Jr., Crestline, Ohio, assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Apr. 1, 1981, Ser. No. 250,961

Int. Cl.³ C03B 23/03

U.S. Cl. 65—106

5 Claims



1. A method of shaping a glass sheet having a painted border portion around the perimeter of one major surface thereof including a pair of painted side edge portions and a painted bottom edge portion comprising the steps of:

(a) heating said glass sheet to an elevated temperature sufficient for shaping,

(b) supporting the heated glass sheet along its top edge by tongs between a pair of press bending molds having shaping surfaces of substantially complementary shape and different outline sizes,

(c) engaging said press bending molds against the opposite major surfaces of said heated glass sheet to change the shape of said sheet,

characterized by engaging said painted major surface having a painted border portion with said mold of smaller outline size and the opposite major surface with said mold of larger outline size, whereby, when said molds are engaged, none of the painted border portion along said side edge portions and said bottom edge portion of said painted major surface comes into contact with either press bending mold.

4,365,986

FURNACE DELIVERY SYSTEM

Ashok L. Nayak, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Mar. 16, 1981, Ser. No. 244,001

Int. Cl.³ C03B 5/033

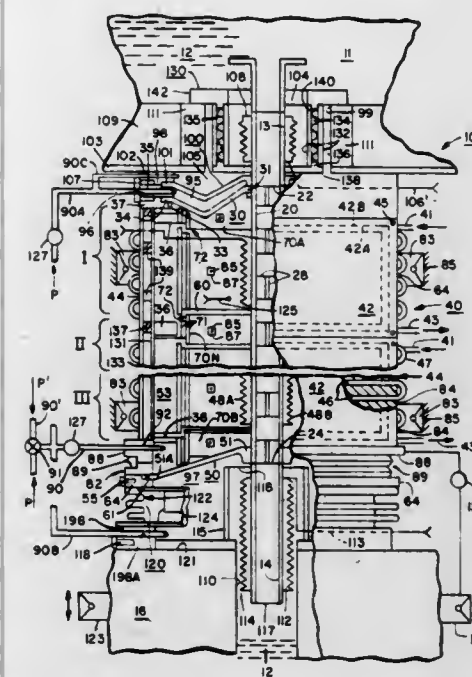
U.S. Cl. 65—136

54 Claims

1. A furnace delivery apparatus for conditioning relatively hot molten thermoplastic material by controlled dissipation of heat energy therefrom comprising: pipe means for delivering said thermoplastic material from a source thereof to a desired location and for conditioning said material to a desired homogeneity and temperature upon delivery, said pipe means including a pipe having an inlet for receiving said material therein from said source and an outlet for discharging said conditioned material at said desired location; shell means located about said pipe means and defining a closed chamber which surrounds said pipe and extends between said pipe and

said shell means, said shell means having fluid passageways extending therethrough for the circulation of a heat exchange fluid therein; and at least one radially spaced apart radiation heat shield means located within said closed chamber and surrounding said pipe for reflecting back to said pipe heat radiated therefrom for controlling heat loss from the pipe.

38. A method of conditioning relatively hot molten thermoplastic material comprising the steps of: confining the material



to a selected flow path, conducting the material along said flow path from an inlet end to an outlet end thereof, selectively regulating the rate of heat energy dissipation from the material along said path including the step of radiation heat shielding the material from heat loss along said path and at least one of the steps of heating the material along said path and heat exchanging and removing heat energy given up by said material along said path.

4,365,987

APPARATUS AND METHOD OF CONDITIONING AND CONVEYING THERMOPLASTIC MATERIAL

George B. Boettner, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

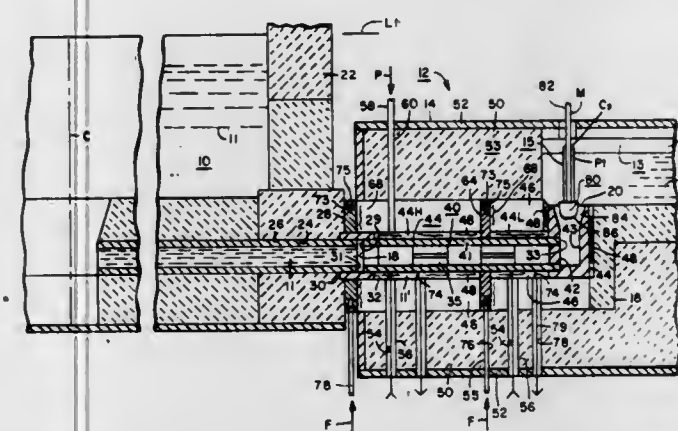
Filed Nov. 4, 1981, Ser. No. 317,993

The portion of the term of this patent subsequent to Oct. 5, 1999, has been disclaimed.

Int. Cl.³ C03B 5/23

U.S. Cl. 65—137

35 Claims



1. Apparatus for conducting relatively hot molten thermoplastic material from a furnace and delivering the thermoplastic material to a remote location with a desired homogeneity comprising: conduit means having an inlet end adapted to receive the thermoplastic material from the furnace and an outlet end for delivering said thermoplastic material from the furnace to the remote location; flow control means in communication with said conduit means for regulating the flow of the

thermoplastic material from the furnace; a refractory structure located about said conduit means defines a chamber which surrounds the same and extends between said inlet and outlet ends of the conduit means, said chamber being in flow communication with at least one of the furnace and the remote location, said chamber being filled with a supply of thermoplastic material immersing the conduit means therein; and means located in the chamber intermediate the respective inlet and outlet ends of the conduit means for blocking flow communication of the thermoplastic material exterior of the conduit means through said chamber between the furnace and the remote location.

28. A method of conveying a supply of molten thermoplastic material from a source at one temperature and pressure to a remote location at another temperature and pressure, said thermoplastic material existing at virtually any fluid condition comprising the steps of: confining the material to a selected flow path; conducting the material along the flow path from an inlet end at the source to an outlet end thereof at the remote location; surrounding the flow path with a concentric annular chamber exterior thereof, said chamber having wall portions in spaced relation with said flow path, said wall portions defining a space within said chamber; communicating a portion of the molten thermoplastic material from the supply of the same to the exterior of the flow path into the space; surrounding the flow path with the thermoplastic material communicated thereto for immersing the flow path in said material within said space; and blocking flow communication of said thermoplastic material located exterior of the flow path from the inlet end to the outlet end thereof which flow communication would occur due to the difference in pressure between the supply and the remote location.

4,365,988

FLUID-MIXING APPARATUS AND METHOD

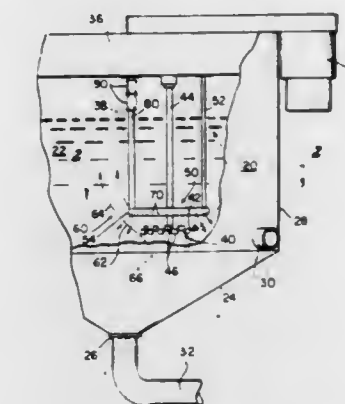
J. Clifford Graham, Lafayette; Shelby W. Gallien, West Lafayette, both of Ind., and Maurice P. Gill, Watseka, Ill., assignors to 3G Corporation, West Lafayette, Ind.

Filed Dec. 8, 1980, Ser. No. 214,013

Int. Cl.³ C05B 7/00; B01F 7/26

U.S. Cl. 71—34

24 Claims



1. A method of uniformly mixing and dispersing a volatile first liquid in a second liquid, comprising the steps of providing a body of the second liquid in a container, creating in the body of second liquid a recirculating flow pattern including a zone of rapid directional liquid flow, injecting into the rapid liquid flow zone a plurality of fine streams of the volatile first liquid to be mixed with the second liquid so as to produce an intimate dispersion of finely divided volatile first liquid at spaced points in the second liquid, and carrying the resulting dispersion into the recirculating flow pattern to widely mix the dispersed volatile first liquid throughout the second liquid in the container.

4,365,989

2-THIOCYANOMETHYLTHIO-4,4-DIALKYL-5-SUBSTITUTED-THIAZOLINE FUNGICIDES
Edward I. Aoyagi, Petaluma, Calif., assignor to Chevron Research Company, San Francisco, Calif.

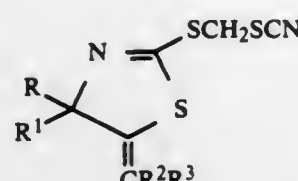
Filed Jan. 27, 1982, Ser. No. 343,089

Int. Cl.³ C07D 277/08; A61K 31/245; A01N 43/02

U.S. Cl. 71-67

15 Claims

1. A compound of the formula



wherein R and R¹ are independently lower alkyl or R and R¹ are joined to form a cycloalkyl group of 5 to 8 carbon atoms; R² is hydrogen or chloro; and R³ is hydrogen, halogen or —SR⁴ wherein R⁴ is lower alkyl, phenyl or phenyl substituted with 1 to 3 of the same or different substituents selected from halogen, nitro, lower alkyl or lower alkyl substituted with 1 to 3 halogens with the proviso that when R² is chloro, R³ is not —SR⁴, bromine, fluorine or iodine.

4,365,990

SULFONYLUREA HERBICIDAL ANTIDOTES

Edmund J. Gaughan, Berkeley, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

Division of Ser. No. 77,881, Sep. 21, 1979, Pat. No. 4,260,824.

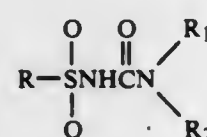
This application Jun. 27, 1980, Ser. No. 163,755

Int. Cl.³ A01N 25/32

U.S. Cl. 71-100

17 Claims

1. A herbicidal composition comprised of
(a) an antidotally effective amount of a sulfonylurea of the formula



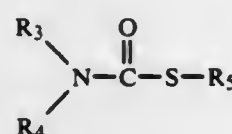
in which

R is selected from the group consisting of 1-4 carbon alkyl, phenyl, and methyl substituted phenyl;

R₁ is selected from the group consisting of hydrogen and 1-4 carbon alkyl; and

R₂ is selected from the group consisting of mono- and polyhalosubstituted phenyl, 3-6 carbon alkynyl, and 2-6 carbon alkoxyalkyl; and

(b) an herbicidally effective amount of a thiocarbamate of the formula



in which

R₃ is selected from the group consisting of 1-6 carbon alkyl and 2-6 carbon alkynyl;

R₄ is selected from the group consisting of 1-6 carbon alkyl, 2-6 carbon alkenyl, cyclohexyl and phenyl; or

R₃ and R₄ together form a hexamethylene group; and

R₅ is selected from the group consisting of 1-6 carbon alkyl, 1-6 carbon haloalkyl, 5-10 carbon alkylene ring, phenyl, substituted phenyl, wherein the substituents are 1-4 carbon alkyl, 1-4 carbon haloalkyl, and halo, benzyl and substituted benzyl, wherein the substituents are 1-4 carbon alkyl, 1-4 carbon haloalkyl, and halo.

4,365,991

PROPIONIC ACID OXIMES

Wijtha de Silva, Schöfflisdorf, Switzerland, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Mar. 6, 1981, Ser. No. 241,189

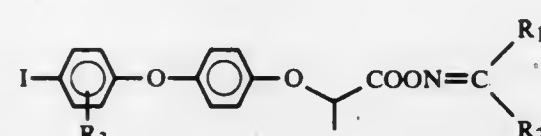
Claims priority, application Switzerland, Mar. 10, 1980, 1861/80; Jan. 8, 1981, 88/81

Int. Cl.³ A01N 39/02; C07C 131/00

U.S. Cl. 71-121

17 Claims

1. A compound of the formula



wherein R₁ is hydrogen, alkyl of from 1 to 6 carbon atoms or cycloalkyl of from 3 to 6 carbon atoms, R₂ is hydrogen, alkyl of from 1 to 6 carbon atoms, alkenyl of from 2 to 6 carbon atoms or alkynyl of from 2 to 6 carbon atoms, or R₁ and R₂ together with the carbon atom to which they are attached form a cyclopentane or cyclohexane ring which is unsubstituted or is mono-, di- or trisubstituted with alkyl of from 1 to 3 carbon atoms, R₃ is hydrogen, halogen or nitro with the proviso that R₁ and R₂ are not simultaneously hydrogen.

8. A herbicidal composition which comprises inert carrier material and, as the active ingredient, a herbicidally effective amount of one or more of the compounds of claim 1.

13. A method for combating weeds which comprises applying, to the locus to be protected, a herbicidally effective amount of the composition of claim 8.

4,365,992

METHOD OF TREATING FERROUS METAL

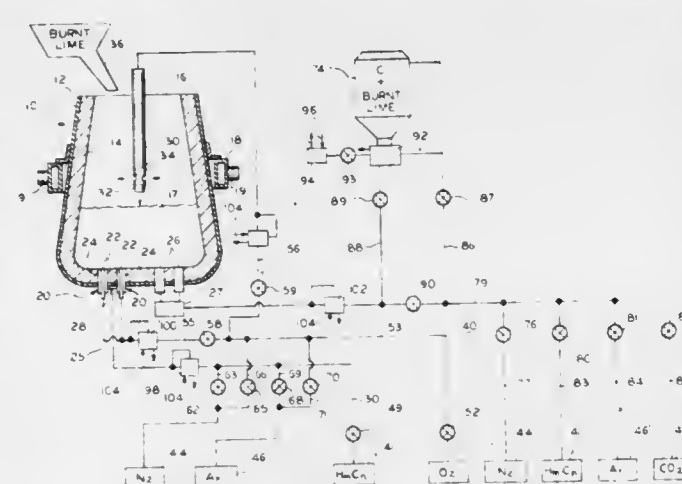
Walter Sieckman, Pittsburgh, Pa., assignor to Pennsylvania Engineering Corporation, Milwaukee, Wis.

Filed Aug. 20, 1981, Ser. No. 294,446

Int. Cl.³ C21C 5/48

U.S. Cl. 75-60

13 Claims



1. A method of treating ferrous metal including the steps of charging a vessel with ferrous metal in a solid form, injecting into said vessel and in a first flow path from beneath said metal finely divided carbon entrained in a nonoxidizing gas during a first preheating step, simultaneously injecting a quantity of oxygen into said vessel through a second flow path beneath said metal and separate from said first flow path for oxidizing the carbon to fluidize the metal within said vessel during said preheating step, injecting a hydrocarbon shielding fluid in surrounding relation to said oxygen, discontinuing the flow of carbon through said first flow path after said metal is at least partially fluidized but continuing to inject the nonoxidizing gas for stirring said molten metal during a refining step,

continuing to inject oxygen and the surrounding hydrocarbon shielding fluid through said second flow path and into said fluidized metal during said refining step for oxidizing carbon in said molten metal.

4,365,993

RECOVERY OF COATED ALUMINIUM SCRAP

Francis M. P. Meredith, deceased, late of Banbury, England, and by Priscilla J. Meredith, administratrix, 52 Beargarden Rd., Banbury, Oxfordshire, England

Filed Jan. 21, 1981, Ser. No. 226,698

Claims priority, application United Kingdom, Jan. 23, 1980, 8002242

Int. Cl.³ C22B 21/06

U.S. Cl. 75-68 R

4 Claims

1. In a process for the removal of an organic coating from aluminium alloy scrap by burning-off said coating, the improvement which comprises depositing on the surface of the scrap an aqueous solution of a fluxing salt before burning-off the said coating, said fluxing salt solution containing at least 4% of said fluxing salt, said fluxing salt comprising a mixture of metal halide salts which fuse at a temperature below 710° C. and are soluble in water in an amount of at least 4%.

4,365,994

COMPLEX BORIDE PARTICLE CONTAINING ALLOYS
Ranjan Ray, Randolph, N.J., assignor to Allied Corporation, Morristown, N.J.

Filed Mar. 23, 1979, Ser. No. 23,379

Int. Cl.³ C22C 38/08, 38/10; C21D 6/00

U.S. Cl. 75-123 B

36 Claims



1. Boron-containing transition metal alloys, based on one or more of iron, cobalt and nickel, containing at least two metal components, said alloys being composed of ultrafine grains of a primary solid solution phase randomly interspersed with particles of complex borides, wherein said complex boride particles are predominantly located at the junctions of at least three grains of said ultrafine grain solid solution phase.

4,365,995

METHOD OF PRODUCING MULTI-LAYER SLIDING MATERIAL

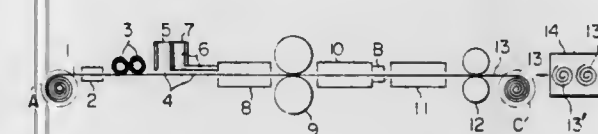
Sanee Mori, Nagoya, Japan, assignor to Daido Metal Company Ltd., Nagoya, Japan

Filed Jul. 14, 1980, Ser. No. 168,980

Int. Cl.³ B22F 3/00

U.S. Cl. 419-6

8 Claims



1. A method of producing multi-layer sliding material comprising the steps of:
cleaning and/or polishing the surfaces of a steel strip or a steel strip plated with nickel;
depositing on the surface of said steel strip treated in the first step powder of a first layer consisting of aluminum alone

or containing aluminum as its main ingredient and at least one additive selected from the group consisting of aluminum strengthening elements, solid lubricants and low melting point metal lubricants, and distributing on said powder of said first layer powder of a second layer containing aluminum as its main ingredient and at least one additive selected from said group of lubricant additives; when said steel strip having said powder of said first layer and said powder of said second layer deposited thereon is at a temperature greater than room temperature, cooling to a temperature range of room temperature to 15° C. degrees below room temperature, but not so low that moisture will condense in the form of dew on the powder covered strip;

passing said steel strip having said powder of said first layer and said powder of said second layer deposited thereon through a gap of rolling mill, to effect cold rolling to provide a bond between said powder of said first layer and said powder of said second layer and between the powder and said steel strip so as to bring the density of the powder to a level above 90% of the theoretical density after pressure bonding is effected; and
sintering the rolled composite material at a temperature in the range between 280° and 520° C.

4,365,996

METHOD OF PRODUCING A MEMORY ALLOY
Keith Melton, Busslingen; Olivier Mercier, Ennetbaden, and Helmut Riegger, Busslingen, all of Switzerland, assignors to BBC Brown, Boveri & Company Limited, Baden, Switzerland

Filed Mar. 2, 1981, Ser. No. 239,626

Claims priority, application European Pat. Off., Mar. 3, 1980, 80200184

Int. Cl.³ C22C 9/01; B22F 1/00

U.S. Cl. 419-28

9 Claims

1. A method for producing a memory alloy based on copper, aluminum and metal selected from the group consisting of nickel, iron, manganese and cobalt, comprising the following steps:

- providing a powder A with a particle size of 10-200 μm of a copper based pre-alloy containing 84-90% by weight Cu, and the balance Al, providing a powder B having a particle size of 5-100 μm containing 95-99.5% by weight of aluminum and 0.5-5% by weight of copper, providing a powder C having a particle size of 10-100 μm from at least one metal selected from the group consisting of nickel, iron, manganese, and cobalt;
- preparing a mixture consisting essentially of 0.5-10% by weight of powder B, greater than 0 to 6% by weight of powder C, and the balance powder A;
- isostatically pressing said powder mixture at a pressure of at least 8000 bar, whereby a compact is produced;
- reducing and pre-sintering said compact produced in step (c) in a hydrogen or hydrogen/nitrogen atmosphere at 700°-1000° C. for at least 30 minutes;
- sintering the reduced and presintered compact in an inert atmosphere at at least 700° C. for at least 10 hours;
- alternately hot working said compact at a temperature between 700° and 1000° C. and homogenizing said compact in an inert atmosphere at a temperature of at least 700° C. for at least 30 minutes;
- finally annealing said compact in an inert atmosphere at a temperature between 700° and 1050° C. for 10 to 15 minutes directly followed by quenching in water.

4,365,997

WEAR RESISTANT COMPOUND MATERIAL, METHOD FOR MANUFACTURING IT AND USE OF SUCH COMPOUND MATERIAL

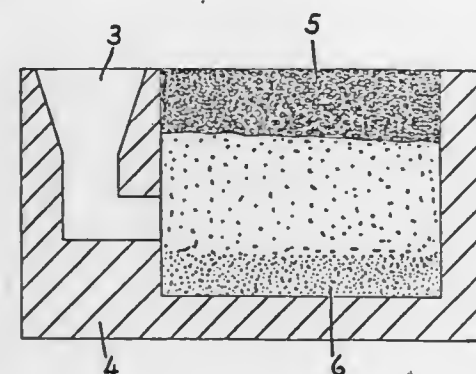
Johannes Jachowski, Duisburg, and Rudolf Mohs, Essen, both of Fed. Rep. of Germany, assignors to Fried. Krupp Gesellschaft mit beschränkter Haftung, Essen, Fed. Rep. of Germany

Filed May 7, 1980, Ser. No. 147,626

Claims priority, application Fed. Rep. of Germany, May 15, 1979, 2919477

Int. Cl.³ B22F 3/00, 5/00

U.S. Cl. 148—31



1. Wear resistant compound substance comprising a cast metal matrix comprising, by weight, 1 to 4% carbon, 0.3 to 0.6% silicon, 0.5 to 1.5% manganese, 0.8 to 2.8% vanadium, 0.5 to 1.5% chromium, 2 to 10% tungsten, about 0.01% aluminum, and the remainder, iron, and, embedded in said metal matrix, a hard material in granular form, the hard material having a grain size of 0.1 to 5 mm.

10. Method for producing a compound substance comprising melting an alloy comprising, by weight, 1 to 4% carbon, 0.3 to 0.6% silicon, 0.5 to 1.5% manganese, 0.8 to 2.8% vanadium, 0.5 to 1.5% chromium, 2 to 10% tungsten, about 0.01% aluminum, and the remainder, iron, pouring said melt into a mold, adding to said melt hard material granules having a size of 0.1 to 5 mm, the hard material being embedded in a plastic matrix comprising a plastic which evaporates without residue, and simultaneous with said addition, cooling said melt.

4,365,998

AQUEOUS INKS FOR INK JET PRINTING

Masatoshi Sugiyama, Hideo Odawara, and Nagao Takeda, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Apr. 17, 1981, Ser. No. 255,134

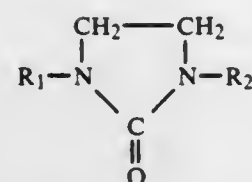
Claims priority, application Japan, Apr. 21, 1980, 55-52739

Int. Cl.³ C09D 11/02

U.S. Cl. 106—22

7 Claims

1. An aqueous ink comprising:
water;
from about 0.2 to 15 parts by weight of a water-soluble dye;
and
from about 1 to 50 parts by weight of a compound represented by Formula (I):



wherein R₁ and R₂ each independently represents a hydrogen atom, an alkyl group, a hydroxyalkyl group, or an alkoxyalkyl group.

4,365,999

CORROSION-INHIBITING METHOD FOR STEEL MATERIALS IN CONCRETE

Toshio Fujita, Toyonaka, and Toru Kashima, Nishinomiya, both of Japan, assignors to Kireuto Kagaku Kabushiki Kaisha and Osaka Semento Kabushiki Kaisha, both of Osaka, Japan

PCT No. PCT/JP79/00053, § 371 Date Nov. 2, 1980, § 102(e) Date Sep. 10, 1980, PCT Pub. No. WO80/01802, PCT Pub. Date Sep. 4, 1980

PCT Filed Mar. 2, 1979, Ser. No. 214,004

Int. Cl.³ C04B 7/35

U.S. Cl. 106—90

18 Claims

1. A corrosion-inhibiting method for steel materials in concrete or mortar containing a chloride, characterized in that
(1) a nitrite,
(2) a compound of general formula:



(1)

(wherein R represents a H atom or an alkyl group having 1 to 4 carbon atoms) or salts thereof, and
(3) a hydrazine hydrate

are incorporated in the chloride containing concrete or mortar.

4,366,000

METHOD AND APPARATUS FOR PREHEATING DRY RAW MEAL PRIOR TO INTRODUCTION OF THE MEAL INTO A SUSPENSION CYCLONE PREHEATER SYSTEM SUPPLYING A ROTARY KILN

Darius A. Wadia, 96 Marine Dr., Bombay, India

Filed Oct. 13, 1981, Ser. No. 310,771

Int. Cl.³ C04B 7/02

U.S. Cl. 106—100

35 Claims

1. A method for processing raw meal in an installation for calcination of granular, powdered limestone, alumina hydrate, or the like, said method including the steps of metering dry raw meal into a processing apparatus, pneumatically pumping said raw meal in the apparatus to a separate combustion chamber, supplying fuel to said combustion chamber and igniting same, heating said dry raw meal in said combustion chamber to a temperature between 100° and 500° C., pumping said heated dry raw meal to the first stage cyclone preheater of a plurality of cyclone preheaters and processing said dry raw meal through said cyclone preheater stages to a rotary kiln whereby the temperature of the gas exiting the first cyclone preheater is between 370° and 625° C. and the thermal efficiency of said processing apparatus is improved.

4,366,001

ORGANO-FUNCTIONAL POLYSILOXANE COMPOSITIONS FOR FIBER-TREATING

Isao Ona, Sodeuramachi, and Masaru Ozaki, Ichihara, both of Japan, assignors to Toray Silicone Co., Ltd., Tokyo, Japan

Filed Jul. 2, 1981, Ser. No. 279,926

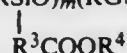
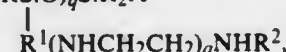
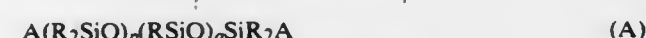
Claims priority, application Japan, Jul. 7, 1980, 55-92453

Int. Cl.³ C04B 31/00

U.S. Cl. 106—287.11

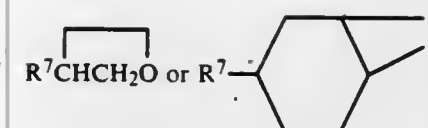
8 Claims

1. A composition for treating fibers, said composition comprising a carrier liquid and two organopolysiloxane components selected from the group consisting of



wherein, at each occurrence,
A denotes R or R¹(NHCH₂CH₂)_nNHR²,

B denotes R or R³COOR⁴ or G,
D denotes R or E or G,
E denotes



G denotes R⁵O(C₂H₄O)_c(C₃H₆O)_dR⁶,

R denotes a substituted or unsubstituted monovalent hydrocarbon radical,

R¹ denotes a divalent hydrocarbon radical,

R² denotes a hydrogen atom or a monovalent hydrocarbon radical,

R³ denotes a divalent hydrocarbon radical,

R⁴ denotes a hydrogen atom or a monovalent hydrocarbon radical,

R⁵ denotes a divalent organic radical,

R⁶ denotes a hydrogen atom or a monovalent organic radical,

R⁷ denotes a divalent organic radical,

a has a value of from 0 to 10,

b has a value of 0 or 1,

c has a value of from 0 to 50,

d has a value of from 0 to 50,

c+d has a value of from 2 to 100,

k has a value of from 0 to 500,

m has a value of from 0 to 100,

n has a value of from 0 to 100,

k+m+n has a value of from 10 to 500,

p has a value equal to or greater than 0,

q has a value equal to or greater than 0,

p+q has a value of from 10 to 1000,

x has a value of from 0 to 500,

y has a value of from 0 to 100,

z has a value of from 0 to 100 and

x+y+z has a value of from 10 to 500,

there being at least two R¹(NHCH₂CH₂)_nNHR² radicals per molecule of component (A), at least two R³COOR⁴ radicals and at least one G radical per molecule of component (B) and at least two E radicals and at least one G radical per molecule of component (C).

4,366,002

NON-VOLATILE HOT-STRIPPER

Carmen M. Carandang, Oaks, Pa., assignor to Amchem Products, Inc., Ambler, Pa.

Continuation-in-part of Ser. No. 197,135, Oct. 15, 1980, abandoned. This application Oct. 13, 1981, Ser. No. 311,058

Int. Cl.³ C03C 23/00

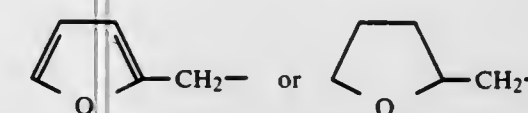
U.S. Cl. 134—2

22 Claims

1. An aqueous alkaline composition for use at elevated temperatures to remove siccative coatings from substrates coated therewith comprising one or more alkaline compounds in an amount effective to impart a pH to the composition of about 9.5 to about 14+ and at least two of the following three materials: tetrahydrofurfuryl alcohol and the ethoxylated materials of the formula



wherein R is



and n is about 0.5 to about 10, said ingredients being present in amounts effective to remove the siccative coating from a substrate coated therewith.

5. A composition according to claim 1 including at least about 80 g/l of said alkaline compound, at least about 1 g/l of

a sequestering agent, and at least about 10 g/l of a composition-stabilizing compound selected from the group consisting of aliphatic primary alcohols, aliphatic secondary alcohols, alkyl amines and mixtures thereof.

12. A composition according to claim 1 comprising an alkaline component in an amount of about 150 to about 350 g/l, said alkaline component comprising about 3.5 to about 350 g/l of sodium hydroxide and about 3.5 to about 350 g/l of potassium hydroxide, about 1 to about 100 g/l of a sequestering agent, about 50 to about 100 g/l of a composition-stabilizing compound selected from the group consisting of methanol, monoethanolamine, diethylene glycol, n-butyl amine and mixtures thereof, about 2.5 to about 200 g/l of tetrahydrofurfuryl alcohol, and about 5 to about 200 g/l of an ethoxylated material.

14. A method of stripping siccative coatings from substrates coated therewith comprising contacting the coated substrate with the composition of claim 1, 5 or 12 at a composition temperature effective and a time sufficient to remove the siccative coating from the substrate.

4,366,003

APPARATUS AND PROCESS FOR THE PERIODIC CLEANING-OUT OF SOLIDS DEPOSITS FROM HEAT EXCHANGER PIPES

Hans D. Korte, Brühl, and Gustav Mück, Bornheim-Walberberg, both of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

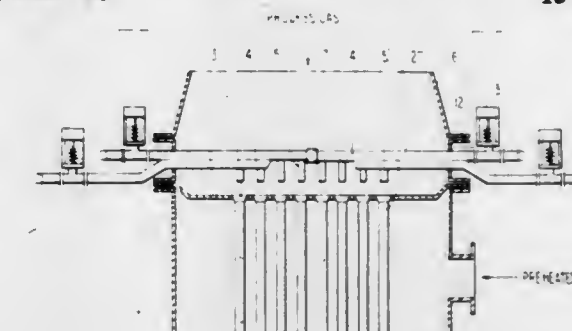
Filed Nov. 25, 1980, Ser. No. 210,434

Claims priority, application Fed. Rep. of Germany, Nov. 30, 1979, 2948201

Int. Cl.³ B08B 3/02, 5/02, 9/02

U.S. Cl. 134—18

15 Claims



7. A process for cleaning deposits of solids from pipes of a heat exchanger exposed to a process gas stream containing hot, finely dispersed solids, which comprises the steps of periodically flushing said pipes during the continuous operation of the process with a high speed cleaning gas stream having an excess pressure relative to the process gas stream by directing said cleaning gas stream into the process gas inlet openings of the pipes through jet nozzles adjusted centrally above said openings and connected to feed ducts provided with shut-off elements, each of said feed ducts bearing a series of jet nozzles arranged over a series of said pipes lying in one line, at least two of said feed ducts lying one above the other, the lower duct being shorter and supplying cleaning gas to the outer lying nozzles in said series and the upper duct supplying cleaning gas to the inner lying nozzles in said series, the length of said jet nozzles being dimensioned such that their outlet openings lie in the same plane, releasing said high speed cleaning gas suddenly and maintaining said periodic flushing for a short time.

15. A process for the recovery of heat and carbon black or pyrogenic inorganic oxides from a process gas, which comprises the steps of feeding said process gas to the pipes of a heat exchanger, periodically flushing said pipes with a high-speed cleaning gas stream having an excess pressure relative to the

process gas stream by directing said cleaning gas stream into the process gas inlet openings of the pipes through jet nozzles adjusted centrally above said openings and connected to feed ducts provided with shut-off elements, each of said feed ducts bearing a series of jet nozzles arranged over a series of said pipes lying in one line, at least two of said feed ducts lying one above the other, the lower duct being shorter and supplying cleaning gas to the outer lying nozzles in said series and the upper duct supplying cleaning gas to the inner lying nozzles in said series, the length of said jet nozzles being dimensioned such that their outlet openings lie in the same plane, and separating the carbon black or pyrogenic inorganic oxides from the process gas stream.

4,366,004

METHOD OF INTERNALLY CLEANING COKE CHAMBER RISERS

Karl Gregor, Bochum, and Kurt Asmus, Erfstadt, both of Fed. Rep. of Germany, assignors to Gewerkschaft Schalker Eisenhütte, Gelsenkirchen, Fed. Rep. of Germany

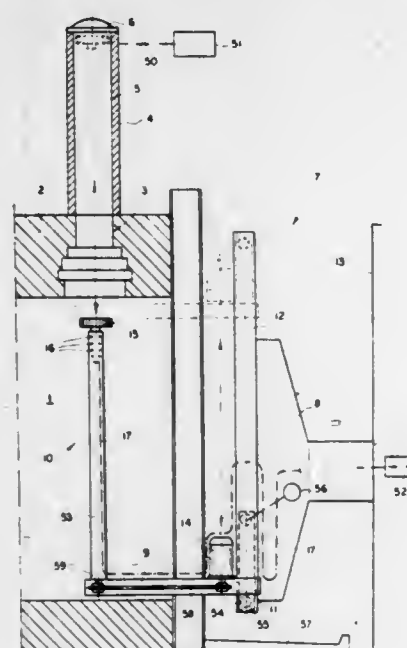
Filed Jul. 25, 1980, Ser. No. 172,196

Claims priority, application Fed. Rep. of Germany, Jul. 26, 1979, 2930351

Int. Cl.³ C23G 3/04

U.S. Cl. 134—22.11

1 Claim



1. In a method of internally cleaning a riser of a coke oven chamber wherein a cleaning head is laterally introduced into said chamber through an open door thereof, and with said door open said head is elevated into said riser to remove deposits on the inner wall of said riser, upon removal of the deposits from the inner wall of said riser, said head is lowered from said riser, and thereafter the head is withdrawn laterally from the chamber, the improvement which comprises in combination:

(a) connecting said riser continuously during the entire cleaning process with a suction source capable of drawing gases from said riser;

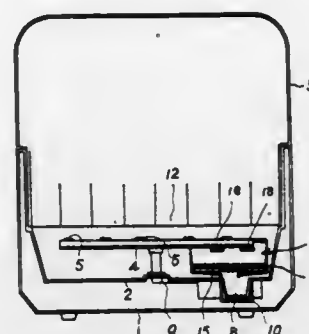
(b) introducing a combustion-sustaining gas into said riser from said head and along said inner wall, said combustion-sustaining gas being selected from the group which consists of air and oxygen, whereby said deposits are burned off said inner wall and the burning of said deposits produces gases which are drawn from said riser in step (a); and

(c) controlling the flow of said combustion-sustaining gas from said head to said riser to maintain the oxygen supplied to the burning of the deposits at a level less than a stoichiometric proportion.

4,366,005
STEAM WASHING IN A DISHWASHER
Ichiro Oguri, Yao, and Yoshihiro Koyama, Izumi, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Continuation of Ser. No. 973,917, Dec. 28, 1978, abandoned.
This application Jul. 25, 1980, Ser. No. 172,174
Claims priority, application Japan, Jan. 11, 1978, 53-2087[U]
Int. Cl.³ B08B 3/00

U.S. Cl. 134—25.2

11 Claims



2. A method of washing tableware disposed within a dishwasher comprising the steps of:

preliminarily washing tableware in said dishwasher by splashing cool water having a temperature of approximately 20° C. on said tableware to initially rinse the surfaces of the tableware for removing particles and substances adhering to the tableware;

steaming said tableware and simultaneously preheating water for later use after completion of said preliminary washing step, said steam being applied for a predetermined time interval for removing particles and substances including starch, adhering to the tableware;

washing said tableware after completion of said steam washing step for an additional time period to substantially remove remaining particles by contacting said tableware with said preheated water and a predetermined quantity of additional water, said wash water containing a cleaning agent; and

rinsing said tableware for a predetermined time period.

4,366,006

PROCESS FOR RECOVERING RESIN FROM A SPENT COMMERCIAL ARTICLE

Harvey D. Ferer, and Luis F. Sierralta, both of Omaha, Nebr., assignors to Aaron Ferer & Sons Co., Inc., Omaha, Nebr.
Filed Mar. 24, 1981, Ser. No. 246,990

Int. Cl.³ B08B 7/00

U.S. Cl. 134—38

16 Claims

1. A method for recovering an organic resinous material from a spent commercial article, comprising:

A. preparing a solution consisting essentially of a dialkyl ketone and tetrahydrofuran;

B. reducing said resinous material to a plurality of undissolved granules, by contacting said spent commercial article with said solution, wherein said resinous material and said granules remain at all times undissolved and do not swell because of solution infiltration;

C. separating said granules from said solution, and thereafter removing from said granules any solution adsorbed thereon; and

D. drying said granules;

wherein Steps B-D are all performed at room temperature, and

wherein said dried granules are identical in chemical composition, retain the chemical structure possessed by said resinous material in the original commercial article, and are of sufficient purity to be utilized in commercial manufacturing.

4,366,007
PERMANENT MAGNET AND PROCESS FOR MAKING SAME

Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

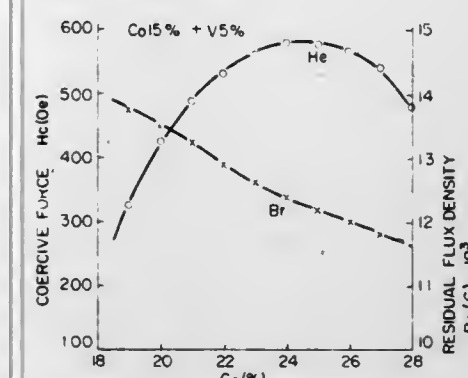
Continuation-in-part of Ser. No. 39,204, May 15, 1979, abandoned, which is a division of Ser. No. 769,268, Feb. 11, 1977, Pat. No. 4,171,978. This application Feb. 20, 1981, Ser. No. 236,189

Claims priority, application Japan, Feb. 14, 1976, 51-15195

Int. Cl.³ H01F 1/02

U.S. Cl. 148—102

8 Claims



1. A method of making a hard or semihard magnetic alloy which comprises the steps of:

(A) forming a body of a spinodally decomposable alloy composition of iron-chromium-cobalt base by casting an admixture of 3 to 30% by weight cobalt, 10 to 40% by weight chromium, 0.1 to 15% by weight vanadium and the balance iron;

(B) solution-treating said body at an elevated temperature and for a period sufficient to produce a homogeneous single α -phase structure in said body; and

(C) tempering the solution-treated body at a reduced temperature and for a time period sufficient to spinodally decompose therein said single α -phase structure into a phase-separated structure consisting of an α_1 -phase which is magnetic and an α_2 phase which is nonmagnetic, said phase-separated structure forming said magnetic alloy.

4,366,008

METHOD FOR HARDENING STEEL

Jun Takeuchi, Kaishu Yamazumi, and Takao Ishihara, all of Toyama, Japan, assignors to Kabushiki Kaisha Fujikoshi, Toyama, Japan

Continuation-in-part of Ser. No. 119,673, Feb. 8, 1980, abandoned. This application Mar. 20, 1981, Ser. No. 246,049
Claims priority, application Japan, Feb. 9, 1979, 54-14522; Dec. 11, 1979, 54-160573

Int. Cl.³ C21D 1/18

U.S. Cl. 148—143

4 Claims

1. A method of hardening steel, comprising:

heating the steel at a temperature in a range not lower than 100° C. below the A_1 transformation point of the steel (about 630° C.) and not higher than 50° C. above said transformation point (about 780° C.) in an atmosphere composed solely of ammonia gas being supplied at a flow rate of from about 0.1 to 2 furnace volume per hour to austenitize a surface layer of the steel by penetration of nitrogen therein; and

quenching the steel to transform said austenitized surface layer into a martensite layer.

3. A method of hardening steel, comprising:

heating the steel at a temperature in a range not lower than 100° C. below the A_1 transformation point of the steel (about 630° C.) and not higher than 50° C. above said transformation point (about 780° C.) in an atmosphere composed of ammonia gas being supplied continuously at a partial pressure of from about 0.05 to 0.3, and at least one substance selected from the group consisting of (a) petro-

leum gas such as propane and butane, (b) endothermic gas generated by reforming petroleum gas, (c) a carburizing and reducing gas or liquid, including an organic liquid such as alcohols, esters and ketones, and (d) a neutral gas such as nitrogen and argon, to austenitize a surface layer of the steel by penetration of nitrogen therein, and quenching the steel to transform said austenitized surface layer into a martensite layer.

4,366,009

METHOD OF MANUFACTURING SEMICONDUCTOR STRUCTURES BY EPITAXIAL GROWTH FROM THE LIQUID PHASE

Philippe Jarry, Sucy en Brie; Pierre Guittard, Montlhéry, and Alphonse Ducarre, Ste-Genevieve des Bois, all of France, assignors to U.S. Philips Corporation, Tarrytown, N.Y.

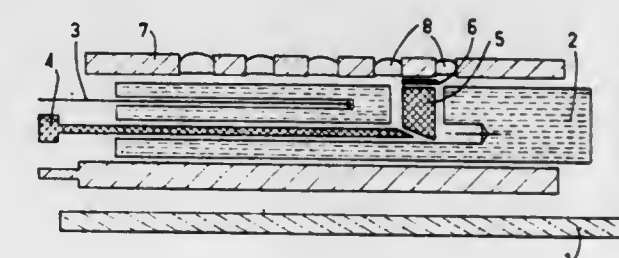
Filed Dec. 8, 1980, Ser. No. 213,982

Claims priority, application France, Dec. 7, 1979, 79 30103

Int. Cl.³ H01L 21/208

U.S. Cl. 148—171

4 Claims



1. A method of manufacturing a semiconductor device in which layers of gallium arsenide or gallium aluminum arsenide doped with doping elements such as germanium are grown from the liquid phase on a substrate in an epitaxy furnace, the last growth melt is wiped off, and the resulting structure is cooled down to a selected temperature in the furnace, characterized in that during cooling of the structure its upper surface is contacted with a liquid gallium melt in such a manner that the portion of the doping elements present in the remaining drops of the last growth melt that are not removed by the wiping off are dissolved.

4,366,010

SMOKE-PRODUCING PYROTECHNIC COMPOSITION AND ITS APPLICATION

Georges A. Sédat, 16h rue Jonyh-Prirrugue, 87000 St. Raphael, France

Continuation-in-part of Ser. No. 944,564, Sep. 21, 1978, abandoned. This application Jul. 15, 1980, Ser. No. 169,204

Int. Cl.³ C06B 45/10

U.S. Cl. 149—19.6

17 Claims

1. A castable colored smoke-producing pyrotechnic composition which burns at 190° to 300° C., comprising a synthetic resin, an oxidizing agent, and a sublimable organic coloring substance, wherein said resin decomposes at a temperature between 190° and 300° C. and said oxidizing agent is formed of the combination of two compounds, the first compound being a potassium or sodium chlorate and the second compound being guanidine nitrate.

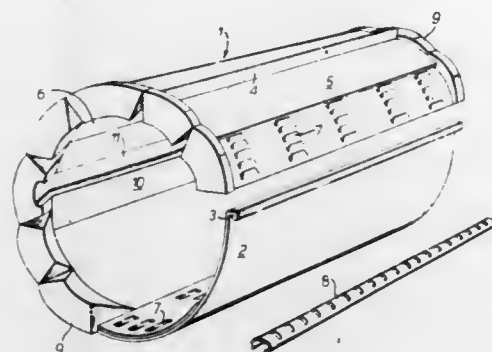
4,366,011

HEAT-RECOVERABLE REINFORCED ENCLOSURE

Jean-Marie E. Nolf, Beauvechain, Belgium, assignor to N.V. Raychem S.A., Kessel-lo, Belgium

Continuation of Ser. No. 12,014, Feb. 14, 1979, abandoned. This application Dec. 1, 1980, Ser. No. 211,674

Claims priority, application United Kingdom, Feb. 21, 1978, 6907/78

Int. Cl.³ B29C 27/00; H02G 13/06; F16L 55/16; H01R 3/00
U.S. Cl. 156—86 24 Claims

1. A brace which comprises a heat-recoverable sleeve provided with a reinforcing member positioned in the direction of recovery of the sleeve which allows recovery of the sleeve, the reinforcing member including means capable, when the member is in the configuration held when the sleeve is recovered, of resisting forces tending to return the member to the configuration held when the sleeve is in its recoverable configuration.

24. A method of enclosing an article which comprises positioning over a region of the article subject to expansion or deformation under pressure a brace which comprises a heat-recoverable sleeve and a reinforcing member which allows recovery of the sleeve, the reinforcing member being positioned in the direction of recovery of the sleeve and which, when in the configuration held when the sleeve is recovered, resists forces tending to return the member to the configuration held when the sleeve is in its recoverable configuration, and recovering the sleeve, whereby the expansion or deformation of the article is substantially reduced.

4,366,012

IMPREGNATION PROCESS

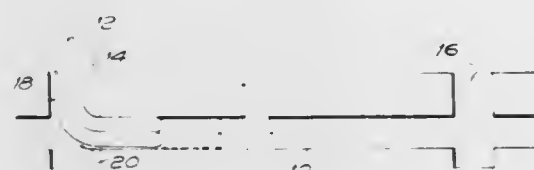
Eric Wood, Ossett, England, assignor to Insituform International Inc., Great Britain

Filed Feb. 5, 1981, Ser. No. 231,690

Int. Cl.³ B05D 7/22; B32B 1/08

U.S. Cl. 156—93

3 Claims



1. A method of impregnating with a curable resin an inner layer of resin absorbent material disposed in an elongate flexible tube having an outer layer formed by an impermeable film, the method comprising the steps of

- (1) introducing into one end of the elongate tube a mass of the curable resin sufficient to impregnate the entire resin absorbent inner layer of the tube,
- (2) forming a window in the impermeable outer layer of the tube at a distance from said one end of the tube,
- (3) drawing through the window a vacuum in the interior of the tube downstream of said one end by disposing over the window a cup connected by a flexible hose to a vacuum source which cup prevents ingress of air into the interior

of the tube while the tube is being evacuated, the outer layer of the tube being substantially impermeable to air,

- (4) beginning at or near the end at which the curable resin mass was introduced, passing the tube between squeezing members which force the resin to flow towards the region of vacuum application as the tube progresses through the squeezing members,
- (5) when the resin reaches the vicinity of the region of vacuum application, removing the cup and sealing the window,
- (6) providing another window in the impermeable layer of the tube downstream of the previously formed window,
- (7) drawing through the new window a vacuum in the interior of the tube while progressively moving the tube through the squeezing members to force the resin to flow toward the new region of vacuum application, and
- (8) repeating steps 5, 6, and 7, where necessary to impregnate the entire resin absorbent inner layer of the flexible tube.

4,366,013

SHAPED MOLD AND A METHOD OF USING SAME TO ASSEMBLE SANDWICH OF A SHEET OF FLEXIBLE INTERLAYER MATERIAL WITH BENT GLASS SHEETS

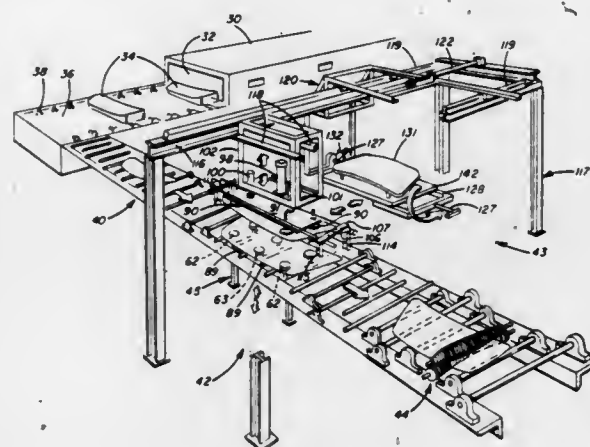
James L. Valimont, Cheswick, and Hershel L. Phares, Apollo, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Jul. 28, 1981, Ser. No. 287,607

Int. Cl.³ B32B 17/04, 17/10

U.S. Cl. 156—102

6 Claims



1. In the method of assembling a sheet of flexible interlayer material against a hot sheet of bent glass while the latter is at a temperature at which the flexible interlayer sheet becomes tacky on contact with said hot glass sheet, the steps of holding a sheet of flexible interlayer material preparatory to assembling said sheet against a bent glass sheet oriented to have a concave elevational configuration comprising supporting said sheet of flexible interlayer material on a vacuum mold having a first wall whose shape conforms to said configuration while said mold is oriented so that said first wall has a convex configuration in elevation, drawing vacuum through said first wall to support said sheet of flexible interlayer material thereagainst, changing the orientation of said vacuum mold to change the orientation of said first wall so that the latter has a concave elevational configuration while continuing to draw vacuum through said first wall to maintain said sheet of flexible interlayer material thereagainst in a shape conforming to said configuration, and moving said vacuum mold into alignment with said bent glass sheet while supporting said sheet of flexible interlayer material thereagainst preparatory to transfer said flexible sheet from said first wall of said vacuum mold to said hot bent glass sheet.

4,366,014

METHOD OF MAKING JOINTS IN BELTING

Ernest Pollard, Bingley, England, assignor to Pollard V-Belt (Guernsey) Limited, Guernsey, England

Filed Apr. 6, 1981, Ser. No. 251,655

Int. Cl.³ B65B 13/02

U.S. Cl. 156—157

11 Claims



1. A method of forming a joint between adjacent ends of belting, said belting comprising an elongated fusible body element having a predetermined cross-sectional configuration and predetermined cross-sectional dimensions which are uniform throughout the length thereof and an elongated constraining element embedded in said body element throughout substantially the entire length thereof, the method comprising the application of heat and of pressure in a direction transverse to said elongated body element and constraining element to said adjacent ends while maintained in overlapping relationship such that the ends of the body element are fused together, the application of heat and pressure causing the ends of the constraining element to be displaced transversely with respect to their associated body elements, the displacement of one end taking place in the opposite direction to the displacement of the other end so that in the finished joint the ends of the constraining element form an overlapping joint embedded in the fused material of the body element, the cross-sectional configuration and dimensions of said finished joint being substantially the same as said cross-sectional configuration and dimensions of said body element.

4,366,015

RUBBER DRIVING BAND, ARTILLERY SHELL EMPLOYING SAME, AND METHOD OF MAKING THE BAND AND ASSEMBLING SAME IN THE SHELL

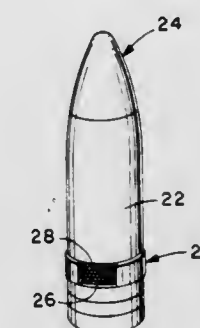
Myles N. Murray, 15 Skyline Dr., Chagrin Falls, Ohio 44022

Filed May 16, 1980, Ser. No. 150,336

Int. Cl.³ F42B 31/00

U.S. Cl. 156—185

8 Claims



1. A method of forming a driving band on an artillery shell comprising the steps of:

- (a) coating a substantially longitudinally inelastic fabric strip with uncured rubber,
- (b) partially curing the rubber coated strip to a tacky state,
- (c) wrapping the coated strip circumferentially to form an annular preform with adjacent turns of the strip being adhered together by the tacky rubber, and
- (d) molding and curing the preform directly on an artillery shell casing to form an integral band directly molded on the shell casing.

4,366,016

METHOD AND APPARATUS FOR PRODUCING A PLASTIC SLEEVE

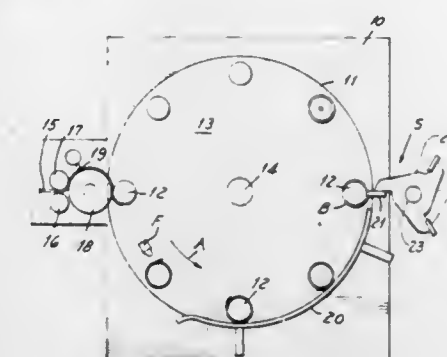
Leonard W. Golden, Jr., Portage, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Jun. 25, 1981, Ser. No. 277,311

Int. Cl.³ B29D 23/10

U.S. Cl. 156—218

9 Claims



1. In an apparatus for forming a plastic sleeve wherein a strip of sheet stock is fed to a winding apparatus including a rotatable turret having a plurality of rotatable sleeve forming mandrels positioned circumferentially thereof and wherein individual blanks are severed from the strip and formed about each mandrel by wrapping it around the mandrel and overlapping the trailing edge of each blank so that it is exterior of the leading edge of each blank, the improvement comprising a rotating side seam mechanism positioned adjacent the turret and the path of the mandrels, a seal bar mounted on said mechanism and having a sealing surface adapted to engage the overlapping ends of the blank to form a fused seam having a thickness corresponding generally to the thickness of the strip of sheet stock, said contacting surface including a first portion extending radially outwardly greater than a second portion such that a greater pressure is applied to one part of the seam than the other.

4,366,017

PROCESS AND APPARATUS FOR CONTINUOUSLY APPLYING REINFORCING TAPES FROM SYNTHETIC RESIN, ON THE LONGITUDINAL SIDES OF PLASTIC SHEETS

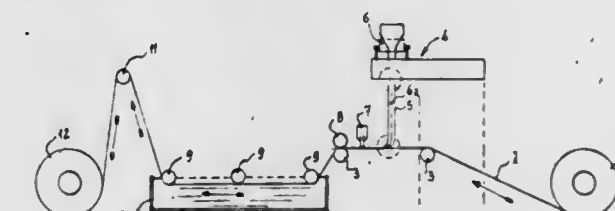
Bruno G. Siri, Via Oreglia 25, I-18015 Riva Ligure (Imperia), Italy

Filed Feb. 27, 1981, Ser. No. 239,060

Claims priority, application Italy, Mar. 28, 1980, 67479 A/80
Int. Cl.³ B29D 23/05

U.S. Cl. 156—244.11

2 Claims



1. A process of continuously applying tapes from synthetic resin, provided with an armature, on the longitudinal sides of plastic sheets adapted to serve as protective coverings for rows of vines or for floriculture greenhouses, characterized in that it consists in continuously unrolling a plastic sheet from a roller support; in continuously routing said plastic sheet in a plane situated below two extruder heads, one of said extruder heads facing one longitudinal side and the other extruder head facing the other longitudinal side of said plastic sheet; in continuously feeding the extruders of said two extruder heads with thermoplastic material; in continuously extruding through each of said

two extruder heads a flexible tubing from plastic sheet; in continuously rolling from a bobbin (one bobbin per extruder head) a metal (preferably iron) wire; in continuously feeding said iron wire into said flexible tubing from plastic sheet; in routing said flexible tubing from extruded plastic sheet (one tubing for each of said two extruder heads) with the iron wire inserted therein simultaneously on one and the other of the two longitudinal sides of the plastic sheet; in passing said flexible plastic tubing (applied with the iron wire inserted therein on one and the other of the two longitudinal sides of the plastic sheet) below a punch synchronized to function with the feed of the plastic sheet and punching on the side lying on the inside with respect to the iron wire inserted into the plastic flexible tubing, at specified intervals, holes or eyelets in said flexible plastic tubing and in the underlying plastic sheet on which said flexible tubing is applied; in routing said plastic sheet (with the flexible plastic tubing applied in the form of a tape with the iron wire inserted therein on one and the other of its two longitudinal sides) between pressure rollers so as to bring about the cohesion; in continuously passing said plastic sheet with the flexible plastic tubing having the iron wire inserted therein and applied in the form of a tape on its two longitudinal sides through a bath of coolant water; and, finally, in continuously rolling said plastic sheet with the flexible plastic tubing having the iron wire inserted therein and applied in the form of a tape on its two longitudinal sides on a receiving-roller type support.

4,366,018

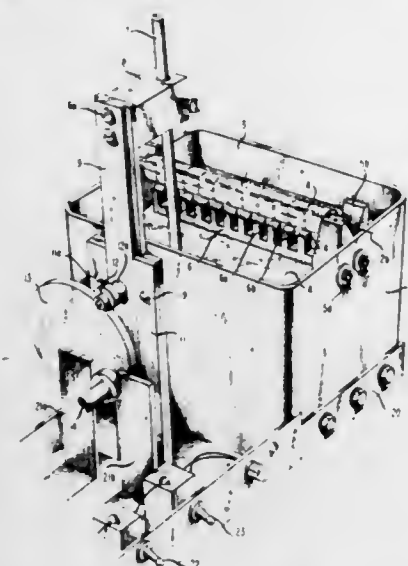
METHOD AND APPARATUS FOR PRODUCING INTRAMURAL WAX SEALS BETWEEN THE COMPARTMENTS OF MULTIMEDIA TUBES

Ralph C. Gross, Flemington, N.J., assignor to Hunterdon Occupational Training Center, Flemington, N.J.

Filed Feb. 26, 1981, Ser. No. 238,437
Int. Cl.³ B05D 1/28; B29C 27/04

U.S. Cl. 156—273.9

13 Claims



12. An apparatus for providing intramural wax seals in a compartment substantially closed on three sides and having an open side along one plane, wherein a wire is interposed into said compartment through intramural openings in the lateral walls thereof, in a direction substantially parallel to said one plane, the terminals of said wire extending beyond said lateral walls;

a container of a bath of molten wax;

means for utilizing the terminals of said wire to support said compartment with said open side directed downward toward said bath;

a device comprising at least one projection dimensioned for accommodation in said compartment, said projection having a recess formed in its upper edge designed to pick up a puddle of wax from said bath, said recess having a depth exceeding the thickness of said wire, and extending

in the principal direction of said wire when disposed in said supporting means;

means mechanically coupled to said device for moving said device up and down vertically in reciprocating motion from a first lower position in which said recess is disposed below the level of said bath to pick up a puddle of wax, to a second upper position in which said recess including said puddle of wax is positioned to at least partially immerse said wire in said puddle of wax to form a coating on said wire;

additional means comprising a pair of electrodes disposed one above the other in substantially parallel spaced-apart relation for engaging said compartment including the terminals of said wax-coated wire, wherein said wire is disposed in substantially vertical current-carrying relation between said electrodes; and

means for completing the circuit to said electrodes causing said wax-coated wire to heat up to the melting point of said wax, thereby causing said wax to flow down vertically to form a wax seal between at least one said intramural opening and said wire.

13. The method of providing intramural wax seals in a compartment substantially closed on three sides and having an open side along one plane, wherein a wire is interposed into said compartment in a direction substantially parallel to said one plane through intramural openings in the lateral walls thereof, the terminals of said wire extending beyond said lateral walls;

providing a bath of molten wax;

utilizing the terminals of said wire to support said compartment with said open side directed downward toward said bath;

providing a device having at least one projection dimensioned for accommodation in said compartment;

forming a recess at least exceeding the thickness of said wire in the upper edge of said at least one projection designed to pick up a puddle of wax from said bath, wherein said recess is extended in the principal direction of said wire when disposed in said supporting means;

moving said device up and down vertically in reciprocating motion from a first lower position in which said recess is disposed below the level of said bath for picking up said puddle of wax, to a second upper position wherein said recess including said puddle of wax is positioned to at least partially immerse said wire in said puddle of wax, forming at least a partial wax coating on said wire;

subsequently, after said wire is at least partially coated, disposing said wax coated wire enclosed in said compartment in substantially vertical current-carrying relation between the electrodes of an electrical circuit; and

completing said electrical circuit to a source of electrical power to provide sufficient heat to heat up said wax coating to the melting point, whereby said wax coating is caused to melt and flow down vertically forming a wax seal between at least one said intramural opening and said wire.

4,366,019

BELT APPLICATION ROLLER

Robert F. Jones, Westfield Center, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Filed Sep. 2, 1980, Ser. No. 183,597
Int. Cl.³ B29H 17/02, 17/00

U.S. Cl. 156—360

4 Claims

1. An apparatus for forming a green tire having plural circumferential belts on a carcass, and a tread overlaid on said belts, comprising:

(a) a frame,

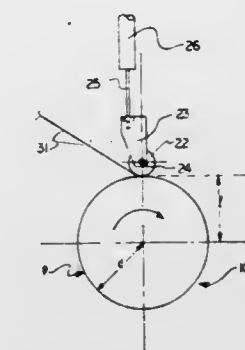
(b) bead flanges mounted on said frame for longitudinal axial movement relative to each other, said bead flanges being adapted to support beads of said carcass when it is mounted on the flanges,

(c) means for effecting said longitudinal axial relative movement;

(d) means for rotating said bead flanges simultaneously;

(e) means for inflating said carcass with air so as to provide a compressible air cushion therewithin;

(f) roller means radially transversely disposed relative to the longitudinal axis of said carcass so that a belt contacts said roller before said belt is printed on said carcass, said roller



ler's longitudinal axis being located so as to provide a predetermined fixed printing location at which said carcass, with at least one belt thereon, is confined by contact with said roller over a segment of said carcass defined by a radial angle of less than 5 degrees; and

(g) means to effect movement of said roller means to locate said roller means at said printing location, and intermittently to effect movement of said roller means away from said printing location.

4,366,020

APPARATUS FOR BONDING WOOD GIRDERS

Claus Overlack, Gernsbach, Fed. Rep. of Germany, assignor to Casimir Kast GmbH & Co. KG, Gernsbach, Fed. Rep. of Germany

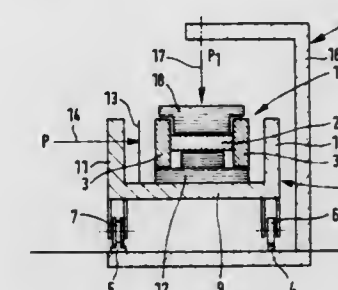
Filed Sep. 8, 1981, Ser. No. 300,222

Claims priority, application Fed. Rep. of Germany, Sep. 30, 1980, 3036793

Int. Cl.³ B30B 15/30, 15/34

U.S. Cl. 156—380.2

14 Claims



1. In an apparatus for the HF bonding of lengths of wood together for forming a wood girder, made up of a support on which such lengths of wood may be rested in a lined-up condition, a pressing system for pressing the said lengths at a side thereof and acting towards at least one bond therebetween, and a transporter for moving the pressed-together girder made up of the said lengths past HF electrodes, the invention residing in that said transporter is a carriage having a floor and side walls designed to take up the girder between the side walls, the carriage being designed with a length equal to that of the longest girder to be bonded and having said pressing system on at least one of said side walls, said apparatus further having a fixed-position pressing unit for pressing the said lengths against said floor while at the same time lining up the same in relation to each other, and a system for firstly working the pressing unit and then the pressing system, the last-named keeping the said lengths in the girder in relation to each other after being freed by said pressing unit.

4,366,021

DEVICES FOR APPLYING A THERMOPLASTIC TAPE AROUND AN OBJECT OR A STACK OF OBJECTS

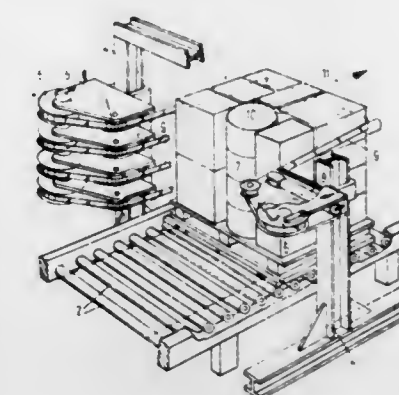
Auke van der Wal, Oss, Netherlands, assignor to Vereenigde Metaalverpakking en Hechtdraad Industrie B.V. MVM-
ENDRA, Oss, Netherlands

Filed Mar. 27, 1981, Ser. No. 248,496

Int. Cl.³ B29C 17/04

U.S. Cl. 156—468

10 Claims



1. A device for applying a thermoplastic tape around an object or a stack of objects, said device comprising at least one set of two tape supply reels arranged at a distance from each other, two tape strainers arranged on the same side of the supply reels and mounted for movement towards and from each other and serving to force towards each other the portions of a tape extending between an object or a stack of objects and the supply reels after said tape has been applied in the form of a substantially U-shaped loop around part of the circumference of the object or stack of objects, said tape consisting of two previously interconnected tape portions, each of which emanates from a respective one of said two supply reels, two clamping faces formed on each one of the tape strainers and facing the other tape strainer, the clamping faces of each tape strainer being spaced apart in a direction transverse to the direction of movement of the tape strainers, a movable stop member having two side plates which are adapted to be inserted between the two tape strainers and are each bounded by a clamping face co-operating with a clamping face of one tape strainer, a clamping face co-operating with a clamping face of the other tape strainer and a supporting face which extends between the clamping faces of the respective side plate in the direction of movement of the tape strainers and faces the other side plate, tape bending-over members, of which each one is attached movably to a respective tape strainer, the first one of said bending-over members being mounted on its tape strainer for reciprocation in the direction of movement of the tape strainers in the space confined between the two side plates of the stop member and for movement towards the other tape strainer during its forward stroke, said first bending-over member being provided with side faces adapted to be moved along and at a small distance from the supporting faces of the stop member, a front face extending between said side faces and facing the other tape strainer, a melting through member protruding from said front face towards the other tape strainer and being situated midway between said side faces and a heating element for heating said side faces, said front face and said melting through member, the second one of said bending-over members being movably mounted on the other tape strainer and consisting of two parts adapted to be forced towards the supporting faces of the stop member, said second bending-over member having faces movable with respect to its clamping faces, by means of which, during operation, tape portions first come into contact with the heated front face of the first bending-over member and thereafter are forced towards the supporting faces of the stop member, and means for moving the tape strainer, the stop member, the first bending-over member with the melting-through member and the second bending-over member in a given order of succession, wherein at least

said side faces and said front face of the first tape bending-over member are formed by the outer surface of the heating element constituting a bent strip of electrical resistance material-forming part of said bending-over member, said strip being electrically insulated from the rest of the device and adapted to be connected to an electric power source.

4,366,022

ARROW FLETCHING APPARATUS

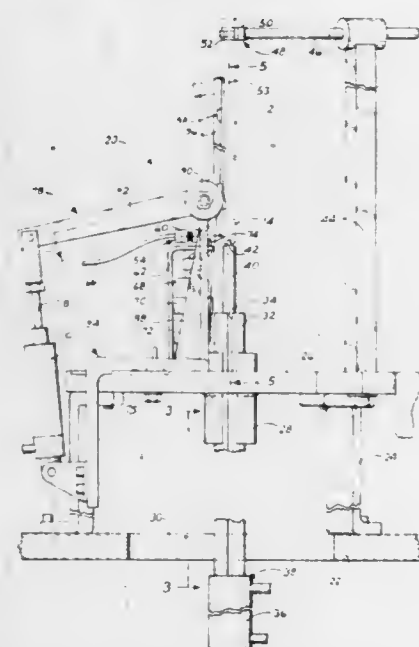
Thomas E. Coffman, 1357 Carlile La., Myrtle Point, Oreg. 97458

Filed Sep. 2, 1980, Ser. No. 182,978

Int. Cl.³ B32B 31/00

U.S. Cl. 156—358

8 Claims



1. Apparatus for securing on an arrow shaft, a vane having a fin and a flared base, said apparatus comprising support means for releasably supporting a shaft in an upright position, a carrier for holding a vane disposed laterally of a shaft supported in said support means, said carrier having an elongate, upright slot dimensioned to releasably receive the fin of a vane, while excluding the base of the vane, said slot having an open top accommodating downward insertion of the fin of a vane therein and a closed end limiting downward movement of the fin of a vane, said carrier being shiftable toward and away from a position where the base of a vane whose fin is releasably received in said slot is pressed against an axially extending region on a shaft supported in said support means, and shifting means for shifting said carrier.

4,366,023

MECHANISM FOR APPLYING LABELS AND THE LIKE

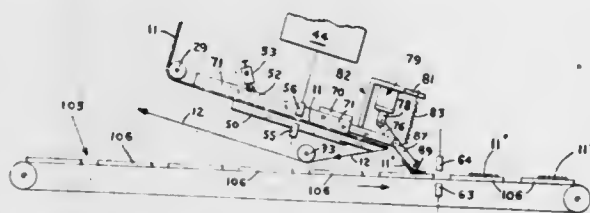
Helmut Voltmer, Park Ridge, N.J., assignor to NJM, Inc., Fairfield, N.J.

Filed Sep. 8, 1981, Ser. No. 300,054

Int. Cl.³ B44C 1/00

U.S. Cl. 156—542

2 Claims



1. An applicator unit for attachment to a pressure sensitive label dispenser arranged to supply successive detached pressure sensitive labels arranged on a backing strip to an article

applying station, said applicator unit comprising a mounting portion adapted to be fastened to the label dispenser, a plate extending from said mounting portion and centrally cut out to provide a pair of longitudinally extending extensions spaced by an open ended slot, a tubular shaft rotatably mounted on the outer free ends of said extensions, a straight lever secured to said shaft between said extensions and having one arm located in said open ended slot and the other arm projecting outwardly from said tubular shaft, a suction mouthpiece having one longitudinal side edge portion connected to one end of said shaft and having an interior suction chamber in communication with a lower perforated label carrying surface, the interior of said tubular shaft being in communication with said suction chamber and connected at its other end to a source of suction, label pressing means on the other longitudinal side edge portion of said mouthpiece for engaging the advancing edge portion of a label discharged by said label dispenser, the unit being so positioned on the dispenser that successive labels supplied by the latter will be fed across said label carrying surface and supported by the vacuum furnished through the latter with the advancing edge portions of such labels positioned beneath said pressing means, a solenoid connected to the inner end of said one lever arm and operable when energized to raise such lever arm about the longitudinal axis of said shaft and thereby to pivot said mouthpiece downwardly about said longitudinal axis to cause said pressing means to adhere the front edge portion of the label carried by said mouthpiece to an article area, and a spring connected to the outer end of said other lever arm for returning said mouthpiece and said lever to their starting positions.

4,366,024

PROCESS FOR MAKING SOLAR CELL BASE MATERIAL

Gerhard Ast, Emmerting; Josef Dietl, Neuötting; Dieter Helmerich, Burghausen; Hans-Dieter Miller, Stammham, and Erhard Sirtl, Markt/Inn, all of Fed. Rep. of Germany, assignors to Heliotronic Forschungs-und Entwicklungsgesellschaft für Solarzellen-Grundstoffe mbH, Burghausen, Fed. Rep. of Germany

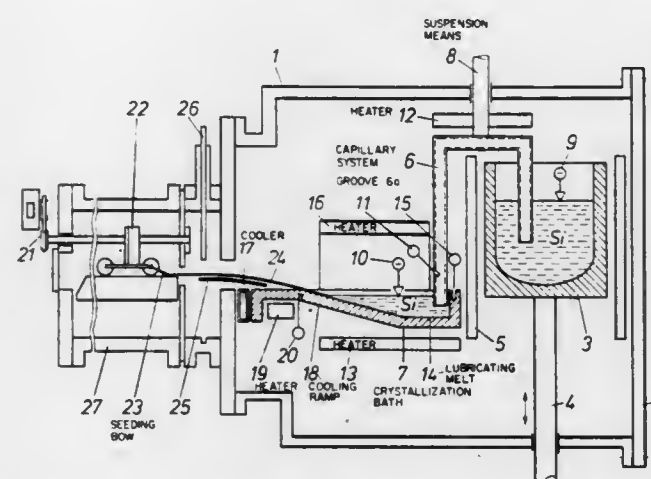
Filed Jan. 25, 1980, Ser. No. 115,317

Claims priority, application Fed. Rep. of Germany, Jan. 26, 1979, 2903061

Int. Cl.³ C30B 11/02

U.S. Cl. 156—607

12 Claims



1. In a process for the manufacture of granular crystalline silicon sheets of preferred orientation, having a thickness of between 0.2 and 2 mm and suitable for use as a base material for solar cells, wherein a silicon melt is brought into contact with a second molten phase and is subsequently allowed to solidify, the improvement comprising the steps of:

charging a pulling vessel with molten elemental silicon and a non-elemental lubricating melt which is immiscible with silicon but will wet silicon and has a melting point below that of silicon;

supercooling at least one wall of said pulling vessel to 5° to 100° C. below the melting point of silicon; and continuously drawing off an elemental silicon film solidifying on said cooled wall but separated from said wall by a thin layer of the lubricating melt.

4,366,025

SUCTION PRESS ROLL

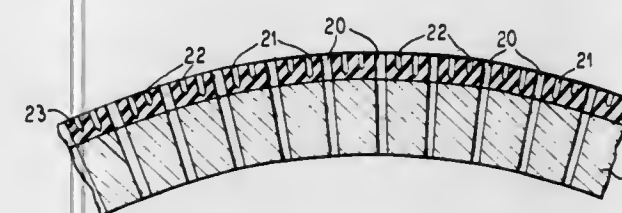
Ambrose L. Gordon, Jr., South Beloit, and Leroy H. Busker, Rockton, both of Ill., assignors to Beloit Corporation, Beloit, Wis.

Filed Jun. 4, 1981, Ser. No. 270,364

Int. Cl.³ D21F 3/08

U.S. Cl. 162—358

8 Claims



1. In a press couple for dewatering a traveling web in a papermaking machine, the combination comprising: first and second press means defining a press nip therebetween with said second means being a cylindrical press roll shell; water receiving means for passing through said nip in contact with the roll and carrying a traveling paper web through the nip; and means defining a plurality of holes in the roll surface accommodating travel of water from the web through the water receiving means, said holes including a first group extending axially fully through the shell and a second group of holes being more shallow than the first holes and having a closed inner end.

4,366,026

PROCESS FOR THE PRODUCTION OF COKE OR SEMICOKES

Gustave Leyendecker, St-Avoid, France, assignor to Hoilleres du Bassin de Lorraine, Freyming Merlebach, France

Continuation of Ser. No. 162,244, Jun. 23, 1980, abandoned.

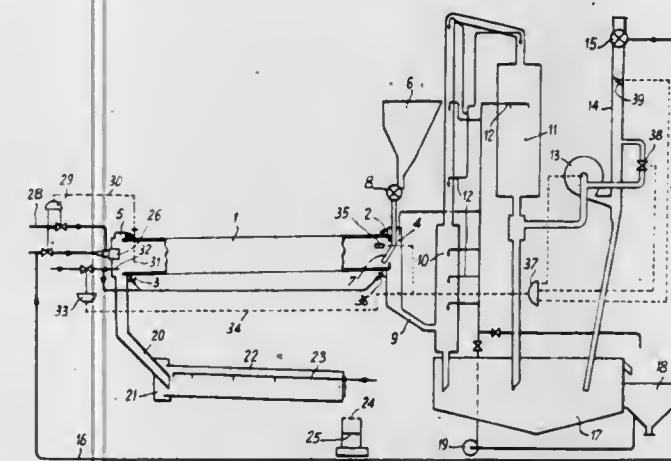
This application Oct. 16, 1981, Ser. No. 312,079

Claims priority, application France, Jun. 25, 1979, 79 16233

Int. Cl.³ C10B 27/00, 49/06, 57/14

U.S. Cl. 201—1

9 Claims



1. In a process for continuously producing a coke or semicoke product having from 1% to 20% of volatile constituents therein from coal grains, coal fines or mixtures of grains and fines containing more than 15% of volatile constituents therein and having a swelling number less than 8, said process comprising:

(a) providing a rotatable tubular oven which has an up-

stream end and a downstream end and which is slightly inclined downwards from the upstream end to the downstream end,

- (b) introducing the coal grains and/or fines into the upstream end of the oven while rotating the tubular oven,
 - (c) permitting the material to progress from the upstream end to the downstream end of the oven,
 - (d) supplying heat from a hot gas generator to the downstream end of the oven,
 - (e) regulating the hot gas generator to produce either stoichiometric neutral or reducing hot gases,
 - (f) extracting the coke or semicoke product from the downstream end of the oven, and
 - (g) exhausting the production gas and other carbonization by-products by means of an exhaust fan,
- the improvement consisting essentially, in combination, of:
- (1) controlling the rate of pressure reduction produced by the exhaust fan means in accordance with pressure conditions inside the oven, and
 - (2) injecting into the tubular oven an auxiliary ballast fluid to maintain a slightly elevated positive pressure in the oven in relation to the atmospheric pressure outside the oven.

4,366,027

DEVICE FOR DISTILLATION OR CONCENTRATION OF A SOLUTION AND MORE PARTICULARLY FOR DESALINATION OF A SALINE SOLUTION SUCH AS SEA WATER

Fernand Lauro, Grenoble, France, assignor to Commissariat à l'Energie Atomique, Paris, France

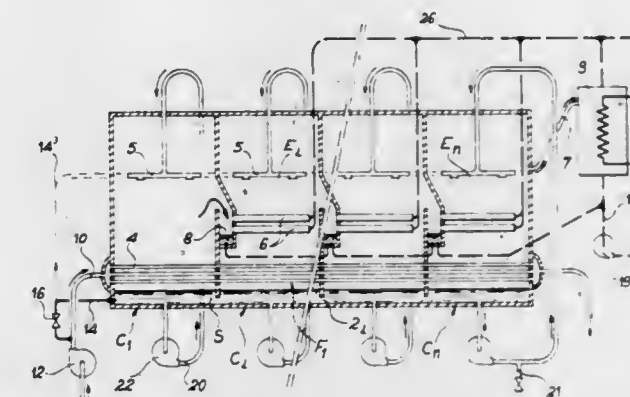
Continuation of Ser. No. 98,056, Nov. 28, 1979, abandoned. This application Sep. 2, 1981, Ser. No. 298,740

Claims priority, application France, Nov. 29, 1978, 78 33717

Int. Cl.³ B01D 1/26, 3/02

U.S. Cl. 202—174

7 Claims



1. A multiple effect device for the distillation of a solution comprising:

a plurality of chambers C_1 to C_n , forming multiple effects, means for feeding the solution into the chamber C_1 , means for establishing a communication between said chambers C_1 to C_n for flowing the non-vaporized solution in series from chamber C_1 to the chambers C_2 to C_n , means for heating the solution in chamber C_1 , said means consisting of an heat exchanger in which an auxiliary fluid circulates, wherein said auxiliary fluid is constituted by heat rejections, means for heating the solution in each of the chambers C_2 to C_n , said means consisting of an heat exchanger in which said auxiliary fluid circulates and a condenser in which the vapor formed in the preceding chamber circulates, means for supplying in series the heat exchangers of chambers C_1 to C_n with said auxiliary fluid, means for distributing the vapor formed in one of the chambers C_1 to C_{n-1} within the condenser of the following chamber, means for distributing the vapor formed in chamber C_n within a condenser cooled by a second fluid,

means for contacting the solution in chamber C_1 with the surface of said heat exchanger;
means for contacting the solution in each of the chambers C_2 to C_n with the surfaces of said heat exchangers and said condensers, and means for recovering the condensate produced in the condensers.

4,366,028

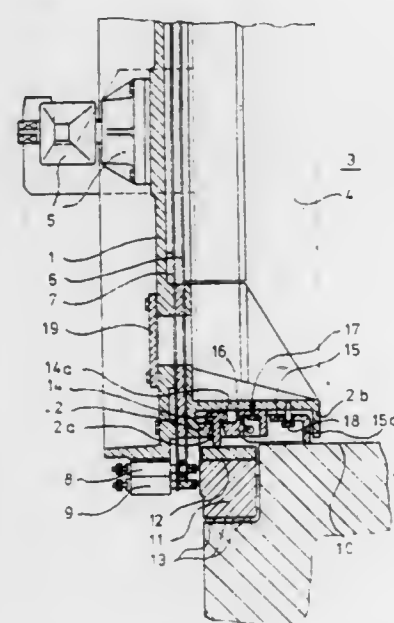
JAMB BRICK SUPPORT FOR COKE OVEN DOORS
Werner Abendroth, Haltern, Fed. Rep. of Germany, assignor to Firma Carl Still GmbH & Co. K.G., Fed. Rep. of Germany
Filed Nov. 6, 1981, Ser. No. 318,991

Claims priority, application Fed. Rep. of Germany, Nov. 27, 1980, 3044607

Int. Cl.³ C10B 25/06, 25/16

U.S. Cl. 202-248

7 Claims



1. In a coke oven door assembly for closing an opening to an oven chamber of a horizontal coke oven, the door assembly being of the type having a door body, a refractory door member mounted to the door body on a side thereof adjacent the oven chamber and designed to extend into the oven chamber above the oven sole, a jamb brick support mounted at the bottom of the door body on the side adjacent the oven chamber, and at least a lower part of the refractory door member being supported by the jamb brick support, the coke oven having a chamber frame bordering the opening, and wherein in the position in which the opening is closed by the door assembly, the jamb brick support is extended closely above the oven sole and the chamber frame, the improvement wherein the jamb brick support comprises a propping member mounted to the underside of the jamb brick support for movement in the longitudinal direction of the coke oven, and wherein, in the position in which the opening is closed by the door assembly, said propping member is reposed at least indirectly on the chamber frame for supporting the door assembly.

4,366,029

PIVOTING BACK ONE-SPOT COKE CAR

Robert P. Bixby, Pittsburgh, and Eugene Ziegler, McKeesport, both of Pa., assignors to Koppers Company, Inc., Pittsburgh, Pa.

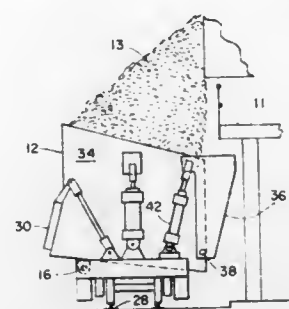
Filed Aug. 31, 1981, Ser. No. 297,753
Int. Cl.³ B61D 3/10, 9/02; C10B 39/14

U.S. Cl. 202-262

2 Claims

1. In a one-spot coke quenching car, comprised of a frame and a body rotatably mounted thereon, said body comprised of ends and a front and back side and a bottom wall, wherein the

ends, front and back side and bottom wall of said body are rotatable as a unit, the improvement comprising:



(a) said back side being pivotably mounted to said ends to allow said back side to pivot forward and toward the centerline of said body, and
(b) means for pivoting said back side.

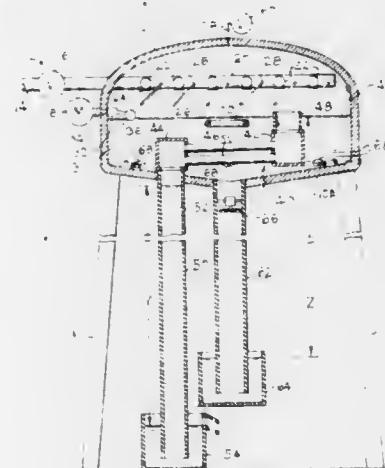
4,366,030

SUBATMOSPHERIC PRESSURE DISTILLATION AND/OR COOLING METHOD AND MEANS

Max F. Anderson, Stewardson, Ill. 62463
Filed Oct. 12, 1979, Ser. No. 84,373
Int. Cl.³ B01D 3/10

U.S. Cl. 203-11

9 Claims



1. A distillation system comprising a vacuum tank at subatmospheric pressure, liquid supply means for supplying liquid to be distilled to said tank to partially fill the same, condensing means inside said tank adjacent the tank bottom for condensing vapor contained within the tank, condenser inlet means providing communication between said surface condensing means and the subatmospheric pressure interior of the tank above the surface of liquid partially filling the tank for passage of vapor contained within the tank above the liquid surface to said condensing means, and means for removing condensate from said condensing means while maintaining a subatmospheric pressure within the tank.

6. In a distillation process, the elements comprising, feeding liquid to be distilled into a vacuum tank from which air is removed to partially fill the tank with said liquid, evaporating liquid fed into the tank to provide a vapor thereof within said tank, cooling vapor by condensing means located inside the vacuum tank in the liquid adjacent the bottom of the tank for condensing at least a portion of said vapor, and removing condensate from said condensing means while maintaining vapor pressure within the vacuum tank at a subatmospheric level.

4,366,031

ALCOHOL-WATER MIXTURE DISTILLATION

Max F. Anderson, Stewardson, Ill. 62463

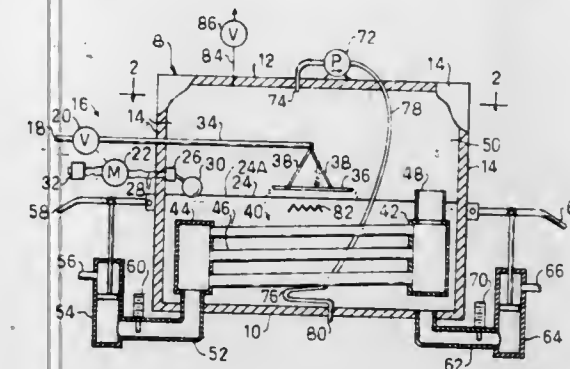
Filed Sep. 22, 1980, Ser. No. 189,313

The portion of the term of this patent subsequent to Dec. 28, 1999, has been disclaimed.

Int. Cl.³ B01D 3/10

U.S. Cl. 203-18

15 Claims



1. In apparatus for distillation of an alcohol-water mixture for recovery of alcohol therefrom, the combination including a vacuum tank, surface condensing means located inside said tank adjacent the tank bottom, condenser inlet means providing communication between said surface condensing means and the interior of the tank above said surface condensing means, condenser outlet means extending from said surface condensing means, means for filling said tank and surface condensing means with an alcohol-water mixture while venting air from the tank, and means in communication with said condenser outlet means for removing a portion of the mixture from the filled tank including all of the mixture contained in said condensing means while preventing entry of air into the tank to produce a subatmospheric pressure condition in the tank for evaporation of alcohol from the mixture surface and cooling of remaining mixture, alcohol vapor passing into said condensing means through said condenser inlet means and condensing therein.

11. In a distillation process for recovering alcohol from an alcohol-water mixture, or the like, comprising filling a vacuum tank with a mixture while venting air from the tank, removing a portion of the mixture from the filled tank while preventing entry of air into the tank thereby producing a vacuum in the tank above mixture remaining therein, evaporating alcohol from the surface of mixture remaining in the tank converting it into alcohol vapor, locating condensing means inside the tank adjacent the tank bottom within mixture remaining in the tank, and condensing at least a portion of alcohol vapor in said condensing means obtaining alcohol therefrom.

4,366,032

PROCESS FOR PRODUCING DEHYDRATED ALCOHOLS FOR USE AS COMPONENT OF A MOTOR FUEL COMPOSITION

Paul Mikitenko, Noisy Le Roi, and Lionel Asselineau, Paris, both of France, assignors to Institut Francais du Pétrole, Rueil-Malmaison, France

Filed Sep. 1, 1981, Ser. No. 298,432

Claims priority, application France, Sep. 1, 1980, 80 18901

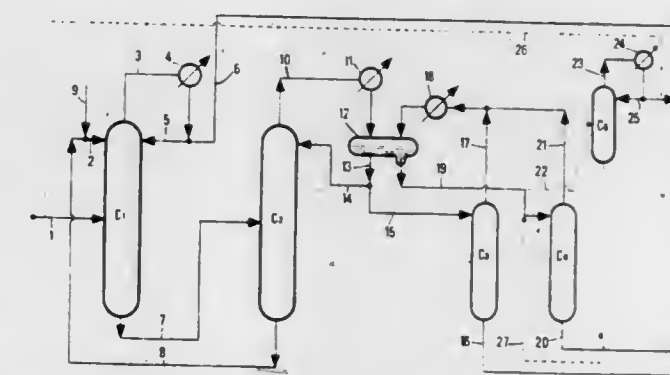
Int. Cl.³ B01D 3/40; C07C 29/84

U.S. Cl. 203-18

10 Claims

1. A process for producing dehydrated aliphatic alcohols from a mixture of light and heavy aliphatic alcohols with water, comprising the following steps of:

(a) introducing the alcohols - water mixture into a first fractionation zone at an intermediary point thereof,
(b) introducing a selective solvent at a point of the first fractionation zone above the point of introduction of the mixture,
(c) withdrawing at the top a vapor effluent containing the dehydrated light aliphatic alcohols,
(d) withdrawing from the bottom a liquid phase of high selective solvent content and containing water and heavy alcohols,
(e) introducing said liquid phase into a second fractionation zone,
(f) withdrawing at the top of the second fractionation zone a vapor effluent consisting of a heteroazeotropic mixture of water with heavy alcohols,
(g) withdrawing from the bottom of the second fractionation zone a liquid phase consisting of the selective solvent freed to a large extent of water and feeding it back to step (b),



(h) condensing the hetero-azeotropic mixture of step (f) into two liquid phases, a light phase of high alcohol content and a heavy phase of increased water content and separating these two phases
(i) withdrawing the light phase obtained in step (h) and feeding at least a fraction thereof into a third fractionation zone,
(j) withdrawing at the top of the third fractionation zone a vapor effluent and feeding it back to step (h),
(k) withdrawing from the bottom of the third fractionation zone a liquid phase consisting of dehydrated heavy aliphatic alcohols,
(l) withdrawing the heavy phase obtained in step (h) and introducing at least a portion thereof into a fourth fractionation zone,
(m) withdrawing at the top of the fourth fractionation zone a vapor effluent and feeding it back to step (h), and
(n) recovering from the bottom of the fourth fractionation zone a liquid phase consisting essentially of water,

4,366,033

METHOD FOR DETERMINING THE CONCENTRATION OF SUGAR USING AN ELECTROCATALYTIC SUGAR SENSOR

Gerhard Richter, Erlangen; Günter Luft, Lauf, and Ulrich Gebhardt, Langensendelbach, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Apr. 11, 1979, Ser. No. 29,128

Claims priority, application Fed. Rep. of Germany, Apr. 20, 1978, 2817363

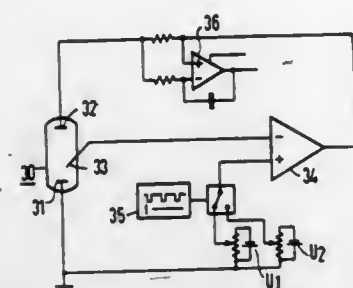
Int. Cl.³ G01N 27/52

U.S. Cl. 204-1 T

13 Claims

1. A method for determining the concentration of sugar in the presence of interfering foreign substances, especially for determining glucose in a body fluid, by means of an electrocatalytic sugar sensor comprising a measuring electrode, the measuring electrode adapted to be alternately set potentiostatically to a reactivation potential and a measuring potential and the current flowing during the measuring period evaluated as the measurement signal, comprising impeding the resupply of the interfering substances to the measuring electrode by a

hydrophilic diaphragm, of a thickness less than one hundred micrometers and a diffusion coefficient for glucose of less than $10^{-7} \text{ cm}^2 \text{ sec}^{-1}$, placed in front of the measuring electrode in



such a manner that a diffusion limit current adjusts itself during the reactivation phase in the oxidation of the foreign substances, and performing the evaluation of the current after a time delay relative to the start of the measuring period.

4,366,034

HARD CHROMIUM PLATING PROCESS FOR COBALT-CHROMIUM-TUNGSTEN ALLOYS

Herbert E. Ricks, Sarasota, Fla., and Edward F. Sverdrup, North Huntingdon, Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jun. 4, 1981, Ser. No. 270,459

Int. Cl.³ C25D 5/38

U.S. Cl. 204—32 R

6 Claims

1. In a process for electroplating chromium onto the surface of a cobalt-based metallic substrate, wherein said substrate comprises 40–60% cobalt, 19–25% chromium, 10–20% tungsten, the improvement which comprises:

etching said surface in a ferric chloride solution prior to said electroplating, said ferric chloride etching being with a 1–45% ferric chloride solution for 1–200 minutes at 10°–100° C.

4,366,035

ELECTRODEPOSITION OF GOLD ALLOYS

Peter Wilkinson, Cinderford, England, assignor to Engelhard Corporation, Iselin, N.J.

Filed Apr. 23, 1980, Ser. No. 143,051

Claims priority, application United Kingdom, Apr. 24, 1979, 7914220; Apr. 24, 1979, 7914221

Int. Cl.³ C25D 3/62

U.S. Cl. 204—44

25 Claims

1. An aqueous, alkaline cyanide-free electroplating bath for depositing a white gold alloy onto a substrate which comprises:

- (1) an alkali metal gold sulphite or ammonium gold sulphite;
- (2) a water soluble copper alloying salt or copper alloying complex;
- (3) a water soluble palladium alloying salt selected from the group consisting of alkali metal palladium sulphite, ammonium palladium sulphite or palladium citrate; and
- (4) an alkali metal sulphite or ammonium sulphite.

4,366,036

ADDITIVE AND ALKALINE ZINC ELECTROPLATING BATH AND PROCESS USING SAME

Ronald J. Lash, Rochester, and Roy W. Herr, Troy, both of Mich., assignors to Occidental Chemical Corporation, Warren, Mich.

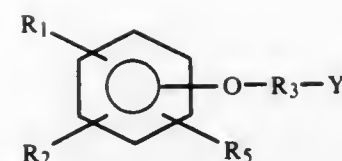
Filed Sep. 8, 1981, Ser. No. 300,316

Int. Cl.³ C25D 3/22; C07D 231/06; C07C 95/08; C07D 233/04

U.S. Cl. 204—55 R

17 Claims

1. A compound having the following structural formula:



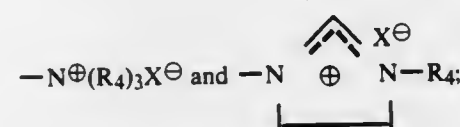
wherein

R₁ is selected from the group consisting of hydrogen, alkyl having 1–4 carbon atoms, and alkoxy having from 1–4 carbon atoms;

R₂ is selected from the group consisting of an aldehyde moiety and a bisulfite adduct of an aldehyde moiety;

R₃ is selected from the group consisting of alkyl having from 1–6 carbon atoms, hydroxy alkyl having from 2–6 carbon atoms, alkenyl having from 2–6 carbon atoms, alkynyl having from 2–6 carbon atoms, hydroxy alkenyl having from 2–6 carbon atoms, hydroxy alkynyl having from 3–6 carbon atoms, keto alkyl having from 2–6 carbon atoms, and keto alkenyl having from 3–6 carbon atoms;

Y is selected from the group consisting of

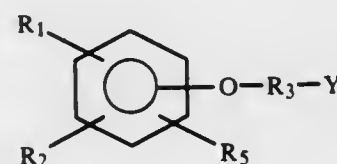


X is a halogen or sulfate;

R₄ is selected from the group consisting of alkyl hydroxy alkyl, and carboxy alkyl, each alkyl having from 1–4 carbon atoms; and

R₅ is hydrogen or another adjoining fused six membered aromatic ring.

5. An alkaline zinc electroplating bath comprising an effective amount of a compound having the following structural formula:



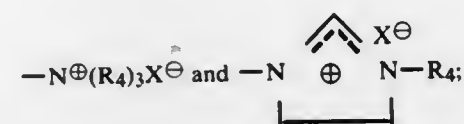
wherein

R₁ is selected from the group consisting of hydrogen, alkyl having 1–4 carbon atoms, and alkoxy having from 1–4 carbon atoms;

R₂ is selected from the group consisting of an aldehyde moiety and a bisulfite adduct of an aldehyde moiety;

R₃ is selected from the group consisting of alkyl having from 1–6 carbon atoms, hydroxy alkyl having from 2–6 carbon atoms, alkenyl having from 2–6 carbon atoms, alkynyl having from 2–6 carbon atoms, hydroxy alkenyl having from 2–6 carbon atoms, hydroxy alkynyl having from 3–6 carbon atoms, keto alkyl having from 2–6 carbon atoms, and keto alkenyl having from 3–6 carbon atoms;

Y is selected from the group consisting of



X is a halogen or sulfate;

R₄ is selected from the group consisting of alkyl hydroxy alkyl, and carboxy alkyl, each alkyl having from 1–4 carbon atoms; and

R₅ is hydrogen or another adjoining fused six membered aromatic ring.

4,366,037

METHOD OF INCREASING USEFUL LIFE

EXPECTANCY OF MICROPOROUS SEPARATORS

Arthur C. Schulz, North Tonawanda; Edward H. Cook, Jr., and Krishnan Viswanathan, both of Niagara Falls, all of N.Y., assignors to Occidental Chemical Corporation, Niagara Falls, N.Y.

Filed Feb. 26, 1982, Ser. No. 352,837

Int. Cl.³ C25B 1/34, 9/00; C23F 13/00

U.S. Cl. 204—98

19 Claims

14. A method for the electrolytic production of chlorine, alkali metal hydroxide and hydrogen which comprises applying a decomposition voltage to an electrolytic cell charged with an alkali metal chloride electrolyte, said cell comprising a plurality of dimensionally stable metal anodes and foraminous steel cathodes separated by a asbestos-free, polymeric microporous separator, said cell including a foraminous protective cathode in juxtaposition with the steel cathode and microporous separator, said protective cathode having an electroconductive metallic surface made from a material selected from the group consisting of nickel, cobalt, copper, chromium, noble metal, noble metal oxides and mixtures thereof.

4,366,038

METHOD OF CASTING IN PLACE AN ION-SENSITIVE MEMBRANE AND ION-SENSITIVE ELECTRODE USING SAID MEMBRANE

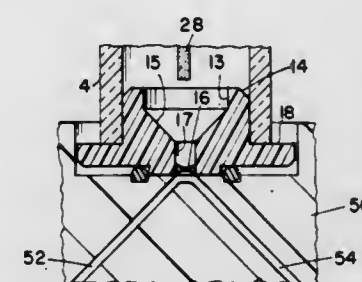
Susan D. Kearney, Weston; Gustav H. Dreier, Acton, and Alan D. Cormier, Newburyport, all of Mass., assignors to Instrumentation Laboratory Inc., Lexington, Mass.

Filed Aug. 4, 1980, Ser. No. 175,052

Int. Cl.³ G01N 27/30; B29C 5/00

U.S. Cl. 204—195 M

28 Claims



1. Electrochemical electrode apparatus for use in determination of potassium ion activity in a solution consisting of an electrically insulating material defining a chamber; a passage through a wall of said chamber to an external surface arranged for exposure to a sample solution to be measured; a cast-in-place potassium sensitive membrane secured in said passage, said membrane having an external surface essentially flush with said external surface of said chamber and an internal surface in said chamber, the exposed area of said internal surface of said membrane being substantially the same as the exposed area of said external surface of said membrane, said membrane cast from a solution containing plastic matrix material, a plasticizer, a solvent and an ion sensitive active ingredient to form a substantially solid potassium ion sensitive barrier; an electrolyte solution of sodium chloride, potassium chloride, triethanolamine and formaldehyde in deionized water in said chamber in contact with said internal surface of said cast-in-place membrane, and half-cell conductor disposed in said electrolyte solution in said chamber for producing an electric potential.

17. An end cap for a disposable electrode consisting of an electrically insulating material of generally circular diameter, said end cap having a frusto-conical opening therethrough and a cast-in-place membrane in the smaller diameter opening in said frusto-conical opening.

23. A method for forming an end cap for a disposable ion sensitive electrode consisting of placing an end cap having a frusto-conical opening therethrough in a casting clamp such that the small diameter of the frusto-conical opening is posi-

tioned adjacent a casting fixture leaving the larger diameter opening of said frusto-conical opening exposed, placing in said exposed frusto-conical opening an amount of a membrane casting solution not to exceed about 20 microliters and allowing the solvent in the membrane casting solution to evaporate leaving a bonded cast membrane in the smaller diameter of said frusto-conical opening.

4,366,039

OXYGEN SENSING DEVICE HAVING MEANS FOR CONTROL OF CURRENT TO PRODUCE REFERENCE OXYGEN PARTIAL PRESSURE

Masaaki Uchida; Hidetoshi Kanegae, both of Yokohama, and Shigeo Ishitani, Yokosuka, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

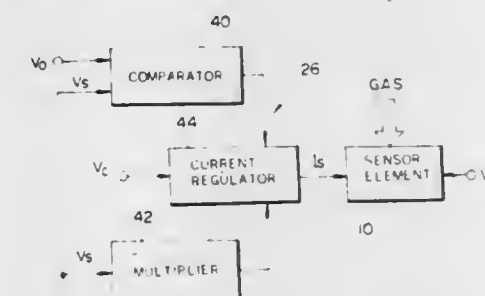
Filed Feb. 26, 1981, Ser. No. 238,637

Claims priority, application Japan, Mar. 3, 1980, 55-25212

Int. Cl.³ G01N 27/46

U.S. Cl. 204—195 S

12 Claims



1. A device for sensing oxygen contained in a gas atmosphere comprising:

- (1) an oxygen-sensitive element having an oxygen ion conductive solid electrolyte layer, a reference electrode layer laid on a surface of said solid electrolyte layer and substantially entirely covered with a shield layer and a measurement electrode layer laid on a surface of said solid electrolyte layer and spaced from said reference electrode layer so as to contact a gas subject to sensing, said reference and measurement electrode layers and at least one of said solid electrolyte layer and said shield layer being microscopically porous and gas-permeable; and
- (2) a control circuit electrically connected to said oxygen-sensitive element to cause a DC control current, to flow through said solid electrolyte layer between said reference and measurement electrode layers to cause migration of oxygen ions through said solid electrolyte layer from selected one of said reference and measurement electrode layers toward the other to thereby establish a reference oxygen partial pressure at the interface between said reference electrode layer and said solid electrolyte layer, the control circuit comprising:

- (a) a comparator means for comparing a reference voltage and an output voltage developed between said reference and measurement electrode layers of said element;
- (b) multiplier means for multiplying said output voltage by a constant coefficient; and
- (c) regulation means for regulating the intensity of said control current by utilizing the outputs of said comparator means and said multiplier means whereby the intensity of said control current varies depending upon the magnitude of said output voltage when the output of said comparator means indicates a predetermined one of the compared two voltages is higher than the other.

4,366,040

CAPILLARY-REFERENCE ELECTRODE

Hermann Marsoner, and Christoph Ritter, both of Graz, Austria, assignors to Hans List, Graz, Austria

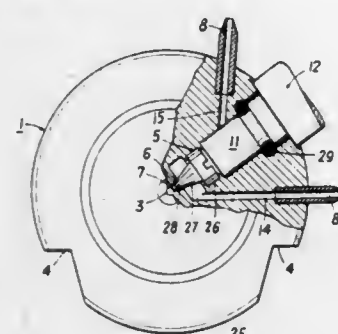
Filed Sep. 9, 1981, Ser. No. 300,557

Claims priority, application Austria, Sep. 10, 1980, 4562/80; Jul. 8, 1981, 3025/81

Int. Cl.³ G01N 27/30

U.S. Cl. 204—195 R

11 Claims



1. A capillary reference electrode, comprising a capillary body with a capillary bore, a chamber connected by an electrolytic bridge with a test sample capable of being introduced into said capillary bore, and a reference electrode extending into said chamber, the chamber being provided with an inlet and an outlet for charging said chamber with electrolyte, said inlet in the installed state of said capillary body, is arranged in a geometrically low position and said outlet at a geometrically high position on said chamber and for said electrolytic bridge is provided a communicating passage between said chamber and said capillary bore which communicating passage adjacent to said capillary bore has a substantially conical end with a communication bore to said capillary bore.

4,366,041

METHOD OF PREPARING A CATHODE-DIAPHRAGM UNIT

Malcolm Korach, Pittsburgh, Pa., and Ronald D. Chamberlin, Wadsworth, Ohio, assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Feb. 18, 1981, Ser. No. 235,454

Int. Cl.³ C25B 9/00, 11/03, 13/06, 13/08

U.S. Cl. 204—252

42 Claims

29. An electrolytic cell comprising an anode, a foraminous cathode, and a permeable diaphragm therebetween, said diaphragm comprising a self-adherent, entangled web of slurry deposited asbestos fibers and thermoplastic resin, said diaphragm prepared by the method comprising first depositing an adherent, destructible film on the foraminous cathode, said adherent, destructible film being thermally destructible at temperatures where the thermoplastic resin is fluid, and thereafter depositing the asbestos fibers and thermoplastic resin thereon.

4,366,042

SUBSTITUTED COBALT OXIDE SPINELS

Donald L. Caldwell, and Mark J. Hazelrigg, Jr., both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Mar. 25, 1981, Ser. No. 247,431

Int. Cl.³ C25B 11/06

U.S. Cl. 204—290 F

14 Claims

1. An electrically-conductive composite comprising an electrically-conductive substrate having, on at least a portion thereof, a conductive spinel coating, said coating comprising a metal cation substituted cobalt oxide spinel structure conforming substantially to the empirical formula $M_xZ_yCo_{3-(x+y)}O_4$, where M represents at least one metal of the Groups consisting of IB, IIA, and IIB of the Periodic Table,

where Z represents at least one metal of the Group IA of the periodic table, where x is an integer greater than or equal to zero, but less than 1, where y is an integer greater than zero, but not greater than 0.5, where the sum of x and 2y is greater than zero, but not greater than 1, and where the amounts of M, Z, and Co are sufficient to substantially satisfy the valence requirements of oxygen in the spinel structure.

4,366,043

METHOD AND APPARATUS FOR HEAT PROCESSING PULVERIZED BROWN COAL

Zinovy F. Chukhanov, ulitsa D. Ulyanova, 3, kv. 40; Zinovy Z. Chukhanov, ulitsa Obrucheva, 6, kv. 352; Sergei A. Tsuprov, B. Vuzovsky pereulok, 1, kv. 26; Ivan V. Lyashenko, Lesnaya ulitsa, 45, kv. 89; Danil M. Apter, ulitsa Gorkogo, 46/7, kv. 13; Anatoly M. Nikolaev, ulitsa Scherbakovskaya, 5, kv. 76, and Vadim A. Karasev, Leninsky prospekt, 16, kv. 30, all of Moscow, U.S.S.R.

Filed Aug. 2, 1978, Ser. No. 930,198

Int. Cl.³ C10G 1/00

U.S. Cl. 208—8 R

1 Claim

1. Method of heat processing pulverized brown coal, which comprises heating said pulverized brown coal in a first stage by a heat carrier which is substantially devoid of free oxygen in less than one second to a temperature of about 500°–800° C. at which thermal decomposition of said brown coal takes place, thus forming a first stage mixture of heated solid particles of brown coal and of a vapor and gas mixture, removing said vapor and gas mixture for further processing to produce gaseous and liquid products, passing said heated solid particles into a second stage, further heating said solid particles of brown coal in said second stage by means of a heat carrier devoid of free oxygen in less than one second to a temperature of about 600°–900° C. to further thermally decompose said brown coal, thereby forming a second stage mixture of heated solid particles of brown coal and a vapour and gas mixture, removing a major portion of said second stage heated solid particles of brown coal, passing the remaining heated solid particles of brown coal and said vapor and gas mixture from said second stage to said first stage while further heating the same during such passage by means of a gaseous heat carrier devoid of free oxygen to a temperature of about 870°–1000° C., thus forming a draught which causes the solid particles to move, said further heated remaining mixture from said second stage acting as heat carrier for said first stage.

4,366,044

PROCESS FOR CONVERSION OF COAL TO HYDROCARBON AND OTHER VALUES

Rollan Swanson, c/o Chemroll Enterprises, Inc., 100 Wall St., New York, N.Y. 10036

Continuation-in-part of Ser. No. 63,824, Aug. 6, 1979, abandoned, Ser. No. 114,207, Jan. 22, 1980, and Ser. No. 140,604, Apr. 15, 1980. This application Jan. 5, 1981, Ser. No. 220,021

The portion of the term of this patent subsequent to Dec. 28, 1999, has been disclaimed.

Int. Cl.³ C10G 1/06, 1/00, 47/02; C10J 3/16

U.S. Cl. 208—10

51 Claims

1. A process for conversion of coal to gaseous hydrocarbons and volatile distillates comprising the steps of: reacting coal or peat and a hydrosulfide, a sulfide or a polysulfide of an alkali metal, hydrates thereof, or mixtures thereof in presence of water, wherein water is added during the reaction, at a rate sufficient to hydrogenate the coal or peat to obtain the desired end product cut of gas or liquid or mixtures of both, adding sulfur or hydrogen sulfide or neither, said hydrogen sulfide being added, on

space time velocity basis, from about 10 to about 30 ml/min/liter, said reaction being at a temperature between 50° C. and up to 450° C. at a pressure from subatmospheric to about 5 atm., and recovering volatile liquid distillates and hydrocarbon gases as hydrocarbon values.

4,366,045

PROCESS FOR CONVERSION OF COAL TO GASEOUS HYDROCARBONS

Rollan Swanson, c/o Chemroll Enterprises, Inc., 100 Wall St., New York, N.Y. 10005

Continuation of Ser. No. 114,207, Jan. 22, 1980, abandoned, which is a continuation-in-part of Ser. No. 63,824, Aug. 6, 1979, abandoned. This application May 29, 1981, Ser. No. 268,190 The portion of the term of this patent subsequent to Dec. 28, 1999, has been disclaimed.

Int. Cl.³ C10G 1/06, 1/00; C10L 1/00; C10J 3/16

U.S. Cl. 208—10

34 Claims

1. A process for conversion of coal to gaseous hydrocarbons and volatile distillates comprising the steps of: reacting coal or peat and a hydrosulfide or sulfide of an alkali metal or mixtures thereof in presence of water, up to an amount such that up to a hydrogenated end product of one or two carbon atoms is formed at a temperature between 50° C. and up to 450° C. substantially at atmospheric pressure, and recovering volatile liquid distillates and hydrocarbon gases.

4,366,046

SIZE SEPARATION OF OIL SHALE PARTICLES FOR EFFICIENT RETORTING

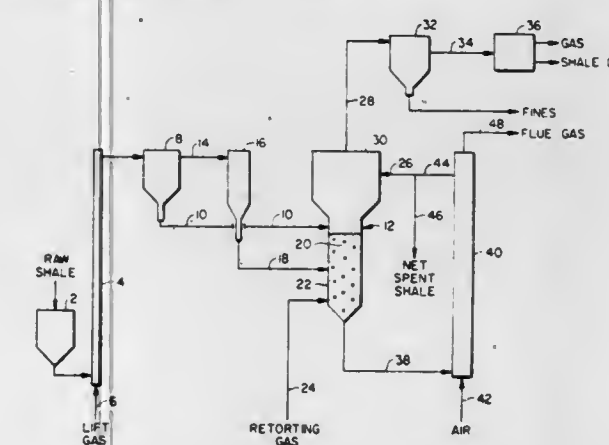
Corey A. Bertelsen, Oakland, and Gene M. Handel, Lafayette, both of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Filed Mar. 23, 1981, Ser. No. 246,562

Int. Cl.³ C10B 53/06; C10G 1/00

U.S. Cl. 208—11 R

5 Claims



1. In a process for retorting oil shale which includes the steps of feeding particulate oil shale containing both fine- and coarse-grained material into the upper part of a retorting vessel, heating the oil shale as it moves downward by mixing therewith a particulate hot heat transfer material to pyrolyze the volatile hydrocarbons, introducing a non-oxidizing stripping gas into the bottom of the retorting vessel at a velocity sufficient to partially fluidize the particles in the retort and entrain the fine-grained particles of oil shale causing an upward flow of gas countercurrent to the movement of the descending oil shale to carry away the volatile hydrocarbons, removing the retorted oil shale particles from the bottom of the retort, and recovering the volatile hydrocarbons from the stripping gas, wherein the improvement comprises separating prior to retorting a fine shale fraction containing particles smaller than a preselected particle size from the oil shale feed stream entering the retorting vessel and introducing said fine oil shale fraction as a separate feedstream into the retorting vessel at a position below the top of the bed of downward moving shale.

4,366,047

COMBINATION HYDROREFINING, HEAT-TREATING AND HYDROCRACKING PROCESS

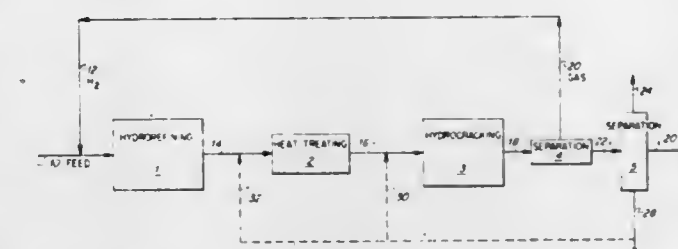
William E. Winter, and Bong H. Chang, both of Baton Rouge, La., assignors to Exxon Research and Engineering Co., Florham Park, N.J.

Filed Jun. 2, 1981, Ser. No. 269,590

Int. Cl.³ C10G 45/02, 69/00

U.S. Cl. 208—89

7 Claims



1. A process for upgrading a heavy hydrocarbonaceous oil feed, which comprises the steps of: (a) contacting said oil feed with added hydrogen in the presence of a hydrorefining catalyst at hydrorefining conditions, in a hydrorefining zone; (b) heat-treating at least a portion of the entire effluent of said hydrorefining zone, said portion including normally liquid hydrocarbons and hydrogen, in a heat-treating zone, in the absence of a catalyst at conditions such as to avoid any significant cracking of said normally liquid hydrocarbons, said conditions including a temperature in the range of about 500° to about 720° F., for a period of time ranging from about 0.25 hour to about 6 hours; (c) passing at least a portion of the entire heat-treated effluent, including hydrogen and normally liquid hydrocarbons, to a hydrocracking zone; (d) subjecting said portion of heat-treated effluent to hydrocracking conditions in the presence of a hydrocracking catalyst in said hydrocracking zone, and (e) recovering a hydrocracked normally liquid hydrocarbonaceous product.

4,366,048

FLUID COKING WITH THE ADDITION OF SOLIDS

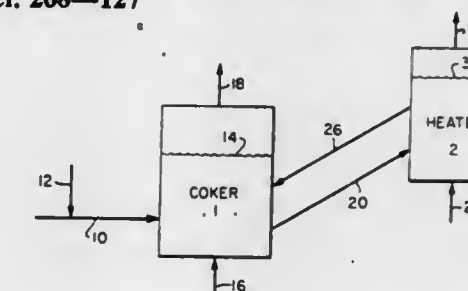
William J. Mettraller, and Steven Wiechert, both of Baton Rouge, La., assignors to Exxon Research and Engineering Co., Florham Park, N.J.

Filed Jul. 9, 1981, Ser. No. 281,918

Int. Cl.³ C10G 9/00

U.S. Cl. 208—127

9 Claims



1. In a fluid coking process comprising the steps of: contacting a hydrocarbonaceous oil chargestock having a Conradson carbon content of at least about 5 weight percent with hot fluidized solids in a fluidized coking bed contained in a coking zone maintained in a fluidized state by the introduction of a fluidizing gas and operated at coking conditions, to produce a vapor phase product and a solid carbonaceous material which deposits on said fluidized solids, the improvement which comprises adding to said chargestock inert solid particles in an amount sufficient to provide from about 2 to about 10 weight percent total solids, based on said oil prior to introducing said chargestock into said coking zone.

being arranged longitudinally and in axial alignment with each other and arranged such that like poles are adjacent each other;

a first cruciform member having plural legs thereon and having an outer circular flange, said legs press fitted within one end of the outer cylindrical housing, said outer circular flange abutting against an outer edge of said outer cylindrical housing, said plural legs having arcuate slots therein for receiving one end of the inner cylindrical housing;

a second cruciform member being of uniform diameter and having plural legs thereon press fitted within the opposite end of the outer cylindrical housing, said plural legs having arcuate slots therein supporting the other end of the inner cylindrical housing;

said inner cylindrical housing being concentrically positioned with respect to the outer cylindrical housing by reason of its attachment to said cruciform members; and a plurality of semi-circular baffles in spaced apart relationship from each other extending along the length of the inner housing, each of said semi-circular baffles extending through one half of the inner diameter of the outer cylindrical housing, said plurality of semi-circular baffles staggered at 90° relative to each other and completing a 360° turn between the outer and inner housings whereby liquid passing through spaces between the inner cylindrical housings and the outer cylindrical housing flows in a spiral and turbulent motion and whereby the magnetic fields extending from like poles of adjacent magnets extend between the baffles and cut the liquid causing precipitation of the minerals in the liquid.

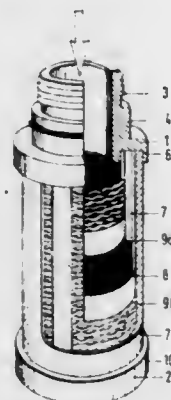
4,366,054 FILTER

Dirk G. Kronsbein, Habsburger Strasse 12, 400 Düsseldorf 11, Fed. Rep. of Germany
Continuation of Ser. No. 23,255, Mar. 23, 1979, abandoned. This application Dec. 11, 1980, Ser. No. 215,406
Claims priority, application Fed. Rep. of Germany, Mar. 31, 1978, 2813864

Int. Cl.³ B01D 23/14

U.S. Cl. 210—266

14 Claims



1. In a filter assembly for the filtration of compressed air and other compressed gases, as well as for air and liquids such as oil and water, said assembly being in the shape of a hollow cylinder, and comprising:

a filter element having several layers with varying porosity; inner and outer porous support jackets between which at least a portion of said filter element is located, said inner porous jacket operating at the inlet side of said filter assembly, said filter element including a finely porous layer covered on either side with a less finely porous layer; said filter element having a plurality of said filter layers containing active charcoal of different grain size, and in which said finely porous layer is constructed as a microfibre fleece and contains most finely ground active charcoal free of binding agent;

an upper and lower cover for said assembly; the filter element being located between said upper cover

and said lower cover, said upper cover to be connected to an inlet line and opening into a hollow space; and said lower cover tightly sealing the filter element.

4,366,055 PRESSURE FILTERS

Ralph D. Gwilliam, and David Eggleston, both of St. Austell, England, assignors to English Clay Lovering Pochin & Company, St. Austell, England

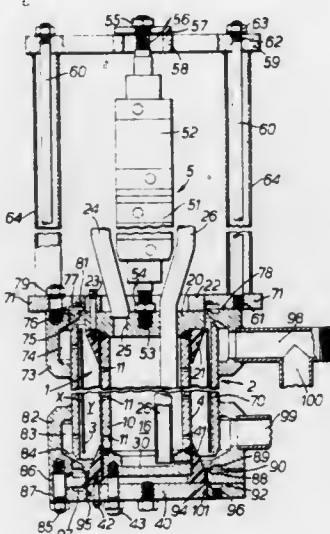
Filed Mar. 10, 1981, Ser. No. 242,381

Claims priority, application United Kingdom, Mar. 18, 1980, 8009098

Int. Cl.³ B01D 29/42

U.S. Cl. 210—350

4 Claims



1. In a tube pressure filter which comprises (a) a pair of generally coaxial inner and outer tubular assemblies which are arranged one within the other so as to define between them a chamber of annular, or substantially annular, cross-section and which are adapted to be supported in a generally upright position, (b) an impermeable elastic sleeve disposed within and secured to the outer one of said pair of tubular assemblies so as to divide said chamber into non-intercommunicating inner and outer compartments, (c) a filter element disposed around and supported by the inner one of said pair of tubular assemblies, (d) a slurry inlet for feeding a slurry to be pressure filtered to said inner compartment, (e) a hydraulic fluid inlet for feeding hydraulic fluid to the outer compartment, and a hydraulic fluid outlet for withdrawing hydraulic fluid from the outer compartment, (f) filtrate discharge means for use in effecting the discharge of filtrate which has passed through the filter element and through apertures in the inner tubular assembly, and (g) means for effecting relative movement of said tubular assemblies; the improvement which comprises providing means for effecting relative movement of said tubular assemblies from one to another of three operating positions of said tubular assemblies and providing a slurry inlet which extends annularly around one of said pair of tubular assemblies and which, in one of said three operating positions, cooperates with means formed by or associated with the other one of said pair of tubular assemblies to isolate said slurry inlet from said inner compartment, the arrangement being such that, in the first operating position of said tubular assemblies the slurry inlet is in communication with said inner compartment which is otherwise closed whereby a slurry to be pressure filtered can be fed to the inner compartment via said slurry inlet, in the second operating position of said tubular assemblies said inner compartment is closed and said slurry inlet cooperates with said means formed by or associated with the other one of said pair of tubular assemblies to isolate said slurry inlet from said inner compartment whereby said slurry to be pressure filtered can be dewatered, and in the third operating position of said tubular assemblies said inner compartment is open so that particulate solid can be discharged from the inner compartment.

4,366,056

FILTER HAVING A FIXED STRAINER

Philip Jackson, Paris, France, assignor to E. Beaudrey & Cie, Paris, France

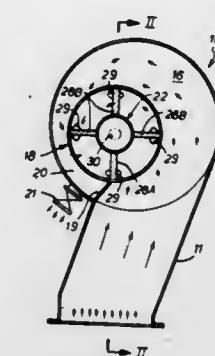
Filed Feb. 5, 1981, Ser. No. 231,629

Claims priority, application France, Mar. 3, 1980, 80 04679

Int. Cl.³ B01D 29/04

U.S. Cl. 210—435

10 Claims



1. An industrial water filter, comprising a substantially cylindrical filter housing, inlet means extending peripherally into said housing, outlet means located axially of said housing and at one end thereof, a fixed generally cylindrical strainer located within said housing and having an internal space communicating with said outlet means, a substantially conical deflector located inside said strainer and converging towards said outlet means, and at least one fin extending radially in the path of water passing through said strainer between said deflector and said strainer from said strainer to said deflector and axially of said outlet.

4,366,057

OIL FILTER SEAL MEMBRANE

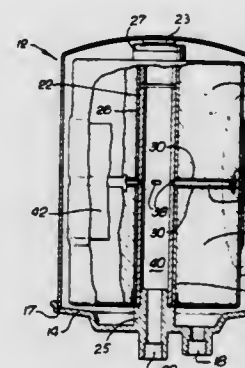
Thomas K. Bridges, and Howard Nourse, both of Fountain Valley, Calif., assignors to Kirk Bridges, Inc.

Filed Dec. 4, 1981, Ser. No. 327,422

Int. Cl.³ B01D 27/00

U.S. Cl. 210—437

12 Claims



1. In an axial flow filtering apparatus for filtering fluids having a centrally located flow means, an outlet port for passage of filtered fluid from said flow means out of said apparatus, at least one filter element comprising wound layers of tissue, and a channel extending radially outward from said flow means wherein said fluid passes through said filter element to said channel where it is conducted to said flow means and then to said outlet port, the improvement comprising:

a flexible, non-porous membrane configured to be disposed in a sealing relationship about the circumference of said filter element such that said membrane partially overlaps said filter element and completely overlaps said channel, thereby preventing said fluid from entering said channel from a point outside said filter element, without first passing through at least one filter element.

4,366,058

HIGH EFFICIENCY SETTLING SYSTEM

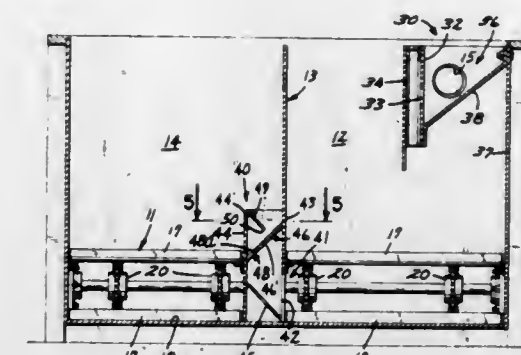
Girma Wolde-Michael, Little Canada, Minn., assignor to Donaldson Company, Inc., Minneapolis, Minn.

Filed Jun. 2, 1981, Ser. No. 269,623

Int. Cl.³ B01D 21/24

U.S. Cl. 210—519

15 Claims



1. In a settling tank for a fluid containing solid particulate matter and having a primary settling area, a fluid flow inlet in said primary settling area, a clean fluid reservoir area adjacent said primary settling area, and fluid inlet means for providing a fluid upflow from said settling area into said reservoir area, means for quietening the fluid flow, including:

means positioned near said inlet for transforming entering turbulent fluid flow into a more uniform, laminar flow, said means including an inlet baffle having portions with spaced apart openings therein, said openings being positioned along the length of said baffle in a staggered, substantially nonaligned arrangement; and means submerged in said clean reservoir area adjacent said fluid inlet means for quieting the fluid upflow velocity, said means including a pair of spaced apart, generally sloping baffles, one of said baffles having portions with spaced apart, symmetrical openings therein, and adjustable flow rate means positioned above said baffles, said upflow quieting means designed and constructed to cause said fluid flow to travel in a tortuous path therethrough.

4,366,059

ANAEROBIC TREATMENT

Enrique R. Witt; William J. Humphrey, and James P. Cave, all of Corpus Christi, Tex., assignors to Celanese Corporation, New York, N.Y.

Continuation of Ser. No. 150,829, May 19, 1980, Pat. No. 4,315,823, which is a continuation of Ser. No. 57,545, Jul. 13, 1979, abandoned, which is a continuation of Ser. No. 737,241, Oct. 29, 1976, abandoned. This application Oct. 21, 1980, Ser. No. 198,909

The portion of the term of this patent subsequent to Feb. 16, 1999, has been disclaimed.

Int. Cl.³ C02F 3/28, 3/30

U.S. Cl. 210—615

3 Claims

1. Process for the treatment of aqueous organic waste streams in an anaerobic filter, with concomitant production of methane gas while supplying alkaline material to the filter to neutralize acids fed thereto and formed therein, to produce a liquid effluent stream containing said methane gas from said filter, said liquid effluent stream having a lower C.O.D. content than said waste stream and containing less than 600 mg per liter of volatile suspended solids, said process comprising separating said methane gas from said effluent stream, separating said liquid effluent stream into two liquid streams, hereafter termed stream a and stream b, withdrawing said liquid stream a while recycling said liquid stream b to said filter and blending said stream b together with fresh feed to said waste stream, the volumetric rate of said fresh feed being about the same as the volumetric rate of withdrawal of said liquid stream a, and the ratio of said volumetric rate of feed to the volumetric rate of said recycle being in the range of about 1:1 to 1:20, in which

tion means through the inlet of the pump, and a reverse osmosis means through the outlet of the pump to provide operating pressure for the reverse osmosis means; and a reverse osmosis means for separating the waste stream into a useful water stream substantially free of contaminants as a permeate and a brine stream wherein the elements of the mobile apparatus are carried by the truck bed.

4,366,064

TREATMENT OF BLAST FURNACE WASTEWATER
Edward L. Mihelic, Murrysville, and Samuel B. Schlosberg, Monroeville, both of Pa., assignors to United States Steel Corporation, Pittsburgh, Pa.

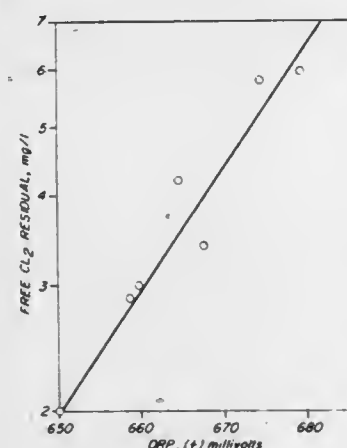
Continuation of Ser. No. 202,266, Oct. 30, 1980, abandoned.

This application Nov. 5, 1981, Ser. No. 318,303

Int. Cl.³ C02F 1/76

U.S. Cl. 210—668

5 Claims



1. Method of treating blast furnace and other wastewater containing ammonia, cyanide and phenol by breakpoint chlorination comprising chlorinating said wastewater maintained at a pH of about 8.5 to about 10 in an initial vessel by the addition of a chlorinating compound in response to the redox potential measured in a second vessel, flowing said wastewater from said initial vessel to said second vessel, mixing said wastewater, and maintaining the pH in the second vessel from about 6 to about 8, and the redox potential of the second vessel at a value of from about +625 millivolts to about +750 millivolts.

2. Method of claim 1 followed by passing said wastewater through activated carbon to remove residual contaminants.

4,366,065

SEPARATING PARTICLES FROM A LIQUID
Colin M. Leslie, Kelsall; James H. P. Watson, St. Austell, and John A. Williams, Warrington, all of England, assignors to British Nuclear Fuels Limited, Risley, England

Continuation of Ser. No. 113,605, Jan. 21, 1980, abandoned. This application Nov. 20, 1981, Ser. No. 323,698

Claims priority, application United Kingdom, Feb. 2, 1979, 7903800

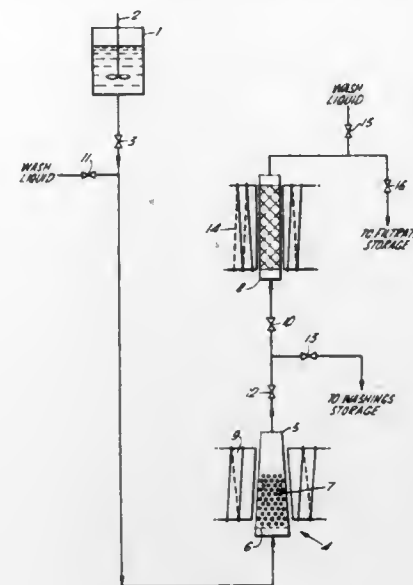
Int. Cl.³ C02F 1/48

U.S. Cl. 210—695

6 Claims

1. A method of separating particles suspended in a liquid which comprises locating electromagnet means outside a chamber containing a filter bed of individual bodies, fixedly positioning the electromagnet means relative to the bed with the bed arranged in the pole gap of the magnet and the magnet extending upwardly beyond the bed such that the magnet surrounds the bed and is offset axially relative to the bed so as to levitate the bodies upon energization of the fixedly positioned electromagnet means, passing a flow of liquid containing suspended particles through the bed with the electromagnet means de-energized so as to trap the particles in the bed,

discontinuing the liquid flow, levitating the bed by energizing said fixedly positioned electromagnet means and passing a



wash liquid through the levitated bed to flush trapped particles out of the bed.

4,366,066

STABILIZATION OF SOFTENED WATER WITH SELF-GENERATED CO₂

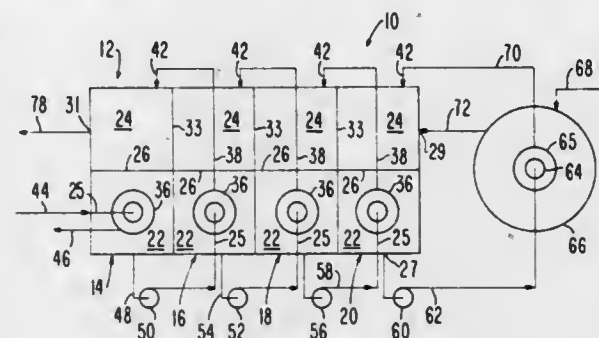
Alfred N. Rogers, Pleasanton; Leon Awerbuch, and Sherman C. May, both of San Francisco, all of Calif., assignors to Bechtel International Corporation, San Francisco, Calif.

Filed Mar. 27, 1981, Ser. No. 248,648

Int. Cl.³ C02F 1/06, 1/20, 5/02

U.S. Cl. 210—696

12 Claims



1. Apparatus for softening hard water comprising: a structure having means defining a series of first interconnected chambers for successively receiving a flow of hard water; settler means coupled with the downstream end of such series of first chambers for heating the hard water therefrom to a temperature sufficient to cause the hard water to become softened and for separating precipitated calcium carbonate from the softened water, said structure further having means defining a series of second interconnected chambers for successively receiving a pressurized flow of softened water from said softening means, there being a second chamber for each first chamber, respectively, the second chambers defining flash chambers for the softened water, there being a fluid flow path interconnecting each second chamber with a respective first chamber to permit flashed water vapor generated in the second chamber to flow into direct, admixing contact with hard water flowing into the corresponding first chamber to thereby cause said hard water to be preheated in the first chamber by the water vapor and to evolve CO₂ as it is being preheated in the first chamber; and means coupled with at least one of the first chambers for directing the CO₂ evolved therein into a predetermined second chamber for admixture with the softened water therein to stabilize the softened water wherein said predetermined second chamber includes the next downstream

second chamber with reference to the direction of flow of softened water through the second chambers.

10. A method of treating hard water containing calcium comprising: directing a continuous flow of hard water along a first path; progressively heating said hard water as it flows along said first path; urging said heated hard water through a region at which the hard water is further heated to a temperature sufficient to soften the water and precipitated calcium carbonate is separated from the softened water, said urging step being performed after the hard water has moved along said first path, whereby the heated hard water becomes softened water; directing the softened water along a second path; progressively lowering the pressure of the softened water as it flows along said second path to cause a portion of the softened water to flash into a vapor, said heating step including directing the flashed vapor into direct, admixing contact with the hard water flowing along the first path to heat the hard water in the first path and to evolve CO₂ therein; and directing the evolved CO₂ from said first path into the second path to stabilize the softened water in the second path to thereby maintain calcium in the softened water in soluble form wherein the first path is formed from a number of first, interconnected chambers and said second path is formed from a number of second, interconnected chamber, there being a second chamber for each first chamber, said CO₂ is evolved in each of at least certain of the first chambers and is directed into the next adjacent downstream second chambers.

4,366,067

METHOD AND APPARATUS FOR REMOVAL AND RECOVERY OF OIL

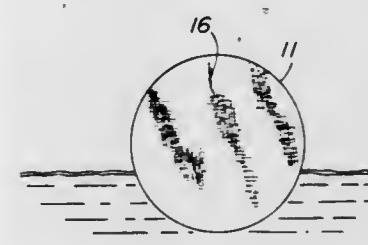
Gordon R. Golding, 1 Oak Ave., Browns Mills, N.J. 08015, and Richard J. Boaggio, 1404 Spruce Ave., Kirkwood, N.J. 08043

Filed Oct. 20, 1980, Ser. No. 198,762

Int. Cl.³ C02F 1/28

U.S. Cl. 210—671

8 Claims



6. Method of cleaning up oil spills comprising applying bags or booms containing polyisocyanurate foam dust to the spill and recovering the bags or booms after adsorbing oil, said polyisocyanurate foam being formed from a polyol and a large molar excess of polymeric isocyanate so that trimerization to the isocyanurate ring structure takes place.

4,366,068

FILTER AND METHOD OF MAKING SAME

Eugene A. Ostreicher, Farmington, and Kenneth C. Hou, Glenside, both of Conn., assignors to AMF Incorporated, White Plains, N.Y.

Division of Ser. No. 147,975, May 8, 1980, Pat. No. 4,305,782, which is a continuation-in-part of Ser. No. 27,568, Apr. 6, 1979, abandoned, which is a continuation-in-part of Ser. No. 666,815, Mar. 15, 1976, abandoned. This application Jun. 23, 1981, Ser. No. 276,584

Int. Cl.³ B01D 39/00

U.S. Cl. 210—767

11 Claims

1. A method for the removal of submicron contaminants from biological liquid comprising passing the contaminated liquid through a filter media sheet consisting essentially of fine particulate and self-bonding matrix of cellulose fiber, the surfaces of at least one of which are modified with a sufficient amount of an inorganic cationic colloidal silica to provide a

positive zeta potential to the surface of the filter media sheet, wherein the cationic colloidal silica is derived from a dispersion of positively charged colloidal particles having a dense silica core modified with a polyvalent metal-oxygen compound wherein the polyvalent metal is aluminum, and a sufficient amount of the compound is provided to coat the silica to a level of at least 13% by weight of colloidal solids.

4,366,069

COOLANT RECOVERY SYSTEM

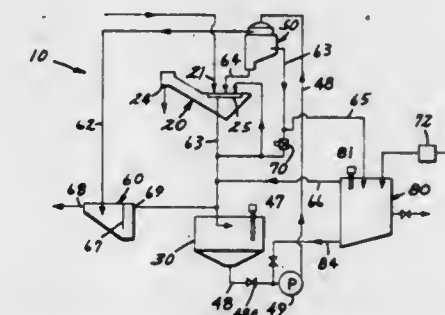
Denis J. Dudley, Bloomington; John T. Herman, Mahtomedi; Girma Wolde-Michael, Little Canada, and Delmer L. Radetsky, Bloomington, all of Minn., assignors to Donaldson Company, Inc., Minneapolis, Minn.

Filed Apr. 16, 1981, Ser. No. 254,751

Int. Cl.³ C02F 1/40

U.S. Cl. 210—788

18 Claims



1. A process for recovering an industrial coolant fluid from a contaminated mixture, the mixture containing the coolant fluid, contaminating oils and solid particulate matter, comprising the steps of:

- (a) removing relatively large and heavy particulate matter from the contaminated mixture;
- (b) depositing the partially cleaned mixture from which particulate matter has been removed into a container having a fluid outlet in the lower portion thereof;
- (c) imparting a vortex flow to the fluid in the container so that free oil which has risen from the mixture and is carried on the surface is drawn down to the outlet of the container;
- (d) transferring mixture and free surface oil from the outlet container to a centrifugal separator;
- (e) separating coolant fluid, free oil, and solids from the mixture in the centrifugal separator;
- (f) reintroducing at least a portion of the separated coolant fluid into the fluid vortex within the container;
- (g) repeating steps (d) through (f) until a sufficient level of clarity is obtained in the recovered coolant fluid; and
- (h) removing the recovered coolant fluid for subsequent reuse.

4,366,070

VISCOSIFIER & FLUID LOSS CONTROL SYSTEM

Jacob Block, Rockville, Md., assignor to W. R. Grace & Co., New York, N.Y.

Continuation-in-part of Ser. No. 144,366, Apr. 28, 1980, abandoned. This application Feb. 27, 1981, Ser. No. 239,072. The portion of the term of this patent subsequent to Dec. 23, 1997, has been disclaimed.

Int. Cl.³ C09K 7/02

U.S. Cl. 252—8.5 A

13 Claims

1. A composition capable of imparting to aqueous systems a combination of pseudoplasticity and fluid loss control comprising a mixture of:

- (a) a hydroxy containing aluminum component formed by mixing in an aqueous medium and under a high degree of agitation a water-soluble basic agent selected from the group consisting of an alkali metal aluminate, alkali metal hydroxide, ammonium hydroxide and mixtures thereof with a water-soluble acidic agent selected from an inor-

ganic acid, aluminum chloride, aluminum sulfate, aluminum nitrate, their hydrates and mixtures thereof; at least one of said basic and acidic agents being an aluminum containing compound; said acidic and basic agents being reacted in a ratio such that the resultant product is capable of imparting to an aqueous medium a pH of from at least about 8 to about 10.3 in combination with

(b) a cross-linked hydroxyalkyl cellulose reaction product, said reaction product formed by contacting in an aqueous medium a hydroxy C₁-C₃ alkyl cellulose and from about 1 to 200 percent of stoichiometry based on the hydroxy groups of the cellulose of an agent capable of cross-linking said cellulose, said agent being epihalohydrin or said agent being a compound having at least one aldehyde group therein or a compound capable of generating an aldehyde group in situ;

wherein the amount of component (a) to component (b) is in the ratio of at least about 0.75:1 to 3:1; the reaction between said hydroxyalkyl cellulose and epihalohydrin being carried out in an aqueous basic medium having a pH of about 9.5 or more and the reaction between said hydroxyalkyl cellulose and said compound having or capable of generating at least one aldehyde group therein being carried out in an aqueous acidic medium having a pH of about 5.5 or less.

4,366,071

OIL WELL TREATING METHOD AND COMPOSITION
Homer C. McLaughlin, and Jimmie D. Weaver, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

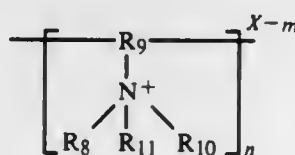
Continuation of Ser. No. 901,664, May 4, 1978, which is a continuation-in-part of Ser. No. 714,213, Aug. 13, 1976, abandoned. This application Feb. 4, 1980, Ser. No. 118,022

Int. Cl.³ E21B 43/12, 43/25, 43/27

U.S. Cl. 252-8.55 R

7 Claims

1. A method of treating a clay-containing earth formation for the purpose of preventing or at least reducing the swelling, migration and/or dispersion of said clay to thereby stabilize said formation, said method being comprised of contacting said clay in said formation with an effective amount of an organic polycationic polymer dispersed or dissolved in a carrier fluid, said contacting being for a time sufficient for said organic polycationic polymer to replace clay cations to thereby transform said clay to a more stable form wherein said organic polycationic polymer contains repeating monomer units defined by the structural formula



wherein:

R₈, R₁₀ and R₁₁ can be the same or different and are selected from alkyl and alkenyl groups containing 1 to 6 carbon atoms, and R₉ is a divalent organic aliphatic hydrocarbon group containing 2 to 40 carbon atoms;

X is an anion selected from halides, nitrate, sulfate, methosulfate, bisulfate and carbonate;

n is an integer equal to the number of monomer units in said polymer required to produce a molecular weight in the range of from about 800 to 3,000,000; and

m is an integer equal to the number of said anions required to maintain electronic neutrality;

and further wherein the ratio of the total number of nitrogen atoms in said polymer to the total number of carbon atoms in said polymer is in the range of from about 1 to 2 to about 1 to 36.

4,366,072

OIL WELL TREATING METHOD AND COMPOSITION

Homer C. McLaughlin, and Jimmie D. Weaver, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

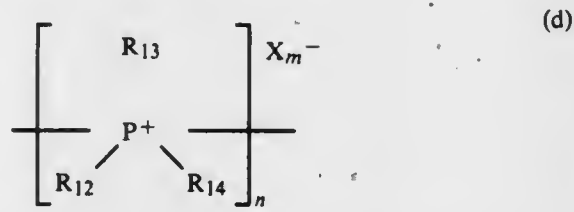
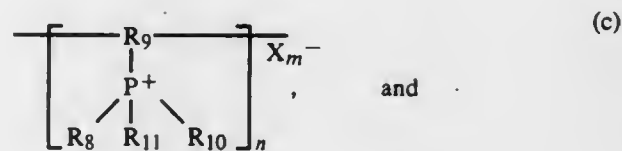
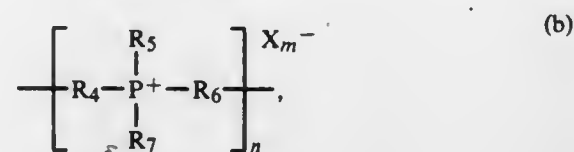
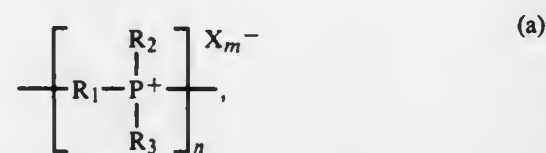
Continuation of Ser. No. 901,664, May 4, 1978, which is a continuation-in-part of Ser. No. 714,213, Aug. 13, 1976, abandoned. This application Feb. 4, 1980, Ser. No. 118,055

Int. Cl.³ E21B 43/12

U.S. Cl. 252-8.55 R

12 Claims

1. A method of treating a clay-containing earth formation for the purpose of preventing or at least reducing the swelling, migration and/or dispersion of said clay to thereby stabilize said formation, said method being comprised of contacting said clay in said formation with an effective amount of an organic polycationic polymer dispersed or dissolved in a carrier fluid, said contacting being for a time sufficient for said organic polycationic polymer to replace clay cations to thereby transform said clay to a more stable form wherein said organic polycationic polymer contains repeating monomer units selected from the group consisting of:



wherein

R₁ is a divalent normal or branched chain alkylene group containing 2 to 40 carbon atoms, R₂ and R₃ can be the same or different and are normal or branched chain alkyl groups containing 1 to 6 carbon atoms;

R₄ and R₆ can be the same or different and are selected from divalent organic aliphatic groups containing 2 to 40 carbon atoms, R₅ and R₇ can be the same or different and are selected from monovalent organic aliphatic groups containing 1 to 6 carbon atoms;

R₈, R₁₀ and R₁₁ can be the same or different and are selected from monovalent alkyl alkenyl and aryl groups containing 1 to 6 carbon atoms, R₉ is a divalent organic aliphatic group containing 2 to 40 carbon atoms;

R₁₃ is a divalent organic aliphatic group containing 2 to 40 carbon atoms which together with the phosphorous atom in the monomer unit forms a heterocyclic ring,

R₁₂ and R₁₄ can be the same or different and are selected from monovalent organic aliphatic groups containing 1 to 6 carbon atoms;

X is an anion selected from halides, nitrate, sulfate, methosulfate, bisulfate and carbonate;

n is an integer equal to the number of monomer units in said polymer required to produce a molecular weight in the range of from about 1,000 to 3,000,000; and

m is an integer equal to the number of said anions required to maintain electrical neutrality;

and further wherein the ratio of the total number of said phos-

phorous atoms in said polymer to the total number of carbon atoms in said polymer is in the range of about 1 to 2 to about 1 to 36.

4,366,073

OIL WELL TREATING METHOD AND COMPOSITION

Homer C. McLaughlin, and Jimmie D. Weaver, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

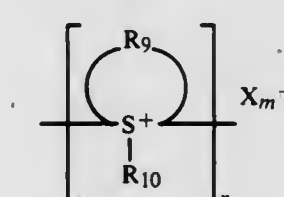
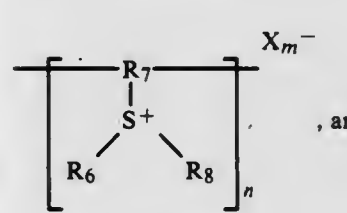
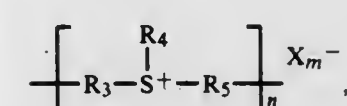
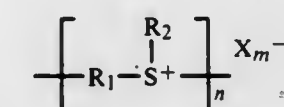
Continuation of Ser. No. 901,664, May 4, 1978, which is a continuation-in-part of Ser. No. 714,213, Aug. 13, 1976, abandoned. This application Feb. 4, 1980, Ser. No. 118,056

Int. Cl.³ E21B 43/12

U.S. Cl. 252-8.55 R

13 Claims

1. A method of treating a clay-containing earth formation for the purpose of preventing or at least reducing the swelling, migration and/or dispersion of said clay to thereby stabilize said formation, said method being comprised of contacting said clay in said formation with an effective amount of an organic polycationic polymer dispersed or dissolved in a carrier fluid, said contacting being for a time sufficient for said organic polycationic polymer to replace clay cations to thereby transform said clay to a more stable form wherein said organic polycationic polymer contains repeating monomer units selected from the group consisting of:



wherein

R₁ is a divalent normal or branched chain alkylene group containing 2 to 40 carbon atoms, R₂ is a normal or branched chain alkyl group containing 1 to 6 carbon atoms;

R₃ and R₅ can be the same or different and are selected from divalent organic aliphatic groups containing 2 to 40 carbon atoms, R₄ is selected from monovalent aliphatic groups containing 1 to 6 carbon atoms;

R₆ and R₈ can be the same or different and are selected from monovalent alkyl, alkenyl and aryl groups containing 1 to 6 carbon atoms, R₇ is a divalent organic aliphatic group containing 2 to 40 carbon atoms;

R₉ is a divalent organic aliphatic group containing 2 to 40 carbon atoms which together with the sulfur atom in the monomer unit form a heterocyclic ring,

R₁₀ is selected from monovalent organic aliphatic groups containing 1 to 6 carbon atoms;

X is an anion selected from halides, nitrate, sulfate, methosulfate, bisulfate and carbonate;

n is an integer equal to the number of monomer units in said polymer required to produce a molecular weight in the range of from about 1,000 to 3,000,000; and

m is an integer equal to the number of said anions required to maintain electrical neutrality;

and further wherein the ratio of the total number of said sulfur atoms in said polymer to the total number of carbon atoms in said polymer is in the range of about 1 to 2 to about 1 to 36.

4,366,074

OIL WELL TREATING METHOD AND COMPOSITION

Homer C. McLaughlin, and Jimmie D. Weaver, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

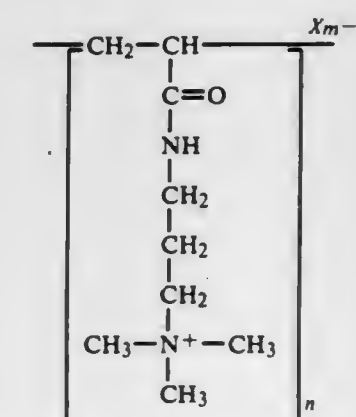
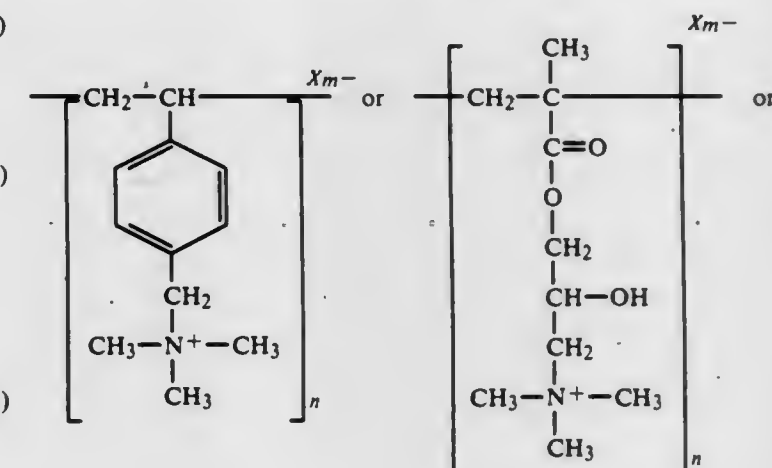
Continuation of Ser. No. 901,664, May 4, 1978, which is a continuation-in-part of Ser. No. 714,213, Aug. 13, 1976, abandoned. This application Feb. 4, 1980, Ser. No. 118,369

Int. Cl.³ E21B 43/12, 43/25

U.S. Cl. 252-8.55 R

5 Claims

1. A method of treating a clay-containing earth formation for the purpose of preventing or at least reducing the swelling, migration and/or dispersion of said clay to thereby stabilize said formation, said method being comprised of contacting said clay in said formation with an effective amount of an organic polycationic polymer dispersed or dissolved in a carrier fluid, said contacting being for a time sufficient for said organic polycationic polymer to replace clay cations to thereby transform said clay to a more stable form wherein said organic polycationic polymer contains repeating monomer units selected from the group consisting of:



wherein:

X is an anion selected from halides, nitrate, sulfate, methosulfate, bisulfate, and carbonate;

n is an integer equal to the number of monomer units in said polymer required to produce a molecular weight in the range of from about 800 to 3,000,000; and

m is an integer equal to the number of said anions required to maintain electronic neutrality

and further wherein the ratio of the total number of nitrogen atoms in said polymer to the total number of carbon atoms in said polymer is in the range of from about 1 to 2 to about 1 to 36.

4,366,075

COMPOSITION FOR FILLING CABLES

Shirley Beach, Vancouver, Canada, assignor to Phillips Cables Limited, Brockville, Canada

Division of Ser. No. 676,991, Apr. 14, 1976, Pat. No. 4,110,137, which is a continuation-in-part of Ser. No. 428,757, Dec. 27, 1973, Pat. No. 3,961,128. This application Apr. 24, 1978, Ser. No. 899,704

Claims priority, application Canada, Dec. 29, 1972, 160290; Nov. 14, 1975, 239681

Int. Cl.³ C10M 5/04

U.S. Cl. 252-28

10 Claims

1. A composition for filling communication cables consisting essentially of 99% to 94%, by weight, of petroleum jelly and 1% to 6%, by weight, of siliceous material, in an amount effective to render the petroleum jelly viscous at elevated temperatures, the siliceous material being substantially uniformly distributed throughout the petroleum jelly.

4,366,076

CORROSION INHIBITED COMPOSITIONS

David R. Clark, Sale, England, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed May 28, 1981, Ser. No. 267,309

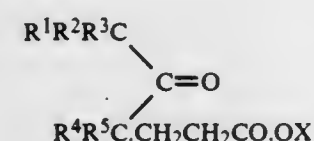
Claims priority, application United Kingdom, Jun. 11, 1980, 8019126

Int. Cl.³ C10M 1/20, 1/32, 3/04

U.S. Cl. 252-34

22 Claims

1. A composition comprising a functional fluid in contact with a ferrous metal and, as corrosion inhibitor, a compound having the formula:



wherein X is H, an alkali- or alkaline earth metal, NH₄, the residue of a protonated amine, or the group —OX is the residue of an alkanol having from 1 to 20 carbon atoms or of a di- or tri- or tetra-ol having from 2 to 12 carbon atoms; R¹, R² and R⁴ are the same or different and each is H or —CH₂CH₂COOX wherein X has its previous meaning; R³ and R⁵ are the same or different and each is H, —CH₂CH₂COOX wherein X has its previous meaning, or R³ or R⁵ is a straight- or branched chain alkyl group having from 3 to 16 carbon atoms; or R³ and R⁵ together are alkylene of 5 to 15 carbon atoms.

4,366,077

TEMPER ROLLING FLUIDS

Barry E. Andrew, Dromana, and Tak W. Mak, Frankston, both of Australia, assignors to John Lysaght (Australia) Limited, New South Wales, Australia

PCT No. PCT/AU80/00055, § 371 Date Apr. 29, 1981, § 102(e) Date Apr. 20, 1981, PCT Pub. No. WO81/00579, PCT Pub. Date Mar. 5, 1981

PCT Filed Aug. 28, 1980, Ser. No. 253,836

Int. Cl.³ C10M 1/06

U.S. Cl. 252-49.3

23 Claims

1. A composition for application to a metal surface and characterized in that said composition comprises:

- an inorganic nitrite
- a benzoate, and
- a carbonate

dissolved in aqueous solution.

4,366,078

PROCESS FOR AUGMENTING OR ENHANCING THE AROMA OF DETERGENTS USING DIMERIZED ISOAMYLENE COMPOSITION

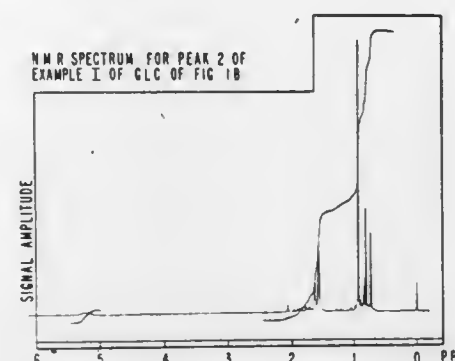
Richard M. Boden, Monmouth Beach; Lambert Dekker, Wyck-off; Frederick L. Schmitt, Holmdel, all of N.J., and Augustinus G. Van Loveren, Rye, N.Y., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 188,576, Sep. 18, 1980, Pat. No. 4,303,555, which is a continuation-in-part of Ser. No. 160,788, Jun. 19, 1980, Pat. No. 4,287,084. This application May 28, 1981, Ser. No. 267,899

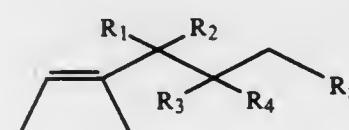
Int. Cl.³ C11D 3/50

U.S. Cl. 252-174.11

1 Claim



1. A process for augmenting or enhancing the aroma of a solid or liquid anionic, cationic, nonionic or zwitterionic detergent comprising the step of adding to a solid or liquid anionic, cationic, nonionic or zwitterionic detergent base, an aroma augmenting or enhancing quantity of a diisoamylene-containing composition produced by the process of reacting two moles of isoamylene with one another in the presence of an acid catalyst in order to produce a mixture consisting essentially of compounds each defined according to the generic structure:



wherein R₁, R₂, R₃, R₄ and R₅ represent hydrogen or methyl with the provisos that (i) at least one of R₃ and R₄ represents methyl; (ii) the sum of the carbon atoms in R₁, R₂, R₃, R₄, and R₅ is three; and (iii) R₁ and R₂ each represent hydrogen when R₅ is methyl.

4,366,079

SULFONATED RUBRENE AND AQUEOUS CHEMILUMINESCENT COMPOSITIONS CONTAINING THE SAME

Michael M. Rauhut, Bridgewater, and Arthur G. Mohan, Somerville, both of N.J., assignors to American Cyanamid Company, Stamford, Conn.

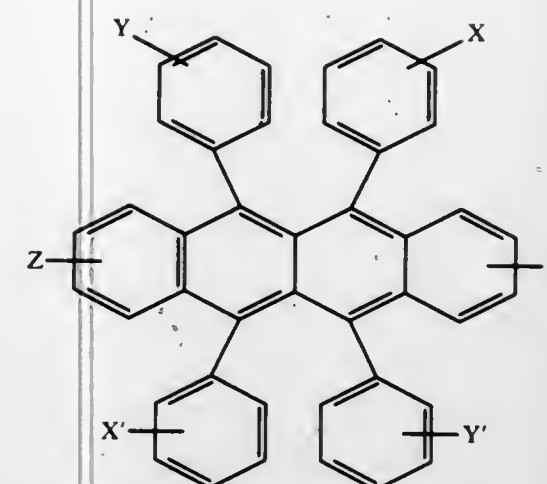
Filed Feb. 26, 1981, Ser. No. 238,340

Int. Cl.³ C09K 11/06, 11/14

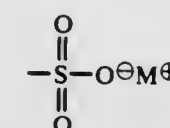
U.S. Cl. 252-188.3 CL

12 Claims

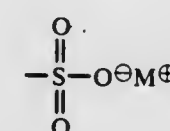
1. A sulfonated rubrene represented by the formula (I):



wherein each of the X, Y, Z, X', Y', and Z' substituents independently represents a member selected from the group consisting of hydrogen, C₁-C₆ alkyl, chloro, fluoro, carboxy, C₁-C₆ alkoxy, hydroxy, C₆-C₁₂ aryloxy, and



wherein M[⊕] represents a member selected from the group consisting of ammonium, C₁-C₆ alkylammonium, C₁-C₆ dialkylammonium, C₁-C₆ trialkylammonium, and alkali metal ions, and wherein the defined sulfonated rubrene contains the substituent



in an amount at least sufficient to produce water-solubility of the sulfonated rubrene to the extent of 1 × 10⁻⁴ moles per liter at ambient temperature.

4,366,080

LIQUID CRYSTAL DISPLAY ELEMENT

Kiyoshi Mizunoya; Shoichi Matsumoto, both of Yokohama; Hitoshi Tomii, Kawasaki; Masahiro Kawamoto, Yokohama, and Yuusuke Wada, Chigasaki, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Mar. 9, 1981, Ser. No. 242,030

Claims priority, application Japan, Apr. 7, 1980, 55/44683; Jan. 16, 1981, 56/3873

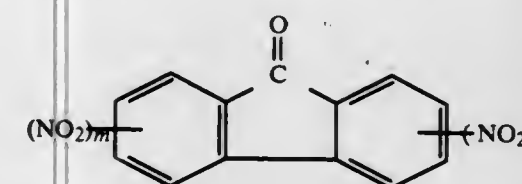
Int. Cl.³ G02F 1/13; C09K 3/34

U.S. Cl. 252-299.3

15 Claims

1. A dynamic scattering type liquid crystal display element adapted to be actuated by D.C. voltage, comprising:

- a pair of electrode substrates forming a space therebetween, at least one of which is transparent;
- a liquid crystal composition filled in said space, said composition comprising a liquid crystal, and a charge transfer complex formed of an electron acceptor and electron donor, said electron acceptor being at least one nitro-substituted 9-fluorenone expressed by the general formula



where m and n are each an integer of 0 to 4, and m plus n are an integer of 1 to 4.

4,366,081

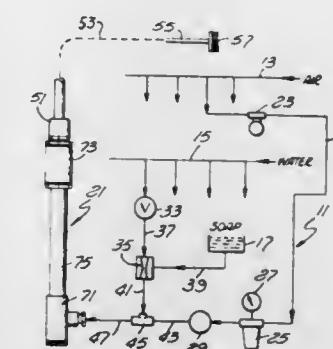
MIXING APPARATUS FOR FOAM GENERATION
Donald A. Hull, 6660 Woodman Ave., #105, Van Nuys, Calif. 91405

Filed May 9, 1980, Ser. No. 148,563

Int. Cl.³ B01F 3/04, 5/06, 13/06

U.S. Cl. 252-359 E

18 Claims



1. Apparatus for generating a foam comprising:

- air inlet means;
- means operatively connected to the air inlet means for combining a liquid with air passed therethrough;
- means operatively connected to the air inlet means for combining a cleaning fluid with the liquid and the air;
- expansion chamber inlet means for receiving the combined fluid;
- first expansion chamber means operatively connected to the expansion chamber inlet means for creating a mixing turbulence in the flow of the combined fluid of air, liquid, and cleaning fluid including means for altering the direction of flow of the combined fluids by approximately 90° as they flow through the first expansion chamber means;
- second expansion chamber means comprising flow means through which the combined fluids flow away from the turbulence creating means in a relatively quiescent flow; and
- third expansion chamber means in fluid communication with the second expansion chamber means and including means therein for creating a mixing turbulence in the flow of the combined fluid of air, liquid, and cleaning fluid, and said third expansion chamber means is so configured as to be of greater volume than the first expansion chamber means.

4,366,082

ISOFLAVONES AND RELATED COMPOUNDS, METHODS OF PREPARING AND USING AND ANTIOXIDANT COMPOSITIONS CONTAINING SAME

Fritz W. Zilliken, Remagen, Fed. Rep. of Germany, assignor to Z-L Limited Partnership, Janesville, Wis.

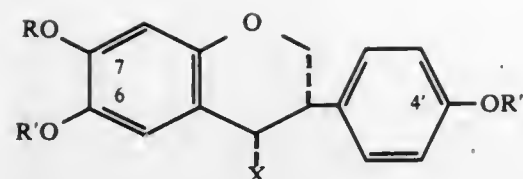
Division of Ser. No. 29,122, Apr. 11, 1979, Pat. No. 4,264,509, which is a continuation-in-part of Ser. No. 804,594, Jun. 8, 1977, Pat. No. 4,157,984. This application Jan. 12, 1981, Ser. No. 223,941

Int. Cl.³ C07D 311/36, 311/58

U.S. Cl. 252-404

21 Claims

1. An antioxidant composition comprising a compound having the structure:



wherein the dashed lines represent a carbon-carbon single bond or a carbon-carbon double bond, and wherein X may be two hydrogen atoms or oxygen, and further wherein each of R, R' and R'' may be methyl or ethyl group or hydrogen, and a suitable carrier.

4,366,083

PROCESS FOR REDUCING CO AND SO_x EMISSIONS FROM CATALYTIC CRACKING UNITS

Kenneth Baron, Diamond Bar, and Dennis P. McArthur, Yorba Linda, both of Calif., assignors to Union Oil Company of California, Los Angeles, Calif.

Division of Ser. No. 109,756, Jan. 7, 1980, Pat. No. 4,311,581.

This application Jan. 26, 1981, Ser. No. 228,267

Int. Cl.³ B01J 29/38, 21/20, 23/92; C10G 11/08

U.S. Cl. 252—416 17 Claims

1. In a process for regenerating cracking catalyst particles having sulfur-containing coke on the surfaces thereof by combusting said coke in the presence of oxygen and at elevated temperatures so as to remove sufficient coke from the surfaces of said catalyst particles so as to reactivate said catalyst particles for cracking hydrocarbons while producing a flue gas containing one or more pollutant gases selected from the group consisting of SO_x and CO, the improvement for reducing the amount of at least one of said pollutant gases carried with said flue gas comprising:

- (1) introducing into a regeneration zone a feed admixture of catalyst particles deactivated with coke and bastnaesite particles containing natural bastnaesite or a treated natural bastnaesite containing a rare earth fluorocarbonate or rare earth oxyfluoride after use of said admixture in a catalytic cracking reaction zone wherein hydrocarbons are cracked to produce product hydrocarbons of lower average molecular weight and boiling point;
 - (2) combusting, in said regeneration zone, a substantial proportion of the coke on said catalyst particles admixed with said bastnaesite particles; and
 - (3) withdrawing a product admixture of bastnaesite particles and regenerated cracking catalyst particles from said regeneration zone, said product admixture being more active for cracking hydrocarbons than said feed admixture.
2. A process as defined in claim 1 wherein the temperature in said regeneration zone is between about 900° and 1400° F.
3. A process as defined in claim 1 wherein (1) said catalyst particles comprise a crystalline aluminosilicate zeolite having activity for cracking hydrocarbons at a temperature above about 750° F. and (2) said bastnaesite is in the form of particles having an average diameter between about 20 to 80 microns.

4,366,084

CATALYST FOR MAKING POLYURETHANES

Francis W. Arbir, Itasca; Daniel S. Raden, Hawthorn Woods, and Kenneth W. Narducy, Bloomingdale, all of Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Filed May 26, 1981, Ser. No. 267,150

Int. Cl.³ B01J 31/02

U.S. Cl. 252—426 4 Claims

1. A catalyst composition for preparing urethane foams consisting essentially of 3-dimethylaminopropylamine and 10-50 equivalent-% of phenol.

4,366,085

FIBROUS ACTIVATED CARBON WITH METAL CHELATE COMPOUND SUPPORTED THEREON, PROCESS FOR PRODUCING THE SAME

Shigeru Ikegami, Mishima; Yoshihumi Kawakatsu, Shizuoka; Minoru Hirai, Shizuoka, and Kazuo Izumi, Shizuoka, all of Japan, assignors to Toho Beslon Co., Ltd., Tokyo, Japan

Filed Nov. 14, 1980, Ser. No. 207,039

Claims priority, application Japan, Oct. 30, 1980, 55/151487 Int. Cl.³ B01J 31/12

U.S. Cl. 252—431 C 31 Claims

1. Fibrous activated carbon with a metal chelate compound supported thereon, wherein the specific surface area of the fibrous activated carbon with the metal chelate compound supported thereon is at least about 500 m²/g.

4,366,086

COMPOSITION CONTAINING CHLORINE, BROMINE AND MAGNESIUM

David L. Beach, Gibsonia, Pa., and Adolfo Zambelli, Milan, Italy, assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Dec. 29, 1980, Ser. No. 221,064

Int. Cl.³ B01J 31/12

U.S. Cl. 252—431 R 60 Claims

1. A novel composition suitable for use as a catalyst support containing chlorine, bromine and magnesium wherein the molar ratio of bromine to chlorine ranges between about 1:99 to about 50:50 obtained by reacting an organo magnesium compound with a mixture of chlorinated and brominated aluminum compounds.

4,366,087

OLIGOMERIZATION CATALYST AND PROCESS

Dominique Le Pennec, Trappes; Dominique Commereuc, Meudon, and Yves Chauvin, Le Pecq, all of France, assignors to Institut Francais du Pétrole, Rueil-Malmaison, France

Continuation-in-part of Ser. No. 183,792, Sep. 3, 1980, Pat. No. 4,316,851. This application Mar. 27, 1981, Ser. No. 248,582

Claims priority, application France, Sep. 3, 1979, 79 22153

Int. Cl.³ B01J 31/14

U.S. Cl. 252—431 C 10 Claims

1. A catalyst composition consisting essentially of at least one hydrocarbyl aluminum halide and at least one nickel compound having the formula (R₁COO)(R₂COO)Ni, wherein R₁ is a hydroxy-substituted or unsubstituted C₅₋₂₀ hydrocarbyl radical; and R₂ is a haloalkyl group having the formula C_mH_pX_q, wherein m is 1, 2 or 3; p is zero or an integer; q is an integer; and p+q=2m+1; the molar ratio of the hydrocarbyl aluminum halide to the nickel compound being from 1:1 to 50:1.

4,366,088

SUPPORT FOR A PHOSPHATE-CONTAINING CATALYST

Chelliah Daniel, Columbus, Ohio, assignor to Ashland Oil, Inc., Ashland, Ky.

Filed Jan. 26, 1981, Ser. No. 228,304

Int. Cl.³ B01J 27/14

U.S. Cl. 252—435 7 Claims

1. A two component catalyst system comprising in physical mixture a phosphate-containing catalyst and a phosphate-doped inert support wherein said support is prepared by forming a liquid solvent slurry of an inert support and a phosphate-containing component, evaporating off the solvent to form a dried mass and calcining this dried mass.

4,366,089

CALCIUM-NICKEL PHOSPHATE CATALYST

Herman O. Krabbenhoft, Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed May 6, 1981, Ser. No. 260,873

Int. Cl.³ B01J 27/14, 31/02

U.S. Cl. 252—437 6 Claims

1. A method for improving the life of a calcium-nickel phosphate catalyst used in the dehydrogenation of para-isopropylphenol to para-isopropenylphenol, which process comprises passing through the calcium-nickel phosphate catalyst at a temperature of 550°-650° C., air first and then both air and a feed composed of phenol, water, and para-isopropylphenol, discontinuing the passage of this feed and continuing passage of air through the catalyst prior to its first use as a dehydrogenation catalyst.

4,366,090

PROCESS FOR THE PREPARATION OF ADSORBENT MATERIALS

Jean-Claude Caries, Manosque, France, assignor to Commissariat à l'Energie Atomique, Paris, France

Filed Mar. 24, 1981, Ser. No. 247,201

Claims priority, application France, Apr. 2, 1980, 80 07460

Int. Cl.³ B01J 20/10, 20/32

U.S. Cl. 252—459 11 Claims

1. A process for the preparation of an adsorbent material, comprising

- (a) an aqueous solution of an alkali metal silicate and a compound selected from the group comprising alkali metal hydroxides and ammonia,
- (b) admixing the solution with an adsorbent substance selected from the group consisting of the oxides and hydroxides of iron, manganese, titanium and zirconium in the form of a powder or gel; and
- (c) subjecting the thus obtained mixture to a heat treatment.

4. The process as in claim 1, wherein the heat treatment is performed in at least two stages at different temperatures, involving at least a first stage at a temperature below 100° and a second stage at a temperature of 100° to 400° C.

7. A material which can be used in the treatment or analysis of liquids comprising of an inert mineral salt of alkali metal silicate support, a hydroxide of the same alkali metal and an adsorbent substance selected from the group consisting of the oxides and hydroxides of iron, manganese, titanium and zirconium incorporated in said support.

4,366,091

HYDROCARBON DEHYDROGENATION WITH AN ATTENUATED SUPERACTIVE MULTIMETALLIC CATALYTIC COMPOSITE FOR USE THEREIN

George J. Antos, Bartlett, Ill., assignor to UOP Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 68,278, Aug. 20, 1979, Pat. No. 4,256,566, which is a continuation-in-part of Ser. No. 833,332, Sep. 14, 1977, Pat. No. 4,165,276. This application Dec. 12, 1980, Ser. No. 215,994

The portion of the term of this patent subsequent to Jan. 26, 1999, has been disclaimed.

Int. Cl.³ B01J 23/64

U.S. Cl. 252—466 PT 13 Claims

1. A nonacidic catalytic composite comprising a combination of a catalytically effective amount of a pyrolyzed rhenium carbonyl component with a porous carrier material containing a uniform dispersion of catalytically effective amounts of an alkali or alkaline earth component, a tin component and a platinum group component which is maintained in the elemental metallic state.

4,366,092

PROCESS FOR MAKING A SILVER-GOLD ALLOY CATALYST FOR OXIDIZING ETHYLENE TO ETHYLENE OXIDE

Richard C. Winterton, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Jul. 31, 1981, Ser. No. 288,969

Int. Cl.³ B01J 23/50, 23/52

U.S. Cl. 252—476 5 Claims

1. A process for the preparation of a gold-silver alloy containing catalyst which comprises (1) impregnating a suitable inert support with a gold salt, (2) reducing said salt to gold metal by heating, (3) cooling said gold containing support, (4) washing said gold containing support with water, (5) impregnating said support with a silver salt, (6) reducing said silver salt to silver metal by heating whereby a gold-silver alloy is formed on said support, and wherein the gold and silver salts are each impregnated by contacting said support with an aqueous solution or dispersion of said metal salts.

4,366,093

CYLINDRICAL MOLDED CATALYST

Ken Shiozaki, Hyogo; Kazunori Tsuge, Takasago, and Akira Ohnishi, Kakogawa, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Mar. 31, 1981, Ser. No. 249,507

Claims priority, application Japan, Apr. 7, 1980, 55-45925

Int. Cl.³ B01J 35/02

U.S. Cl. 252—477 R 3 Claims

1. A molded catalyst having a cylindrical shape, the outer diameter of the circle being from 3 to 6 mm., the inner diameter of the circle being at least 1.0 mm., the thickness of the wall being at most 1.5 mm. and the height being from 3 to 6 mm.

4,366,094

CONDUCTOR COMPOSITIONS

William R. Bushey, Lewiston, N.Y., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Feb. 2, 1981, Ser. No. 230,385

Int. Cl.³ H01B 1/02

U.S. Cl. 252—512 12 Claims

1. Conductive powder composition comprising an admixture of finely divided particles of (a) 1.65-25% by wt. silicon dispersed in a matrix of 98.35-75% by wt. aluminum metal and (b) glass, having a softening point below 600° C., the weight ratio of metal to glass being from 2 to 40.

4,366,095

PROCESS AND EQUIPMENT FOR THE TRANSPORTATION AND STORAGE OF RADIOACTIVE AND/OR OTHER DANGEROUS MATERIALS

Ferenc Takats; Ferenc Lorand; Imre Pajer, and Laszlo Liptak, all of Budapest, Hungary, assignors to Eroterv Eromu es Halozattervezo Vallalat, Budapest, Hungary

Filed Aug. 15, 1980, Ser. No. 178,351

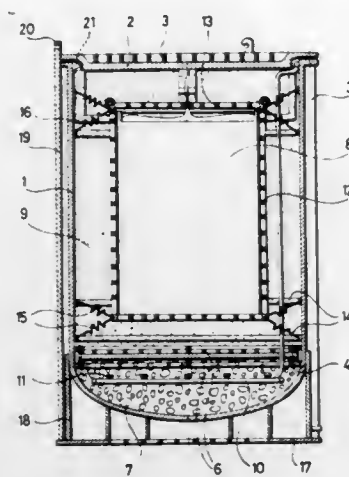
Claims priority, application Hungary, Sep. 14, 1979, EO 361

Int. Cl.³ A45C 11/20

U.S. Cl. 252—633 13 Claims

1. Process for the transportation and/or storage of radioactive and/or other dangerous materials, characterized by ar-

ranging the radioactive object(s) 8 in a container 1 filled with granular material 9, where the loading of the radioactive ob-



ject(s) into the container or their removal are facilitated with fluidization of the granular material.

4,366,096 CELLULOSIC UREA FORMALDEHYDE COMPOSITIONS

Carl C. Abrams, deceased, late of Fair Lawn, N.J.; Bernice Abrams, administratrix, 15-30 Pollitt Dr., #2B, Fair Lawn, N.J. 07410, and James R. Jones, 345 N. West End Ave., Lancaster, Pa. 17603

Continuation-in-part of Ser. No. 775,191, Mar. 7, 1977, abandoned. This application Aug. 14, 1978, Ser. No. 933,431
Int. Cl.³ C08G 12/12; C08L 1/02

U.S. Cl. 525—498 11 Claims
1. A cellulosic material composition comprising the reaction of:

- (1) a solution of a urea/metal compound at a pH of from 0.6 to 3.5 wherein the metal compound is the halide, nitrate, sulfate or phosphate of Ti, Hf, Zr, Al, Ca, Fe, Mn, Mg and mixtures thereof at a mole ratio of urea to metal compound of 6:1 to 30:1;
- (2) an aqueous formaldehyde solution at an equivalent ratio of 1:05 to 1:5 of urea to formaldehyde; and having a mole ratio of total water to total urea of 2 to 15; and
- (3) a cellulosic material in a ratio of 20:1 to 1:1 on a dry weight basis to the total weight of (1) and (2): under pressure.

4,366,097 NOVEL PROTEIN ISOLATION PROCEDURE

Jacquelyn J. Cameron, Harwood, and Chester D. Myers, Ajax, both of Canada, assignors to General Foods, Inc., Toronto, Canada

Filed Mar. 16, 1981, Ser. No. 244,248
Int. Cl.³ A23J 1/14

U.S. Cl. 260—123.5 7 Claims

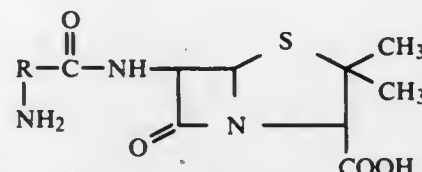
1. A method of forming a protein isolate, which comprises: contacting a plant protein source material selected from the group consisting of rapeseed(canola), sesame, pea and cottonseed solely with water to extract protein from the source material and form a protein solution, and diluting the protein solution with water to precipitate the protein therefrom.

4,366,098 PROCESS FOR PREPARING AMINOPENICILLINS

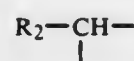
Reinhold H. W. Bender, Kennett Square, Pa., assignor to American Home Products Corporation, New York, N.Y.
Continuation-in-part of Ser. No. 210,495, Nov. 26, 1980, abandoned, which is a continuation of Ser. No. 67,632, Aug. 17, 1979, abandoned. This application Aug. 31, 1981, Ser. No. 298,039

Int. Cl.³ C07D 499/12; C07C 102/04, 103/375
U.S. Cl. 260—239.1 7 Claims

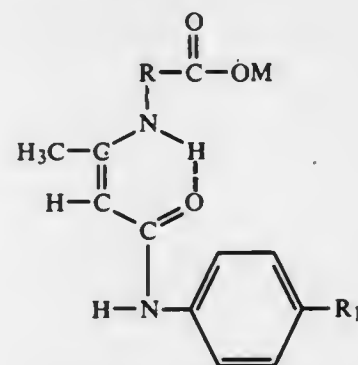
1. A process for preparing an α -aminopenicillin having the formula:



wherein R is a group having the formula:



wherein R₂ is phenyl or substituted phenyl, and physiologically acceptable salts thereof, which comprises reacting a derivative of 6-aminopenicillanic acid in an aqueous solution at a temperature at or below -20° C. with at least 0.8 equivalent of a mixed anhydride prepared by reacting an amide-type Dane salt having the formula:



wherein R is as defined hereinbefore and R₁ is cyano or nitro and M is an alkali metal or tri(lower)alkylamine, with an alkyl- or aralkylchlorocarbonate in the presence of a catalyst in a mixture of acetone and dimethylformamide or dimethylacetamide, adding thereto methylene chloride, hydrolyzing the resulting N-protected aminopenicillin to yield an α -aminopenicillin and a β -ketoamide, and recovering the α -aminopenicillin and the β -ketoamide.

4,366,099 PROCESS FOR TREATING COSMETIC OILS SO AS TO MODIFY THEIR PROPERTIES AND COSMETIC COMPOSITIONS CONTAINING THESE OILS

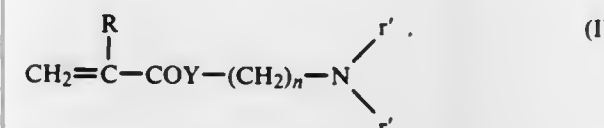
Quintino Gaetani, Bondy, and Christos Papanitiou, Montmorency, both of France, assignors to Societe Anonyme dite: L'Oreal, Paris, France

Filed Apr. 25, 1980, Ser. No. 143,730
Claims priority, application France, May 4, 1979, 79 11273
Int. Cl.³ C08F 19/14

U.S. Cl. 260—407 14 Claims

1. A process for modifying the properties of an unsaturated or saturated cosmetic oil by grafting so as to reduce its volatility and to improve its emulsifying power, said process comprising heating in the absence of a solvent and under an inert atmosphere, a natural or synthetic cosmetic oil with a homopolymerisable and hydrophilic monomer in the presence of an

initiator generating free radicals, said monomer being selected from the group consisting of N-vinylpyrrolidone, 2-hydroxymethyl acrylate, 2-hydroxymethyl methacrylate, acrylamide, methacrylamide, N-hydroxymethylacrylamide, N-(carboxyhydroxymethyl)acrylamide, acrylic acid, methacrylic acid, 2-vinylpyridine, 4-vinylpyridene and a monomer having the formula



wherein

R represents hydrogen or methyl,
Y represents —O— or —NH—,
R' represents methyl or ethyl and
n is 2 or 3, and

purifying the resulting modified cosmetic oil so as to remove any insoluble nongrafted homopolymer.

4,366,100 BIODEGRADABLE, OXIDATION-RESISTANT LIQUID ESTER MIXTURES WITH LOW TURBIDITY POINTS

Sasanka S. Naskar, and Reinhard Pass, both of Witten, Fed. Rep. of Germany, assignors to Dynamit Nobel AG, Troisdorf, Fed. Rep. of Germany

Continuation of Ser. No. 117,723, Feb. 1, 1980, abandoned. This application Jul. 2, 1981, Ser. No. 280,028

Claims priority, application Fed. Rep. of Germany, Feb. 3, 1979, 2904164; Sep. 29, 1979, 2939663

Int. Cl.³ C11C 3/02 11 Claims

1. Completely biodegradable, toxicologically innocuous, oxidation-resistant, flavorless and odorless, light-colored, homogeneous liquid ester mixtures with low turbidity points, low evaporation losses at elevated temperatures, and viscosities and densities adjustable as desired, comprising the products of esterification of 1 mol of glycerin with from 1.4 to 2.8 mols of a saturated aliphatic straight chained monocarboxylic acid having from 6 to 10 carbon atoms, or mixtures thereof, and from 0.1 to 0.8 mol of a saturated aliphatic dicarboxylic acid, or mixtures or anhydrides thereof, said ester mixtures having hydroxyl numbers ranging from 5 to 20 and an acid number of less than 5.

3. A process for the preparation of completely biodegradable, oxidation-resistant, flavorless and odorless, light-colored, homogeneous liquid ester mixtures according to claim 1, wherein glycerin is esterified to hydroxyl-containing partial esters with an aliphatic straight chained monocarboxylic acid having from 6 to 10 carbon atoms, or mixtures thereof, in the ratio of 1 mol of glycerin to from 1.4 to 2.8 mols of aliphatic monocarboxylic acid at from 200° to 250° C., preferably under a vacuum, until an acid number of less than 50 is obtained, and simultaneously therewith or subsequent thereto the hydroxyl-containing partial esters are further esterified with from 0.1 to 0.8 mol of aliphatic dicarboxylic acids, or mixtures or anhydrides thereof, at from 200° to 250° C. until a hydroxyl number ranging from 5 to 20 and an acid number of less than 5 are obtained, the crude product then being decolorized and deodorized.

4,366,101 SYNTHESIS OF LONG-CHAIN ALKANES HAVING TERMINAL FUNCTIONALITY

Thomas W. Gibson, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 50,839, Jun. 21, 1979, Pat. No. 4,268,697. This application Feb. 10, 1981, Ser. No. 233,232
The portion of the term of this patent subsequent to May 19, 1998, has been disclaimed.

Int. Cl.³ C07F 7/00 2 Claims

1. A process for preparing a long-chain terminally substituted n-alkane, comprising:

- (a) contacting an alpha-olefin having a carbon chain length greater than about C₁₁ with an olefin metathesis catalyst; and
- (b) contacting the product of step (a) with bis-cyclopentadienyl zirconium hydrohalide.

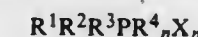
4,366,102 PROCESS FOR THE PREPARATION OF CHLOROFORMIC ACID ARYL ESTERS

Günter Rauchsvalbe, Cologne; Heinz U. Blank, Odenthal; Karl Mannes, and Dietmar Mayer, both of Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed May 6, 1981, Ser. No. 261,082
Claims priority, application Fed. Rep. of Germany, May 22, 1980, 3019526

Int. Cl.³ C07C 68/02 10 Claims

1. In a process for the preparation of an aromatic chloroformic acid ester by contacting a phenol and phosgene, the improvement wherein the reaction is carried out in a homogeneous liquid phase at a temperature of 60° to 180° C. in the presence of an organic phosphorus compound of the formula



in which

R¹, R² and R³ independently of one another represent hydrogen, a straight chain, branched or cyclic alkyl radical of up to 12 carbon atoms, a straight chain, branched or cyclic alkenyl radical of 2 to 12 carbon atoms, an aralkyl radical selected from the group consisting of benzyl, phenylethyl, naphthylethyl, naphthylmethyl and 9-fluorenyl, aryl of up to 15 carbon atoms or halogen and two of the said radicals together with the phosphorus atom can form a 5-membered or 6-membered phosphorus-containing saturated or unsaturated heterocyclic radical of a member selected from the group consisting of a phosphol, a phospholene, a phospholane, a dibenzophospholane and a phosphocyclohexane,

X represents OH, homopolar-bonded halogen or an inorganic or organic acid anion,

R⁴ denotes hydrogen or alkyl of up to 12 carbon atoms or, if X denotes halogen, can also denote halogen and

n denotes 0 or 1, and in which, furthermore,

R⁴ and X together can represent oxygen or sulfur.

4,366,103 DEODORIZED ORGANOITHIOPHOSPHOROUS AND EMULSIFIABLE CONCENTRATES THEREOF

David A. Pearce, Edison, and John J. Mehok, Clinton, both of N.J., assignors to Rhone-Poulenc Agrochimie, Lyon, France

Filed Dec. 19, 1980, Ser. No. 217,971
Int. Cl.³ C07C 9/20 8 Claims

1. A composition comprising an organothiophosphorus compound of the structure: P(SR)₃ wherein R is C₁-C₈ alkyl

and a minor stabilizing amount of a C₃-C₁₀ aliphatic or cycloaliphatic ketone.

4,366,104

FUEL FEED SYSTEM FOR INTERNAL COMBUSTION ENGINES

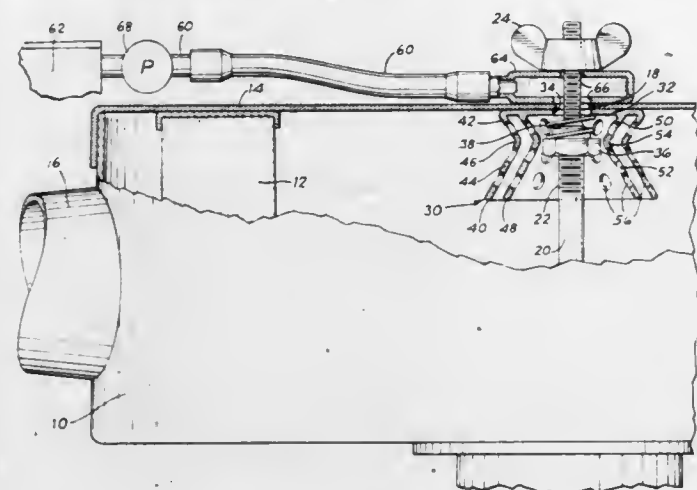
Harvey R. Miller, 3655 E. Amazon, Eugene, Oreg. 97405

Filed Jan. 25, 1982, Ser. No. 342,351

Int. Cl.³ F02M 13/06

U.S. Cl. 261—18 A

3 Claims



1. A fuel feed system arranged for use with an internal combustion engine of the type having a vacuum operated fuel intake system with an air inlet and an air filter with an interior opening into the intake system, the air filter also including a housing having a cover provided with a central aperture for receiving a mounting post, said fuel feed system comprising

- (a) an auxiliary fuel container,
- (b) atomizing means arranged for support on the mounting post interiorly of the air filter adjacent the cover of the air filter,
- (c) and conduit means extending from said container,
- (d) said conduit means terminating in a hollow housing arranged to be clamped on top of the cover of the air filter by means of the mounting post of the air filter,
- (e) said housing and said atomizing means having apertures which receive the mounting post of the air filter and which are enlarged relative to the post whereby fuel from said housing is arranged to flow from said housing through said enlarged apertures in said housing and atomizing means and through the aperture in the air filter cover into said atomizing means and thence into the intake system.

4,366,105

HIGH VOLUME HUMIDIFIER-NEBULIZER

Christopher A. Nowacki, Arlington Heights, Ill., assignor to Respiratory Care, Inc., Arlington Heights, Ill.

Filed Aug. 3, 1981, Ser. No. 289,463

Int. Cl.³ A16M 15/00

U.S. Cl. 261—35

7 Claims

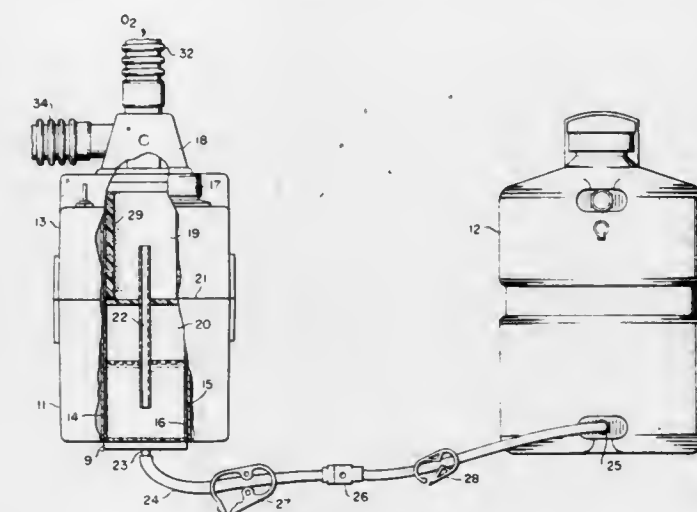
1. A pediatric humidifier cartridge module which is heated by an external heating means, so that said cartridge module supplies both humid and heated breathable gas to a pediatric patient undergoing inhalation therapy, comprising:

- a tubular cartridge main body portion having an inner peripheral wall, an upper end portion and a lower end portion, the lower end portion terminates in a transverse wall; cap means attached to said upper end portion of said main body portion;
- liquid inlet means formed in said transverse wall for allowing liquid to pass therethrough;
- conduit means connected to said liquid inlet means and adapted to be connected to an external liquid source for supplying liquid to said main body portion;
- a check valve positioned in said conduit means;
- a disc positioned horizontally in the approximate center of

said main body portion and dividing said main body portion into an upper and a lower chamber;

a tube positioned in the approximate center of said disc extending downwardly from said disc and terminating at a point approximately four-fifths of the distance between said disc and the bottom of said main body portion, and extending upwardly from said disc approximately half the distance of the downward extension;

liquid absorption means including an open generally tubular liquid absorption column member with an inner-peripheral face constituting an evaporating surface for humidifying liquid, said column member is disposed generally contiguously and coextensive with said upper chamber of



said main body portion and is constructed to be metered by liquid moving into said upper chamber through said tube extending through said disc;

an air space formed by said cap means of said upper end portion together with a portion of said main body portion above the humidifying liquid level in said lower end portion;

a breathable gas inlet feed pipe on said cap means for directing gas to be humidified into said main body portion and terminating in said main body portion; and an outwardly projecting humidified breathable gas outlet delivery pipe on said cap means in fluid communication with said air space, said delivery pipe adapted to be connected to an output delivery tube leading to a patient.

4,366,106

HEAT EXCHANGER

Istvan Benyak, Tata; Lajos Dudas, and Oszkar Pohl, both of Budapest, all of Hungary, assignors to Hutotechnika Ipari Szövetkezet, Tata and Villamosenergiaipari Kutató Intézet, Budapest, both of, Hungary

Filed Jun. 4, 1981, Ser. No. 271,031

Claims priority, application Hungary, Jun. 12, 1980, 1474

Int. Cl.³ B01F 3/04

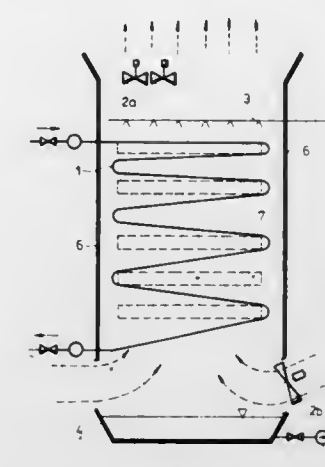
U.S. Cl. 261—156

8 Claims

1. In a heat exchanger for the condensation of vapors, comprising a coil pipe having an upper inlet end and a lower outlet end and a plurality of lengths of pipe arranged in zigzag fashion between said upper and lower ends, means to spray liquid from above onto the coil pipe, and means to move air upwardly along the coil pipe; the improvement in which said lengths of pipe are inclined downwardly at acute angles to the horizontal

from said inlet end to said outlet end and said acute angles progressively increase downwardly such that the angles be-

0.3-6 percent by weight of the component (c), relative to the amount of (b) and (c), are present.



4,366,109

METHOD FOR MAKING COATED MOLDED ARTICLES

Glenn R. Svoboda, Grafton, Wis., assignor to Freeman Chemical Corporation, Port Washington, Wis.

Division of Ser. No. 145,799, May 1, 1980, now Defensive Publication No. 4,293,659. This application Aug. 7, 1981, Ser. No. 291,011

Int. Cl.³ B29G 7/00

U.S. Cl. 264—255

1 Claim

1. A method for producing a coated, molded, fiber-reinforced thermoset plastic article comprising producing a fiber-reinforced, thermoset plastic article in a matched metal mold; opening the said mold after the article has attained its intended shape;

introducing into the open mold a composition comprising:

- (A) a blocked polyisocyanate which is the reaction product, essentially free of unreacted —NCO radicals, of ε-caprolactam and organic polyisocyanate;
- (B) a polyepoxide-polyacrylate which is the reaction product, essentially free of unreacted epoxy radicals of a polyepoxide and acrylic or methacrylic acid;
- (C) ethylenically unsaturated polyester resin;
- (D) copolymerizable alpha-beta ethylenically unsaturated monomer;
- (E) an initiator for addition polymerization;
- (F) a catalyst for the reaction of —NCO radicals and —OH radicals;
- (G) fillers;

closing the mold and thereby spreading the said composition over at least one surface of the said article; retaining the mold in the closed condition at a molding temperature until the said article is further cured and the said composition is cured;

opening the mold and recovering a molded, fiber-reinforced thermoset plastic article having an adherent coating over at least one surface thereof.

4,366,110

SCREW IN-LINE TYPE INJECTION MOLDING METHOD AND APPARATUS FOR LOW-PRESSURE INJECTION MOLDING

Akiyoshi Morita, and Mitsuyoshi Sato, both of Toyota, Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan

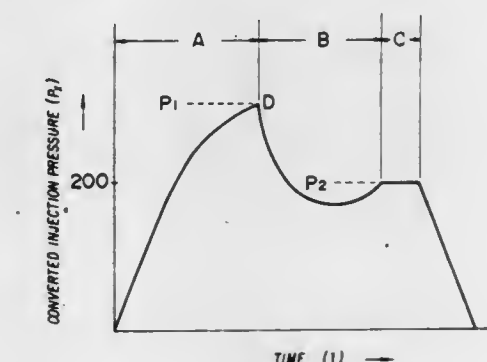
Filed Mar. 31, 1980, Ser. No. 136,083

Claims priority, application Japan, Mar. 31, 1979, 54-38810

Int. Cl.³ B29F 1/06

U.S. Cl. 264—328.13

3 Claims



1. A low pressure injection molding method for urea mixed resin powder using a screw in line type injection molding machine having an injection cylinder, an injection piston, a hydraulic control circuit for controlling hydraulic pressure and a metal mold cavity; wherein said method comprises: charging a molten and plasticized urea mixed resin powder

tween pairs of adjacent lengths of pipe progressively increase downwardly for a plurality of said pairs.

4,366,107

MAKING SHRINK-FIT OBJECTS

Hermann U. Voigt, Langenhagen, and Frank Patzke, Lehrte, both of Fed. Rep. of Germany, assignors to Kabel- u. Metallwerke Gutehoffnungshütte AG, Hanover, Fed. Rep. of Germany

Filed Oct. 3, 1980, Ser. No. 193,486

Claims priority, application Fed. Rep. of Germany, Oct. 8, 1979, 2940719

Int. Cl.³ H05B 6/64

U.S. Cl. 264—25

19 Claims

1. The method of making a shrink object, comprising the steps of

- providing a polymer blend with a graft component;
- causing the graft component to be grafted upon the polymer, the graft component being of the type for cross-linking the polymer molecules in the presence of moisture;
- exposing said grafted-on polymer to moisture for obtaining the cross-linking;
- shaping the grafted-on polymer into a particular object;
- expanding the completely shaped and completely cross-linked object at an elevated temperature; and maintaining the expanded state as the object cools.

4,366,108

LIQUID MATRIX SYSTEM BASED ON A MIXTURE OF EPOXIDE RESIN AND AN AMINE CURING AGENT FOR PRODUCING FIBRE-REINFORCED PLASTICS COMPONENTS

Karl Urech, Pratteln; Jürgen Habermeier, Pöfingen, and Roland Moser, Basel, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jul. 16, 1981, Ser. No. 283,766

Claims priority, application Switzerland, Jul. 25, 1980, 5707/80

Int. Cl.³ C08G 59/50

U.S. Cl. 264—137

7 Claims

1. A liquid matrix system based on a mixture of epoxide resin and an amine curing agent for producing fibre-reinforced plastics components, which system is characterised in that it has at 40° C. a dynamic viscosity of less than 400 mPa s, and contains

- (a) a liquid diglycidyl ether of bisphenol-F or a mixture of liquid polyglycidyl compounds,
 - (b) diethyltoluenediamine as curing agent for the glycidyl compound,
 - (c) BF₃-acetoacetanilide as a curing accelerator, and
 - (d) optionally additives,
- wherein to one epoxide group of the component (a) there are 0.8-1.2 aminohydrogen atoms of the component (b), and wherein 94-99.7 percent by weight of the component (b) and

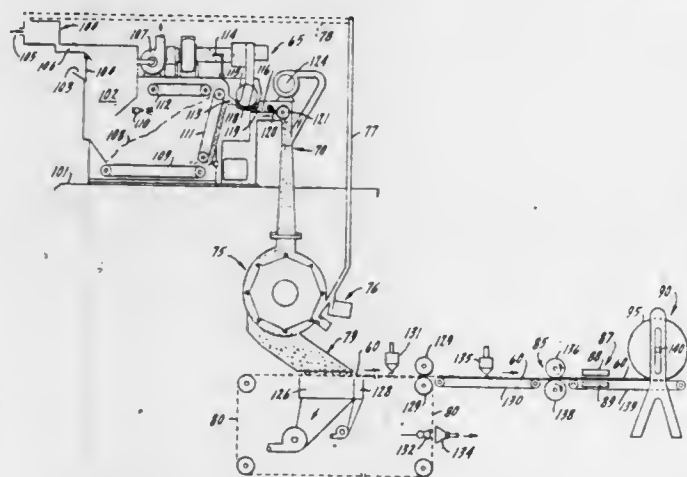
into said metal mold cavity so as to initiate filling of said metal mold cavity with said urea mixed resin powder during a primary injection phase;
 maintaining the pressure of said urea mixed resin powder within said injection cylinder from 250 to 700 kg/cm² during said primary injection phase;
 maintaining the velocity of said urea mixed resin powder during said primary injection phase within said injection cylinder from 35 to 50 mm/sec;
 stopping said primary injection phase when said filling of said cavity is within a range of 80 to 95 percent filled;
 further charging said urea mixed resin powder into said metal mold cavity so as to complete said filling of said metal mold cavity with said urea mixed resin powder during a secondary injection phase;
 maintaining said pressure of said urea mixed resin powder within said injection cylinder from 50 to 200 kg/cm² during said secondary injection phase; and
 maintaining said pressure of said urea mixed resin powder within said metal mold cavity for a predetermined period of time under a predetermined holding pressure equal to or less than said pressure maintained during said secondary injection phase after completing said primary and secondary injection phases.

4,366,111

METHOD OF HIGH FIBER THROUGHPUT SCREENING
 James H. Dinius, and Raymond Chung, both of Neenah, Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.
 Continuation-in-part of Ser. No. 106,143, Dec. 21, 1979, abandoned. This application May 29, 1981, Ser. No. 268,174
 Int. Cl.³ B29J 5/00

U.S. Cl. 264—518

9 Claims



1. The method of forming an air-laid web of dry fibers having a basis weight of from 7.5 to 50 pounds per 2880 square feet comprising:

- delivering dry fibrous materials comprising individualized fibers and aggregated fiber masses suspended in an air stream to a rotary forming head having a forming chamber with a plurality of rotating rotor bars therein positioned over a forming surface;
- conveying the dry fibrous materials through the forming head in a moving aerated bed of individualized dry fibers and aggregated fiber masses and in an environment maintained substantially free of fiber grinding and disintegrating forces;
- continuously separating and discharging from the forming head from 1% to 10% of the fibrous materials from the aerated bed having a bulk density in excess of 0.2 g/cc;
- discharging the individualized fibers from the forming head through a high capacity slotted screen at a fiber throughput rate from about 0.5 lbs./hr./in.² to about 1.50 lbs./hr./in.²;
- conveying said individualized fibers from said forming head through an enclosed forming zone to a moving foraminous forming surface whereby, an air-laid web of

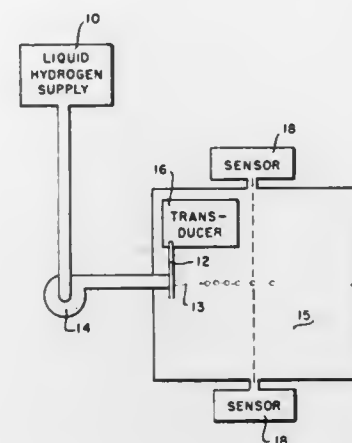
individualized fibers is formed on said foraminous forming surface.

4,366,112

SOLID EVACUATED MICROSPHERES OF HYDROGEN
 Robert J. Turnbull, Urbana; Christopher A. Foster, Champaign, both of Ill., and Charles D. Hendricks, Livermore, Calif., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.
 Division of Ser. No. 629,244, Nov. 6, 1975, Pat. No. 3,985,841.
 This application Jun. 22, 1976, Ser. No. 698,555
 Int. Cl.³ G21B 1/00

U.S. Cl. 376—151

4 Claims



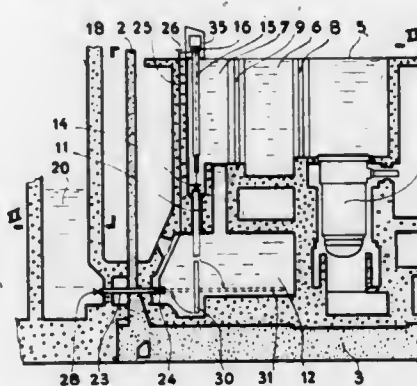
1. A product consisting essentially of solid evacuated microspheres of hydrogen.
4. The product of claim 1 wherein said hydrogen is comprised of a mixture of deuterium and tritium.

4,366,113

INSTALLATION FOR A NUCLEAR POWER STATION WITH STAGGERED SWIMMING POOLS
 Roger Gigou, Herblay, France, assignor to Framatome, Courbevoie, France
 Continuation of Ser. No. 947,829, Oct. 2, 1978, abandoned. This application Oct. 20, 1980, Ser. No. 199,109
 Claims priority, application France, Oct. 4, 1977, 77 29845
 Int. Cl.³ G21C 19/00

U.S. Cl. 376—264

1 Claim



1. An installation for a nuclear power station comprising: a reactor building containing a nuclear reactor and a first swimming pool at a level above said reactor for handling fuel units under water;
 an adjoining building with a second swimming pool for the transfer of fresh fuel units and for the storage and deactivation of spent fuel units, the bottom of said second swimming pool being at the same level as the ground of the site of said reactor building;
 an intermediate chamber in said reactor building below said first swimming pool and at the same level as said second

swimming pool, said chamber being entirely and permanently filled with water;
 a horizontal pipeline and a vertical pipeline permanently filled with water, for the passage of the fuel units therethrough, and both opening into said intermediate chamber, said vertical pipeline communicating with said first swimming pool, and said horizontal pipeline communicating directly with said second swimming pool;
 a leakproof shut-off valve for each pipeline;
 interlocked control means for said valves such that said two valves cannot both be in open condition at the same time; and
 a conveyor basket for transporting said fuel units and adapted to fit inside said horizontal pipeline and said vertical pipeline with negligible dead space around said basket when inside said pipelines.

4,366,114

DRY STORAGE FOR SPENT FUEL ASSEMBLIES
 Roland Kühnel, Dietzenbach; Rainer Bokelmann, Offenbach; Magnus Scholz, Korschbroich; Klaus Gebke, Gelnhausen, and Mariana Schüler, Offenbach, all of Fed. Rep. of Germany, assignors to Kraftwerk Union AG, Mulheim an der Ruhr, Fed. Rep. of Germany

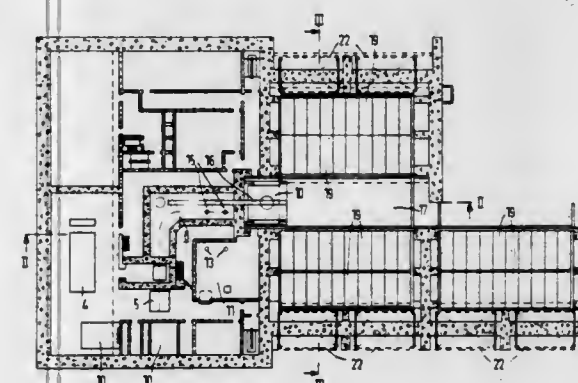
Filed Jul. 16, 1980, Ser. No. 169,633

Claims priority, application Fed. Rep. of Germany, Jul. 20, 1979, 2929467

Int. Cl.³ G21C 19/00

U.S. Cl. 376—272

7 Claims



1. Storage building with gas-tight storage boxes for spent nuclear-reactor fuel assemblies, the building having an interior secured against penetration from the outside, devices disposed in said building for removing from shipping containers, by remote control, spent fuel assemblies delivered in said shipping containers into said building and for enclosing the fuel assemblies in the gas-tight storage boxes, and at least one storage chamber in said building having therein storage racks for supporting said fuel-element storage boxes, comprising a transporting device movable into respective horizontal and vertical coordinate positions for stacking said fuel-element storage boxes horizontally in said storage racks, said storage boxes containing heat-conducting medium in addition to the fuel assemblies, and heat removing devices disposed in an outer wall of said building for providing natural air circulation through said storage racks, said heat removing devices being connected with said storage chamber and extending to the outside.

4,366,115

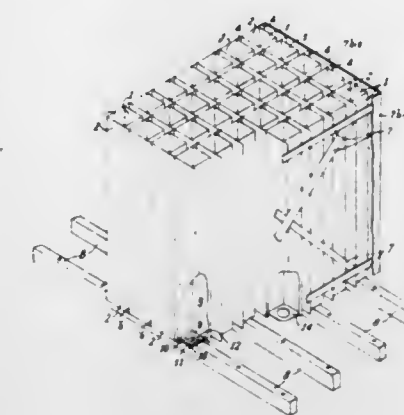
STORAGE RACK FOR ASSEMBLAGES OF NUCLEAR FUEL ELEMENTS
 Raymond J. Schlumpf, 18 Rue du Fort Debout, B-7630 Brunehaut-Hollain, Belgium

Filed Aug. 1, 1980, Ser. No. 174,618

Claims priority, application France, Aug. 7, 1979, 79 20239
 Int. Cl.³ G21C 19/00

U.S. Cl. 376—272

14 Claims



1. A storage rack for nuclear fuel assemblages of circular or polygonal cross-section, comprised of several storage chambers consisting of hollow stems having a cross-section adapted to that of the said assemblages, placed one beside the other in a regular pattern of parallel rows, a spacing being provided between the walls of the neighboring chambers, each chamber being composed of one or more rectangular metal plates formed by bending, or melted metal sealing, or both, into a hollow stem having walls disposed to form a prismatic or cylindrical surface and being equipped at its lower part with a base capable of supporting a nuclear fuel assemblage, wherein the metal plates which form the chambers protrude outwardly from said prismatic or cylindrical surface at at least two locations of its contour while forming at these locations projections against which the neighboring chambers are applied and attached, the chambers, joined directly together by known means, without interposition of cross-pieces or of coupling or packing pieces, forming a self-supporting structure in which each chamber is attached to the nearest chambers of its own row and to the neighboring rows, said structure being capable of being disposed in a storage area for nuclear fuel assemblages.

4,366,116

NUCLEAR REACTOR FUEL ASSEMBLY DUCT-TUBE-TO-HANDLING-SOCKET ATTACHMENT SYSTEM

David W. Christiansen, and Bob G. Smith, both of Kennewick, Wash., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 5, 1981, Ser. No. 240,676

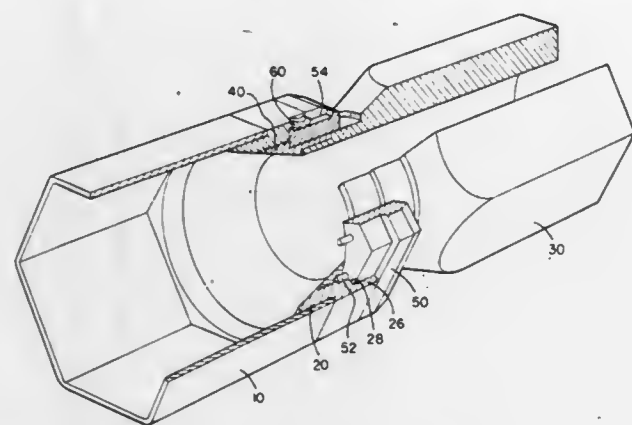
Int. Cl.³ G21C 3/06

U.S. Cl. 376—446

8 Claims

1. A reusable nuclear reactor fuel assembly duct-tube-to-handling-socket attachment system, comprising:
 - a nuclear reactor fuel assembly duct tube having an upper end;
 - an annular transition ring coaxially fixed to said duct tube's upper end, with:
 - a lower portion having a coaxially aligned inside-threaded section having a top region containing a longitudinally-disposed, first locking hole segment,
 - an upper portion having a longitudinally-disposed, annular, locking cup collar transversely wider than said inside-threaded section, and
 - an annular locking cup bottom surface, disposed generally transversely, which extends from said locking cup collar to said inside-threaded section;

- (c) a nuclear reactor fuel assembly handling socket having a lower end;
- (d) an annular adaptor ring coaxially fixed to said handling socket's lower end, with a lower portion having a coaxially aligned outside-threaded section having a bottom region containing a longitudinally-disposed, second locking hole segment, said outside-threaded section engagable with said transition ring's inside-threaded section, with said second locking hole segment alignable with said



- transition ring's first locking hole segment to define a locking hole;
- (e) an annular locking ring, transversely narrower than said locking cup collar, coaxially surrounding said adaptor ring, with a lower portion having a longitudinally-disposed locking pin matable with said locking hole, said locking ring longitudinally slidable, with said locking pin engagable and disengagable with said locking hole; and
- (f) means for securing said locking cup collar to said locking ring when said locking pin is engaged in said locking hole.

4,366,117

COPPER ALLOY FOR USE AS LEAD MATERIAL FOR SEMICONDUCTOR DEVICES

Masahiro Tsuji, Urawa, Japan, assignor to Nikon Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 3, 1981, Ser. No. 270,064

Claims priority, application Japan, Jun. 6, 1980, 55/75575

Int. Cl. C22C 9/04

U.S. Cl. 420-481

3 Claims

1. A copper alloy for use as a lead material for semiconductor devices consisting of:
- between about 0.04 and about 1.0 weight percent of Ni,
- between about 0.01 and about 0.3 weight percent of Si,
- between about 0.05 and about 15 weight percent of Zn, and
- the remainder Cu and inevitable impurities.

4,366,118

APPARATUS AND METHOD FOR LUMINESCENT DETERMINATION OF CONCENTRATION OF AN ANALYTE IN A SAMPLE

Roger A. Bunce, 117 Burberry Close, Bourneville, Birmingham; Timothy J. N. Carter, 14 Field Close, Sheldon, Birmingham B26 2NA; John H. Kennedy, 15 Dorset Rd., Edgbaston, Birmingham; Larry J. Kricka, 23 Kestrel Grove, Sellywood, Bourneville, Birmingham B30 1TQ, and Thomas P. Whitehead, 70 Northumberland Spa, Warwickshire, all of England

PCT No. PCT/GB79/00102, § 371 Date Feb. 14, 1980, § 102(e) Date Feb. 14, 1980, PCT Pub. No. WO80/00100, PCT Pub. Date Jan. 29, 1980

PCT Filed Jun. 13, 1979, Ser. No. 189,930

Claims priority, application United Kingdom, Jun. 14, 1978, 26924/78

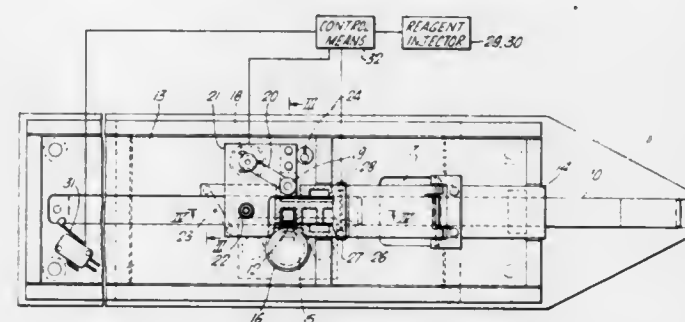
Int. Cl. G01N 21/76

U.S. Cl. 422-57

8 Claims

1. Apparatus for luminescent determination of the amount or concentration of an analyte in a sample, comprising
- a block member including a plurality of cells, each cell being

adapted to contain a sample, and each having a window through which light can leave the cell; a test chamber for mounting the block member containing at least one cell; a photodetector mounted to receive light emitted from a cell and disposed at a testing station in said test chamber to provide an output signal dependent on said emitted light; delivery means for delivering a predetermined amount of reagent into a cell at the testing station, said delivery means including a reagent injector mounted for reciprocal movement into and out of a cell to deliver reagent into the cell substantially at the bottom thereof; and



transport means adapted for moving the cells successively to the testing station including settable control means for automatically controlling the transport means and delivery means to establish cyclic operation in which a cycle comprises moving a cell to the testing station, delivering reagent into the cell, detecting the light output from that cell for a predetermined period and finally moving the cell away from the testing station, the control means being actuated from photo sensitive means which is illuminated from an infrared light source through a bore in block member when any cell is at the testing station.

4,366,119

DISCRETE TYPE AUTOMATED CHEMICAL ANALYTIC APPARATUS

Masaki Takeuchi, Otawara, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

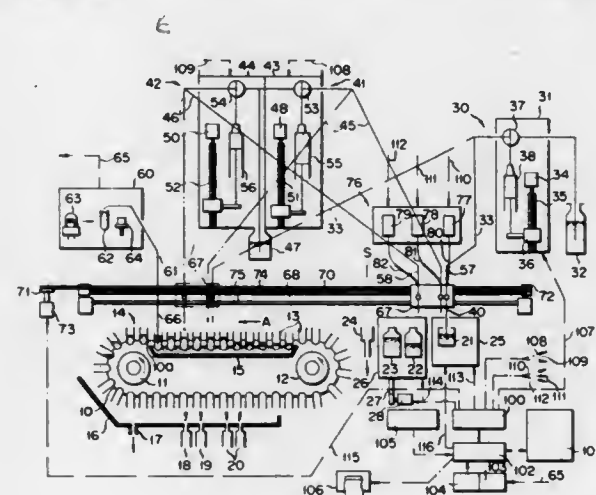
Filed Mar. 16, 1981, Ser. No. 243,737

Claims priority, application Japan, Mar. 20, 1980, 55-34953

Int. Cl. G01N 33/48, 35/06, 35/04

U.S. Cl. 422-65

15 Claims



1. A discrete type automated chemical analytic apparatus for continuously analyzing a large number of specimens with respect to a plurality of items of examination in a single reaction channel comprising:

endless belt conveyor means having a top run;

drive means for moving the endless belt conveyor means;

a plurality of reaction tubes spatially arranged in the direction in which the conveyor means is moved, those of the reaction tubes which are positioned on the top run of the

conveyor means defining a reaction line, the direction in which the reaction line travels being a time axis direction,

specimen holding means;

reagent holding means;

specimen discharge means for delivering a specimen from said specimen holding means to a selected reaction tube mounted on the reaction line, said specimen discharge means including conduit means;

reagent discharge means for delivering one or more reagents to said selected reaction tube on the reaction line, said reagent discharge means including conduit means;

measuring means provided at the terminal end of the reaction line for analyzing said reacted specimen at a fixed measuring point on the reaction line;

means for washing and drying the reaction tubes after removal of said specimen in order to render them ready for the subsequent application;

carrier means for moving the conduit means of the specimen discharge means and the conduit means of the reagent discharge means from a point facing the specimen holding means and the reagent holding means to selected points along the time axis direction facing the selected one of the reaction tubes mounted on the reaction line, said carrier means being constructed and selectively movable to deliver the specimen and the reagent to the selected reaction tube at the same point and at a different point on the reaction line in the time axis direction;

means for driving said carrier means;

whereby a reaction time can be properly controlled in accordance with a kind of specimen and items of examination.

4,366,120

SMALL SCALE CHLORINE DIOXIDE PLANT

Gerald Cowley, Mississauga, Canada, assignor to Erco Industries Limited, Islington, Canada

Division of Ser. No. 143,888, Apr. 25, 1980, Pat. No. 4,250,159.

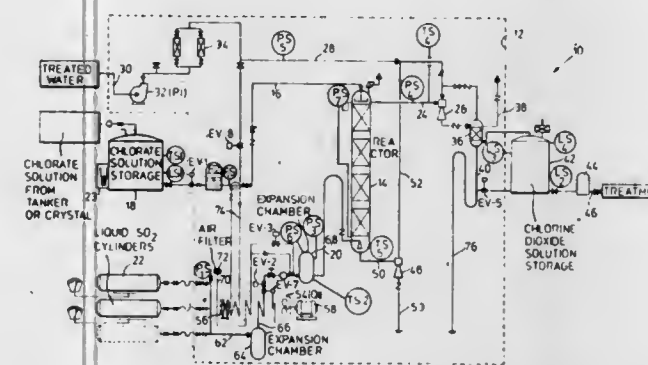
This application Aug. 27, 1980, Ser. No. 181,766

Claims priority, application United Kingdom, May 31, 1979, 7919026

Int. Cl. G05D 9/00, 10/00; G05B 9/00; B01J 8/00

U.S. Cl. 422-106

1 Claim



1. An automated chlorine dioxide-producing plant, comprising:

a chlorine dioxide-forming reactor comprising an upright tubular gas-liquid counter-current contact tower having an upper end and a lower end;

first feed conduit means communicating with said upper end of said tower for feed of aqueous sodium chlorate solution thereto, sodium chlorate storage tank means in communication with said first feed conduit means, sodium chlorate solution pump means located between said sodium chlorate solution storage tank means and said first conduit means, and first selectively operable valve means located between said sodium chlorate solution storage tank and said sodium chlorate solution pump means;

second feed conduit means communicating with said lower end of said tower for feed of gaseous sulphur dioxide thereto and liquid sulphur dioxide storage means in communication with expansion chamber means for converting liquid sulphur dioxide to gaseous sulphur dioxide and

communicating with said second feed conduit means, whereby sodium chlorate solution flowing downwardly in said tower countercurrently contacts upwardly-flowing sulphur dioxide to cause reaction therebetween to form chlorine dioxide gas and liquid byproduct;

gaseous product conduit means communicating with said upper end of said tower for removal of said gaseous chlorine dioxide therefrom and liquid product conduit means communicating with said lower end of said tower for removal of said liquid by-product therefrom;

first water ejector means communicating with said gaseous product conduit means, first water conduit means communicating with said water ejector means for flow of water thereto, whereby said first water ejector means subjects said tower to subatmospheric pressure through said gaseous conduit and water contacting said chlorine dioxide in said first water ejector means forms an aqueous chlorine dioxide solution therefrom, aqueous chlorine dioxide solution conduit means communicating with said first water ejector means, chlorine dioxide solution storage means communicating with said aqueous chlorine dioxide solution conduit means, and second selectively operable valve means located between said chlorine dioxide solution storage means and said aqueous chlorine dioxide solution conduit means;

second water ejector means communicating with said liquid product conduit means, second water conduit means communicating with said second water ejector means for flow of water therethrough, whereby said second water ejector means applies a suction to the lower end of said tower to remove said liquid by-product therefrom through said liquid product conduit means and to dilute the same, and aqueous effluent conduit means communicating with said second water ejector means;

water pump means having an upstream side and a downstream side adapted to communicate on its upstream side with a source of water and communicating on its downstream side in parallel with said first and second water ejector means through respective first and second water conduit means;

heater means in heat exchange relationship with said second feed conduit means for heating sulphur dioxide passing therethrough, air conduit means in heat exchange relationship with said heater means and communicating with said second feed circuit means downstream of said heat exchange relationship between said second feed conduit means and said heater means, and third selectively operable valve means in said air conduit means;

flush water conduit means in heat exchange relationship with said heater means and communicating with said water pump means and said first feed conduit means, and fourth selectively operable valve means in flush water conduit means;

first level sensor means for sensing a predetermined lower level of chlorine dioxide solution in said chlorine dioxide solution storage tank corresponding to a level at which production of chlorine dioxide solution by said plant is required to commence, and second level sensor means for sensing a predetermined upper level of chlorine dioxide solution in said chlorine dioxide solution storage tank, corresponding to a level at which production of chlorine dioxide solution by said plant is required to cease;

first temperature sensor means for sensing the temperature of sodium chlorate solution in said sodium chlorate solution storage tank, second temperature sensor means for sensing the temperature of sulphur dioxide gas in said second feed conduit means downstream of said communication with said air feed conduit means, third temperature sensor means for sensing the temperature of chlorine dioxide gas in said gaseous product conduit means, and fourth temperature sensor means for sensing the temperature of liquid by-products at the lower end of said tower;

first pressure sensor means for sensing the pressure of liquid

sulphur dioxide in said sulphur dioxide storage means, second pressure sensor means for sensing the pressure of chlorine dioxide gas in said gaseous product conduit means, third pressure sensor means for sensing the differential pressure between the upper end and lower end of said tower, fourth pressure sensor means for sensing the pressure of sulphur dioxide gas in said second feed conduit means at the location of said second temperature sensor means, and fifth pressure sensor means for sensing the pressure of water on said downstream side of said water pump means;

flow sensor means for sensing flow or no flow of sodium chlorate solution through said first feed conduit means; and

means selectively actuating each of said selectively-actuable valve means in predetermined manner in response to predetermined parameters sensed by said sensors.

4,366,121

SYSTEM FOR FORMING A REACTION PRODUCT SUCH AS CALCIUM SILICATE

Pieter Krijgsman, Wapenveld, Netherlands, assignor to Warrior Insulation Company B. V., Emmen, Netherlands

Division of Ser. No. 12,886, Feb. 18, 1979, Pat. No. 4,238,240.

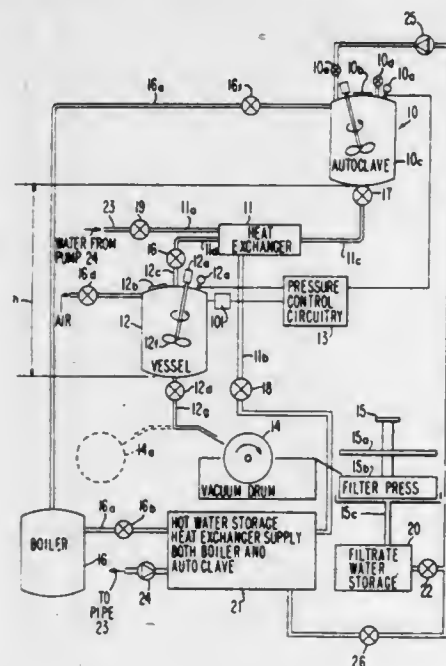
This application Jun. 27, 1980, Ser. No. 163,729

Claims priority, application Netherlands, Sep. 21, 1978, 7809621

Int. Cl.³ B01J 3/04; G05D 7/00

U.S. Cl. 422-110

9 Claims



1. A system for forming a calcium silicate reaction product comprising:

an autoclave for receiving calcium hydroxide, silicon dioxide and water and for reacting these constituents to form a calcium silicate slurry;

a holding vessel for receiving the calcium silicate slurry from said autoclave; means for mixing fibrous material with said calcium silicate slurry in said holding vessel;

a flow passage connecting said autoclave to said holding vessel for allowing the passage of said slurry from said autoclave to said holding vessel;

means for transferring heat from said slurry during its passage through said flow passage; and

means for maintaining the pressure in said holding vessel at a controlled amount beneath the pressure in said autoclave such that during the transfer of the slurry from said autoclave to said holding vessel there will be minimal structural damage to the slurry during its transfer to said holding vessel.

4. A system for forming a reaction product comprising: an autoclave for use in forming said reaction product,

a holding vessel for receiving the reaction product formed in said autoclave;

a flow passage connecting said autoclave to said holding vessel;

means for maintaining the pressure in said holding vessel in a controlled manner beneath the pressure in said autoclave during the transfer of the reaction product in said autoclave through said flow passage to said holding vessel; and

means for removing a portion of the heat from said reaction product during the passage of said reaction product through said flow passage.

4,366,122

APPARATUS FOR MAKING UREA-FORMALDEHYDE INSULATION

Charles E. Elmore, and David H. Harmon, both of Dallas, Tex., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

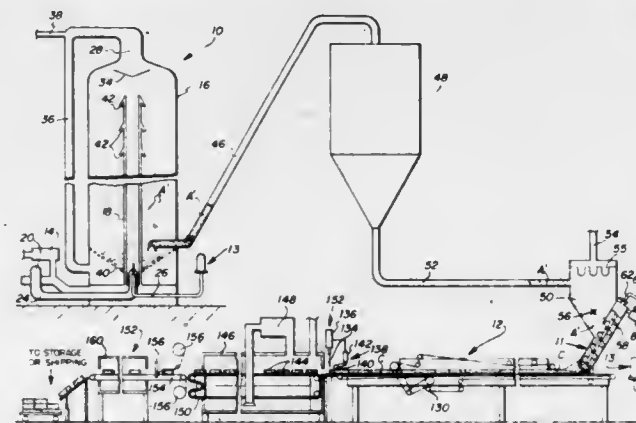
Division of Ser. No. 119,870, Feb. 8, 1980, Pat. No. 4,291,128.

This application Feb. 25, 1981, Ser. No. 237,858

Int. Cl.³ C08J 9/36; B01J 8/08

U.S. Cl. 422-133

3 Claims



1. A particle generator for producing partially cured, discrete particles of urea-formaldehyde foam comprising:

- an elongated shell having a top with an opening therein permitting air to be discharged through said opening, and a cone-shaped bottom;
- a vertical duct within said shell and extending upwardly from the bottom of said shell, generally disposed along the longitudinal axis of said shell and terminating in the upper portion of said shell;
- means for injecting an airstream upwardly within said vertical duct;
- means for injecting a monofilament stream of urea-formaldehyde foam co-current with and surrounded by the airstream;
- first baffle means between the end of said duct and said top opening for preventing air flow directly from said duct to said top opening and for directing said stream of urea-formaldehyde foam radially outwardly after being discharged from said duct to form discrete particles of urea-formaldehyde foam that are allowed to fall to the bottom of said shell;
- conical baffle means extending outwardly and downwardly from said vertical duct near the upper portion of said vertical duct and said conical baffle means forming air intake passages for recycling air in the upper portion of said shell for forming at least a portion of the airstream injected within said vertical duct; and
- second baffle means positioned towards the bottom of said shell for creating a quiescent zone between said second baffle means and said bottom for facilitating removal of said discrete urea-formaldehyde foam particles.

4,366,123

ANCHOR AGITATOR FOR GASEOUS PHASE POLYMERIZATION VESSEL

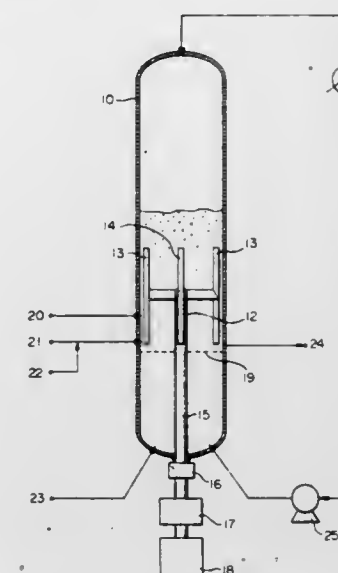
Akifumi Kato, Ohtake; Nobuhiko Kaneshige, Iwakuni, and Ryoichi Yamamoto, Waki, all of Japan, assignors to Mitsui Petrochemical Industries Ltd., Tokyo, Japan

Filed Sep. 21, 1981, Ser. No. 304,081

Int. Cl.³ B01F 7/18; B01J 12/02, 8/10

U.S. Cl. 422-135

3 Claims



1. In an anchor agitator for a gaseous phase polymerization vessel, comprising a rotating shaft, at least two pairs of arms provided on the rotating shaft in mutually crossing positions, and agitating blades provided at opposite outward end portions of each pair of arms, said blades extending substantially parallel along the axis of the rotating shaft and being located substantially equidistant from the axis of the rotating shaft in each pair of arms, the improvement wherein

- of said at least two pairs of blades, one pair of blades is a pair of main blades located farther from the axis of the rotating shaft than the remaining at least one pair of blades, and said remaining blades are subsidiary blades located nearer to the axis of the rotating shaft,
- each of the main blades meets the following requirements:
 - its horizontal section crossing at right angles to the axis of the rotating shaft is of a triangular shape, and in rotation, the interior angle α of the vertex A forming the forward end of the triangle in the advancing direction is defined by $10^\circ \leq \alpha \leq 45^\circ$;
 - the internal angle β of the vertex B of the triangle which is farther from the axis of the rotating shaft of the two vertexes B and C in the rearward portion of the triangle in the advancing direction is defined by $80^\circ \leq \beta \leq 150^\circ$;
 - the shortest distance r_1 between the vertex A and the axis of the rotating shaft and the shortest distance r_2 between the vertex B and the axis of the rotating shaft satisfy the relation $0.8r_1 \leq r_2 \leq r_1$; and
 - the distance l between the vertex A and the vertex C and the distance r_1 satisfy the relation $0.1r_1 \leq l \leq 0.5r_1$; and
- each of the subsidiary blades meets the following requirements:
 - the shortest distance r_3 between the axis of the rotating shaft and that site of each subsidiary blade which is farthest from the axis of the shaft and the distance r_1 satisfy the relation $0.2r_1 \leq r_3 \leq 0.8r_1$; and
 - each of the subsidiary blades is located within a range of $\pm 60^\circ$ with respect to a straight line perpendicularly crossing the straight line which passes through the centers of the triangles of the main blades in the horizontal section.

4,366,124

APPARATUS FOR DISSOLVING POLYDISPERSE ORES

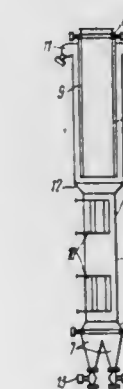
Viktor B. Brounshtein, ulitsa B. Zelenina, 22, kv. 2; Vladimir I. Petrov, ulitsa partizana Germana, 6, kv. 81; Rudolf R. Otsup, ulitsa Burtseva, 22, kv. 92; Galina P. Ignatieva, Murinsky prospekt, 2, kv. 11; Vladlen V. Kozlovsky, Varshavskaya ulitsa, 75, kv. 19; Leonard Y. Lipshits, Sofitskaya ulitsa, 53, kv. 63; Oleg V. Zhuravlev, Moskovsky prospekt, 79, kv. 156, all of Leningrad; Mikhail G. Koba, ulitsa Ordzhonikidze, 123, kv. 60; Perm; Konstantin B. Seliverstov, Dmitrovskoe shosse, 65, korpus 1, kv. 58; Tamara A. Igisheva, Ivano-v-skaya ulitsa, 18, kv. 31, both of Moscow; Petr A. Drobyazko, prospekt Lenina, 3, kv. 20, Berezniki Permskoi oblasti; Anatoly I. Motin, ulitsa Lenina, 5, kv. 16, Berezniki Permskoi oblasti; Viktor D. Fot, ulitsa Pyatiletki, 48, kv. 9, Berezniki Permskoi oblasti; Lev T. Yakimov, prospekt Lenina, 12, kv. 7, Berezniki Permskoi oblasti, and Boris G. Kuznetsov, ulitsa Sergeya Esenina, 14, korpus 2, kv. 33, Leningrad, all of U.S.S.R.

Filed Jul. 28, 1980, Ser. No. 173,027

Int. Cl.³ B01D 11/02; B01F 1/00

U.S. Cl. 422-278

5 Claims



1. An apparatus for dissolving polydisperse ores, comprising:

- a cylindrical housing in the form of two coaxial cylinders mounted one above the other, the relation between the diameters and the heights thereof being respectively 1.4-1.6 and 0.5-1.5, so as to ensure separation of ore particles of a (-1.5 to 0.75) mm size class;
- a hopper mounted coaxially with the housing and into which said polydisperse ores are introduced;
- a device for feeding a liquid phase into said apparatus, installed in the lower portion of said cylindrical housing; and
- devices for removal of the solid undissolved component and the final product.

4,366,125

STERILIZATION APPARATUS AND PROCESS UTILIZING SYNERGISTIC EFFECT OF COMBINING HYDROGEN PEROXIDE AND ULTRA-VIOLET-RAY STERILIZATION

Tokio Kadera, Fuchu; Masaru Hoshino, Tokyo, and Kimiaki Hyakutome, Tokyo, all of Japan, assignors to Dai Nippon Insatsu Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 24, 1980, Ser. No. 209,663

Claims priority, application Japan, Nov. 27, 1979, 54-153157

Int. Cl.³ A61L 2/10, 2/22

U.S. Cl. 422-295

4 Claims

- A sterilizing apparatus comprising:
 - a plurality of housings communicatively connected in sequence and enclosing respective aseptic chambers which are constantly under positive pressure and adapted to permit the passage successively therethrough in one direction of a material to be sterilized;
 - hydrogen peroxide sterilizing means in one of the housing for applying a thin film of hydrogen peroxide of low concentration at room temperature on the outer surfaces of the material thereby to carry out presterilization, said sterilizing means applying a mist of hydrogen peroxide

4,366,132

METHOD OF AND APPARATUS FOR THE CHEMISORPTIVE SCRUBBING OF WASTE GASES
Heinz Hölter, Beisenstrasse 39-41, 4390 Gladbeck, Fed. Rep. of Germany; Heinz Gresch, Dortmund, Fed. Rep. of Germany; Heinrich Igelbüscher; Heribert Dewert, both of Gladbeck, Fed. Rep. of Germany; Berthold Dzikowski, Essen, Fed. Rep. of Germany, and Hans-Jürgen Twiehaus, Gladbeck, Fed. Rep. of Germany, assignors to Heinz Hölter, Gladbeck, Fed. Rep. of Germany

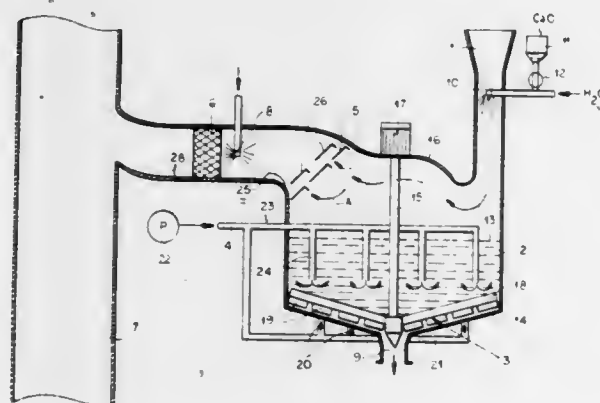
Filed Mar. 5, 1981, Ser. No. 240,892

Claims priority, application Fed. Rep. of Germany, Mar. 7, 1980, 3008718

Int. Cl.³ B01D 53/34; B01J 10/00

U.S. Cl. 423-242

2 Claims



2. The method of operating a gas washer comprising the steps of:

- scrubbing a stack gas containing sulfur dioxide with lime containing scrubbing water and passing a mixture thereof downwardly through a scrubbing stretch;
- collecting scrubbing liquid with calcium sulfite contained therein in an oxidation basin directly below said stretch so that liquid from said mixture is recovered in said basin and gas sweeps across the top of the liquid in said basin to an outlet therefrom;
- oxidizing the calcium sulfite to calcium sulfate in this basin thereby forming crystals of calcium sulfate therein;
- removing said crystals from said basin;
- discharging said gas through said outlet and through a coarse droplet separator and a fine droplet separator in succession; and
- spraying water upon at least said fine droplet separator.

4,366,133

PROCESS FOR LIMITING CHLORIDE BUILDUP IN SO₂ SCRUBBER SLURRY

Philip C. Rader, Dante Frabotta, and Robert W. Hanson, all of Birmingham, Ala., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed Jun. 1, 1981, Ser. No. 268,616

Int. Cl.³ C01B 17/00

U.S. Cl. 423-242

4 Claims

1. A process for wet scrubbing a flue gas to remove sulfur oxides therefrom of the type including the steps of contacting the sulfur oxides laden flue gas with an aqueous reactant mixture comprised of water, unreacted sulfur oxide absorbent and small amounts of water soluble chloride impurities whereby the sulfur oxide absorbent compound reacts with and absorbs the sulfur oxides contained in the flue gas, collecting and dewatering the spent reactant mixture to yield a relatively dry sludge of sulfur-containing solids and a relatively solids-free chloride containing liquor, discharging the relatively dry sludge to disposal, recycling the relatively solids-free chloride containing liquor removed from the spent reactant mixture for mixing with unreacted sulfur oxide absorbent to form additional reactant mixture for contacting with the sulfur oxide

laden flue gas, characterized in that the concentration of chloride in the reactant mixture is controlled by the steps of:

- a. prior to mixing the relatively solids-free chloride containing recycle liquor from the dewatering step with unreacted sulfur oxide absorbent, passing a purge stream of the relatively solids-free chloride containing recycle liquor from the dewatering step in contact with a hot drying gas so as to evaporate the water in the purge stream and crystallize the chloride impurities contained in the purge stream; and
- b. separating the crystallized solid particles of chloride salt from the drying gas.

4,366,134

FLUE GAS DESULFURIZATION PROCESS

Louis B. Korosy, Wantagh, and Peter J. Senatore, Baldwin, both of N.Y., assignors to Pfizer Inc., New York, N.Y.

Filed Nov. 14, 1979, Ser. No. 94,392

Int. Cl.³ C01B 17/00

U.S. Cl. 423-243

11 Claims

1. A process for the desulfurization of gas containing from about 100 ppm to about 30 volume percent sulfur dioxide, which comprises

- contacting said gas at a temperature of from about 15° to 80° C. with an aqueous solution at a pH of from about 3 to 9 containing potassium citrate at a concentration of from about 0.1 molar to saturation to absorb sulfur dioxide from said gas into said solution;
- separating said contacted gas from said contacted solution;
- heating said separated solution to strip sulfur dioxide therefrom;
- and recovering said heated solution for reuse in said process.

4,366,135

METHOD FOR PREPARING ZEOLITES

Raymond Le Van Mao; Orlando Pilati, both of Milan; Enrico Moretti, Bollate; Romano Covini, Milan, and Fausto Genoni, Samarate, all of Italy, assignors to Montedison S.p.A., Milan, Italy

Continuation-in-part of Ser. No. 163,103, Jun. 26, 1980, abandoned. This application Dec. 9, 1980, Ser. No. 214,763

Claims priority, application Italy, Jun. 29, 1979, 23978 A/79

Int. Cl.³ C01B 33/28

U.S. Cl. 423-329

10 Claims

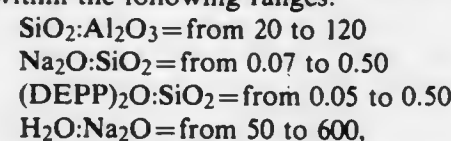
1. A method for preparing zeolites having the formula:



wherein y ranges from 20 to 90, z ranges from 2 to 12, M is at least one cation and n is the valence of M, and wherein Al and Si can be optionally replaced, at least partially, by Ga and Ge respectively, said method comprising the admixing of diethylpiperidinium hydroxide or of a salt thereof with H₂O and with at least:

- (a) one sodium compound;
- (b) one compound of a metal selected from the group comprising Al, Ga and mixtures thereof;
- (c) one compound of an element selected from the group comprising Si, Ge and mixtures thereof,

the molar ratios, expressed as ratios of oxides, being comprised within the following ranges:



and wherein the resulting start mixture is heated, for crystallization purposes, at from 160° C. to 200° C. for at least 24 hours.

4,366,136

MOLDABLE PREPOLYMERS BASED ON ALKALI METAL SILICATES AND ALKALINE EARTH METAL SILICATES

Peter Kartschmaroff, Arlesheim; Ewald Forster, Allschwil, and Armin Schaffner, Basel, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 192,577, Sep. 30, 1980, abandoned, which is a continuation-in-part of Ser. No. 112,766, Jan. 17, 1980, abandoned, which is a continuation of Ser. No. 939,511, Sep. 5, 1978, abandoned. This application Nov. 4, 1981, Ser. No. 317,959

Claims priority, application Switzerland, Sep. 6, 1977, 10854/77

Int. Cl.³ C01B 33/24

U.S. Cl. 423-331

6 Claims

1. A prepolymer which is the reaction product of an alkali metal silicate with a divalent to tetravalent metal oxide or with said metal oxide and an alkaline earth silicate, which product is moldable by heat and pressure, and which is obtained by a method wherein

- (a) a mixture of solid alkali metal silicate and water or a mixture of solid alkali metal silicate and an aqueous solution of said silicate is combined and thoroughly homogenized at a temperature of 20° to 50° C. with a divalent, trivalent or tetravalent metal oxide or with said metal oxide and an alkaline earth metal silicate, the ratio of metal oxide to silicate being from 1:1 to 1:9, expressed in parts by weight of solids, the combined homogenized mixture having a water content of from 25 to 50% by weight, based on the total mixture;
- (b) said homogenized mixture is allowed to stand at a temperature of 20° to 50° C. to permit formation of the prepolymer product to occur with the concomitant decrease in the water content of the mixture to 15 to 32% by weight, which prepolymer product is sufficiently tough and dry to permit comminution;
- (c) said product is comminuted; and is then dried at a temperature of 90°-120° C. to reduce the water content of the prepolymer product to a level of 2 to 20% by weight.

4,366,137

PROCESS FOR PRODUCING SILICON

Gert-Wilhelm Lask, Berus, Fed. Rep. of Germany, assignor to International Minerals & Chemical Luxembourg Societe Anonyme, Luxembourg, Luxembourg

Filed Jul. 8, 1981, Ser. No. 281,352

Claims priority, application Fed. Rep. of Germany, Aug. 30, 1980, 3032720

Int. Cl.³ C01B 33/02

U.S. Cl. 423-350

7 Claims

1. A process for the production of silicon which comprises the steps of:

- (a) hot-pressing briquettes from fine-grain quartz and coal to produce briquettes containing substantially 30 to 60% by weight carbon, the balance being substantially silicon dioxide;
- (b) forming a bed of said briquettes and granular quartz in an electric furnace whereby the granular quartz fills interstices between said briquettes;
- (c) heating said bed in said furnace to fuse said granular quartz at a temperature of about 1600° C. to effect an internal reaction between the quartz and carbon of the briquettes to transform the silicon dioxide of said briquettes to silicon carbide; and
- (d) thereafter reacting said silicon carbide with the fused quartz to produce silicon and carbon monoxide at a temperature between 1800° C. and 2000° C.

4,366,138

CARBON BLACK USEFUL FOR PIGMENT FOR BLACK LACQUERS

Edith Eisenmenger, Offenbach; Richard Engel, Waldorf; Gerhard Kühner, Hanau; Reinhold Reck, Maintal; Hans Schaefer, Linsengericht, and Manfred Voll, Hanau, all of Fed. Rep. of Germany, assignors to Deutsche Gold- und Silberscheideanstalt Vormals Roessler, Fed. Rep. of Germany

Continuation of Ser. No. 87,139, Oct. 22, 1979, abandoned. This application Jun. 1, 1981, Ser. No. 268,560

Claims priority, application Fed. Rep. of Germany, Oct. 25, 1978, 2846405

Int. Cl.³ C01B 31/02, 31/00

U.S. Cl. 423-445

4 Claims

1. An oxidized channel type carbon black within the MCC, medium color channel black, area comprising finely divided primary particles with an average diameter of 16 to 18 nm a content of volatiles of at least 15% and at maximum of 25% and having the following secondary characteristics:

Specific surface area (BET)	300-420 m ² /g
Oil absorption (stiff paste) conducted on carbon black powder	430-560 g/100 g
pH value	2-5
Nigrometer index	68-72

said black having been produced from gas carbon black by burning a carrier gas loaded with oil to produce a gas carbon black having a nigrometer index of 68 to 73 corresponding to a mean particle size in the range of 16 to 18 nm and the following secondary characteristics:

Specific surface area (BET)	185-240 m ² /g
Volatiles	4.5-7.5%
Oil absorption conducted on carbon black powder	640-740 g/100 g
pH	3-5

and thereafter subjecting said black to oxidation as an after treatment at a temperature not exceeding a maximal temperature of 300° C.

4,366,139

PROCESS FOR THE PRODUCTION OF WATER CONTAINING CARBON BLACK PREPARATIONS

Gerhard Kühner, Hanau; Wilhelm Berndt, Frankfurt; Lothar Rothbühr, Hürth, and Hans Wagner, Maintal, all of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Feb. 28, 1980, Ser. No. 125,711

Claims priority, application Fed. Rep. of Germany, Mar. 2, 1979, 2908202

Int. Cl.³ C01B 31/02; C09C 1/48

U.S. Cl. 423-449

5 Claims

1. A process for the production of water containing carbon black preparations comprising producing furnace blacks, lamp blacks or gas blacks in a continuous production process, separating said blacks from exhaust gases, continuously feeding the blacks to a pin shaft granulator used for the production of carbon black granules wherein the water is adjusted such that the preparations contain between 30 and 80% of water, thereby obtaining well dispersible preparations in the form of a non-dusting powder, beads, or liquid, and then packaging said preparations.

4,366,140

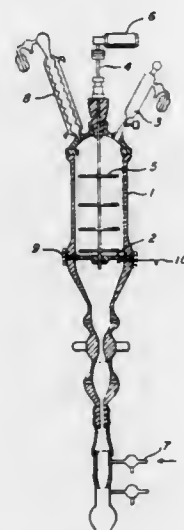
ANHYDROUS MAGNESIUM CHLORIDE FROM GRIGNARD REAGENTS

Karel Bujadoux, Lens; Jean-Marie Neyer, Bethune, and Jean-Pierre Houzeaux, Noeux les Mines, all of France, assignors to Societe Chimique des Charbonnages-Cdf Chimie, Bully-les-Mines Mazingarbe, France

Continuation of Ser. No. 66,730, Aug. 15, 1979, abandoned, which is a division of Ser. No. 847,824, Nov. 2, 1977, Pat. No. 4,187,254. This application Mar. 30, 1981, Ser. No. 249,206
Claims priority, application France, Nov. 9, 1976, 76 33757
Int. Cl.³ C01F 5/32

U.S. Cl. 423—498

4 Claims



1. A process for the preparation of anhydrous magnesium halide comprising reacting an organomagnesium halide selected from the group consisting of (1) those having the formula:

$(RMgX)(MgX_2)_a(MgR_2)_b(MgH_2)_c$
wherein $0 \leq a \leq 0.45$, $b \leq 0.15$, and $c \leq 0.30$, X is a halogen and R is an organic radical, and (2) those having the formula:

$(RMgX)(MgX_2)_a[M'(OR')_n]_d$
wherein R and a are defined above, R' is a hydrocarbon radical, M' is a metal selected from the group consisting of magnesium, beryllium, zinc, aluminum, and alkali metals, n is the valency of the metal M', and $d \leq 0.15$ with a compound of formula A-B wherein A is a halogen and B is either hydrogen or a halogen, under such conditions that the reaction is of the solid-gas type.

4,366,141

TREATMENT OF COARSE PARTICLE SIZE ZINC SULFIDE TO IMPROVE VISUAL AND INFRARED TRANSMISSION ON HOT-PRESSED ARTICLES

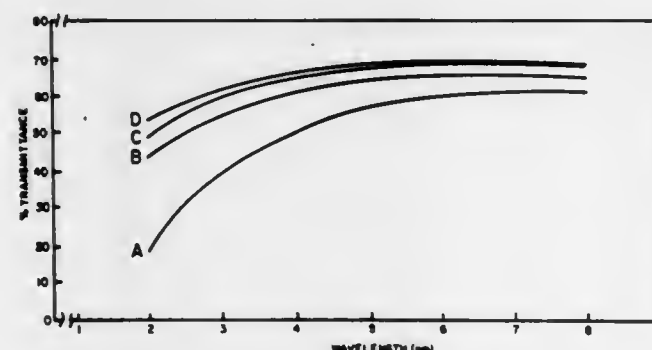
Brice E. Martin, and Alan R. Schwartz, both of Towanda, Pa., assignors to GTE Products Corporation, Stamford, Conn.

Filed Mar. 27, 1981, Ser. No. 248,394

Int. Cl.³ C01B 17/00; G02B 5/22; B29D 11/00

U.S. Cl. 423—561 B

11 Claims



2. A method of preparing a densified zinc sulfide article comprising mixing a coarse zinc sulfide powder having from about 5 to

about 10 percent of particles greater than 7 microns and from about 25 to about 200 parts per million by weight of an alkali metal salt selected from the group consisting of RbBr, RbCl, RbI, CsBr, CsCl, CsI, and combinations thereof to form a treated coarse zinc sulfide powder blended mixture,

densifying said blended mixture by a combination of pressing and heating, said heating being done at a temperature above the melting point of said alkali metal salt and below the temperature of which the vapor pressure of said alkali metal salt is less than 10 millimeters of mercury, to form a densified zinc sulfide article having a density in the range from about 99 to about 100 percent of the theoretical density of zinc sulfide and having a visible, near visible, and infrared transmission greater than the visible, near visible, and infrared transmission of a densified zinc sulfide article prepared from said coarse zinc sulfide powder absent said alkali metal salt.

4,366,142

METHOD AND APPARATUS FOR THE PREPARATION OF SLAKED LIME SOLUTION

Sadao Kojima, 4-27-4, Mejirodai, Hachioji-shi, Tokyo; Masaaki Shimada, 15-1, Sanuka-machi 2-chome, Iwaki-shi, Fukushima-ken; Kunio Sakai, 4-1, Sagiuchi, Nishiki-machi, Iwaki-shi, Fukushima-ken, and Katuo Horie, 59, Odakatakamatsu, Nakosos-machi, Iwaki-shi, Fukushima-ken, all of Japan

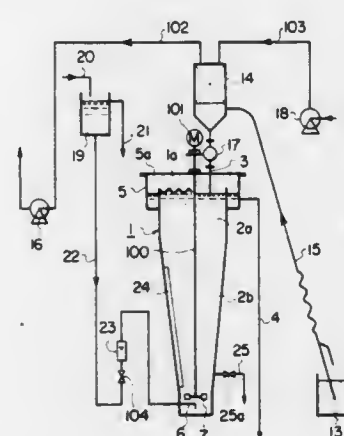
Filed Mar. 26, 1980, Ser. No. 134,051

Claims priority, application Japan, Mar. 28, 1979, 54-36614; Sep. 21, 1979, 54-121665; Nov. 1, 1979, 54-141888; Nov. 1, 1979, 54-141889; Nov. 1, 1979, 54-141890

Int. Cl.³ C01F 11/02

U.S. Cl. 423—640

6 Claims



1. A method for the continuous preparation of an aqueous solution of slaked lime in a vessel, having a lower zone of an inverted truncated cone, and an upper cylindrical zone, said method comprising accumulating provisionally a layer of slaked lime solids on a closed bottom of said vessel; supplying fresh water from outside continuously at a constant feed rate in close proximity to and above said closed bottom wherein the average ascending water velocity measured at the top end of the vessel is less than 1 mm/sec.; agitating mechanically the solids and the fresh water at a same level or slightly higher than said closed bottom with a mechanical agitation means comprising a rotary agitator having a peripheral rotational speed maintained less than 1 meter per second; causing a slurry in the lower zone to move upwardly in hindered flow, without particulate entrainment in the upper zone, the hindered flow being produced by baffle means within the lower zone; and continuously removing from the top of said vessel a substantially clear and saturated aqueous solution of slaked lime by flowing the saturated calcium hydroxide solution to a weir located on the top of the upper zone.

5. A method for the continuous preparation of an aqueous solution of slaked lime in first and second vessels connected in series, each having a lower zone of an inverted truncated cone,

and an upper cylindrical zone, said method comprising accumulating provisionally a layer of slaked lime solids on a closed bottom of said first vessel; supplying fresh water from outside continuously at a constant feed rate in close proximity to and above said closed bottom of said first vessel wherein the average ascending water velocity measured at the top end of the vessel is less than 1 mm/sec.; agitating mechanically or fluidically the solids and the fresh water at a same level or slightly higher than said closed bottom of said first vessel; continuously removing from the top of said first vessel by flowing the saturated calcium hydroxide solution to a weir located on the top of the upper zone of said first vessel; feeding the calcium hydroxide solution removed from the first vessel to the bottom of the lower zone of the second vessel; and removing a substantially saturated clear calcium hydroxide solution from the upper zone of the second vessel.

4,366,143

ASSAY FOR THE FREE PORTION OF SUBSTANCES IN BIOLOGICAL FLUIDS

John E. Midgley, and Terence A. Wilkins, both of Amersham, Great Britain, assignors to Amersham International Public Limited Company, England

Filed Sep. 22, 1980, Ser. No. 189,942

Claims priority, application United Kingdom, Sep. 24, 1979, 7933072; Jan. 14, 1980, 8001124

Int. Cl.³ G01N 33/00

U.S. Cl. 436—501

16 Claims

1. A method of determining the concentration of the free portion of a ligand present in a biological fluid which also contains a portion of the ligand bound to one or more natural binders for the ligand, the bound and free portions of the ligand being in equilibrium with one another, by:

- admixing a sample of the biological fluid with an amount of a labelled derivative of the ligand and an amount of an added specific binder for the ligand whereby the free portion of the ligand and the labelled derivative thereof compete for reaction with the specific binder and become bound thereto in proportions which depend on the amount of the free ligand portion present in the sample, the respective amounts of said derivative and said specific binder being insufficient to substantially affect said equilibrium and said labelled derivative being substantially non-reactive with said natural binders;
- effecting said reaction between the free ligand, the labelled derivative thereof and the specific binder;
- measuring the amount of the labelled derivative of the ligand bound to the specific binder; and
- using the measurement to determine the concentration of free ligand in the biological fluid.

4,366,144

IN VIVO METHOD OF DETERMINING LEUCOCYTE MIGRATORY ACTIVITY LEVELS

Lorne M. Golub, Smithtown, and Ralph S. Kaslick, New York, both of N.Y., assignors to Research Foundation of State Univ. of NY, Albany, N.Y.

Filed Jan. 31, 1980, Ser. No. 117,353

Int. Cl.³ A61K 49/00; G01N 33/48, 33/50

U.S. Cl. 424—9

7 Claims

1. An in vivo method of determining leucocyte migratory activity levels in mammalian subjects comprising the steps of:

- Collecting the crevicular fluid from a predetermined gingival crevice after at least one predetermined time interval;
- determining the volume of crevicular fluid in a predetermined gingival crevice generated in a predetermined time interval to provide a base level per unit time;
- introducing a predetermined amount of a pharmaceutically acceptable chemotactic agent into a gingival crevice of the subject;
- collecting the crevicular fluid from said gingival crevice after at least one predetermined time interval following

the introduction of said chemotactic agent into the said gingival crevice;

- measuring the volume of crevicular fluid collected and
- determining the increase in volume of said crevicular fluid collected per unit time over the base level to provide a measure of the leucocyte migratory activity level.

4,366,145

SOFT GELATIN CAPSULE WITH A LIQUID ERGOT ALKALOID CENTER FILL SOLUTION AND METHOD OF PREPARATION

Samuel B. Stoopak, West Caldwell; Saul S. Kornblum, Springfield, and Allen L. Jacobs, Randolph, all of N.J., assignors to Sandoz, Inc., East Hanover, N.J.

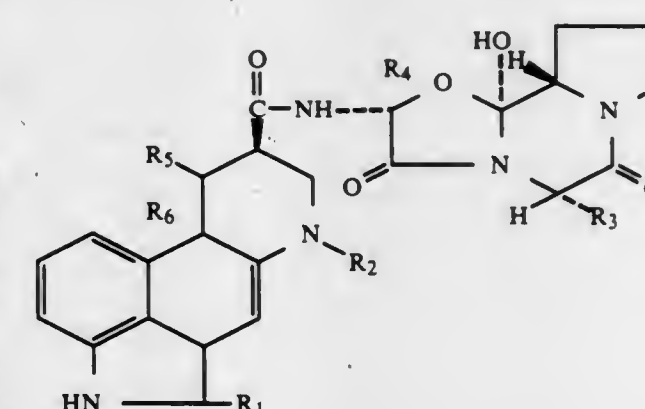
Filed Jun. 24, 1981, Ser. No. 277,980

Int. Cl.³ A61K 9/48, 31/48

U.S. Cl. 424—37

25 Claims

1. A method of preparing a stable ergot alkaloid soft gelatin capsule which comprises the steps of dissolving a therapeutically effective amount of an ergot alkaloid of the formula



wherein

- R₁ is hydrogen or halogen,
 - R₂ is hydrogen or C₁₋₄alkyl,
 - R₃ is isopropyl, sec-butyl, isobutyl or benzyl,
 - R₄ is methyl, ethyl or isopropyl, and either
 - R₅ is hydrogen and
 - R₆ is hydrogen or methoxy or
 - R₅ and R₆ together is an additional bond,
- or mixtures thereof, in a pharmaceutically acceptable polar, hydrophilic soft gelatin capsule center fill solvent to prepare a liquid soft gelatin capsule center fill solution; and thereafter encapsulating the center fill solution obtained in a soft gelatin capsule shell before the percent of ergot alkaloid drops below 90% of the original therapeutically effective amount.

4,366,146

COMPOSITIONS AND METHOD FOR REDUCING ELUTION OF THERAPEUTIC AGENTS FROM TEETH

Robert W. H. Chang, Shoreview, Minn., assignor to Minnesota Mining & Manufacturing Co., St. Paul, Minn.

Division of Ser. No. 176,680, Aug. 11, 1980, Pat. No. 4,304,766, which is a division of Ser. No. 26,402, Apr. 2, 1979, Pat. No. 4,243,658, which is a continuation-in-part of Ser. No. 865,681,

Dec. 29, 1977, abandoned. This application Sep. 18, 1981, Ser. No. 303,206

Int. Cl.³ A61K 7/18

U.S. Cl. 424—52

12 Claims

12. A method of substantially reducing elution of a therapeutic agent previously applied to teeth which comprises the steps of

- applying said therapeutic agent to teeth, and
- applying a dentifrice composition to said treated teeth, wherein said dentifrice composition comprises (1) at least one ingredient selected from the group consisting of therapeutic agents, polishing agents, surfactants, flavoring agents, sweetening agents, thickening agents and humec-

tants that are substantially free from polyvalent metal atoms, and (2) at least 0.05% by weight of an anionic, non-polymeric, non-fluorinated, water-dispersible, membrane-forming material which, when applied to the surface of the teeth in an oral environment, forms a substantially continuous hydrophobic barrier thereon which substantially reduces the elution of said previously applied therapeutic agent from said teeth, and which, when at equilibrium with the complex has a formation constant in the range of about 0.5 to 8, said membrane-forming material having the formula R^1Z wherein R^1 is a nonionic aliphatic radical and Z is an anionic terminal group selected from

—COOM
—POOM
—OPO(OM)₂
—SO₂OM
—OSO₂OM
—PS(SM)₂
—PSSM

wherein M is selected from hydrogen, alkali metals, ammonium and amine groups.

4,366,147

ANTIBIOTIC A-7413 AND PROCESS FOR PREPARATION THEREOF

Robert L. Hamill, Greenwood, and W. Max Stark, Indianapolis, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Continuation of Ser. No. 766,307, Feb. 7, 1977, abandoned, and a continuation-in-part of Ser. No. 655,670, Feb. 4, 1976, abandoned. This application Aug. 18, 1978, Ser. No. 934,922 Int. Cl.² A61K 35/00

U.S. Cl. 424—117

11 Claims

1. A compound selected from the group consisting of (1) A-7413 factor A which is a white to light-yellow crystalline material when crystallized from ethanol; which is soluble in methanol, chloroform, dimethylformamide, dichloroethane and dimethyl sulfoxide; is slightly soluble in ethanol and aqueous ethanol; but is insoluble in acetone, benzene, carbon tetrachloride, dichloromethane, methyl isobutyl ketone, ethyl acetate, diethyl ether and water; which melts with decomposition at about 205°–212° C. and which has:

- (A) an apparent molecular weight of approximately 1308, as determined by titration;
(B) an approximate elemental composition of 51.92 percent carbon, 5.25 percent hydrogen, 9.85 percent nitrogen, 22.63 percent oxygen, and 9.66 percent sulfur;
(C) a proposed approximate empirical formula of $C_{72}H_{87}N_{12}O_{23}S_5$;
(D) a specific rotation, $[\alpha]_D^{25}$, of +54.5° (c 2.0, $CHCl_3$);
(E) an infrared absorption spectrum in KBr disc with the following observable absorption maxima: 2.93 (shoulder), 2.98 (medium), 3.24 (weak), 3.38 (shoulder), 3.44 (medium), 3.53 (weak), 5.78 (weak), 6.03 (strong), 6.56 (strong), 6.79 (medium), 7.08 (medium), 7.27 (weak), 7.49 (weak), 7.65 (weak), 8.08 (medium), 8.41 (weak), 8.62 (weak), 8.81 (medium), 9.03 (weak), 9.35 (medium), 9.60 (medium), 9.92 (weak), 10.20 (weak), 12.05 (weak), 12.66 (weak), and 13.51 (weak) microns;
(F) an ultraviolet absorption spectrum with the following absorption maxima:
(a) in neutral, 95% aqueous ethanol: 215 nm ($E_{1cm}^{1\%}=485$); 260 nm (shoulder; $E_{1cm}^{1\%}=240$); 300 nm (shoulder; $E_{1cm}^{1\%}=170$); 358 nm (shoulder; $E_{1cm}^{1\%}=112.5$);
(b) in acidic ethanol: 217 nm ($E_{1cm}^{1\%}=440$); 265 nm

- ($E_{1cm}^{1\%}=227.5$); 293 nm ($E_{1cm}^{1\%}=210$); 358 nm ($E_{1cm}^{1\%}=95$);
(c) in basic methanol: 278 nm (shoulder; $E_{1cm}^{1\%}=255$); 408 nm ($E_{1cm}^{1\%}=80$);
(G) a titratable group with a pK_a value of 7.9 in 80% aqueous dimethylformamide;
(H) an amino-acid analysis, after acidic hydrolysis, which indicates the presence of ammonia, glycine, threonine, aspartic acid, and an as-yet-unidentified amino acid;
(I) a characteristic X-ray powder diffraction pattern (Cu^{++} radiation, 1.54505 Å, nickel filter) having the following interplanar spacings in angstroms (d):

d	Relative Intensity
12.44	100
10.77	70
7.96	100
5.71	50
5.09	80
4.53	100
4.25	80
3.88	80
3.61	10
3.44	10
3.03	5

(J) the following R_f values in the paper-chromatographic systems indicated below, using *Bacillus subtilis* ATCC 6633 as a detection organism:

R_f Value	Solvent System
0.57	Butanol sat. with water
0.49	Methyl isobutyl ketone: butanol:water (25:21:4)
0.62	Methanol:water (1:1)
0.30	Water:methanol:acetone (12:3:1); adjusted to pH 10.5 with NH_4OH and then lowered to pH 7.5 with H_3PO_4
0.71	Methanol:0.1 N HCl (3:1)

(K) the following R_f values in the silica-gel thin-layer-chromatographic systems indicated below, using *Bacillus subtilis* as a detection organism:

R_f Value	Solvent System
0.26	Chloroform:methanol (9:1)
0.23	Acetonitrile:water (9:1)

- (L) an acid function capable of forming salts and ester derivatives;
(M) at least one hydroxyl group capable of esterification; and
(N) the ability to form derivatives with thiol carboxylic acids;
(2) the methyl ester derivative of A-7413 factor A, which is soluble in the same solvents as is A-7413 factor A, which has an approximate empirical formula of $C_{73}H_{89}N_{12}O_{23}S_5$, an ultraviolet absorption spectrum as given above in section F, an amino-acid content as given above in section H, and an infrared absorption spectrum as shown in FIG. 4 of the drawings;
(3) the acetyl- and triacetyl-ester derivatives of A-7413 factor A, each of which is soluble in the same solvents as is A-7413 factor A, each of which has an ultraviolet absorption spectrum as given above in section F, an amino-acid content as given above in section H, and an electrometric titration as given above in section G, the acetyl-ester derivative having an approximate empirical formula of $C_{74}H_{89}N_{12}O_{24}S_5$ and an infra-

red absorption spectrum as shown in FIG. 5 of the drawings and the triacetyl-ester derivative, having an approximate empirical formula of $C_{78}H_{93}N_{12}O_{26}S_5$ and an infrared absorption spectrum as shown in FIG. 6 of the drawings; and (4) the physiologically-acceptable salts thereof.

4,366,148

USE OF SOMATOSTATIN IN THE PREVENTION AND CURE OF VASCULAR, MEMBRANE, OR ORGAN LESIONS

Sandor Szabo, Brookline, Mass., and Klaus H. Usadel, Frankfurt am Main, Fed. Rep. of Germany, assignors to Brigham and Women's Hospital, Boston, Mass.

Filed Jun. 2, 1981, Ser. No. 269,734

Int. Cl.³ A61K 37/00; C07C 103/52

U.S. Cl. 424—177

19 Claims

1. A method of treating hepatic vascular lesions, comprising: administering to a human or other mammal suspected of having one or more hepatic vascular lesions an amount of somatostatin sufficient to reduce the number or severity of said lesions.

4,366,149

ANTITUMOR ANTHRACYCLINE GLYCOSIDES, THEIR PREPARATION, INTERMEDIATES THEREFOR, AND COMPOSITIONS AND USE THEREOF

Alberto Bargiotti, Via Donati, 8, Milan; Giuseppe Cassinelli, Via G. Matteotti, 13, Voghera (Pavia); Sergio Penco, Via Crimea, 13, Milan; Federico Arcamone, Via 4 Novembre, 26, Nerviano (Milan), and Annamaria Casazza, Via Guido Reni, 26, Milan, all of Italy

Filed Oct. 29, 1981, Ser. No. 316,057

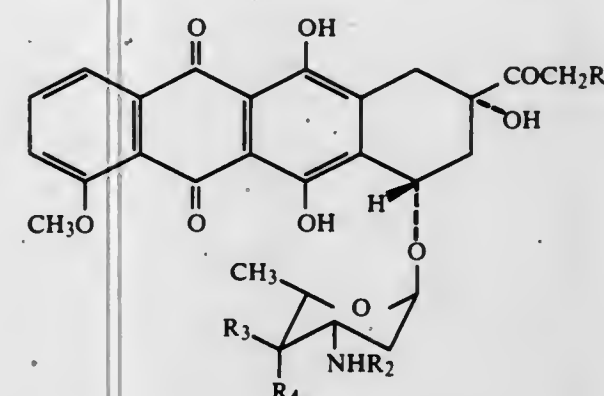
Claims priority, application United Kingdom, Nov. 1, 1980, 8035204

Int. Cl.³ A61K 31/70; C07H 5/06, 15/24

U.S. Cl. 424—180

10 Claims

1. An anthracycline glycoside of the formula I:



wherein R_1 is hydrogen or hydroxy; R_2 is hydrogen or trifluoroacetyl; one of R_3 and R_4 is amino or trifluoroacetylamine and the other of R_3 and R_4 is hydrogen and pharmaceutically acceptable acid addition salts thereof.

10. A method of treating P388 ascitic leukemia comprising administering to a mammal afflicted therewith a therapeutically effective amount of a compound as claimed in claim 1.

4,366,150

SOIL DISINFECTANTS AND METHOD OF USE

Yoshimi Yamada, Hyogo; Tadashi Ooishi, Sonehigashi; Toshiro Kato, and Kunio Mukai, both of Hyogo, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Nov. 26, 1980, Ser. No. 210,618

Claims priority, application Japan, Nov. 29, 1979, 54-155061; Apr. 30, 1980, 55-58477

Int. Cl.³ A01N 57/22

U.S. Cl. 424—199

22 Claims

1. A soil disinfectant composition for preventing and controlling diseases caused by pathogenic fungi living in soil,

which comprises an effective amount of at least one salt of phenylphosphinic acid with a saturated heterocyclic amine as an active ingredient, and at least one inert carrier or diluent.

12. A method for preventing and controlling diseases caused by pathogenic fungi living in soil, which comprises applying an effective amount of at least one salt of phenylphosphinic acid with a saturated heterocyclic amine where the pathogenic fungi are living.

4,366,151

OXYALKYLATED FATTY ACIDS AND THEIR USE AS SOLUBILIZERS

Knut Oppenlaender, Ludwigshafen; Heinz Krapf, Gruenstadt, and Siegfried Lang, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Continuation of Ser. No. 124,989, Feb. 27, 1980, abandoned.

This application Aug. 12, 1981, Ser. No. 292,166

Int. Cl.³ A61K 31/56; C09F 5/08

U.S. Cl. 424—238

4 Claims

1. The product of the reaction of a monohydroxy-fatty acid of the formula I



where m is an integer from 4 to 9 and n is an integer from 6 to 11, with from 12 to 20 moles of ethylene oxide.

3. A pharmaceutical product comprising a water-insoluble active component, water and as a solubilizer for said active component, an effective amount of a compound of formula I of claim 1.

4,366,152

COMBATING FUNGI WITH METAL SALT COMPLEXES OF

1-PHENYL-2-(1,2,4-TRIAZOL-1-YL)-ETHANES

Wolfgang Krämer; Helmut Timmler; Karl H. Büchel, all of Wuppertal; Wilhelm Brandes, Leichlingen; Paul-Ernst Froberger, and Hans Scheinplüg, both of Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed May 25, 1978, Ser. No. 909,602

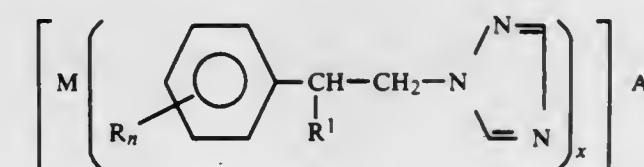
Claims priority, application Fed. Rep. of Germany, Jun. 3, 1977, 2725214

Int. Cl.³ A01N 55/02, 55/04; C07D 249/08; C07F 1/08

U.S. Cl. 424—245

10 Claims

1. A metal salt complex of a 1-phenyl-2-(1,2,4-triazol-1-yl)-ethane of the formula



in which

R is halogen, nitro, cyano, alkyl with 1 to 4 carbon atoms, alkylsulfonyl with 1 to 4 carbon atoms, alkoxy with 1 or 2 carbon atoms, alkylthio with 1 to 2 carbon atoms, halogeno-alkyl with up to 4 carbon atoms and up to 5 halogen atoms, phenyl, phenoxy, or phenyl or phenoxy carrying at least one substituent selected from halogen, cyano, nitro and halogeno-alkyl with up to 2 carbon atoms and up to 3 independent halogen atoms;

R^1 is $-O-R^2$, $-S(O)_m-R^3$ or $-O-CO-R^4$;

R^2 is alkyl, alkenyl or alkynyl each with up to 4 carbon atoms; cycloalkyl with 5 to 7 carbon atoms; phenyl, naphthyl, or phenylalkyl, naphthylalkyl, phenylalkenyl or naphthylalkenyl each with up to 4 carbon atoms in the alkyl or alkenyl part, the phenyl or naphthyl moieties optionally being substituted by halogen, cyano, nitro, amino, alkyl with 1 to 4

carbon atoms, halogenoalkyl with up to 2 carbon atoms and up to 3 independent halogen atoms, phenoxy or halophenoxy;

R^3 is hydrogen; alkyl, alkenyl or alkynyl each with up to 4 carbon atoms; cycloalkyl with 5 to 7 carbon atoms; phenyl, naphthyl, phenylalkyl, naphthylalkyl, phenylalkenyl or naphthylalkenyl, each of the four last-mentioned groups having up to 4 carbon atoms in the alkyl or alkenyl part, the phenyl or naphthyl moieties optionally being substituted by halogen, cyano, nitro, amino, alkyl with 1 to 4 carbon atoms, halogenoalkyl with up to 2 carbon atoms and up to 3 independent halogen atoms, phenoxy or halophenoxy;

R^4 is alkyl, alkenyl or alkynyl each with up to 4 carbon atoms; cycloalkyl with 5 to 7 carbon atoms; phenyl, naphthyl, or phenylalkyl, naphthylalkyl, phenylalkenyl, or naphthylalkenyl, each having up to 4 carbon atoms in the alkyl or alkenyl part, the phenyl or naphthyl moieties optionally being substituted by halogen, cyano, nitro, amino, alkyl with 1 to 4 carbon atoms, halogenoalkyl with up to 2 carbon atoms and up to 3 independent halogen atoms; phenoxy or halophenoxy; halogenoalkyl with 1 to 2 carbon atoms and 1 to 5 halogen atoms; phenoxyalkyl which has 1 or 2 carbon atoms in the alkyl part and optionally substituted in the phenyl part by halogen, amino, cyano, nitro or alkyl with 1 to 2 carbon atoms; amino; alkylamino, dialkylamino or alkyl-alkylcarbamoylamino each with 1 to 4 carbon atoms in each alkyl part; or phenylamino which is optionally substituted by halogen, nitro and cyano;

M is copper, zinc, manganese, magnesium, tin, iron or nickel, A is an anion of an inorganic acid, n represents 0, 1, 2, 3, 4 or 5, m represents 0, 1 or 2, p represents 1, 2, 3, 4, 5 or 6, and x represents 1, 2, 3 or 4.

4,366,153

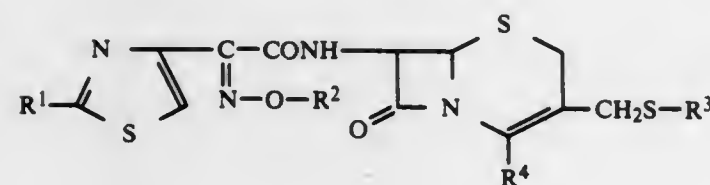
CEPHEM COMPOUNDS

Takao Takaya, Kawanishi; Takashi Masugi, Toyonaka; Hisashi Takasugi, Osaka, and Hiromu Kochi, Sakai, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan Continuation-in-part of Ser. No. 71,302, Aug. 30, 1979, which is a continuation-in-part of Ser. No. 941,660, Sep. 12, 1978, Pat. No. 4,220,761. This application Feb. 20, 1980, Ser. No. 123,165 Claims priority, application United Kingdom, Sep. 11, 1978, 36399/78; Mar. 13, 1979, 7908799; Mar. 26, 1979, 7910499 Int. Cl.³ A61K 31/345; C07D 501/56

U.S. Cl. 424-246

3 Claims

1. A syn compound of the formula:



wherein

R^1 is amino,

R^2 is cyclopentyl,

R^3 is hydroxy(lower)alkyltetrazolyl, and R^4 is carboxy,

and its pharmaceutically acceptable salt.

3. A pharmaceutically antibacterial composition comprising a compound of claim 1 in association with a pharmaceutically acceptable, substantially non-toxic carrier or excipient.

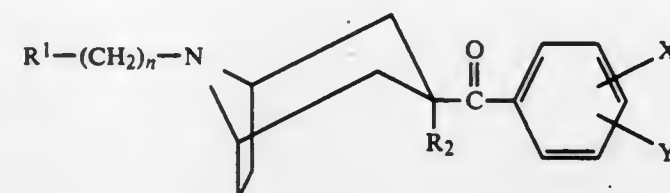
4,366,154
TROPYL DERIVATIVES
John C. Tomesch, Succasunna, N.J., assignor to Sandoz, Inc., East Hanover, N.J.

Filed Nov. 9, 1981, Ser. No. 319,254

Int. Cl.³ A61K 31/46; C07D 451/02, 513/14; A61K 31/54 U.S. Cl. 424-247

19 Claims

1. A compound which is a free base of the formula:



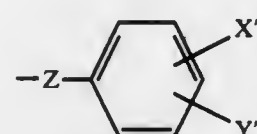
wherein

each of X and Y is independently, a hydrogen atom, fluoro, chloro or bromo, alkyl or alkoxy having from 1 to 4 carbon atoms, or trifluoromethyl, provided that when X and Y are trifluoromethyl, branched alkyl, or branched alkoxy, they are not on adjacent carbon atoms;

n is a whole number of from 1 to 4;

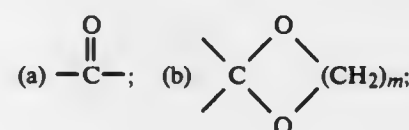
R^1 is of type;

(a) a radical of the formula:



wherein

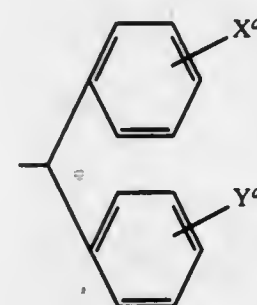
each of X' and Y' is independently, a hydrogen atom, fluoro, chloro or bromo; alkyl or alkoxy having from 1 to 4 carbon atoms, or trifluoromethyl, provided that when X' and Y' are trifluoromethyl, branched alkyl or branched alkoxy they are not on adjacent carbon atoms, and Z is



(c) —O—; or (d) a direct bond,

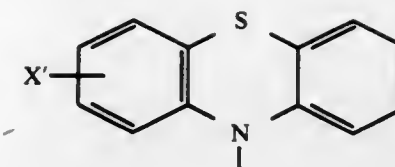
wherein m is 2 or 3;

(b) a radical of the formula:



in which X^a and Y^a are, independently, a hydrogen atom or fluoro; or

(c) a radical of the formula:



in which

X' is defined above; and,

R^2 is

(a) a hydrogen atom;

(b) —OH; or

(c) —O—Si(CH₃)₃; or a non-toxic acid addition salt thereof.

18. A method of tranquilizing a mammal comprising administering to a mammal a anti-psychotic-effective amount of a compound of claim 1.

4,366,155

1-BENZOYL-3-(6-OXOPYRIDAZINYL)UREAS, COMPOSITIONS, AND INSECTICIDAL METHOD
Emily J. Canada, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

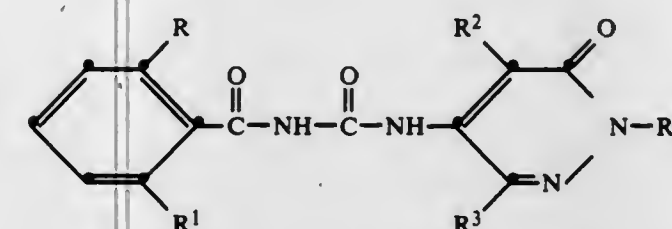
Filed Mar. 30, 1981, Ser. No. 249,054

Int. Cl.³ C07D 237/22; A01N 43/58

U.S. Cl. 424-250

25 Claims

1. A compound having the structural formula:



wherein R is chloro, fluoro or bromo, R^1 is hydrogen, chloro, fluoro or bromo, R^2 and R^3 are independently hydrogen, chloro or bromo and R^4 is selected from the group consisting of branched alkyl, cycloalkyl, 4-chlorophenyl, 3,5-dichlorophenyl, 4-bromophenyl, 3-trifluoromethylphenyl 3,5-bis(trifluoromethyl)phenyl, 4-chlorobenzyl and 4-methoxyphenyl, with the provisos that when R is fluoro, R^1 is other than hydrogen; that one of R^2 and R^3 is hydrogen; that R^4 is other than 3-trifluoromethylphenyl when R is bromo and R^2 and R^3 are hydrogen, or when R and R^3 both are chloro and R^1 is hydrogen; and that R^4 is 4-methoxyphenyl only when R and R^1 both are chloro and R^2 is chloro or hydrogen.

17. A method of controlling insects of an order selected from Coleoptera and Lepidoptera which comprises applying to the locus of the insect infestation an insecticidally effective amount of a compound of claim 1.

4,366,156

ANTIALLERGIC METHODS USING DIAZAHETEROCYCLOPURINES

Davis L. Temple, Jr., Evansville, Ind., assignor to Mead Johnson & Company, Evansville, Ind.

Division of Ser. No. 17,771, Mar. 5, 1979, Pat. No. 4,298,734, which is a continuation-in-part of Ser. No. 869,203, Jan. 13, 1978, abandoned, which is a continuation-in-part of Ser. No. 768,291, Feb. 14, 1977, abandoned. This application Nov. 24, 1980, Ser. No. 209,791

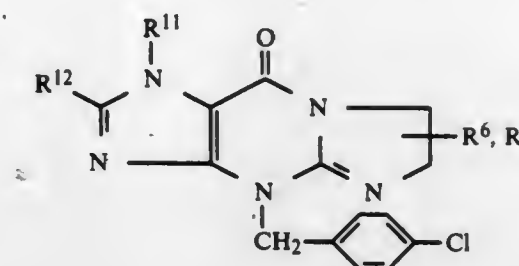
Int. Cl.³ A61K 31/505, 31/52

U.S. Cl. 424-251

20 Claims

1. The method for inhibiting the immediate hypersensitivity reaction in a mammal sensitive to allergic reaction which comprises administering to said mammal a non-toxic effective hypersensitive reaction inhibiting dose of a compound selected from the group consisting of those having the following for-

mula and the pharmaceutically acceptable acid addition salts thereof



wherein R^6 , R^7 , R^{11} and R^{12} are selected from the group consisting of hydrogen and methyl.

4,366,157

NOVEL POLYCYCLIC INDOLE DERIVATIVES

Keiichi Ono, Osaka; Hajime Kawakami, Takarazuka, and Junki Katsube, Toyonaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Jul. 27, 1981, Ser. No. 287,039

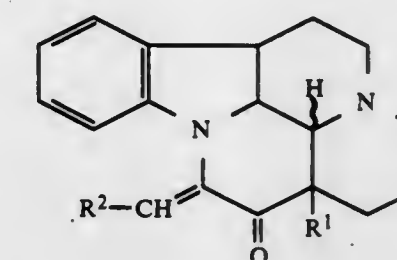
Claims priority, application Japan, Aug. 6, 1980, 55-108495

Int. Cl.³ C07D 46/00

U.S. Cl. 424-256

10 Claims

1. A compound of the formula:



wherein R^1 is a C_1 - C_6 alkyl group and R^2 is phenyl, pyridyl, thienyl, furyl, biphenyl or naphthyl optionally substituted with 1 to 3 substituents selected from the group consisting of halogen, C_1 - C_4 alkyl, C_1 - C_4 alkoxy, trifluoromethyl, hydroxyl, amino and nitro.

4,366,158

1-(8-QUINOLYL)-2-PYRROLIDONE AND ITS PHARMACEUTICAL COMPOSITIONS

Gordon L. Hodgson, Jr., Durham, N.C., assignor to Burroughs Wellcome Co., Research Triangle Park, N.C.

Filed Nov. 24, 1980, Ser. No. 209,426

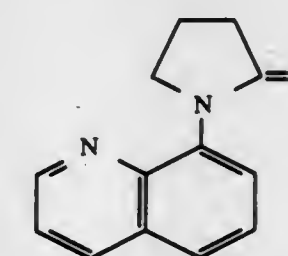
Claims priority, application United Kingdom, Nov. 30, 1979, 7941409

Int. Cl.³ A01K 31/47; C07D 419/04

U.S. Cl. 424-258

5 Claims

1. A compound of the formula (I):



4. A pharmaceutical formulation comprising an anti-inflammatory, anti-pyretic or analgesic effective amount of a compound selected from the group consisting of 1-(8-quinolyl)-2-pyrrolidone and pharmaceutically acceptable acid addition salts thereof together with a pharmaceutically acceptable carrier therefor.

4,366,159

NALBUPHINE-NARCOTIC ANALGESIC COMPOSITION AND METHOD OF PRODUCING ANALGESIA

Michael R. Magruder, 2035-A Taylor Run, Camp Springs, Md. 20335, assignor to Michael Richard Magruder, Camp Springs, Md.

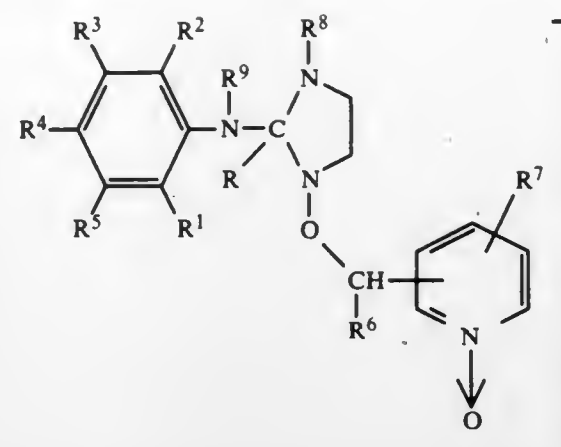
Filed Sep. 8, 1981, Ser. No. 300,394
Int. Cl.³ A61K 31/485

U.S. Cl. 424-260

10 Claims

1. A method of producing analgesia in a mammal comprising administering to a mammal an analgesic dose containing about 1-100 mg of nalbuphine or a pharmaceutically suitable salt thereof and an analgesic dose containing a narcotic analgesic selected from:

- about 1-100 mg of morphine or a pharmaceutically suitable salt thereof;
- about 0.1-20 mg of oxymorphone or a pharmaceutically suitable salt thereof;
- about 0.5-50 mg of oxycodone or a pharmaceutically suitable salt thereof; or
- about 0.1-20 mg of hydromorphone or a pharmaceutically suitable salt thereof.



wherein R¹, R² and R³, independently, are hydrogen, halogen, trifluoromethyl, nitro, lower alkyl or lower alkylthio; one of R⁴ and R⁵ is hydrogen and the other is hydrogen, halogen, hydroxy or lower alkoxy; R⁶ is hydrogen or lower alkyl; R⁷ is hydrogen, hydroxy, lower alkyl or lower alkoxy; and either R⁸ is hydrogen, lower alkyl, lower alkenyl, aryl-(lower alkyl) or acyl and R⁹ taken together with R is an additional bond, or R⁹ is lower alkyl, lower alkenyl or aryl-(lower alkyl) and R⁸ taken together with R is an additional bond; provided that R⁴ or R⁵ is not hydroxy when R⁷ is lower alkoxy and/or R⁸ is acyl, and that R⁷ is not hydroxy when R⁴ or R⁵ is lower alkoxy and/or R⁸ is acyl, or a pharmaceutically acceptable acid addition salt thereof.

4,366,160

IMIDAZOLE DERIVATIVES

Henri Ramuz, Birsfelden, Switzerland, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Aug. 26, 1981, Ser. No. 296,596

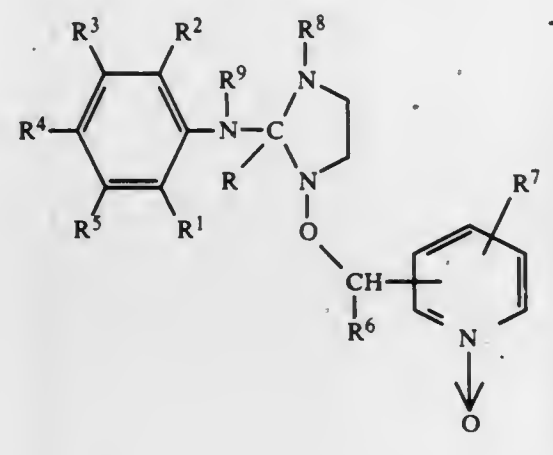
Claims priority, application Switzerland, Sep. 10, 1980, 6798/80; Jun. 24, 1981, 4175/81

Int. Cl.³ A61K 31/44; C07D 401/12

U.S. Cl. 424-263

24 Claims

1. A compound of the formula



wherein R¹, R² and R³, independently, are hydrogen, halogen, trifluoromethyl, nitro, lower alkyl or lower alkylthio; one of R⁴ and R⁵ is hydrogen and the other is hydrogen, halogen, hydroxy or lower alkoxy; R⁶ is hydrogen or lower alkyl; R⁷ is hydrogen, hydroxy, lower alkyl or lower alkoxy; and either R⁸ is hydrogen, lower alkyl, lower alkenyl, aryl-(lower alkyl) or acyl and R⁹ taken together with R is an additional bond, or R⁹ is lower alkyl, lower alkenyl or aryl-(lower alkyl) and R⁸ taken together with R is an additional bond; provided that R⁴ or R⁵ is not hydroxy when R⁷ is lower alkoxy and/or R⁸ is acyl, and that R⁷ is not hydroxy when R⁴ or R⁵ is lower alkoxy and/or R⁸ is acyl, or a pharmaceutically acceptable acid addition salt thereof.

23. A method of controlling or preventing pain which comprises administering an effective amount of a compound of the formula

4,366,161

NICOTINAMIDE DERIVATIVE, PROCESS FOR PREPARING THE SAME AND PHARMACEUTICAL COMPOSITION CONTAINING THE SAME

Takashi Mori, Ohizumigakuenmachi; Sakae Takaku, Ageo; Fumiaki Matsuura, Tokyo; Yasushi Murakami, Tokyo; Yukifumi Noda, Tokyo; Tamotsu Yamazaki; Tomohiro Neichi, both of Tokorozawa; Hiroshi Nakakimura, Kamakura; Shigeyuki Kataoka, Saitama; Takashi Matsuno, Omiya; Shunichi Hata, Yokohama, and Shigeru Takanashi, Asaka, all of Japan, assignors to Chugai Seiyaku Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 17, 1980, Ser. No. 207,443

Claims priority, application Japan, Nov. 22, 1979, 54-150674

Int. Cl.³ C07D 213/56; A61K 31/455

U.S. Cl. 424-266

14 Claims

1. 1,2-Bis(nicotinamido)propane and its pharmaceutically acceptable salt.

9. A method for treating a vascular disease which comprises administering to a patient in need of said therapy an amount effective for said therapy of a compound according to claim 1.

4,366,162

ARYL ETHERS OF N-ALKYL-PIPERIDINES AND ACID ADDITION SALTS THEREOF

Anders K. K. Björk, Bjärred; Aina L. Abramo, Malmö, and Bengt E. S. Kjellberg, Staffanstorp, all of Sweden, assignors to AB Ferrosan, Malmö, Sweden

Filed Oct. 25, 1978, Ser. No. 954,340

Claims priority, application United Kingdom, Nov. 9, 1977, 46680/77

Int. Cl.³ A61K 31/445; C07D 211/50

U.S. Cl. 424-267

14 Claims

1. A compound of the general formula

4,366,164

AMINE DERIVATIVES

John W. Clitherow; Barry Price, both of Hertford; John Bradshaw, and Michael Martin-Smith, both of Ware, all of England, assignors to Glaxo Group Limited, London, England Division of Ser. No. 95,065, Nov. 16, 1979, Pat. No. 4,264,614. This application Dec. 5, 1980, Ser. No. 213,407

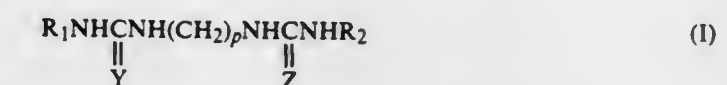
Claims priority, application United Kingdom, Nov. 16, 1978, 44777/78

Int. Cl.³ A61K 31/38; C07D 333/38

U.S. Cl. 424-267

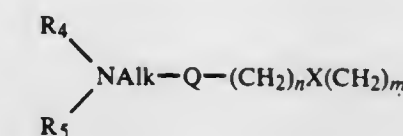
12 Claims

1. Compounds of the general formula (I)



or a physiologically acceptable salt or hydrate thereof, in which

Y and Z, which may be the same or different, each represent oxygen, sulphur, =CHNO₂ or =NR₃ where R₃ is hydrogen, nitro, cyano, lower alkyl, aryl, alkylsulphonyl or arylsulphonyl; p has a value from 2 to 12; R₁ represents



4,366,163

ANTI-HYPERTENSIVE CHROMANOL DERIVATIVES

John M. Evans, Roydon; Graham A. Showell, and Charles S. Fake, both of Harlow, all of England, assignors to Beecham Group Limited, England

Filed Sep. 12, 1980, Ser. No. 186,709

Claims priority, application United Kingdom, Sep. 28, 1979, 7933721; May 3, 1980, 8014932

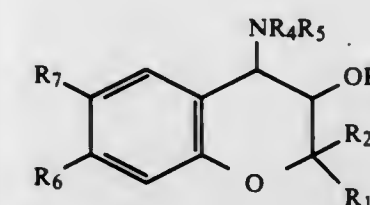
The portion of the term of this patent subsequent to Dec. 14, 1999, has been disclaimed.

Int. Cl.³ A61K 31/445; C07D 405/04

U.S. Cl. 424-267

10 Claims

1. A compound of the formula:



or a pharmaceutically acceptable salt or ester thereof, wherein

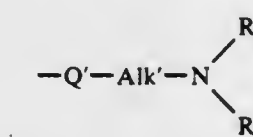
- R₁ is hydrogen or lower alkyl;
- R₂ is hydrogen or lower alkyl;
- R₃ is hydrogen or lower alkyl;
- R₄ is hydrogen or lower alkyl;
- R₅ is lower alkyl or alkyl of 3 to 5 carbon atoms terminally substituted by chlorine;
- or R₄ and R₅ are joined so that together with the nitrogen atom to which they are attached they form a 6- or 7-membered saturated heterocyclic ring containing said nitrogen atom as the sole hetero atom or a 5-membered saturated heterocyclic ring optionally containing an oxygen or sulphur atom as an additional hetero atom;
- R₆ is amino, carboxylic acylamino of up to 3 carbon atoms, alkylamino of up to 3 carbon atoms, or dialkylamino of up to 3 carbon atoms in each alkyl moiety;
- R₇ is nitro or cyano;

and the NR₄R₅ and OR₃ groups are trans.

10. A method of effecting an anti-hypertensive response in a human or other animal which comprises administering thereto an effective amount of a compound according to claim 1.

in which

- y represents 2, 3 or 4, or can additionally represent zero or 1 when E is a —CH₂— group;
- x represents zero, 1 or 2;
- E represents —CH₂—, —O— or —S—; and
- G represents a monocyclic 5 or 6 membered carbocyclic aromatic ring, or a thiophen or furan ring or G represents the group



where Q' represents a thiophen ring in which incorporation into the rest of the molecule is through bonds at the 2 and 5 positions;

Alk' represents any of the groups defined for Alk; and R₄' and R₅', which may be the same or different, represent any of the groups defined for R₄ or R₅.

12. A method of treating a condition mediated through histamine H₂-receptors which comprises administering to a

patient as effective amount of a compound as defined in claim 1 to relieve said condition.

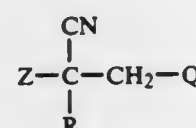
4,366,165

1 AND 4-ARYLCYANOALKYL-1,2,4-TRIAZOLES AND FUNGICIDAL USE

George A. Miller, Maple Glen, and Hak-Foon Chan, Doylestown, both of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Continuation-in-part of Ser. No. 798,286, May 19, 1977, abandoned. This application Feb. 11, 1981, Ser. No. 233,366
Int. Cl.³ A01N 43/64, 59/16; C07D 249/08; C07F 3/06
U.S. Cl. 424-269 10 Claims

1. A compound of the formula



wherein

Z is unsubstituted phenyl, or phenyl substituted with up to three substituents selected from the group consisting of halogen, nitro, trihalomethyl, cyano, (C₁-C₄)alkyl, (C₁-C₄)alkoxy, (C₁-C₄)alkylthio, (C₁-C₄)alkylsulfinyl and (C₁-C₄)alkylsulfonyl,

R is selected from the group consisting of (C₁-C₁₂)alkyl, (C₅-C₇)cycloalkyl, (C₂-C₄)alkenyl, (C₅-C₆)cycloalkenyl, (C₂-C₄)alkynyl, unsubstituted phenyl, benzyl or phenethyl, or phenyl, benzyl or phenethyl substituted with up to two halogen atoms;

Q is an unsubstituted 1- or 4-(1,2,4-triazole) and the agronomically acceptable enantiomorphs, acid addition salts and metal salt complexes thereof.

4,366,166

FILARICIDAL 2-NITROIMIDAZOLE COMPOUNDS

Werner Hofheinz, Bottmingen, and Harro Stohler, Binningen, both of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed May 14, 1981, Ser. No. 263,612

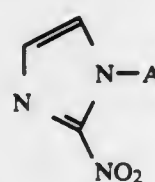
Claims priority, application Switzerland, May 23, 1980, 4057/80

Int. Cl.³ A61K 31/415; C07D 233/91

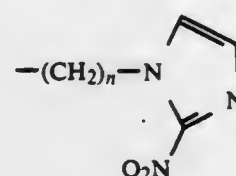
U.S. Cl. 424-273 R

1 Claim

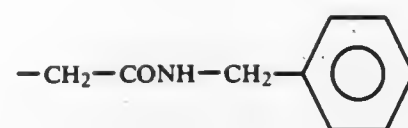
1. A method for the treatment of filariasis which comprises administering to a host requiring such treatment an amount effective thereof of a compound of the formula



wherein A is one of the groups



$-\text{C}(\text{R}^3)=\text{C}(\text{R}^1)(\text{R}^2)$, $-\text{CHBr}-\text{CH}_2\text{Br}$ or $-\text{CH}_2-\text{CCl}=\text{CH}_2$ or R^4 ; n is 1, 2, 3 or 4; R¹ and R² are hydrogen or C₁₋₃-alkyl and R³ is hydrogen C₁₋₃-alkyl, chlorine or bromine and R⁴ is $-\text{CH}_2-\text{CH}_2\text{OH}$, $-\text{CH}_2-\text{CHOH}-\text{CH}_2\text{OCH}_3$, $-\text{CH}_2-\text{CHOH}-\text{CH}_2\text{OH}$ or



4,366,167

β-LACTAM ANTIBIOTICS, PREPARATION AND USE

David F. Corbett, Dorking, England, assignor to Beecham Group Limited, England

Filed Mar. 30, 1979, Ser. No. 25,556

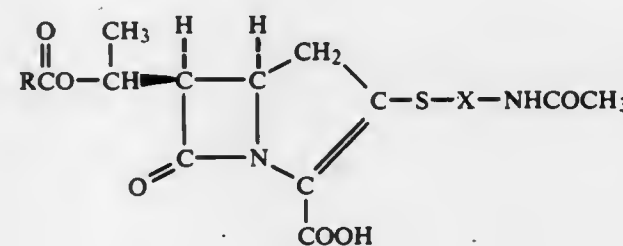
Claims priority, application United Kingdom, Apr. 28, 1978, 16886/78; May 6, 1978, 18100/78

Int. Cl.³ A61K 31/40; C07D 487/04

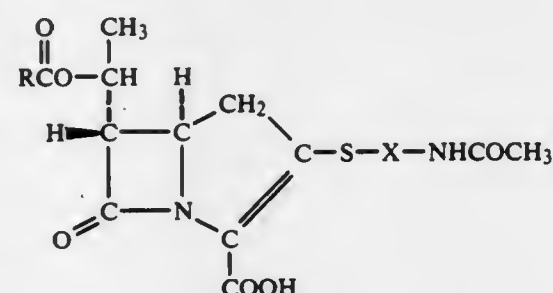
U.S. Cl. 424-274

54 Claims

1. A compound of the formula:

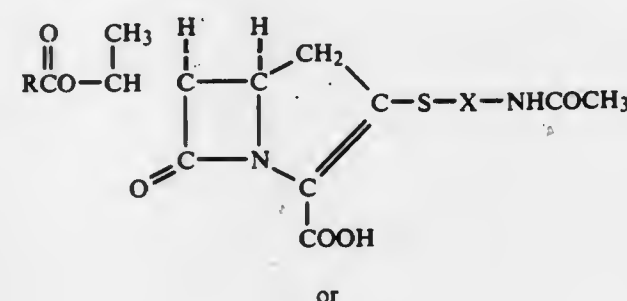


or

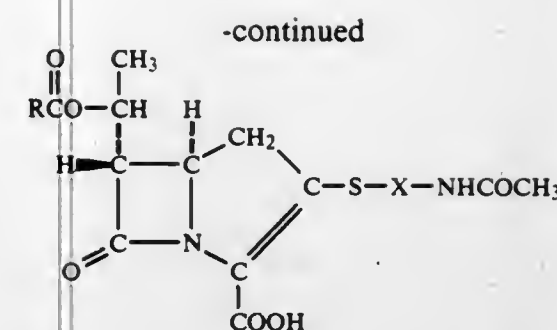


a pharmaceutically acceptable salt or benzyl, p-nitrobenzyl or phthalidyl ester thereof wherein X is trans $-\text{CH}=\text{CH}-$ and R is R¹ or R¹NH in which R¹ is alkyl of up to 6 carbon atoms, alkenyl of up to 6 carbon atoms, phenyl unsubstituted or mono-substituted by alkyl of up to 3 carbon atoms, alkoxy of up to 3 carbon atoms, chlorine or fluorine, or alkyl of up to 6 carbon atoms mono-substituted by phenyl which is unsubstituted or mono-substituted by alkyl of up to 3 carbon atoms, alkoxy of up to 3 carbon atoms, chlorine or fluorine, or by phenoxy which is unsubstituted or mono-substituted by alkyl of up to 3 carbon atoms, alkoxy of up to 3 carbon atoms, chlorine or fluorine.

10. A pharmaceutical composition useful for treating bacterial infections in humans, domestic animals and cattle which comprises an antibacterially effective amount of a compound of the formula



or



a pharmaceutically acceptable salt or benzyl, p-nitrobenzyl or phthalidyl ester thereof wherein X is trans $-\text{CH}=\text{CH}-$ and R is R¹ or R¹NH in which R¹ is alkyl of up to 6 carbon atoms, alkenyl of up to 6 carbon atoms, phenyl unsubstituted or mono-substituted by alkyl of up to 3 carbon atoms, alkoxy of up to 3 carbon atoms, chlorine or fluorine, or alkyl of up to 6 carbon atoms mono-substituted by phenyl which is unsubstituted or mono-substituted by alkyl of up to 3 carbon atoms, alkoxy of up to 3 carbon atoms, chlorine or fluorine, or by phenoxy which is unsubstituted or mono-substituted by alkyl of up to 3 carbon atoms, alkoxy of up to 3 carbon atoms, chlorine or fluorine, in combination with a pharmaceutically acceptable carrier.

4,366,168

ANTICOCCIDIAL COMBINATIONS

Albert J. Clinton, deceased, late of Indianapolis, Ind. (by American Fletcher National Bank and Trust Company, Administrator), and George O. P. O'Doherty, Greenfield, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Sep. 21, 1981, Ser. No. 304,403

Int. Cl.³ A61K 31/35, 31/135

U.S. Cl. 424-283

17 Claims

1. A combination useful in the treatment of coccidiosis in animals comprising in synergistic amounts from about 1 to about 10 parts by weight of a polyether antibiotic and about 10 to about 1 part by weight of a benzenamine selected from 2,4-dinitro-N-[4-(trifluoromethoxy)phenyl]-6-(trifluoromethyl)benzenamine; 2,4-dinitro-N-[4-(1,1,2,2-tetrafluoroethoxy)phenyl]-6-(trifluoromethyl)benzenamine or 2,4-dinitro-N-[4-(pentafluoroethoxy)phenyl]-6-(trifluoromethyl)benzenamine.

4,366,169

USE OF PERFLUOROCARBONS AS WOUND TREATMENT

David C. White, Concordville, Pa., assignor to Sun Tech, Inc., Philadelphia, Pa.

Continuation-in-part of Ser. No. 52,041, Jun. 25, 1979, abandoned. This application Jan. 26, 1981, Ser. No. 228,642

Int. Cl.³ A61K 31/02, 31/025, 31/34

U.S. Cl. 424-285

18 Claims

1. A method of treating a victim having a wound the normal healing of which is accelerated by exposure to oxygen, which comprises contacting the wound with an effective amount of a liquid containing molecular oxygen and comprising a substantially fluorinated carbon material or a mono or dibrominated derivative thereof having an ability to transport oxygen, the contacting being by means other than the blood stream.

4,366,170

1,2-DIBROMO-2-CYANO-2-(ARYL)ETHANE(PROPANE) ANTIMICROBIAL COMPOUNDS

John E. Engelhart, Westfield; Marshall R. Angeles, Scotch Plains, both of N.J., and Michael J. D'Errico, Flossmoor, Ill., assignors to Merck & Co., Inc., Rahway, N.J.

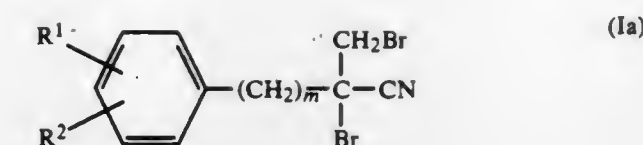
Filed Dec. 22, 1981, Ser. No. 333,275

Int. Cl.³ A01N 37/34; C07C 121/66, 121/75

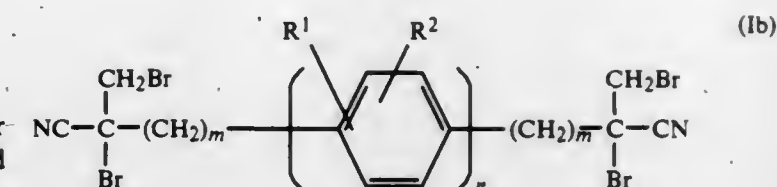
U.S. Cl. 424-304

23 Claims

1. A compound of the formula:



or



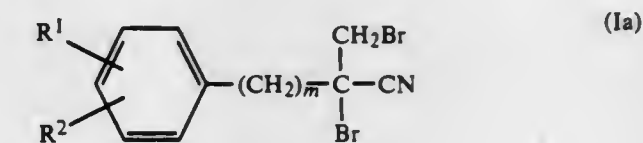
where

R¹ and R² are hydrogen; halo; C₁₋₄alkyl; C₁₋₄alkoxy; hydroxy; nitro; cyano; or trifluoromethyl;

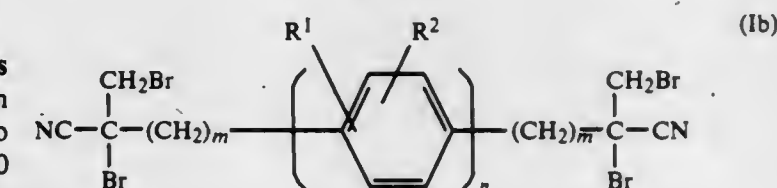
m is 0 or 1; and

n is 1 or 2.

22. A method of inhibiting the growth of at least one of: bacteria, fungi, and algae, comprising contacting said bacteria, fungi, or algae, with a bactericidally, fungicidally, or algicidally effective amount of a compound of the formula:



or



where

R¹ and R² are hydrogen; halo; C₁₋₄alkyl; C₁₋₄alkoxy; hydroxy; nitro; cyano; or trifluoromethyl;

m is 0 or 1; and

n is 1 or 2.

4,366,171

FUNGICIDAL BIPHENYL ESTERS, MIXTURES THEREOF AND METHOD OF USE

Bruce M. Resnick, West Paterson, N.J., assignor to GAF Corporation, New York, N.Y.

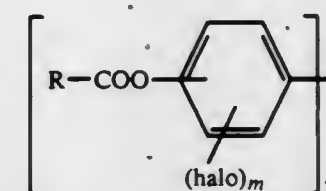
Filed Apr. 3, 1981, Ser. No. 250,468

Int. Cl.³ A01N 37/02, 37/06

U.S. Cl. 424-313

8 Claims

1. The method of inhibiting growth of plant pathogenic fungi which comprises exposing said fungi to a growth inhibiting quantity of a compound having the formula



wherein m has a value of from 0 to 2; halo is fluorine, chlorine or bromine and R is a radical having not more than 4 carbon atoms selected from the group consisting of alkenyl, haloalkenyl and haloalkyl; and mixtures of said compounds.

4,366,172
4-AMINO-CYCLOHEXANOLS, THEIR
PHARMACEUTICAL COMPOSITIONS AND METHODS
OF USE

Daniel Lednicer, Evansville, Ind., assignor to The Upjohn Company, Kalamazoo, Mich.

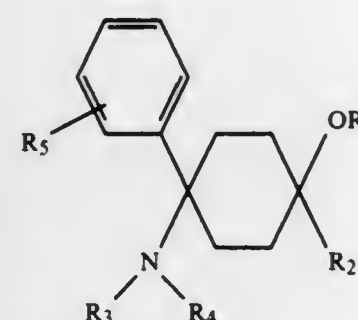
Filed Sep. 29, 1977, Ser. No. 837,510

Int. Cl.³ A01N 33/02

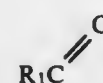
U.S. Cl. 424—330

23 Claims

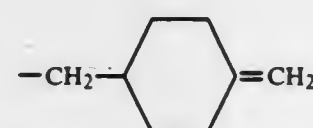
1. A compound of the formula



wherein R is hydrogen or



wherein R₁ is alkyl of one to three carbon atoms, inclusive;
 R₂ is hydrogen, alkyl of one to six carbon atoms, inclusive, alkenyl of two to six carbon atoms, inclusive, alkynyl of two to six carbon atoms, inclusive, wherein the triple bonded carbon is attached to the ring, alkylcycloalkyl wherein alkylene is one to six carbon atoms, inclusive, and cycloalkyl is three to six carbon atoms, inclusive, alkylcycloalkenyl wherein alkylene is one to six carbon atoms, inclusive, and cycloalkenyl is five to seven carbon atoms, inclusive,

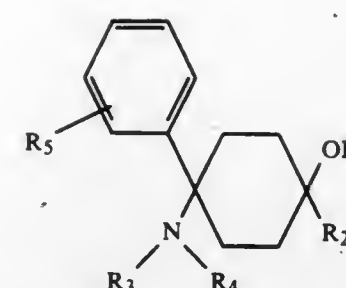


and Q-E wherein Q is alkylene of zero to six carbon atoms, inclusive, and E is

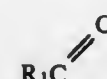


wherein G is hydrogen, halogen, hydroxy, alkyl of one to three carbon atoms, inclusive, or alkoxy of one to three carbon atoms, inclusive;
 R₃ and R₄ are the same or different and are alkyl of one to five carbon atoms, inclusive;
 R₅ is hydrogen, halogen, hydroxy or alkyl of one to three carbon atoms, each R₅ at the meta or para position with the proviso that when R₅ is hydroxy, R₂ is not hydrogen or alkyl of one to six carbon atoms, inclusive;
 or a physiologically acceptable acid addition salt thereof.

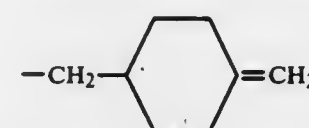
19. A method for producing analgetic effects in a mammal which comprises administering to a mammal in need of said treatment an analgetic effective amount of a compound of the formula



Formula I wherein R is hydrogen or



wherein R₁ is alkyl of one to three carbon atoms, inclusive;
 R₂ is hydrogen, alkyl of one to six carbon atoms, inclusive, alkenyl of two to six carbon atoms, inclusive, alkynyl of two to six carbon atoms, inclusive, wherein the triple bonded carbon is attached to the ring, alkylcycloalkyl wherein alkylene is one to six carbon atoms, inclusive, and cycloalkyl is three to six carbon atoms, inclusive, alkylcycloalkenyl wherein alkylene is one to six carbon atoms, inclusive, and cycloalkenyl is five to seven carbon atoms, inclusive,



and Q-E wherein Q is alkylene of zero to six carbon atoms, inclusive, and E is



wherein G is hydrogen, halogen, hydroxy, alkyl of one to three carbon atoms, inclusive, or alkoxy of one to three carbon atoms, inclusive;
 R₃ and R₄ are the same or different and are alkyl of one to five carbon atoms, inclusive;
 R₅ is hydrogen, halogen, hydroxy or alkyl of one to three carbon atoms, each R₅ at the meta or para position with the proviso that when R₅ is hydroxy, R₂ is not hydrogen or alkyl of one to six carbon atoms, inclusive;
 or a physiologically acceptable acid addition salt thereof, in association with a pharmaceutical carrier.

4,366,173
EDIBLE COLORANT

Bernard J. Parker, Manly Vale, Australia, assignor to Mauri Brothers & Thomson (Aust) Pty. Limited, Sidney, Australia
 PCT No. PCT/AU80/00020, § 371 Date Feb. 4, 1981, § 102(e)
 Date Jan. 27, 1981, PCT Pub. No. WO80/02695, PCT Pub. Date Dec. 11, 1980

PCT Filed Jun. 3, 1980, Ser. No. 233,581

Claims priority, application Australia, Jun. 4, 1979, PD9049
 Int. Cl.³ A23L 1/185, 1/272, 1/204, 1/209

U.S. Cl. 426—20

32 Claims

1. A method for producing an edible colourant comprising the steps of:
 (A) digesting a roasted malted cereal in water by use of at least one enzyme selected from the group comprising proteases and at least one other enzyme selected from the group comprising carbohydrases; and

(B) subsequently separating an aqueous extract from the remaining solids and retaining said extract whereby there is retained a colourant suitable for use in foodstuffs and beverages.

4,366,174
LOW FAT CHEESE PRODUCT SIMILAR TO SWISS
CHEESE

Arnold S. Kneubuehl, 528 Baintree, Lake Summerset, Davis, Ill. 61019, and Stephen A. Kneubuehl, Rte. 1, Dakota, Ill. 61018
 Continuation of Ser. No. 135,249, Mar. 31, 1980, abandoned.

This application Nov. 30, 1981, Ser. No. 326,065

Int. Cl.³ A23C 19/02, 19/06, 19/14

U.S. Cl. 426—36

12 Claims

1. In a process for producing a low fat cheese having the nutty flavor of Swiss cheese, a fat content of less than 43 percent by weight fat in the dry matter, a moisture content of more than 40 weight percent, and having at least 10 mixed round and irregular holes per 6 inch trier which gives said cheese a lacy appearance when sliced, said process comprising the steps of heating pasteurized milk containing from 0 to 3.0 percent by weight of fat to a temperature of from about 86° to 90° F. in a vat having a gate end, adding from about 1 to about 1 percent by weight of a lactic culture and from about 1 to 50 ml of frozen concentrated propionic culture per 1000 pounds of milk; ripening the milk for from about 0 to 30 minutes; adding from 2 to 4 ounces of rennet substitute per 1000 pounds of milk; allowing the milk to coagulate for at least 20 minutes; cutting said curd lengthwise and crosswise and thereafter stirring said curd for from about 10 to 35 minutes; allowing said curd to settle, pushing said curd away from the gate end of the vat; drawing one-third by volume of the whey from said vat; stirring said curd for approximately five minutes and thereafter adding an amount of hot water heated to a temperature of between 110° and 145° equivalent to the amount of whey drawn off; cooking said curd with stirring until the desired firmness is obtained; allowing said curd to settle; pumping said cheese curd onto a curd table with continuous stirring; and thereafter transferring said curd into molds; pressing said cheese for at least about two hours at a pressure of from about 15 to 30 pounds p.s.i.g., the improvement comprising cooling said cheese to a temperature of between 35° to 55° F. during said pressing for at least about two hours and thereafter cutting said cheese into the desired shape and brining said cheese for from about 3 or more hours; boxing said cheese and storing said boxed cheese first in cold storage and then in a warm room until the irregular holes which give the cheese a lacy appearance when sliced have formed; and thereafter storing said cheese in a cool room.

4,366,175
GLAZED LIVER COATED BISCUIT OR KIBBLE FOR
PETS

Bruce W. Brown, P.O. Box 600, Medina, Tex. 78055; Virgil E. Copple, 233 Gruene Rd., New Braunfels, Tex. 78130, and Carroll K. Wilson, 1128 Winston, El Paso, Tex. 79907

Continuation-in-part of Ser. No. 927,798, Jul. 25, 1978, Pat. No. 4,229,485. This application Jul. 25, 1980, Ser. No. 172,216

Int. Cl.³ A23K 1/10

U.S. Cl. 426—92

5 Claims

1. A pet food product in the form of dry, solid pieces having high palatability throughout, each comprising a solid core comprising at least 40% of a farinaceous material and from 5-25% by weight of a proteinaceous material, said core containing from 8 to 18% by weight moisture content and being encapsulated in a continuous glazed liver coating containing at least 50% by weight liver on a dry basis and having less than an 18% by weight moisture content, and said coating constituting from 2-20% by weight of the product.

4,366,176
PROCESS FOR THE PRODUCTION OF A STRUCTURE
PROTEIN PRODUCT

Pierre Wetzel, Vevey, Switzerland, assignor to Societe D'Assistance Technique Pour Produits Nestle S.A., Lausanne, Switzerland

Filed Mar. 17, 1981, Ser. No. 244,764

Claims priority, application Switzerland, Mar. 31, 1980, 2522/80

Int. Cl.³ A23J 3/00

14 Claims

1. A process for the production of a structured product from a water-containing protein material having a three-dimensional organization and a pH of at least 4.5 which comprises compacting the protein material in a semipermeable envelope, closing the envelope and exchanging the water present in the protein material for an osmotic agent capable of penetrating said semipermeable envelope solely by the application of osmotic force by immersing the closed envelope in a solution of the osmotic agent having a pH of at least 4.5.

4,366,177
METHOD OF FLAMELESS BROILING OR BAKING
GREASY MEAT PRODUCTS

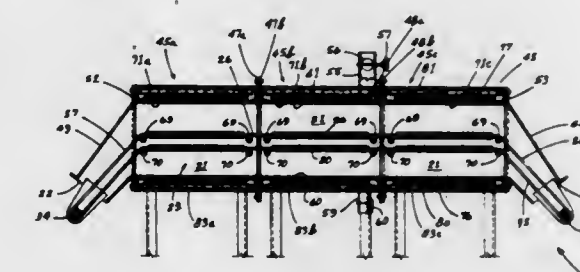
Harold D. Wells, St. Louis County, and Dennis L. Wagner, Ballwin, both of Mo., assignors to Pet Incorporated, St. Louis, Mo.

Filed Jan. 26, 1981, Ser. No. 228,278

Int. Cl.³ A23L 1/31, 3/18

U.S. Cl. 426—243

4 Claims



1. A method of flameless broiling or baking in a tunnel oven of greasy meat products of ordinarily flame-producing character, said meat products having a tendency to burn or produce flame because of grease therein, by conveying the products through the tunnel oven for being heated by infrared radiation at predetermined emission temperatures ordinarily causing flaming of the meat products, the tunnel oven at opposite ends having an entrance and exit, said entrance and exit being maintained open at all times, the tunnel oven having a tunnel floor, said method including heating the interior tunnel surfaces of the tunnel oven to provide for cooking of the meat products in the tunnel oven by infrared radiant energy emitted directly from said surfaces, trapping within said tunnel oven a substantially quiescently trapped, oxygen-starved heated tunnel atmosphere having a slight overpressure by preventing the free exchange of the atmosphere exteriorly of said tunnel oven with said tunnel atmosphere by maintaining the entrance and exit to the tunnel oven at all times at an orientation such that the highest point of each of said entrance and exit is lower than said floor, said tunnel atmosphere substantially preventing burning or flaming of the meat products while, within said tunnel atmosphere, and conveying the meat products through said tunnel atmosphere within said tunnel oven by first carrying the meat products upwardly at an angle inclined to the horizontal through said open entrance and into said atmosphere, carrying them along the length of said tunnel oven within said tunnel atmosphere while heating said meat products by the emission of infrared radiation directly from the interior tunnel surfaces resulting from said heating thereof, and subsequently conveying them downwardly at an angle inclined to the horizontal out of said tunnel atmosphere through said

open exit, said predetermined emission temperatures being within the range of from about 200° F. to about 1200° F.

4,366,178

FREEZING BAKED BREAD GOODS

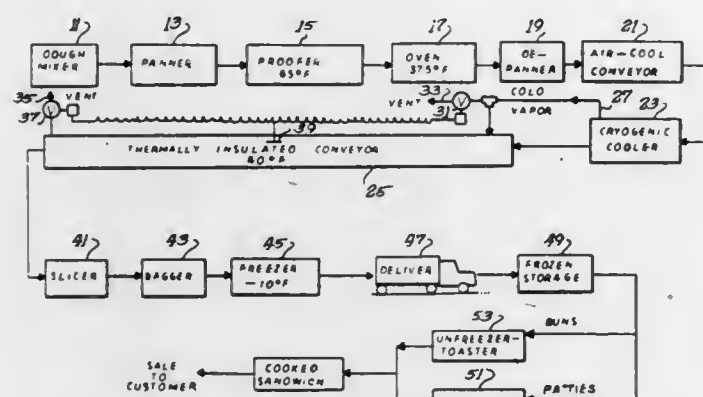
Martin M. Reynolds, Aurora, and Linda Young-Bandala, La Grange, both of Ill., assignors to Liquid Carbonic Corporation, Chicago, Ill.

Filed Apr. 27, 1981, Ser. No. 257,898

Int. Cl.³ A21D 15/02

U.S. Cl. 426—393

9 Claims



1. A method of preserving freshly baked goods comprising baking bread dough goods in an oven at a temperature above about 300° F., shortly thereafter, both lowering the temperature of said baked goods from the temperature at which they leave the oven to at least about 120° F. and then cryogenically cooling said baked goods so as to drop the temperature thereof to a temperature of about 37° F. to about 45° F. in about 5 to about 15 minutes, thereafter maintaining said cryogenically cooled baked goods at a temperature of about 37° F. to about 45° F. for at least about 25 minutes to effect a desired rapid degree of starch crystallization in said baked goods sufficient to fully convert the baked dough to marketable bread goods and, when this desired degree of crystallization is reached, thereafter freezing said baked goods.

4,366,179

OXYGEN AND CARBON DIOXIDE ABSORBENT AND PROCESS FOR STORING COFFEE BY USING THE SAME

Takanari Nawata; Toshio Komatsu, and Masayuki Ohtsuka, all of Tokyo, Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Filed Mar. 11, 1981, Ser. No. 242,562

Claims priority, application Japan, Mar. 17, 1980, 55-33654; Mar. 21, 1980, 55-35900

Int. Cl.³ B65B 55/00; A23F 5/02; B01J 31/26

U.S. Cl. 426—395

8 Claims

1. A method for storing roast coffee powder or beans in a hermetically sealed container made of a substantially gas impermeable packing material that also contains an oxygen and carbon dioxide absorbent comprising (a) a particulate calcium hydroxide impregnated with water or a moisture-conditioning solution and then coated with separator particles, (b) iron powder, and (c) an electrolyte.

4,366,180

PROCESS FOR PRODUCING A LOW-FAT OIL-IN-WATER-IN-OIL EMULSION

Werner W. L. Altmann, and Janis A. Ritums, both of Lidingö, Sweden, assignors to Lever Brothers Company, New York, N.Y.

Filed May 12, 1981, Ser. No. 262,837

Claims priority, application Netherlands, May 21, 1980, 8002925

Int. Cl.³ A23D 3/02, 5/02

U.S. Cl. 426—602

13 Claims

1. A process for producing an edible low-fat oil-in-water-in-oil emulsion spread containing less than 65 wt. % fat, comprising:

- feeding a fat constituting the continuous phase of the emulsion into an emulsification unit and units where cooling and working are carried out for a period of time long enough to at least achieve coating of the inner surface of the emulsification unit with said fatty continuous phase;
- preparing a proteinaceous oil-in-water emulsion from water, proteins and fat;
- deacrating said proteinaceous oil-in-water emulsion;
- forming a mixture of the fatty continuous phase with the proteinaceous oil-in-water emulsion by gradually introducing said phase and emulsion into said coated emulsification unit; and
- subjecting said mixture to a cooling and working treatment.

4,366,181

FAT BLEND SUBSTANTIALLY FREE OF HYDROGENATED AND INTERESTERIFIED FATS

Willem Dijkshoorn, Vlaardingen; Hindrik Huizinga, Maassluis, and Jacobus N. Pronk, Vlaardingen, all of Netherlands, assignors to Lever Brothers Company, New York, N.Y.

Filed May 26, 1981, Ser. No. 267,231

Claims priority, application Netherlands, May 30, 1980, 8003144

Int. Cl.³ A23D 3/00

U.S. Cl. 426—603

8 Claims

1. Fat blend, which is substantially free of hydrogenated and interesterified fats, comprising:

- 60 to 98% of an oil or fat having a slip melting point not exceeding 43° C.; and
- 2 to 40% of a stearin of oils or fats having an average chain length of the fatty acid radicals of 12 to 18 carbon atoms, said stearin having a slip melting point exceeding 30° C.;

in which fat blend the proportion of glycerides having trisaturated fatty acids with a chain length of 12 to 14 carbon atoms ranges from 7 to 14% and the proportion of glycerides having trisaturated fatty acids with an average chain length of 16 to 18 carbon atom ranges from 7 to 12%; and

which fat blend has an amount of solid phase as determined by pulsed nuclear magnetic resonance of:

- N₁₀ greater than or equal to 15%
- N₂₀ greater than or equal to 6.5%
- N₃₀ smaller than or equal to 5%
- N₃₅ smaller than or equal to 3%.

4,366,182

METHOD AND INSTALLATION FOR ROASTING AND GRILLING SKIN-COVERED MEAT PRODUCT, SUCH AS POULTRY AND PARTICULARLY CHICKEN

Karl-Axel Köhler, Torggatan 6, 11265 Stockholm; Rolf Collin, Ringparhen 5, S 13150 Saltsjö Duvnaes, and Ralf Larsson, Brovautare Gt. 37, S-43136 Mölndal, all of Sweden

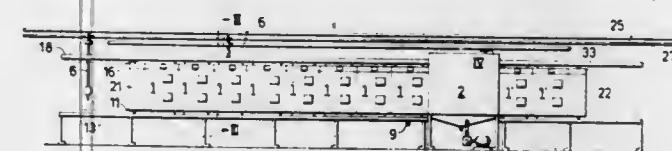
Filed Sep. 14, 1981, Ser. No. 301,962

Claims priority, application Sweden, Sep. 17, 1980, 8006536

Int. Cl.³ A47J 37/00

U.S. Cl. 426—644

2 Claims



1. A method of roasting and grilling a skin-covered meat product, such as poultry and especially chickens, that is supported by a spit, the spit being suspended vertically from a horizontal conveyor and being heated electrically, the meat product being transported through an oblong cassette oven with heat radiation tubes, characterized in that the skin of the chicken is perforated by means of injection needles, by which simultaneously a saline solution and seasonings atomized therein are injected into the chicken meat, that the chicken is threaded and fastened on the spit whereby the chicken is heated internally, that the heated spit with the chicken is transported in one single cycle and while being rotated through a roasting oven constituting a part of the cassette-oven where it is exposed externally to preferably short-wave infrared radiation for a lower surface effect during the roasting of the chicken, and directly thereafter is transported through a spray box and sprayed with a liquid mixture of oil and finely distributed atomized seasonings, and directly thereafter is transported through a grilling oven constituting a part of the cassette-oven where it is exposed to preferably medium-wave infrared radiation for a higher surface effect during the grilling of the chicken, that the heating of the spit is interrupted, and the spit with the chicken is transported while being cooled from the grilling oven to outside the cassette-oven close to a place where the chicken was threaded on the spit and where the chicken then is picked from the spit.

2. An installation for roasting and grilling a skin-covered meat product, such as a chicken, which is pretreated in that the skin of the chicken is perforated and a saline solution with atomized seasonings is injected into the chicken meat, which installation comprises an oblong cassette-oven with heat radiation tubes and an upper slit in the oven roof for the passage of vertically suspended rotary spit, characterized in that the cassette-oven in series comprises a roasting oven, a spray box and a grilling oven, that the heat radiation tubes of the roasting oven preferably are short-wave infrared radiation tubes, that the spray box is provided with nozzle frames for ejecting a liquid mixture of seasonings and oil, that the heat radiation tubes of the grilling oven preferably are medium-wave infrared radiation tubes, that the spit is suspended rotatably in a horizontal conveying means, such as a conveying chain, which as an endless horizontal loop extends with one portion substantially straight above the upper slit along the entire length of the cassette-oven and a short distance outside the ends thereof transforms via its arched portion to a portion, which extends in parallel with said firstmentioned portion and spaced therefrom, and that collector rails in contact with current collectors on the spit extend only along the length of the cassette-oven.

4,366,183

PROCESS FOR MAKING BIOACTIVE COATINGS ON OSSEOUS PROSTHESES, AND PROSTHESES THUS OBTAINED

Josette Ghommidh, Castanet Tolosan; Bernard Buttazzoni, Marseilles; Georges Constant, Ramonville St. Agne; Etienne Diloy, and Roland Moranco, both of Toulouse, all of France, assignors to Societe Europeenne de Propulsion, Puteaux, France

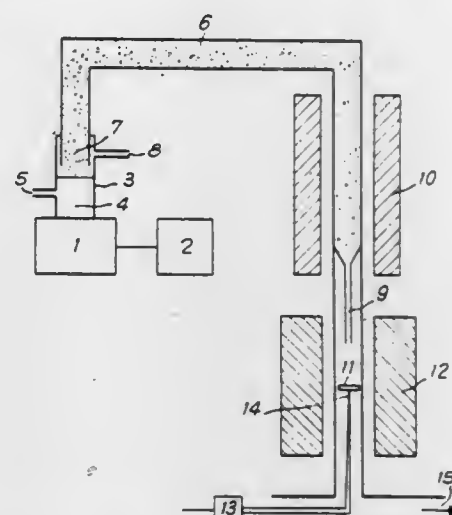
Filed Jun. 10, 1981, Ser. No. 272,129

Claims priority, application France, Jun. 17, 1980, 80 13433

Int. Cl.³ A61F 1/24; A61C 13/30

U.S. Cl. 427—2

3 Claims



1. A process for applying thin bioactive coatings to an osseous prosthesis support comprising the steps of: producing a mist of droplets of a concentrated liquid solution of a phosphate of calcium; entraining said mist in a gaseous current; heating said support to a temperature from 200° to 600° C., directing said gaseous current containing said mist onto the heated support, heating the mist to a temperature from 100° to 350° C. by contact with the hot support and vaporizing the liquid from said liquid solution to deposit a coating of calcium phosphate material on said support, said phosphate material initially present in the liquid solution being transformed into at least one bioactive phosphate selected from the group consisting of hydroxyapatite, beta-form tricalcium phosphate, gamma- and beta-form calcium pyrophosphate, brushite, monetite and mixtures of one or more of the foregoing; and maintaining the operational conditions of said deposition such that the thickness of the deposited coating is from 2 to 15 micrometers.

4,366,184

METHOD FOR BONDING SILICONE ELASTOMERS TO METAL SUBSTRATES

Robert A. Auerbach, Allison Park, and Herman V. Boenig, Erie, both of Pa., assignors to Lord Corporation, Erie, Pa.

Filed Jun. 22, 1981, Ser. No. 276,215

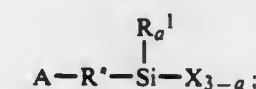
Int. Cl.³ B05D 3/06

U.S. Cl. 427—41

12 Claims

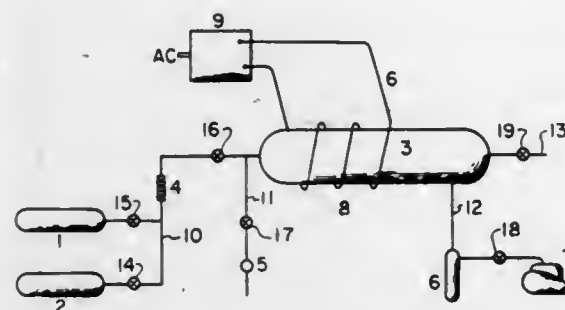
1. A method for bonding vulcanizable silicone elastomer compositions to metal substrates comprising:

- treating at least one metal substrate in a plasma comprising at least one organosilicon monomer having the formula



wherein

R⁰ is a divalent aliphatic, cycloaliphatic or aromatic radical having from one to 20 carbon atoms;
 R¹ is hydrogen, halogen or a monovalent aliphatic, cycloaliphatic or aromatic radical having from 1 to 20 carbon atoms;
 X is halogen or —OR², wherein R² is halogen or a monovalent aliphatic, cycloaliphatic or aromatic radical having from 1 to 8 carbon atoms;
 A is selected from the group consisting of hydrogen, hydroxy, mercapto, oxirane, carboxyl, isocyanato, acryloxy, methacryloxy and amino having the formula —NH R⁵, wherein R⁵ is selected from the group consisting of hydrogen, monovalent aliphatic radicals containing from one to



8 carbon atoms, monovalent cycloaliphatic radicals having from 4 to 7 ring carbon atoms, phenyl, alkaryl radicals having 6 nuclear carbon atoms and containing one or more substituent alkyl groups having from one to 4 carbon atoms and —R⁶—NH—R⁷, wherein R⁶ is selected from the group consisting of divalent aliphatic, cycloaliphatic and aromatic radicals having from one to 20 carbon atoms, and R⁷ is the same as R⁵; and
 a is zero or one;
 (b) contacting such plasma-treated metal substrate with a vulcanizable silicone rubber composition; and
 (c) subjecting the resultant assembly to conditions sufficient to vulcanize said elastomer.

4,366,185

METAL-RESIN COMPOSITE AND PROCESS FOR ITS PRODUCTION

Atsuo Tanaka, Tokuyama; Takaaki Okamura, Yanai; Katsumi Kanda, and Yoshikazu Kondo, both of Kudamatsu, all of Japan, assignors to Toyo Kohan Co., Ltd., Tokyo, Japan
 Filed Aug. 28, 1980, Ser. No. 182,002
 Claims priority, application Japan, Feb. 12, 1980, 55-14816
 Int. Cl.³ B05D 5/00, 7/14

U.S. Cl. 427—386 14 Claims

1. A process of producing a metal-resin composite, capable of controlling the pH of a solution, which permeates through the resin to the metal, to within the range of from 4 to 12, comprises

providing a first solution or dispersion of at least one resin selected from the group consisting of epoxy resins, phenolic resins, acrylic resins, polyamide resins, alkyd resins, melamine resins, urea-formaldehyde resins, polybutadiene resins, polyester resins, silicone resins, polyolefin resins, urethane resins and polystyrene resins, said first solution or dispersion having dispersed therein at least one particulate metal compound selected from the group consisting of oxides, hydroxides, carbonates, acid carbonates, borates, perborates, phosphates, acid phosphates, silicates, aluminates, stannates, tungstates, molybdates, chromates, manganates, permanganates and carboxylates of Group I A and Group II A metals of the Periodic Table, the amount of said metal compound in said first solution or dispersion being 1-500 parts by weight per 100 parts by weight of said resin,

coating said first solution or dispersion, having said metal compound dispersed therein, on a metal substrate, heating the thus coated substrate at a temperature and for a time sufficient to evaporate the solvent for said resin and

cure said resin, thus producing a first resin layer adhering to said metal substrate,
 coating the surface of said first resin layer with a second solution or dispersion of said resin having dispersed therein at least one particulate metal selected from the group consisting of aluminum, chromium, zinc, tin, nickel, cobalt and manganese, or an alloy thereof, in an amount of 1-500 parts by weight per 100 parts by weight of said resin, and
 heating the thus coated resin layer at a temperature and for a time sufficient to evaporate the solvent for said resin and cure said resin, thus producing a second resin layer adhering to said first resin layer.

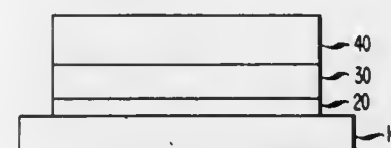
4,366,186

OHMIC CONTACT TO P-TYPE INP

Vassilis G. Keramidas, Warren; Robert J. McCoy, Chatham, and Henryk Temkin, New Providence, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
 Filed Sep. 27, 1979, Ser. No. 79,451
 Int. Cl.³ H01L 21/28; B05D 5/12

U.S. Cl. 427—89

15 Claims



1. A method for making an ohmic contact to a semiconductor device comprising a p-type semiconductor material selected from the group consisting of InP and InGaAsP comprising the steps of:
 depositing beryllium-gold on said semiconductor material;
 depositing gold on said beryllium-gold; and
 heat treating said device at a temperature less than 440 degrees C. for a residence time of at least 1 minute.

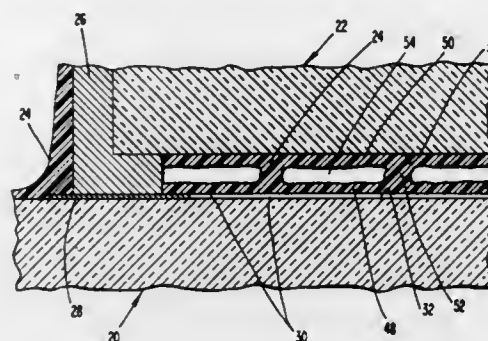
4,366,187

IMMERSION CURING OF ENCAPSULATING MATERIAL

William Gabriel, Andover, Mass., assignor to Western Electric Company, Inc., New York, N.Y.
 Filed Oct. 31, 1980, Ser. No. 202,860
 Int. Cl.³ B05D 5/12

U.S. Cl. 427—96

11 Claims



1. A method of forming a void-free coating over a film-type electrical conductor on a substrate wherein the substrate has been secured to an associated article with a fixed space between the substrate and the article, which comprises:
 flowing a layer of RTV material into the fixed space between the secured substrate and article so as to cover the film-type electrical conductor on the substrate;
 temporarily immersing the secured substrate and article, and the layer of RTV material therebetween, in a liquid as the RTV material cures, such that the RTV material forms

the void-free coating over the film-type electrical conductor on the substrate; and
 subsequently removing the secured substrate and article, and the RTV material therebetween, from the liquid.

4,366,188

METHOD OF EMPLOYING ENCAPSULATED MATERIAL

Julia M. Alston, Myrtle Bank, Australia, assignor to Moore Business Forms, Inc., Grand Island, N.Y.
 Continuation-in-part of Ser. No. 37,417, May 9, 1979, abandoned, which is a continuation-in-part of Ser. No. 485,779, Jul. 5, 1974, abandoned. This application Feb. 13, 1980, Ser. No. 121,134

Claims priority, application Australia, Jul. 9, 1973, 4001; Jan. 14, 1974, 6256

Int. Cl.³ B41M 3/12

U.S. Cl. 427—150

6 Claims

1. A method of first producing and then intensifying the images on one of the more weakly imaged sheets in a computer printout carbonless paper manifold, involving the rupture of microcapsules in the manifold, and comprising:

forming an interface by contacting two paper surfaces of the manifold from which said weakly imaged sheet is to be formed and at least one of which paper surfaces contains a microcapsular coating of a liquid substance containing a dye which is liquid at room temperature, said substance being capable of forming an adhesive bond with or fusing with a developer pigment selected from the group consisting of carbon black, magnetic iron oxide, red pigment, blue pigment and a pigmented resin or polymer;
 releasing said liquid substance imagewise to form an initial original visible dye image on at least one of said paper surfaces at the interface by the imagewise application of pressure applied to one of the papers;
 intensifying said initial original dye image to greater optical or magnetic readout capability by applying thereto at least one of said pigments and finally fixing the intensified image by heat or solvation.

4,366,189

4-HETEROCYCLYL-4'-VINYLSILBENES

Kurt Burdeska, Basel; Guglielmo Kabas, Aesch, and Kurt Weber, Basel, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Dec. 10, 1980, Ser. No. 214,946

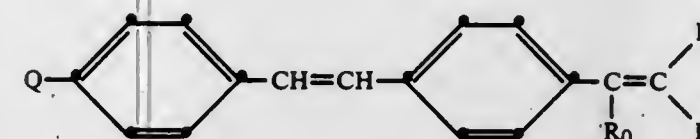
Claims priority, application Switzerland, Dec. 21, 1979, 11402/79; Sep. 18, 1980, 7008/80

Int. Cl.³ B05B 5/00

U.S. Cl. 427—157

20 Claims

1. A 4-heterocyclyl-4'-stilbene of the formula



wherein Q is a monocyclic 5- or 6-membered aromatic heterocyclic ring containing nitrogen or containing nitrogen and oxygen, which is unsubstituted or substituted by non-chromophoric groups and which contains 0, 1 or 2 fused benzene rings, or is a bicyclic 9-membered aromatic heterocyclic ring, phenyl which is unsubstituted or substituted by non-chromophoric groups, or is cyano, carboxyl, alkoxycarbonyl, alkylsulfonyl or arylsulfonyl, R₀ is hydrogen, or alkyl which is unsubstituted or substituted by non-chromophoric groups, R₁ is hydrogen, or is alkyl, alkoxycarbonyl, carbamoyl or sulfonamide, each of which is unsubstituted or substituted by non-chromophoric groups, or is alkenyl, carboxyl, alkylsulfonyl, arylsulfonyl, aralkylsulfonyl, cyano, sulfo or phosphonic acid dialkyl ester, and R₂ is hydrogen, or is alkyl or alkenyl, each of which is

unsubstituted or substituted by non-chromophoric groups, with the proviso that at most one of R₁ and R₂ is hydrogen.

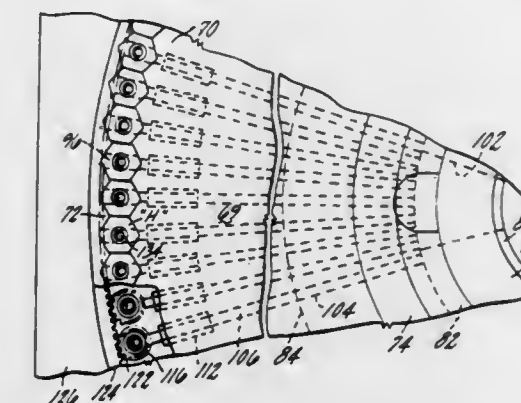
4,366,190

LOCKING PATCH MACHINE

Philip J. Rodden, 42 Baker Ave., Beverly, Mass. 01915, and Richard J. Duffy, 23 Lee St., Salem, Mass. 01970
 Continuation-in-part of Ser. No. 163,217, Jun. 26, 1980, abandoned. This application May 18, 1981, Ser. No. 262,194
 Int. Cl.³ B05D 7/22

U.S. Cl. 427—183

34 Claims



1. An apparatus for applying locking resin to a succession of internally threaded articles, comprising:

a feeder to supply said threaded articles in substantially continuous succession;
 a support for receiving said threaded articles from said feeder for conveying them along a path for treatment, the successive threaded articles having their axes of their threaded portions in an up and down position and having an opening at the lower end of the threaded portion substantially uncovered;
 means for heating said threaded portion of said threaded articles to a temperature above the softening point of a resin to be applied;
 applicator means associated with each of said threaded articles for directing particles of heat fusible resin upwardly through said openings at the lower ends of each of said threaded articles against an area of each of said threaded portions of said threaded articles in said portion of said path to cause said resin particles to be softened by heat from said threaded portions and to build up a deposit on each said area;
 said threaded articles and said applicator means being rotatable one with respect to the other during application of the heat fusible resin to said article; and
 stationary means located adjacent the path of said support to thereby cause said rotation between said threaded article and said applicator means, whereby said heat fusible material is deposited onto a desired circumferential segment or said threaded portions during movement of said support along said path.

4,366,191

METHOD OF INCREASING THE STRENGTH OF CARBON AND GRAPHITE MEMBERS

Guido Gisting, Biberach, and Manfred Schmid, Meitingen, both of Fed. Rep. of Germany, assignors to Sigr Elektrographit GmbH, Meitingen bei Augsburg, Fed. Rep. of Germany
 Filed Jan. 19, 1978, Ser. No. 870,852

Claims priority, application Fed. Rep. of Germany, Feb. 12, 1977, 2706033

Int. Cl.³ B05D 3/08

U.S. Cl. 427—228

8 Claims

1. Method of increasing the strength of a porous carbon or graphite body formed from a mixture of granular carbon-containing substances with a carbonizable binder and heating in the absence of air to carbonize the binder which comprises

subjecting said body to a single resin impregnation and carbonization by

- (a) immersing the porous body in a mixture in which 35 to 70% by weight of a hardenable resin containing an aldehyde, selected from the group consisting of phenol-formaldehyde resins, furan resins and melamine resins is admixed with 30 to 65% by weight of a volatile liquid, organic solvent and in the absence of colloidal graphite, to impregnate the pores of the porous body with said mixture;
- (b) Heating the impregnated porous body to a temperature of 120° to 180° C. to effect hardening the resin in said pores; and
- (c) carbonizing the impregnating medium by heating in an inert or reducing atmosphere at a rate of at least 3 K/hr to a temperature of 800° to 1300° C.

4,366,192

THERMAL COAGULATION OF POLYURETHANE DISPERSIONS

John McCartney, Chester, Pa., assignor to Norwood Industries, Inc., Malvern, Pa.

Division of Ser. No. 234,464, Feb. 17, 1981, Pat. No. 4,332,710. This application Nov. 13, 1981, Ser. No. 321,246

Int. Cl.³ B05D 3/02

U.S. Cl. 427-246

17 Claims

1. A method of preparing a composite sheet material comprising:

- impregnating at least a portion of porous sheet material with an aqueous anionic polyurethane composition including an aqueous polyurethane dispersion having anionic groups covalently bonded to the polymer chain and solubilized by the addition of a cationic compound which forms a salt with the anionic group and a compound which, when heated, generates acid which displaces the cationic compound from the covalently bonded anionic group;
- heating the impregnant to generate said acid and coagulate the polyurethane dispersion in said porous sheet material; and
- drying said impregnant to form a composite sheet material.

4,366,193

CATECHOL-BASED VAPOR PERMEATION CURABLE COATING COMPOSITIONS

Gary L. Linden, Upper Arlington, Ohio, and Shiraz A. Kathirya, Irvine, Calif., assignors to Ashland Oil, Inc., Dublin, Ohio

Filed Apr. 10, 1981, Ser. No. 252,844

Int. Cl.³ B05D 3/04

U.S. Cl. 427-340

18 Claims

1. A method for coating a substrate with a coating composition which comprises:

- (a) applying a film of said coating composition to said substrate, said coating composition comprising an aromatic hydroxyl-functional compound comprising substituted or unsubstituted 1,2-dihydroxybenzene or derivatives thereof and a multi-isocyanate curing agent therefor, at least one of said aromatic hydroxyl-functional compound or said curing agent being polymeric; and
- (b) exposing said coated substrate to a vaporous tertiary amine catalyst to rapidly cure said applied film.

10. A coating composition rapidly curable at room temperature in the presence of a vaporous tertiary amine catalyst which comprises:

- (a) an aromatic hydroxyl-functional compound comprising substituted or unsubstituted 1,2-dihydroxybenzene or a derivative thereof; and
- (b) a multi-isocyanate curing agent containing at least about 10% aromatic multi-isocyanate content by weight, at least one of said aromatic hydroxy-functional compound or said curing agent being polymeric.

4,366,194

RENDERING POROUS STRUCTURES IMPERMEABLE BY TREATMENT WITH PH INSENSITIVE GELABLE COMPOSITIONS OF AMIDE POLYMERS AND COMPOSITION

Richard J. Pilny, and Thomas W. Regulski, both of Midland, Mich., assignors to The Dow Chemical Co., Midland, Mich. Continuation of Ser. No. 911,863, Jun. 2, 1978, Pat. No. 4,199,625. This application Apr. 21, 1980, Ser. No. 141,866. The portion of the term of this patent subsequent to Apr. 22, 1997, has been disclaimed.

Int. Cl.³ B05D 3/02

U.S. Cl. 427-385.5

17 Claims

1. A method for rendering a porous structure impermeable which comprises treating the porous structure with a gelable aqueous reaction mixture comprising an aqueous medium having dispersed therein a water-soluble polymer derived from an ethylenically unsaturated amide, an aliphatic polyaldehyde and a metal salt of a hypohalite in proportions such that, at an effective reaction temperature and an alkaline pH from about 8 to about 13.5, the reaction mixture upon being forced into and over the porosities of the structure reacts to form a gel capable of rendering said structure impermeable to the passage of aqueous liquids.

4,366,195

FORMATION OF POLYMERIC COATINGS

Wilbur S. Hall, Plymouth Meeting, Pa., assignor to Amchem Products, Inc., Ambler, Pa.

Continuation of Ser. No. 24,399, Mar. 27, 1979, abandoned, which is a continuation of Ser. No. 800,137, May 24, 1977, abandoned. This application Oct. 2, 1980, Ser. No. 193,081

Int. Cl.³ B05D 1/18

U.S. Cl. 427-435

18 Claims

1. A process for coating a metallic surface comprising immersing the surface in an acidic aqueous coating composition containing a monomer which is capable of polymerizing by addition polymerization to form an addition polymer which has a multiplicity of groups, namely carboxyl ($-\text{COOH}$), phenolic ($-\text{OH}$) or sulfonic ($-\text{SO}_3\text{H}$) groups, which are capable of ionizing to form respectively on the polymer chain the negatively charged groups $-\text{COO}^-$, $-\text{O}^-$, or $-\text{SO}_3^-$, and wherein said monomer is soluble in the acidic aqueous medium of the composition which is free of organic solvent for the monomer, and including also an initiator selected from the group consisting of peroxides, hydroperoxides, organic azo compounds, permanganates, perborates and persulfates, and polymerizing said monomer to form said addition polymer on said surface which said surface is immersed in said composition.

6. A process for coating a metallic surface comprising contacting the surface with an autodepositing composition comprising an acidic aqueous coating solution having dispersed therein about 5 to about 550 g/l of pre-formed resin solids, a soluble ferric-containing compound in an amount equivalent to about 0.025 to about 3.5 g/l of ferric iron, and hydrofluoric acid and having a pH within the range of about 1.6 to about 5, and including also about 0.5 to about 50 wt.% of a monomer which is capable of polymerizing, and forming on the surface a coating including autodeposited resin formed from said pre-formed resin solids and also resin formed from said monomer.

4,366,196

PLASTIC MOLDING STRIP

Tadashi Maekawa, 108-1, Inohana, Miyoshi, Miyoshi-cho, Nishikamo-gun, Aichi Pref., and Yutaka Watanabe, 1820-3, Minamiyakata, Sakae-cho, Toyoake-city, Aichi Pref., both of Japan

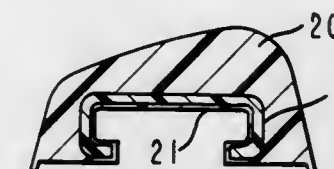
Filed Jun. 25, 1981, Ser. No. 277,230

Claims priority, application Japan, Jul. 1, 1980, 55-93237[U]

Int. Cl.³ B60R 13/04; B32B 7/02

U.S. Cl. 428-31

3 Claims



1. A plastic molding strip for automotive vehicles, the plastic molding strip comprising:

- a core member having a C-shaped cross section and formed of a hard resin plastic selected from the group consisting of hard vinyl chloride, acrylonitrile butadiene styrene, and polypropylene, and
- a molding member formed of soft vinyl chloride bonded directly to at least the entire outer surface of said C-shaped core member, at least the outer surface of the molding member opposite the middle portion of said C-shaped member being exposed to the atmosphere.

4,366,197

BUILDING WALL PANELS AND METHOD OF MAKING THE SAME

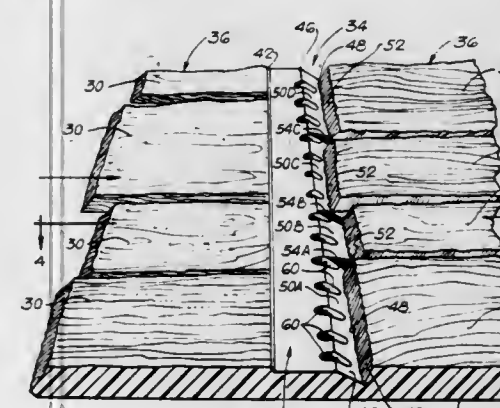
Charles M. Hanlon, Addison; James H. Mein, Palatine, and William J. Schultz, Saint Charles, all of Ill., assignors to Masonite Corporation, Chicago, Ill.

Filed Jul. 28, 1980, Ser. No. 172,558

Int. Cl.³ E04D 1/26, 3/30

U.S. Cl. 428-43

5 Claims



1. A building panel having a back face, top, bottom and opposite side edges and an outer front face having a deep embossed, weather resistant surface formed with a pattern resembling a plurality of shingle elements laid side-by-side in a common row having an irregular lower edge, at least one severance discontinuity formed in said panel sheet positioned along said irregular edge on said row of shingle elements, said panel having a section of reduced thickness along said irregular edge formed in said back face adjacent to said severance discontinuity, said section of reduced thickness adapted for overlapping a top portion of a subjacent building panel upon application of the panels to the exterior of a building structure, said irregular lower edge extending between said outer front face and an intermediate surface between said back face and said front face defining said section of reduced thickness.

4,366,198

SHEET MATERIAL SEPARATION CONSTRUCTION

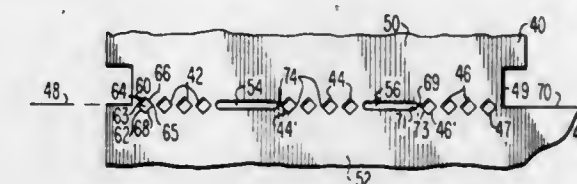
Robert J. Ramsbacher, Jr., Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 24, 1981, Ser. No. 246,937

Int. Cl.³ B32B 3/10

U.S. Cl. 428-43

10 Claims



1. A sheet material separation construction comprising: a plane sheet of printed circuit board which fractures when subjected to bending stress, said sheet having a plurality of spaced aligned apertures, each aperture being formed of at least two side walls, said side walls intersecting at an angle less than 180° at at least one point, the points of intersection being aligned along a given line at which said board is to be separated, said given line being non-coincident with any of said side walls whereby bending stresses are concentrated at said points of intersection and said board separates substantially at said given line.

4,366,199

DECORATIVE TEXTILE ELEMENT

Pierre Grosjean, Sainte-Foy-les-Lyon, France, assignor to Rhone-Poulenc-Textile, Paris, France

Filed Jul. 7, 1980, Ser. No. 166,395

Claims priority, application France, Jul. 6, 1979, 79 19132

Int. Cl.³ B32B 5/12

U.S. Cl. 428-114

9 Claims



1. A decorative textile article comprising at least one decorative textile element, each element comprising an assembly of parallel textile yarns arranged in a bundle, the ends of the yarns in each bundle being glued or welded together at both ends of the bundle, and an elongate yarn threaded through the glued or welded ends of each of said at least one element.

4,366,200

NON-SKID STRUCTURAL SURFACE

Walter N. Ecker, North St. Paul, Minn., assignor to Proform, Inc., Minneapolis, Minn.

Filed Dec. 24, 1980, Ser. No. 220,109

Int. Cl.³ B32B 3/00

U.S. Cl. 428-156

5 Claims

1. A nonskid fiberglass surface comprising: a repeating series of first and second adjacent strips, said first strips being relatively planar, said second strips including protrusions extending above the plane of said first strips, said second strips comprised of a plurality of rows of said protrusions, adjacent said rows being staggered with respect to one another and alternate said rows being aligned with respect to one another, each said protrusion having a four-sided pyramidal shape with an apex and a base of four corners, said base having longer length be-

tween one set of opposite corners than width between a second set of opposite corners.

4,366,201

HEAT SHRINKABLE WRAPAROUND CLOSURES

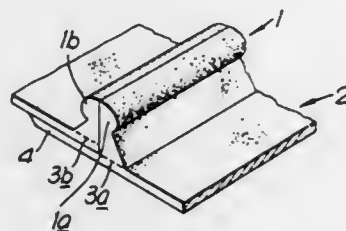
Pushp Kumar D. Changan, Swindon; Donald G. Peacock, Kempford, and David Roberts, Swindon, all of England, assignors to Raychem Corporation, Menlo Park, Calif.

Filed Jul. 28, 1980, Ser. No. 172,898

Int. Cl.³ B32B 1/08, 3/10

U.S. Cl. 428—157

4 Claims



1. A process for the production of a heat-recoverable wrap-around closure, the wraparound closure including a carcass having opposed edge regions of initially fusion bondable polymeric material, the process for production comprising the steps of:

forming a projecting grippable rib on each opposed edge region by fusion of fusion bondable polymeric material to the fusion bondable polymeric material, one of said ribs being formed so that it is higher than the other rib by approximately the thickness of the carcass and wherein a portion of the carcass adjacent the higher rib extends beyond the edge region defining a flap for underlying the other end of the carcass thereby enabling the closure to be assembled smoothly, wherein prior to forming the ribs, the wraparound closure with the exception of the flap is deformed, said ribs cooperating to form a rail for the purpose of connection; and cross-linking the fused portion of the polymeric material.

4,366,202

CERAMIC/ORGANIC WEB

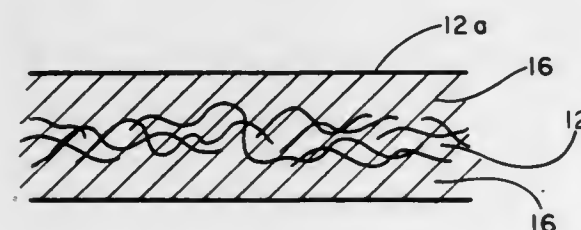
Joseph Borovsky, Menasha, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Jun. 19, 1981, Ser. No. 275,582

Int. Cl.³ B32B 5/16; D04H 1/72

U.S. Cl. 428—283

12 Claims



1. An improved organic/ceramic web having high levels of ceramic particles, capable of being shaped and then fired at elevated temperatures in desired atmospheric environments to form high strength ceramic articles, said web includes a thermoplastic flexible and fibrous substrate having fibers randomly arranged, highly dispersed and bonded at the filament junctions, said improvement comprising:

- a first ceramic particle coating covering a top surface of said substrate; and
- a second ceramic particle coating covering a bottom surface of said substrate, said first and second coatings comprised of an adhesive binder, ceramic fillers, and a wetting agent in an aqueous system, said binder being the

type which provides substantially high levels of adhesion with said fillers having a high filler-to-binder ratio admixture of about 15 to 1, said binder also providing cohesion of said first coating to said second coating around as well as between the randomly arranged and highly dispersed fibers of said substrate, said adhered coatings providing a thixotropic material having a high content of ceramic particles covering said thermoplastic substrate providing a web that is shapable to a desired structural configuration, during use, said substrate being the type which will rapidly disintegrate at highly elevated temperatures leaving said thixotropic material disposed in said desired structural configuration, to thereby provide a shaped ceramic article with strong ceramic bonding between said ceramic particles.

4,366,203

FOAMED PLASTICS LAMINATES

Peter J. Briggs, Cheshire, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Jun. 11, 1981, Ser. No. 272,467

Claims priority, application United Kingdom, Jul. 11, 1980, 8022712

Int. Cl.³ B32B 5/02, 19/04

U.S. Cl. 428—304.4

7 Claims

1. A laminated article having a rigid foam plastics core covered, at least in part, with a composite layer of vermiculite lamellae and a metal foil.

4,366,204

FOAMED PLASTICS LAMINATES

Peter J. Briggs, Cheshire, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Jun. 11, 1981, Ser. No. 272,468

Claims priority, application United Kingdom, Jul. 11, 1980, 8022711

Int. Cl.³ B32B 5/02, 19/04

U.S. Cl. 428—304.4

6 Claims

1. A laminated article having a foamed plastics core covered, at least in part, with a fibrous composite material comprising fibre and vermiculite lamellae.

4,366,205

TONE-ARM ELEMENTS

Tsunehiro Tsukagoshi; Shinichi Yokozeki; Sumio Hagiwara; Masataka Uchidoi; Toshikazu Yoshino, and Yasuyuki Arai, all of Tokorozawa, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

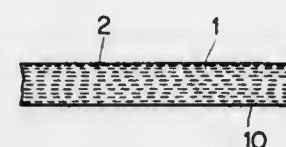
Filed Mar. 18, 1981, Ser. No. 244,897

Claims priority, application Japan, Mar. 31, 1980, 55-40266

Int. Cl.³ B32B 5/00, 9/00

U.S. Cl. 428—338

10 Claims



1. A tone-arm element fabricated from a kneaded mixture comprising polypropylene, polymethyl methacrylate and flaky graphite powder.

4,366,206

NOVEL WATER-SWELLABLE FIBERS HAVING A HIGH DEGREE OF WATER-SWELLABILITY AND EXCELLENT PHYSICAL PROPERTIES AND PROCESS FOR PRODUCING THE SAME

Koji Tanaka, Okayama, Japan, assignor to Japan Exlan Co., Ltd., Osaka, Japan

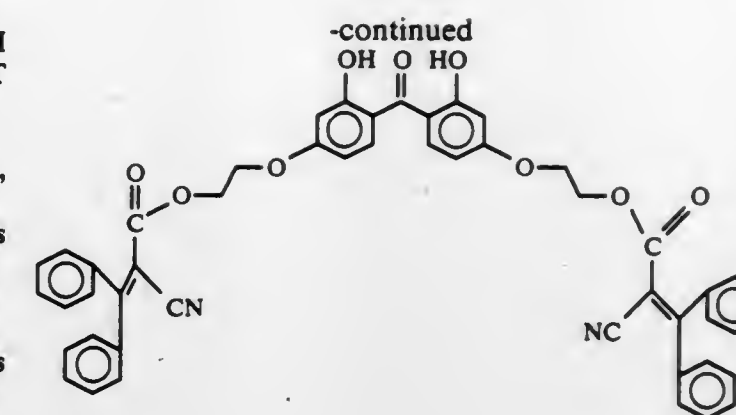
Continuation of Ser. No. 30,872, Apr. 17, 1979, abandoned. This application Aug. 24, 1981, Ser. No. 295,314

Claims priority, application Japan, Apr. 18, 1978, 53-46058

Int. Cl.³ D02G 3/00

U.S. Cl. 428—373

10 Claims



1. Water-swellaable fibers with a high degree of swellability composed of an outer layer of a hydrophilic crosslinked polymer and an inner layer of an acrylonitrile polymer, such fiber being produced by contacting acrylonitrile fibers with an aqueous solution of an alkali-metal hydroxide of a high concentration not less than 6.0 mol/1000 g, or an aqueous solution of an alkali-metal hydroxide of a low concentration coexisting with an electrolytic salt of a concentration not less than 0.5 mol/1000 g for a sufficient time to cross-link and render the outer layer of the fibers hydrophilic, thereby producing fibers having said hydrophilic cross-linked outer layer and a non-cross-linked, non-hydrophilic acrylonitrile inner layer.

4,366,208

PROCESS FOR FORMING PHOTOCONDUCTIVE ORGANIC FILM

Yoshimi Akai; Masahiko Hirose, both of Yokohama, and Hideo Sanpei, Hiratsuka, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

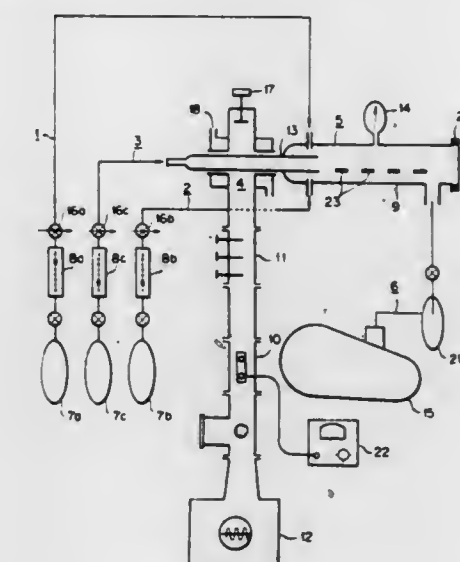
Filed Oct. 22, 1980, Ser. No. 199,664

Claims priority, application Japan, Oct. 23, 1979, 54-135937

Int. Cl.³ B05D 5/12

U.S. Cl. 428—421

6 Claims



1. A process for forming a photoconductive organic film on a substrate by the plasma polymerization reaction, comprising the steps of:

- activating a carrier gas in a microwave plasma producing region;
 - introducing an organic compound vapor and a halogen compound vapor directly individually into a polymerization reaction region; and
 - introducing said activated carrier gas into said polymerization reaction region, thereby carrying out the plasma polymerization reaction in a region separated from said microwave plasma introducing region in the presence of said halogen compound vapor to form on the substrate a photoconductive organic film having a photoconductivity in the near infrared region of from 0.8 to 3.0 μm .
2. An article of manufacture, comprising a substrate and a photoconductive organic film on the substrate, wherein said film is applied according to the process of claim 1.

4,366,207

POLYCARBONATE RESINS STABILIZED WITH NITRILES CONTAINING A 2-OH BENZOPHENONE GROUP

Blair T. Anthony, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

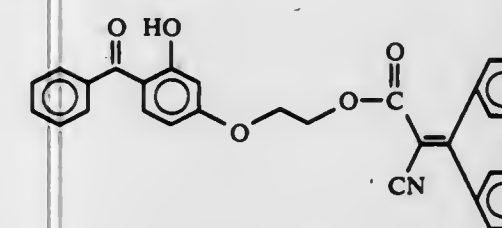
Continuation-in-part of Ser. No. 241,993, Mar. 9, 1981, abandoned. This application May 6, 1982, Ser. No. 375,524

Int. Cl.³ C08K 5/16; C07C 121/72

U.S. Cl. 428—412

19 Claims

1. A composition of matter comprising (1) a polycarbonate resin susceptible to degradation by ultraviolet light and (2) an effective amount of a UV stabilizer selected from the class consisting of



and

4,366,209

SURFACE TREATING METHOD AND COMPOSITION FOR CEMENT

Warner K. Babcock, Stamford, Conn., assignor to Construction Products Research, Inc., Fairfield, Conn.

Filed Jun. 11, 1981, Ser. No. 272,775
Int. Cl.³ B05D 5/00

U.S. Cl. 428—446

9 Claims

1. A method for producing a hardened, fluid impermeable surface on Portland cement comprising selecting a treating composition comprising aluminous cement and gypsum, applying the treating composition in the dry state to the surface of unset Portland cement and allowing the Portland cement and treating composition to set.

4,366,210

CORROSION RESISTANT THERMOSTAT METAL COMPOSITIONS

Stanley M. Golemo, Jr., West Lawn, and Anthony J. Izbicki, Reading, both of Pa., assignors to Hood and Co., Inc., Hamburg, Pa.

Filed Nov. 14, 1980, Ser. No. 207,011
Int. Cl.³ B32B 15/01, 15/18

U.S. Cl. 428—617

5 Claims

1. A thermostat metal comprising metallurgical bonded layers of

- (a) a corrosion resistant high expansivity alloy,
- (b) a corrosion susceptible low expansive alloy comprised of 36% Ni, balance Fe, and
- (c) a cap over the low expansivity alloy consisting of a corrosion resistant alloy having an expansivity less than three times that of the low expansivity alloy and a hardness within 15% of that of the low expansivity alloy at all states of temper.

4,366,211

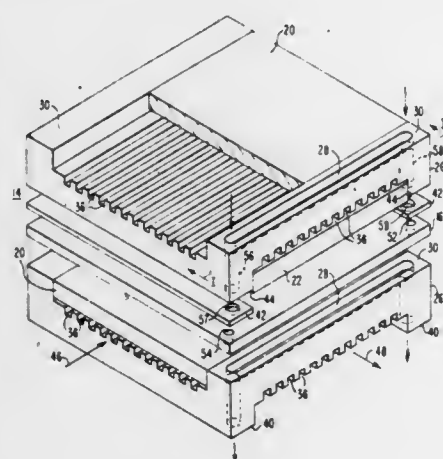
CONTROL OF ELECTROLYTE FILL TO FUEL CELL STACK

William Pollack, Scott Township, Allegheny County, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Sep. 21, 1981, Ser. No. 303,809
Int. Cl.³ H01M 2/14

U.S. Cl. 429—38

25 Claims



1. In a fuel cell utilizing a liquid electrolyte and having an anode electrode, a cathode electrode and a matrix sandwiched between plates, a pair of spaced electrolyte fill openings extending through said plates and said matrix; said fill openings in said matrix being offset from and partially aligned with said fill openings in said plates.

4,366,212

NON-AQUEOUS CELL WITH FLUID CATHODE DEPOLARIZER AND CORRODIBLE CATHODE

Arabinda N. Dey, Needham, Mass.; William L. Bowden, Nashua, N.H., and Per Bro, Santa Fe, N. Mex., assignors to Duracell International Inc., Bethel, Conn.

Filed Feb. 9, 1981, Ser. No. 232,778
Int. Cl.³ H01M 4/36

U.S. Cl. 429—101

11 Claims

1. A non-aqueous electrochemical cell comprising an anode comprised of a metal selected from alkali metals, alkaline earth metals and aluminum, a fluid cathode depolarizer and a cathode consisting essentially of a porous metal selected from iron, steel and copper with said metal being subject to substantial corrosion by said fluid cathode depolarizer.

4,366,213

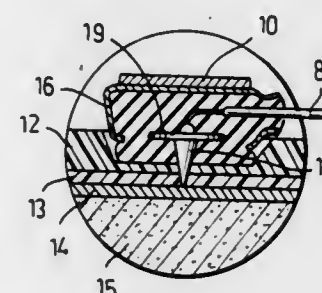
BATTERY AND CONTACT COMBINATION

Pentti J. Tamminen, Kaskenkaatantie 12 D, 02100 Espoo 10, Finland

Filed Jun. 16, 1981, Ser. No. 274,122
Int. Cl.³ H01M 2/20

U.S. Cl. 429—110

9 Claims



1. A battery and contact combination, comprising:

- (a) a battery with at least one cell,
- (b) a plastic hermetically sealed casing enclosing said battery, at least one of the terminals of the battery being arranged inside said casing close to its inner surface,
- (c) current collector means including at least one contact element adapted to penetrate said casing at a weakened point thereof and make contact with said terminal, said contact element comprising a sharp metallic contact pin at least partly embedded in a pad of a resilient compound, said pad being compressed against the area surrounding the contact point to seal said area, and
- (d) clamping elements for clamping said contact element in place.

4,366,214

SEALING DEVICE

Alfons S. M. Lindholm, Lidings, Sweden, assignor to Rolf Magnusson, Saltsjobaden, Sweden, a part interest

Filed Mar. 9, 1981, Ser. No. 241,988

Claims priority, application Sweden, Mar. 17, 1980, 8002078
Int. Cl.³ H01M 2/18

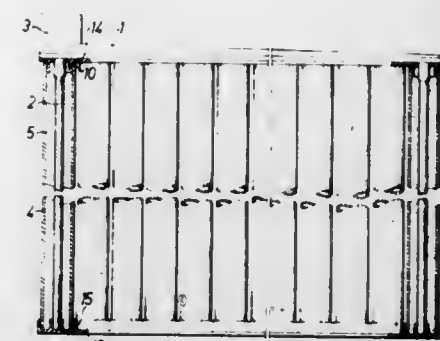
U.S. Cl. 429—140

4 Claims

1. Device for sealing the tubes in a tubular electrode plate of an electrochemical lead cell, comprising a tubular electrode plate having a lead grid with a conductor common to all tubes, a top bar (1), from which separate spines (2) extend, each one being surrounded by an active material (5) enclosed in a tubular casing (4), consisting of a top part for sealing the upper ends of the tubes facing the top bar and a bottom part for sealing the lower, free ends of the tubes, characterized in that the top sealing part including separate sleeves (10) for each tube, which are arranged on a connecting strip (14), each sleeve having a bottom (12) with a central through hole (13) with a

diameter corresponding to the diameter of the spine (2), which is to protrude therethrough, and a wall (11) the periphery of

anode, the electrolyte having an intrinsic electrolysis voltage threshold greater than the threshold voltage for activation of the cathode.



which corresponds to the periphery of the tubular casing (4) which is to butt thereagainst.

4,366,215

ELECTROCHEMICAL CELL

Johan Coetzer, and Michael M. Thackeray, both of Pretoria, South Africa, assignors to South African Inventions Development Corp., Pretoria, South Africa

Filed Oct. 30, 1980, Ser. No. 202,323

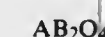
Claims priority, application South Africa, Nov. 6, 1979, 79/5963; Jan. 14, 1980, 80/0214; Jul. 18, 1980, 80/4346

Int. Cl.³ H01M 4/04, 4/62

U.S. Cl. 429—199

19 Claims

1. A method of making a cathode suitable for a secondary electrochemical cell which comprises activating or preconditioning one or more oxides which have a spinel-type or oxospinel-type structure according to the formula



wherein:

at least one of A or B is a transition metal; and each of A and B is a di-, tri- or tetravalent cation of a metal selected from the group consisting in Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Mg and Al to form therefrom a cathode which is in the form of a stable three dimensional framework structure, the structure, when in a secondary electrochemical cell with a compatible electrolyte and a compatible anode, being capable of reversible charge/discharge reactions while being stable with regard to other physical or chemical changes in structure the activation or preconditioning being electrical, and comprising subjecting the starting material to a plurality of charge/discharge cycles in an electrochemical cell wherein the starting material forms the cathode, and is coupled via a compatible electrolyte with a compatible

4,366,216

ELECTRICAL ENERGY STORAGE

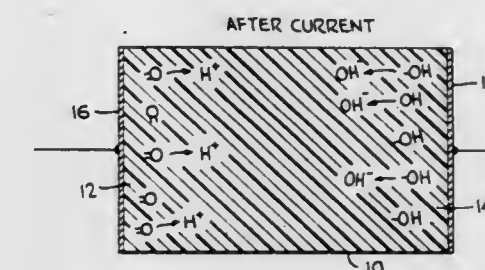
John E. McGinness, Houston, Tex., assignor to MB-80 Energy Corporation, Houston, Tex.

Filed Jan. 2, 1981, Ser. No. 222,018

Int. Cl.³ H01M 4/60

U.S. Cl. 429—213

15 Claims



1. A rechargeable electrical energy storage device comprising a pair of spaced electrodes; and an oxidation-reduction polymer material coated on said electrodes to store a charge when an electrical current is supplied thereto.

4,366,217

MOTION PICTURE FILM HAVING DIGITALLY CODED SOUNDTRACK AND METHOD FOR PRODUCTION THEREOF

George Bird, 85 Red Hill Rd., Princeton, N.J. 08540, and Peter A. Custer, P.O. Box 100, Newtown, Bucks County, Pa. 18940

Division of Ser. No. 88,465, Oct. 26, 1979, Pat. No. 4,308,327.

This application Jun. 29, 1981, Ser. No. 278,688

Int. Cl.³ G03G 5/04

U.S. Cl. 430—11

5 Claims

1. An exposed and developed motion picture release print, comprising:

- a base;
- at least one visible silver image or color image layer on the base;
- a two layer soundtrack image substrate substantially colorless and transparent to visible light comprising a conductive underlayer on the base and a dielectric or photoconductive overlayer contacting the underlayer, said soundtrack image substrate overlaying at least a portion of the visible image;
- wherein the soundtrack layer contains electrostatically imaged digitally coded soundtrack images which overlie the visible images; and
- the digitally coded soundtrack images are of a material which is colorless and transparent under visible light and capable of fluorescing under ultraviolet light.

4,366,218

PHOTOGRAPHIC PRODUCTS AND PROCESSES EMPLOYING NOVEL NONDIFFUSIBLE BRIDGED AZDAMINOPHENOL MAGENTA DYE-RELEASING COMPOUNDS AND PRECURSORS THEREOF

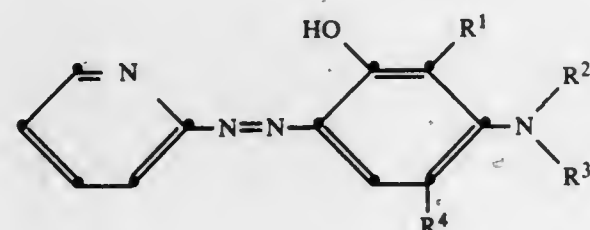
Richard B. Anderson, and Norman W. Kalenda, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 282,613, Jul. 13, 1981. This application
Mar. 5, 1982, Ser. No. 355,029
Int. Cl.³ C09B 45/00; G03C 1/40

U.S. Cl. 430—17

10 Claims

1. A photographic element comprising a support having thereon a coordination complex of a polyvalent metal ion and a compound having the formula:



wherein:

- (a) R¹ represents hydrogen;
- (b) R² represents an alkyl group of 1 to about 6 carbon atoms; or
R¹ and R² represent an alkylene group which can be taken together with the atoms to which they are attached to complete a 5- or 6-membered heterocyclic ring;
- (c) R³ represents an alkyl group of 1 to about 6 carbon atoms;
- (d) R⁴ represents hydrogen; or
R³ and R⁴ represent an alkylene group which can be taken together with the atoms to which they are attached to complete a 5- or 6-membered heterocyclic ring; with the proviso that at least one of said 5- or 6-membered heterocyclic rings is present in said complex.

4,366,219

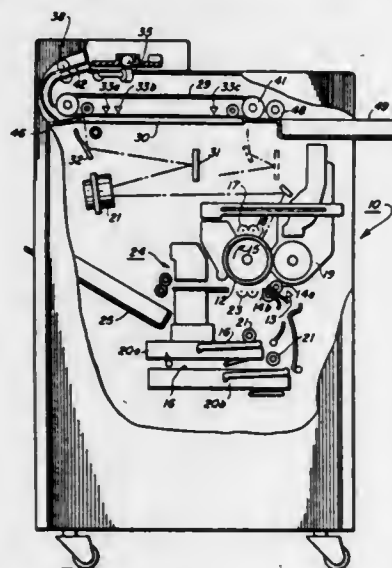
SCANNING OPTICS COPIER WITH VARIABLE PITCH COPY CAPABILITY

Jack Beery, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jan. 8, 1981, Ser. No. 223,512
Int. Cl.³ G03G 15/00; G03B 27/32

U.S. Cl. 430—31

1 Claim



1. In a reproduction machine having a scanning device for

projecting images of documents onto a photosensitive surface, a copy sheet supply for providing sets of variable size copy sheets to receive the images from the photosensitive surface, registration rolls to drive the copy sheets into engagement with the photosensitive surface, a paper feed registration switch disposed near the drive rolls, and a counter, the counter responsive to the registration switch, the method of operating the reproduction machine including the steps of
starting the scanning device for the first copy of a reproduction run,
activating the registration rolls, the leading edge of a copy sheet being in the nip of the rolls, the copy sheet communicating with the registration switch,
counting the time for the trailing edge of the copy sheet to reach the registration switch, the time being a function of the counts in the counter,
terminating the scanning device,
determining the time period for the scanning device for the next copy sheet to be reproduced in response to the length of the first copy sheet, including subtracting a given number from the count in the counter, starting the scanning device, and
terminating the scanning device at the end of said time period.

4,366,220

ELECTROSTATIC IMAGE RECORDING PROCESS USING PREHISTERESIS UNIFORM CHARGING AND LIGHT EXPOSURE PRETREATMENT

Itaru Saito, Toyokawa, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

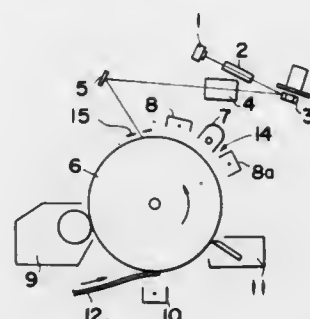
Filed Mar. 20, 1981, Ser. No. 245,751

Claims priority, application Japan, Mar. 27, 1980, 55-40029; Aug. 22, 1980, 55-116281

Int. Cl.³ G03G 13/22

U.S. Cl. 430—31

10 Claims



1. An image-forming method which comprises: sequentially subjecting a photosensitive member to a plurality of prehystreresis operations, each comprising electrostatically charging said member and thereafter uniformly exposing the same to light until the photosensitivity of the photosensitive member is substantially stabilized, said photosensitive member comprising a photoconductive layer prepared from a dispersion of a photoconductive material including cadmium sulfide in a resin binder formed over a conductive substrate; and subsequently forming successive images with said member.

3. In an image-forming method suitable for image exposure under wavelengths of about 700 to 850 nm, the steps of using a photosensitive member including a photoconductive layer formed over a conductive base, said layer having been prepared from a dispersion of a photoconductive material selected from the group consisting essentially of (a) CdS-nCdCO₃ (0 < n ≤ 4), (b) CdS_xSe_{1-x}-nCdCO₃ (0.1 ≤ x < 1; 0 < n ≤ 4), (c) CdS and (d) (CdS)_x(CdSe)_{1-x}-nCdCO₃ (0.1 ≤ x ≤ 0.99; 0 < n ≤ 4) in a resin binder; sequentially subjecting said photosensitive member to a plurality of prehystreresis operations, each comprising electrostatically charging said member and thereafter uniformly exposing the same to light until the photosensitivity of the photosensitive member is substantially stabilized, the amount of said uniform light exposure being in the

4,366,222

CADMIUM SULFIDE/CADMIUM CARBONATE/CADMIUM OXIDE PHOTOCONDUCTOR PRODUCED BY HIGH TEMPERATURE, INERT ATMOSPHERE CALCINATION

Morris Feinleib, Los Altos, Calif., assignor to Varian Associates, Palo Alto, Calif.

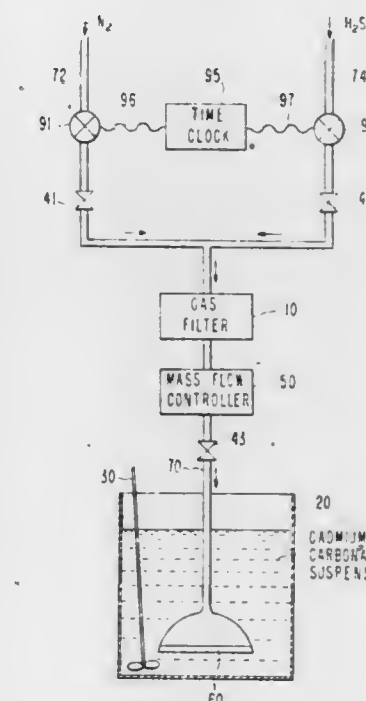
Continuation of Ser. No. 14,383, Feb. 21, 1979, abandoned, which is a division of Ser. No. 814,512, Jul. 11, 1977, abandoned.

This application Oct. 22, 1981, Ser. No. 313,791

Int. Cl.³ G03G 5/087

U.S. Cl. 430—127

9 Claims



4,366,221

PHOTOGRAPHIC RECORDING MATERIAL AND NEW MEROCYANINES

Hans Öhlschlager, Bergisch Gladbach, and Hans Langen, Bonn, both of Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Apr. 24, 1981, Ser. No. 257,239

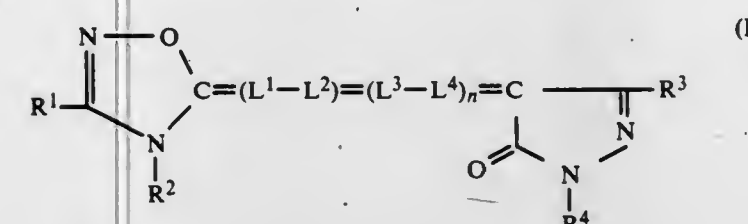
Claims priority, application Fed. Rep. of Germany, May 3, 1980, 3017069

Int. Cl.³ G03C 1/84

U.S. Cl. 430—507

9 Claims

1. Light-sensitive photographic material comprising a support layer, having at least one supported light-sensitive silver halide emulsion layer, wherein at least one filter layer contains at least one filtering compound corresponding to the following formula:



in which

R¹ represents

- (1) a saturated or unsaturated alkyl or cycloalkyl group which may be substituted or
- (2) an aryl group which may be substituted;

R² represents a saturated or unsaturated alkyl group which may be substituted

R³ represents

- (1) an alkyl or cycloalkyl group which may be substituted;
- (2) an aryl group which may be substituted,
- (3) the group COOR⁵ or
- (4) the group CO—NR⁶R⁷;

R⁴ represents

- (1) an alkyl group which may be substituted,
- (2) a heterocyclic group which may be substituted or
- (3) an aryl group which may be substituted;

R⁵, R⁶, R⁷, which may be the same or different, represent

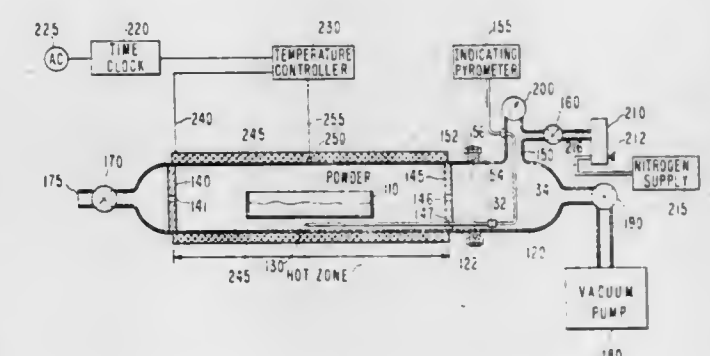
- (1) hydrogen,
- (2) an alkyl group which may be substituted or
- (3) an aryl group which may be substituted and/or

R⁶ and R⁷ may together represent the ring members required to complete a heterocyclic ring;

L¹, L², L³ and L⁴ which may be the same or different represent a methine group which may be substituted, and

n=0 or 1

provided that compound I contains at least one water-solubilizing group.



1. A method for making a cadmium chalcogenide-cadmium carbonate electrophotoconductive plate comprising the steps of:

- adding hydrogen sulfide gas, hydrogen selenide gas, or a gas comprising a mixture of hydrogen sulfide and hydrogen selenide to a cadmium carbonate suspension;
- drying and breaking up the resultant product into a fine powder;
- calcining the powder in an inert gas at between about 250 and about 310 degrees centigrade to produce a photoconductive powder comprising cadmium sulfide, between zero and four moles of cadmium carbonate for each mole of cadmium sulfide, and between 0.05 and 1.5 mole percent of cadmium oxide, said powder being substantially free of ionic contaminants;
- mixing the photoconductive powder with binder and solvents to form a paste; and
- coating the paste onto a relatively more conductive substrate to produce an electrophotoconductive plate.

4,366,223

PROCESS OF FORMING PERMANENT OPTICAL LAMINATION OF COLOR PROOFS

Gerald W. Larson, P.O. Box 33427, St. Paul, Minn. 55133
Continuation-in-part of Ser. No. 76,823, Sep. 19, 1979,
abandoned. This application Mar. 9, 1981, Ser. No. 241,511
Int. Cl.³ G03F 9/00; G03C 7/00, 11/12

U.S. Cl. 430—143

5 Claims

1. A process for forming a laminated, imaged, color proofing sheet comprising individually exposing four separate color proofing sheets to imagewise distributed radiation, each sheet comprising a radiation sensitive layer on a transparent carrier layer of between 1.25×10^{-5} and 1.25×10^{-4} m with at least three of said sheets having transparent, non-tacky, non-pressure-sensitive, activatable adhesive layers on the back side of said carrier layers, said adhesive layers having been applied prior to said exposing steps, removing a portion of said radiation sensitive layer to leave a color half-tone image comprising a dye or a pigment in a polymeric binder on each of said sheets, placing said sheets in register with said adhesive layers of said at least three sheets being positioned between adjacent carrier layers, and activating the activatable adhesive to laminate said four sheets together.

4,366,224

INORGANIC LITHIUM DEVELOPER COMPOSITION

Shane Hsieh, Bridgewater, N.J., assignor to American Hoechst Corporation, Somerville, N.J.
Filed Aug. 6, 1981, Ser. No. 290,634
Int. Cl.³ G03C 1/58

U.S. Cl. 430—149

10 Claims

1. A method for developing positive working photographic elements by treating an exposed photographic element with a developer composition consisting essentially of an inorganic lithium composition and sodium metasilicate.

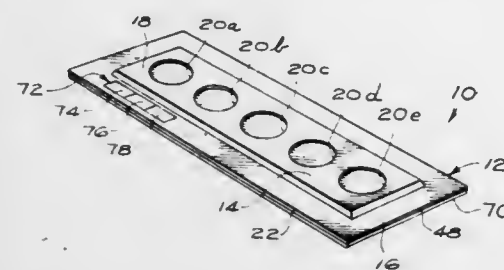
4,366,225

MONITORING DEVICE WITH PROCESSING SOLUTION RESERVOIRS

James J. Kosinski, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Apr. 30, 1981, Ser. No. 259,126
Int. Cl.³ G03C 1/48, 1/40, 5/16; G03B 41/16

U.S. Cl. 430—207

14 Claims



11. Device for monitoring exposure to invisible radiation, comprising:

- a transparent support;
- a plurality of layers on said support including (1) a mordant layer, (2) a layer opaque to visible radiation, and (3) a layer including material sensitive to invisible radiation and a dye producing material;
- a mask sheet over said layers and having a plurality of apertures, each aperture demarcating a zone of said layers;
- a cover sheet over said mask sheet and having openings open to said apertures respectively;
- a plurality of reservoirs of processing composition disposed for discharge into said openings in the cover sheet respectively; and
- means sealed to said cover sheet for covering said reservoirs and forming paths for flow of processing composition

from said reservoirs to respective openings in said cover sheet.

4,366,226

COLOR PHOTOGRAPHIC SENSITIVE MATERIAL WITH SULFONAMIDOPHENOL SCAVENGER

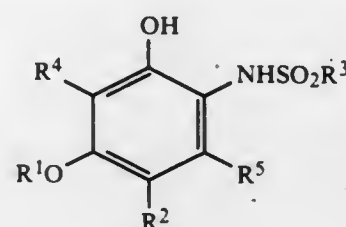
Tsutomu Hamaoka; Osamu Takahashi; Tooru Harada; Minoru Sakai, and Nobutaka Ohki, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Jul. 22, 1981, Ser. No. 285,721

Claims priority, application Japan, Jul. 22, 1980, 55/100287
Int. Cl.³ G03C 1/40, 1/10, 5/54

U.S. Cl. 430—214

11 Claims

1. A color photographic silver halide light-sensitive material comprising a compound represented by formula (I)



(I)

wherein R^1 and R^3 can each represent an unsubstituted or substituted alkyl group or an unsubstituted or substituted aryl group, R^3 being a group which produces no colored by-products and causes no oxidation reaction, R^2 can represent an unsubstituted or substituted alkyl group, R^4 and R^5 can each represent a hydrogen atom, an unsubstituted or substituted alkyl group, an unsubstituted or substituted aryloxy group, an unsubstituted or substituted alkylthio group, an unsubstituted or substituted arylthio group, a halogen atom, or an acylamino group, and R^1 and R^2 , and R^4 , or R^2 and R^5 together can represent atoms forming a condensed ring structure together with the benzene ring of formula (I), provided that the total of carbon atom numbers in R^1 , R^2 , R^3 , R^4 and R^5 is at least 16, said light-sensitive material further comprising a dye image-receiving layer.

4,366,227

DIFFUSION TRANSFER FILM UNIT

Michael Berger, Chestnut Hill, and John J. Magenheimer, Wellesley, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.
Filed Jun. 26, 1981, Ser. No. 277,921
Int. Cl.³ G03C 1/40, 5/54, 1/90, 1/48

U.S. Cl. 430—215

30 Claims

1. A diffusion transfer film unit comprising a support, a photosensitive silver halide emulsion layer, an image-receiving layer and, intermediate said silver halide emulsion layer and said image-receiving layer, a release layer comprising a water-soluble polymer and a styrenated acid functional acrylic resin possessing an ester cleavable by alkaline processing composition to form a salt and possessing sufficient acid function to provide solubility in a weak base of pH less than 10.

2. The film unit of claim 1 wherein said image-receiving layer is a dyeable image-receiving layer and said film unit includes a dye-image-forming material.

4,366,228

PHOTOPOLYMERIZABLE COMPOSITIONS FEATURING NOVEL CO-INITIATORS

Donald P. Specht; Conrad G. Houle, and Samir Y. Farid, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

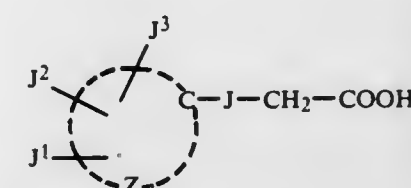
Division of Ser. No. 184,606, Sep. 5, 1980, Pat. No. 4,289,844, which is a continuation-in-part of Ser. No. 49,661, Jun. 18, 1979, abandoned. This application May 11, 1981, Ser. No. 262,675
Int. Cl.³ G03C 1/68

U.S. Cl. 430—281

8 Claims

1. In a photopolymerizable composition comprising an addition-polymerizable compound containing ethylenic unsaturation and a co-initiator composition comprising a photosensitizer and a photopolymerization activator responsive in the presence of the photo-excited form of said photosensitizer to form a free radical;

the improvement wherein said activator has the structure:



wherein:

J is —O—, —S— or a carbon-to-carbon bond;

J¹, J², and J³ are each independently hydrogen; alkyl, alkoxy, or alkylthio having from 1 to 5 carbon atoms; aryloxy having from 6 to 10 carbon atoms; halogen; or any two of J¹, J², and J³ taken together comprise the atoms necessary to complete a 5- or 6-membered fused heterocyclic or aromatic ring; and

Z is the number of atoms necessary to complete a heterocyclic or aromatic ring of from 4 to 6 ring atoms;

said activator and said photosensitizer being present in an amount sufficient to provide, when the composition is coated, dried and exposed to a medium-pressure mercury light source, a speed which is at least about one-fifth that of the same composition coated, dried and exposed identically except with a co-initiator consisting of Michler's ketone and benzophenone.

4,366,229

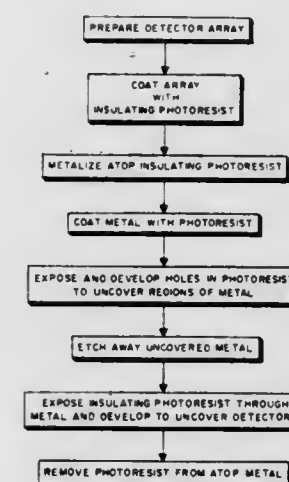
METHOD OF MAKING COLD SHIELD FOR INFRARED DETECTOR ARRAY

Wallace L. Freeman, Woodbridge, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Nov. 6, 1981, Ser. No. 318,766
Int. Cl.³ C23F 1/02

U.S. Cl. 430—312

2 Claims



1. A method of applying a cold shield to an array of photo-

detectors and their associated read-out conductors on one side of a substrate, including the steps of:

- (a) coating said photodetector, said read-out conductors, and said one side substrate with an electrically insulating photoresist;
- (b) metallizing said photoresist;
- (c) applying atop the metal a thin layer of photoresist;
- (d) exposing said thin layer of photoresist through a mask having perforations corresponding to regions including and closely surrounding said photodetectors and to regions on said read-out conductors;
- (e) developing said thin layer to produce perforations there-through in accordance with said mask whereby regions of said metal are uncovered;
- (f) etching through the perforations of said thin layer to remove the uncovered metal and to thus uncover regions of said electrically insulating photoresist;
- (g) exposing the uncovered regions of said electrically insulating photoresist;
- (h) developing said electrically insulating photoresist to uncover said regions including and closely surrounding said photodetectors and said regions on said read-out conductors, and
- (i) removing the thin layer from atop the metal.

4,366,230

METHOD FOR THE PREPARATION OF HIGHLY HEAT-RESISTANT RELIEF STRUCTURES AND THE USE THEREOF

Hellmut Ahne, Röttenbach; Eberhard Kühn, Hemhofen, and Roland Rubner, Röttenbach, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Jun. 4, 1981, Ser. No. 270,357
Claims priority, application Fed. Rep. of Germany, Jun. 10, 1980, 3021787

Int. Cl.³ G03C 5/00

U.S. Cl. 430—325

11 Claims

1. In a method for the preparation of a highly heat-resistant relief structure having a polymer base of heterocyclic structure wherein a radiation-sensitive soluble polymer precursor is applied in the form of a film or a foil to a substrate, the film or foil is irradiated through negative patterns with actinic light or by deflecting a light, electron or ion beam, and the non-irradiated film or foil portions are removed, the improvement comprising using as said polymer precursor a polymeric compound consisting of the addition product of (a) a cyclic carboxylic acid anhydride and (b) a hydroxyl group-containing compound, said hydroxyl group-containing compound itself being an addition product of (a) an olefinically unsaturated monoxide and (b) a member selected from the group consisting of:

- (i) a carboxyl group-containing polyaddition product of (i) an aromatic and/or heterocyclic tetracarboxylic acid dianhydride and (ii) a diamino compound or a diamino compound with at least one ortho-position amido group;
- (2) a carboxyl group-containing polyaddition product of (i) a member selected from an aromatic and/or heterocyclic dihydroxydicarboxylic acid or an aromatic and/or heterocyclic diaminodicarboxylic acid and (ii) a diisocyanate;
- (3) an amino group-containing polycondensation product of (i) an aromatic and/or heterocyclic tetraamino compound and (ii) a dicarboxylic acid chloride or ester;
- (4) an amino group-containing polyaddition product of (i) an aromatic and/or heterocyclic tetraamino compound and (ii) a tetracarboxylic acid dianhydride; and
- (5) a hydroxyl group-containing polycondensation product of (i) an aromatic and/or heterocyclic dihydroxydiamino compound and (ii) a dicarboxylic acid chloride or ester.

4,366,231

PHOTOGRAPHIC MATERIAL CONTAINING A STABILIZER, A PROCESS FOR ITS PRODUCTION, A DEVELOPMENT PROCESS, NEW PYRAZOLES, A PROCESS FOR THEIR PRODUCTION AND INTERMEDIATE PRODUCTS

Karl H. Mayer, deceased, late of Leverkusen, Fed. Rep. of Germany (by Hildegard E. Mayer, Annedore Mayer, Andrea Mayer, heirs); Klaus Sasse, Bergisch Gladbach, and Anita von König, Krefeld, both of Fed. Rep. of Germany, assignors to Agfa Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jan. 9, 1981, Ser. No. 223,746

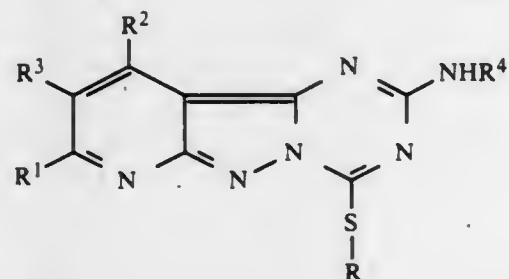
Claims priority, application Fed. Rep. of Germany, Jan. 17, 1980, 3001498

Int. Cl.³ G03C 1/34

U.S. Cl. 430—375

7 Claims

1. A photographic material comprising a support layer and, applied thereto, at least one light sensitive silver halide emulsion layer and, optionally, further layers, wherein at least one layer contains a compound corresponding to formula (I) below:



in which

R represents alkyl, alkenyl, aryl, aralkyl or cycloalkyl; R¹, R² and R³ which may be the same or different, represent hydrogen, alkyl, aryl, cycloalkyl or aralkyl; R⁴ represents hydrogen or -COR⁵; R⁵ represents alkyl, aryl, cycloalkyl, aralkyl or -OR⁶ and R⁶ represents alkyl, aryl, cycloalkyl or aralkyl said compound being present in an amount sufficient to stabilize said photographic material against fogging.

4,366,232

METHOD FOR PROCESSING PHOTOGRAPHIC SILVER DYE-BLEACH MATERIALS AND SUITABLE PREPARATIONS

Hansjörg Buser, Marly, and Adolf Morand, Villars-sur-Glane, both of Switzerland, assignors to Ciba-Geigy Ltd., Basel, Switzerland

Filed Feb. 17, 1981, Ser. No. 235,388

Claims priority, application Switzerland, Feb. 22, 1980, 1435/80

Int. Cl.³ G03C 7/00

U.S. Cl. 430—390

19 Claims

1. A method for processing exposed and developed photographic silver dye-bleach materials, by treating the exposed and developed material with aqueous bleaching preparations which contain (a) an adduct of an acid amide of a low-molecular aliphatic acid or of a monocyclic aromatic acid or of a diamide of carbonic acid or thiocarbonic acid or of a lactam of γ-δ- or ε-aminoacids and a strong mineral acid, (b) a silver-complexing agent, (c) one or more bleach catalysts, (d), optionally an antioxidant, (e) optionally a water-soluble oxidising agent and (f) optionally a bleaching accelerator, wherein (a) is a solid water-soluble adduct of an acid amide of a lactam and a strong mineral acid.

4,366,233

BLIX PROCESS FOR SILVER HALIDE COLOR PHOTOGRAPHIC MATERIALS

Kotaro Nakamura, Minami-ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed May 26, 1981, Ser. No. 266,768

Claims priority, application Japan, May 26, 1980, 55-69971 Int. Cl.³ G03C 7/00

U.S. Cl. 430—393

3 Claims

1. A process of blixing an exposed color-developed silver halide color photographic material comprising a support having coated thereon a cyan coloring silver halide emulsion layer as the outermost coloring silver halide emulsion layer, a magenta coloring silver halide emulsion layer, and a yellow coloring silver halide emulsion layer; said process carried out by means of a blix bath contaminated with a developing agent comprising the steps of: preparing said layers such that there are 0.6 g/m² or less of silver in the silver halide emulsion layers disposed closer to the support from the cyan coloring silver halide emulsion layer; and blixing said silver halide color photographic layers, said process comprising exposing, color developing and blixing without image intensifying processing.

4,366,234

PROCESS FOR PREPARING PHOTOGRAPHIC SOLUTIONS CONTAINING HYDROQUINONE MONOSULPHONATE

John B. Wheatcroft, and Edward N. Wall, both of Chesterfield, England, assignors to Staveley Chemicals Limited, Chesterfield, England

Filed May 29, 1981, Ser. No. 268,476

Claims priority, application United Kingdom, Jun. 5, 1980, 8018524

Int. Cl.³ G03C 5/30

U.S. Cl. 430—485

8 Claims

1. A process for making a photographic solution containing hydroquinone monosulphonate, said process comprising the steps of (a) forming an aqueous solution containing hydroquinone, a salt of sulphurous acid and hydrogen peroxide, and (b) causing the hydroquinone, the salt of sulphurous acid and the hydrogen peroxide in the aqueous solution to react to form hydroquinone monosulphonate.

4,366,235

PHOTOSENSITIVE ELEMENT AND METHOD OF PREPARING SAME

Edwin H. Land, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Feb. 17, 1981, Ser. No. 234,937

Int. Cl.³ G03C 1/76

U.S. Cl. 430—496

102 Claims

1. A photosensitive element comprising a support carrying single effective photosensitive silver halide grains in a substantially predetermined, regular, geometric spaced array wherein said single effective grains are substantially free of physical contact with one another.

4,366,236

PHOTOGRAPHIC MATERIALS

Osamu Takahashi, Minami-ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Mar. 5, 1981, Ser. No. 240,668

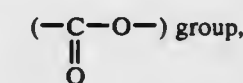
Claims priority, application Japan, Mar. 5, 1980, 55-28253 Int. Cl.³ G03C 1/76

U.S. Cl. 430—505

10 Claims

1. A photographic material comprising: a support; a plurality of silver halide photographic emulsion layers on said support, said layers capable of forming silver images by processing with an alkaline processing composition in the presence of a silver halide developing agent after light-exposure;

an interlayer disposed between said silver halide photographic emulsion layers, said interlayer comprising a mixture of hydroquinone derivatives having a solidifying point below 100° C., and a water-insoluble organic solvent-soluble homopolymer or copolymer comprising a main chain or a side chain which includes a recurring unit, said recurring unit including a



combined particles of said derivatives and said homopolymer or copolymer dispersed in a hydrophilic organic colloid.

4,366,237

SILVER HALIDE COLOR PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

Seiji Ichijima, Keiichi Adachi, and Tadashi Ogawa, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

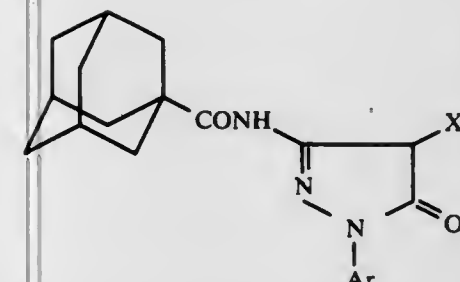
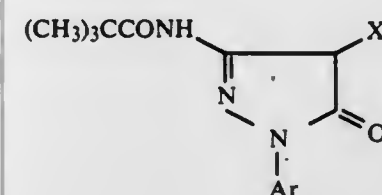
Filed Jul. 6, 1981, Ser. No. 280,603

Claims priority, application Japan, Jul. 4, 1980, 55-91570 Int. Cl.³ G03C 1/40

U.S. Cl. 430—505

16 Claims

1. A silver halide color photographic light-sensitive material comprising a support having thereon at least one silver halide emulsion layer, said photographic material containing a 5-pyrazolone magenta coupler represented by formula (II) or formula (III)



wherein Ar represents a phenyl group which may be substituted with one or more substituents selected from a halogen atom, an alkyl group, an alkoxy group and an acylamino group; and X₂ represents an alkylthio or aralkylthio group having from 2 to 30 carbon atoms which may be substituted or an arylthio group having from 6 to 30 carbon atoms which may be substituted.

4,366,238

SILVER HALIDE PHOTOGRAPHIC MATERIALS

Shigeki Yokoyama, and Kunihiko Ohga, both of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

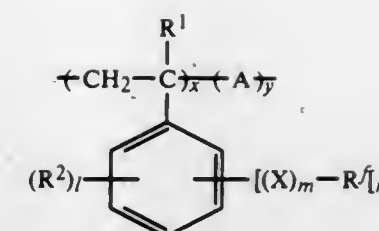
Filed Jun. 25, 1981, Ser. No. 277,375

Int. Cl.³ E03C 1/78, 1/72

U.S. Cl. 430—529

8 Claims

1. A silver halide photographic material, comprising: a support; a plurality of photographic layers on the support, wherein at least one of said layers comprises a water-insoluble polymer having a recurring unit represented by formula (I)



wherein A represents a monomer unit formed by copolymerizing a copolymerizable monomer having at least one ethylenically unsaturated group; R¹ represents hydrogen, a halogen atom, or an alkyl group having 1 to 3 carbon atoms; R² can represent a monovalent substituent, and, when 1 is more than one, two R² groups together can represent an atomic group forming a ring; R³ represents an alkyl group having 1 to 30 carbon atoms, an aralkyl group, an aryl group, or an alkylaryl group, wherein at least four hydrogens have been substituted with a fluorine atom; X represents a divalent coupling group shown by $-(R)_p-L-$, wherein R represents an alkylene group, an arylene group, or an aralkylene group; L represents an oxy group, a thioxy group, an imino group, a carbonyl group, a carboxy group, a carbothioxy group, a carboxyamido group, an oxycarbonyl group, a carbamoyl group, a sulfone group, a sulfonamido group, an N-alkyl-sulfonamido group, a sulfamoyl group, a sulfoxy group, or a phosphate group; and p is 0 or 1; l is an integer of 0 to 4; m is an integer of 0 to 3; n is an integer of 1 to 5; x is 1 to 100 mol%; and y is 0 to 99 mol%.

4,366,239

POLYESTER BASE DRAFTING FILM WITH NITROCELLULOSE AND POLYMETHYLMETHACRYLATE LAYER

Yukio Shinagawa, Sumio Ohtani, Koichi Suematsu, and Hideo Kawaguchi, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 195,272, Oct. 8, 1980, abandoned. This application Jan. 15, 1982, Ser. No. 339,799

Claims priority, application Japan, Oct. 8, 1979, 54/129774

Int. Cl.³ G03C 1/78

U.S. Cl. 430—533

12 Claims

1. A drafting film comprising a hydrophobic polyesterfilm support having formed thereon a matte layer comprising silicon dioxide as a matting agent and a mixture of (i) polymethylmethacrylate or a copolymer thereof having a molecular weight of about 10,000 to about 500,000 and (ii) nitrocellulose wherein the nitrocellulose is used in a mixing ratio of about 5 to 50% by weight based on total weight of the polymethylmethacrylate or a copolymer thereof and the nitrocellulose and the dry coverage of the above components is:

matting agent from 1 to 20 g/m², polymethyl methacrylate or a copolymer thereof from 1 to 10 g/m², and nitrocellulose from 0.5 to 10 g/m².

4,366,240

COLOR PHOTOGRAPHIC RECORDING MATERIAL CONTAINING NON-DIFFUSING ELECTRON DONOR PRECURSOR COMPOUNDS

Wolfgang Lässig, Ernst Meier, and Siegfried Schlegel, all of Munich, Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Feb. 17, 1981, Ser. No. 234,880

Claims priority, application Fed. Rep. of Germany, Feb. 20, 1980, 3006268

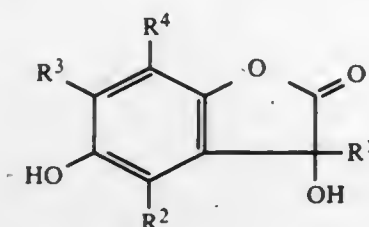
Int. Cl.³ G03C 5/54; G07C 49/62; G09B 53/00

U.S. Cl. 430—542

7 Claims

1. Color photographic recording material having at least one light-sensitive silver halide emulsion layer and, associated thereto, a non-diffusing electron donor precursor compound (ED precursor compound) from which a non-diffusing ED

compound is formed under alkaline development conditions, wherein the improvement comprises said ED precursor compound is a compound of the following general formula



in which

R¹ represents a carbocyclic or heterocyclic aromatic group, R², R³ and R⁴ which may be the same or different substituents, represent hydrogen, alkyl, alkenyl, aryl, alkoxy, alkylthio or amino, or

R³ and R⁴ together complete a condensed carbocyclic ring, and at least one of the substituents R¹, R², R³ and R⁴, contains a ballast group having 10 to 22 carbon atoms which confers diffusion resistance.

4,366,241

CONCENTRATING ZONE METHOD IN HETEROGENEOUS IMMUNOASSAYS

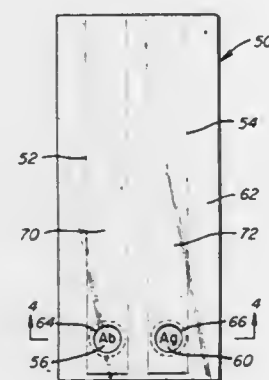
Henry K. Tom, La Honda, and Gerald L. Rowley, Cupertino, both of Calif., assignors to Syva Company, Palo Alto, Calif.

Filed Aug. 7, 1980, Ser. No. 176,177

Int. Cl.³ G01N 33/54, 33/16; C12Q 1/70

U.S. Cl. 435—7

34 Claims



1. An immunoassay method for determining an analyte which is a member of an immunological pair, defined as a mip, consisting of ligand and its homologous antiligand, said method employing in combination as assay device and a signal producing system;

said assay device characterized by an immunosorbing zone comprising mip non-diffusively bound to at least a portion of a bibulous support serving as an inlet port for liquids into said device; and a liquid absorbing zone in liquid receiving relationship with said immunosorbing zone; and a signal producing system characterized by being capable of producing a detectable signal in said immunosorbing zone and having one component conjugated to a mip to provide a signal label-mip conjugate, wherein the amount of signal label producing said detectable signal in said immunosorbing zone is related to the amount of analyte;

said method comprising:

contacting said assay device in a predetermined order with: (a) a solution of a sample suspected of containing said analyte; and (b) a solution of components of said signal producing system other than components bound to said assay device, wherein said immunosorbing zone is immersed in said sample solution;

flowing said sample solution of substantially constant composition through said immunosorbing zone;

whereby said solutions migrate through said immunosorbing zone into said liquid absorbing zone resulting in an amount of signal label-mip conjugate becoming bound to said mip bound to said support in relation to the amount of analyte in said sample and affording production of a detectable signal in said immunosorbing zone; and determining said detectable signal.

15. An immunoassay method for determining an analyte which is a member of an immunological pair, defined as a mip, consisting of ligand and its homologous antiligand, said method employing in combination an assay device and a signal producing system;

said assay device characterized by an immunosorbing zone comprising mip non-diffusively bound to at least a portion of a bibulous support serving as an inlet port for liquids into said device; and a liquid absorbing zone in liquid receiving relationship with said immunosorbing zone and at least partially enclosed to prohibit contact with liquids except through said immunosorbing zone;

said signal producing system characterized by being capable of producing a detectable signal in said immunosorbing zone and having (1) an enzyme as a signal label conjugated to a mip to provide an enzyme-mip conjugate, wherein the amount of enzyme producing said detectable signal in said immunosorbing zone is related to the amount of analyte, and (2) a signal generator precursor which is enzymatically transformed to a signal generator;

said method comprising:

contacting said assay device in a predetermined order with: (a) a solution of a sample suspected of containing said analyte; (b) a solution of enzyme-mip conjugate, except when said enzyme-mip conjugate is previously bound to said assay device through complexation with said mip bound to said support; and (c) a solution of a signal generator precursor,

wherein said immunosorbing zone is substantially completely immersed in said sample solution;

flowing said sample solution having substantially constant composition through said immunosorbing zone;

whereby said solutions migrate through said immunosorbing zone into said liquid absorbing zone and said signal generator precursor is converted by said enzyme to a signal generator producing a detectable signal in said immunosorbing zone; and

determining said detectable signal.

22. An immunoassay method for determining an analyte which is a member of an immunological pair, defined as a mip, consisting of ligand and its homologous antiligand, said method employing in combination an assay device and a signal producing system;

said assay device characterized by an immunosorbing zone comprising mip non-diffusively bound to a bibulous support serving as an inlet port for liquids into said device; and a liquid absorbing zone in liquid receiving relationship with said immunosorbing zone and at least partially enclosed to prohibit contact with liquids except through said immunosorbing zone;

said signal producing system characterized by being capable of producing a detectable signal in said immunosorbing zone and having a fluorescer as signal label conjugated to a mip to provide a fluorescer-mip conjugate, wherein the amount of fluorescer producing said detectable signal in said immunosorbing zone is related to the amount of analyte;

said method comprising: contacting said assay device in a

predetermined order with: (a) a solution of a sample suspected of containing said analyte; (b) a solution of fluorescer-mip conjugate, except when said fluorescer-mip conjugate is bound to said assay device prior to combining with said sample solution; and (c) a wash solution, except when said fluorescer-mip conjugate is bound to said assay device prior to combining with said sample solution, whereby said solutions migrate through said immunosorbing zone into said liquid absorbing zone and said fluorescer-mip conjugate is bound in said immunosorbing zone in relation to the amount of analyte in said sample; and determining the fluorescence from said immunosorbing zone.

4,366,242

METHOD AND AGENT FOR THE IMMUNOLOGICAL DETERMINATION OF ENZYMES

Siegfried Neumann, Seeheim-Jugenheim; Norbert Hennrich, Darmstadt; Hans-Dieter Orth, Bickenbach; Gerhard Pfeiderer, Stuttgart, all of Fed. Rep. of Germany; Evangelista Jockers-Wretou, Athens, Greece, and Hans Pauly, Dautphetal, Fed. Rep. of Germany, assignors to Merck Patent Gesellschaft mit beschränkter Haftung, Darmstadt, Fed. Rep. of Germany

Filed Dec. 29, 1980, Ser. No. 221,105

Claims priority, application Fed. Rep. of Germany, Dec. 27, 1979, 2952478

Int. Cl.³ G01N 33/54; C12Q 1/42

U.S. Cl. 435—7

7 Claims

1. A process for the quantitative immunological determination of an isoenzyme of the acid or alkaline phosphatase in body fluid, comprising incubating anti-isoenzyme antibodies which are absorbed on a water-insoluble carrier, with the sample solution containing the isoenzyme, whereby the isoenzyme bonds to the antibodies but retains a measurable reproducible proportion of its activity in its complex with the antibodies; removing the sample solution; washing the antibody carrier which is charged with isoenzyme; and determining the activity of the isoenzyme bonded to the antibodies.

4,366,243

STABILIZATION OF GLUCOSE OXIDASE APOENZYME
Patricia A. Rupchock, and Richard J. Tybach, both of Elkhart, Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Filed Apr. 17, 1981, Ser. No. 255,310

Int. Cl.³ C12N 9/04, 9/96; C12Q 1/26, 1/40, 1/44, 1/46, 1/48, 1/56

U.S. Cl. 435—7

5 Claims

1. A stabilized glucose oxidase apoenzyme composition comprising glucose oxidase apoenzyme and a stabilizing agent comprising poly(vinyl alcohol) and bovine serum albumin.

3. A composition for determining the presence of a ligand in, or the ligand binding capacity of, a liquid test sample, comprising reagents for a homogeneous specific binding assay system capable of producing a detectable response which is a function of the presence of said ligand or said ligand binding capacity, wherein one of said reagents is glucose oxidase apoenzyme, and a stabilizing agent comprising poly(vinyl alcohol) and bovine serum albumin.

4,366,244

METHOD FOR MEASURING SERUM CHOLESTEROL
Marc Pascal, Dijon, France, assignor to Laboratoires Goella, Paris, France

Continuation of Ser. No. 53,885, Jul. 2, 1979, abandoned. This application Mar. 16, 1981, Ser. No. 243,690

Claims priority, application United Kingdom, Jul. 4, 1978, 28815/78; Jan. 22, 1979, 7902255

Int. Cl.³ C12Q 1/60, 1/26, 1/46

U.S. Cl. 435—11

23 Claims

1. A method of determining the cholesterol content of LDL

and VLDL lipoproteins in a serum containing the same together with HDL lipoproteins which comprises:

(A) contacting the serum with a solution of concanavalin A wherein the concentration of concanavalin A in said solution is less than 10 mg/ml calculated with respect to undiluted serum, in such an amount as to selectively precipitate substantially all of the LDL and VLDL lipoproteins contained in said serum but to leave HDL lipoproteins in the resultant supernatant liquid;

(B) separating said precipitate from said supernatant liquid; (C) treating said precipitate so as to denature proteins therein which interfere with measurement of the cholesterol content of lipoprotein in said precipitate;

(D) eliminating serum constituents such as bilirubin and urea derivatives which are liable to interfere with the measurement of the content of cholesterol by contacting the cholesterol in the precipitate with a selective solubilizing agent; and

(E) determining the cholesterol content of the isolated precipitate.

4,366,245

METHOD FOR THE ISOLATION OF SYMBIOTIC MICROORGANISMS FROM HOST PLANTS USING AN OSMIUM TETRAOXIDE FIXATIVE

Maurice Lalonde, c/o The Charles F. Kettering Research Laboratory, 150 E. South College St., Yellow Springs, Ohio 45387

Filed Dec. 3, 1980, Ser. No. 212,395

Int. Cl.³ C12Q 1/24

U.S. Cl. 435—30

7 Claims

1. A process for isolating symbiotic microorganisms from host plants comprising the steps of:

(a) contacting root tissue taken from said host plants with an aqueous solution of osmium tetroxide for a time sufficient to effect sterilization of the surface and subsurface area of said root tissue but insufficient to kill all of said symbiotic microorganisms;

(b) rinsing said root tissue to remove osmium tetroxide and to terminate the progress of sterilization;

(c) dividing said root tissue into a plurality of samples containing said symbiotic microorganisms; and

(d) transferring said samples to a growth medium to provide a pure culture of said symbiotic microorganisms.

4,366,246

METHOD FOR MICROBIAL POLYPEPTIDE EXPRESSION

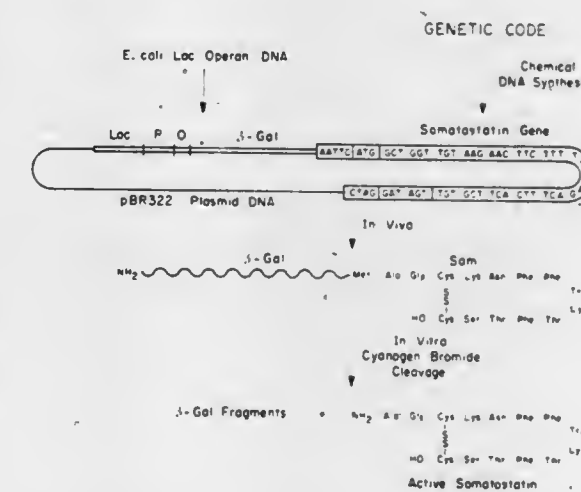
Arthur D. Riggs, La Verne, Calif., assignor to Genentech, Inc., So. San Francisco, Calif.

Continuation-in-part of Ser. No. 849,591, Nov. 8, 1977, abandoned. This application Nov. 5, 1979, Ser. No. 90,980

Int. Cl.³ C12P 21/00; C12N 15/00, 1/00

U.S. Cl. 435—68

16 Claims



1. In the method of producing a specific polypeptide involv-

ing expression of a heterologous structural gene therefor in a recombinant microbial cloning vehicle, the method comprising the steps of growing microbial transformants comprising such structural gene-containing vehicles and expressing the amino acid sequence encoded by such gene, the improvement wherein the structural gene is in reading phase with a DNA sequence coding for a protein other than said polypeptide so that expression yields a precursor protein comprising both the amino acid sequence of the polypeptide and additional protein containing a selective cleavage site adjacent the amino acid sequence of said specific polypeptide.

4,366,247

PROCESS FOR PREPARING TYLACTONE

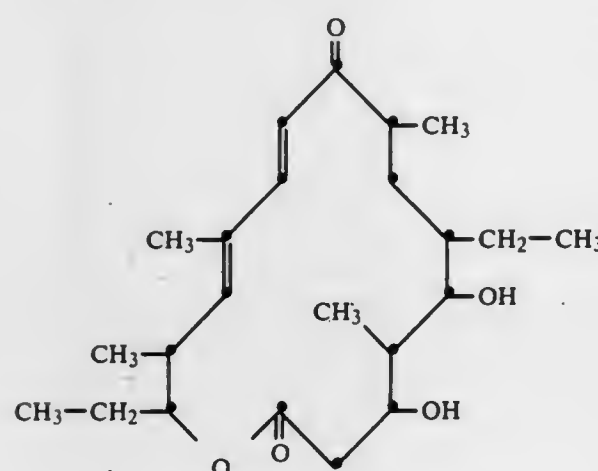
Richard H. Baltz, Indianapolis, Ind., and Eugene T. Seno, Norwich, England, assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Jul. 2, 1980, Ser. No. 162,977
Int. Cl.³ C12N 1/20; C12P 17/08

U.S. Cl. 435—124

5 Claims

1. A process for preparing tylactone, which has the formula:



which comprises cultivating *Streptomyces fradiae* NRRL 12188 or a tylactone-producing mutant or recombinant thereof in a culture medium containing assimilable sources of carbon, nitrogen, and inorganic salts under submerged aerobic fermentation conditions until a substantial recoverable amount of compound is produced.

4,366,248

FERMENTATION METHOD OF PREPARING ANTIOXIDANTS

Fritz W. Zilliken, Remagen, Fed. Rep. of Germany, assignor to Z-L Limited Partnership, Janesville, Wis.

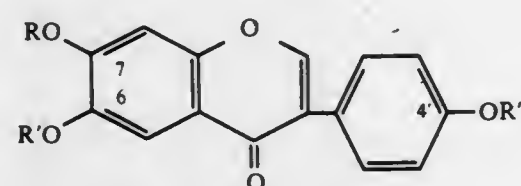
Division of Ser. No. 29,122, Apr. 11, 1979, Pat. No. 4,264,509, which is a continuation-in-part of Ser. No. 804,594, Jun. 8, 1977, Pat. No. 4,157,984. This application Jan. 19, 1981, Ser. No. 226,509

Int. Cl.³ C12P 17/06

U.S. Cl. 435—125

4 Claims

1. A method for preparing a compound having the structure:



wherein each of R, R' and R'' may be a methyl or ethyl group or hydrogen which comprises fermenting soybeans with the fungus *Rhizopus oligosporus* ATCC No. 22925 or *Rhizopus oryzae* ATCC No. 9363, contacting the resulting fermented soybean product with methanol to separate from said fer-

mented soybean product an extract containing said compound and recovering said compound in substantially pure form from said methanol extract.

4,366,249

STORAGE STABLE CHOLESTEROL OXIDASE COMPOSITIONS

Waldemar Thum; Gunter Lang; Hellmuth Vetter, and Gotthilf Näher, all of Tutzing, Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim-Waldhof, Fed. Rep. of Germany

Continuation of Ser. No. 903,316, May 5, 1978, abandoned. This application Jan. 15, 1982, Ser. No. 339,760

Claims priority, application Fed. Rep. of Germany, Dec. 14, 1977, 2755799

Int. Cl.³ C12N 9/06, 9/04

U.S. Cl. 435—188

5 Claims

1. Storable aqueous cholesterol oxidase compositions comprising cholesterol oxidase, a buffer and from 2 to 3.5 M of sodium chloride or potassium chloride as a stabilizing agent.

4,366,250

PREPARATION PROCESS OF OPTICALLY ACTIVE α -AMINATED ACIDS BY BIOLOGICAL HYDROLYSIS OF NITRILES

Jean C. Jallageas, Montpellier; Alain Arnaud, Clermont L'Hervault, and Pierre Galzy, Montpellier, all of France, assignors to Anvar, Paris, France

PCT No. PCT/FR80/00008, § 371 Date Sep. 24, 1980, § 102(e) Date Sep. 19, 1980, PCT Pub. No. WO80/01571, PCT Pub. Date Aug. 7, 1980

PCT Filed Jan. 24, 1980, Ser. No. 209,402

Int. Cl.³ C07B 19/02

U.S. Cl. 435—280

7 Claims

1. A process for the preparation of L-alpha-amino acid from the corresponding racemic alpha-amino-nitrile in free form or as salt comprising hydrolyzing in a single step in liquid medium racemic alpha-amino-nitrile in free form or as a salt with a bacteria having a general nitrilase and a L-stereospecific amidase and isolating the L-alpha amino acid from the D-alpha-amino amide.

4,366,251

GLASS COMPOSITIONS AND THEIR FIBERS

Charles F. Rapp, Newark, Ohio, assignor to Owens-Corning Fiberglass Corporation, Toledo, Ohio

Filed Jun. 15, 1981, Ser. No. 273,816

Int. Cl.³ C03C 13/00, 3/04

U.S. Cl. 501—36

14 Claims

1. Mineral wool fibers having a composition consisting essentially by weight of:

	Weight Percent
SiO ₂	38-42
Al ₂ O ₃	6-10
MgO	12-16
CaO	35-40
Fe ₂ O ₃	≤2
Other impurities	≤2

wherein the composition consists of akermanite modified with Al₂O₃;

wherein the composition has a viscosity of log η =1.0 at a temperature of 2600° F. or less, and

wherein the fibers have a high softening temperature as indicated by a viscosity of log η =12.0.

4,366,252

FLUORINE-FREE, ZIRCONIA-FREE, X-RAY ABSORBING SILICA BASED GLASS, CONTAINING OXIDES OF LEAD, BARIUM AND STRONTIUM PLUS OXIDES OF CALCIUM, MAGNESIUM, SODIUM, POTASSIUM, CERIUM, TITANIUM, ARSENIC AND ANTIMONY

Edward A. Weaver, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Mar. 13, 1980, Ser. No. 129,949

Int. Cl.³ C03C 3/04, 3/10; H01J 1/00

U.S. Cl. 501—60

3 Claims

1. A fluorine-free and zirconia-free glass having a linear absorption coefficient of at least 28 and substantially the following composition in weight percent:

Lead oxide	41%
Barium oxide	5%
Strontium oxide	8%
Na ₂ O	7%
K ₂ O	7%
Silica	61%
Aluminum oxide	1%
Calcium oxide	3%
Magnesium oxide	4%
Titanium oxide	1%
Antimony oxide	1%
Arsenic oxide	1%
Cerium oxide	1%

4,366,254

HIGH TOUGHNESS CERAMIC CUTTING TOOL

Dennis J. Rich, Troy, and Frederick C. Holtz, Jr., Birmingham, both of Mich., assignors to The Valeron Corporation, Troy, Mich.

Continuation-in-part of Ser. No. 141,102, Apr. 17, 1980, abandoned. This application May 1, 1981, Ser. No. 259,560

Int. Cl.³ C04B 35/44, 35/48, 35/56, 35/58

U.S. Cl. 501—89

23 Claims

1. A high toughness ceramic composition consisting essentially of a dense, homogeneous sintered body consisting essentially of, on a volume percent basis, about 4 to about 20% zirconia, about 60 to about 90% alumina, and about 3 to about 30% of a refractory metal compound selected from the group consisting of: the carbides, nitrides and carbo-nitrides of the Group IVB and VB metals of the periodic table; the carbides of the Group VIB metals of the periodic table; and mixtures of any of the foregoing refractory metal compounds, said composition further characterized in containing less than 1% total of the iron group metals and mixtures thereof.

11. A high toughness ceramic cutting tool consisting essentially of a dense, homogeneous body of a composition consisting essentially of, on a volume percent basis, about 4 to about 20% zirconia, about 60 to about 90% alumina, and about 3 to about 30% of a refractory metal compound selected from the group consisting of: the carbides, nitrides and carbonitrides of the Group IVB and VB metals of the periodic table; the carbides of the Group VIB metals of the periodic table; and mixtures of any of the foregoing refractory metal compounds, said composition further characterized in containing less than 1% total of the iron group metals and mixtures thereof.

4,366,255

HIGHLY REINFORCED REFRACTORY CONCRETE WITH 4-20 VOLUME % STEEL FIBERS

David R. Lankard, Columbus, Ohio, assignor to Wahl Refractory Products, Company, Fremont, Ohio

Filed Mar. 23, 1981, Ser. No. 246,507

Int. Cl.³ C04B 35/02

U.S. Cl. 501—95

12 Claims

1. A refractory shape comprising a refractory concrete reinforced with greater than about 4% by volume of metal fibers said concrete containing a refractory aggregate having a maximum particle size of about 35 mesh or less.

7. A process for reinforcing a refractory shape which comprises:

- preparing an aqueous slurry of a refractory concrete containing refractory aggregate having a maximum particle size of 35 mesh or less and a superplasticizer,
- placing a bed of metal fibers in a mold, wherein said bed of metal fiber is about 4 to 20% by volume of said mold,
- adding said slurry to said fibers while vibrating the mold such that said refractory concrete fills said mold and uniformly infiltrates said bed of metal fibers,
- allowing said refractory concrete to harden, and
- drying the refractory shape obtained.

4,366,256

REFRACTORY CHROME-MAGNESIA BRICKS AND COMPOSITIONS MADE FROM GRANULAR FUSED MATERIAL

Günther L. Mortl, Villach, Austria, assignor to Österreichisch-Amerikanische Magnesit Aktiengesellschaft, Carinthia, Austria

Filed Mar. 11, 1981, Ser. No. 242,600

Claims priority, application Austria, Mar. 20, 1980, 1507/80
Int. Cl.³ C04B 35/04, 35/42

U.S. Cl. 501—115

9 Claims

1. Refractory chrome-magnesite bricks and compositions composed of a granular fused material having a grain size of 12 mm or less, and a content of from 71 to 83 wt.% Cr₂O₃ and from 17 to 29 wt.% MgO, the minimum content of Cr₂O₃ and

4,366,253

PHOSPHATE GLASS COMPOSITIONS, AND GLASS-CERAMIC MATERIALS, AND METHODS OF MAKING THE SAME

Motohiko Yagi, Odawara, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Aug. 11, 1980, Ser. No. 176,837

Claims priority, application Japan, Aug. 10, 1979, 54-101241
Int. Cl.³ C03C 3/04, 3/08

U.S. Cl. 501—63

11 Claims

1. A phosphate glass composition capable of melting at about 1500° C. or lower consisting essentially of from 8 to 35 wt.% P₂O₅, from 8 to 48 wt.% SiO₂ and GeO₂, provided that the GeO₂ content is not more than 6 wt.%, from 3 to 18 wt.% B₂O₃, from 16 to 28 wt.% Al₂O₃, and from 8 to 33 wt.% CaO, MgO, SrO, and BaO, provided that the sum of the MgO, SrO, and BaO contents is not more than 15 wt.%, and 0 to 12 wt.% of a metal or metal oxide nucleating agent selected from the group consisting of TiO₂, ZrO₂, CeO₂, Au and Ag, and further wherein the ratio of the amount of CaO to the sum of the amount of CaO, MgO, SrO and BaO is more than 58 wt.% and the ratio of the sum of the CaO, MgO, SrO and BaO contents to the P₂O₅ content ranges from 1.02/1 to 1.4/1 and wherein the amount of the alkali metal oxide is less than 1%, said phosphate glass composition yielding a transparent glass which is characterized by a specific gravity ranging from about 2.5 to about 2.9, a dilatometric transformation temperature ranging from about 450° C. to about 750° C. and an average linear coefficient of thermal expansion in the temperature range of 100° C. to 300° C. ranging from about 40×10⁻⁷ to about 90×10⁻⁷ cm/cm°C.

10. A phosphate glass composition capable of melting at about 1500° C. or lower consisting essentially of 32.7 wt.% P₂O₅, 9 wt.% SiO₂, 4.5 wt.% B₂O₃, 22.5 wt.% Al₂O₃, 25.8 wt.% CaO and 5.4 wt.% TiO₂.

MgO being 94 wt.%, wherein said granular fused material includes a coarse grain fraction of at most 12 mm and a fine grain fraction of at most 0.2 mm, said fine grain fraction comprising from 30 to 42 wt.% of said granular fused material.

4,366,257

PROCESS FOR PRODUCING A CALCIA CLINKER

Yuichi Suzukawa, Waichi Kobayashi, and Satoshi Ohtaka, all of Ube, Japan, assignors to Ube Industries, Ltd., Yamaguchi, Japan

Filed Jun. 3, 1981, Ser. No. 269,882
Int. Cl.³ C04B 35/02

U.S. Cl. 501—123

6 Claims

6. A calcia clinker which has been produced by preparing an admixture, in the form of fine particles having a specific surface area of at least 5,000 cm²/g determined by the Blaine permeability method, of (1) calcia which has been prepared by calcining a lime material comprising mainly at least one calcium compound at a temperature of 800° C. to 1300° C., and (2) an additive comprising (A) 0.5 to 3% by weight, in terms of oxide and based on the weight of CaO contained in said calcia, of a first component consisting of at least one inorganic compound containing an element selected from the group consisting of titanium, aluminum and silicon and, (B) 0.5 to 2% by weight, based on the weight of CaO contained in said calcia, of calcium fluoride; and sintering said admixture at a temperature of from 1200° to 1650° C.

4,366,258

BLAST FURNACE WITH A REFRACTORY LINING OF CONCRETE COMPONENTS

Rudolf Eschenberg, Dinslaken, Fed. Rep. of Germany, assignor to Thyssen Aktiengesellschaft, Duisburg, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 261,620, May 7, 1981, abandoned, which is a continuation of Ser. No. 103,426, Dec. 14, 1979, abandoned. This application Dec. 15, 1981, Ser. No. 330,796

Claims priority, application Fed. Rep. of Germany, Dec. 20, 1978, 2854998

Int. Cl.³ C04B 35/02

U.S. Cl. 501—124

3 Claims

1. A blast furnace having a refractory lining comprising preformed refractory concrete components each having a volume of at least 0.2 m³ with a fixed shape and wherein the cement portion of the concrete consists of the following:

- A. 10 to 30% by weight of a mineral alkaline earth compound selected from the class consisting of metallurgical slags containing calcium-monoaluminate, calcium-di-aluminate and calcium-silico-aluminate, alumina-containing cements of the type calcium mono-aluminate and calcium di-aluminate, alumina-containing silicate cements, silicates of calcium or barium, and alkaline earth oxides selected from the class consisting of magnesium oxide, dolomite, calcium oxide and barium oxide;
 - B. 14 to 54% by weight of a compound selected from the class consisting of silicon oxide, chromium oxide, titanium dioxide, zirconium oxide and aluminum oxide having a particle size of from 100 Å to 0.1 μm;
 - C. 14 to 54% by weight of an inert filler material with a particle size of from 1 and 100 μm;
- the sum of constituents B. and C. amounting to from 70 to 90% by weight

4,366,259

PRODUCTION OF ACETIC ACID AND PROPIONIC ACID AND THEIR ESTERS

John F. Knifton, Austin, and Jiang-Jen Lin, Round Rock, both of Tex., assignors to Texaco, Inc., White Plains, N.Y.

Filed Oct. 29, 1981, Ser. No. 316,195
Int. Cl.³ C07C 27

U.S. Cl. 518—700

28 Claims

1. A process for making acetic acid and propionic acid and their esters that comprises contacting a mixture of CO and H₂ with a catalyst system comprising a ruthenium-containing compound and a cobalt halide selected from the group consisting of cobalt(II) chloride, cobalt(II) bromide and cobalt(II) iodide dispersed in a low melting quaternary phosphonium or ammonium base or salt at a pressure of about 500 psig or greater and at a temperature of at least about 150° C. for a sufficient time to provide said carboxylic acids and their esters.

4,366,260

CATALYSTS FOR METHANOL SYNTHESIS

Mark S. Wainwright, Randwick; Warwick L. Marsden, North Sydney, and Jan B. Friedrich, Asquith, all of Australia, assignors to Unisearch Limited, Kensington, Australia

Division of Ser. No. 213,542, Dec. 5, 1980. This application Aug. 25, 1981, Ser. No. 296,222

Claims priority, application Australia, Dec. 17, 1979, PE1743
Int. Cl.³ C07C 27/06, 31/04

U.S. Cl. 518—713

3 Claims

1. A method for the production of methanol, or a mixture of methanol and dimethyl ether, comprising contacting a gaseous mixture of carbon monoxide or carbon dioxide, or a mixture thereof, with hydrogen, with a catalyst prepared by forming an alloy containing from 35% to 60% by weight of aluminum, from 0.1% to 25% by weight of zinc, and the remainder being substantially all copper, and extracting a substantial proportion of the aluminum content of the alloy with an aqueous solution of an alkali metal hydroxide.

4,366,261

CHROMIUM OXIDE IN ION EXCHANGE RESIN

Alvin F. Beale, Jr., Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed Mar. 27, 1981, Ser. No. 248,656
Int. Cl.³ B01J 41/00

U.S. Cl. 521—25

7 Claims

1. A composite comprising a particulate, porous anion exchange resin having incorporated therein amorphous hydrous chromium III oxide conforming substantially to the empirical formula Cr₂O₃·mH₂O where mH₂O signifies waters of hydration.

4,366,262

METHOD FOR CATALYZED CONVERSION OF PERFLUOROCARBON CATIONIC EXCHANGE FUNCTIONALITY WITH SF₄

Michael J. Covitch, Cleveland Hts., Ohio, assignor to Diamond Shamrock Corporation, Dallas, Tex.

Filed Jun. 26, 1981, Ser. No. 277,885
Int. Cl.³ B01J 39/20

U.S. Cl. 521—33

18 Claims

1. A method for forming sulfonyl fluoride functional groups within a polymeric material having at least one of: (a) attached sulfonyl based cationic exchange functional groups; and (b) sulfonyl based polymeric cross linking sites; comprising the step of: contacting the polymer with SF₄ and a catalyst at a temperature of between -20° C. and 200° C. for greater than 0.10 hour under pressure in a substantial excess of the catalyst.

4,366,263

EXPANDED CROSS-LINKED POLYETHYLENE PARTICLE, A MOLDED PRODUCT THEREOF AND THE METHODS THEREOF

Eiya Sato, and Tsukasa Yamagishi, both of Suzuka, Japan, assignors to Asahi-Dow Limited, Tokyo, Japan
Filed Dec. 5, 1980, Ser. No. 213,643

Claims priority, application Japan, Dec. 10, 1979, 54-160144; Apr. 25, 1980, 55-55000; Apr. 25, 1980, 55-55001; Apr. 25, 1980, 55-55002; Apr. 25, 1980, 55-55003; Apr. 25, 1980, 55-55004; Apr. 26, 1980, 55-55809; Jun. 30, 1980, 55-88611; Jun. 30, 1980, 55-88612; Jun. 30, 1980, 55-88613; Oct. 20, 1980, 55-146535
Int. Cl.³ C08J 9/22, 9/24

U.S. Cl. 521—60

3 Claims



1. An expansion-molded product of cross-linked polyethylene, said expansion-molded product:

- (1) being a number of expanded cross-linked polyethylene particles having a thick skin layer, which particles are closely contacted and adhered to each other at the skin layers of adjacent particles to form a foam having a density of 0.025 to 0.05 g/cm³,
- (2) having a substantial average thickness of the interfacial membranes, which are formed by thermally fusing and welding the particle surfaces together, being approximately not lower than 3 times the thickness, as compared with the substantial average thickness of cell membranes in each particle,
- (3) having a melting point of 107° to 124° C.,
- (4) having a compressive stress (R) kg/cm² required for 25% compression which satisfies the equation:

$$1/140 (270 - 6/D) \leq R \leq 1/140 (315 - 6/D)$$

wherein D means density g/cm³,

- (5) having a cavity coefficient, which represents smoothness of the surface of the product, if not higher than 10,
- (6) having a water absorption ratio of not higher than 0.3% by volume,
- (7) having a head resistant compressive creep at 80° C. of not higher than 35% by thickness, and
- (8) having a dimensional change ratio after standing at 90° C. for 96 hours of not higher than 2% by length.

4,366,264

USE OF CALCIUM METASILICATE (WOLLASTONITE) AS A FORMALDEHYDE SUPPRESSANT FOR UREA FORMALDEHYDE RESINS

Stanley Wawzonek, 2014 Ridgeway Dr., Iowa City, Iowa 52240
Filed Apr. 16, 1982, Ser. No. 369,148

Int. Cl.³ C08J 9/30

U.S. Cl. 521—122

7 Claims

1. A urea-formaldehyde foamed insulation composition prepared from a first and second component, said first component comprising an aqueous solution of a foaming agent and said second component comprising an aqueous solution of a pre-condensate urea-formaldehyde resin, said second component containing as a formaldehyde de-

composition suppressant, a small but suppression effective amount of a calcium metasilicate.

4,366,265

STARCH-AMINE-BASED POLYETHER POLYOLS AND POLYURETHANE FOAMS PREPARED THEREFROM

Stephen Fuzesi, Hamden, and John G. Bayusik, Wallingford, both of Conn., assignors to Olin Corporation, New Haven, Conn.

Division of Ser. No. 218,870, Dec. 22, 1980, Pat. No. 4,342,864.
This application Apr. 14, 1982, Ser. No. 368,333
Int. Cl.³ C08G 18/14, 18/50

U.S. Cl. 521—167

13 Claims

1. In a polyurethane foam comprised of the reaction product of a polyol reactant, an organic polyisocyanate reactant, a reaction catalyst and a foaming agent, the improvement wherein said polyol reactant is prepared by:

- a. forming a crude polyglucoside reaction product by reacting in the presence of a catalytic proportion of an acid catalyst, (1) starch and
- (2) a polyhydric alcohol containing at least two hydroxyl groups, the proportion of said alcohol being at least 0.3 mole of alcohol per glucose unit weight of starch, and
- b. admixing said crude polyglucoside reaction product with an amine in the presence of a basic catalyst, maintaining said mixture at a temperature of from 100° to 165° C., and introducing into said mixture an alkylene oxide having between 2 and about 6 carbon atoms, said amine being employed in an amount of at least about 0.1 mole to about 10 moles per glucose unit weight of starch and being selected from the group consisting of an aliphatic amine having 1-8 carbon atoms, an aromatic primary amine having 6-8 carbon atoms, an alkanolamine in which each alkanol group contains 2-5 carbon atoms, and a mixture thereof.

4,366,266

BINDER COMPOSITIONS AND PROCESS FOR MAKING MOLDED PRODUCTS THEREWITH

Tom Mitsopoulos, Toronto; Satish Jhaveri, Oakville, and Charles Lui, Mississauga, all of Canada, assignors to Valvoline Oil & Chemicals Ltd., Mississauga, Canada

Filed Jul. 14, 1981, Ser. No. 283,262

Claims priority, application United Kingdom, Feb. 5, 1981, 8103522

Int. Cl.³ B22C 1/22, 9/02; B28B 7/34; C08L 91/00

U.S. Cl. 523—143

29 Claims

1. A binder composition including in admixture a resin component comprising an organic solvent solution of a non-aqueous phenolic resin, a hardener component comprising a liquid polyisocyanate containing at least two isocyanate groups, said resin component and hardener component being curable by a curing agent, and an additional component comprising an oil-soluble phenolic resin dissolved in a drying oil and partially cross-linked therewith.

4,366,267

CATALYSTS AND BINDER SYSTEMS FOR MANUFACTURING SAND SHAPES

George S. Everett, Clarendon Hills, Ill., assignor to The Quaker Oats Company, Chicago, Ill.

Filed Dec. 17, 1980, Ser. No. 217,451

Int. Cl.³ C08G 2/30, 4/00

U.S. Cl. 523—144

9 Claims

1. A process of curing an acid catalyzed resin which comprises admixing with said resin a catalyst selected from the group consisting of aluminum perchlorate, cupric perchlorate and chromic perchlorate.

4,366,268

MOLDING STAND

Akio Yamanishi, Kanichi Sato, and Takashi Higashino, all of Hirakata, Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

Filed Jun. 23, 1981, Ser. No. 276,700

Claims priority, application Japan, Dec. 21, 1978, 53-156924
Int. Cl.³ C08L 61/04

U.S. Cl. 523—144

5 Claims

1. A molding sand for use in a molding process employing a microwave radiation for curing the molding sand, said molding sand comprising a new sand about 25 to about 75 parts by weight, a carbonized resin coated sand about 75 to about 25 parts by weight and a thermosetting or thermoplastic resin about 2 to 5 parts by weight.

4,366,269

RESIN COATED FOUNDRY SAND USING CRYSTALLINE UNSATURATED POLYESTER AS BINDER

Koue Ohkawa, Yokohama; Shin Fujii, Zama, and Takashi Seino, Yokosuka, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

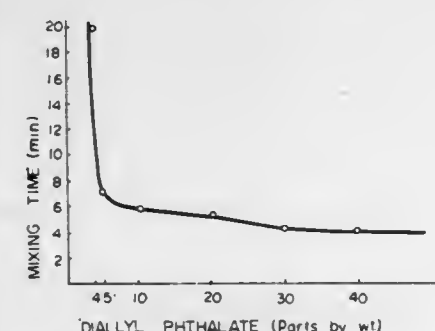
Filed Jun. 6, 1980, Ser. No. 157,191

Claims priority, application Japan, Jun. 9, 1979, 54-71835
The portion of the term of this patent subsequent to Jan. 20, 1998, has been disclaimed.

Int. Cl.³ C08L 67/06

U.S. Cl. 523—148

8 Claims



1. A process of preparing a resin coated sand for forming molds and cores for use in a sand molding process, the process comprising the step of:

mixing a major amount of a foundry sand with a minor amount of a binder composition which comprises a crystalline unsaturated polyester which is solid at room temperature as a principal component thereof and diallyl phthalate, the weight ratio of said diallyl phthalate to said unsaturated polyester being in the range from 5:100 to 30:100, at an elevated temperature at which said binder composition is in a fluidized state in the presence of an organic peroxide which serves as a curing catalyst for said unsaturated polyester, the weight ratio of said organic peroxide to said unsaturated polyester being in the range from 0.1:100 to 10:100, said binder composition being a scarcely tacky solid at room temperature, the viscosity of said binder composition at a temperature about 30° C. above the softening temperature thereof being below about 500 poises.

4,366,270

PROCESS FOR UNIFORMLY BLENDING ADDITIVES INTO THERMOPLASTIC SYNTHETIC RESINS

Jörn Rüter, Marl, Fed. Rep. of Germany, assignor to Chemische Werke Hüls A.G., Marl, Fed. Rep. of Germany
Continuation-in-part of Ser. No. 881,433, Feb. 27, 1978, abandoned. This application Nov. 21, 1979, Ser. No. 96,428
Claims priority, application Fed. Rep. of Germany, Mar. 10, 1977, 2710379

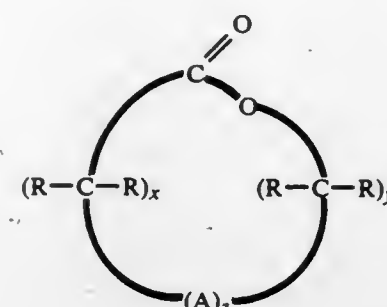
Int. Cl.³ C08K 9/04, 9/10

U.S. Cl. 523—307

9 Claims

1. In a process for the uniform blending of additives into

thermoplastic synthetic resins after said thermoplastic synthetic resins have been produced, the improvement comprising dispersing said additives in polymerizable cyclic esters of the general formula:



wherein

R represents respectively hydrogen or an alkyl group having 1-18 carbon atoms,
A represents —O— or —COO— group,
x and y represent integers from 1 to 15,
z represents 0 or 1, and
the concentration of said additives is 1 to 50% by weight of said additives and said cyclic esters,
polymerizing said cyclic esters with said additives dispersed therein at a temperature of about 120° to 350° C. for 5 to 180 minutes to obtain an intermediate product; and
admixing said intermediate product of polymerized cyclic esters and additives having an additive concentration of 0.001 to 15% by weight of said additives, said cyclic esters and said thermoplastic synthetic resins with said thermoplastic synthetic resins in a molten state at a temperature of about 150° to 350° C. for 1 to 30 minutes.

4,366,271

PROCESS FOR THE PRODUCTION OF COLORANT PREPARATIONS AND THE COLORANT PREPARATIONS OBTAINED THEREBY

Albert Riegler, Basel, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 99,953, Dec. 3, 1979, abandoned. This application May 26, 1981, Ser. No. 266,790
Claims priority, application Switzerland, Dec. 7, 1978, 12520/78

Int. Cl.³ B01J 2/10

U.S. Cl. 523—333

9 Claims

1. In an improved flush process for the production of a colorant composition, which contains, by weight of the total composition, 10 to 90% of a water-insoluble colorant and 90 to 10% of a water-repellent organic carrier material, which involves mixing a colorant in the presence of water with the organic carrier material, which material has a softening point between 60° and 100° C., in a kneader at a temperature sufficient to melt said organic carrier material and flushing the colorant into the organic carrier material with the concomitant formation of a colorant-free separate water phase, wherein the improvement consists essentially of

- mixing the organic carrier material with an aqueous colorant paste or with a dry colorant and water, in a kneader and heating the kneader to a temperature sufficient to melt said organic carrier material, or adding the organic carrier material, at room temperature, to a kneader preheated to a temperature sufficient to melt said organic carrier material and then adding dry colorant and water or an aqueous colorant paste to the now molten organic carrier material in the heated kneader,
- kneading the mixture of colorant, water and molten organic carrier material to flush the colorant into the molten organic carrier material to form a molten colorant composition with the concomitant formation of a colorant-free separate water phase,
- now cooling the kneader, while continuing kneading, to

a temperature below the softening point of the organic carrier, a temperature sufficient to cause the molten colorant composition to solidify, and concomitantly
(d) comminuting the solidified colorant composition into broken irregular granulates in the presence of the colorant-free separate water phase.

4,366,272

METHOD FOR RECOVERING SYNTHETIC RESIN EMULSION

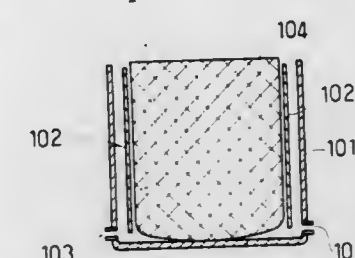
Suke Yoshi Kawamura, Tokai; Koichi Shimizu, Aichi, and Yasuhiro Shikimori, Nagoya, all of Japan, assignors to Japan Acrylic Chemical Co. Ltd., Tokyo, Japan

Filed Jun. 16, 1981, Ser. No. 274,161

Claims priority, application Japan, Jun. 17, 1980, 55-82436
Int. Cl.³ C08J 11/04

U.S. Cl. 523—335

3 Claims



1. A method for recovering synthetic resin emulsion which comprises; adding coagulant to waste water containing synthetic resin emulsion to coagulate said synthetic resin emulsion, separating the coagulation of said synthetic resin emulsion from said waste water, and redispersing said separated coagulation in synthetic resin emulsion medium by using water-soluble polymer as dispersant.

4,366,273

POLYESTER COMPOSITION WITH MIXED METAL ION NUCLEATING AGENTS

Shaul M. Aharoni, Morris Plains, N.J., assignor to Allied Corporation, Morris Township, Morris County, N.J.
Filed May 11, 1981, Ser. No. 262,236

Int. Cl.³ C08J 3/18; C08L 67/02

U.S. Cl. 523—400

37 Claims

1. A composition comprising: a linear saturated polyester; and from about 4% to about 10% by weight of the polyester of a nucleating agent comprising a hydrocarbon carboxyl acid neutralized by a first cation selected from metals of Group IA of the Periodic Table of Elements and a second cation selected from metals of Groups IIIA, IIIB, IVB and copper, the first cation being present in an amount less than 50% of the total metal ions and neutralizing not more than 20° C. of the hydrocarbon acid group, and the second cation neutralizing up to 100% of the remaining hydrocarbon acid groups.

4,366,274

AUTO-CROSSLINKABLE, CATHODICALLY DEPOSITABLE BINDERS

Georg Pampouchidis, and Helmut Hönig, both of Graz, Austria, assignors to Vianova Kunstharz, A.G., Wernsdorf, Austria
Filed Dec. 15, 1980, Ser. No. 216,379

Claims priority, application Austria, Dec. 17, 1979, 7908/79
Int. Cl.³ C08G 59/50

U.S. Cl. 523—415

9 Claims

1. Auto-crosslinking, cathodically depositable binders comprising the reaction product of:
(A) the reaction product of:
(a) 2 moles of a diepoxy compound having an epoxy equivalent of at least 100;
(b) 1 mole of an aliphatic and/or cycloaliphatic and/or

aromatic diamine, the nitrogen atoms of which are secondary-secondary or primary-tertiary;
(c) 2-1 moles of a secondary amine, and
(d) 0-1 moles of an unsaturated and/or saturated monocarboxylic acid; and
(B) an alpha,beta-ethylenically unsaturated monoisocyanate; the quantity of components being chosen whereby the double bond number of said binder is at least 0.5 and said binder has an amine value sufficient to render said binder water-dilutable upon neutralization with an acid.

4,366,275

WATER-RESISTANT ALKALINE CORRUGATING ADHESIVE COMPOSITION

Michael A. Silano, Somerset, N.J., and Robert D. Featherston, Salisbury, N.C., assignors to National Starch and Chemical Corporation, Bridgewater, N.J.

Filed Jun. 1, 1981, Ser. No. 268,960

Int. Cl.³ C09J 3/06; C08J 3/10; C08L 3/04, 61/02

U.S. Cl. 524—47

11 Claims

1. In a process for preparing a crosslinking additive for imparting water resistance to starch-based corrugating adhesive compositions wherein acetone and formaldehyde are reacted in a molar ratio of 1 mole of acetone to about 2 to 5.5 moles of formaldehyde under aqueous alkaline conditions at about 20°-80° C. to obtain a water-soluble acetone-formaldehyde condensate containing about 1-10% unreacted formaldehyde, the improvement which comprises adding to said water-soluble acetone-formaldehyde condensate at least an effective amount of dihydroxyethylene urea to react with the unreacted formaldehyde present therein and allowing the reaction to proceed at about 20°-80° C. until the unreacted formaldehyde remaining is reduced to about 0.1-2% by weight.

8. A water-resistant alkaline curing, starch-based corrugating adhesive composition comprising:

- from about 10 to 40%, based on total weight of the adhesive, of starch, this including the ungelatinized as well as the gelatinized portions of the starch;
- from about 0.3 to 5%, based on total weight of the starch, of an alkali;
- from about 54 to 89%, based on total weight of the adhesive, of water; and
- from about 0.3 to 10%, based on total weight of the starch, dry basis, of a crosslinking additive prepared by reacting acetone and formaldehyde in a molar ratio of 1 mole of acetone to about 2 to 5.5 moles of formaldehyde under aqueous alkaline conditions at about 20°-80° C. to obtain a water-soluble acetone-formaldehyde condensate containing about 1-10% unreacted formaldehyde; adding to the condensate at least an effective amount of dihydroxyethylene urea to react with the unreacted formaldehyde present therein; and allowing the reaction to proceed at about 20°-80° C. until the unreacted formaldehyde remaining is reduced to about 0.1-2% by weight.

4,366,276

FLAME-RESISTANT Moulding MATERIALS BASED ON THERMOPLASTIC AROMATIC POLYESTERS AND POLYESTER CARBONATES, A PROCESS FOR THEIR PRODUCTION AND THEIR USE IN THE PRODUCTION OF MOULDED BODIES

Dieter Freitag; Werner Nouvartne, both of Krefeld; Klaus Reinking, Wermelskirchen; Peter Tacke, Krefeld; Frank Kleiner, Cologne, all of Fed. Rep. of Germany, and Manfred Schmidt, New Martinsville, W. Va., assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jun. 7, 1981, Ser. No. 274,387

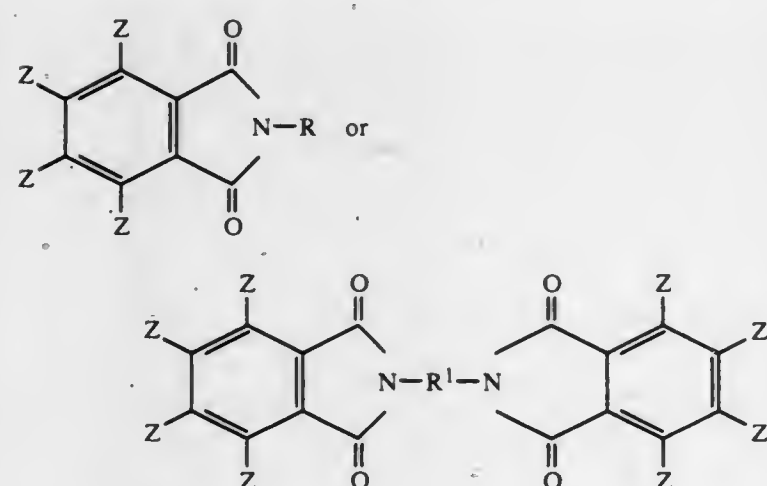
Claims priority, application Fed. Rep. of Germany, Jun. 25, 1980, 3023818; Sep. 19, 1980, 3035357
Int. Cl.³ C08K 3/16, 5/34

U.S. Cl. 524—94

6 Claims

1. Flame resistant moulding materials containing:

- (a) from 92 to 99.98 parts by weight of thermoplastic aromatic polyester or polyester carbonate containing up to 45 mole percent of carbonate moieties based on the total of ester and carbonate moieties and said polyester or polyester carbonate being based on diphenols, isophthalic acid or terephthalic acid, each of which is unsubstituted or substituted by halogen or alkyl having 1 to 4 carbon atoms;
- (b) from 0.01 to 3 parts by weight of at least one inorganic acid salt or organic acid salt wherein said inorganic acid salts are trisodium hexafluoroaluminate, tripotassium hexafluoroaluminate, disodium hexafluorotitanate, dipotassium hexafluorotitanate, disodium hexafluorosilicate, dipotassium hexafluorosilicate, disodium hexafluorozirconate, dipotassium hexafluorozirconate, sodium pyrophosphate, potassium pyrophosphate, sodium metaphosphate, potassium metaphosphate, sodium tetrafluoroborate, potassium tetrafluoroborate, sodium hexafluorophosphate, potassium hexafluorophosphate, sodium ortho-phosphate, potassium ortho-phosphate, or lithium ortho-phosphate, and said organic acid salts are alkali metal or ammonium salts of organic sulphonic acids, phosphonic acids or carboxylic acids with organic moieties being unsubstituted or substituted by halogen;
- (c) from 0.01 to 3 parts by weight of at least one halogenated phthalimide of the formula



wherein

- R is hydrogen, alkyl having 1 to 10 carbon atoms, phenyl, naphthyl, C_6H_4X , $C_6H_3X_2$ or $C_6H_2X_3$;
- X is fluoro, chloro or bromo;
- R¹ is a single bond, alkylene having 2 to 4 carbon atoms, phenylene or p-diphenylene; and
- Z is chloro or bromo; and

- (d) from 0 to 2.5 parts by weight of polytetrafluoroethylene.

4,366,277

COMPOUNDS HAVING TWO BIS (2,2,6,6-TETRAMETHYL-4-PIPERIDYL)-SUBSTITUTED HETEROCYCLIC RINGS AND POLYMERS CONTAINING SAME

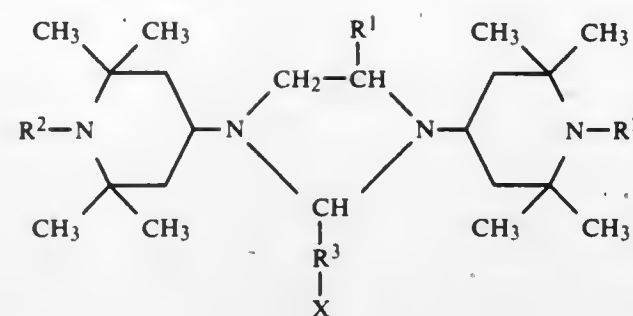
Kenneth R. Molt, Cincinnati, Ohio, assignor to Carstab Corporation, Reading, Ohio

Continuation-in-part of Ser. No. 117,878, Feb. 4, 1980, abandoned. This application Dec. 4, 1981, Ser. No. 326,951
Int. Cl.³ C08K 5/34; C07D 40/19, 211/08

U.S. Cl. 524-102

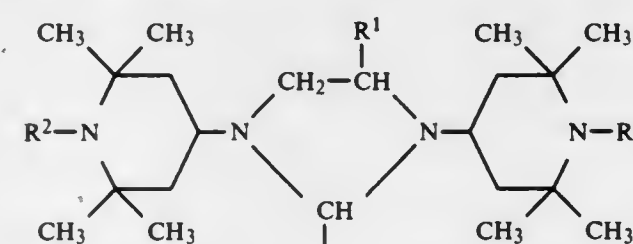
13 Claims

1. A compound having the following formula:



wherein

- R¹ is hydrogen or methyl;
- R² is hydrogen, alkyl having 1 to 8 carbon atoms, unsubstituted aralkyl having 7 to 18 carbon atoms, or aralkyl having 7 to 18 carbon atoms having up to 3 substituents on the aryl ring selected from alkyl having 1 to 4 carbon atoms and alkoxy having 1 to 4 carbon atoms;
- R³ is a straight or branched chain alkylene having 1 to 14 carbon atoms, straight or branched chain alkenylene having 2 to 14 carbon atoms and from 1 to 3 carbon-carbon double bond, unsubstituted arylene having 5 to 7 carbon atoms; cycloalkylene having 5 to 7 carbon atoms, and arylene having 5 to 7 carbon atoms or cycloalkylene having 5 to 7 carbon atoms and having up to three substituents on the arylene or cycloalkylene ring selected from C₁ to C₄ alkyl and C₁ to C₄ alkoxy; and
- X is a group having the following formula:



where R¹ and R² are as defined above.

4,366,278

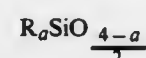
FLAME RETARDANT SILICONE RUBBER COMPOSITIONS CONTAINING CARBOXAMIDES

Mitsuo Hamada, Kisarazu, and Sadami Yasuda, Ichihara, both of Japan, assignors to Toray Silicone Co., Ltd., Tokyo, Japan
Filed Mar. 20, 1981, Ser. No. 245,781
Claims priority, application Japan, Mar. 28, 1980, 55-40948
Int. Cl.³ C08L 83/04

U.S. Cl. 524-210

22 Claims

1. A flame retardant silicone rubber composition comprising (A) 100 parts by weight of a polydiorganosiloxane of the average unit formula



in which each R is a monovalent radical selected from the group consisting of hydrocarbon radicals and halogenated hydrocarbon radicals and a has a value of from 1.95 to 2.05 inclusive,

- (B) 0 to 150 parts by weight of a fine particle silica filler,
- (C) 1 to 200 ppm by weight of platinum based on the weight of (A), in the form of platinum or a platinum-containing compound,
- (D) 0.01 to 5 parts by weight of carboxamide being formed from an acid selected from a monobasic acid, a multibasic acid, and a hydroxycarboxylic acid which acid is selected from carbonic acid, formic acid, aliphatic carboxylic acids, and aromatic carboxylic acids; which carboxamide is an amide which is a primary amide, a secondary amide,

- or a tertiary amide in which the amide contains alkyl, aryl, or hydrogen atoms bonded to nitrogen, and
- (E) 0.1 to 5 parts by weight of an organic peroxide.

4,366,279

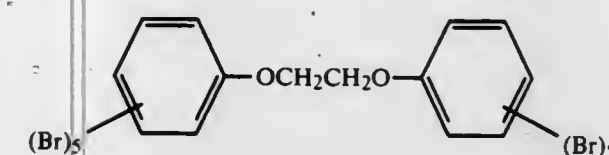
FLAME RETARDANT POLYCARBONATE RESIN COMPOSITION

Tatsuya Tomioka, and Norio Ogata, both of Sodegaura, Japan, assignors to Idemitsu Kosan Company Limited, Tokyo, Japan
Filed Aug. 19, 1981, Ser. No. 294,400
Claims priority, application Japan, Sep. 11, 1980, 55/126201
Int. Cl.³ C08K 5/37, 5/09, 5/13

U.S. Cl. 524-289

15 Claims

1. A flame retardant polycarbonate resin composition comprising a polycarbonate resin which is prepared by reacting a dihydric phenol and phosgene or dicarbonate, a nuclear substituted benzoic acid selected from the group consisting of thio-salicylic acid and dihydroxybenzoic acid and an organohalogen compound selected from the group consisting of tetrabromobisphenol A and a compound having the formula



4,366,280

ORGANIC POLYMERIC MATERIALS STABILIZED WITH ACYLATED HYDROXY ACID TYPE COMPOUNDS

Muneaki Yukawa, Tokyo, Japan, assignor to K.K. Musashino Kagaku Kenkyusho, Tokyo, Japan and Ciba-Geigy AG, Basel, Switzerland

Filed Nov. 3, 1980, Ser. No. 203,362

Claims priority, application Japan, Nov. 2, 1979, 54-141172; Apr. 3, 1980, 55-042755

Int. Cl.³ C08K 5/11

U.S. Cl. 524-291

5 Claims

1. A stabilized composition comprising an organic polymer selected from the group consisting of polyolefins, unsaturated elastomers, polystyrene and graft copolymers thereof, polymers which are derived from α,β -unsaturated acids, polymers derived from unsaturated alcohols and amines, polyacetals, and polyamides having incorporated therein calcium stearoyl lactate.

4,366,281

MOLDING RESIN COMPOSITION

Mitsuo Abe, Akira Kamiya, both of Yokkaichi; Junya Itoh, Mie; Masaaki Mawatari, Suzuka, and Fumio Kurihara, Yokkaichi, all of Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

Filed Oct. 29, 1980, Ser. No. 201,777

Claims priority, application Japan, Oct. 29, 1979, 54-138808
Int. Cl.³ C08K 5/12

U.S. Cl. 524-297

9 Claims

1. A molding resin composition comprising [A] 100 parts by weight of a vinyl chloride resin, [B] 30-110 parts by weight of a graft copolymer wherein 90-50 parts by weight of a monomer mixture comprising 10-40% by weight of an alkenyl aromatic compound, 20-50% by weight of an alkenyl cyanide compound and 20-50% by weight of a methacrylate, is graft copolymerized on 10-50 parts by weight of polybutadiene or a rubbery copolymer of at least 60% by weight of butadiene with an alkenyl aromatic compound or an alkenyl cyanide compound, the degree of grafting of the graft copolymer being 30-110% and an acetone soluble fraction having an intrinsic

viscosity as measured in methyl ethyl ketone at 30° C. of 0.4-1.5 dl/g, [C] 3-50 parts by weight of a rubbery acrylonitrile-butadiene copolymer having from 20-40% by weight acrylonitrile and [D] 15-100 parts by weight of a plasticizer for vinyl chloride resins.

8. The molding resin composition according to claim 1, 2 or 5, wherein said plasticizer [D] for vinyl chloride resins is dibutyl phthalate, dioctyl phthalate or diisodecyl phthalate.

4,366,282

AQUEOUS COATING COMPOSITIONS FOR WOOD SURFACES

Herbert Zima, and Laszlo Tulacs, both of Graz, Austria; assignors to Vianova Kunstharz, A.G., Werndorf, Austria
Filed Nov. 5, 1980, Ser. No. 204,158
Claims priority, application Austria, Nov. 9, 1979, 7193/79
Int. Cl.³ C08K 5/10

U.S. Cl. 524-317

10 Claims

1. Polymer aqueous dispersions containing N-methylol(meth)acrylamide and comprising from about 30-65% by weight of methylmethacrylate, 10-17% by weight of ethylacrylate, 10-30% by weight of butylmethacrylate, 5-20% by weight of styrene, 3-10% by weight of N-methylol(meth)acrylamide, and containing from 5 to 15% by weight coalescing agent, based on the said polymer dispersion, of a blend comprising 20-65% by weight of a high boiling paint solvent and 80-35% by weight of ethylene glycol monoethyletheracetate, and/or ethylene glycol monobutyletheracetate.

4,366,283

POLYCARBONATE CONTAINING A METAL SALT OF A PERHALOMETALATE AS AN IGNITION DEPRESSANT

Lowell S. Thomas, and Ronald V. Petrella, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Nov. 13, 1979, Ser. No. 93,649

Int. Cl.³ C08L 3/16

U.S. Cl. 524-413

8 Claims

1. A composition consisting essentially of an aromatic carbonate polymer having dispersed therein a metal salt of a perhalometalate in an amount of about 0.1 weight percent based on the polymer or less which amount is sufficient to retard combustion when the composition is exposed to a low temperature ignition source, said metal salt being represented by the formula:



wherein M is alkali metal; M' is a transition metal; X is fluoro, chloro or bromo; z is a whole number which corresponds to the coordination number of M'; and y is a whole number equal to the valence of M'X_z, provided that when the metal salt is K₂TiF₆ it is present in an amount from about 0.02 to about 0.05 weight percent based on the polymer, said composition having Underwriter's Laboratories' (UL-94) flame retardance rating of V-1 or V-0 as determined using a test bar having the following dimensions: 12.7 cm × 1.27 cm × 0.32 cm.

4,366,284

AQUEOUSLY-SWELLING WATER STOPPER AND A PROCESS OF STOPPING WATER THEREBY

Yoshinobu Ishido, and Hideo Tanaka, both of Fukuyama, Japan, assignors to Hayakawa Rubber Company Limited, Fukuyama, Japan

Filed Jan. 21, 1981, Ser. No. 226,896

Claims priority, application Japan, Oct. 17, 1980, 55/145358; Oct. 17, 1980, 55/145359

Int. Cl.³ C08J 3/12, 3/20; C08K 3/34; C08L 61/00

U.S. Cl. 524—447

7 Claims

1. Aqueously-swelling water-stopping composition consisting of 10 to 40 weight % of rubber whose main ingredient is reclaimed rubber blended with less than 30 weight % of virgin rubber, 10 to 20 weight % of silicic compound, 10 to 60 weight % of bentonite, said silicic compound and bentonite acting as fillers and said silicic compound being selected from the group consisting of silicic acid anhydride, hydrous silicic acid, and calcium silicate, and 10 to 40 weight % of rubber plasticizer.

4,366,285

PROCESS FOR THE PRODUCTION OF AN ELASTOMER-FILLER MIXTURE OPTIONALLY CONTAINING EXTENDER OILS

Wolfgang Lukaschek, Marl, and Wolfgang Marx, Duermen, both of Fed. Rep. of Germany, assignors to Chemische Werke Huls, A.G., Marl, Fed. Rep. of Germany

Filed Jul. 13, 1981, Ser. No. 282,772

Int. Cl.³ C08L 9/00; C08K 3/36

U.S. Cl. 524—521

11 Claims

1. In a process for producing an elastomer-filler mixture, optionally containing an extender oil comprising the combined precipitation of a homogeneous mixture of
(a) a synthetic elastomer latex, produced by emulsion polymerization in an anionic emulsifier system, and
(b) an aqueous suspension of a silicic acid based filler, using an acid and, optionally, an electrolyte or other flocculant; separation of the precipitated mixture; and drying of the mixture;

the improvement wherein the filler suspension contains 0.1–5% by weight, based on the amount of filler, of a copolymer of acrylamide and dimethylaminoethyl methacrylate.

4,366,286

COATING AGENT FOR NON-STICK COATINGS

Hans Friemann; Hans-Heinrich Moretto; Heinrich Alberts, all of Cologne; Armand de Montigny, and Hans Toepesch, both of Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Nov. 5, 1980, Ser. No. 204,680

Claims priority, application Fed. Rep. of Germany, Nov. 28, 1979, 2947965

Int. Cl.³ C08L 51/08, 83/04

U.S. Cl. 524—588

6 Claims

1. In a coating composition for producing non-stick coatings which have increased peeling forces and by weight consisting essentially of

- (A) about 10 parts of a polyorganosiloxane with hydroxyl end groups and with a viscosity of 10^2 to 5×10^4 Pas,
(B) 0.5–5 parts of at least one cross-linking agent of the formula



wherein

- X is a hydrolyzable group and
R is an alkyl, alkenyl, aryl or aminoalkyl group with 1–12 C atoms,
(C) 0.1–2 parts of an organic tin compound as the crosslinking catalyst and

- (D) 100–500 parts by weight of a volatile organic solvent, the improvement which comprises additionally including
(E) 0.1–20 parts of a graft copolymer comprising
(i) 25–75% of an essentially linear polyorganosiloxane with hydroxyl end groups and with a viscosity of 100 to 500,000 mPas and
(ii) 10–70% of at least one organic polymer with a molecular weight of 500 to 100,000, linked to (i) via bridges formed on the free radical polymerization of
(iii) 10–60% of one or more monomers containing at least one aliphatic double bond, the sum of (i) to (iii) being 100%.

4,366,287

GLASS FIBRE/SYNTHETIC RESIN PASTE OR SLURRY

David Thorpe, Blackley, England, assignor to Imperial Chemical Industries Limited, London, England

Division of Ser. No. 21,427, Mar. 16, 1979, Pat. No. 4,288,563.

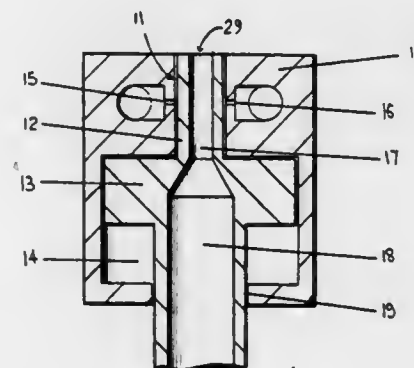
This application Apr. 29, 1981, Ser. No. 258,807

Claims priority, application United Kingdom, Mar. 23, 1978, 11674/78; Feb. 15, 1979, 7905423

Int. Cl.³ C08G 18/30

U.S. Cl. 524—871

4 Claims



1. Chopped fibre glass suitable for use in making a glass fibre paste or slurry, said glass having been made by:

- (a) forming into strands filamentary glass which has been coated with a size containing, as the main ingredient, one component of a plastics forming mixture or a derivative thereof, and
(b) chopping said strands into short lengths, the chopped fibre glass being characterized as substantially separable into individual lengths when added to a liquid medium which is compatible with plastics-forming ingredients or all or part of one or more of said plastics-forming ingredients.

4,366,288

PULVERULENT COATING MATERIALS

Raoul Resz, Bergisch-Gladbach; Walter Schäer, Cologne, and Aziz El Sayed, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 23, 1980, Ser. No. 199,697

Claims priority, application Fed. Rep. of Germany, Oct. 27, 1979, 2943469

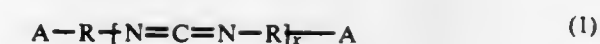
Int. Cl.³ C08F 8/00, 16/06, 26/04, 116/06

U.S. Cl. 525—60

4 Claims

1. Pulverulent coating materials melting at from 60° to 150° C., consisting of

- (a) from 50 to 99% by weight of saponified ethylene-vinyl acetate copolymers, which contain ethylene and vinyl acetate in molar ratios of from 2:1 to 20:1 before saponification and which are saponified to hydrolysis levels of from 50 to 100%, and
(b) from 1 to 50% by weight of polycarbodiimides, having cross-linking activity above 130° C., of the general formula (1):

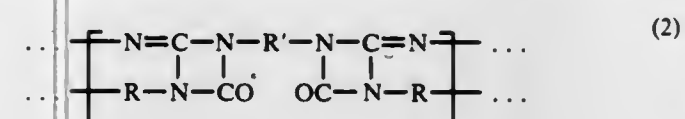


wherein

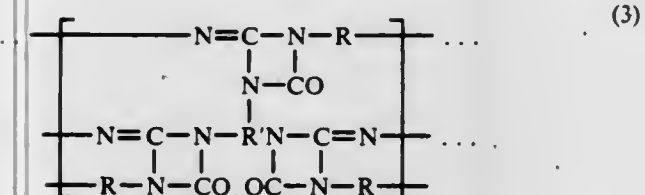
R represents an alkylene, cycloalkylene, aralkylene or arylene group,

A represents hydrogen or a blocked isocyanate group having dissociation temperatures of above 130° C., and x represents an integer from 2 to 20,

and/or polyurethane imines, which are obtained by reacting the polycarbodiimides of formula (1) with (cyclo)aliphatic, araliphatic or aromatic di- and/or triisocyanates thereby linking the polycarbodiimide molecules according to the general formulae (2) and (3):



or



wherein R' represents a bi- or trifunctional organic radical whereby the total of components (a) and (b) amounts to 100% by weight.

4,366,289

ACRYLATE-GRAFTED ELASTOMERS AS POLYMER MODIFIERS

Henno Keskkula; Donald A. Maass, and Kathleen M. McCreedy, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Apr. 20, 1981, Ser. No. 255,603

Int. Cl.³ C08L 57/00, 33/02

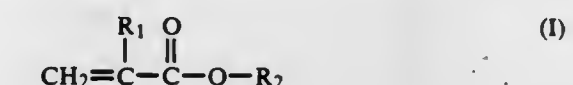
U.S. Cl. 525—78

14 Claims

1. A compatibilized polyblend composition that is comprised, in intimate physical admixture of:
as the essential and compatibilization-facilitating component (A) of the polyblend:

between about 10 and about 60 percent by weight taken on total weight of polyblend, in the involved composition of a grafted rubber concentrate of an interpolymerized acrylate monomer that is an interpolymerization product in graft- or block-copolymer form of:

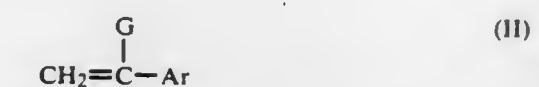
- (i) between about 60 and about 90 percent by weight of the interpolymerize of a natural or synthetic rubber elastomer; and
(ii) between about 10 and about 40% by weight of an interpolymerize containing in grafted and/or block-interconnected polymer form a polymerized monomer of the formula:



wherein each R₁ and R₂ is independently selected from the group consisting of hydrogen and lower alkyl units containing not more than about 4 carbon atoms; with said component (A) interpolymerize being characterized in containing in its matrix not more than about 20% by weight of free, unattached homopolymer or copolymer product(s) of Formula (1) monomer(s) which are

not directly or indirectly chemically bonded to the elastomer in said interpolymerize;
as the compatibilized component (B) polymerize ingredient of the polyblend:

between about 90 and about 60 weight percent of a hydrocarbonaceous or halo-hydrocarbonaceous polymerize containing polymerized therein at least about 50 percent by weight of at least one monomer of the formula:



wherein G is selected from the group consisting of hydrogen and methyl and Ar is an aromatic radical including various alkyl- and halo-ring-substituted aromatic units containing from 6 to about 10 carbon atoms, with

any balance of said component (B) polymerize being an other than formula (II) hydrocarbonaceous or halo-hydrocarbonaceous monomer that is, polymerizable with styrene and/or an elastomer that is interpolymerizable with styrene; plus

as an optional component (C) polymeric ingredient of the polyblend:

from 0 to about 60 weight percent with the limitation that the selected proportion of component (C) added to components (A) and (B) must equal 100 weight percent in composition of all components of another polymeric ingredient different from said component (A) and said component (B) that is mixable with component (B) materials but whose physical blending therewith results in a composite admixture exhibiting attendant physical properties that are generally inferior in comparison to those intrinsically coincident with those of either said component (B) or said component (C).

4,366,290

UNSATURATED POLYESTER RESIN COMPOSITION

Norihisa Ujikawa, Aichi, and Masaharu Nakayama, Nagoya, both of Japan, assignors to Nippon Oil and Fats Co., Ltd., Tokyo, Japan

Filed Jul. 13, 1981, Ser. No. 282,884

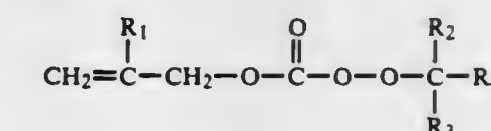
Claims priority, application Japan, Jul. 17, 1980, 55-97893

Int. Cl.³ C08L 67/06

U.S. Cl. 525—169

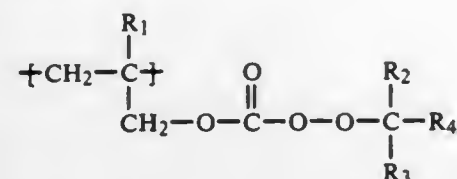
5 Claims

1. An unsaturated polyester composition comprising:
(a) 100 parts by weight of an α,β-ethylenically unsaturated polyester;
(b) from 3 to 30 parts by weight of a random copolymer prepared by radical copolymerization, at a polymerization temperature of from 0° to 110° C., in the presence of a radical polymerization initiator, of (1) an unsaturated peroxycarbonate having the formula



wherein R₁ is hydrogen or C₁₋₄ alkyl, R₂ and R₃ each is a C₁₋₄ alkyl, and R₄ is a C₁₋₁₂ alkyl or C₃₋₁₂ cycloalkyl, with (2) one or a mixture of two or more ethylenically unsaturated monomers selected from the group consisting of vinyl acetate, vinyl chloride, ethylene, allylacetate, allylchloroacetate, vinyl chloroacetate, butyl 3-butoxyacrylate, allyl alcohol, 1,2-dichloroethylene, dibutyl maleate, diethyl maleate, isopropyl maleate, dimethyl maleate and methyl maleate, said ethylenically unsaturated monomers having Alfred-Price Q values of not more than 0.2, said random copolymer having a mean molecular weight of from 1×10^4 to 3×10^5 and containing from 0.5 to 20% by

weight of peroxy carbonate groups, said random copolymer having units of the formula



wherein R₁, R₂, R₃ and R₄ have the same meanings as defined above, and units derived from said ethylenically unsaturated monomer or monomers; and

- (c) from 27 to 190 parts by weight or one or a mixture of two or more polymerizable monomers selected from the group consisting of styrene, vinyltoluene, chlorostyrenes, diallylphthalate, vinyl acetate, acrylic acid esters and methacrylic acid esters.

4,366,291

THERMALLY REVERSIBLE COPOLYMERS AND PROCESS FOR THE PREPARATION THEREOF

Binnur Gunesin, Uniontown; Gary R. Hamed, Akron; Jung W. Kang, Clinton, and Donald N. Schulz, Hartville, all of Ohio, assigns to The Firestone Tire & Rubber Company, Akron, Ohio

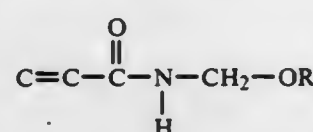
Division of Ser. No. 132,737, Mar. 24, 1980, Pat. No. 4,307,210. This application Sep. 18, 1981, Ser. No. 303,214

Int. Cl.³ C08L 33/24

U.S. Cl. 525-218

5 Claims

1. A high green strength rubber comprising: a styrene-butadiene rubber having a number average molecular weight of from about 5,000 to about 500,000; and at least 50 percent by weight of a thermally reversible copolymer comprising: a copolymer of an N-(alkoxymethyl)acrylamide, a conjugated diene component and a vinyl component, said copolymer being cross-linked by a metal ion, wherein said N-(alkoxymethyl)acrylamide portion of said copolymer comprises from about 0.5 to about 11 percent by weight and has the formula



where R is selected from the group consisting of straight and branched alkyl chains having from 1 to about 20 carbon atoms;

wherein said diene component portion of said copolymer is derived from a conjugated diene monomer and comprises from about 10 to about 90 percent by weight and has from about four to about 20 carbon atoms;

wherein said vinyl component portion of said copolymer comprises from about 0 to about 90 percent by weight and is selected from the group consisting of monovinyl aromatic compounds having from eight to about 20 carbon atoms and acrylic compounds having from three to about five carbon atoms

with the proviso that the total amount of said N-(alkoxymethyl)acrylamide, diene and vinyl components equals 100; and

wherein said metal is selected from the group of all di-, tri- and polyvalent metals and is present in said copolymer in an amount of at least one equivalent mole to two equivalent moles of said N-(alkoxymethyl)acrylamide.

4,366,292

MIXED POLYOLEFINIC COMPOSITIONS

Raymond J. Werner, 171 Woodcliff Ave., Woodcliff Lake, N.J. 07675; William J. Jennings, 263 Bayridge Pkwy., Brooklyn, N.Y. 11209; Daniel L. Crowley, 97 Continental Ave., Forest Hills Gardens, N.Y. 11375, and Frank J. Smith, 38 Sargent Rd., Scarsdale, N.Y. 10583

Continuation of Ser. No. 119,428, Feb. 7, 1980, abandoned, which is a continuation-in-part of Ser. No. 680,384, Apr. 26, 1976, abandoned. This application Jan. 29, 1981, Ser. No. 229,559

Int. Cl.³ C08L 23/06, 23/12, 23/16

U.S. Cl. 525-240

4 Claims

1. A polyolefinic composition having a non-tacky surface which consists of a homogenous blend of:

- (a) at least 50 wt.% polyethylene resin;
- (b) about 3 to about 20 wt.% of an isotactic polypropylene resin having a density of at least about 0.903 g/cc³; and
- (c) 10 to about 40 wt.% of an amorphous polypropylene resin having a Brookfield viscosity at 375° F. of at least about 10 cps and a molecular weight of at least about 200 as measured by GPC.

4,366,293

ACRYLIC MODIFIED ANIONIC WATER DISPERSIBLE POLYSTYRENE

Michael A. Tobias, Bridgewater, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Jun. 17, 1981, Ser. No. 274,589

Int. Cl.³ C08L 51/00

U.S. Cl. 525-301

4 Claims

1. A graft copolymer of an acrylic monomer or monomers or of acrylic monomer of monomers and other monomers copolymerizable therewith and a polystyrene in which at least about 8 percent of the total weight of said graft copolymer is derived from acrylic acid, methacrylic acid, or both.

4,366,294

WATER SWELLABLE COMPOSITIONS

Earl P. Williams, Pen Argyl, Pa., and Donald H. Lorenz, Basking Ridge, N.J., assigns to GAF Corporation, New York, N.Y.

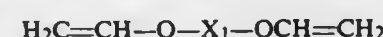
Filed Jun. 29, 1981, Ser. No. 278,277

Int. Cl.³ C08L 37/00

U.S. Cl. 525-327.6

11 Claims

1. A water swellable composition consisting essentially of reaction product of monobasic amine and crosslinked interpolymer consisting essentially of substantially equimolar quantities of maleic anhydride and a monovinyl alkyl ether wherein the alkyl group contains from 1 to 4 carbon atoms and from about 1 to about 5 mole percent, based on the monovinyl alkyl ether, of a crosslinking agent having a formula selected from the class consisting of:



and



where X₁ represents an alkylene group of two to twelve carbon atoms and X₂ represents an alkylene group of two to four carbon atoms and n represents an integer of 2 to 100.

4,366,295

STABLE PRECATALYZED EPOXY RESIN COMPOSITIONS

Manuel C. Tyler, Jr., Angleton, and Avis L. McCrary, Lake Jackson, both of Tex., assigns to The Dow Chemical Company, Midland, Mich.

Filed Jun. 1, 1981, Ser. No. 269,223

Int. Cl.³ C08G 59/68

U.S. Cl. 525-482

9 Claims

1. In a precatyzed epoxy resin composition containing a mixture of (A) a relatively low equivalent weight epoxy resin having an average of more than one glycidyl ether group per molecule and (B) a phosphonium compound as a catalyst for the reaction between said epoxy resin and a phenolic-hydroxyl containing compound which is subsequently blended with said precatyzed epoxy resin composition; the improvement which provides a stable precatyzed epoxy resin composition as evidenced by,

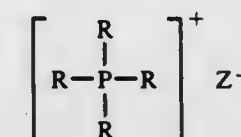
- (1) after subjecting said precatyzed epoxy resin composition to a temperature of about 200° F. (93.3° C.) for about 48 hours;

- (a) not more than 50% of the phosphonium groups originally present in said mixture are deactivated;

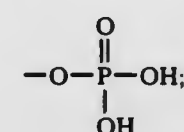
- (b) the viscosity has not increased by more than 30% of the original value; and

- (2) after subjecting said precatyzed resin composition to a temperature of 200° F. (93.3° C.) for about 63 hours, the product resulting from its reaction with a phenolic hydroxyl-containing compound having an average of more than one phenolic hydroxyl group per molecule has a % epoxide value not greater than the value obtained by dividing the theoretical % epoxide value by 0.9;

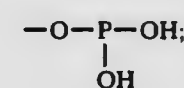
by employing as the catalyst, a phosphonium salt of phosphoric acid, phosphorous acid, polyphosphoric acid or mixture thereof, which salts are represented by the formula



wherein each R is independently a hydrocarbyl group having from 1 to about 20 carbon atoms or the group R¹Y wherein R¹ is an aliphatic hydrocarbon group having from 1 to about 20 carbon atoms and Y is Cl, Br, I, NO₂ or OH and Z is a phosphate group having the formula



a phosphite group having the formula



a polyphosphate group or mixture thereof.

4,366,296

UNSATURATED COPOLYMERS

Sadao Kitagawa, and Isao Okada, both of Ami, Japan, assigns to Mitsubishi Petrochemical Company Limited, Japan

Continuation of Ser. No. 157,054, Jun. 6, 1980, abandoned. This application Jan. 15, 1982, Ser. No. 339,462

Claims priority, application Japan, Jun. 12, 1979, 54-73808; Aug. 21, 1979, 54-106494; Aug. 21, 1979, 54-106495

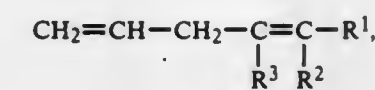
Int. Cl.³ C08F 2/38, 210/06, 210/08, 210/18

U.S. Cl. 526-77

14 Claims

1. A thermoplastic, substantially resinous, unsaturated copolymer which is a random copolymer of an α-olefin selected

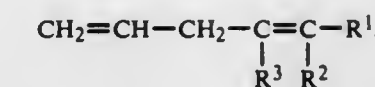
from one member of the group consisting of ethylene, propylene, and 4-methyl-1-pentene with a branched 1,4-diene of the formula



wherein R¹ is an alkyl group of at the most 8 carbon atoms, and each of R² and R³ is hydrogen or an alkyl group of at the most 8 carbon atoms, the case where R² and R³ are both hydrogen being excluded, said copolymer having a content of said branched 1,4-diene of 0.01 to 20 mol percent, an initial modulus of elasticity of 500 to 100,000 kg./cm.² and a melt index of at the most 500 grams/10 minutes.

6. A process for producing a thermoplastic, substantially resinous, unsaturated copolymer which is a random copolymer of an α-olefin selected from one member of the group consisting of ethylene, propylene, and 4-methyl-1-pentene with a branched 1,4-diene, said process comprising

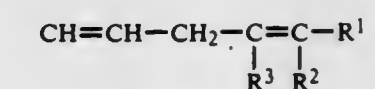
causing a mixture consisting essentially of said α-olefin and said branched 1,4-diene to contact a Ziegler-Natta catalyst whose transition metal component is a solid halogen-containing titanium compound or a solid composition thereof in the presence of hydrogen in a quantity such that the ratio of the partial pressure of hydrogen to the partial pressure of said α-olefin is a minimum of 0.01, said branched 1,4-diene having the formula



wherein R¹ is an alkyl group of at the most 8 carbon atoms, and each of R² and R³ is hydrogen or an alkyl group of at the most 8 carbon atoms, the case where R² and R³ are both hydrogen being excluded, said copolymer having a content of said branched 1,4-diene of 0.01 to 30 mol percent and a melt index of at the most 500 grams/10 minutes,

thereby producing a thermoplastic, substantially resinous, unsaturated copolymer having an initial modulus of elasticity of 500 to 100,000 kg. f./cm.².

9. A thermoplastic, substantially resinous, unsaturated copolymer which is a substantially random copolymer of propylene and a branched 1,4-diene of the formula



wherein R¹ is an alkyl group of at the most 8 carbon atoms, and each of R² and R³ is hydrogen or an alkyl group of at the most 8 carbon atoms, the case where R² and R³ are both hydrogen being excluded, wherein prior to copolymerization, propylene is caused to undergo homopolymerization in a quantity of about 0.25 to 3 percent by weight of the total polymer and said copolymer has a content of said branched 1,4-diene of about 0.01 to 20 mol. percent, an initial modulus of elasticity of 500 to 100,000 kg./f./cm.² and a melt index of at the most 500 grams/10 minutes.

4,366,297

PROCESS FOR PRODUCING OLEFINIC COPOLYMER RUBBER WITH IMPROVED TITANIUM COMPOUND CONTAINING CATALYST SYSTEM

Kenya Makino, Kuwana; Hideo Sakurai; Masaru Watanabe, both of Yokkaichi, and Toshiyuki Nishimura, Kameyama, all of Japan, assignors to Japan EP Rubber Co., Ltd., Mie, Japan
Filed Oct. 23, 1980, Ser. No. 200,066

Claims priority, application Japan, Oct. 23, 1979, 54-135933; Oct. 23, 1979, 54-135934; Oct. 23, 1979, 54-135935; Apr. 24, 1980, 55-53556

Int. Cl.³ C08F 4/64

U.S. Cl. 526—119

13 Claims

1. In a process for producing a rubbery olefin copolymer which comprises random copolymerization of at least two olefins in the presence of a catalyst composed of (A) a titanium compound and (B) an organometallic compound of a metal of Groups I to III of the periodic table, the improvement wherein the titanium compound (A) is a liquid product obtained by treating a titanium tetrahalide of the general formula TiX_4 in which X represents Cl, Br or I in a hydrocarbon, a halogenated hydrocarbon or a mixture of both in the presence of an ether with at least one member selected from the group consisting of (1) an organoaluminum compound, (2) an organomagnesium compound and (3) hydrogen with at least one metal or metal compound, said metal selected from the group consisting of metals of Group IB, IIB, IVB and VIII of the Periodic Table, said ether being represented by the general formula:



wherein R^1 and R^2 , independently form each other, represent an alkyl, alkenyl or aralkyl group having 2-12 carbon atoms with the proviso the alkyl, alkenyl or aralkyl group contains at least 6 carbon atoms if a hydrocarbon is used.

4,366,298

PROCESS AND HEAVY METAL CATALYST FOR THE POLYMERIZATION OF α -OLEFINS, PARTICULARLY POLYETHYLENE

Dieter Kurz, Burghausen, Fed. Rep. of Germany, assignor to Wacker-Chemie GmbH, Munich, Fed. Rep. of Germany
Filed Jun. 19, 1980, Ser. No. 161,204

Claims priority, application Fed. Rep. of Germany, Jul. 5, 1979, 2927221; Jul. 31, 1979, 2931045; Apr. 22, 1980, 3015376
Int. Cl.³ C08F 4/02, 10/00

U.S. Cl. 526—125

12 Claims

1. An improvement in the process for the polymerization of an at least one α -olefin comprising reacting said α -olefin under elevated temperatures and pressures in the presence of a solid polymerization catalyst consisting essentially of a solid compound containing (1) element(s) of the IV and/or V subgroup(s) of the Mendeleev Periodic Table, (2) magnesium, (3) halogen, (4) oxygen, and possibly (5) element(s) of the II and/or III main group(s) of the Mendeleev Periodic Table, which solid compound is activated with at least one organometallic compound where said metal is from the II and/or III main group(s) of the Mendeleev Periodic Table, and recovering a polymerizate, the improvement consisting of preparing said solid compound prior to activation, by reacting a primary solid containing magnesium and halogen prepared from at least one hydrocarbon-soluble magnesium compound and at least one halogen compound selected from the group consisting of a chloroalkane having from 1 to 6 carbon atoms of which at least one carbon atom has at least two directly bonded chlorine atoms, a carbon chloride compound having from 1 to 6 carbon atoms, and mixtures thereof, in two successive and separate reacting stages A and B, in either order,

where a solid based on magnesium compound(s) is reacted in reaction stage A in suspension in at least one liquid hydrocarbon with

(i) an alcohol selected from the group consisting of tert.-butanol, isopropanol and mixtures thereof, and

(ii) at least one halogen-containing titanium compound of the formula:



wherein X represents halogen, R^6 is a substituent selected from the group consisting of alkyl having from 1 to 8 carbon atoms and hydrocarbon aryl having from 6 to 8 carbon atoms, and a is 2, 3 or 4, and, in reaction stage B, a solid based on magnesium compound(s) in suspension in at least one liquid hydrocarbon is reacted with

(i) at least one halogen-containing metal titanium compound of the formula:



wherein X' represents halogen, R^7 represents a substituent selected from the group consisting of alkyl having from 1 to 8 carbon atoms and hydrocarbon aryl having from 6 to 8 carbon atoms, and b is 2, 3, or 4, and
(ii) at least one organoaluminum compound, whereby a polymerizate is recovered having a broad molecular-weight distribution.

4,366,299

COPOLYMERS CONTAINING FLUORINE AND THEIR USE FOR THE WATER-REPELLENT AND OIL-REPELLENT TREATMENT OF VARIOUS SUBSTRATES

Andre L. Dessaint, Clermont, France, assignor to P C U K Produits Chimiques Ugine Kuhlmann, Courbevoie, France
Filed Jan. 27, 1981, Ser. No. 228,826

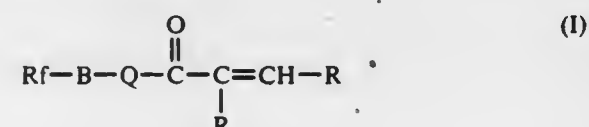
Claims priority, application France, Feb. 19, 1980, 80 03566
Int. Cl.³ C08F 220/22

U.S. Cl. 526—243

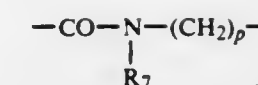
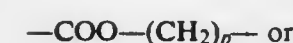
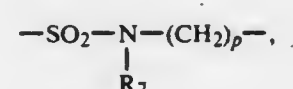
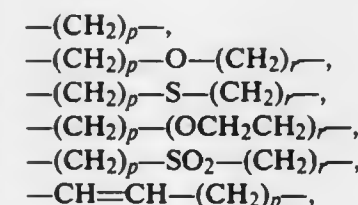
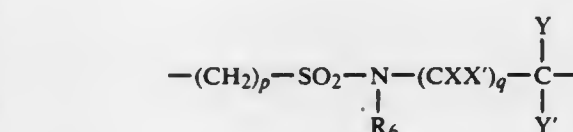
9 Claims

1. A fluorinated copolymer which comprises:

(a) 35 to 98% by weight of one or more polyfluorinated monomers of the formula:

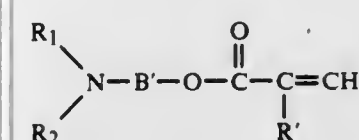


in which Rf represents perfluoroalkyl with a straight or branched chain containing 2 to 20 carbon atoms, Q represents oxygen or sulfur, B represents a bivalent chain selected from:

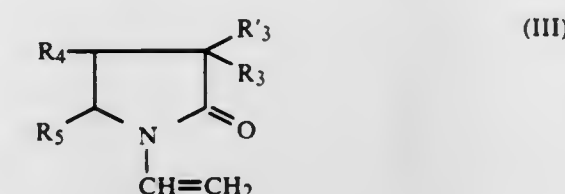


in which p is a whole number from 1 to 20, q is a whole number from 1 to 4, r is a whole number from 1 to 20, R_6 is hydrogen, alkyl containing 1 to 10 carbon atoms, cycloalkyl containing 5 to 12 carbon atoms, hydroxyalkyl containing 2 to 4 carbon atoms, aryl or aryl substituted by alkyl containing 1 to 6 carbon atoms, R_7 is hydrogen or alkyl containing 1 to 4 carbon atoms, X, X', Y and Y' are the same or different and each represents hydrogen or alkyl containing 1 to 4 carbon atoms, one of the symbols R represents hydrogen and the other hydrogen or alkyl containing 1 to 4 carbon atoms:

(b) 1 to 15% by weight of one or more monomers of the formula:



in which B' represents linear or branched alkylene containing 1 to 4 carbon atoms, R' represents hydrogen or alkyl containing 1 to 4 carbon atoms, R_1 represents alkyl containing 1 to 18 carbon atoms, hydroxyethyl or benzyl, R_2 represents hydrogen or alkyl containing 1 to 18 carbon atoms, hydroxyethyl or benzyl or R_1 and R_2 together with the nitrogen form morpholino, piperidino or pyrrolidinyl-1;
(c) 1 to 50% by weight of one or more pyrrolidone monomers of the formula:



in which R_3 , R'_3 , R_4 and R_5 are the same or different and each represents hydrogen or alkyl containing 1 to 4 carbon atoms; and
(d) up to 10% by weight of a monomer other than the monomers of formulae (I), (II) and (III), which is copolymerizable with said monomers of formulae (I), (II) and (III), and, optionally, its salt form obtained by salifying with an acid having a dissociation constant or first dissociation constant greater than 10^{-5} , or its form obtained by quaternizing by means of a quaternizing agent.

4,366,300

COMPOSITION AND PROCESS FOR THE PROTECTION OF MATERIALS AGAINST SPOTS OR STAINS

Charles L. L. Delescluse, Apremont, France, assignor to PCUK - Produits Chimiques Ugine Kuhlmann, Courbevoie, France
Filed May 21, 1981, Ser. No. 265,941

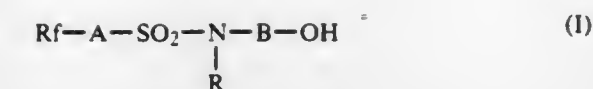
Claims priority, application France, Jun. 3, 1980, 80 12259
Int. Cl.³ C09D 3/81, 5/14

U.S. Cl. 526—245

20 Claims

1. A substantially non-aqueous liquid composition for the protection of materials against contaminations from spots and stains, which consists by weight of:

(A) 0.1 to 1% of at least one fluorinated resin based on an acrylic or methacrylic ester of a fluorinated sulfonamide-alcohol and containing from 0 to 80% non-fluorinated monomers, said fluorinated sulfonamide-alcohol having the formula:



in which Rf represents a perfluoroalkyl radical, A represents a direct bond or an alkylene bridge, B represents an alkylene bridge and R represents a hydrogen atom or an alkyl, cycloalkyl, hydroxyalkyl or aryl radical;
(B) 0.4 to 10% of at least one adjuvant selected from amino-plast resins based on melamine, polyvinyl resins, epoxy resins, polyester resins, styrene resins, alkyd-urethane resins, phenolic resins and waxes; and
(C) 89 to 99.5% of at least one organic solvent.

4,366,301

CROSSLINKABLE THERMOPLASTIC POLYURETHANE RESINS CONTAINING ETHYLENIC SIDE GROUPS

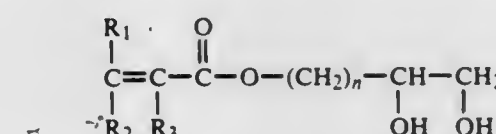
Patrice M. Le Roy, Ballancourt, and Jacky P. Pattein, Etrecy, both of France, assignors to Societe Nationale des Poudres et Explosifs, Paris, France

Filed Apr. 30, 1981, Ser. No. 258,890
Claims priority, application France, May 14, 1980, 80 10807
Int. Cl.³ C08G 18/32

U.S. Cl. 528—66

10 Claims

1. Crosslinkable thermoplastic polyurethane resin containing ethylenic side groups, which is the product of the reaction of:
(a) an organic diisocyanate,
(b) a long-chain saturated linear diol having a molecular weight of between 450 and 4,000,
(c) an aliphatic, cycloaliphatic or aromatic compound having a molecular weight of less than 300, which contains 2 to 20 carbon atoms and possesses two groups having at least one hydrogen atom which is active towards the NCO groups, and
(d) an unsaturated diol consisting of the acrylic or methacrylic acid ester of a trihydric alcohol, of the formula:



in which R_1 and R_2 , which are identical or different, are hydrogen, a lower alkyl group, an aryl group or a halogen, R_3 is hydrogen, a lower alkyl, aryl or cycloalkyl group or a halogen and n is 1, 2, 3 or 4 the diisocyanate compound (a) being present in a ratio NCO: group having at least one H which is active towards the NCO groups, which is less than or equal to 1.1, the molar ratio diol (b): compounds (c) + (d) being between 0 and 10 and the molar ratio compound (c): unsaturated diol (d) being between 0 and 10 if $b \neq 0$ and between 1 and 10 if $b = 0$.

4,366,302

IMIDE-ANHYDRIDES AND EPOXY RESIN SYSTEMS CONTAINING SUCH COMPOUNDS

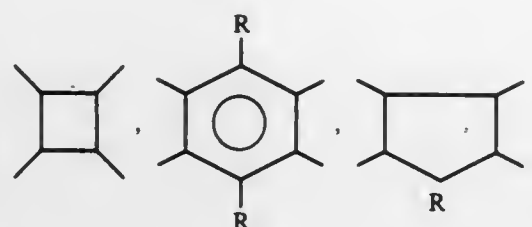
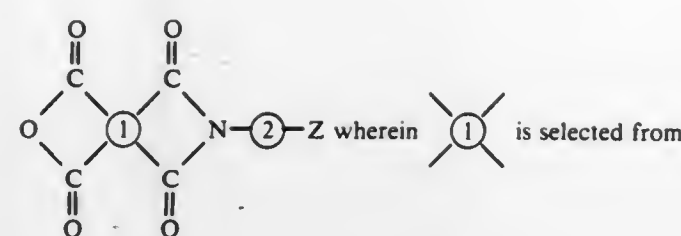
Raj N. Gounder, Robbinsville, N.J., and John T. Geary, Erie, Pa., assignors to Lord Corporation, Erie, Pa.
Filed Jun. 15, 1981, Ser. No. 273,808

Int. Cl.³ C08G 59/42, 59/44

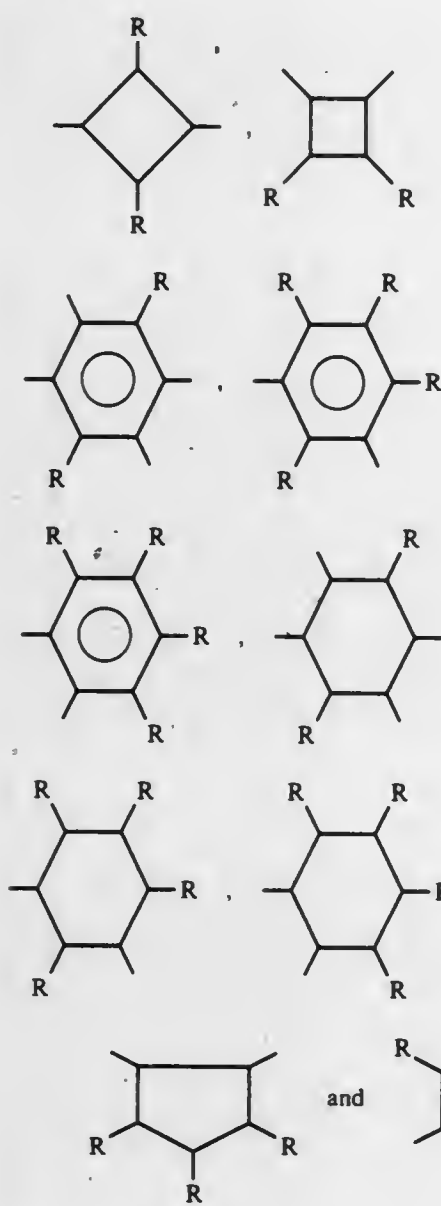
U.S. Cl. 528—99

10 Claims

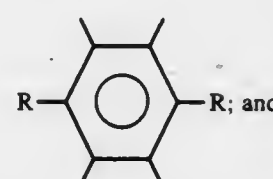
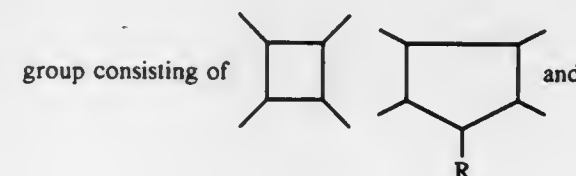
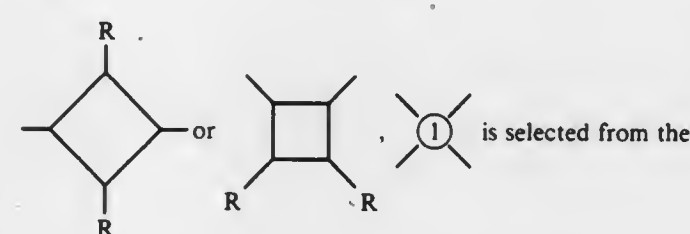
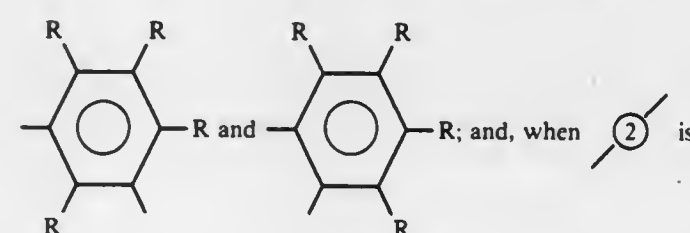
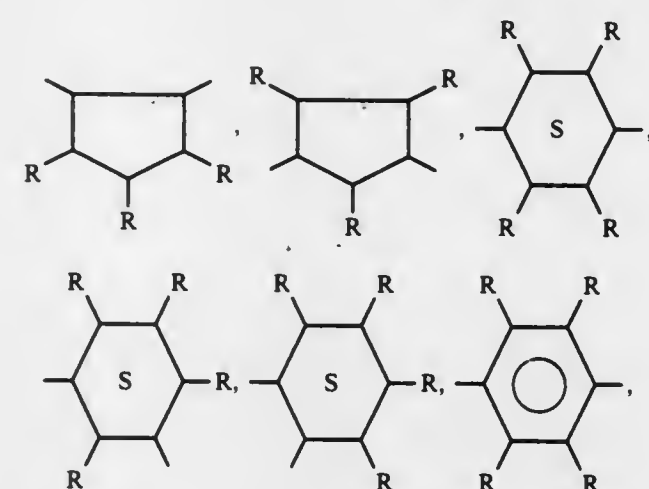
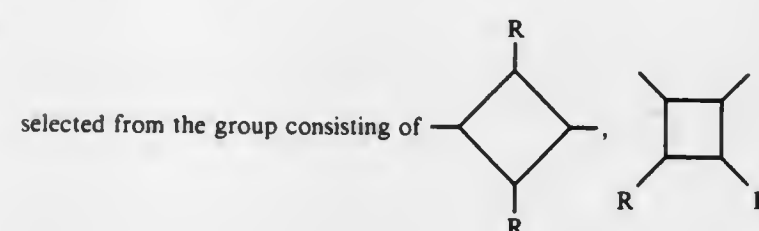
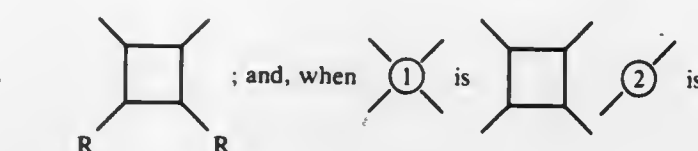
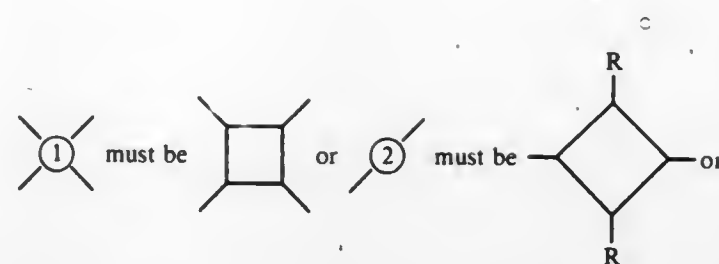
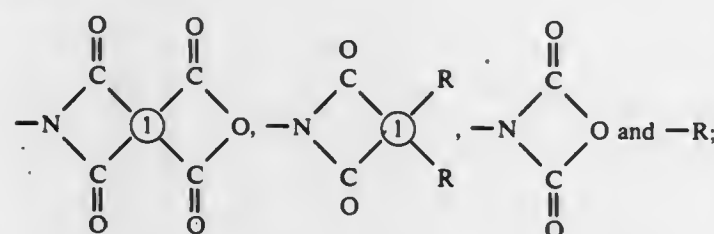
1. A room temperature-stable two-pack epoxy resin system consisting essentially of
(a) a first pack comprising at least one imide-anhydride having the structure



(2) is selected from



Z is selected from



(b) a second pack comprising an epoxy resin substantially free of active hydrogen having a 1,2 epoxy equivalent value of greater than 1 and capable of solubilizing said imide anhydride.

4,366,303
PARTICULATE RESOLS WITH IMPROVED CURE RATE AND SINTER RESISTANCE
 Peter W. Kopf, Hillsborough Township, Somerset County, N.J., assignor to Union Carbide Corporation, Danbury, Conn.
 Filed Dec. 11, 1981, Ser. No. 329,871
 Int. Cl.³ C08G 8/28, 14/06, 14/12

U.S. Cl. 528—129

6 Claims

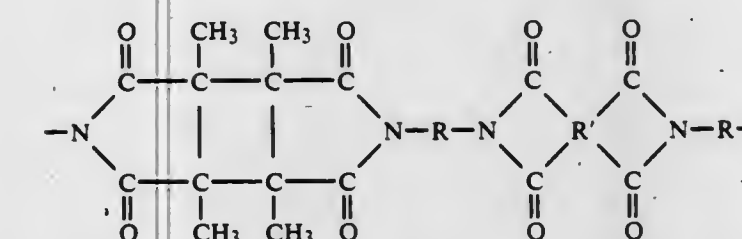
1. A process for producing a particulate, resol resin comprising the steps of: (a) reacting (1) formaldehyde, (2) a phenol, and (3) an effective amount of hexamethylenetetramine or a compound containing amino hydrogen, or mixtures thereof; in an aqueous medium containing an effective amount of a protective colloid, for a period of time sufficient to produce a particulate, resol resin dispersed in the aqueous medium; (b) cooling the reactive mixture to below about 40° C.; (c) reacting the cooled reaction mixture with an alkaline compound for a period of time sufficient to produce a treated resin exhibiting increased cure rates and increased sinter resistance; and (d) recovering the resin from the aqueous dispersion.

4,366,304
COPOLYIMIDES FROM ALIPHATIC AND AROMATIC ANHYDRIDES AND DIAMINES
 Tayseer S. Nimry, Wheaton, and Ellis K. Fields, River Forest, both of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.
 Filed Jul. 24, 1981, Ser. No. 286,697
 Int. Cl.³ C08G 73/10

U.S. Cl. 528—189

84 Claims

1. A copolyimide of the following recurring structure:



wherein R is a divalent aliphatic or aromatic hydrocarbon radical or an aromatic hydrocarbon radical containing 6 to 10 carbon atoms joined directly or by a stable linkage selected from the group consisting of —O—, methylene,



—SO—, —SO₂— and —S— radicals and R' a tetravalent aliphatic or aromatic radical.

4,366,305
PROCESS FOR HEAT STABILIZING OXYMETHYLENE COPOLYMERS

Akira Amemiya; Tadashi Kunii; Tomotaka Furusawa; Mutsumi Takeda; Katsumasa Tanaka; Toshikazu Umemura; Yoshihiro Ono; Isamu Masumoto; Noriyasu Nakao, and Masanori Furukawa, all of Yokkaichi, Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Filed Nov. 17, 1981, Ser. No. 322,249
 Claims priority, application Japan, Nov. 20, 1980, 55-163686
 Int. Cl.³ C08G 2/28

U.S. Cl. 528—230

5 Claims

1. In a process for producing a stabilized oxymethylene copolymer by heat-melting, at a temperature ranging between the melting point of the copolymer and a temperature 100° C. higher than the melting point in a degassing apparatus in the presence of a heat stabilizer, a crude oxymethylene copolymer of trioxane with a cyclic acetal or cyclic ether, to decompose and eliminate the instable portions of the copolymer, the improvement which comprises using as the degassing apparatus

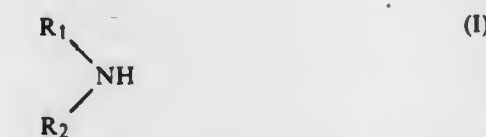
in heat stabilizing the crude oxymethylene copolymer a combination of (A) an extruder and (B) a surface renewing-type mixer, and carrying out the operation by first feeding a crude oxymethylene copolymer to said extruder (A) to heat-melt and decompose 30–90% by weight of the instable portions of the crude copolymer, removing the decomposed gas via a vent provided in said extruder, and thereafter introducing the molten resin continuously to said surface renewing-type mixer (B) where substantially all of the remaining instable portions of the oxymethylene copolymer are heat-decomposed until the content of the instable portions falls below about 2 wt.%, thereby heat stabilizing the copolymer; said extruder (A) having a single or a plurality of shafts, said surface renewing-type mixer (B) comprising a casing having a jacket for a heating medium fitted about its periphery and, disposed inside said casing, at least two stirring shafts each fitted with a plurality of scraping blades, said scraping blades being fitted to the shafts in staggered relationship to ensure that the blades do not collide with one another when the shafts are rotated in the same or different directions, whereby said blades rotate while maintaining a slight clearance between their tips and the inside surface of the casing and the surface of the other stirring shaft, or said scraping blades being fitted to the several shafts being so disposed as to be in the same plane right-angled to the axial direction and so that they rotate while maintaining a slight clearance between the tips of the blades and the inside surface of the casing and the surface of the other corresponding blade when said shafts are rotated in the same or different directions, whereby said surface renewing-type mixer functions to mix and knead the resin thereby constantly renewing the surface of the resin to volatilize the volatiles contained therein.

4,366,306
MELT POLYMERIZATION OF ε-CAPROLACTAM
 Harry A. Smith, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
 Continuation-in-part of Ser. No. 117,734, Feb. 1, 1980, abandoned, which is a continuation-in-part of Ser. No. 17,530, Mar. 5, 1979, abandoned. This application Oct. 29, 1980, Ser. No. 202,022
 Int. Cl.³ C08G 69/16

U.S. Cl. 528—315

7 Claims

1. A process for the preparation of linear polyamide from ε-caprolactam, the steps of the method comprising heating an initially present polymerizable polyamide forming ε-caprolactam composition to a temperature from about 180° to 300° C. in the presence of about 0.5 to 10 mole of water per mole of initially present composition, to convert at least a major portion of the composition to polymer while under superatmospheric pressure, removing water from a polymer at a pressure not greater than about atmospheric pressure, maintaining the polymer under an inert atmosphere and subsequently cooling the polymer to provide solidified polymer having polymerized therein ε-caprolactam, the improvement which comprises providing in the polymerizing composition before a majority of the polymerization has occurred from about 0.01 to less than about 0.6 mole percent based on the initially present composition of primary and secondary amines or mixtures thereof which boil under atmospheric pressure at temperatures not less than about 245° C. of the Formula (I):



where R₁ and R₂ are individually selected from the group consisting of hydrogen, alkyl radicals, cycloalkyl radicals, cyclooxyamidoalkyl radicals, amidoalkyl radicals, aromatic radicals, aralkyl radicals, alkyl sulfonate radicals, alkyl sulfide, alkaryl radicals, such radicals containing up to 18 carbon atoms, where R₁ and R₂ together are collectively considered,

R₁ and R₂ together represent a divalent alkylene radical and after removing water, maintaining the polymer at a temperature of from 240° to 280° Centigrade for a period of from about 6 to 12 hours while contacting the polymer with an inert gas at a rate of from about 5 to 300 cubic centimeters per minute of a gas at standard temperature and pressure per 300 grams of polymer to thereby obtain a polyamide containing less than about 3 weight percent methanol extractable.

4,366,307

LIQUID POLYTHIOETHERS

Hakam Singh, Arcadia; Jack W. Hutt, Tarzana, and Morris E. Williams, Van Nuys, all of Calif., assignors to Products Research & Chemical Corp., Glendale, Calif.

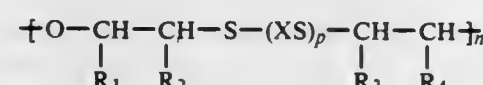
Continuation-in-part of Ser. No. 213,173, Dec. 4, 1980, abandoned, and Ser. No. 231,319, Feb. 4, 1981, abandoned. This application Mar. 30, 1981, Ser. No. 248,994

Int. Cl.³ C08G 75/00

U.S. Cl. 528—373

101 Claims

1. A non-crystallizing, water, solvent, and fuel resistant liquid polythioether having two to four terminating radicals which do not substantially reduce the water, solvent, and fuel resistance and a water, solvent, and fuel resistant polymeric backbone having repeating units of the formula:



wherein each of R₁, R₂, R₃ and R₄ is hydrogen or lower alkyl providing that a sufficient number of R₁, R₂, R₃ and/or R₄ are lower alkyl in said polymeric backbone to render said backbone non-crystallizing; X is a divalent organic radical selected from —CH₂—CH₂—, —CH₂—CH₂—CH₂—CH₂—, —CH₂—CH₂—S—CH₂—CH₂—, or —CH₂—CH₂—O—CH₂—CH₂—; n is 8 to 200; and p is 0 or 1.

4,366,308

PROCESS FOR THE PRODUCTION OF POLYSACCHARIDE RBS SUBSTANCE

Eichi Soma; Kohei Kobayashi; Takuro Karakawa; Shigeyoshi Kato, all of Tokyo, and Kiichi Uchida, Fujisawa, all of Japan, assignors to Sapporo Breweries Limited, Tokyo; Etsuo Ito, Urasoe and Daicel Chemical Industries, Ltd., Sakai, all of Japan

Filed Aug. 1, 1980, Ser. No. 174,537

Claims priority, application Japan, Aug. 13, 1979, 54/102216

Int. Cl.³ C08B 11/22, 37/00; C13K 1/08

U.S. Cl. 536—128

4 Claims

1. A process for producing polysaccharide RBS substance from rice bran, said substance having the properties of being insoluble in alcohol, acetone, hexane, benzene, ethyl acetate, dimethylsulfoxide, ligroin, carbon tetrachloride, chloroform and ether, and soluble or highly soluble in water; neutral or slightly acidic (1% aqueous solution or suspension); positive in the Molisch reaction, anthrone-sulfuric acid reaction, tryptophane-sulfuric acid reaction, crystein-sulfuric acid reaction, chromotrope-sulfuric acid reaction, phenol-sulfuric acid reaction, carbazole-sulfuric acid reaction, biuret reaction, ninhydrin reaction and Lowry-Folin reaction and negative in the Elson-Morgan reaction and starch-iodine reaction; it has the ultraviolet absorption spectrum shown in FIG. 2; and comprises glucose as a sugar component and has an α-1, 6-glucoside bond as a main chain with branched structure,

which comprises contacting a rice bran with hot water to extract said polysaccharide RBS substance into the water, adding a polar organic solvent or a salting-out agent to the water containing the extracted substance to form precipitates containing said polysaccharide RBS substance, and separating and collecting said precipitates, said precipitates having the characteristic that they will not pass through a semi-permeable membrane.

4,366,309

DERIVATIVES OF ANTIBIOTIC AR-5 COMPONENTS

Ashit K. Ganguly, Upper Montclair; Yi-Tsung Liu, Parsippany; Olga Sarre, Verona; Robert Jaret, Livingston, and Doris P. Schumacher, Florham Park, all of N.J., assignors to Schering Corporation, Kenilworth, N.J.

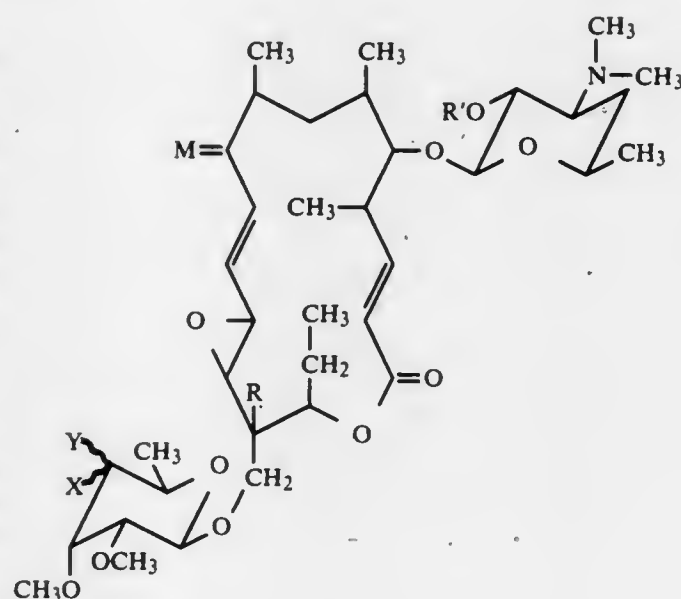
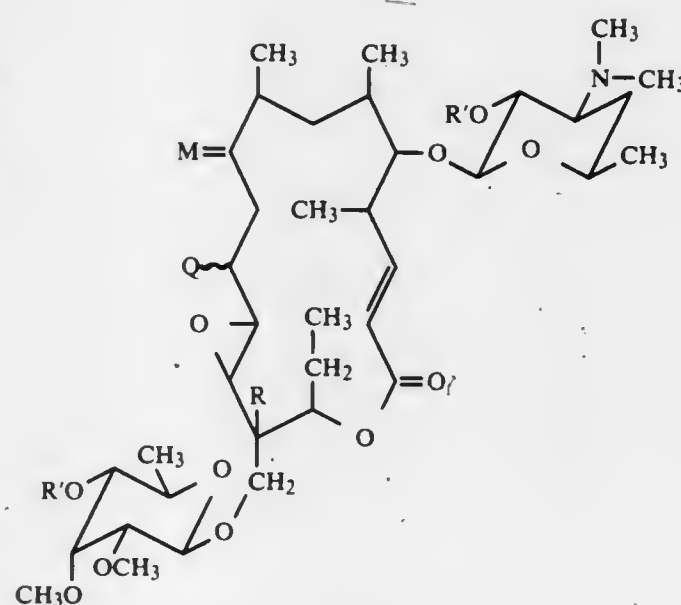
Continuation-in-part of Ser. No. 130,330, Mar. 14, 1980, abandoned. This application Apr. 13, 1981, Ser. No. 253,138

Int. Cl.³ C07H 17/08

U.S. Cl. 536—7.1

50 Claims

1. Compounds of the formulae:



4,366,310

CONTROLLED RELEASE COMPOSITIONS

Stewart T. Leslie, Aberdeen, Scotland, assignor to Euroceltique, S.A., Luxembourg

Filed Dec. 10, 1980, Ser. No. 214,625

Claims priority, application Ireland, Dec. 19, 1979, 2480/79; Dec. 19, 1979, 2481/79

Int. Cl.³ C08B 11/00

U.S. Cl. 536—56

11 Claims

1. A molecular coordination complex of a cellulose polymer and a solid aliphatic alcohol selected from the group consisting of unsubstituted solid aliphatic alcohols of 8–18 carbon atoms and solid aliphatic alcohols of 8–18 carbon atoms substituted by an aliphatic group of 8–18 carbon atoms.

4,366,311

NOVEL DIANEMYCIN DERIVATIVE

Taku Mizutani, Ageo; Michio Yamagishi, Tokorozawa; Kazutoshi Mizoue, Urawa; Akira Kawashima, Tokyo; Sadafumi Omura, Ageo; Noboru Otake, Yokohama, and Haruo Seto, Hachioji, all of Japan, assignors to Taisho Pharmaceutical Co., Ltd., Tokyo, Japan

Filed Sep. 18, 1981, Ser. No. 303,497

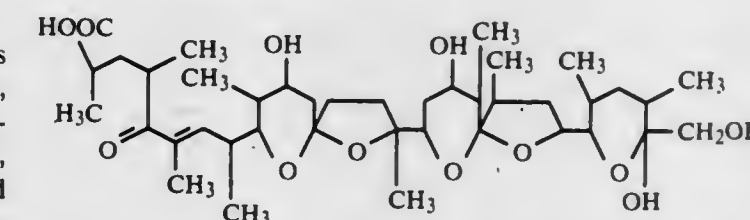
Claims priority, application Japan, Sep. 27, 1980, 55-134814

Int. Cl.³ C07H 3/06

U.S. Cl. 536—123

1 Claim

1. A compound of the formula



and the alkali metal, alkaline metal and ammonium salts thereof.

4,366,312

METAL COMPLEXES OF ISOINDOLINAZINES, PROCESS FOR THEIR PREPARATION AND USE

Abul Iqbal, Ettingen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Mar. 9, 1981, Ser. No. 242,004

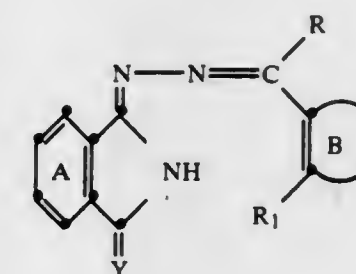
Claims priority, application Switzerland, Mar. 13, 1980, 1978/80

Int. Cl.³ C07D 209/14

U.S. Cl. 542—417

5 Claims

1. A 1:1 metal complex of an azine of the formula



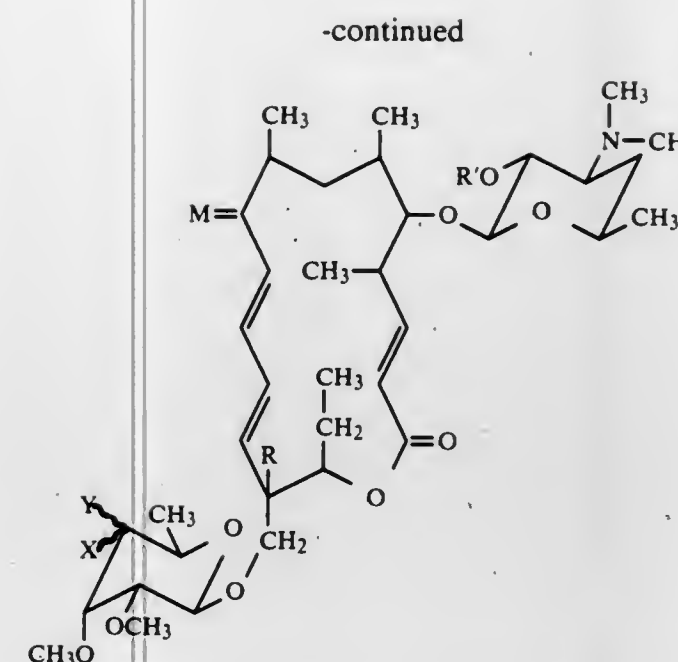
wherein ring A is unsubstituted or is substituted by two to four halogen atoms, by one or two alkyl of 1 to 4 carbon atoms, by one or two alkoxy of 1 to 4 carbon atoms, by phenyl, by phenoxy, by nitro, by benzoylamino or by alkanoylamino having 2 to 6 carbon atoms,

R is hydrogen, alkyl of 1 to 4 carbon atoms, phenyl or naphthyl,

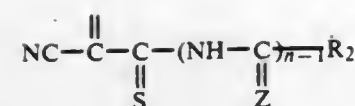
B is phenylene, naphthylene, cyclohexenylene or a pyrazole, pyridine, pyrimidine, quinoline or coumarin radical,

R₁ is OH or SH,

Y is a radical of the formula



and the pharmaceutically acceptable salts thereof and esters thereof of acids selected from the group consisting of acetic, propionic, oxalic, valeric, oleic, palmitic, stearic, lauric, benzoic, lactic, para toluene sulfonic, methane sulfonic, citric, maleic, fumaric, tartaric, succinic, naphthalene sulfonic and adamantic, wherein the wavy line indicates that the substituent may be in any of the possible stereochemical configurations; R is a member of a group consisting of hydrogen and hydroxyl; R' is a member of a group consisting of hydrogen and C₂–C₁₈ alkanoyl, carbamoyl and thiocarbamoyl; M is a member of the group consisting of oxygen and H, OR'; Q is a member of the group consisting of —NZ and —SZ' wherein —NZ is a member of the group consisting of amino, acylamino wherein the acyl group is an amionacid residue, C₁–C₁₈ alkylamino, C₂–C₃₆ dialkylamino, hydroxy (C₁–C₁₈)alkylamino, C₁–C₁₈ alkylimino, or C₇–C₁₈ aralkylimino, amino-thiocarbonylamino (C₁–C₁₈)alkyl, amidinyl, C₁–C₁₈ alkylcarboxyamino, ureido, 4-ethyl-2,3-dioxopiperazinocarbonylamino, guanidino, C₁–C₁₈ alkylguanidino and an aminoacid residue; —SZ' is a member of the group consisting of C₁–C₁₈ alkylthio, thioxanthyl, including C₁–C₁₈ alkyl, phenyl, phenyl substituted with a member of the group consisting of halogeno, trifluoromethyl, hydroxy and lower alkoxy, C₇–C₁₈ aralkyl, thioxanthyl, C₁–C₁₈ alkylamino (C₁–C₁₈)alkylthio, phenylthio, halogenophenylthio, trifluoromethylphenylthio, hydroxyphenylthio, loweralkoxyphenylthio, C₂–C₁₈ aralkylthio, heterocyclethio, heterocycle (C₁–C₁₈) alkylthio, heterocycle (C₇–C₁₈) aralkylthio, heterocyclephenylthio, heterocycle(halogeno) phenylthio, heterocycle(trifluoromethyl)phenylthio, heterocycle(hydroxy)phenylthio, heterocycle(loweralkoxy)phenylthio, (wherein the heterocycle contains at least one hetero atom selected from the group consisting of sulfur, nitrogen and oxygen), C₁–C₁₈ alkylcarboxy (C₁–C₁₈)alkylthio and sulfur containing amino acid residues, X is a member of the group consisting of hydrogen, OR'epi, mesyloxy, tosyloxy, trifluoromethanesulfonyloxy, halogeno, azido, amino, isocyanato, thiosiocyanato, C₁–C₁₈ alkylimino, phenylimino, halogenophenylimino, trifluoromethylphenylimino, hydroxyphenylimino, loweralkoxyphenylimino, C₇–C₁₈ aralkylimino, urethano, amidino, guanidino, C₁–C₁₈ alkoxyamino, cyclicguanidino when Y is hydrogen; and Y in combination with X is oxygen.



in which Z is an O or S atom, n is the number 1 or 2 and R₂ is an alkyl, aralkyl, cycloalkyl or aryl radical or an amino group which is unsubstituted or substituted by an alkyl, cycloalkyl, aralkyl or aryl radical, and the metal is selected from the group consisting of zinc, cadmium, manganese, cobalt, iron, copper and nickel.

4,366,313

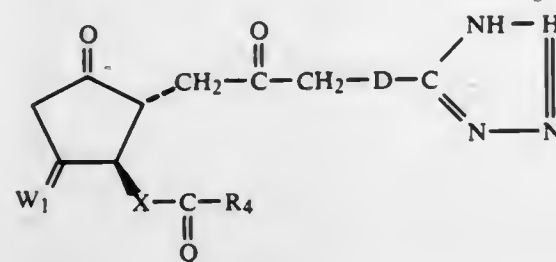
2-DECARBOXY-2-TETRAZOLYL-6-KETO-PGE₁ COMPOUNDS

Udo F. Axen, Plainwell, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
Division of Ser. No. 829,679, Sep. 2, 1977, Pat. No. 4,205,178, which is a continuation-in-part of Ser. No. 755,675, Dec. 30, 1976, abandoned. This application Aug. 27, 1979, Ser. No. 70,226
Int. Cl.³ C07D 257/04; A61K 31/395

U.S. Cl. 542-426

1 Claim

1. A compound of the formula



wherein

W₁ is α-OH:β-H, α-H:β-OH, α-H:β-H, methylene, or α-CH₂OH:β-H;

wherein

Q is oxo, α-H:β-H, α-R₈:β-OH, or α-OH:β-R₈,

wherein

R₈ is hydrogen or alkyl of one to 4 carbon atoms, inclusive;

wherein

R₄ is

- (1) -C(R₅)(R₆)-C₈H₂₈=CH₃
- (2) -C(R₅)(R₆)-Z-(Ph) or
- (3) cis-CH₂-CH=CH-CH₂CH₃,

wherein C₈H₂₈ is alkylene of one to 9 carbon atoms, inclusive, with one to 5 carbon atoms, inclusive, in the chain between -CR₅R₆- and terminal methyl, wherein R₅ and R₆ are hydrogen, alkyl of one to 4 carbon atoms, inclusive, or fluoro, being the same or different, with the proviso that one of R₅ and R₆ is fluoro only when the other is hydrogen or fluoro and the further proviso that neither R₅ nor R₆ is fluoro when Z is oxo (-O-); wherein Z represents an oxo atom (-O-) or C₇H₂₇ is a valence bond or alkylene of one to 9 carbon atoms, inclusive, with one to 6 carbon atoms, inclusive between CR₅R₆- and the (Ph); wherein (Ph) is phenyl or phenyl substituted by (T)s, wherein

T is alkyl of one to 4 carbon atoms, inclusive, fluoro, chloro, trifluoromethyl, or -OR₇- wherein R₇ is alkyl of one to 4 carbon atoms, inclusive; and

wherein

s is zero, one, 2 or 3, with the proviso that not more than two T's are other than alkyl and when s is 2 or 3 the T's are either the same or different;

wherein

D is

- (1) -(CH₂)_d-C(R₂)₂-
- (2) -CH₂-O-CH₂-Y- or
- (3) -CH₂-C=CH-

wherein d is zero to 5, R₂ is hydrogen, methyl, or fluoro, being the same or different with the proviso that one R₂ is not methyl

when the other is fluoro, and Y is a valence bond, -CH₂- or -(CH₂)₂-,
wherein

R₉ is hydrogen, methyl or ethyl and R₂₈ is hydrogen, alkyl of one to 4 carbon atoms, inclusive, aralkyl of 7 to 12 carbon atoms, inclusive, phenyl, or phenyl substituted with alkyl of one to 4 carbon atoms, inclusive; and

wherein

X is

- (2) trans-CH=CH-
- (2) cis-CH=CH-
- (3) -C≡C-
- (4) -CH₂CH₂-

4,366,314

DIMETHINE DYESTUFFS, THEIR PREPARATION AND THEIR USE FOR DYEING SYNTHETIC AND NATURAL MATERIALS

Hermann Beecken, Bergisch-Gladbach, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Mar. 19, 1981, Ser. No. 245,287

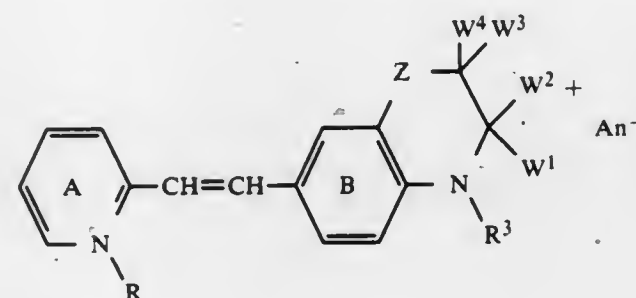
Claims priority, application Fed. Rep. of Germany, Apr. 1, 1980, 3012599

Int. Cl.³ C07D 401/06, 413/06, 417/06

U.S. Cl. 542-455

4 Claims

1. A styryl dyestuff of the formula



in which

R is a lower alkyl or alkenyl group which can be substituted by a non-ionic radical,

R³ is a C₁- to C₄-alkyl, which can be substituted by phenyl or C₁- to C₄-alkoxycarbonyl, C₃- or C₄-alkenyl, which can be substituted by phenyl, C₂- to C₄-alkyl, which is substituted by one hydroxyl, C₁- to C₄-alkoxy, phenoxy, benzyloxy, benzoyloxy, benzamido, phenylsulphamido, mesylamino, C₁- to C₃-alkylcarbonyloxy, C₁- to C₄-alkyl-carbamoyloxy, phenylcarbamoyloxy, chlorine or cyano radical, or C₃- or C₄-alkyl, which is substituted by one or two hydroxyl, methoxy, ethoxy, acetoxy or chlorine radicals, it being possible for the phenyl radicals in turn to be substituted by one hydroxyl, C₁- to C₄-alkoxy, C₁- to C₄-alkoxycarbonyl, C₅- or C₆-cycloalkyl, benzyl, 2-phenylprop-2-yl, phenoxy, benzyloxy, phenylmercapto, phenylsulphonyl, nitro or cyano radical or by 1 to 3 fluoro, chlorine, bromine or C₁- to C₄-alkyl radicals,

W¹, W², W³ and W⁴ each independently is hydrogen or C₁- to C₄-alkyl, and

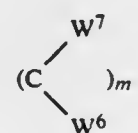
W¹ can also represent phenyl,

W³ can also represent chlorine,

W¹ and W³ together can form the remaining members of a cyclohexane ring, or

W³ and W⁴ together can form the remaining members of a cyclopentane or cyclohexane ring,

Z is O, S, N-W⁵ or



m is 0, 1 or 2,

W⁵, W⁶ and W⁷ each independently is H or C₁- to C₄-alkyl, ring B can be substituted by C₁- to C₄-alkyl, and An⁻ is an anion.

4,366,315

PROCESS FOR PREPARING 3-BROMO-DESACETOXYCEPHALOSPORANIC ACID SULFOXIDE COMPOUNDS

Cornelis A. Bruynes, Koudekerk, and Theodorus K. Jurriens, Delft, both of Netherlands, assignors to Gist-Brocades N.V., Delft, Netherlands

Filed Feb. 13, 1981, Ser. No. 234,545

Claims priority, application United Kingdom, Feb. 14, 1980, 8004925

Int. Cl.³ C07D 501/04; A61K 31/545

U.S. Cl. 544-16

16 Claims

1. A process for the preparation of 3'-bromo-substituted desacetoxycephalosporanic acid sulfoxide compounds comprising protecting the 4-carboxy group of a 3'-unsubstituted cephalosporanic acid sulfoxide by silylating in an inert anhydrous organic solvent with a silylating agent containing at least one nitrogen-bound silyl group and after neutralizing any base generated or left behind by the silyl donor, brominating the silylated compound in situ.

4,366,316

1-OXAETHIACEPHAM COMPOUNDS AND PROCESS FOR PRODUCING SAID COMPOUNDS

Mitsuru Yoshioka; Shoichiro Uyeo, both of Toyonaka; Yoshio Hamashima, Kyoto; Ikko Kikkawa, Takarazuka; Teruji Tsuji, Takatsuki, and Wataru Nagata, Nishinomiya, all of Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

Continuation of Ser. No. 72,600, Sep. 5, 1979, abandoned, which is a continuation of Ser. No. 877,811, Feb. 14, 1978, abandoned.

This application Nov. 18, 1981, Ser. No. 322,662

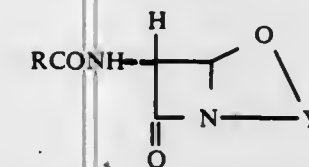
Claims priority, application Japan, Feb. 15, 1977, 52-15813; Jun. 7, 1977, 52-67025

Int. Cl.³ C07D 498/04

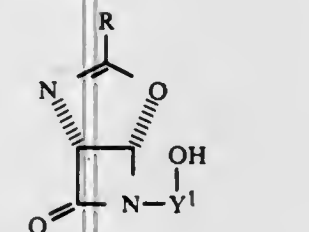
U.S. Cl. 544-90

21 Claims

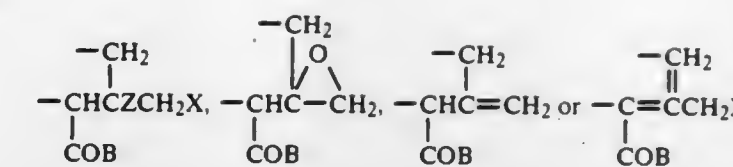
1. A process for preparing a compound of the formula



which comprises treating an oxazolinoazetidinone compound of the formula



with an acid reagent in an inert solvent or a hydroxy-solvent wherein in the above formulas R is a monovalent group (minus the carbonyl function) of an acyl group derived from a carboxylic or carbonic acid; and Y¹ is a divalent group of the formula



wherein

COB is carboxy or protected carboxy;

X is hydrogen or a nucleophilic group; and

Z is a leaving group.

4,366,317

PROCESS FOR SYNTHESIS OF N-(HYDROCARBYL)SUBSTITUTED-P-MENTHANE-3-CARBOXAMIDE

Stephen A. Haut, Chesterfield, and Roger A. Comes, Midlothian, both of Va., assignors to Philip Morris Incorporated, New York, N.Y.

Filed Jun. 22, 1981, Ser. No. 276,328

Int. Cl.³ C07C 102/00; C07D 241/00, 213/00

U.S. Cl. 544-336

20 Claims

1. A process for the synthesis of N-hydrocarbyl-p-menthane-3-carboxamide which comprises (1) reacting 3-p-menthyl halide with magnesium in an anhydrous solvent medium to form 3-p-menthylmagnesium halide; and (2) reacting the 3-p-menthylmagnesium halide with hydrocarbyl isocyanate at a temperature between about -30° C. and -70° C. to form N-hydrocarbyl-p-menthane-3-carboxamide product.

11. A process for the synthesis of N-hydrocarbyl-p-menthane-3-carboxamide which comprises (1) reacting 3-p-menthyl halide with magnesium in an anhydrous solvent medium to form 3-p-menthylmagnesium halide; (2) reacting the 3-p-menthylmagnesium halide with hydrocarbyl isocyanate at a temperature between about -30° C. and -70° C. to form a product mixture comprising N-hydrocarbyl-p-menthane-3-carboxamide and N-(3-p-menthylcarbonyl)-N'-hydrocarbyl-N'-hydrocarbylurea; and (3) heating the N-(3-p-menthylcarbonyl)-N'-hydrocarbyl-N'-hydrocarbylurea in a solvent medium under alkaline pH conditions to produce additional N-hydrocarbyl-p-menthane-3-carboxamide product.

4,366,318

COMPOUND HAVING ANTITUMOR PROPERTIES

Bruce F. Cain, deceased, late of Auckland, New Zealand (by Patricia J. Cain, executor), and Graham J. Atwell, Auckland, New Zealand, assignors to Development Finance Corporation of New Zealand, Wellington, New Zealand

Filed Apr. 27, 1981, Ser. No. 257,857

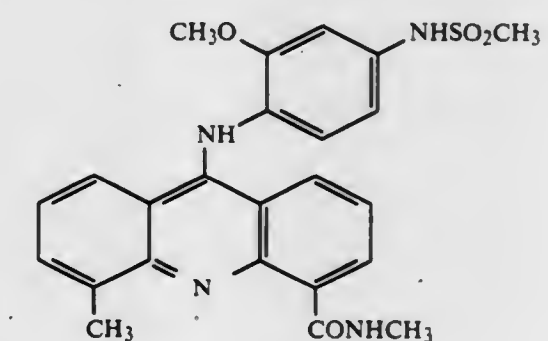
Claims priority, application New Zealand, Apr. 28, 1980, 193551

Int. Cl.³ C07D 219/10; A61K 31/47

U.S. Cl. 546-106

2 Claims

1. The compound 4'-(9-[4-[N-methyl-carboxamido]-5-methyl]acridinylamino)methanesulphon-m-aniside, represented by the formula



or an acid addition salt thereof.

4,366,319

PROCESS FOR PREPARING

5-(PYRIDINYL)BENZOXAZOL-2(3H)-ONES

George Y. Leshner, Shodack, and Baldev Singh, East Greenbush, both of N.Y., assignors to Sterling Drug Inc., New York, N.Y. Division of Ser. No. 209,416, Nov. 24, 1980, Pat. No. 4,310,531.

This application Jun. 15, 1981, Ser. No. 273,480

Int. Cl.³ C07D 263/58

U.S. Cl. 546—270

2 Claims

1. The process which comprises reacting 2-amino-4-PY-phenol with carbonyldiimidazole to produce 5-PY-benzoxazol-2(3H)-one where PY is 4- or 3-pyridinyl or 4- or 3-pyridinyl having one or two lower-alkyl substituents.

4,366,320

4-SUBSTITUTED

PHENYL-1,2,4-TRIAZOLINE-3,5-DIONES AND THEIR DIHYDRO ANALOGS AS ANALYTICAL REAGENTS

Terry J. Gilbertson, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

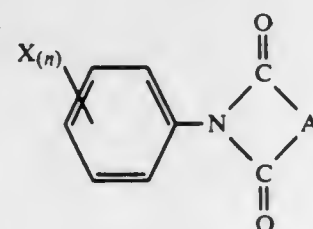
Filed Jul. 31, 1980, Ser. No. 174,050

Int. Cl.³ B65D 71/00; G01N 31/22, 33/50; C07D 249/12

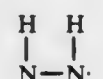
U.S. Cl. 548—264

6 Claims

1. A compound of the formula



wherein $X(n)$ is pentafluoro; 2',4',6'-trifluoro; or 4'-trifluoromethyl; and A is N=N or



with the proviso that when $X(n)$ is 2',4',6'-trifluoro or 4'-trifluoromethyl, A is N=N.

4,366,321

PREPARATION OF 2-HALO-3-NITRO-5-ACYL THIOPHENES AND INTERMEDIATE COMPOUNDS

Leslie Shuttleworth, Ormskirk, and David Mullen, Liverpool, both of England, assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 24, 1981, Ser. No. 257,450

Claims priority, application United Kingdom, Jan. 30, 1981, 8102948

Int. Cl.³ C07D 333/00, 333/24

U.S. Cl. 549—68

9 Claims

1. The process for preparing 2-halo-3-nitro-5-acyl thiophene comprising halogenating 2-acyl thiophene oxime to give 2-halo-5-acyl thiophene oxime, nitrating the product to give 2-halo-3-nitro-5-acyl thiophene oxime, and then reacting the oxime with a compound having a carbonyl group capable of oxime exchange to give 2-halo-3-nitro-5-acyl thiophene.

4,366,322

METHOD FOR THE PRODUCTION OF FURFURAL FROM VEGETABLE MATTER

Bernard P. M. Raymond, Ondres, France, assignor to Bertin & Cie, Plaisir, France

PCT No. PCT/FR80/00128, § 371 Date Apr. 3, 1981, § 102(e) Date Apr. 3, 1981, PCT Pub. No. WO81/00407, PCT Pub. Date Feb. 19, 1981

PCT Filed Jul. 31, 1980, Ser. No. 253,851

Claims priority, application France, Aug. 3, 1979, 79 19935

Int. Cl.³ C07D 307/50

U.S. Cl. 549—489

19 Claims

1. A process for the production of furfural from vegetable material containing pentosans, comprising:

(a) in a first-reactor, hydrolyzing pentosans present in said vegetable matter in the presence of a concentrated strong acid at or near atmospheric pressure at a temperature of about 20° to 70° C., thereby obtaining a solution of pentoses; and (b) in a second reactor, dehydrating said solution of pentoses by the action of steam applied at a pressure of about 1 to 2 bars absolute and at a temperature up to 110° C. in a concentrated acid medium, thereby yielding furfural.

4,366,323

POLYMERIZATION OF ARYLENE BIS-SILANOLS

Harold Rosenberg, and Tsu-tzu Tsai, both of Dayton, Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

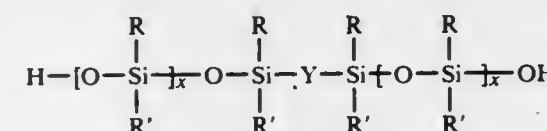
Filed Jan. 27, 1982, Ser. No. 343,000

Int. Cl.³ C07F 7/08

U.S. Cl. 556—433

4 Claims

1. A process for making arylene siloxanylene polymers which comprises contacting a monomer of the formula



wherein Y is an arylene or substituted arylene moiety; R and R' are lower alkyl, substituted lower alkyl or phenyl, and x is an integer having a value of 0 or 1; with phosgene in the presence of an aromatic heterocyclic amine inert to reaction with phosgene.

4,366,324

PROCESS FOR CONCURRENT PREPARATION OF ORGANOSILOXANES AND METHYL CHLORIDE

Kiichi Habata; Kesazi Ichikawa, both of Takasaki, and Mutsuo Shimizu, Annaka, all of Japan, assignors to Shin-Etsu Chemical Co. Ltd., Tokyo, Japan

Filed Nov. 18, 1981, Ser. No. 322,552

Claims priority, application Japan, Nov. 25, 1980, 55-165533

Int. Cl.³ C07F 7/08

U.S. Cl. 556—460

10 Claims

1. A process for concurrently producing methyl chloride and organosiloxanes from an organochlorosilane and methyl alcohol in a continuous operation which comprises introducing simultaneously the organochlorosilane and methyl alcohol in such a proportion that the amount of introduction of the methyl alcohol is substantially equimolar to the silicon-bonded chlorine atoms in the organochlorosilane into an aqueous reaction medium comprising methyl alcohol and hydrogen chloride kept at a temperature of 70° to 150° C. and under a pressure of atmospheric or higher and contained in a reaction vessel at or near the bottom thereof, the rates of introduction of the organochlorosilane and methyl alcohol being controlled such that the concentration of hydrogen chloride in the aqueous reaction medium does not substantially exceed the azeotropic concentration at the temperature and under the pressure

of operation at least at or in the vicinity of the surface of the aqueous reaction medium.

4,366,325

PROCESS FOR THE PREPARATION OF 3-PHENOXY-BENZALDEHYDES

Karlfrid Wedemeyer, Cologne, and Helmut Fiege, Leverkusen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 8, 1980, Ser. No. 195,157

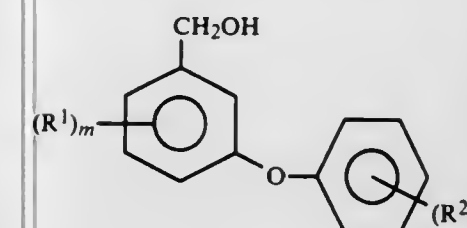
Claims priority, application Fed. Rep. of Germany, Oct. 30, 1979, 2943805

Int. Cl.³ C07C 45/38

U.S. Cl. 568—432

11 Claims

1. A process for the preparation of 3-phenoxy-benzaldehyde which comprises contacting 3-phenoxy-benzyl alcohol of the formula



in which

m represents a number from 1 to 4

n represents a number from 1 to 5 and

R¹ and R² are identical or different and denote hydrogen, halogen, alkyl, cycloalkyl, aralkyl, alkoxy, cycloalkoxy, aryloxy or perfluoroalkyl

with an oxygen containing gas in aqueous alkali at a temperature from 0° to 110° C. in the presence of a platinum metal catalyst and in the presence of lead and/or bismuth and/or tellurium and/or a compound of said lead, bismuth or tellurium, said lead and/or bismuth and/or tellurium and/or compound thereof being present in the reaction mixture in an amount of at least 5×10^{-6} mol per mol of 3-phenoxy-benzyl alcohol to be oxidized.

4,366,326

OXYALKYLATED FATTY ALCOHOLS HAVING END GROUPS BLOCKED BY REACTION WITH PROPYLENE

Wolfgang Vordazka, Freinsheim; Erhard Klahr, Ludwigshafen; Knut Oppenlaender, Ludwigshafen; Wolfgang Trieselt, Ludwigshafen; Dieter Stoeckigt, Ludwigshafen, and Werner Neumann, Reilingen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Rheinland-Pfalz, Fed. Rep. of Germany

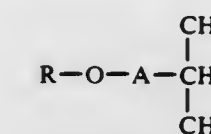
Filed Mar. 6, 1981, Ser. No. 241,104

Int. Cl.³ C07C 43/00, 41/03

U.S. Cl. 568—613

1 Claim

1. A compound of the formula I



where R is C₈-C₂₀-alkyl and A is a polyethylene oxide radical composed of from 5 to 15 ethylene oxide units.

4,366,327

PROCESS FOR PRODUCING ETHERS BY REACTING OLEFINS WITH ALCOHOLS

Alain Convers, Rueil-Malmaison; Bernard Torck, Boulogne sur Seine; Jean-Paul Euzen, Egully, and Pierre Amigues, La Muladiere, all of France, assignors to Institut Français du Pétrole, Rueil-Malmaison, France

Filed Apr. 28, 1981, Ser. No. 258,317

Claims priority, application France, Apr. 28, 1980, 80 09727

Int. Cl.³ C07C 41/06

U.S. Cl. 568—697

9 Claims

1. In a process for producing an ether by reacting an olefin with an alcohol in the liquid phase, in the presence of a solid etherification catalyst of the sulfonic resin type in acid form, in expanded bed, the improvement comprising effecting the reaction in at least two reaction zones in series, periodically modifying the order of passage of the reactants through the reaction zones by disconnecting from the circuit the first zone through which the charge passes and feeding the reactants directly to the following reaction zone, replacing the used catalyst of the disconnected zone with fresh catalyst, and connecting the resultant zone containing fresh catalyst to the circuit in the last position.

4,366,328

INDENE COMPOUND AND NOVEL PROCESS FOR PRODUCING INDENE COMPOUNDS

Satoshi Numata, Yokohama; Kiyoshi Nakatani, Tokyo; Noboru Yamazaki, and Teruo Yuasa, both of Nagoya, all of Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

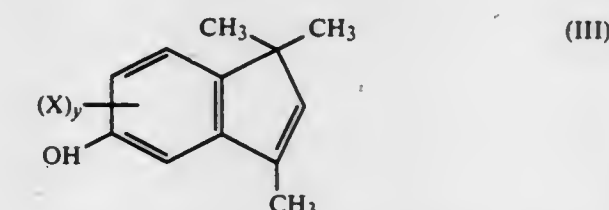
Filed Nov. 26, 1979, Ser. No. 97,147

Int. Cl.³ C07C 37/52

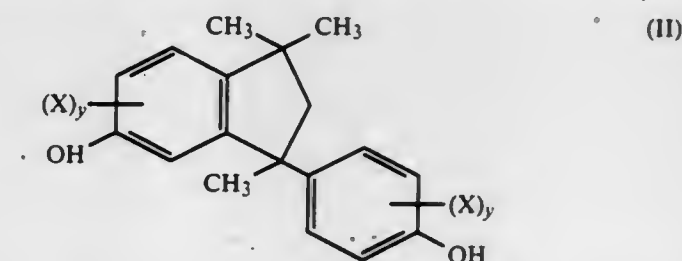
U.S. Cl. 568—734

12 Claims

1. A process for producing an indene compound of the formula



wherein X represents a hydrogen atom, a halogen atom, a hydroxyl group, or a methyl group, and y is 0 or an integer of from 1 to 3, which comprises heat-decomposing an indane compound of the formula



wherein X and y are as defined, in the presence of an acid or alkaline catalyst.

4,366,329

PROCESS FOR THE SEPARATION OF META AND PARA ISOMERS OF THE SODIUM SALT OF BROMOPHENOL

Peter W. Reynolds, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 22, 1981, Ser. No. 276,271

Int. Cl.³ C07C 39/27, 37/68

U.S. Cl. 568—755

2 Claims

1. Process for separating meta and para isomers of a sodium salt of bromophenol which comprises adding sodium hydrox-

ide to an aqueous solution of a mixture of meta and para bromophenol to precipitate the meta isomer.

4,366,330

INTERMEDIATES USEFUL IN THE PRODUCTION OF LIQUID CRYSTAL COMPOUNDS

George W. Gray; David Lacey, both of Cottingham; John A. Jenner, Wimborne, and Martin G. Pellatt, Wimborne, all of England, assignors to BCH Chemicals Limited and The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, both of, England

Filed Sep. 30, 1980, Ser. No. 192,556

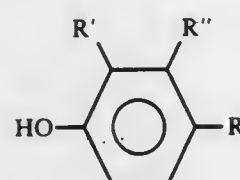
Claims priority, application United Kingdom, Oct. 2, 1979, 7934128

Int. Cl.³ C07C 39/27

U.S. Cl. 568-775

12 Claims

1. A phenol which is adapted for reaction with an aryl or cycloalkyl carboxylic acid to produce an ester having a dielectric anisotropy which adapts it for a liquid crystal material for electro-optical display devices and having the formula



wherein one of R' and R'' is fluorine and the other is hydrogen and R is an alkyl group having from 3 to 11 carbon atoms, an aryl substituted alkyl group, or a cyclohexyl substituted alkyl group.

4,366,331

PROCESS FOR PRODUCTION OF 2,6-DI-TERT-ALKENYL PHENOLS

Dane K. Parker, Massillon, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation of Ser. No. 159,081, Jun. 13, 1980, abandoned.

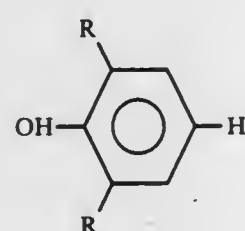
This application Dec. 14, 1981, Ser. No. 330,506

Int. Cl.³ C07C 37/11, 39/06

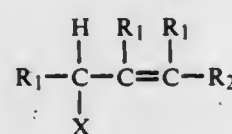
U.S. Cl. 568-785

6 Claims

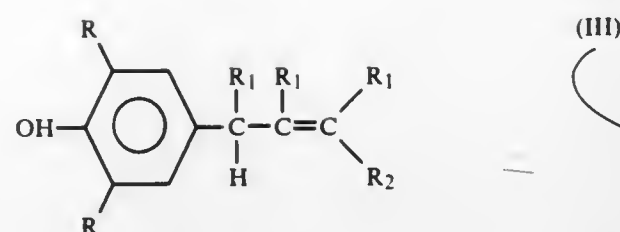
1. A process wherein a 2,6-di-tert-alkyl phenol of the structural formula:



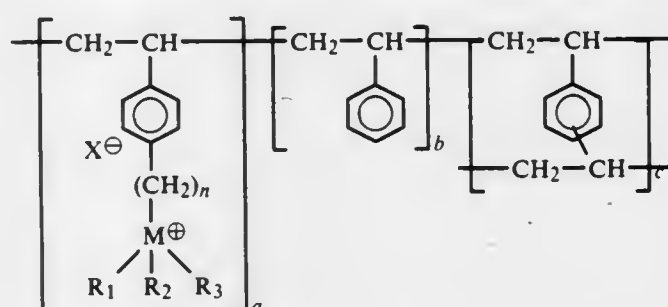
is reacted with an allyl halide of the structural formula:



in the presence of an aqueous solution of an alkali metal hydroxide, a catalyst, and heat to yield a 2,6-di-tert-alkyl-4-alkenyl phenol of the structural formula:



wherein R is a tertiary alkyl radical of 4 to 8 carbon atoms and R1 is a monovalent radical selected from the group consisting of hydrogen, alkyl radicals of 1 to 6 carbon atoms; and R2 is a monovalent radical selected from the group consisting of hydrogen, alkyl radicals of 1 to 6 carbon atoms and aryl radicals of 6 to 10 carbon atoms; and X is a chlorine or bromine radical, the improvement characterized in the use of a triphase catalyst defined by the formula:



wherein the ratio of a to b plus c may vary between 1 to 1 to 1 to 100 with a preferred range being 1 to 5 to 1 to 50 and wherein R1, R2 and R3 are the same or different radicals selected from the group comprised of alkyl radicals of 1 to 12 carbon atoms, secondary alkyl radicals of 3 to 12 carbon atoms, cycloalkyl radicals of 5 to 8 carbon atoms; X- is a radical selected from the group consisting of chlorine, fluorine and bromine and hydrogen sulfate radicals; M is phosphorus or nitrogen and n is equal to a whole positive integer from 1 to 12.

4,366,332

CATALYTIC HYDROGENOLYSIS OF ALDITOLS TO PRODUCT GLYCEROL AND POLYOLS

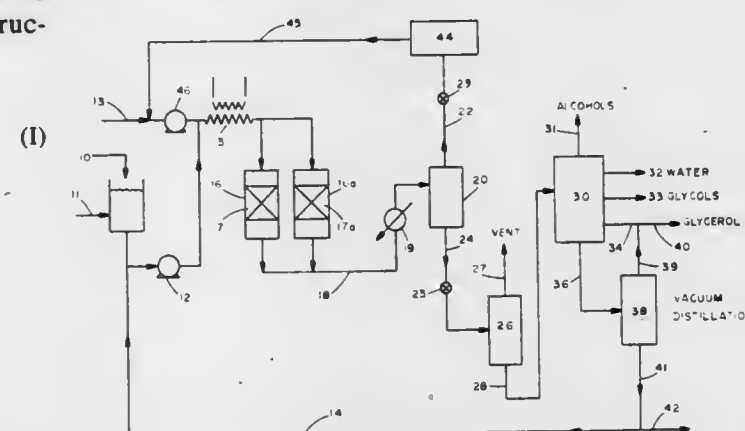
James C. Chao, West Nyack, N.Y., and Derk T. A. Huibers, Pennington, N.J., assignors to Hydrocarbon Research, Inc., Lawrenceville, N.J.

Filed Jan. 21, 1981, Ser. No. 227,036

Int. Cl.³ C07C 31/22, 31/20, 31/24, 31/26

U.S. Cl. 568-863

12 Claims



1. A process for catalytic hydrogenolysis of an alditol solution to produce glycerol and polyols, comprising the steps of:
(a) providing a feedstream solution containing at least about 10 W. % alditol and adding an alkaline promoter material to the feedstream sufficient to provide a pH within the range of 7-14;
(b) preheating the feed solution and hydrogen gas to at least

4,366,333

PROCESS OF PROLONGING THE LIFE OF ESTER HYDROGENATION CATALYST

John B. Wilkes, Richmond, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of Ser. No. 52,515, Jun. 27, 1979, abandoned. This application Mar. 24, 1980, Ser. No. 132,916 Int. Cl.³ C07C 31/20

U.S. Cl. 568-864

5 Claims

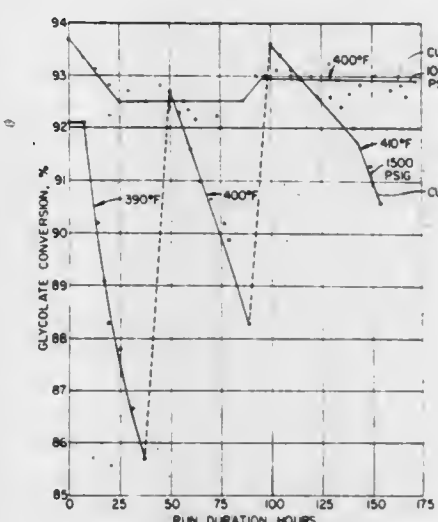
about 200° F. temperature, and introducing the heated feedstream mixture into a fixed bed reaction zone containing a particulate high activity stabilized nickel catalyst containing 50-65 w. % porous nickel on silica support and having 4-20 mesh (0.187-0.033 inch) particle size (U.S. Sieve Series), said catalyst being regenerated after 20-60 hours use by washing it with a water-methanol solution and then contacting said catalyst with flowing hydrogen at 550°-600° F. temperature and at reduced pressure for 2-8 hours to provide improved selectivity for a glycerol product;

(c) maintaining the reaction zone conditions within the range of 420°-500° F. temperature, 1200-2000 psig hydrogen partial pressure, 1.5-3.0 liquid hourly space velocity (LHSV), and catalyst age exceeding about 8 hours for achieving at least about 30 w. % conversion of the alditol to glycerol and glycol products;

(d) withdrawing from the reaction zone a stream containing glycerol and glycols and phase separating said stream into a gaseous portion and a liquid portion;

(e) distilling said liquid portion to remove alcohols, water and glycols to produce higher purity glycerol product, and a heavy bottoms liquid stream containing alditols; and

(f) recycling at least a portion of said bottoms stream to the reaction zone for further catalyst conversion of alditols to mainly glycerol product.

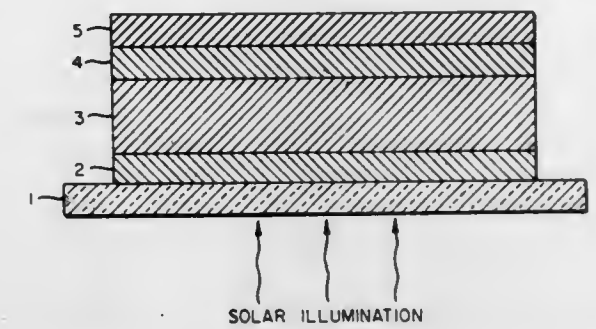
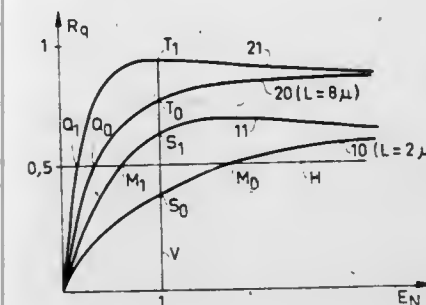


1. In the process of preparing ethylene glycol by hydrogenating a mixture comprising glycolic acid esters with more than 22% of the esters in the form of polyglycolide esters in the presence of a hydrogenation catalyst, the improvement of extending the life of said hydrogenation catalyst, which comprises heating said mixture to a temperature in about the range 300°-525° F., before hydrogenating it, with from 250 to 400 mol % excess of alcohol based on polyglycolide esters for a period of 20-90 minutes to transesterify said mixture and thereby lowering the polyglycolide ester content below about 22%, the aforesaid percentages being by weight based on the total ester content.

ELECTRICAL

4,366,334
PHOTOVOLTAIC CELL USABLE AS A SOLAR CELL
 Baudouin de Cremona; Pierre Poulain, and Nicole Sol, all of Paris, France, assignors to Thomson-CSF, Paris, France
 Filed Jan. 29, 1981, Ser. No. 229,524
 Claims priority, application France, Feb. 1, 1980, 80 02249
 Int. Cl.³ H01L 31/06
 U.S. Cl. 136—255

4,366,336
AGE AND HEAT STABILIZED PHOTOVOLTAIC CELLS
 Lee F. Donaghey, Berkeley, Calif., assignor to Chevron Research Company, San Francisco, Calif.
 Filed Oct. 16, 1980, Ser. No. 197,414
 Int. Cl.³ H01L 31/06, 31/18
 U.S. Cl. 136—256

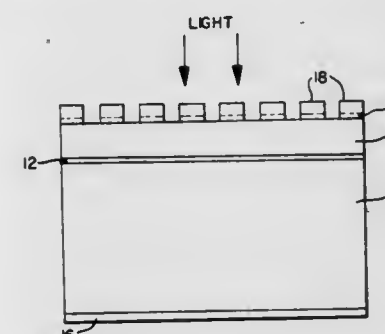


1. A photovoltaic cell of the type comprising an ohmic bottom contact comprising a metal layer coated with a semiconductor layer, an active semiconductor layer whose thickness is approximately the same as the diffusion length of the semiconductor material, a semiconductor or metallic layer forming a rectifying junction with the active layer in such a way that the assembly can have a photovoltaic effect, further comprising between the active semiconductor layer and the ohmic bottom contact an intermediate layer which is much thinner than the active semiconductor layer and which is formed from a semiconductor compound with a forbidden band width greater than that of the active layer, the crystalline parameters of the materials of the intermediate layer and the active layer differing by 5 parts per 1000 or less.

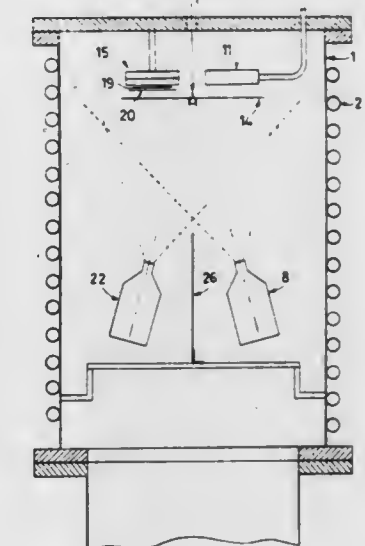
1. A photovoltaic cell of improved stability comprising a barrier layer containing the metal M₁, one facial surface of said barrier layer being in contact with a layer of semiconductor material and forming a photovoltaic heterojunction therewith, and at least a portion of the other facial surface of said barrier layer in intimate contact with a stabilizing metal electrode; wherein said stabilizing metal electrode is an alloy comprised of at least two metallic elements, one of which is M₁, such that the tendency of M₁ to diffuse between said stabilizing metal electrode and said barrier layer is approximately zero.

4,366,335
INDIUM OXIDE/N-SILICON HETEROJUNCTION SOLAR CELLS
 Tom Feng, Morris Plains, and Amal K. Ghosh, New Providence, both of N.J., assignors to Exxon Research and Engineering Co., Florham Park, N.J.
 Continuation-in-part of Ser. No. 222,367, Jan. 5, 1981, abandoned. This application Apr. 30, 1981, Ser. No. 258,935
 Int. Cl.³ H01L 31/06
 U.S. Cl. 136—255

4,366,337
P-SI/N-CdS HETEROJUNCTION PHOTOVOLTAIC CELLS
 Paolo Alessandrini, Rome; Lucio De Angelis, Palombara Sabina; Fabrizio Galluzzi, Rome; Francesco Losciale, Rome, and Ernesto Scafe', Rome, all of Italy, assignors to E.N.I. Ente Nazionale Idrocarburi, Rome, Italy
 Filed Aug. 13, 1980, Ser. No. 177,597
 Claims priority, application Italy, Sep. 10, 1979, 25569 A/79
 Int. Cl.³ H01L 31/06, 31/18
 U.S. Cl. 136—258



1. A high efficiency indium oxide/n-silicon heterojunction solar cell comprising:
 an n-type silicon substrate having at least one major area surface coated with a thin layer of silicon oxide, SiO₂;
 a layer of indium oxide deposited onto said silicon oxide and forming a heterojunction therewith and concurrently forming an anti-reflection layer to said surface;
 ohmic contact means for making electrical connection to said silicon and said indium oxide layers whereupon illumination said solar cell with an equivalent of Air Mass One solar energy, said solar cell exhibits a conversion efficiency in excess of about 10%.



1. A photovoltaic cell comprising a region of n-type semiconductor material in intimate contact with a region of p-type semiconductor material, both regions being in contact with conducting electrodes, wherein the n-type semiconductor material and the p-type semiconductor material have lattice parameters which differ from each other by a percentage equal to or greater than 5%, the n-type semiconductor material being CdS containing more than 1% In, and the p-type semiconductor material being Si.

2. A photovoltaic cell as claimed in claim 1, wherein the p-type semiconductor material is chosen from mono- and polycrystalline Si having a resistivity of between 100 and 0.01 Ωcm .

4,366,338

COMPENSATING SEMICONDUCTOR MATERIALS

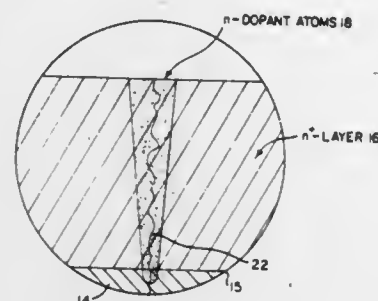
George W. Turner, Stoneham; John C. C. Fan, Chestnut Hill, and Jack P. Salerno, Waltham, all of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Jan. 9, 1981, Ser. No. 223,768

Int. Cl.³ H01L 31/06, 31/18

U.S. Cl. 136—258

16 Claims



9. A device formed of semiconductor material and having a substrate, a first layer on said substrate of a certain type conductivity, a second layer on said first layer of opposite conductivity to said first layer and forming a junction therebetween, the improvement comprising compensating interstices in said second layer formed by introducing dopant into said second layer through interstices in the second layer and across said junction into the interstices of the first layer.

4,366,339

SEMI-FLEXIBLE GAS-INSULATED TRANSMISSION LINE USING ELECTRIC FIELD STRESS SHIELDS

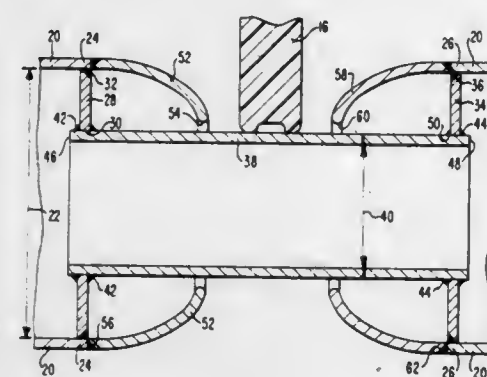
Alan H. Cookson, Churchill Borough; Steinar J. Dale, Monroeville, and Philip C. Bolin, Wilkins Township, Allegheny County, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Sep. 2, 1981, Ser. No. 298,691

Int. Cl.³ H01B 9/06, 9/04; H02G 5/06

U.S. Cl. 174—21 JS

9 Claims



1. A gas-insulated transmission line comprising: an elongated outer sheath; an elongated inner conductor disposed within said outer sheath, said inner conductor comprising a pair of longitudinally spaced-apart cylindrical main conductor sections having a first diameter and facing ends, a flexing element fixedly secured to each main conductor section end and extending radially inwardly therefrom, a cylindrical conductor hub section having a second diameter less than said first diameter fixedly secured to both flexing elements adjacent the ends of said conductor hub section, and a curved stress shield having an opening formed therein fixedly secured to each main conductor section end with said conductor hub section extending through said stress shield openings, said stress shields being spaced-apart

from said conductor hub section and extending both longitudinally-outwardly and radially-inwardly from said main conductor section ends; an insulating gas electrically insulating said inner conductor from said outer sheath; and means for insulatably supporting said inner conductor in said outer sheath.

4,366,340

COMPOSITE PROFILE SPACER FOR COMPRESSED GAS INSULATED CO-AXIAL ELECTRICAL CABLES

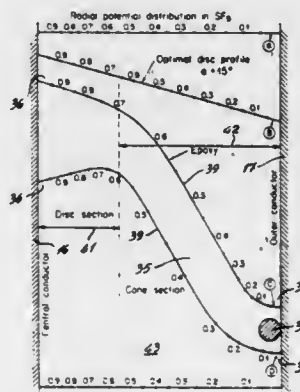
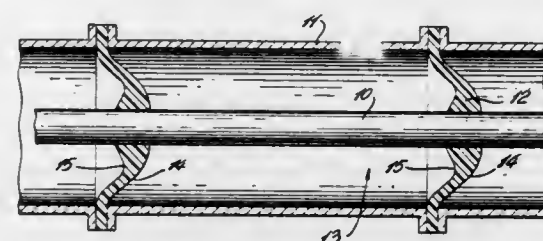
Ngoc-Giao Trinh, Boucherville, Canada, assignor to IREQ Institut de Recherche de l'Hydro-Quebec, Quebec, Canada

Filed Mar. 13, 1980, Ser. No. 129,700

Int. Cl.³ H01B 9/04, 9/06, 17/58; H02G 5/06

U.S. Cl. 174—28

10 Claims



1. A spacer comprising a composite profile shaped body formed of an electrically insulating material to support a central conductor substantially concentric in a tubular outer sheath, said body having a disc section configuration in a first support section to be located immediate the central conductor to obtain substantially uniform field distribution at the first support section, said disc section having opposed convergent surfaces extending substantially symmetrically in said first support section, said body further having a cone section configuration in a remaining support section which is to extend to the outer sheath to obtain a low field intensity on the opposed surfaces of said spacer in the remaining support section, and a contact angle defined between each said opposed convergent surfaces and the central transverse axis of the spacer inwardly of said opposed convergent surfaces and being in the range of about 65° to 80°.

6. A compressed gas insulated high voltage bus of co-axial configuration including a central conductor, a tubular outer sheath, and a plurality of spacers, each said spacer having a composite profile shaped body formed of an electrically insulating material and extending radially in an area between said central conductor and said outer sheath in a spaced apart manner to support said central conductor substantially concentric with said outer sheath, said body having a disc section configuration in a first support section adjacent said central conductor to obtain substantially uniform field distribution in an area immediate said central conductor, said disc section having opposed convergent surfaces extending substantially symmetrically in said area immediate said central conductor, said body further having a cone section configuration in a

remaining support section extending to said outer sheath to obtain a low field intensity on the opposed surfaces of said spacer in the remaining portion of said area extending to said outer sheath, and a contact angle defined between each said opposed convergent surfaces and said central conductor inwardly of said opposed convergent surfaces and being in the range of about 65° to 80°.

4,366,341

BRIDGE FOR CONNECTING CABLE CHANNEL SYSTEMS

Martin A. van Riet, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

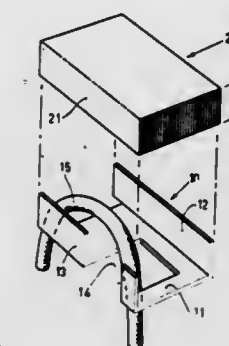
Filed Jul. 28, 1980, Ser. No. 172,786

Claims priority, application Netherlands, Aug. 17, 1979, 79062267

Int. Cl.³ H02G 3/28

U.S. Cl. 174—48

5 Claims



1. A connecting bridge for use as a support for an electric connecting cable between two cable channel systems which are directed transversely of one another, at least one bridge portion of one piece, said bridge portion having a U-shaped cross-section, there being an opening in at least the central portion of the U-shaped cross-section which is a passage for the connecting cable, this opening being bounded on all sides the mounted condition of the bridge, characterized in that in the mounted condition of the bridge portion the circumference of the opening is only partially bounded by the bridge portion which is of one piece and the apparatus also includes an auxiliary element, which is movable relative to said bridge portion, said bridge portion providing the further bounding of the opening, and that in the absence of the auxiliary element the opening has an open periphery.

4,366,342

CONDUCTIVELY COATED EMBOSSED ARTICLES

James G. Breedlove, Burnsville, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Continuation of Ser. No. 917,577, Jun. 21, 1978, abandoned, which is a continuation-in-part of Ser. No. 755,955, Dec. 30, 1976, abandoned. This application Sep. 26, 1980, Ser. No. 191,329

Int. Cl.³ H05K 5/00

U.S. Cl. 174—52 FP

19 Claims

1. As an article of manufacture a monolithic body with two major surfaces having on at least one of said major surfaces and integral therewith and on at least one other surface or edge and integral therewith embossments in bas-relief with sides and with planar outer surfaces, said embossments having a height in the range of 10 to 35% of the thickness of the body, only the planar outer surfaces of all said embossments being covered with electrically conductive coatings, all other surfaces of said

monolithic body being uncovered with electrically conductive coating, said coated planar outer surfaces of said embossments



together constituting a predetermined pattern for electrical interconnections.

4,366,343

CABLE CLAMP MEANS AND CABLE ENTRY PORT CLOSURE MEANS FOR ELECTRICAL OUTLET BOXES AND THE LIKE

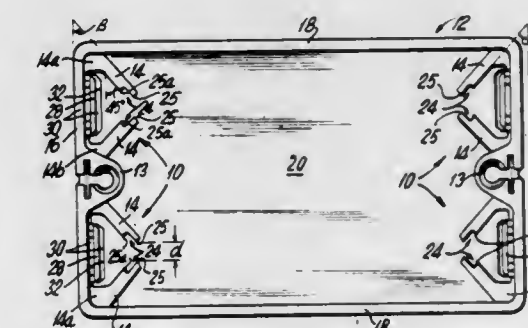
Thomas S. Slater, Port Washington, and Wade R. Bowden, Jr., Northport, both of N.Y., assignors to Slater Electric Inc., Glen Cove, N.Y.

Filed Feb. 21, 1978, Ser. No. 879,767

Int. Cl.³ H02G 3/08

U.S. Cl. 174—65 R

18 Claims



1. In an electrical outlet box having a wall structure including a backwall with a generally continuous sidewall upstanding therefrom defining a chamber interior thereof which opens along front edges of the sidewall, at least one cable entry port being formed in a portion of the wall structure for permitting insertion of an electrical power cable into the box, cable clamp means associated with at least one cable entry port, each said cable clamp means including a pair of oppositely disposed panel-like members formed integrally with the wall structure adjacent said cable entry port and depending angularly inwardly of the box towards each other, each said cable clamp means also including entry port closure means adapted generally to close the cable entry port associated with the cable clamp means when said entry port is not in use generally for preventing entry of debris into the box, yet being adapted to permit access through the cable entry port when a cable is to be inserted therethrough, said closure means including

a generally frangible web-like member extending between adjacent end edges of each pair of panel-like members and flange means projecting inwardly from said wall structure and extending adjacent to and essentially parallel to non-adjacent free end edges of its corresponding pair of panel-like members, said panel-like members being adapted to permit insertion of a cable into the box through the cable entry port associated therewith when said frangible web is broken, yet clamp the cable against withdrawal from said port, such that when the cable entry port has been opened by fracture of said frangible web, said panel-like members

deflect generally away from each other during insertion of the cable to permit passage of the cable into the box, but grasp the cable to resist its removal from the cable entry port when subjected to a force tending to withdraw the cable from the port while said flange means prevents the cable from laterally slipping from the grasp of said panel-like members.

4,366,344

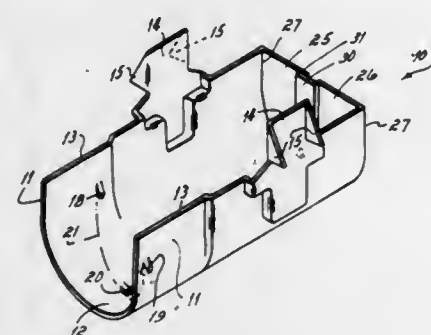
CONNECTOR FOR A HELICALLY GROOVED ELECTRICAL CONDUCTOR

Robert K. Sheehan, 571 Rolling Rock La., Cincinnati, Ohio 45230

Filed Jun. 13, 1980, Ser. No. 159,156
Int. Cl.³ H02G 3/18, 13/18; B23P 11/02

U.S. Cl. 174—65 R

6 Claims



1. A connector for mounting an electrical conductor surrounded by a helically grooved metallic shield to a junction box having a wall and a hole in said wall through which electrical conductors pass comprising, a one-piece sheet metal member, said member being elongated and having a U-shaped cross section including two legs and a semi-cylindrical bight portion, said legs presenting longitudinal parallel edges engageable with said junction box wall and end edges extending perpendicular to said longitudinal edges, an inwardly-projecting tab on each said leg intermediate the ends of said member and longitudinally spaced from each other and engageable in a helical groove of said shield to retain said shield against longitudinal movement with respect to said connector, a barbed fastener projecting from the longitudinal edges of each leg and adapted to be inserted in said hole to retain said connector on said junction box wall, each barbed fastener being spaced only a slight distance from said longitudinal edge so said longitudinal edge will lie against said junction box wall when said barbs project through said hole therein, each leg having a flap projecting transversely from an end edge of said leg across one end of said member to form an end wall for each member, whereby said shield may be laid in said connector and held by said tabs, said connector thereafter being mounted on said junction box wall by inserting said fasteners in said hole.

4,366,345 ELECTROMECHANICAL COMPONENT SEALING SYSTEM

Bruno Jägle, Petershausen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

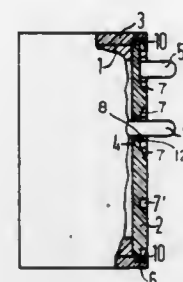
Filed Apr. 26, 1979, Ser. No. 33,733

Claims priority, application Fed. Rep. of Germany, Jul. 18, 1978, 7821508

Int. Cl.³ H05K 5/06

U.S. Cl. 174—52 S

6 Claims



1. An electrical component housing, comprising: a base plate having connecting pin apertures, said apertures being adapted to be sealed with casting resin; a channel system means on an exterior surface of the base plate for distributing at least partially by capillary flow a thin layer of the casting resin to the apertures so as to seal them without significantly increasing overall height of the component and to control the resin flow, and a viscosity of the resin being chosen so as not to penetrate through the apertures to an interior of the component; and said channel system means comprising narrow capillary channels connecting the pin apertures to relatively wide feed channels which are open to receive resin poured onto the feed channels from above the base plate with the component in an inverted position.

4,366,346

ARTIFICIAL REVERBERATION APPARATUS
Eise C. Dijkmans, Eindhoven, Netherlands; Nico V. Franssen, deceased, late of Knegsel, Netherlands, and by Friedrich J. De Haan, administrator, Dommelen, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

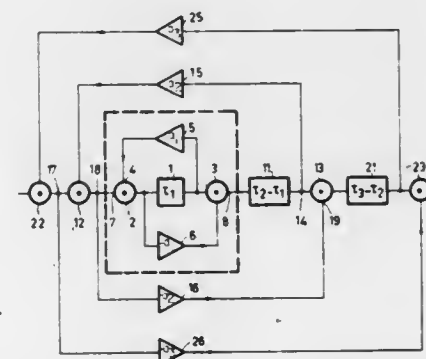
Filed Apr. 14, 1980, Ser. No. 140,288

Claims priority, application Netherlands, Apr. 24, 1979, 7903195

Int. Cl.³ G01K 11/00

U.S. Cl. 179—1 J

14 Claims



3. An artificial reverberation apparatus comprising, an input terminal, first, second, third and fourth signal combining circuits each having input means and an output, a first delay device, means coupling the third signal combining circuit, the first signal combining circuit, the first delay device, the second signal combining circuit and the fourth signal combining circuit in cascade in the order named to the input terminal to form a signal path having a first junction point between the first delay device and the second signal combining circuit, a second junction point between the first signal combining circuit and

the first delay device, a third junction point between the second and the fourth signal combining circuits and a fourth junction point between the third and the first signal combining circuits, a second delay device coupled in cascade with the third and fourth signal combining circuits in said signal path, first and second feedback circuits coupled between said first and third points, respectively, and the input means for said first and third signal combining circuits, respectively, first and second transmission circuits coupled between said second and fourth points, respectively, and the input means of the second and fourth signal combining circuits, respectively, so that the first transmission circuit bypasses the first delay device and the second transmission circuit bypasses the first delay device and the first and second signal combining circuits, and wherein the gain of the first transmission circuit is chosen so that the ratio of the gains of first and second signal paths from said second point to the output of the second signal combining circuit via the first transmission circuit and via the first delay device, respectively, is substantially equal and opposite to the gain of a circuit loop including the first delay device and the first feedback circuit, said gain being less than one, and the gain of the second transmission circuit is chosen so that the ratio of the gains of third and fourth signal paths from said fourth point to the output of the fourth signal combining circuit via the second transmission circuit and via said first and second delay devices, respectively, is substantially equal and opposite to the gain of a circuit loop including said first and second delay devices and the second feedback circuit, said gain being less than one.

4,366,347

APPARATUS FOR SELECTING TERMINAL EQUIPMENT IN TELEPHONE LINES

Toshiharu Takatsuki, Tokyo; Ken-ichi Fujiwara, Amagasaki; Jutaro Nomura, Amagasaki, and Shigeru Okamura, Amagasaki, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha and Nippon Telegraph and Telephone Public Corp., both of Tokyo, Japan

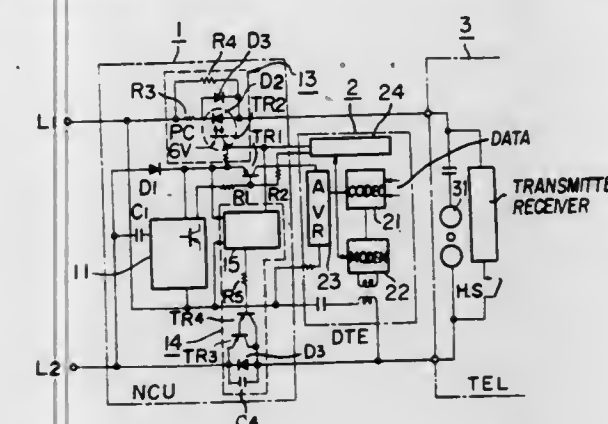
Filed Oct. 17, 1979, Ser. No. 85,683

Claims priority, application Japan, Oct. 20, 1978, 53-129078

Int. Cl.³ H04M 11/00

U.S. Cl. 179—2 DP

4 Claims



1. An apparatus for selectively switching a connection between a telephone and a data transmitter at a terminal of a telephone line, so as to connect one of said telephone and said data transmitter to said telephone line for communication, where the switching is controlled by detecting the line impedance of said telephone line at said terminal by means of an exchange center of said telephone line, wherein the improvement comprises:

- a current detection circuit, including a photocoupler, for detecting the current of said telephone during the operation of said data transmitter;
- a switch circuit for opening said telephone line for a predetermined period of time in response to the output of the current detection circuit;
- a circuit for detecting said line impedance during said predetermined period of time, said circuit being located in said exchange center; and
- means for switching said connection between said telephone and said data transmitter, said means for switching being

connected to the output of said circuit for detecting line impedance so as to connect the telephone to the telephone line in response to the output of said circuit for detecting line impedance indicating an off-hook condition of the telephone.

4,366,348

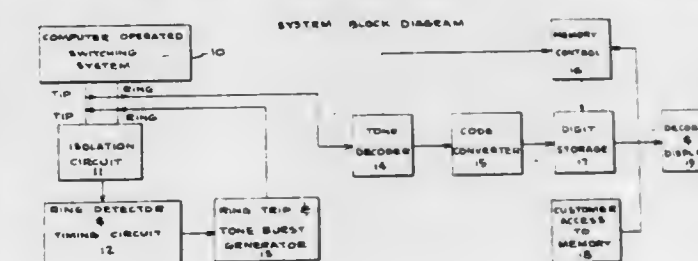
METHOD AND APPARATUS FOR DECODING AND PROCESSING THE INFORMATIONAL CONTENT OF MULTI-FREQUENCY SIGNALS

John W. Pope, P.O. Drawer 45246, Dallas, Tex. 75245
Continuation of Ser. No. 85,876, Oct. 18, 1979, abandoned, which is a continuation of Ser. No. 20,230, Mar. 12, 1979, abandoned, which is a continuation of Ser. No. 848,767, Nov. 3, 1977, abandoned. This application Dec. 1, 1980, Ser. No. 211,851

Int. Cl.³ H04M 11/00

U.S. Cl. 179—84 VF

10 Claims



1. Apparatus for receiving information bearing multi-frequency pulse signals, for decoding the received signals and for storing information, so decoded, in one of a plurality of storage locations, for selective retrieval, comprising: means for receiving the multi-frequency pulse signals, frequency selective detector means responsive to the frequency content of the received multi-frequency pulse signals for producing output signals corresponding to the individual frequencies of the multi-frequency pulse signals, converter means for producing digital signals corresponding to the values of the outputs from said frequency selective detector means, storage means having a plurality of storage locations for receiving and storing said digital signals, storage control means responsive to the outputs from said frequency selective detector means for selecting locations in said storage means, said digital signals being coupled to said locations, storage access means for selectively addressing, via said storage control means, a desired one of said storage locations in said storage means for selectively reading information from, writing information in or erasing information from said desired location and read-out means for receiving the information from said storage means and producing intelligible indications of the information.

4,366,349

GENERALIZED SIGNAL PROCESSING HEARING AID

Roger A. Adelman, 1562 Wittlout Pl., Cincinnati, Ohio 45224
Filed Apr. 28, 1980, Ser. No. 144,395

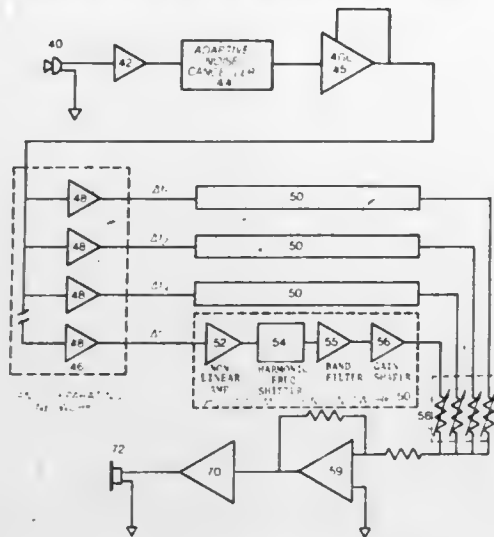
Int. Cl.³ H04R 25/00

U.S. Cl. 179—107 FD

32 Claims

32. A hearing aid apparatus, comprising: (a) means for receiving a sound pattern and generating a process signal in response thereto; (b) means for automatically determining a dominant pattern from at least two competing signals and generating a selectively enhanced electrical signal representative thereof; (c) a splitting network responsive to the selectively enhanced signal for dividing the selectively enhanced signal

- into at least two separate signals in accordance to frequency;
 (d) means for transposing the frequency of at least one of the separate signals split by said splitting network;



- (e) summing means responsive to at least one of said transposed signals and at least one other of said separated signals for generating a combined signal; and
 (f) means for converting the combined signal into its acoustic representation.

4,366,350

CONTROL SYSTEM FOR TELEPHONE SWITCHING SYSTEM

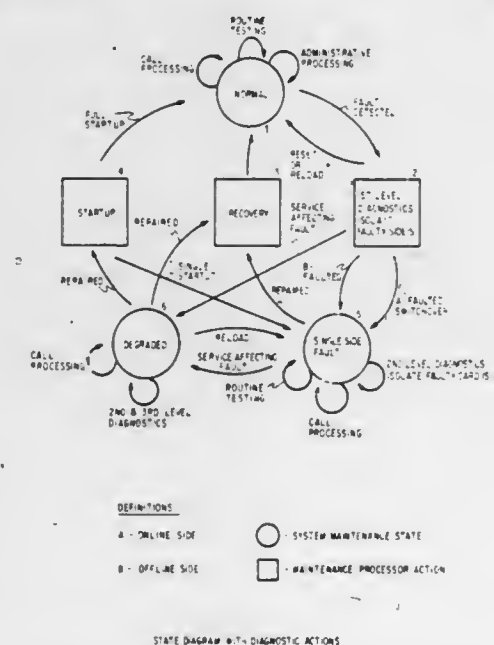
Ernest O. Lee, Seminole County; Wayne G. Smith, Altamonte Springs, both of Fla., and George C. Hanson, San Antonio, Tex., assignors to Stromberg-Carlson Corporation, Tampa, Fla.

Division of Ser. No. 10,910, Feb. 9, 1979. This application Mar. 10, 1980, Ser. No. 129,101

Int. Cl.³ H04M 3/24

U.S. Cl. 179—175.2 C

21 Claims



1. In a telephony system including a plurality of telephones and interconnecting telephone lines for conveying signals from and to said telephones and call processing means connected to said telephone lines for selectively interconnecting the telephones and respective lines to establish communications between pairs of telephones, and wherein the call processing means includes a port means that connects to each telephone line and selective switching means for interconnecting selected pairs of the port means, the improvement of automatic test call means for testing the operation of the selective switching means, said automatic test call means comprising:

A. selectable test access means in each port circuit means

and connected to the corresponding telephone line for coupling signals from and to the telephone lines and for isolating the port means from the telephone lines,

B. test call generating means for generating signals corresponding to telephone line signals during a calling operation,

C. control means connected to said selectable test access means and said test call generating means for selecting a first test access means and a second test access means thereby to establish an input and output path for the signals from said test call generating means, whereby the call processing means processes the telephone test call between the selected port circuit means, and

D. monitoring means connected to said control means and to the call processing means for monitoring the test call through the call processing means.

4,366,351

ELECTRICAL SLIDE SWITCH OF FLUSH THROUGH DESIGN AND METHOD OF MOUNTING THEREOF

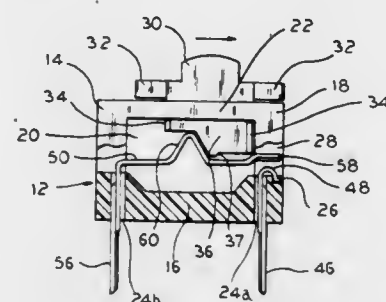
Albert F. Ditzig, Hoffman Estates, Ill., assignor to RE-AL, Inc., Wheeling, Ill.

Filed Nov. 7, 1980, Ser. No. 205,584

Int. Cl.³ H01H 15/02

U.S. Cl. 200—16 R

11 Claims



1. An electrical slide switch comprising:
 a housing having a bottom wall and a pair of spaced side supports extending vertically therefrom;
 a first electrical lead mounted in said housing having a contact area located within said housing and a leg portion protruding beneath said housing bottom wall to form a first electrical terminal;
 a second electrical lead mounted in said housing having a contact area overlying the contact area of said first electrical lead and a leg portion protruding beneath said housing bottom wall to form a second electrical terminal;
 an actuator slidably supported between said housing side supports having a portion thereof protruding into said housing which is engageable with a portion of said second electrical lead for deflecting its contact area against the contact area of said first electrical lead, thereby completing an electrical circuit between said first and second electrical terminals; and
 an open area formed in said side supports which communicates with the contact areas of said first and second electrical terminals, said open area permitting the flow of cleaning solvents through the housing and between said contact areas.

4,366,352

TWO-SPEED CONTINUOUS DRIVE TIMER

George Obermann, Niles, Ill., assignor to The Singer Company, Schiller Park, Ill.

Filed Aug. 29, 1980, Ser. No. 182,720

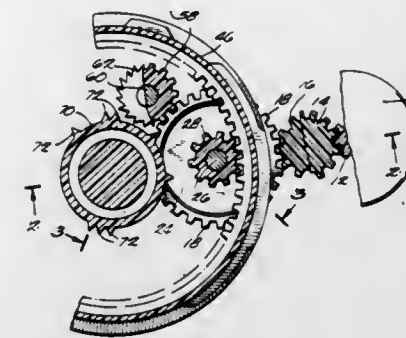
Int. Cl.³ H01H 7/08

U.S. Cl. 200—35 R

10 Claims

7. A program timer having a rotatable program member provided with cams actuating switches in sequence, characterized by,

- a motor;
 a low speed drive connecting the motor to the program member and including an overrunning clutch having an input and an output,
 a high speed drive connecting the motor to the program member,



- means carried by the program member for engaging and disengaging the high speed drive,
 the output of the low speed drive overriding the input of the low speed drive when the high speed drive is engaged.

4,366,353

ANTI-PARALLELING APPARATUS FOR HIGH-VOLTAGE GEAR

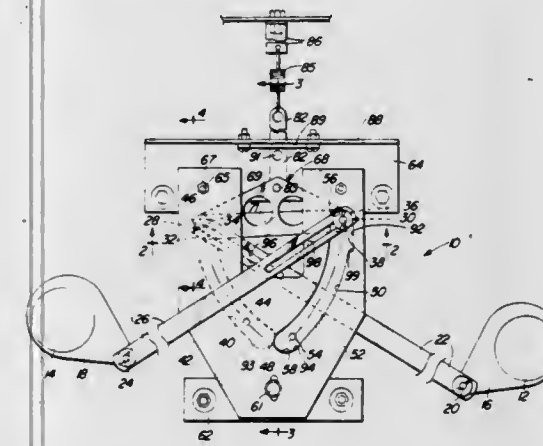
David M. Evans, Panama City Beach, Fla., assignor to S&C Electric Company, Chicago, Ill.

Filed Feb. 23, 1981, Ser. No. 237,228

Int. Cl.³ H01H 31/00

U.S. Cl. 200—48 R

12 Claims



1. A high-voltage switchgear having first and second two-position switches, apparatus for preventing the switches from simultaneously occupying their second positions, which apparatus comprises:

- a first driven member;
 first means for constraining the first driven member to move along a first curvilinear path between extreme first and second locations;
 a first link associated at a first end with the first switch for reciprocation of a second end thereof in a first direction when the first switch moves from its first to its second position and in a second opposite direction when the first switch moves from its second to its first position, the first switch being unable to move if the first link is prevented from moving;
 first means for connecting the second end of the first link to the first driven member so that when the first switch moves from its first to its second position, the first link and its second end reciprocate in the first direction to move the first driven member from its first to its second location, and so that when the first switch moves from its second to its first position, the first link and its second end reciprocate in the second direction;

- a second driven member;
 second means for constraining the second driven member to move along a second curvilinear path between extreme first and second locations;
 a second link associated at a first end with the second switch for reciprocation of a second end thereof in a third direction when the second switch moves from its first to its second position and in a fourth opposite direction when the second switch moves from its second to its first position, the second switch being unable to move if the second link is prevented from moving;
 second means for connecting the second end of the second link to the second driven member so that when the second switch moves from its first to its second position, the second link and its second end reciprocate in the third direction to move the second driven member from its first to its second location, and so that when the second switch moves from its second to its first position, the second link and its second end reciprocate in the fourth direction; and
 yoke means for maintaining the driven members a fixed distance apart so that both driven members can simultaneously occupy their first locations, either driven member can occupy its second location while the other driven member occupies its first location, and either driven member is prevented from moving out of its first location while the other driven member is not in its first location;
 whereby both switches can simultaneously occupy their first positions, either switch can move to and occupy its second position while the other switch is in its first position, and neither switch can move out of its first position, despite a momentary or continued attempt to so move, while the other switch is not in its first position.

4,366,354

CIRCUIT BREAKER WITH IMPROVED CONTACT PUSH-OFF SPRING

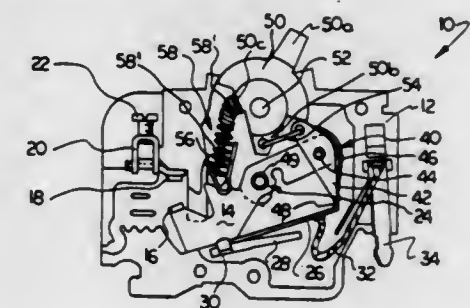
Alexander R. Norden, New York, N.Y., assignor to Federal Pacific Electric Company, Newark, N.J.

Filed Dec. 29, 1980, Ser. No. 220,758

Int. Cl.³ H01H 3/32

U.S. Cl. 200—154

10 Claims



1. A manually operable circuit breaker having an elongated movable contact member supported between its ends on a contact member pivot, said elongated movable contact member having a movable contact at one end, a stationary contact engageable by and disengageable from said movable contact when the circuit breaker is in a closed and open condition, respectively, said movable contact member having an actuator carrier by an actuator pivot at the end of the movable contact member remote from said movable contact and supporting an overcurrent releaseable latch normally restraining said actuator, a toggle including a pivoted handle and a link connected to said handle, said toggle being operable from a collapsed condition into an erect condition for operating said actuator and thereby operating said circuit breaker into the closed condition, a push-off spring biasing said circuit breaker toward said open condition, said push-off spring initially providing a first degree of resistance to closing of the contacts during operation of said circuit breaker to the closed condition, said push-off spring providing a second degree of resistance to closing of the

contacts during operation of said circuit breaker to the closed condition after the initial operation, whereby manual closing of the circuit breaker initially encounters said first degree of resistance and is unimpeded by the second degree of resistance during the initial operation of the toggle toward the erect condition from the collapsed condition and the second degree of resistance is effective to accelerate opening of the contacts upon release of said overcurrent latch.

4,366,355 KEYBOARD

Jürgen Oelsch, Salz, Fed. Rep. of Germany, assignor to Preh Elektrofeinmechanische Werke Jakob Preh Nachf. GmbH & Co., Saale, Fed. Rep. of Germany

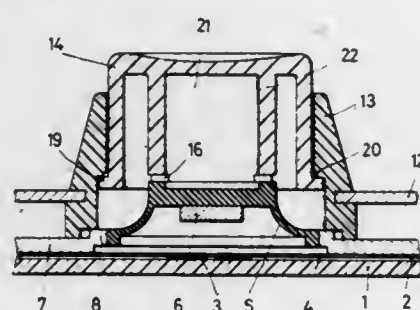
Filed Mar. 24, 1981, Ser. No. 247,152

Claims priority, application Fed. Rep. of Germany, Mar. 26, 1980, 3011674

Int. Cl.³ H01H 13/14, 13/70, 5/04

U.S. Cl. 200—159 B

8 Claims



1. A keyboard comprising a base plate having conductor paths and contact areas provided thereon, a plurality of keys associated with said contact areas, said keys consisting each of an elastically deformable snap member, the contact element thereof being adapted to be brought into contact with said contact areas by deformation upon actuation of an actuating button and being positioned above said contact areas in spaced relationship thereto,

characterized in that a metal frame (7, 17) is provided as mounting support for the snap members (5, 15), said metal frame having protrusions (8) embossed therefrom in a direction toward the actuating buttons (14, 24, 25), the number of protrusions corresponding to the number of snap members, and in that each protrusion has an opening (9) therein, in which the snap member (5, 15) is held.

4,366,356

COMPACT INDUCED CURRENT HEAT-GENERATING PIPE

Masao Ando, Yokohamashi, Japan, assignor to Chisso Corporation, Tokyo, Japan

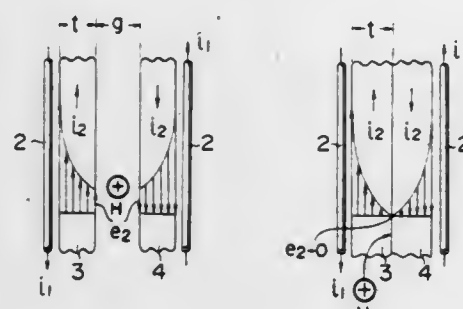
Filed Mar. 17, 1981, Ser. No. 244,689

Claims priority, application Japan, Mar. 18, 1980, 55-34231

Int. Cl.³ H05B 6/44; F24J 3/04

U.S. Cl. 219—10.51

12 Claims



1. In an induced current heat-generating pipe consisting of (1) insulated wires in rows, the respective ends of these wires on one side being electrically connected to each other and those on the other side being connected to an alternating cur-

rent electric source, whereby said insulated wires form a primary circuit, and (2) at least one set of rows of electrically conductive ferromagnetic pipes of substantially the same length, the respective wires in said rows being passed through the respective pipes and the respective two ends of the pipes being electrically connected to each other, and in case where a plurality of sets are provided, the respective sets of the pipes forming an independent secondary circuit relative to the primary circuit common to these sets of the pipes,

the improvement which is characterized in that the thickness of said ferromagnetic pipes has a relationship of $0.5s \leq t < 2s$ relative to the skin depth s of the alternating current flowing through said ferromagnetic pipes; said ferromagnetic pipes in each set are brought into close proximity to each other; and the respective ferromagnetic pipes of said at least one set have a length of 1 Km or less.

4,366,357

HIGH FREQUENCY HEATING APPARATUS

Seiichi Satoh, Fujinomiya, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

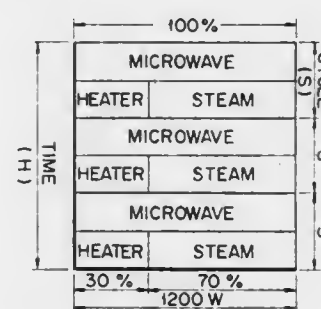
Filed Jan. 8, 1981, Ser. No. 223,302

Claims priority, application Japan, Jan. 21, 1980, 55-5400

Int. Cl.³ H05B 6/68

U.S. Cl. 219—10.55 B

3 Claims



1. A microwave heating apparatus comprising:

- a housing;
- a heating chamber disposed in said housing;
- a steam generator provided in said housing for supplying steam into said heating chamber;
- a microwave generator provided in said housing for radiating microwave energy into said heating chamber;
- a first electric heater disposed at an upper portion in said heating chamber for supplying electric heating energy thereinto;
- a second electric heater disposed at a lower portion in said heating chamber for supplying electric heating energy thereinto;

control means provided in said housing for controlling the operations of said steam generator, said microwave generator and said first and second electric heaters in the following four modes (a), (b), (c) and (d) of operation:

- (a) a first mode wherein only said microwave generator is continuously operated,
 - (b) a second mode wherein only said microwave generator is intermittently operated,
 - (c) a third mode wherein only at least one of said first and second electric heaters are operated, and
 - (d) a fourth mode wherein said microwave generator is repeatedly operated for intermittent periods of time and both said steam generator and said first heater are repeatedly operated for the remaining periods of time; and
- means for selecting one of said four modes of operation.

4,366,358

EDM METHOD AND APPARATUS UTILIZING SUCCESSIVELY DISPLACED MAGNETIC FIELD

Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

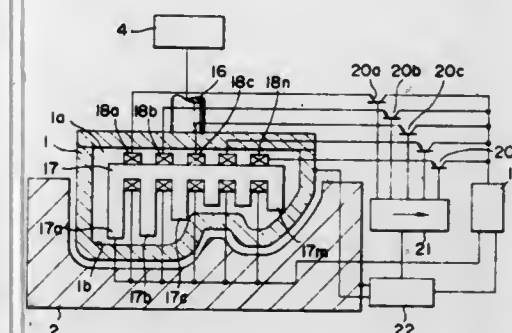
Filed May 16, 1980, Ser. No. 150,355

Claims priority, application Japan, Jun. 6, 1979, 54-71638; Jun. 6, 1979, 54-71639; Jun. 6, 1979, 54-71642; Dec. 27, 1979, 54-172588; Jan. 8, 1980, 55-1062; Jan. 16, 1980, 55-3350

Int. Cl.³ B23P 1/08; B23K 9/08

U.S. Cl. 219—69 M

22 Claims



1. In a method of electrical discharge machining wherein a tool electrode is juxtaposed with a workpiece electrode to form a machining gap therebetween in the presence of a machining liquid and a succession of electrical pulses are applied between the tool and workpiece electrodes to produce successive electrical discharges across the machining gap, thereby electroerosively removing material from the workpiece and wherein as material removal proceeds the tool and workpiece electrodes are advanced relatively towards one another in a predetermined feed direction to form a cavity in the workpiece, the improvement comprising the steps of:

producing a localized magnetic field so that it is concentrated at least predominantly on a region of said machining gap which constitutes only a limited portion of a preselected entire area of juxtaposition between said tool and workpiece electrodes; and successively shifting said region of concentration of said magnetic field to sweep it over said entire area of juxtaposition between said tool and workpiece electrodes.

4,366,359

WIRE CUT ELECTRIC DISCHARGE MACHINING CONTROL METHOD

Takeshi Yatomi; Yutaka Tanaka, and Yoshio Ozaki, all of Nagoya, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

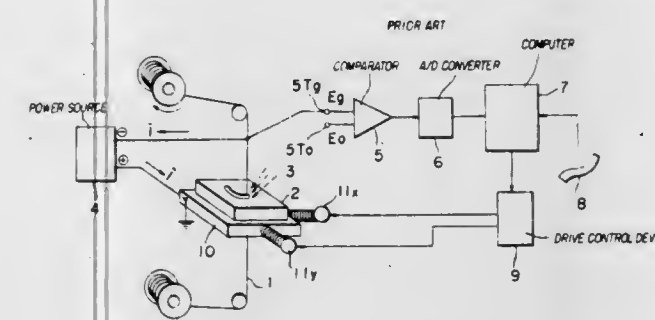
Filed Sep. 15, 1980, Ser. No. 186,842

Claims priority, application Japan, Sep. 27, 1979, 54-124458

Int. Cl.³ B23P 1/08

U.S. Cl. 219—69 M

12 Claims



1. In an electric discharge machining control method where an electric discharge occurs at a minute gap between a wire electrode and a workpiece, having a work power source and a work liquid as a dielectric medium and controlling relative movement between said electrode and said workpiece, the

improvement characterized by changing and controlling a machining current so as to control a work groove width to a command value, wherein the desired machining current at a specific point is determined by the thickness of said workpiece and the machining current at the beginning of the machining operation and the thickness of said workpiece at the specific point, the machining operation being controlled so that the actual machining current approaches the desired machining current thereby providing substantially the same work groove width at the beginning of the machining operation as the work groove width at said specific point.

4,366,360

METHOD OF AND APPARATUS FOR DETERMINING RELATIVE POSITION OF A TOOL MEMBER TO A WORKPIECE IN A MACHINE TOOL

Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan

Continuation-in-part of Ser. No. 112,460, Jan. 16, 1980, which is a division of Ser. No. 860,164, Dec. 13, 1977, Pat. No. 4,236,057.

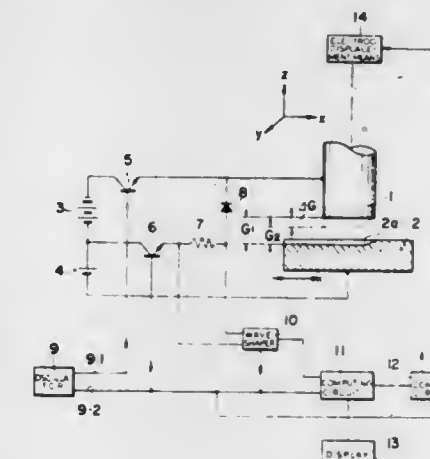
This application Apr. 14, 1981, Ser. No. 254,094

Claims priority, application Japan, Apr. 21, 1980, 55/52733

Int. Cl.³ B23P 1/08

U.S. Cl. 219—69 M

22 Claims



1. A method of determining relative position of a tool to a workpiece in a machine tool, comprising:

- (a) measuring the electrical resistance between said tool member and said workpiece in a given relative position to give a first measurement value;
- (b) relatively displacing said tool member and said workpiece by a known distance whereby to establish a shifted relative position between said tool member and said workpiece;
- (c) measuring the electrical resistance between said tool member and said workpiece in said shifted relative position to give a second measurement value; and
- (d) calculating at least one of said given and shifted relative positions between said tool member and said workpiece from said first and second measurement values and said known distance.

4,366,361

METHOD OF PRODUCING AN ELECTRICAL COMPONENT

Brian R. Allen, Birmingham, England, assignor to Lucas Industries Limited, Birmingham, England

Continuation of Ser. No. 82,157, Oct. 5, 1979, abandoned, which is a continuation of Ser. No. 20,997, Mar. 16, 1979, abandoned, which is a continuation of Ser. No. 783,010, Mar. 30, 1977, abandoned. This application Oct. 5, 1981, Ser. No. 308,817

Claims priority, application United Kingdom, Apr. 9, 1976, 14473/76

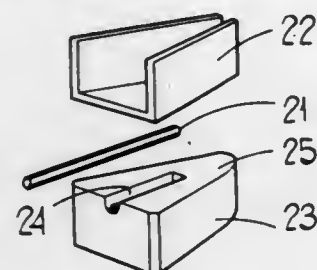
Int. Cl.³ B23K 11/18

U.S. Cl. 219—78.01

13 Claims

1. A method of producing a brush for a dynamo electric

machine comprising the steps of: providing a powder mixture consisting essentially of copper, tin, lead, carbon and a hard phase, compacting said powder mixture under a predetermined applied load to form a powder compact defining a brush body of predetermined thickness between a mounting surface and an opposite commutator engaging surface, providing a conductive support member, positioning said conductive support member in electrical contact with said mounting surface of said powder compact, urging a pair of electrodes against said support member and said powder compact, and passing an electrical current through said electrodes and hence through said



support member and said powder compact for sintering said compact and for electrically connecting said conductive member to said compact, the magnitude and time duration of said electrical current being controlled such that the temperatures of said commutator engaging surface and of said support member are maintained within predetermined temperature ranges, so as to result in a gradual variation in the microstructure of the brush body between the two surfaces thereof, whereby adjacent the support surface, the microstructure consists essentially of copper/tin grains surrounded by a grain boundary layer of lead and adjacent the commutator engaging surface, heterogeneous lead-rich areas are present in the microstructure.

4,366,362

ALL POSITION TIG WELDING PROCESS

Ichiro Ohta; Akio Tejima, both of Yokohama; Masayuki Watando, Yokosuka; Akira Yamaoka, Chigasaki; Kouzi Ishiwata, Yokosuka, and Minoru Yamada, Yokohama, all of Japan, assignors to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo, Japan

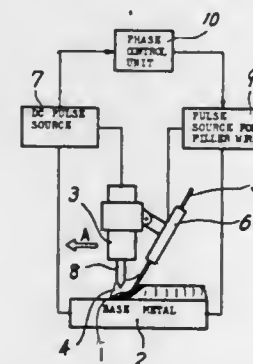
Filed Feb. 3, 1981, Ser. No. 231,141

Claims priority, application Japan, Mar. 18, 1980, 55-34396

Int. Cl.³ B23K 9/09

U.S. Cl. 219-123

5 Claims



1. An all position TIG welding process which comprises during completion of a weld feeding DC current pulses of selected frequency to an electrode, feeding current pulses of the same frequency and of changing polarity to a filler wire and controlling the phase relationship between the electrode and filler wire pulses in a predetermined manner throughout formation of the weld to produce a controlled magnetic field whereby to cause the produced arc to swing under the influence of the field in predetermined amplitude and direction for each pass required to produce the weld.

4,366,363 WORKPIECE TRACING ARC WELDING SYSTEM

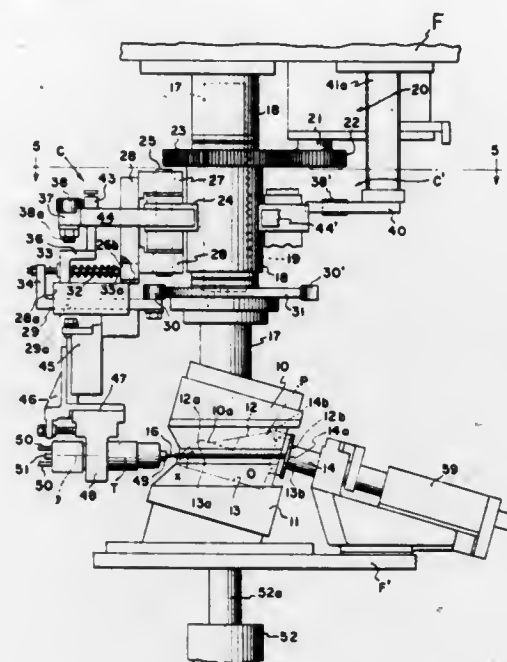
George S. Wilson, 3349 S. Point Au Gres Rd., Au Gres, Mich. 48703

Filed Dec. 3, 1979, Ser. No. 99,466

Int. Cl.³ B23K 9/02

U.S. Cl. 219-125.11

12 Claims



1. In an arc welding system for joining portions of a symmetric product around the irregularly contoured, facially opposed, perimetral, marginal boundaries thereof; workpiece holding means on said frame means for holding the facially abutting separate sections in a joined fixed position in which their surfaces of abutment define a weld path in a weld plane; a pair of arc welding torches having axially extending arc generating tips supported with their axes in said plane directed at the abutment surfaces; a separate carriage for each torch supporting each torch for welding travel simultaneously along a different contoured length of the perimetral marginal boundary; a rotary shaft on which each carriage mounts for partial orbiting movement in a circular path; the carriages being in straddling position relative to the product, substantially oppositely mounted on the shaft; drive means for driving the shaft; a sub-carrier on each carriage; means mounting each sub-carrier for pivotal movement about an axis parallel to the shaft; a slide carried by each sub-carrier and mounted for radial travel thereon; a torch being mounted on each slide; a fixed cam about which said carriages orbit radially inward of said slides; means for urging said slides to maintain engagement with said fixed cam so as to be guided in radial travel thereby and maintain the tips at a constant distance from the weld path; cam follower surfaces on said sub-carrier; and fixed cam tracks engaged by said cam follower surfaces upon orbiting of said carriages to cause said sub-carriers to pivot and maintain the torch tips perpendicular to the weld path as the torches move along it.

4,366,364

FLUX-CORED WIRE FOR USE IN GAS-SHIELDED ARC WELDING

Toshio Arai; Hidehiko Kanehira, and Kazuo Ikemoto, all of Kamakura, Japan, assignors to Kobe Steel, Ltd., Kobe, Japan

Filed Sep. 2, 1980, Ser. No. 182,941

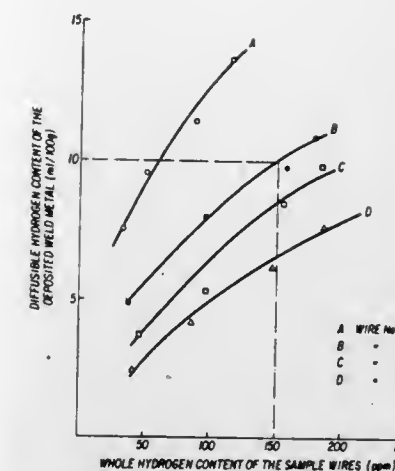
Claims priority, application Japan, Sep. 4, 1979, 54-113840

Int. Cl.³ B23K 35/22

U.S. Cl. 219-146.24

3 Claims

1. A flux-cored wire for gas shielded arc welding comprising a flux of the following composition filled as a core within a metallic casing:



Metal fluoride as fluorine	0.025-0.35 (wt %)
Metal carbonate	≤ 0.5
One or more selected from the group consisting of Al, Ti, Zr, V and Ca	≤ 0.75
TiO ₂	3.5-7.4
SiO ₂	≤ 2.0
MgO and/or ZrO ₂	0.03-1.2
Al ₂ O ₃	≤ 1.5
C	≤ 0.15
Mn	1.2-3.0
Si	0.3-1.2

wherein the whole hydrogen content of said wire is defined as $15 \text{ ppm} \leq H \leq (139 + 400F) \text{ ppm}$ where F is the weight % of fluorine with regard to the entire wire.

4,366,365

TELESCOPING ELECTRIC HAIR CURLING IRON WITH AN INTEGRALLY MOLDED HAIR CLIP ACTUATOR

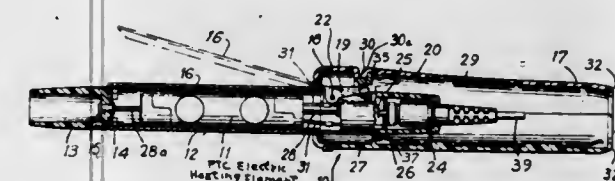
Raymond W. Kunz, Monroe, and Henry J. Walter, Wilton, both of Conn., assignors to Clairol Incorporated, New York, N.Y.

Filed Jun. 4, 1979, Ser. No. 45,147

Int. Cl.³ A45D 1/04; H01R 11/00, 39/00

U.S. Cl. 219-225

8 Claims



1. A telescoping electric hair curling iron comprising:
(a) a molded hollow handle of plastic material having a front opening;
(b) a longitudinally extending cantilever spring element integrally molded as part of the wall of said handle from the same plastic material thereof;
(c) a depressible thumb button immediately adjacent the front opening of said handle and integrally molded as part of said cantilever spring element from the same plastic material wherein said depressible thumb button is formed by a downwardly bent forward end of said cantilever spring element;
(d) an elongated heat conducting means arranged in said handle for telescopic axial movement through said front opening therein between a first position projecting from the front of said handle and a second position substantially enclosed within said handle;
(e) an electric heat generating element for heating said heat conducting means and fixed within said heat conducting

means so as to be telescopically movable therewith relative to said handle;
(f) an elongated hair gripping means coextensive with and mounted on said heat conducting means for movement toward and away from the surface thereof and axially movable therewith to said first and second positions, a portion of said hair gripping means parallel with the longitudinal axis of said heat conducting means and extending beyond the end thereof cooperating with said thumb button when said heat conducting means is in said first position whereby depression of said thumb button causes said hair gripping means to move toward and away from said conducting means to permit gripping and releasing of hair to be curled;
(g) an electric swivel cord connector means mounted on the inner end of the heat conducting means within the handle so as to be moveable with said heat generating element by sliding forward into said handle when said heat conducting means is moved to said first position and sliding backwards out of a rear opening in said handle when said heat conducting means is moved to said second position, said swivel cord connector means being adapted to connect to an external electrical source for conveying electricity to said heat generating element.

4,366,366

ELECTRIC IRON STAND WITH TIME DELAY SAFETY SWITCH ARRANGEMENT

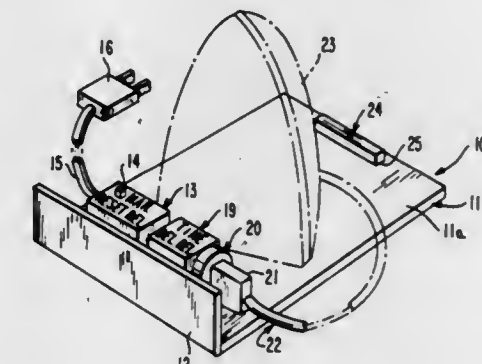
Carl A. Ekblad, 4023 Heath Rd., Jacksonville, Fla. 32211

Filed Sep. 5, 1980, Ser. No. 184,204

Int. Cl.³ H05B 1/02; D06F 79/02

U.S. Cl. 219-247

3 Claims



1. An automatic iron safety switch device and support stand, comprising, in combination, a platform of insulating material for supporting an electric iron, a normally open switch secured in said platform and arranged to be closed by the weight of an electric iron placed on said platform, a manually resettable relay secured to the surface of said platform, an outlet socket on the surface of said platform into which the cord of an iron can be plugged for energization, said manually resettable relay including a switch device having a first position connecting said outlet socket to a power supply source and a second position disconnecting the outlet socket from the power source, said manually resettable relay further including an operating coil arranged to move the switch device from the first position to the second position when the coil is energized, a manually resettable latch means for holding the switch device in the second position when moved thereto until manually reset and a manual reset button for returning the switch device to its first position, a standard time-delay relay mounted on the surface of said platform, said time-delay relay including an electrically operated timing means and a normally open switch means, said timing means arranged to automatically close said normally open switch means after the lapse of a predetermined time period, said electrically operated timing means being connected to said power source for energization through said platform switch and said switch device in said first position thereof, whereby the timing means will be operative only

when an iron is positioned on said platform switch and the switch device of said manually resettable relay is in its first position, the normally open switch means of said time-delay relay being connected to the operating coil of said resettable relay and arranged to energize the operating coil when closed after the lapse of said predetermined time period by said timing means to move the switch device of said manually resettable relay to its second position, thereby deenergizing the outlet socket and timing means and latching the switch device in its second position, said time delay relay being so constructed that should the iron be removed from said platform before the lapse of said predetermined time period to open the platform switch, the timing means will be deenergized and the time-delay relay reset, and movement of said switch device to its second position likewise deenergizing said timing means and resetting said time-delay relay.

4,366,367

ELECTRIC FABRIC STEAMING APPLIANCE WITH PREVENTION OF WATER REFILL THROUGH THE STEAM DISCHARGE OUTLET

Daniel Mazzucco, Annemasse, France, assignor to Terson Terrillon, Annemasse and Marc Terrillon, Gaillard, both of, France

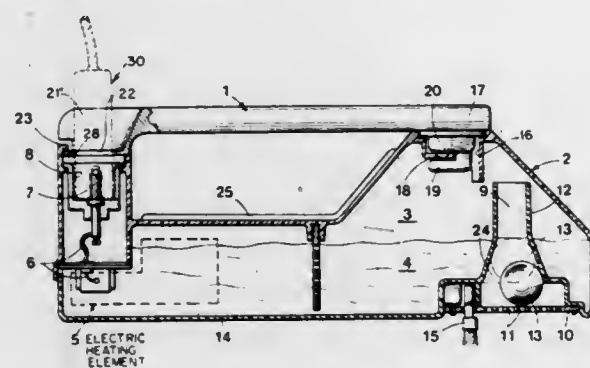
Filed Nov. 15, 1979, Ser. No. 94,659

Claims priority, application Switzerland, Dec. 21, 1978, 13029/78

Int. Cl.³ H05B 3/00; D06F 75/16

U.S. Cl. 219—272

5 Claims



1. In an appliance for removing creases from fabrics of the type having a body forming a water tank adapted to be partially filled with water and equipped with a handle for manipulating the housing during use to positions including a working position and an upside down position, a vapor outlet from the tank and an opening for filling the tank with water, electrical means on said body for heating and vaporizing contained water in the tank, a surface of said housing defining a plate having vapor outlet orifices communicating with said outlet for conducting the vapor thus produced onto the fabric from which the creases are to be removed when the plate is slid over the fabric with the housing in its working position, the improvement comprising an open-ended duct defining said vapor outlet, said duct extending upwardly from said plate and having an upper end communicating with a steam space above the level of the water in the tank when the appliance is in its working position and a lower end communicating with said orifices in said plate, a valve seat in the said duct and valve means positioned between the plate and the seat, said valve means being free to move in the duct under the force of gravity, whereby when the appliance is in its working position the valve means is spaced from the seat allowing steam to pass through the duct to said orifices and when the appliance is upside down the valve means engages the seat to prevent fluid flow in the duct in a direction from the plate toward the steam space.

4,366,368 ELECTRIC HEATER-BLOWER APPARATUS FOR REMOVING FROST AND SNOW FROM VEHICLE WINDOWS

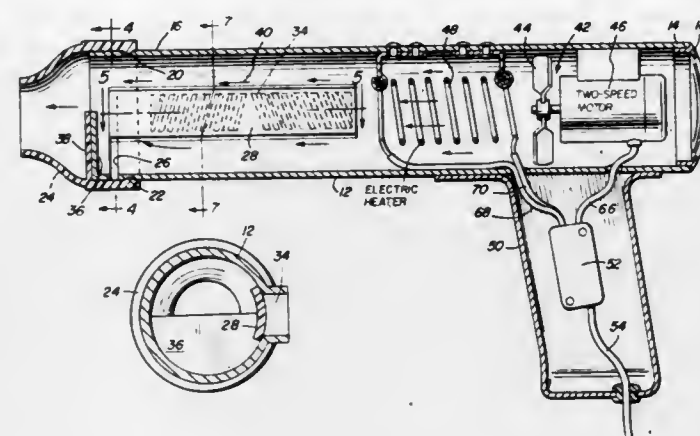
William S. Stephens, III, 143 Spoonhour Dr., Casselberry, Fla. 32707

Filed Dec. 6, 1979, Ser. No. 101,008

Int. Cl.³ F24H 3/04

U.S. Cl. 219—367

11 Claims



1. A frost and snow remover including an elongated portable hollow housing having first and second ends, said first end including an end outlet for air pumped through said housing and said second end including an inlet for the entrance of air into said housing, electrically actuated air pump means in said housing for pumping air therethrough from said second end to said first end, electrical resistance heating means in said housing downstream from said air pump means for heating air being pumped through said housing, said housing including an elongated lateral outlet formed in one longitudinal wall portion thereof spaced between said heating means and said outlet and opening laterally outwardly of said one housing wall portion, an outlet nozzle communicating with said end air outlet shiftably support on said first end of said housing for movement between first and second positions and including a cover panel coextensive in size with said elongated air outlet mounted within said housing for shifting relative thereto with said nozzle, said nozzle and housing including coacting portions operative to open and close said first end outlet responsive to shifting of said nozzle to said first and second positions, respectively, said cover panel, nozzle and coacting portion of said nozzle comprising a unitary one-piece structure, and said cover panel, when said nozzle is shifted to said first position being automatically shifted into closing registry with said elongated air outlet and, when said nozzle is shifted to said second position, being automatically shifted out of registry with said elongated air outlet to open said elongated air outlet, and circuit means for electrically connecting said air pump means and heating means with a source of electrical potential.

4,366,369

APPARATUS FOR HEATING SHEET-LIKE THERMOPLASTIC PRESAPES

Karl Hagen, Friedelsheim; Karl H. Scholl, Lambsheim, and Gerhard Schmelzer, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Feb. 20, 1981, Ser. No. 236,498

Claims priority, application Fed. Rep. of Germany, Mar. 1, 1980, 3007999

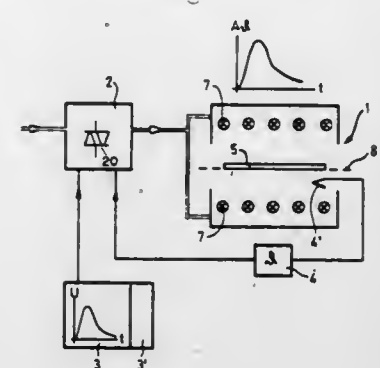
Int. Cl.³ F27B 9/06

U.S. Cl. 219—388

4 Claims

1. An arrangement for heating sheet-like preshapes consisting of a thermoplastic, especially of a fiber-reinforced thermoplastic, said arrangement comprising
an infra-red heating apparatus equipped with bright infra-red radiators,
a conveyor belt feeding the preshapes to said apparatus,

an electronic control unit provided with a microprocessor, said control unit generating a periodically increasing and decreasing electrical signal voltage, whose time-curve and amplitude are variable in accordance with the heat uptake capacity of the preshapes, and



a feed unit controlled by the signal voltage, said feed unit having phase-controlled rectifier means for in turn metering to the heating apparatus, a periodic electrical current which in its time-curve and amplitude corresponds to the preprogrammed signal voltage.

4,366,370

MOTOR/GENERATOR ARMATURE PORTABLE BAKING OVEN

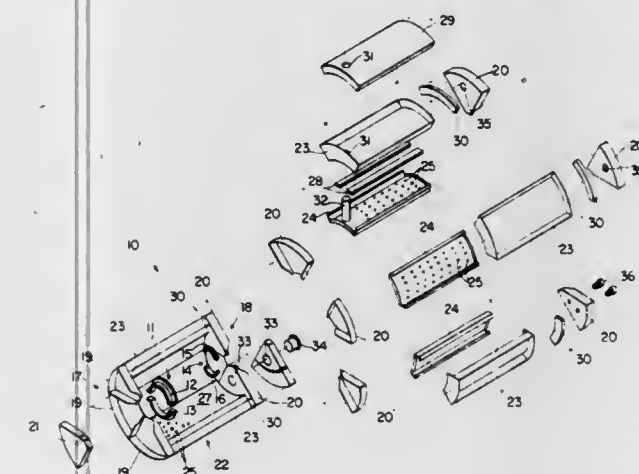
James L. Moore, 6416 The Parkway, Alexandria, Va. 22310

Filed Feb. 12, 1980, Ser. No. 120,820

Int. Cl.³ H05B 3/58

U.S. Cl. 219—535

1 Claim



1. A portable oven for surrounding an object mounted on a shaft, such as the armature of a motor, for the purpose of baking the object without removing it from the shaft, said oven comprising:

a container comprising:

front and rear end members formed from a plurality of wedge-shaped sections which are removably fitted together, said end members being adapted to be removably mounted on a shaft, and

a body member formed from a plurality of composite sections removably fitted together for location between and supported by said end members so that the container mounts on and is supported by said shaft to contain said object,

each body section comprising an inner baffle segment formed with holes therethrough for circulation of air, a body segment adapted to be fitted to said baffle segment with a space therebetween and an insulation segment adapted to cover the surface area of said body segment thereby to minimize escape of heat therethrough, means in said container for heating the object within the interior of said container;

air inlet means connecting the inside of said container with the outside atmosphere; and
air outlet means extending through the three segments of at least one said body section and connecting the inside of said container with the outside atmosphere, said air outlet means being adapted for coupling to air exhaust means.

4,366,371

METHOD AND APPARATUS FOR CONTROLLING TAPE TRANSPORT APPARATUS FOR CASSETTES

Stephane M. d'Alayer de Costemore d'Arc, and David J. Lockey, both of 19-21 Rue des Ateliers, B-1080 Brussels, Belgium

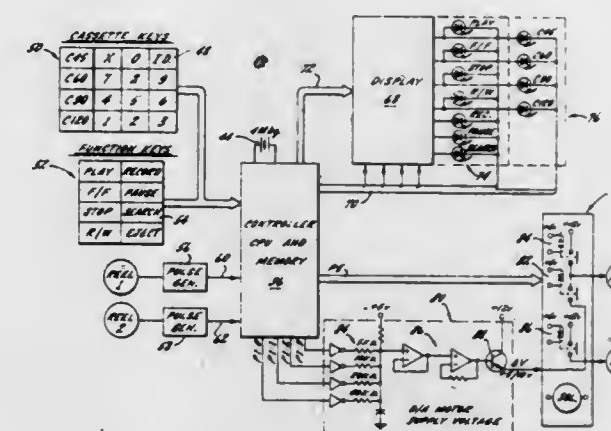
Filed Oct. 20, 1978, Ser. No. 953,211

Claims priority, application France, Dec. 9, 1977, 77 37210

Int. Cl.³ B65H 59/38, 77/00; H02P 5/46, 7/68

U.S. Cl. 235—92 MP

5 Claims



1. In a tape transport apparatus for tape/reel assemblies having two reels carrying tape, drive means for moving the tape from reel to reel, reel speed detectors including means generating reel pulses at rates proportional respectively to the speed of each reel, and controller means connected to said reel speed detectors and employing the ratio between the speeds of the reels for monitoring tape movement, the combination comprising:

means for counting reel pulses for each reel,

means timing and producing output signals respectively representing the elapsed periods of the same total count of reel pulses for each reel, and

means determining and producing signals representing the ratio between the respective output signals from said timing means to represent the ratio between the speeds of the reels employed by said controller means for monitoring tape movement.

4,366,372

APPARATUS AND METHOD FOR COUNTING REPETITIVE MARKS ON A RUNNING WEB

Jack Sargent, Silver Spring, Md., assignor to Innovative Design, Inc., Silver Spring, Md.

Division of Ser. No. 44,384, Jun. 1, 1979, Pat. No. 4,317,989.

This application Aug. 22, 1980, Ser. No. 180,360

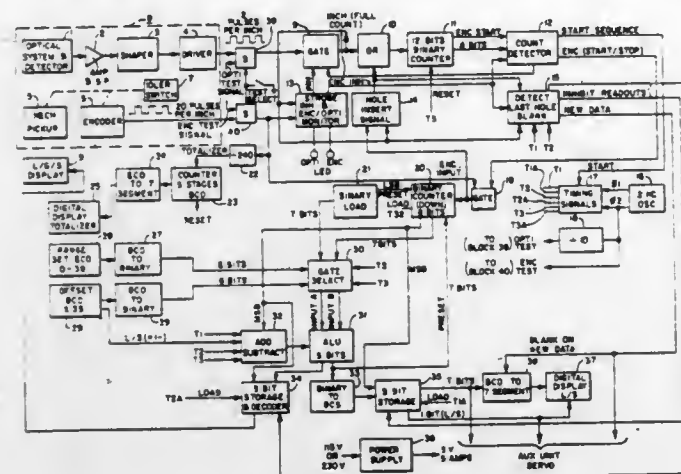
Int. Cl.³ G06M 9/00

U.S. Cl. 235—92 PL

6 Claims

1. In apparatus for counting repetitive marks on a running

web, means for sensing each mark and producing a corresponding pulse to be counted, and means for determining when



such a pulse should have been produced and in the absence of such a pulse generating a pulse to be counted.

4,366,373

EVENT RATE COUNTER

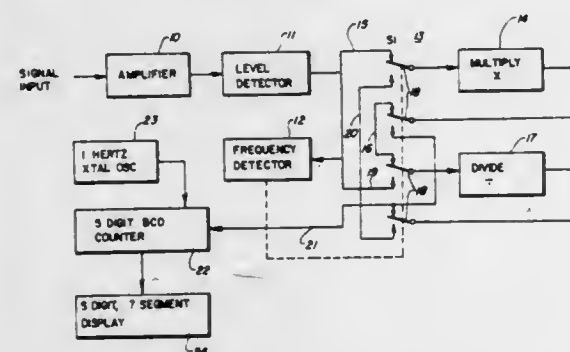
Wilbur F. Metcalf, Sarasota, Fla., assignor to Electro Corporation, Sarasota, Fla.

Filed Oct. 14, 1980, Ser. No. 196,592

Int. Cl.³ G01P 3/48

U.S. Cl. 235—92 DM

17 Claims



1. In an event rate counter for measuring the number of events occurring per unit of time with an input pulse train having a fixed number of pulses per each occurrence of said event and having a frequency related to the frequency of occurrence of said event, said pulse train scaled by a multiplier means and a divider means for providing a direct readout in events-per-unit of time, an improved automatic switching means for determining the sequential order in which the pulse train is applied to the multiplier means and the divider means comprising:

frequency detector means for determining whether the frequency of the input pulse train is greater than or less than a reference frequency; and

switching means for routing said pulse train to the multiplier means if the input pulse train frequency is less than the reference frequency and routing said pulse train to the divider means if the input pulse train frequency is greater than the reference frequency.

4,366,374 LAP COUNTER FOR RADIO CONTROLLED VEHICLES

Hermann Neuhierl, Waldstrasse 36, D-8510 Fürth/Bayern, Fed. Rep. of Germany

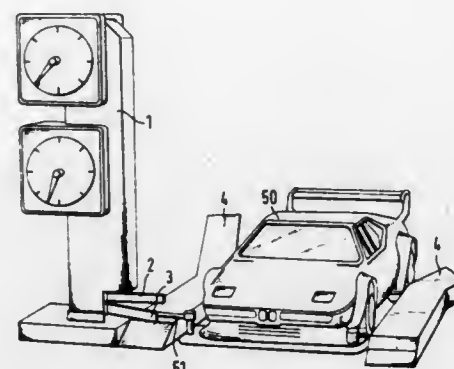
Filed Jan. 27, 1981, Ser. No. 229,011

Claims priority, application Fed. Rep. of Germany, Jan. 30, 1980, 3003212

Int. Cl.³ G07C 9/00

U.S. Cl. 235—93

5 Claims



1. A lap counter for radio controlled vehicles, comprising two spaced edge members defining a convergent track, at least one counting device situated adjacent at least one of said edge members, each said counting device including at least two counting stations, each said counting station having an indicator adapted to indicate the number of laps run by a vehicle and an actuator member operatively coupled to said indicator, each said actuator member extending transversely to said convergent track and adapted to be contacted by a trigger member carried by a vehicle, each said counting station including a first toothed wheel, a second toothed wheel and a reversing gear, said reversing gear being arranged such that first and second toothed wheels rotate at the same speed but in opposite directions, each said counting station further including two rotary indicators, each said rotary indicator being associated with one of said first and second toothed wheels and being arranged on opposite sides of said counting device, whereby when each said indicator of each said counting station is viewed they appear to rotate in the same direction.

4,366,375

THREE-COIN REGISTER TOY BANK

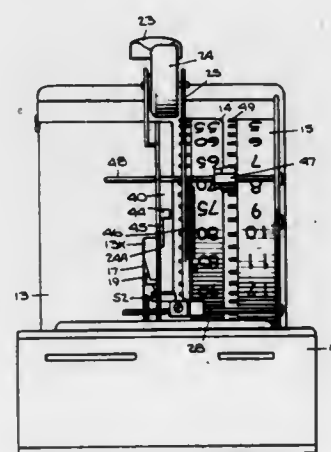
Dorland L. Crosman, Bloomfield, N.J., assignor to Buddy L Corporation, New York, N.Y.

Filed Dec. 15, 1980, Ser. No. 216,250

Int. Cl.³ G07G 1/00

U.S. Cl. 235—100

9 Claims



1. A coin bank register bank adapted to accept and totalize coins of different size, said bank comprising:

A. a cash box whose top wall is provided with an entry port;

B. a hollow drum mounted for rotation above the box on an

axle parallel to the top wall thereof, said drum having a coin receiver therein and being provided with a manually-operated pull-down lever for turning the drum from a normal angular position in which a coin may be deposited in the receiver, to an extreme angular position in which the receiver is aligned with the port to drop the coin in the cash box;

C. a register wheel mounted on said axle and having a circular series of teeth thereon on the side thereof facing the drum;

D. a clutch plate rotatably mounted on said axle between the drum and the first wheel, said plate being operatively coupled to the drum so that when the drum is turned to deposit a coin, the clutch plate is caused to turn in the same direction to an extent determined by the size of the coin and to engage the teeth of the first wheel, whereby the wheel is advanced concurrently therewith to indicate the deposit; and

E. an interlock mechanism triggered by the drum only when it is turned to its extreme position, the mechanism having a normally-retracted nose which, when the mechanism is triggered, is projected to engage said teeth and detent said first wheel to prevent any further advance thereof.

4,366,376

APPARATUS FOR INTERCONNECTING AN ACTUATOR AND A POSTAGE METER

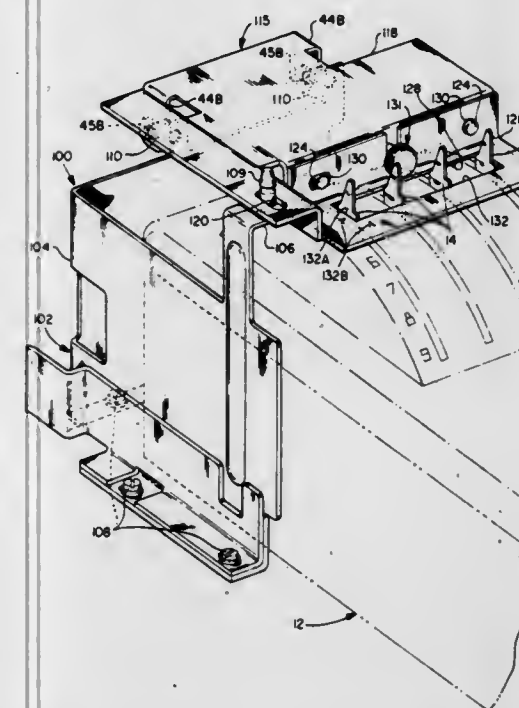
David B. Albright, Stratford; Keith E. Schubert, West Norwalk, and Philip Pollak, Jr., Westport, all of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Filed Jul. 11, 1980, Ser. No. 167,517

Int. Cl.³ G07G 1/00; B23Q 17/00

U.S. Cl. 235—101

5 Claims



1. Apparatus for interconnecting a postage meter and means for operating the postage meter, wherein said postage meter includes a lever which is positionable in a plurality of postage value selecting positions, said meter operating means includes a support, and said meter operating means includes means removably attachable to said support for positioning said postage meter lever, said apparatus comprising:

a. means for adjusting the spatial relationship between said postage meter and said meter operating means, and

b. means for fixing the spatial relationship between said postage meter lever and said lever positioning means, said fixing means including lever extension means fixedly attachable to said postage meter lever, and said lever extension means including rotatable means locatable in a predetermined position with respect to said adjusting means.

4,366,377

DUAL SENSITIVITY OPTICAL SENSOR

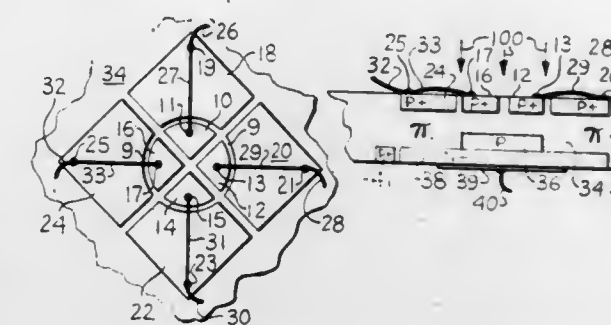
Johannes K. Notthoff, Lomita, and Rainer Zuleeg, San Juan Capistrano, both of Calif., assignors to McDonnell Douglas Corporation, Long Beach, Calif.

Filed Sep. 29, 1980, Ser. No. 191,364

Int. Cl.³ H01J 40/14

U.S. Cl. 250—211 J

14 Claims



1. An integrated dual sensitivity photodetector implemented in a semiconductor material substrate comprising a central region comprising a relatively high sensitivity photodetector device and a surrounding region comprising a relatively lower sensitivity photodetector device.

4,366,378

LASER LIGHT DETECTION SYSTEM

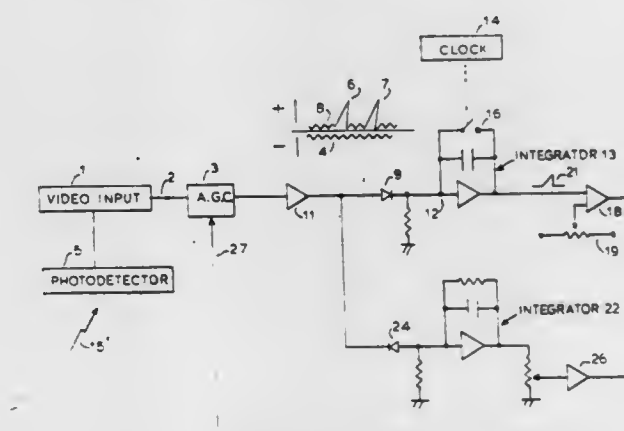
Brent S. Simons, Palo Alto, Calif., assignor to Itek Corporation, Lexington, Mass.

Filed Jan. 23, 1980, Ser. No. 114,771

Int. Cl.³ H01J 40/14

U.S. Cl. 250—214 AG

9 Claims



1. Adaptive gain integrator circuit comprising:

a. input means (1) for producing signal impulses of a given polarity, intermixed with noise impulses;

b. automatic gain control means (3) having an output circuit, a control circuit, and an input circuit coupled to said input means;

c. first integration means (13) coupled to the output circuit of said automatic gain control means for integrating both said signal impulses and said noise impulses during a given period;

d. second integration means (22) coupled to the output circuit of said automatic gain control means for integrating said noise impulses but not said signal impulses during a given period;

e. comparator means (18) having an input circuit coupled to the output circuit of said first integration means for producing an output signal should the output of said first integration means exceed a pre-determined threshold level; and

f. feedback means (26, 27) coupled to the output circuit of said second integration means for feeding a signal to said control circuit of said automatic gain control means pro-

portional to the magnitude of the output signal of said second integration means, for maintaining the amplitudes of the noise impulses applied to said first integration means substantially constant.

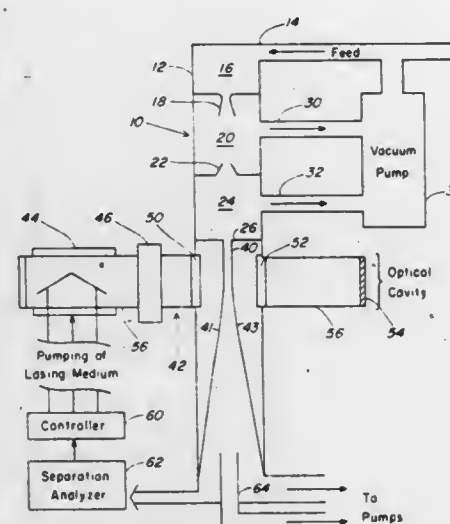
4,366,379

ISOTOPE SEPARATION APPARATUS AND METHOD
Theodore P. Cotter, Los Alamos, N. Mex., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.
Continuation of Ser. No. 452,764, Mar. 19, 1974, abandoned.
This application Jun. 5, 1978, Ser. No. 912,783

Int. Cl.³ B01D 59/00

U.S. Cl. 250—251

14 Claims



1. A method for inducing separation between two isotopes in a molecular beam using a laser emitting a beam of a selected wavelength, the selected wavelength being one that will be absorbed by unexcited molecules of one isotope and will stimulate emission by excited molecules of the one isotope, the method comprising the steps of:

- impinging a laser beam comprising π -pulse of the selected wavelength onto the molecular beam at a first angle of incidence and in a first direction to thereby excite molecules in the molecular beam, causing them to move essentially in the first direction in response thereto;
- impinging a laser beam comprising π -pulse of the selected wavelength into the molecular beam in a second direction to cause stimulated emission of the molecules excited by the first direction beam, causing such emitting molecule to move opposite to the second direction; and
- collecting the molecules so moved by the excitation and stimulation.

4,366,380

METHOD AND APPARATUS FOR STRUCTURAL ANALYSIS

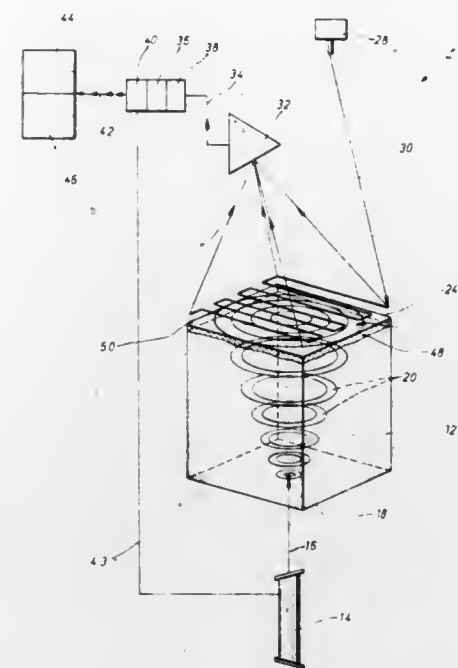
George Mirkin, 5514 Yarwell, Houston, Tex. 77096
Continuation-in-part of Ser. No. 83,783, Oct. 11, 1979, abandoned. This application Mar. 12, 1981, Ser. No. 243,064
Int. Cl.³ G01N 23/00

U.S. Cl. 250—306

21 Claims

1. A method for the non-destructive structural analysis of a solid object, the method comprising:
- applying a wave-generating laser beam pulse at a selected frequency to an input surface of the object to generate an elastic wave pattern in the object;
 - scanning the generated wave pattern over an output surface of the object with an electron beam scanning device in an evacuated chamber at a frequency which is a multiple of the wave-generating pulse frequency, to provide an output signal;
 - controlling operation of the scanning device in relation to the wave-generating pulse and processing the output

signal to generate a representative signal representative of the wave pattern at a preselected time instant; generating a composite signal from the representative signal and from a reference signal related to the wave-generating pulse; and



processing the composite signal to provide reconstruction means for the reconstruction of a representation of the object.

4,366,381

ELECTROTHERMOGRAPHIC APPARATUS FOR DETECTION AND PINPOINTING OF MALIGNANCIES IN HUMAN BODIES

Günter Fischer, Bergisch-Gladbach; Otto Stemme, Munich, and Eduard Wagenonner, Aschheim, all of Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

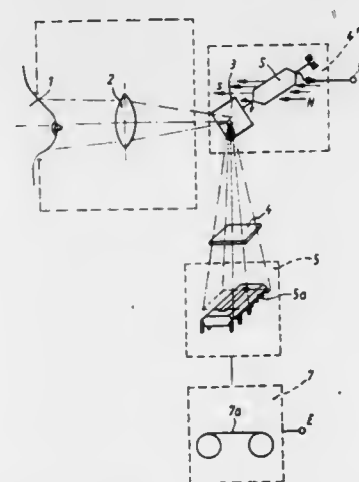
Filed Dec. 15, 1980, Ser. No. 216,361

Claims priority, application Fed. Rep. of Germany, Dec. 14, 1979, 2950317

Int. Cl.³ G03C 5/16

U.S. Cl. 250—316.1

18 Claims



1. An electrothermographic apparatus for detecting and pinpointing abnormalities in humans, especially cancerous growths in the mamma, comprising:

- (a) detector means including a row of pyroelectric detector elements, said detector means further including a self-scanning circuit and a shift register arrangement;
- (b) transmitting means for line-by-line transmission of a thermal image of a region under examination to said row of detector elements, said detector means being operative

- to cause the generation of signals which correspond to different points of the thermal image and have intensities denoting the temperatures of the respective points;
- (c) storing means for storing the signals from said detector means;
- (d) evaluating means for evaluation of the stored signals according to intensity; and
- (e) displaying means for displaying the evaluated signals in different colors each of which is indicative of a given range of intensities.

4,366,382

X-RAY LINE SCAN SYSTEM FOR USE IN BAGGAGE INSPECTION

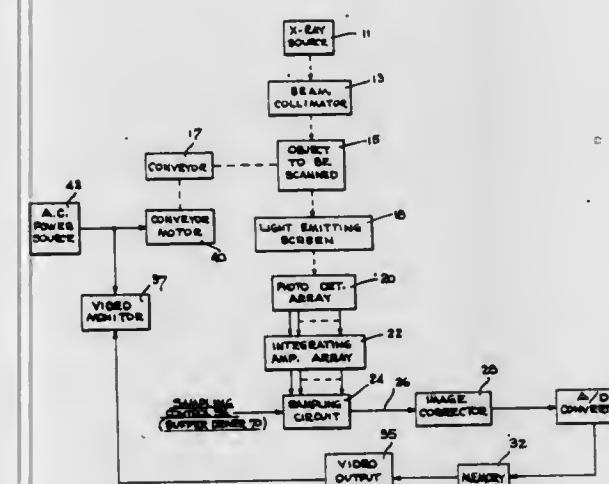
Andreas F. Kotowski, Covina, Calif., assignor to Scanray Corporation, Harbor City, Calif.

Filed Sep. 9, 1980, Ser. No. 185,561

Int. Cl.³ G01N 23/00

U.S. Cl. 378—57

8 Claims



1. A system for inspecting objects including an x-ray source, conveyor means for moving said objects through rays in the output of said source, means for receiving said rays after they have passed through said objects, means responsive to the output of said receiving means for providing a video display in accordance with the receiving means output comprising a light-emitting screen in the form of a strip, an array of photo-detectors opposite said screen for generating electrical signals in accordance with the light emission of the portions of the screen thereopposite, separate means for individually integrating the output of each of said detectors, electronic sampling circuit means for time multiplexing the outputs of said integrating means to provide a series of sequential pulses representing the outputs of said integrating means, means responsive to said pulses for generating video output signals, and video monitor means responsive to said video output signals for displaying said video output signals, and means for collimating the rays of said source into a narrow fan-shaped beam prior to their passage through the objects, said beam scanning said objects in successive slices as the conveyor means moves the objects therethrough.

4,366,383

ELECTRON BEAM TYPE PATTERN TRANSFER APPARATUS

Shunichi Sano, Zama; Toshiaki Shinozaki, Yokohama, and Ichiro Mori, Kodaira, all of Japan, assignors to VLSI Technology Research Association, Japan

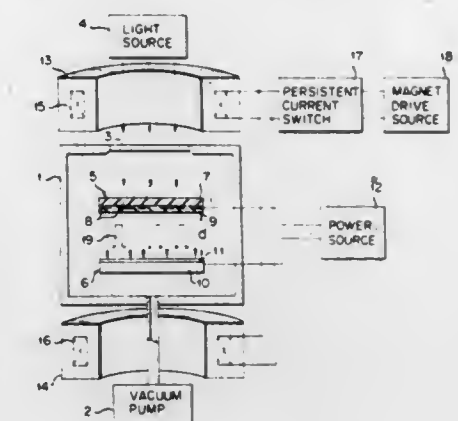
Filed Jul. 3, 1980, Ser. No. 165,618

Claims priority, application Japan, Jul. 6, 1979, 54-85563

Int. Cl.³ A61K 27/02; G01N 21/64

U.S. Cl. 250—492.3

2 Claims



1. An electron beam type pattern transfer apparatus comprising:

- a light source;
- a vacuum container made of non-magnetic material and having a window through which an ultraviolet ray passes;
- a photoelectric mask supported in the vacuum container and adapted to receive the ultraviolet ray from said light source and emit photoelectrons corresponding to a predetermined transfer pattern;
- a power source connected between said photoelectric mask and a sample disposed parallel to said photoelectric mask such that it faces the photoelectric mask with a predetermined distance left therebetween, and adapted to apply an acceleration voltage for accelerating said photoelectrons;
- a pair of focusing magnets arranged around the axis of the vacuum container such that they are located one at one outer side and one at the opposite outer side of said vacuum container and comprised of superconductive coils, respectively, for creating simultaneously a uniform and stabilized vertical magnetic field between the photoelectric mask and the sample; and
- a magnet drive source connected to the focusing magnets for excitation, in which the sample is illuminated with the photoelectrons emitted from the photoelectric mask so that a resist image corresponding to the transfer pattern is formed on the sample; and
- a persistent current switch connected in parallel between the superconductive coil of the focusing magnet and the magnet drive source to switch the superconductive coil to a persistent current mode for minimizing the ripple of the magnetic field.

4,366,384

AIR BUBBLE DETECTOR

Lynn E. Jensen, Clearfield, Utah, assignor to Cutter Laboratories, Inc., Berkeley, Calif.

Filed Jun. 18, 1980, Ser. No. 160,664

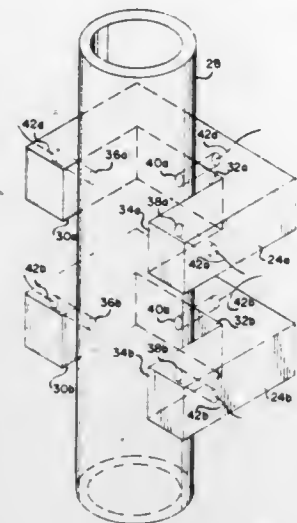
Int. Cl.³ G01N 15/06

U.S. Cl. 250—575

10 Claims

1. An air detector for use in conjunction with a generally transparent intravenous fluid conduit, the inner wall of said conduit being reflective to light, comprising:
- (a) a light source positioned alongside said conduit;
 - (b) first light-detecting means positioned alongside said conduit at a location diametrically opposite and facing said light source, and adapted for receiving direct light passing through the fluid in said conduit;

(c) second light-detecting means positioned alongside said conduit between said light source and said first light-detecting means, and adapted for receiving reflections from said inner wall of the conduit; and



(d) logic means coupled to said first and second light-detecting means and arranged to produce a particular signal when, and only when, the light levels detected separately and simultaneously by said first and second light-detecting means bear a predetermined logical relationship to one another.

4,366,385

ENGINE STARTER DRIVE

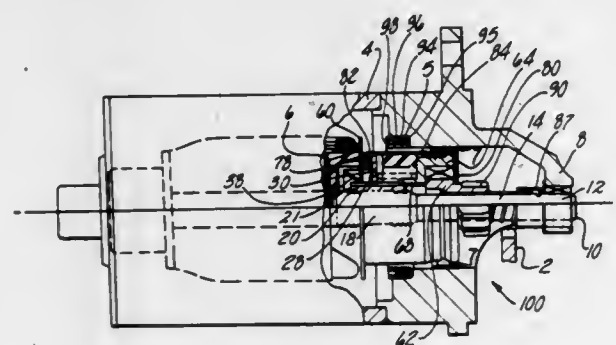
James O. Williams, Horseheads, N.Y., assignor to Facet Enterprises, Inc., Tulsa, Okla.

Filed Oct. 22, 1980, Ser. No. 199,410

Int. Cl.³ F02N 11/00

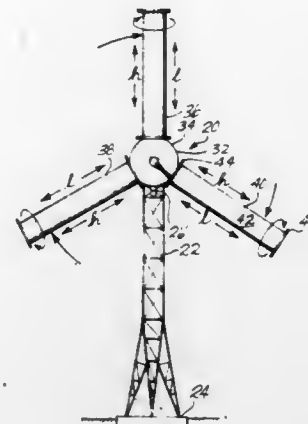
U.S. Cl. 290—38 R

20 Claims



1. A starter drive for starting internal combustion engines having a starter housing, a motor driven shaft with a cylindrical end portion and advancing means between said cylindrical end portion and the motor, said starter drive comprising: screw sleeve means for cooperatively engaging said advancing means on said motor driven shaft; ring armature means centrally disposed relative to said screw sleeve means and connected to said screw sleeve means; a drive pinion coaxially disposed on said cylindrical end portion of said motor driven shaft; unidirectional clutch means interconnecting said screw sleeve means, said ring armature means and said drive pinion; and means for engaging said ring armature means to said starter housing when said drive pinion is advanced axially along said motor driven shaft by the rotation of said motor when said motor is activated so as to engage a engine ring gear such that said drive pinion is held in mesh with said engine ring gear and the total motor torque is transmitted to said engine ring gear until the motor is deactivated.

4,366,386
MAGNUS AIR TURBINE SYSTEM
Thomas F. Hanson, 24204 Heritage La., Newhall, Calif. 91321
Filed May 11, 1981, Ser. No. 262,136
Int. Cl.³ F03B 5/00; F03D 7/06; H02P 9/04
U.S. Cl. 290—44 13 Claims



1. Magnus wind turbine comprising: fixed support means having azimuthal pivot carrying means; azimuthally pivotable nacelle housing mounted upon said pivot carrying means and having central bearing means with a horizontal rotor axis; rotor body carried by said nacelle housing and said central bearing means for rotation about said horizontal rotor axis and having a polar symmetric arrangement of spin bearing means disposed with radial axes stemming from said horizontal rotor axis and lying in a vertical plane; a plurality of Magnus spin barrels each carried by one of said spin bearing means and extending radially outwardly from a point adjacent said rotor body; spin drive means for coupling spin energy to each of said Magnus barrels; means for coupling torque energy of said rotor body to said nacelle housing; power removing circular track means mounted in said nacelle housing in a vertical plane and concentric about said horizontal rotor axis; and power removing wheel means carried by said rotor body in driven rolling relation with said circular track means.

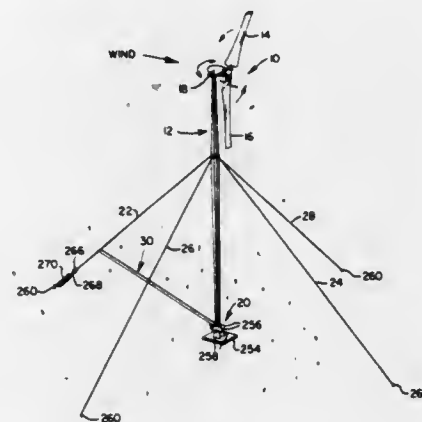
4,366,387
WIND-DRIVEN GENERATOR APPARATUS AND METHOD OF MAKING BLADE SUPPORTS THEREFOR
J. Warne Carter, Jr., Burkburnett, and J. Warne Carter, Sr., Wichita Falls, both of Tex., assignors to Carter Wind Power, Wichita Falls, Tex.

Filed May 10, 1979, Ser. No. 37,774

Int. Cl.³ F01D 5/14; F03D 7/04; H02J 3/08

U.S. Cl. 290—55

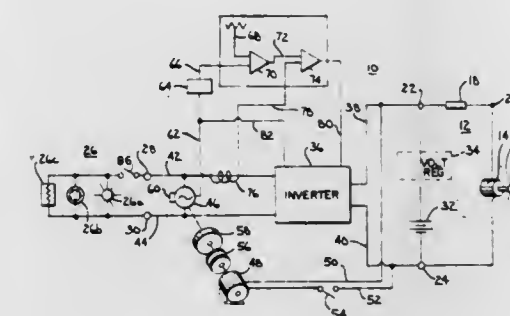
39 Claims



1. In wind-driven generator apparatus, a rotor blade comprising an inboard portion and an outboard portion, the blade

being shaped so that at rest the inboard portion has a substantial average pitch and the outboard portion has less average pitch than the inboard portion, the outboard portion being a substantially constant-chord portion and the inboard portion having a chord that increases as the root of the blade is approached.

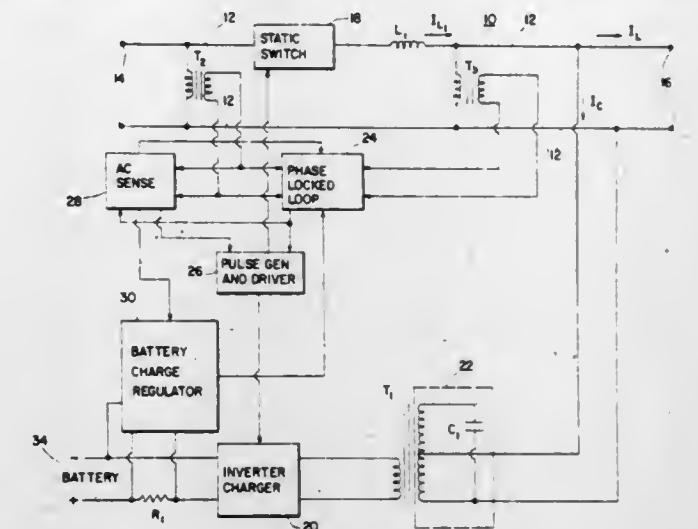
4,366,388
ENERGY UTILIZATION CIRCUIT AND METHOD
Alan W. Wilkerson, 410 Madero Dr., Thiensville, Wis. 53092
Continuation of Ser. No. 34,632, Apr. 30, 1979, abandoned. This application Nov. 10, 1980, Ser. No. 205,768
Int. Cl.³ H02J 1/12, 7/34; H02P 13/20
U.S. Cl. 307—46 24 Claims



1. A utilization circuit for utilizing the energy present in contemporaneous geophysical conditions to energize an a.c. load with a.c. power having selected voltage and frequency characteristics, said load being connectable to output terminals of said utilization circuit, said circuit comprising: conversion means responsive to the energy of the contemporaneous geophysical conditions for converting the energy to d.c. electrical power; inverting means having an input connected to said conversion means for receiving said d.c. electrical power, said inverting means altering said d.c. power to a.c. power and providing same to an output thereof connected to the output terminals of said circuit; electrical power storage means interposed at the input of said inverting means and operatively associated with said conversion means for storing power from said conversion means when said conversion means is in an excess power condition and for augmenting the power of said conversion means to the inverting means when said conversion means is in a power deficit condition; a.c. wave generating means connected in the output of said inverting means and to said circuit output terminals, said a.c. wave generating means assuming an operative condition, responsive to energization by said inverting means, establishing a wave having the selected voltage and frequency characteristics and maintaining said characteristics when subjected to the output of said inverting means; means for synchronizing the operation of said inverting means and a.c. wave generating means; and a.c. wave generating means operative condition signal means connected to said generating means for providing a signal responsive to the operative condition of said generating means, said signal means being coupled to said inverting means for controlling the power output of said inverting means to maintain the operative condition of said generating means.

4,366,389
CONTINUOUSLY OPERATING STANDBY A-C POWER SYSTEM
Sam W. Hussey, Lakewood, Ohio, assignor to Reliance Electric Company, Cleveland, Ohio
Filed Jul. 13, 1981, Ser. No. 282,872
Int. Cl.³ H02J 9/06 20 Claims

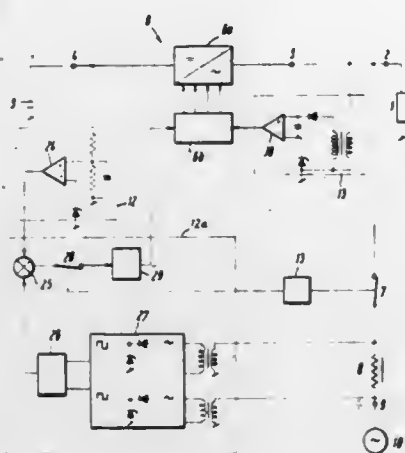
U.S. Cl. 307—66



1. A power-supply system having an input and an output connected by an A-C voltage transmission means for providing at said output a regulated A-C voltage, which comprises: (a) sensing means to sense the voltage waves in said transmission means on the input and output sides of said system, said sensing means being directly connected to said transmission means whereby there is no substantial phase shift between said transmission means and said sensing means, (b) means responsive only to said input A-C voltage wave for determining the occurrence in said input voltage wave of at least one of a predetermined number of undesirable conditions, said means generating a first signal of predetermined amplitude upon said occurrence and a second signal of predetermined amplitude upon the nonoccurrence of said undesirable conditions, (c) a switch means interposed in said transmission means between said input and output thereof, said switch means normally operating in a closed condition and being adapted to be selectively inhibited, upon the occurrence of said first signal, to thereby prevent transmission of said input A-C voltage wave to said output, (d) a standby power system including a bidirectional inverter connected between a battery and said output and adapted to supply from said battery an A-C voltage wave of predetermined frequency to said output during periods when said switch means is inhibited, and (e) a phase control means operating in a loop between said input and said output, said loop being the only loop in said system and fully closed when said switch means operates in a closed condition, said phase control means responsive when said loop is fully closed to said input and output voltage waves and said second signal for controlling the phase relationship between said voltage waves, said phase control means responsive to said first signal for fully opening said fully closed loop and for controlling said frequency of said A-C voltage wave supplied by said standby power system.

4,366,390
EMERGENCY POWER UNIT
Soren H. Rathmann, Juvelvej 74, 8700 Horsens, Denmark
Filed Aug. 17, 1981, Ser. No. 293,103
Claims priority, application Fed. Rep. of Germany, Jul. 16, 1980, 3128030; Sep. 2, 1980, 3033034
Int. Cl.³ H02J 9/00 7 Claims
U.S. Cl. 307—66 1. An emergency power unit for an AC consumer, compris-

ing, a battery, an input terminal for an AC generator, a controllable bidirectional converter unit between said battery and said input terminal, an AC consumer output terminal between said battery and said input terminal, current limiting means between the AC side of said converter unit and said AC generator input terminal, AC voltage regulator means for stabilizing the AC voltage on the AC side of said converter unit by pulse



width modulation means, battery voltage regulator means for stabilizing battery voltage by shifting the phase position of the AC voltage at said consumer output terminal relative to the phase position at said input AC terminal by phase shifting the pulses for controlling said converter unit as a function of the battery voltage, said AC generator input terminal being in parallel to the AC voltage side of said converter unit.

4,366,391

FUEL BURNER CONTROL SYSTEM CIRCUITS

Alan Brightwell, Stourbridge, England, assignor to British Gas Corporation, London, England

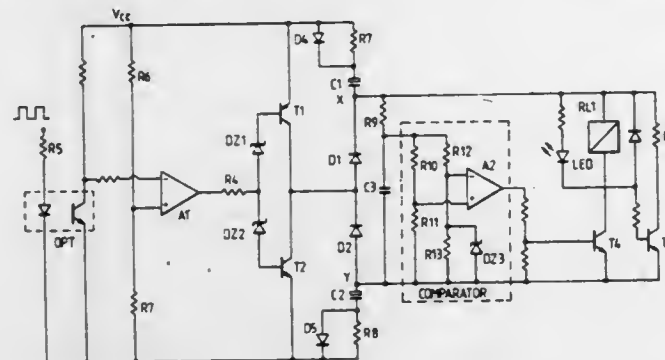
Filed Feb. 24, 1981, Ser. No. 237,766

Claims priority, application United Kingdom, Nov. 6, 1980, 8035734

Int. Cl.³ H01H 35/00

U.S. Cl. 307—129

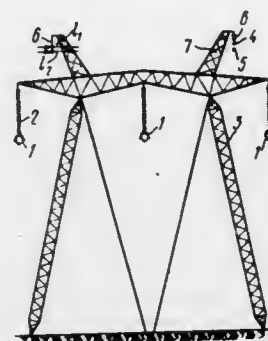
4 Claims



1. A circuit for a fuel burner control system comprising a source of input pulses having a repetition rate which is normally within a predetermined range, frequency sensitive diode pump circuit means sensitive to said pulses to produce an output having a direct current component which exceeds a predetermined threshold when the repetition rate of said input pulses is within said predetermined range but not when the repetition rate is outside said range and comparator circuit means adapted to deliver a control signal to said fuel burner control system when said direct current component exceeds said predetermined threshold.

4,366,392
AERIAL POWER TRANSMISSION LINE WITH
LIGHTNING PROTECTION WIRES DESIGNED ALSO
TO TRANSMIT RF SIGNALS
Vyacheslav K. Ishkin, ulitsa Paustovskogo, 8, korpus 3, kv. 161,
Moscow, U.S.S.R.
PCT No. PCT/SU79/00129, § 371 Date Sep. 3, 1980, § 102(e)
Date Sep. 3, 1980, PCT Pub. No. WO80/01441, PCT Pub.
Date Jul. 10, 1980
PCT Filed Dec. 5, 1979, Ser. No. 205,443
Claims priority, application U.S.S.R., Jan. 4, 1979, 2729716
Int. Cl.³ H02G 7/22, 13/00
U.S. Cl. 307—147

3 Claims



1. An aerial power transmission line comprising three phase transmission wires suspended from supports and spaced from each other in the horizontal direction and a lightning protection system comprising two pairs of ground wires, said ground wires being insulated from each other and arranged to form an rf channel for conveying information in the form of rf signals, the ground wires of each pair being suspended by a string of insulators from said supports one under the other, one pair of said wires being located above said three phase transmission wires and in a vertical plane between the middle one, and one of the outside phase wires, the other pair of said ground wires being located above the transmission wires in a vertical plane between the middle one and the other of said outside phase wires.

4,366,393
INTEGRATED LOGIC CIRCUIT ADAPTED TO
PERFORMANCE TESTS

Yoshihiro Kasuya, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

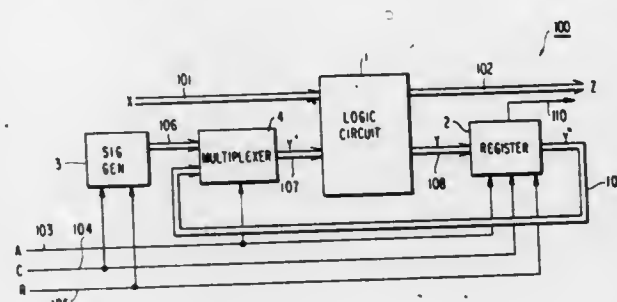
Filed Mar. 17, 1980, Ser. No. 130,687

Claims priority, application Japan, Mar. 15, 1979, 54-30243; Mar. 15, 1979, 54-30253; Mar. 15, 1979, 54-30254; Mar. 15, 1979, 54-30256

Int. Cl.³ H03K 21/00, 19/20

U.S. Cl. 307—221 R

9 Claims



1. An easily testable integrated logic circuit, comprising: a logic circuit receiving a plurality of first inputs and a plurality of second inputs for providing logic outputs; means for generating a random signal; multiplexing means having first and second multiplexing inputs and which, in response to a control signal, selectively supplies said first multiplexing inputs as said second

logic inputs, said first multiplexing inputs being received from said random number generator; means for applying said control signal to said multiplexing means; a plurality of flip-flops for receiving and storing outputs from said logic circuit, the outputs of said flip-flops being fed back to the second input of said multiplexing means; and means for coupling said flip-flops to form a feedback shift register in response to said control signal, the output of one of said flip-flops constituting the output of said feedback shift register.

4,366,394

DIVIDE BY THREE CLOCK DIVIDER WITH
SYMMETRICAL OUTPUT

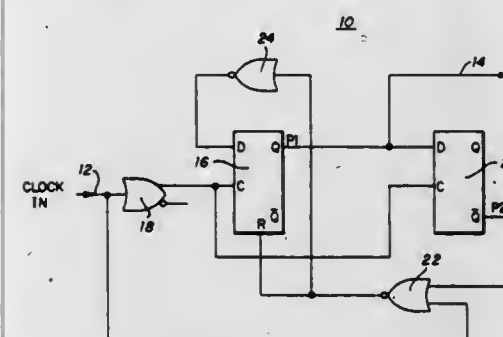
Steven J. Clendening, Plano, and Tello D. Adams, Richardson, both of Tex., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Sep. 25, 1980, Ser. No. 190,683

Int. Cl.³ H03K 2/36, 21/06

U.S. Cl. 307—225 R

9 Claims



1. A divide by three digital clock divider circuit providing a symmetrical output, comprising: flip-flop means for receiving clock pulses of frequency F ; and second means for alternately setting and resetting said flip-flop means on alternate inverted third clock pulse edges, and for maintaining the set and reset states of said flip-flop means for two consecutive clock pulse edges between set and reset transitions on said alternate third inverted clock pulse edges to provide symmetrical output pulses of frequency $\frac{1}{3}F$ with a substantially 50% duty cycle, said second means comprising logic means responsive directly to said clock pulses and to the output of said first flip-flop means for resetting said first flip-flop means every sixth clock pulse edge and for setting said first flip-flop means every third clock pulse edge following a reset clock pulse edge such that said flip-flop means is set every sixth clock pulse edge symmetrically interleaved with said resetting.

4,366,395

CIRCUIT FOR CONTROLLING THE GRID POTENTIAL
OF A PULSED X-RAY TUBE

Richard G. Gillard, Kenilworth, and Colin C. Oliver, Slough, both of England, assignors to EMI Limited, Hayes, England

Filed Oct. 28, 1980, Ser. No. 201,527

Claims priority, application United Kingdom, Nov. 21, 1979, 7940211

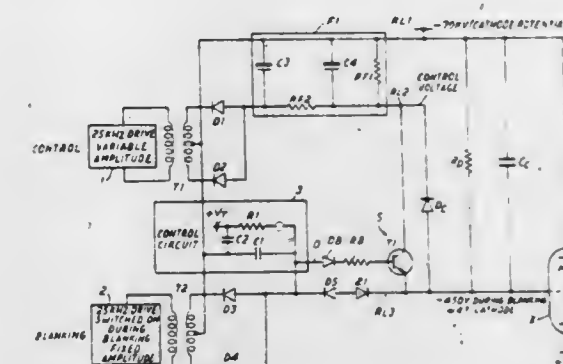
Int. Cl.³ H03K 17/12, 17/28

U.S. Cl. 307—246

8 Claims

1. A circuit for producing a control voltage for application to a control grid interposed between an anode and a cathode of an X-ray tube to produce a pulse-modulated current flow in the tube, the circuit being for connection to the X-ray tube via a cable having a cable capacitance, and the circuit comprising:

a first voltage generator for generating a first voltage for regulating the said current flow;
a second voltage generator for periodically generating a second voltage for suppressing the said current flow;
an output for connection to the cable for connecting the circuit to the tube;
means connecting the output to the generators such that the second voltage, when generated, overrides the first voltage;
a discharge path connected across the output of the circuit to provide a discharge path for the discharge of the capac-



itance of the cable, the path including a controllable switching means connected between the outputs of the first and second voltage generators, means for deriving an actuating voltage from the second generator when the second voltage is produced; and a control means arranged to be actuated by the actuating voltage and responsive to the cessation of the second voltage to produce a control signal for controlling the switching means to complete the discharge path and define a desired transition between the application of the first and second voltages to the output of the circuit.

4,366,396

SEMICONDUCTOR CIRCUIT FOR TRANSFORMING
SEQUENCES OF PERIODIC A-C SIGNALS

Helmut Rösler; Otto Mühlbauer, both of Munich, and Klaus D. Bigall, Vaterstetten, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

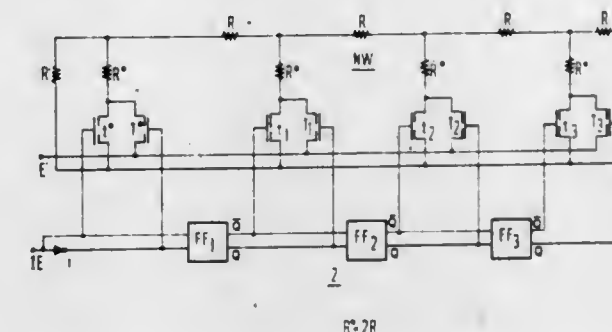
Filed Apr. 4, 1980, Ser. No. 137,420

Claims priority, application Fed. Rep. of Germany, Apr. 25, 1979, 2916765

Int. Cl.³ H03K 5/08, 5/156

U.S. Cl. 307—261

8 Claims



1. Semiconductor circuit for transforming sequences of periodic a-c voltage signals, comprising a signal input carrying the signals to be transformed, a signal output, a supply potential input supplying a potential differing from reference potential, a given number greater than one of pairs of identical first and second transistors each having a current input electrode, a current output electrode and a control electrode, a clock controlled input, a chain of flip-flop counters being connected at an end thereof to said clock controlled input and having said

given number of counting stages so that said counting stages are disposed at increasingly greater distances from said clock controlled input along said chain in a given direction, said counting stages each having two outputs and each being assigned to a different transistor pair, a bridging resistor, a chain of resistors having said given number of resistors in sequence and having an end connected to said signal output, another end connected to said bridging resistor, and a plurality of divider points each being associated with a counting stage and being disposed between each two resistors so that said divider points associated with said counting stages are disposed at increasingly shorter distances from said signal output along said chain in said given direction, a plurality of additional resistors each being connected to a different one of said divider points, said current input electrode of each of said first transistors being connected to said signal input, said current input electrode of each of said second transistors being connected to said supply potential input and through said bridging resistor to said other end of said chain of resistors leading to said signal output, said current output electrodes of said first and second transistors of each transistor pair being connected together through a different resistor of said plurality of additional resistors to a different divider point, and said control electrodes of each of said transistors of each transistor pair being connected to a different one of said outputs of said counting stage assigned thereto.

4,366,397

LEVEL CONVERSION CIRCUIT

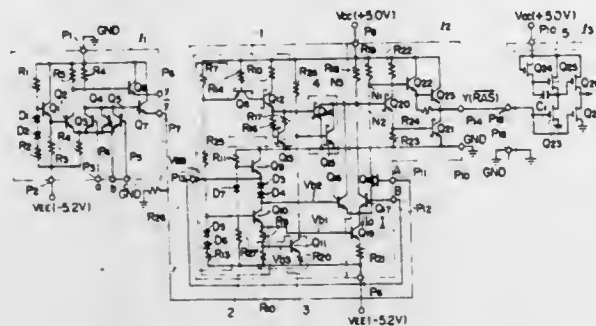
Nobuaki Kitamura, Kodaira; Kouji Masuda, Ohme, and Masao Mizukami, Yokohama, all of Japan, assignors to Hitachi, Ltd. and Hitachi Ome Electronic Co., Ltd., both of Tokyo, Japan
Filed Jun. 9, 1980, Ser. No. 157,936

Claims priority, application Japan, Jun. 29, 1979, 54-81350; Sep. 3, 1979, 54-111776

Int. Cl.³ H03K 19/092

U.S. Cl. 307—264

6 Claims



1. A level conversion circuit for deriving an output signal having a positive level from an input signal having a negative level comprising:

- first and second input transistors having the emitters thereof connected to one another;
- a first load resistor connected between the collector of said first input transistor and a positive power source voltage terminal;
- a second load resistor connected between the collector of said second input transistor and said positive power source voltage terminal;
- a current source transistor connected between the emitters of said first and second input transistors and a negative power source voltage terminal;
- an output circuit connected between said positive power source voltage terminal and a ground potential terminal, said output circuit being connected to receive signals from the collectors of said first and second input transistors and to produce said output signal;
- a bias circuit feeding a first bias voltage to the base of said current source transistor, said bias circuit being connected between said positive power source voltage terminal and said negative power source voltage terminal; and
- a third transistor receiving at the base thereof a second bias voltage generated by said bias circuit and having the

collector and emitter thereof connected to the collector and emitter of said second input transistor, respectively.

4,366,398

AMPLIFIER CIRCUIT

Fumitaka Asami, Kunitachi, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

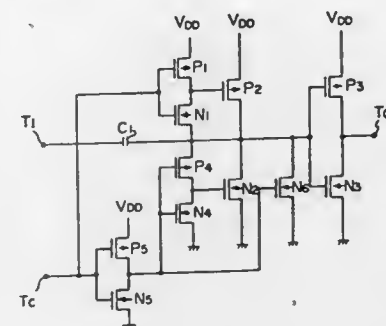
PCT No. PCT/JP79/00285, § 371 Date Jul. 17, 1980, § 102(e) Date Jul. 3, 1980, PCT Pub. No. WO80/01124, PCT Pub. Date May 29, 1980

PCT Filed Nov. 6, 1979, Ser. No. 201,387

Claims priority, application Japan, Nov. 17, 1978, 53-142533 Int. Cl.³ H03K 19/40

U.S. Cl. 307—451

10 Claims



1. An improved amplifier circuit of the type including a cascade connection of first and second inverters, each of which consists of series connected p channel and n channel transistors, with the amplifier having an input port connected to the input of the first inverter for receiving a signal to be amplified and having an output port connected to the output of the second inverter for delivering an amplified signal, wherein the improvement comprises: first means for connecting the gates of both transistors of said first inverter to their respective drains when said amplifier is being operated; second means for connecting said gates of both transistors of said first inverter to potentials which set said both transistors of said first inverter at their cut-off conditions when said amplifier is not operated; and control port means for receiving a control signal for controlling the first and second means.

4,366,399

FREQUENCY DISCRIMINATION CIRCUIT

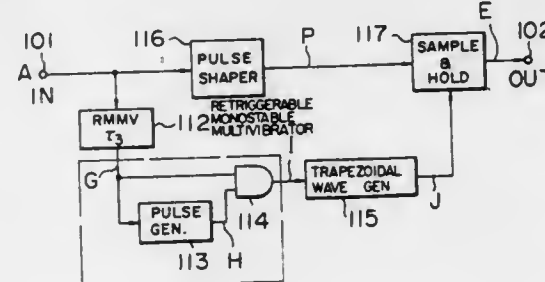
Takashi Furuhashi, Yokohama, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 29, 1980, Ser. No. 221,324

Claims priority, application Japan, Dec. 26, 1979, 54/168369 Int. Cl.³ H03K 5/19, 6/00; G11C 27/02

U.S. Cl. 307—519

6 Claims



1. A frequency discrimination circuit for generating an output signal having a value proportional to a frequency of an input pulse signal in a predetermined range of frequencies to be detected, comprising:

- (a) means including a retriggerable monostable multivibrator for generating a first square wave signal of a predetermined pulse width in synchronism with said input pulse signal except when said retriggerable monostable multivibrator

brator is retriggered, said input pulse signal being applied as a triggering input to said retriggerable monostable multivibrator;

- (b) gate means including a gate circuit said gate circuit receiving said first square wave signal and a delaying pulse as first and second inputs, respectively, said delaying pulse providing a delay time of at least a pulse width of a sampling pulse sufficient to perform a sampling and holding operation, said gate means generating a second square wave signal in response to said first square wave signal, said second square wave signal being synchronized with said first square wave signal except that a leading edge of said second square wave signal being delayed by a pulse width said delaying pulse as compared with said leading edge of said first square wave signal;
- (c) a trapezoidal wave generator supplied with said second square wave signal for generating a signal, said signal being maintained at a minimum value during said first square wave signal is present and being varied monotonically with time at a period when said first square wave signal is absent; and
- (d) a sample-and-hold circuit receiving said signal from said trapezoidal wave generator and said sampling pulse as its input to be sampled and its sampling input, respectively, for outputting a frequency discrimination output signal corresponding to said input pulse signal, said sampling pulse being generated in synchronism with the application of each input pulse signal.

4,366,400

DELAY GATE CIRCUIT

Howard C. Kirsch, Emmaus, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

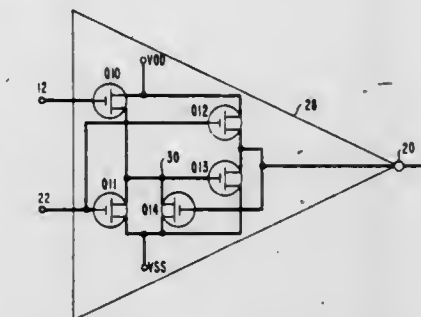
Division of Ser. No. 929,369, Jul. 31, 1978, Pat. No. 4,250,414.

This application Nov. 23, 1979, Ser. No. 96,897

Int. Cl.³ H03K 17/284, 3/353

U.S. Cl. 307—594

2 Claims



1. Circuitry comprising: first, second, third, and fourth switching devices (Q10, Q11, Q12, and Q13, respectively) each having a control terminal and first and second output terminals;

the second output terminal of the first switching device (Q10) being coupled to the first output terminal of the second switching device (Q11), to the control terminal of the fourth switching device (Q13), and to a first circuitry terminal (30);

the control terminals of the second and third switching devices (Q11 and Q12) being coupled together to a second circuitry terminal (22);

the second output terminal of the third switching device (Q12) being coupled to the first output terminal of the fourth switching device (Q13) and to a third circuitry terminal (20);

the control terminal of the first switching device (Q10) serving as a first input terminal;

the second circuitry terminal (22) serving as a second input terminal;

the third circuitry terminal (20) serving as a circuitry output terminal; and

the first output terminals of the first and third switching

devices (Q10 and Q12) being coupled together and being connectable to a first biasing source (VDD); the second output terminals of the second and fourth (Q11 and Q13) switching devices being coupled together and being connectable to a second biasing source (VSS); and a fifth switching device (Q14) having a control terminal coupled to the third circuitry terminal (20), said fifth switching device having a first output terminal coupled to the first circuitry terminal (30) and having a second output terminal coupled to the second output terminal of the second switching device (Q11).

4,366,401

ELECTROMAGNETIC DEVICES

Alec H. Seilly, North Wembley, England, assignor to Lucas Industries Limited, Birmingham, England

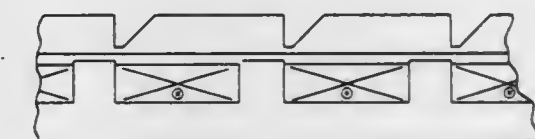
Filed Oct. 17, 1980, Ser. No. 197,903

Claims priority, application United Kingdom, Dec. 1, 1979, 7941560

Int. Cl.³ H02K 41/00

U.S. Cl. 310—12

4 Claims



1. An electromagnetic device comprising a stator structure, electric windings on the stator structure to which in use, electric current can be supplied, axially spaced pole pieces extending about the stator structure and having a uniform radial extent outwardly from said stator to define an outer diameter of said stator, adjacent ones of said pole pieces assuming opposite magnetic polarity when the windings are supplied with the electric current and a tubular armature surrounding the stator structure and which partakes of axial movement when the windings are energized, the internal surface of the armature being cylindrical and continuous over essentially the entire length thereof, the diameter of said armature internal surface being slightly larger than said stator outer diameter, and the external surface of the armature having a plurality of steps defined thereon with each step extending for essentially one pitch of said pole pieces, said steps being machined so that over the pitch of a pair of adjacent pole pieces of the stator, at one end of the step distance the armature has a thickness such that magnetic saturation of the material forming the armature takes place when the windings are energized and at the other end of the step the armature is of a thickness such that magnetic saturation of the material forming the armature will not take place when the windings are energized with the varying amount of magnetic saturation creating flux lines along a path which is inclined to the central longitudinal axis of the armature to define an axial force on the armature when the windings are energized.

4,366,402

CYLINDRICAL CAPACITIVE TACHOGENERATOR

Günter Marsoner, Vienna, Austria, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 15, 1980, Ser. No. 216,109

Claims priority, application Austria, Jan. 22, 1980, 331/80

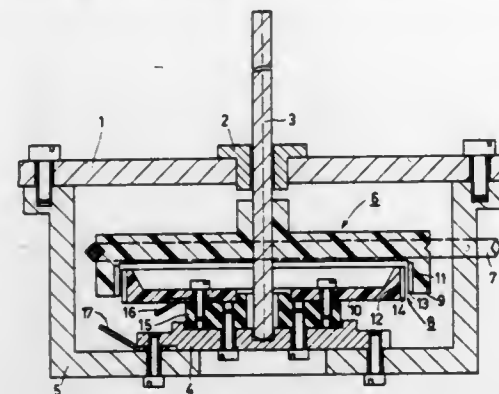
Int. Cl.³ G01P 3/48

U.S. Cl. 310—68 B

4 Claims

1. A cylindrical capacitive tachogenerator comprising a rotor part and a stator part, one of said parts being arranged as an inner cylinder and the other part being a hollow outer cylinder coaxially disposed about the one part and defining an air gap between the cylindrical surfaces of said cylinders, said cylinders each having an equal number of respective teeth spaced from each other by tooth gaps and uniformly distrib-

uted around the circumference, the ratio of the effective capacitive width of a tooth at its free end to the effective capacitive width of an adjacent tooth gap at the same circumferential



level having a predetermined value, characterized in that the effective capacitive width of a tooth on one cylindrical surface is smaller than each of the effective capacitive widths of a tooth and of a tooth gap on the other cylinder surface.

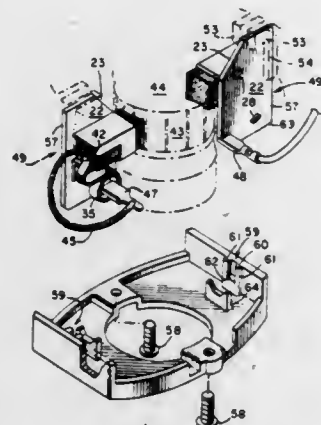
4,366,403 BRUSH ASSEMBLY AND MOUNTING ARRANGEMENT FOR A PORTABLE TOOL

Frank F. Simpson, Staines; John W. Johnson, Wimbledon, and Robert J. Oatham, Caldecote, all of England, assignors to Black & Decker Inc., Newark, Del.

Filed Aug. 27, 1980, Ser. No. 181,818
Claims priority, application United Kingdom, Aug. 31, 1979, 7930273

Int. Cl.³ H02K 13/00
U.S. Cl. 310—239

12 Claims



1. A portable electric tool comprising: an electric motor housed in a motor casing; a brush assembly having two brush units; each brush unit including a planar board having a brush housing mounted thereon for holding a brush in contact with the commutator of the motor; said motor casing having radial and axial internally positioned grooves constructed to removably receive edge portions of said planar boards therein at a location adjacent the commutator; and a single cap removably mounted to the motor casing so as to expose both said brush units to facilitate their easy withdrawal from and insertion into said grooves, said cap having internally thereof portions in abutment with said planar boards to thereby firmly hold said planar boards in position in said grooves when said cap is secured in place.

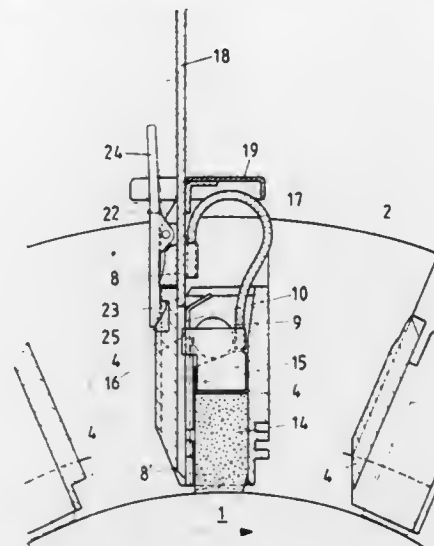
4,366,404 BRUSH ASSEMBLY FOR DYNAMOELECTRIC MACHINES

Herwin G. Ziegler, Nussbaumen, Switzerland, assignor to BBC, Brown, Boveri & Company, Limited, Baden, Switzerland
Filed Mar. 10, 1981, Ser. No. 242,290

Claims priority, application European Pat. Off., Mar. 21, 1980, 80200257

Int. Cl.³ H02K 13/00
U.S. Cl. 310—239

16 Claims



1. A brush assembly for dynamoelectric machines provided for the transfer of current from a stationary supporting structure to a rotating contact part, said brush assembly provided with brush boxes which are mechanically and electrically connected with the supporting structure to receive and radially guide plural brushes towards the rotating contact part, wherein the brushes are removable for control and replacement purposes from the stationary supporting structure, while the machine is running and under voltage, comprising: said stationary supporting structure comprising a stationary brush bar having plural integrally formed stationary brush boxes in which respective brushes are to be disposed; a sub-assembly slidable into said brush boxes and including at least one brush carrier element on which is mounted said plural brushes, and means for rigidly moving said brushes in radial direction toward said rotating contact part, including spring means for biasing said brushes against said rotating contact part; locking means for locking said sub-assembly in an operating position within said brush boxes; and means for simultaneously making an electrical connection between said stationary brush bar having said integrally formed brush boxes and said brushes upon sliding and locking of said sub-assembly within said brush boxes.

4,366,405 TACHOGENERATOR HAVING STRAY FLUX CANCELLING OUTPUT COILS

Fritz Schmider, Hornberg, Fed. Rep. of Germany, assignor to Papst Motoren KG, St. Georgen, Fed. Rep. of Germany
Filed Aug. 21, 1980, Ser. No. 180,110

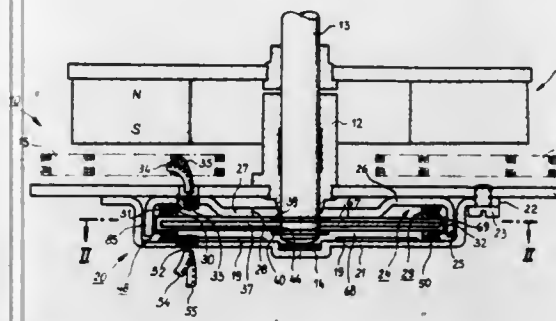
Claims priority, application Fed. Rep. of Germany, Aug. 23, 1979, 2934085

Int. Cl.³ H02K 1/22, 11/00, 16/04
U.S. Cl. 310—268

16 Claims

1. A tachogenerator having two toroidal magnetic circuits and a rotor forming part of both said magnetic circuits, each of said magnetic circuits passing through said rotor, having a source of magnetic flux and having an individual winding for pick up of induced current, the configurations of the source of magnetic flux, rotor and winding of each circuit being such as to induce current in the winding of each magnetic circuit which is of a frequency dependent on the rotational speed of

the rotor, the frequency being the same for the currents induced in both windings, said windings being so wound that induced currents of said frequency in one winding are spatially in phase opposition to those in the other winding and so con-



nected that the said currents of said frequency reinforce each other, while electromotive forces in said windings induced by alternating stray magnetic flux passing through the tachogenerator compensate each other so as to inhibit the inducing of disturbing current.

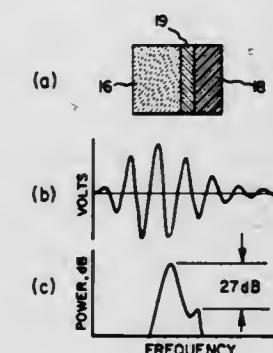
4,366,406 ULTRASONIC TRANSDUCER FOR SINGLE FREQUENCY APPLICATIONS

Lowell S. Smith, Schenectady, N.Y., and Axel F. Briskin, Shingle Springs, Calif., assignors to General Electric Company, Schenectady, N.Y.

Filed Mar. 30, 1981, Ser. No. 249,286
Int. Cl.³ H01L 41/08

U.S. Cl. 310—334

6 Claims



1. An ultrasonic transducer for single frequency applications comprising:

a front surface matched transducer comprising at least one transducer element to which are bonded first and second impedance matching layers that serve as acoustic transformers to match the high acoustic impedance of said element to the low acoustic impedance of the human body or water; said first matching layer having a thickness proportional to 90/360 to 100/360 wavelength and said second matching layer next to said element having a thickness proportional to 35/360 to 55/360 wavelength, both at a given nominal reference frequency of operation; said front surface matched transducer having a narrow band frequency spectrum and high sensitivity.

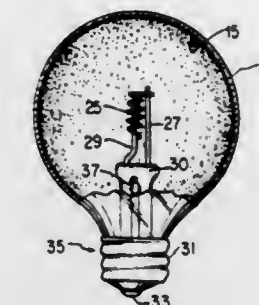
4,366,407 INCANDESCENT LAMP WITH SELECTIVE COLOR FILTER

Peter Walsh, Stirling, N.J., assignor to Duro-Test Corporation, North Bergen, N.J.

Continuation-in-part of Ser. No. 45,645, Jun. 5, 1979, which is a continuation of Ser. No. 863,155, Dec. 22, 1975, abandoned. This application Aug. 1, 1980, Ser. No. 174,711

Int. Cl.³ H01J 5/16
U.S. Cl. 313—112

20 Claims



1. An incandescent electric lamp for producing visible light of a selected color region comprising: an envelope of material which is transmissive to energy in the visible range, filament means within said envelope which incandesces in response to electrical current applied thereto to produce radiant energy in both the visible and infrared regions, means for supplying electrical current to said filament means, and a coating on said envelope formed of a discrete film of a dielectric material sandwiched between two discrete films of a metal, said films forming a composite filter for transmitting therethrough energy over only a selected portion of the visible range produced by said filament to provide a distinct color output for the lamp.

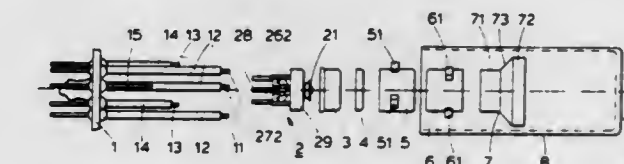
4,366,408 ARC DISCHARGE LAMP HAVING LARGE ANODE RADIATING SURFACE

Geoffrey A. Cooper, and Donald W. Ward, both of Cambridge, England, assignors to Pye (Electronic Products) Ltd., Cambridge, England

Filed Sep. 22, 1980, Ser. No. 189,287
Claims priority, application United Kingdom, Oct. 5, 1979, 7934688

Int. Cl.³ H01J 61/06, 61/00
U.S. Cl. 313—193

9 Claims



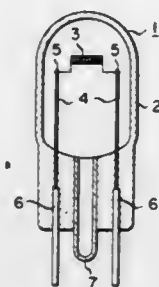
1. An electric arc discharge lamp comprising a discharge vessel, an ionizable gas fill, a cathode, an anode, means for applying an electrical potential between the cathode and anode to cause an electrical arc discharge therebetween and a refractory metal diaphragm located between the cathode and anode, the diaphragm having an aperture to restrict the area over which the discharge occurs, the anode including means for limiting the temperature thereof, said means including a cup shaped member having an aperture in its closed end and mounted with its closed end facing the diaphragm so that the apertures are aligned, and an outwardly flared extension projecting from its open end.

4,366,409

HALOGEN INCANDESCENT LAMP

Yasuhiro Nieda, Yokosuka; Kiyokazu Honda, Zushi, and Hidehiro Shinada, Yokohama, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan
Filed May 14, 1980, Ser. No. 149,699
Claims priority, application Japan, May 24, 1979, 54-63220
Int. Cl.³ H01J 17/16

U.S. Cl. 313—221



1. A halogen incandescent lamp performing a halogen cycle in operation, comprising a bulb formed of light-transmitting material in which gas containing halogen atoms and inert gas are enclosed, a tungsten filament with working temperature of 2,800° K or more contained in said bulb, at least a pair of lead-in wires connected to or integrally formed on both ends of said tungsten filament, respectively, and having a part sealed in said bulb, said lamp characterized in that said light-transmitting material is aluminosilicate glass having a strain point of 660° C. or higher and an average thermal expansion coefficient of 41×10^{-7} to 48×10^{-7} cm/cm/°C. at a temperature of 100° to 300° C., and that at least filament-side seal portions of said lead-in wires are molybdenum wires having a diameter of 0.4 to 0.6 mm.

4,366,410

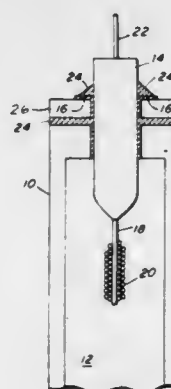
VACUUM-TIGHT ASSEMBLY PARTICULARLY FOR A DISCHARGE TUBE

Carl F. Buhrer, Framingham, Mass., assignor to GTE Laboratories Incorporated, Waltham, Mass.

Filed Nov. 21, 1980, Ser. No. 209,242

Int. Cl.³ H01J 61/30; F16D 1/00; H05K 15/16; H01B 17/06
U.S. Cl. 313—221

9 Claims



1. A vacuum-tight assembly comprising a high density polycrystalline ceramic body having a cavity and means for sealing said cavity from the atmosphere, said ceramic body having a thermal coefficient of expansion between about $55 \times 10^{-7}/^{\circ}\text{C.}$ and $105 \times 10^{-7}/^{\circ}\text{C.}$, said means for sealing comprising at least one closure member formed from a molybdenum alloy containing between 2 and 98 atom percent of a metal selected from the group consisting of titanium, vanadium, chromium, and mixtures thereof and a sealing material, said closure member and said sealing material having thermal coefficients of expansion closely matched to the thermal coefficient of expansion of said ceramic body over a wide temperature range.

4,366,411

ELECTRIC FILAMENT LAMPS

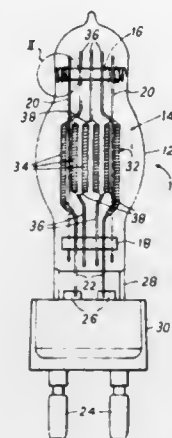
Kenneth B. Robinson, Leicester, England, assignor to Thorn Electrical Industries Limited, London, England
Filed Jun. 3, 1980, Ser. No. 155,930

Claims priority, application United Kingdom, Jun. 5, 1979, 7919539

Int. Cl.³ H01J 1/88, 19/42; H01K 1/18

U.S. Cl. 313—272

12 Claims



1. An electric filament lamp, comprising:
an envelope defined by a lamp wall;
a filament assembly within said envelope, said filament assembly comprising:
two spaced substantially parallel bridge members;
support members supporting said bridge members; and
a filament having filament sections supported between said bridge members;
said filament assembly being fixed relative to said envelope at an end of said assembly adjacent a first one of said bridge members;
wherein the improvement consists in:
wire coils fixed to the ends of the second one of said bridge members, said wire coils extending substantially transversely of said filament assembly outwardly towards the lamp wall to sustain end loads axially of the coil and thereby stabilize said filament assembly.

4,366,412

SURGE ARRESTER WITH PARALLEL-CONNECTED IMPROVED SPARK GAP STRUCTURE

Gerhard Lange; Oskar Sippekamp, both of Berlin, and Gerhard Schwenda, Vincenzenbronn, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Aug. 4, 1980, Ser. No. 156,413

Claims priority, application Fed. Rep. of Germany, Dec. 20, 1979, 2951467

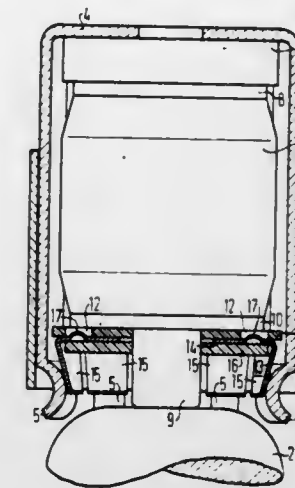
Int. Cl.³ H01J 17/00, 21/00

U.S. Cl. 313—325

12 Claims

1. In a device for protection of circuits against surge voltages having a surge arrester with two electrodes, a flanged ring electrically connected to one of said surge arrester electrodes forming a first electrode of an auxiliary spark gap, an insulating ring seated against and in axial registry with said flanged ring having a plurality of spaced apertures therein, and a conductive spring contact holder connected to the other electrode of said surge arrester and carrying a plurality of spring contacts, the improvement of an annular metal cup forming a second electrode of said auxiliary spark gap, said cup comprising:
a base seated against said insulating ring spaced from said first electrode;
an outside wall connected to said base and engaging said spring contacts; and
a plurality of projections carried on said base aligned with and extending into said apertures in said insulating ring such that said auxiliary spark gap is less than the thickness

of said insulating ring and such that discharge of a predetermined surge voltage magnitude occurs across said



auxiliary spark gap within said apertures between said flanged ring and a highest elevation of said projections.

4,366,413

SECONDARY ELECTRON MULTIPLICATION TARGET

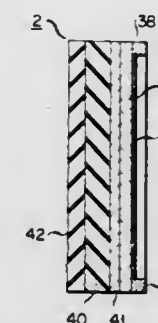
Hiroshi Washida; Kensaku Yano, both of Yokohama, and Yoshio Yamaoka, Kawasaki, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Oct. 16, 1980, Ser. No. 197,745

Claims priority, application Japan, Oct. 18, 1979, 54-133525
Int. Cl.³ H01J 31/48

U.S. Cl. 313—377

4 Claims



1. A secondary electron multiplication target for a camera tube, comprising:
platelike signal electrode means formed of a conductive material, for removing secondary electrons to form a camera tube output signal;
a first porous layer consisting essentially of MgF_2 deposited on one side of said signal electrode for emitting secondary electrons in response to photoelectrons transmitted thereto through said signal electrode; and
a second porous layer formed of carbon deposited on said first porous layer on its opposite side from said signal electrode and having a lower secondary electron emitting ratio than that of said first porous layer and a dielectric constant of 6 or less.

4,366,414

ELECTRODE OF COLOR PICTURE TUBE ELECTRON GUN AND METHOD FOR MANUFACTURE THEREOF

Shigeharu Hatayama, Mobara; Masaaki Yamauchi, Togane, and Mamoru Ikeda, Mobara, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 5, 1980, Ser. No. 148,038

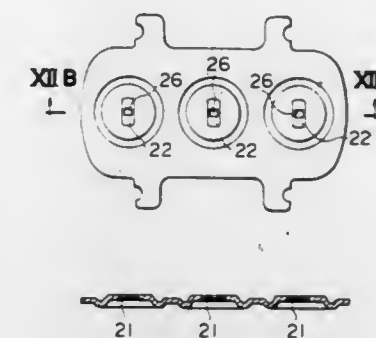
Claims priority, application Japan, May 18, 1979, 54-60410
Int. Cl.³ H01J 29/46, 9/02

U.S. Cl. 313—409

8 Claims

1. An electrode of a color picture tube electron gun, having an aperture for passing an electron beam, said electrode comprising a first recess having a predetermined width and depth

formed in a first surface of a single metal plate and having a predetermined length extending in a first predetermined direction substantially symmetrically with respect to an axis of said electron beam pass aperture, a second recess having a predetermined width and depth formed in said same single metal plate in a second surface opposite to said first surface and having a



predetermined length extending in a second direction substantially perpendicular to said first predetermined direction substantially symmetrically with respect to the axis of said beam pass aperture, and a predetermined gap between the bottoms of said first recess and said second recess, said gap extending in the parallel direction with said surfaces of the metal plate only within an area defined by said electron beam pass aperture.

4,366,415

PICTURE TUBE WITH AN ELECTRON GUN HAVING AN IMPROVED POTENTIAL SUPPLYING MEANS

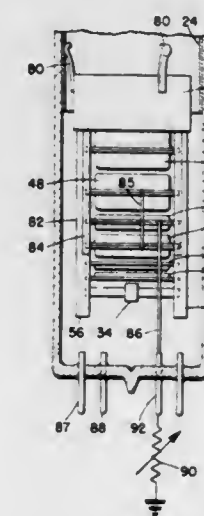
Shigeo Takenaka, and Eiji Kamohara, both of Fukaya, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed May 30, 1980, Ser. No. 140,953

Claims priority, application Japan, May 30, 1979, 54/66077
Int. Cl.³ H01J 29/56, 29/96

U.S. Cl. 313—457

7 Claims



1. A picture tube device comprising:
an electron gun within an evacuated envelope comprising a cathode means for generating an electron beam, and a plurality of successively arranged electrodes for focusing and accelerating said electron beam,
potential means for supplying potentials to said electrodes; and
at least one supporting means, coupled to said potential means, for securely supporting each of said electrodes, said supporting means comprising a solid homogenous resistance glass body and at least one of said electrodes being embedded in and in direct connection with said resistance glass body, whereby a potential is supplied directly to said one electrode through said resistance glass body.

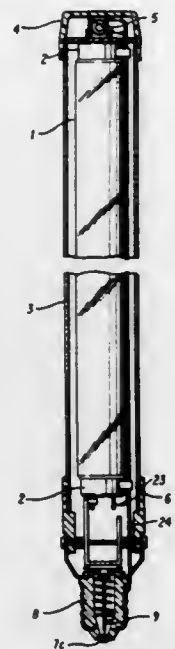
4,366,416 FLUORESCENT LAMP DEVICE

Nobuo Yokoyama, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan
Filed Mar. 20, 1981, Ser. No. 246,011
Claims priority, application Japan, Apr. 2, 1980, 55-43019; Apr. 2, 1980, 55-43020

Int. Cl.³ H05B 41/16

U.S. Cl. 315—58

9 Claims



1. A fluorescent lamp device comprising:
 - a cylindrical outer tube;
 - a fluorescent lamp having a base at each end thereof disposed in said outer tube, each base having a pair of pins protruding therefrom for making connection thereto;
 - a cylindrical connection tube connected to one end of said outer tube;
 - a cap containing a glow starter and a condenser, said cap fixed to the other end of said outer tube;
 - a base member fixed to said connection tube; and
 - a ballast member comprising a thermistor, a conductive plate, a thermal adjustment member and a coil spring disposed in said base member.

4,366,417

SUPPRESSION CIRCUIT FOR INTERFERENCE PULSES IN TRANSFORMERS WITH HIGH LEAKAGE INDUCTANCE

Volker Wienstroth, Weilburg-Kubach, Fed. Rep. of Germany, assignor to Ernst Leitz Wetzlar GmbH, Wetzlar, Fed. Rep. of Germany

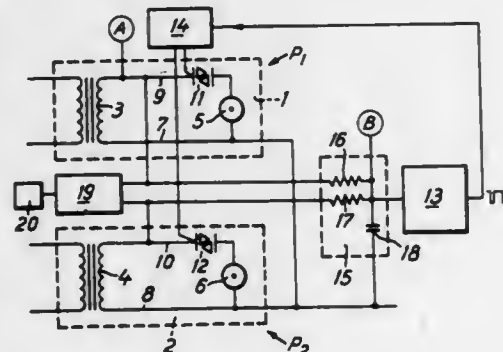
Filed Aug. 2, 1979, Ser. No. 63,099

Claims priority, application Fed. Rep. of Germany, Aug. 12, 1978, 2835379

Int. Cl.³ H05B 39/08

U.S. Cl. 315—296

7 Claims



1. A circuit for the suppression of interference pulses in at

least first and second transformers having high leakage inductances and having first and second current controlled switches connected to said transformers, said first transformer having a first secondary winding and said second transformer having a second secondary winding, said current controlled switches controlled by a trigger circuit and a control device connected thereto, said suppression circuit comprising:

- (a) pulse suppression means connected between said secondary windings and said trigger circuit, and
- (b) means for interconnecting said two transformers secondary windings in phase to said pulse suppression means.

4,366,418

SPECTRAL SOURCE, PARTICULARLY FOR ATOMIC ABSORPTION SPECTROMETRY

Shinji Mayama, and Yoji Arai, both of Katsuta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

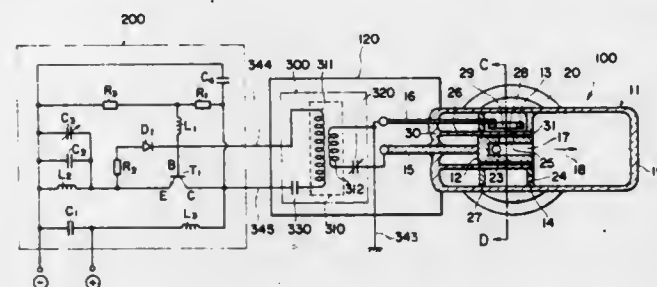
Filed Aug. 6, 1980, Ser. No. 175,745

Claims priority, application Japan, Aug. 17, 1979, 54-104755

Int. Cl.³ H01J 11/04; G01J 3/30

U.S. Cl. 315—326

15 Claims



1. A spectral source comprising a lamp having a bulb and a base,
 - a first electrode disposed within said bulb, said first electrode having a bottom and a side wall extending from said bottom in an axial direction so as to form a hollow portion in said first electrode, said first electrode being provided with a first opening at its side wall for conducting electric current therethrough, said first opening extending through said side wall in a direction away from the axial direction, and said first electrode containing an element emitting a desired spectrum,
 - a second electrode disposed within said bulb to face said first opening, and arranged concentrically with the axial center of said first opening,
 - a high-frequency source connected between said first and second electrodes for establishing a high-frequency discharge therebetween to cause sputtering of said first electrode and excitation of a radiation having said desired spectrum,
 - a gas contained in said bulb for maintaining said discharge, means for supplying a magnetic field to an atomic vapor produced by said sputtering, said means being formed in perpendicular to the direction of said first opening, and
 - a window provided in said bulb and arranged in the axial direction for transmitting said radiation therethrough.

4,366,419

ASTIGMATIC ELECTRON LENS FOR A CATHODE-RAY TUBE

Piet G. J. Barten, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 19,015, Mar. 8, 1979, which is a continuation of Ser. No. 812,716, Jul. 5, 1977, abandoned. This application Oct. 14, 1980, Ser. No. 196,234

Claims priority, application Netherlands, Jul. 13, 1976, 7607722

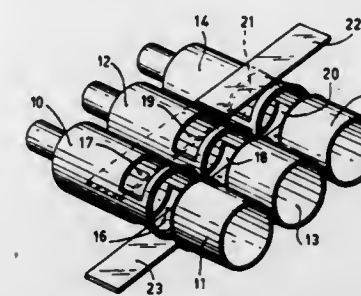
Int. Cl.³ H01J 29/58

U.S. Cl. 315—382

5 Claims

1. In an electron gun assembly including a cathode, first and

second axially arranged tubular electrodes extending in that order from said cathode, at least one of said electrodes being non-rotationally symmetrical, and means for applying a substantially fixed potential between said first and second tubular electrodes whereby an electric field is produced which defines an astigmatic lens for focusing an electron beam emitted from the cathode and passing through said field,



the improvement comprising a further electrode means positioned to influence said electric field, and means for applying a time varying voltage between said further electrode means and said first tubular electrode, whereby said further electrode means simultaneously varies the astigmatism and strength of said lens.

4,366,420

ELECTROMOBILE CONTROL DEVICE

Tsutomu Omae; Katsuji Marumoto, both of Hitachi, and Shotaro Naito, Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

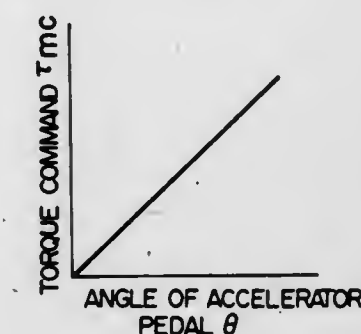
Filed Jan. 7, 1980, Ser. No. 109,846

Claims priority, application Japan, Jan. 12, 1979, 54-1328

Int. Cl.³ H02P 5/16

U.S. Cl. 318—338

22 Claims



1. A control device for an electromobile provided with a shunt motor comprising:
 - command means for generating an output torque command for said shunt motor in accordance with the angle of depression of an accelerator pedal;
 - pattern generating means for storing, as predetermined patterns, plural pairs of values of armature and field currents capable of generating an output torque of said shunt motor indicated by said output torque command in such a manner as to produce a minimum loss in the driving system of said electromobile, and including means for generating an optimum armature current command and an optimum field current command in accordance with said predetermined patterns and said output torque command;
 - armature control means for passing an armature current corresponding to said armature current command through the armature winding of said shunt motor; and
 - field control means for passing a field current corresponding to said field current command through the field winding of said shunt motor, said field control means being operative independent of said armature control means.

4,366,421

INDEX APPARATUS FOR A ROTARY TABLE

Kunihiko Eto, Toyota; Tetsuro Yamakage, Anjoh, and Kuniyuki Niwa, Kariya, all of Japan, assignors to Toyota Koki Kabushiki Kaisha, Kariya, Japan

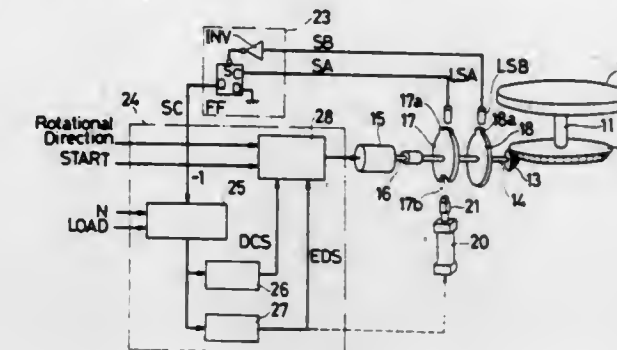
Filed Jun. 4, 1981, Ser. No. 270,234

Claims priority, application Japan, Jun. 23, 1980, 55-85011

Int. Cl.³ G05B 5/01

U.S. Cl. 318—466

6 Claims



1. An index apparatus for a rotary table comprising:
 - a driving motor for rotating said rotary table;
 - a first actuating member connected to and rotated by said driving motor;
 - a first switch for generating a first signal when actuated by said first actuating member each time said rotary table is rotated a unit angle;
 - a second actuating member connected to and rotated by said driving motor;
 - a second switch for generating a second signal when actuated by said second actuating member each time said rotary table is rotated a unit angle;
 - said first and second actuating members being so formed that said first signal is generated earlier and disappears later than said second signal;
 - third signal generating means connected to said first and second switches for generating third signals each of which generated when said second signal is generated and disappears when said first signal disappears; and
 - control means connected between said third signal generating means and said driving motor for counting the number of said third signals to thereby stop the rotation of said driving motor when the number of said third signals reaches to a predetermined number.

4,366,422

VELOCITY SENSING PULSE PAIR SERVO APPARATUS

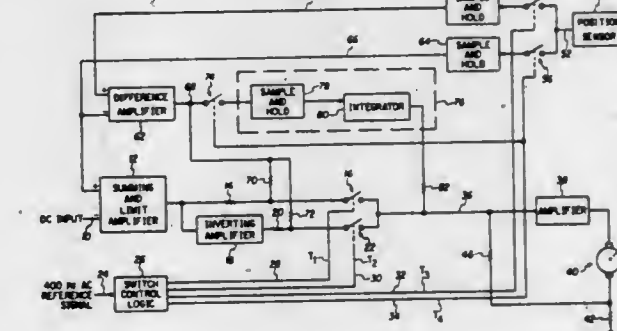
Melvin H. Rhodes, Cedar Rapids, Iowa, assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Aug. 25, 1980, Ser. No. 181,297

Int. Cl.³ G05B 13/00

U.S. Cl. 318—561

8 Claims



1. Servo apparatus comprising, in combination:
 - amplifier means including first and second input means and first and second output means, the signals output at said

second output means, being inverted relative those output at said first output means, said amplifier means providing pulse pair output signals at said output means thereof; load means for providing a mechanical position output in response to an electrical input signal; velocity sensing means, connected to said load means, for sensing position change of said mechanical output of said load means over a predetermined time subsequent to application of the pulse pair output signal to said load means and supplying compensation signals indicative of sensed position change; and summing means, connected between said amplifier means, said velocity sensing means and said load means for supplying compensated pulse pair signals to reposition the mechanical output of said load means in discrete steps whereby the compensation provided is for forces detrimental to predetermined distance movements.

4,366,423

INDUSTRIAL ROBOT SYSTEM

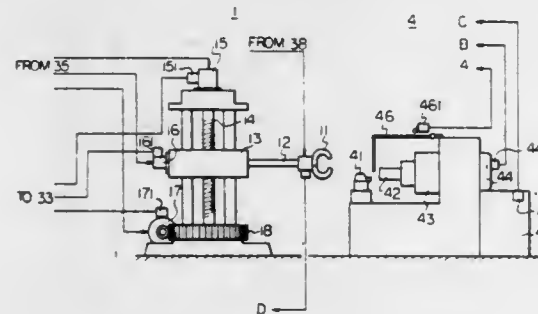
Hajimu Inaba, Hino, and Shinsuke Sakakibara, Kunitachi, both of Japan, assignors to Fujitsu Fanuc Limited, Tokyo, Japan Continuation of Ser. No. 5,774, Jan. 23, 1979, abandoned. This application Jun. 1, 1981, Ser. No. 268,806

Claims priority, application Japan, Jan. 31, 1978, 53-8956

Int. Cl.³ G05B 9/02

U.S. Cl. 318—563

2 Claims



1. An industrial robot system for operating in conjunction with a machine tool, said robot system comprising a robot unit having an arm, a hand, a set of Z-, θ , and R-axis motors, a set of Z-, θ , and R-axis motion detectors, an operation panel means having a starting button, and a controlling means, said controlling means comprising a memory for storing instruction data including a feed rate, Z-, θ , and R-axis instruction values and data of functional instructions, input circuits, an address counter coupled to the input circuits through an AND gate, a controlling data register receiving a signal from the memory and the address counter through an AND gate and an OR gate, a present value register coupled to the robot unit, a comparator for comparing signals from the controlling data register and the present value register, a servo amplifier coupled to the comparator and to a switch for connecting and disconnecting a power supply circuit to the servo amplifier, wherein said input circuits are adapted to receive a WAIT signal from the machine tool, an INHIBIT signal from the machine tool, an EMERGENCY STOP signal from the robot unit, a starting signal from the operation panel means, and signals from said Z-, θ , and R-axis motion detectors in accordance with the operating conditions of the machine tool and wherein said controlling means is further adapted to receive a HOLD signal from the machine tool produced in a HOLD condition sensing device, said HOLD signal being supplied to the input circuits, the input circuits including a first input of a flip-flop circuit which produces an "O" output signal in response to the HOLD signal preventing the address counter from being updated, so that the operation of the robot is stopped and is prevented from starting again unless the starting button in the operation panel means is pushed.

4,366,424

METHOD AND APPARATUS FOR PROGRAMMING AND OPERATING A MACHINE TOOL

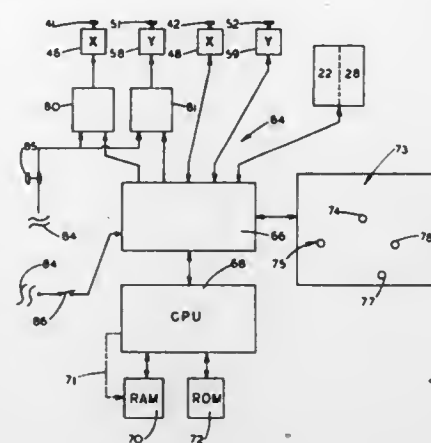
Robert E. McKechnie, 2814 W. 38th Ave., Vancouver, B. C., Canada (V6N 2Y4)

Filed May 23, 1979, Ser. No. 41,634

Int. Cl.³ G05B 19/10

U.S. Cl. 318—568

18 Claims



1. A method of utilizing an apparatus to perform automatically a series of discrete operations utilizing a template which is provided with a pattern of indications of locations at which a tool is to work on the template or on a work piece, comprising the steps of:

- manually causing relative movement between successive indications on the template and a tracer to generate positional data relating to said indications, and recording said positional data,
- subsequently utilizing said recordings of positional data to generate relative movement between the template and an alignment means to attain approximate locations by coarse positioning,

the method being characterized by:

positioning the alignment means and template coarsely relative to each other so that the alignment means can respond to said indications, and utilizing directly the response of the alignment means to produce further relative movement by fine positioning to bring the alignment means accurately into alignment with each of the indications in turn prior to operating on the work piece at the particular location.

4,366,425

TIMER-CONTROLLED SPEED CHANGING DEVICE FOR ELECTRIC FANS

Chou-Ming Shen, 68-38 Yen Chi St., Taipei, Taiwan

Filed Apr. 21, 1981, Ser. No. 256,118

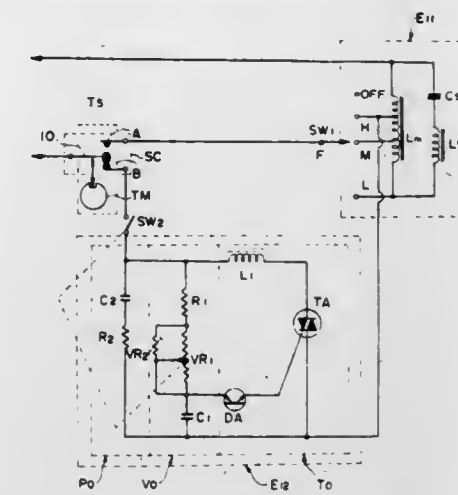
Int. Cl.³ H02P 1/26

U.S. Cl. 318—779

6 Claims

1. A timer-controlled speed changing device for an electric fan comprising: a timing switch having a switching means and a timing means, said switching means being provided with a first contact terminal, a second contact terminal and a switch piece operable with said timing means, said switch piece being capable of coming into contact with said first or second contact terminal in association with the operation of said timing means; a first electrical circuit comprising a field winding and operable to operate said electric fan when a voltage is supplied thereto, a plurality of taps drawn from said field winding, each tap being provided with a tap terminal, a first voltage control circuit, a first selector switch operable to selectively connect each said tap terminal with said first voltage control circuit through a capacitor means, said first voltage control circuit having a first variable resistor and a first semi-variable resistor connected in parallel with said first variable resistor, a resistor and a first auxiliary switch connected in series with said first variable resistor, said first voltage control circuit having one end connected to said first contact terminal

of said switching means and the other end connected to a power source; a triac circuit comprising a triac having a gate and first and second anodes, a diac having two leads and being respectively connected between said switch piece and said gate of said triac, an inductor having one end connected to said second anode of said triac and the other end connected to said power source, said first anode of said triac being connected to said first selector switch; a second voltage control circuit having a second variable resistor and a second semi-variable resistor connected in parallel with said second variable resistor



tor, a second resistor and a second selector switch connected in series with said second variable resistor, said second voltage control circuit having one end connected to said second contact terminal and the other end connected to a power source; and, a protective circuit having a capacitor and resistor connected in series, said protective circuit having one end connected to said second voltage control circuit via a capacitor means and therefrom to said first selector switch, the other end of said protective circuit being connected to said power source.

4,366,426

STARTING CIRCUIT FOR SINGLE PHASE ELECTRIC MOTORS

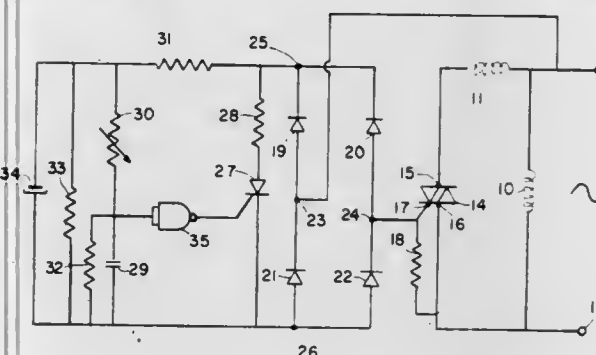
Zbigniew W. Turlej, Mississauga, Canada, assignor to S.A. Armstrong Limited, Toronto, Canada

Filed Sep. 8, 1981, Ser. No. 299,716

Int. Cl.³ H02P 1/42

U.S. Cl. 318—786

6 Claims



1. A time-responsive switching circuit for use with a single phase alternating current electric motor having a start winding and a run winding connected across a pair of first and second supply terminals, comprising:

a solid state bilateral switching device adapted to be connected in series with said start winding, said device having first and second main terminals for connection respectively to said start winding and to said second supply terminal, and a control terminal connected through an impedance to said second main terminal, a full wave rectifier bridge having a pair of a.c. terminals and a pair of d.c. terminals, one a.c. terminal being connected

to said control terminal of the solid state bilateral switching device, circuit means for connecting the other a.c. bridge terminal to said first supply terminal, an SCR connected across said d.c. bridge terminals to conduct current supplied by the rectifier bridge, the SCR having a gate, a charging circuit consisting of a capacitor and a resistor connected in series across said d.c. bridge terminals, the charging circuit having a time constant defining a predetermined time delay, a two-state trigger device connected between the common junction of the capacitor and resistor of the charging circuit and the gate of the SCR, said trigger device applying a trigger voltage to the gate of the SCR, and said trigger device being responsive to charging of the capacitor of said charging circuit to a predetermined level for disconnecting the trigger voltage from the gate of the SCR, thereby to render the SCR non-conducting and so switch off the solid state bilateral switching device.

4,366,427

PROTECTIVE METHOD AND APPARATUS FOR A CONTROLLED CURRENT INVERTER AND MOTOR CONTROL SYSTEM

Loren H. Walker, Salem, and John H. Cutler, Roanoke, both of Va., assignors to General Electric Company, Salem, Va.

Filed Apr. 22, 1980, Ser. No. 142,656

Int. Cl.³ H02P 5/40

U.S. Cl. 318—798

18 Claims

1. A protective circuit for an AC motor drive system utilized for supplying power of a variable current magnitude and frequency to an AC motor in response to a desired torque, comprising:

- a controlled variable DC current source for providing a DC output which varies in magnitude in response to a first control signal applied thereto;
- a source of variable frequency AC current for supplying current to said motor at a variable frequency in response to a second control signal applied thereto;
- circuit means connecting said DC current source to said source of variable frequency AC current;
- current control means for controlling the motor current magnitude in response to the desired torque;
- frequency control means for controlling motor current frequency in response to the desired torque;
- means for detecting a predetermined abnormal condition of said motor driven system and providing a first output signal in accordance therewith;
- means for detecting a regenerative operating mode of said motor and providing a second output signal in accordance therewith; and
- means responsive to said first and second output signals and being operable to generate a signal which is coupled to said frequency control means and which acts to vary the frequency of the motor current in a predetermined manner to cause the operating mode of said motor to shift from said regenerative mode toward a motoring mode.

4,366,428

ASYNCHRONOUS MOTOR DRIVE

Roland D. Bai, ulitsa Zorge, 225, kv. 9, Novosibirsk; Vladimir N. Brodovsky, 4 proezd Mariinoi Roschi, 10, kv. 96; Evgeny S. Ivanov, ulitsa Snezhnaya, 4, kv. 61, both of Moscow; Alexandr A. Kanep, ulitsa Nemirovicha-Danchenko, 28/1, kv. 46, Novosibirsk; Alexandr V. Feldman, ulitsa Geodezicheskaya, 1, kv. 52, Novosibirsk, and Alim I. Chabanov, ulitsa Uritskogo, 12, kv. 73, Novosibirsk, all of U.S.S.R.

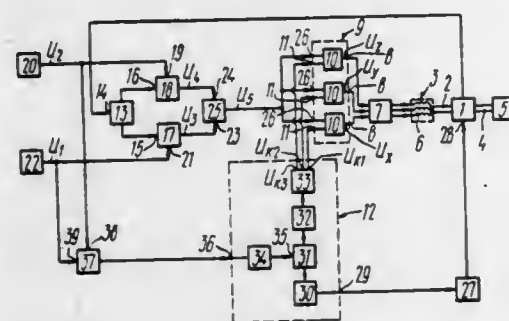
PCT No. PCT/SU80/00047, § 371 Date Nov. 10, 1980, § 102(e) Date Nov. 10, 1980, PCT Pub. No. WO80/01975, PCT Pub. Date Sep. 18, 1980

PCT Filed Mar. 13, 1980, Ser. No. 217,005

Claims priority, application U.S.S.R., Mar. 15, 1979, 2731207 Int. Cl.³ H02P 5/40

U.S. Cl. 318—809

1 Claim



1. An electric drive for an asynchronous motor having a plurality of stator windings and a rotor comprising:
 - a sensor for sensing the angle of rotation of the rotor of the asynchronous motor, said sensor having an input and an output;
 - a phase converter having an input and first and second outputs, said input being connected to the output of said angle sensor;
 - a first multiplier unit having first and second inputs, and an output, the first input being connected to the first output of said phase converter;
 - a second multiplier unit having first and second inputs and an output, the first input being connected to the second output of said phase converter;
 - an active stator current setter having an output connected to the second input of said first multiplier unit;
 - a reactive stator current setter having an output connected to the second input of the said second multiplier unit;
 - an adder having first and second inputs and an output, the first input being connected to the output of said second multiplier unit and the second input being connected to the output of said first multiplier unit;
 - a plurality of phase sensitive rectifier corresponding to the number of stator windings, each having a first input, a control input and an output, the control input of each rectifier being connected to the output of said adder;
 - a controlled current source having a plurality of inputs and outputs corresponding to the number of said rectifiers, said inputs being connected respectively to the outputs of the phase phase sensitive rectifiers, the outputs being respectively connected to said stator windings;
 - a sinusoidal voltage former having an input and an output, the output being connected to the input of said angle sensor;
 - a polyphase voltage source, comprising:
 - a reference frequency setter having first and second outputs, the first output being connected to the input of said sinusoidal voltage former;
 - a frequency adder having first and second inputs and an output, the first input being connected to the output of said reference frequency setter;
 - a frequency divider having an input and an output, the input being connected to the output of said frequency adder;
 - a phase converter having an input and a plurality of outputs, the input being connected to the output of said frequency divider and the outputs being connected

- respectively to the inputs of said phase sensitive rectifiers;
- a controlled rotor current frequency generator having an input and an output, the output being connected to the second input of said frequency adder;
- a temperature sensor for sensing the temperature of the asynchronous motor, having an output;
- a rotor current frequency correction unit having first and second inputs and an output, the first input being connected to the output of said active stator current setter, the second input being connected to the output of said temperature sensor and the output being connected to the input of said controlled rotor current frequency generator.

4,366,429

VARIABLE SPEED CONTROLLER WITH IMPROVED EFFICIENCY OF ENERGY TRANSFER FOR AN AC INDUCTION MOTOR

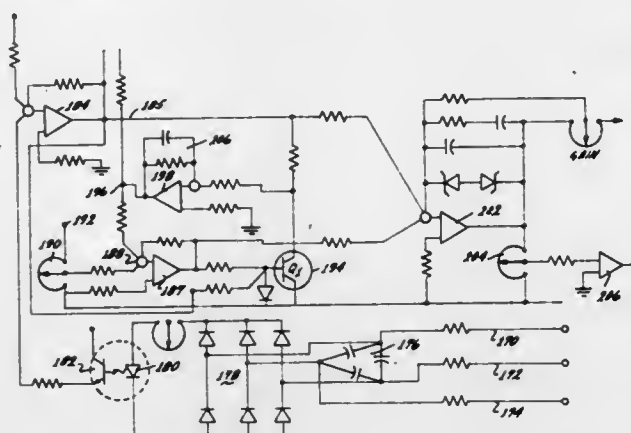
Robert D. Jackson, Lilburn, Ga., assignor to HPS, Inc., Atlanta, Ga.

Filed Jun. 19, 1980, Ser. No. 160,918

Int. Cl.³ H02P 5/40

U.S. Cl. 318—811

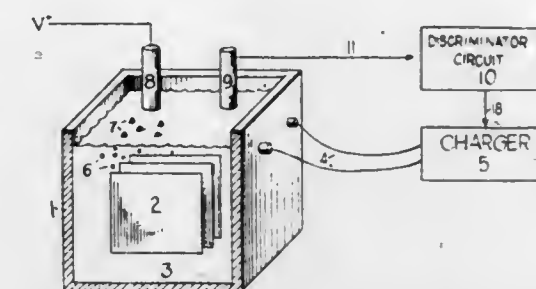
1 Claim



1. A control for establishing the timing of firing pulses and for establishing the timing of clock pulses for an AC induction motor having a rotor and a stator electromagnetically interconnected by magnetic flux created by electric fields generated by coils of electrically conductive material having terminals through which electrical energy is transmitted thereto, said coils being positioned on said rotor, and on said stator in juxtaposition with corresponding coils in said rotor for alternating excitation relative thereto to cause rotation of the rotor relative to the stator, said coils on said stator receiving electrical energy through coiled terminals therein; said induction motor further having a constant frequency clock pulse generator for generating a pulse signal at a given frequency, comprising:
 - a. signal generating means connected to said stator coil terminals and receiving signals from said stator coil terminals, for resetting the time of exciting the beginning moment of said clock pulses and of firing pulses dependant thereon;
 - b. first means within said conditioning means connected to said stator coil terminals and receiving rectified alternating current signals from said stator coil terminals, said means for consolidating said received signals and producing a single output proportioned to the received signals and including a photocell detector producing as an output said single signal output proportioned to the received signals, and receiving as an input a light from a light emitting diode excited by said consolidated received signals;
 - c. second means within said conditioning means connected to receive the output signal of said first means, for comparing said signal with a reference limit of opposite polarity, and producing as an output a current regulating signal

- when the signal proportional to the alternating rectified signal varies from the limit by which the comparator compares;
- d. third means within said conditioning means connected to receive said signal proportional to the rectified alternating current signal, said third means including a resistance-capacitance circuit element for generating as an output a ramp type sawtooth signal for use as clock pulses which are a function of the average magnetomotor force reflected to the stator;
- e. comparator means within said conditioning means connected to receive said signal proportional to the rectified, alternating current signal from the stator terminals and comparing it with the output of the ramp generator, producing as an output a train of periodic pulses for firing current in the coils creating said electric field in said stator coils, and for changing the period between one firing pulse and the next succeeding firing pulse when said signal proportional to the rectified, alternating current signal from the stator terminals has an amplitude less than the amplitude of the sawtooth wave produced by the ramp generator.

- input for the reflected light and an output responsive to the amount of liquid detected;
- c. said light emitting means and said photodetector means being located above the surface of the liquid;



- d. discriminator means for distinguishing signals caused by bubbling having an input connected to the photodetector means output and having an output responsive to the detection of bubbling in the liquid.

4,366,432

HIGHLY STABLE CONSTANT-VOLTAGE POWER SOURCE DEVICE

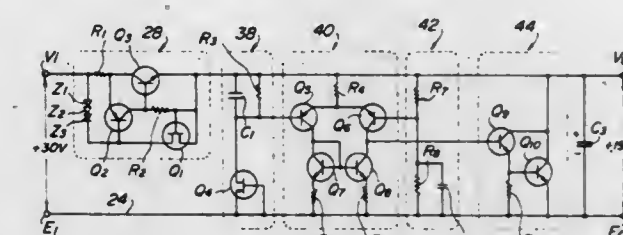
Masao Noro, Asaka, Japan, assignor to Stax Industries Limited, Tokyo, Japan

Continuation of Ser. No. 67,509, Aug. 17, 1979, abandoned. This application Mar. 30, 1981, Ser. No. 248,159

Claims priority, application Japan, Aug. 18, 1978, 53-100774 Int. Cl.³ G05F 1/64

U.S. Cl. 323—224

6 Claims



1. An audio device including: at least one active circuit to be driven at a constant voltage and provided with a signal path for passing an audio signal whose highest frequency is higher than the maximum audible frequency, the current necessary for driving the active circuit being dependent on the level of the audio signal; a first constant voltage power source device for said active circuit having a low impedance characteristic and a high noise elimination ratio for a wide frequency range, said constant voltage power source device further comprising:
 - a pair of input terminals supplied with an unregulated D.C. input voltage derived from an A.C. power source;
 - a pair of output terminals connected to the active circuit;
 - a power supply line for connecting one of the input terminals to one of the output terminals;
 - a ground line for connecting the other of the input terminals to the other of the output terminals;
 - a constant-current circuit provided in the power supply line for providing a constant output current; and
 - a constant voltage circuit connected between the power supply line and the ground line in parallel with the active circuit and having the single input terminal coupled to the power supply line;
- the constant output current of the constant-current circuit being greater than the maximum current necessary for driving the active circuit;
- the constant-voltage circuit (i) increasing the current flowing therethrough as the current necessary for driving the active circuit decreases, and (ii) decreasing the current flowing therethrough as the current necessary for driving

4,366,430

BATTERY BOOSTER CABLE ASSEMBLY

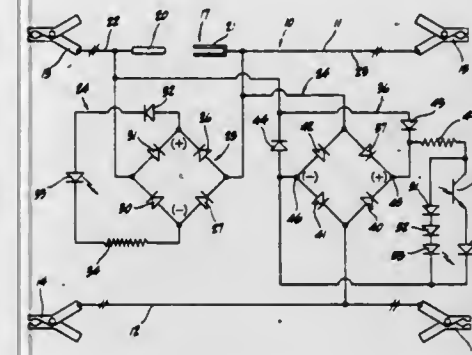
Bruce R. Wright, St. Louis, Mo., assignor to Associated Equipment Corporation, St. Louis, Mo.

Continuation of Ser. No. 191,531, Sep. 29, 1980, abandoned. This application Apr. 29, 1982, Ser. No. 372,958

Int. Cl.³ H02J 7/00; H01R 11/00

U.S. Cl. 320—25

12 Claims



5. A battery booster cable assembly, comprising:
 - (a) a pair of booster wires, each booster wire having first and second ends,
 - (b) first battery attachment means connected to the first ends of the booster wires,
 - (c) second battery attachment means connected to the second ends of the booster wires,
 - (d) switch means connected to one of the booster wires for selectively electrically interconnecting the first and second ends of said booster wire, and
 - (e) voltage-detecting means, connected across the switch means for directly measuring the voltage across the switch means for determining if the magnitude of said measured voltage is greater or less than a predetermined value.

4,366,431

BATTERY GASSING DETECTOR

John Santini, Centerreach, N.Y., assignor to EHV Systems, Inc., Setauket, N.Y.

Filed Dec. 3, 1980, Ser. No. 212,601

Int. Cl.³ H02J 7/04; G01N 13/00, 21/00, 21/47

U.S. Cl. 320—46

11 Claims

1. An apparatus for detecting bubbling on the surface of a liquid, comprising:
 - a. light emitting means for directing a light at the surface of the liquid;
 - b. photodetector means for generating a signal responsive to the light reflecting from the surface of the liquid, having an

the active circuit increases, whereby a highly stable output voltage is applied to the active circuit.

4,366,433

OUTPUT VOLTAGE-DROP DETECTING APPARATUS TECHNICAL FIELD

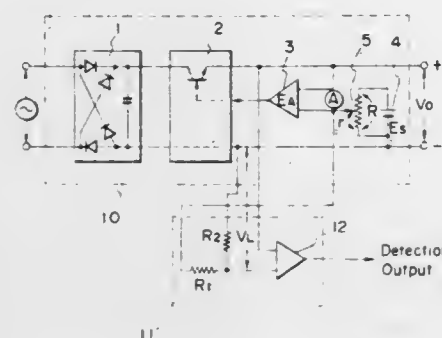
Ryoji Imazeki, and Masayuki Hattori, both of Hachioji, Japan, assignors to Fujitsu Fanuc Limited, Tokyo, Japan
PCT No. PCT/JP80/00151, § 371 Date Mar. 2, 1981, § 102(e) Date Feb. 20, 1981, PCT Pub. No. WO81/00159, PCT Pub. Date Jan. 22, 1981

PCT Filed Jun. 30, 1980, Ser. No. 243,934

Claims priority, application Japan, Jun. 30, 1979, 54-82781
Int. Cl.³ G05F 1/64

U.S. Cl. 323—281

3 Claims



1. An output voltage-drop detecting apparatus connected to a stabilized DC power source in order to monitor the output voltage of the power source and detect a drop in the output voltage, comprising:

stabilized DC power source means for receiving AC power and producing a stabilized DC output across two output ports, said stabilized DC power source means including a rectifying and smoothing circuit, power control circuit means connected between the rectifying and smoothing circuit and the output ports for regulating the output voltage in response to a control signal, reference voltage generating circuit means for generating a reference voltage by resistance-dividing a reference voltage source, and error amplifier means for generating the control signal in accordance with the difference between the reference voltage and the voltage at one of the output ports; and output voltage drop detecting means for emitting a detection output signal should the voltage across the output ports of the stabilized DC power source means drop past a predetermined level, said output voltage drop detecting means including first and second resistors series-connected between the output of the reference voltage generating means and one of the output ports, said first and second resistors being connected at an intermediate connection point, and a comparator having a first input connected to the intermediate connection point and a second input connected to one of the output ports, the output of the comparator serving as the detection output signal.

4,366,434

VOLTAGE DETECTORS AND ELECTRICAL CONTINUITY CHECKERS

Tony Ellis, 79, Fairleigh, Sheffield 2, England

Continuation-in-part of Ser. No. 20,652, Mar. 15, 1979. This application Oct. 14, 1980, Ser. No. 196,873

Claims priority, application United Kingdom, Mar. 22, 1978, 11444/78

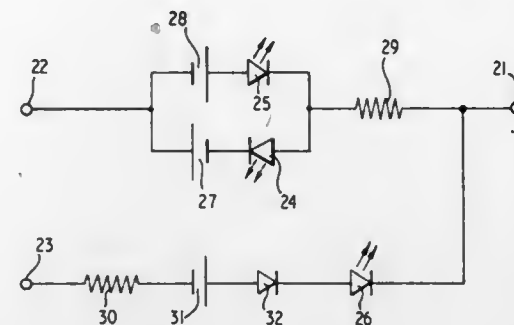
Int. Cl.³ G01R 31/02

U.S. Cl. 324—51

10 Claims

1. A combined voltage detector and electrical continuity checker comprising: a housing; first, second and third light emitting diodes provided on said housing; first, second and third terminals provided on said housing; at least one external lead for connection to a terminal; at least one D.C. bias source

for said first and second light emitting diodes which are used primarily for voltage detection and polarity; a D.C. supply for said third light emitting diode which is used primarily for continuity checking; first circuit connection means for connecting said bias source and the first and second light emitting



diodes in circuit between the first and second terminals; and second circuit connection means for connecting said D.C. supply and the third light emitting diode in circuit between the second and third terminals; said at least one D.C. bias source allowing the minimum voltage for conduction of the first and second light emitting diodes to be lowered.

4,366,435

POWER SUPPLY UTILIZING A THYRISTOR

Kouichi Hyodo, Chofu, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

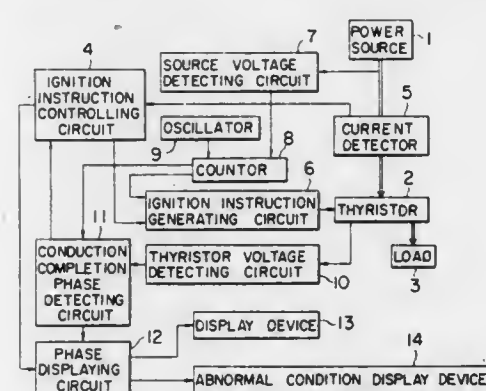
Continuation-in-part of Ser. No. 35,073, May 1, 1979, abandoned. This application Feb. 4, 1981, Ser. No. 231,352

Claims priority, application Japan, May 8, 1978, 53-53744; United Kingdom, Apr. 30, 1979, 7914929; Australia, May 3, 1979, 46652/79; Fed. Rep. of Germany, May 3, 1979, 2917884; Canada, May 8, 1979, 327157

Int. Cl.³ G01R 31/22, 25/00

U.S. Cl. 324—158 SC

7 Claims



1. In an apparatus for supplying electric power from an AC power source to a load through a thyristor, said apparatus comprising a detector for detecting the voltage of said AC power source, a detector for detecting the current flowing through the thyristor, an oscillator generating a train of pulses, a counter for counting the number of the pulses in said train of pulses in response to an output of said voltage detector, an ignition instruction control circuit responsive to an output of said current detector for delivering a digital output indicative of a required ignition phase angle of the thyristor, and a circuit connected to receive outputs of said counter and said control circuit for delivering an ignition pulse to said thyristor when said outputs coincide with each other, the improvement comprising:

means for detecting the conducting state of said thyristor; means responsive to an output of said conducting state detecting means for detecting the phase angle of said electric power at which completion of conduction of said thyristor occurs; means responsive to the digital output of said control circuit

and to an output of said phase angle detecting means for converting said outputs into signals indicative of an ignition phase angle and a conduction completion phase angle; and means for displaying said signals indicating said ignition phase angle and said conduction completion phase angle.

4,366,436

ENGINE ANALYZERS

Geoffrey J. Everett, Somerton, and Christopher J. Hunt, Tiverton, both of England, assignors to TI Crypton Limited, Bridgewater, England

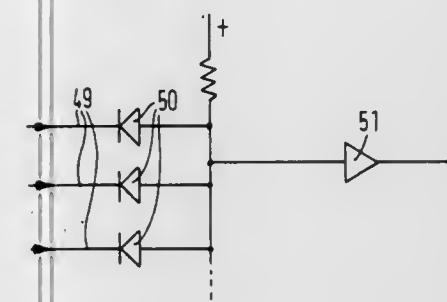
Filed Nov. 25, 1980, Ser. No. 210,344

Claims priority, application United Kingdom, Nov. 27, 1979, 7940836

Int. Cl.³ F02P 17/00

U.S. Cl. 324—379

6 Claims



1. An engine analyser to analyse a parameter of a spark ignition internal combustion engine of the type having a plurality of pairs of ignition components, each component comprising a spark plug and a lead connected directly to said spark plug, and means for supplying high voltage pulses to said components at least some of the pulses being of opposite polarity, comprising:

a plurality of probes equal in number to the number of component pairs, each for connection to one component of a different one of said pairs to provide pulses corresponding to the ignition voltage or current pulses applied to the associated spark plug, there being at least one separate probe for each of said pairs; and means connected to each of said probes to process said pulses and emit further pulses each coincident with the original pulse but all of one predetermined polarity irrespective of the polarity of the pulses from the probe for display of said further pulses.

4,366,437

DEVICE FOR MEASURING THE AMOUNT OF OXYGEN IN COMBUSTION GASES

Claude Lombard, Le Chesnay, France, assignor to Regie Nationale des Usines Renault, Boulogne-Billancourt, France

Filed Oct. 2, 1980, Ser. No. 193,296

Claims priority, application France, Oct. 10, 1979, 79 25175

Int. Cl.³ G01N 27/00

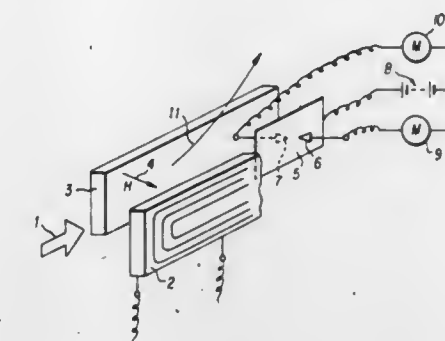
U.S. Cl. 324—464

5 Claims

1. A device for measuring the oxygen content in a flow of combustion gases, comprising:

deflection means in the path of said flow of combustion gases for producing a magnetic field in said flow, whereby oxygen in said flow is at least partially deflected by said magnetic field towards an oxygen-rich concentration portion of said flow; and means for measuring ionization potential of gases in said flow path at a point downstream from said deflection

means in the direction of said flow, said means for measuring including means for separately measuring the ioniza-



tion potential of gases in said oxygen concentration portion of said flow.

4,366,438

SODIUM IONIZATION DETECTOR

Hidefumi Ibe, Hitachi, and Izumi Yamada, Tokai, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

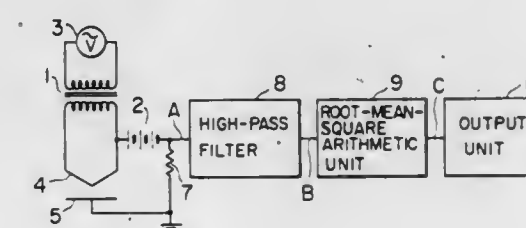
Filed Oct. 11, 1979, Ser. No. 83,658

Claims priority, application Japan, Oct. 11, 1978, 53-124172; Nov. 8, 1978, 53-136743

Int. Cl.³ G01N 27/00

U.S. Cl. 324—468

3 Claims



1. A sodium ionization detector comprising thermal ionizer means for thermally ionizing sodium to produce an ion current, and detector means for detecting the magnitude of fluctuation of said ion current by detecting the RMS value of the amplitude of a sodium aerosol spike component of said ion current.

4,366,439

PCM DECODER

Kazuo Yamakido, Hachioji, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 10, 1980, Ser. No. 185,805

Claims priority, application Japan, Sep. 10, 1979, 54-115299

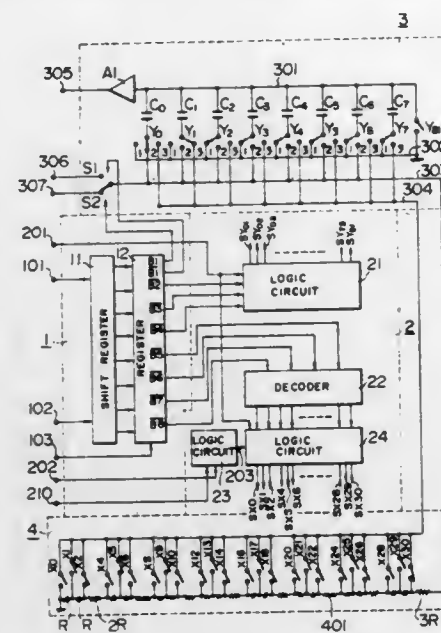
Int. Cl.³ H03K 9/00

U.S. Cl. 329—104

4 Claims

1. A PCM decoder comprising a first circuit for receiving in series input PCM signals forming signalling frames and non-signalling frames and for outputting in parallel the PCM signals; a second circuit for delivering first and second control signals in accordance with the contents of said parallel output PCM signals; a third circuit including first to eighth binary-weighted capacitors each having two ends, one end being connected with an output line and the other end connected selectively with one of plural voltage supply lines through a corresponding one of a first plurality of switches controlled by said first control signals; and a fourth circuit having a voltage source and a resistor string circuit which is provided with plural intermediate taps for taking out divided portions of a voltage of said voltage source so that the voltage at one of said intermediate taps may be applied to one of said voltage supply lines through one of a second plurality of switches controlled by said second control signals; an analog voltage corresponding

to said PCM signal being delivered onto the output line of said third circuit, wherein said resistor string circuit has a first group of intermediate taps from which a decoding voltage for said parallel PCM signals corresponding to the non-signalling frames is derived and a second group of intermediate taps from which a decoding voltage for said



parallel PCM signals corresponding to the signalling frames is derived and wherein said second circuit receives signalling frame signals and also delivers said second control signals to select one of said intermediate taps of said first and second groups in accordance with the content of said signalling frame signals.

4,366,440

ADJUSTABLE CONTRAST COMPRESSOR

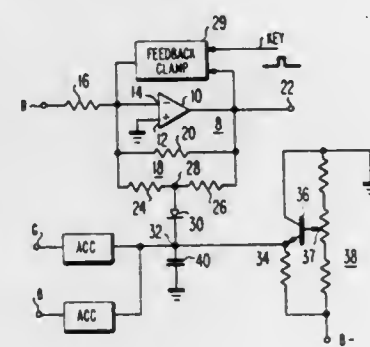
Charles L. Olson, Oaklyn, and Lucas J. Bazin, Vincentown, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Oct. 31, 1980, Ser. No. 202,486

Int. Cl.³ H04N 9/04; H03G 3/30

U.S. Cl. 330—11

7 Claims



1. A contrast compressor adapted for use with a source of video signals, comprising:
an amplifier including an inverting input terminal;
input resistance means coupled to said inverting terminal and to the source of video signals;
first and second resistance means coupled to an output terminal of said amplifier and to said inverting input terminal respectively for providing negative feedback for reducing the signal gain, said first and second resistance means being serially coupled and having a juncture therebetween;
current-controllable resistance means coupled to said juncture and to a point of reference potential for controlling the magnitude of said feedback for controlling said signal gain in response to the difference between the voltage at said output terminal of said amplifier and the voltage of said point of reference potential,
said current-controllable resistance means being conductive

during those intervals during which said video signals take on a reference level thereby perturbing the operating point of said amplifier and deviating a reference level of said video signals from the desired value; and
voltage clamping means coupled to said inverting input terminal for clamping at least a portion of said video signals including said reference level to said desired value.

4,366,441

SIGNAL-MUTING CIRCUIT FOR BRIDGE AMPLIFIER

Kiyomitsu Nishimura, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

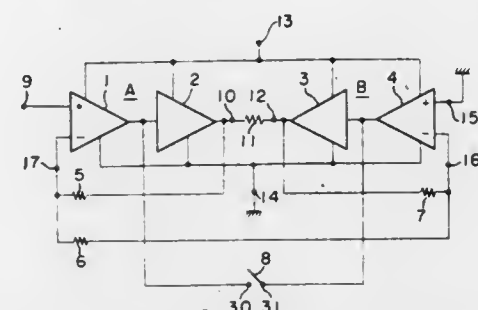
Filed Aug. 7, 1980, Ser. No. 176,102

Claims priority, application Japan, Aug. 29, 1979, 54-110801

Int. Cl.³ H03F 1/14, 3/68

U.S. Cl. 330—51

9 Claims



1. In a signal-muting circuit for a bridge amplifier having a potential source connected to two amplifying means each formed by connecting a non-reversible amplifier and a non-reversible buffer amplifier in series, an improvement characterized in that a switch is connected between the input terminals of the non-reversible buffer amplifiers as the final stage in each of said amplifying means so as to form a short-circuit whereby a signal is muted.

4,366,442

AMPLIFIER WITH MUTING CIRCUIT

Hisashi Yamada, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

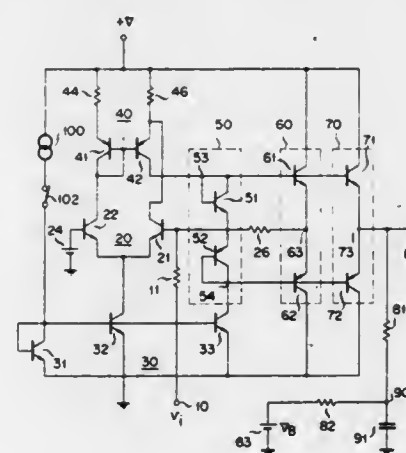
Filed Sep. 10, 1980, Ser. No. 185,798

Claims priority, application Japan, Sep. 19, 1979, 54/120259

Int. Cl.³ H03G 3/34; H03F 3/30

U.S. Cl. 330—51

6 Claims



1. An amplifier comprising:

- (a) an amplifier circuit having an input to which an electrical input signal is supplied and an output;
- (b) a current mirror circuit having an input connected to the output of said amplifier circuit and an output;
- (c) a single ended push-pull means, formed of a plurality of single ended push-pull circuits including at least first and second single ended push-pull circuits connected in paral-

lel to each other, for amplifying said electrical input signal, said first single ended push-pull circuit being formed on a pair of diode-connected complementary transistors having emitter electrodes which are connected to each other and which are connected to said amplifier circuit, and said second single ended push-pull circuit being formed of a pair of diode-connected complementary transistors having emitter electrodes which are connected to each other, which are electrically insulated from the emitter electrodes of said first single ended push-pull circuit and which are connected to an output terminal from which an output electrical signal is generated;

- (d) bias circuit means, connected between said current mirror circuit and said single ended push-pull means, for supplying bias to said single ended push-pull means; and
- (e) muting means, connected at least to said bias circuit and including a muting switch, for stopping the supply of current at least to said bias circuit means in response to the switching operation of said muting switch, thereby muting the output electrical signal.

4,366,443

TELEVISION INTERMEDIATE FREQUENCY AMPLIFIER

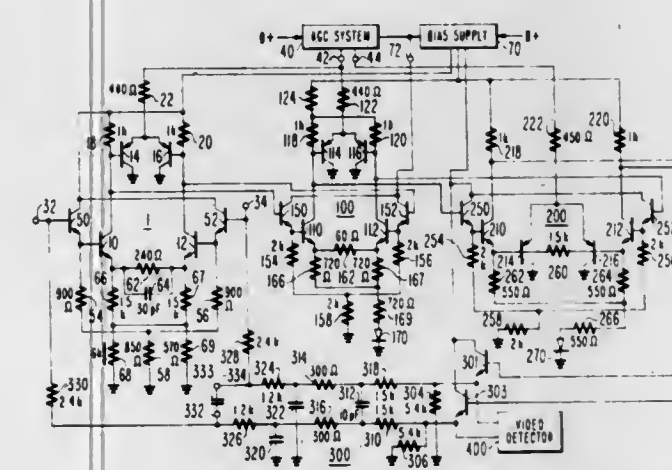
Jack R. Harford, Flemington, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jun. 26, 1980, Ser. No. 163,143

Int. Cl.³ H03G 3/30

U.S. Cl. 330—254

7 Claims



1. A television intermediate frequency amplifying system comprising:

- a first amplifying stage having a signal input and a signal output, and including a first amplifying transistor coupled in a common emitter configuration, a first resistor coupled between the collector of said first transistor and a source of supply potential and passing a first direct current therebetween, and means coupled in shunt with said first resistor and responsive to variations of a first gain control current for causing gain variations for said first amplifying stage opposite in sense as said first gain control current variations with negligible disturbance of the magnitude of said first direct current; and
- a second amplifying stage having a signal input coupled to the signal output of said first amplifying stage, and including a second amplifying transistor coupled in a common emitter configuration, a second resistor coupled between said emitter of said second transistor and a point of signal reference potential and passing a second direct current therebetween, and means coupled in shunt with said second resistor and responsive to variations of a second gain control current for causing gain variations for said second amplifying stage of the same sense as said second gain control current variations with negligible disturbance of the magnitude of said second direct current.

4,366,444

TEMPERATURE-INDEPENDENT CURRENT TRIMMING ARRANGEMENT

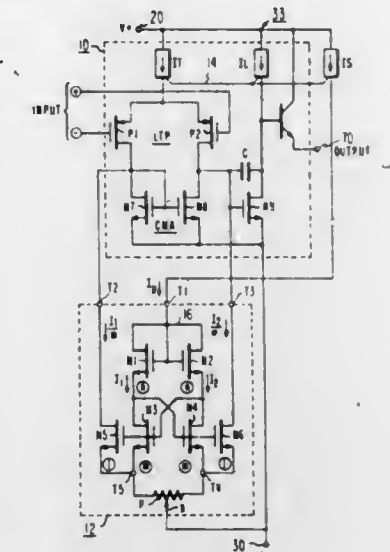
Otto H. Schade, Jr., North Caldwell, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Feb. 2, 1981, Ser. No. 230,382

Int. Cl.³ H03F 1/30, 3/45, 3/16

U.S. Cl. 330—256

12 Claims



1. A current amplifier comprising:

- a substrate;
- an input terminal, first and second output terminals, and third and fourth terminals on said substrate;
- first, second, third, fourth, fifth and sixth transistors of like conductivity type on said substrate, each having respective output and common electrodes and a main conduction path therebetween, and each having a respective input electrode;
- means connecting the respective input and output electrodes of said first and second transistors to said input terminal;
- means connecting the common electrode of said first transistor to the output electrode of said third transistor and to the respective input electrodes of said fourth and sixth transistors;
- means connecting the common electrode of said second transistor to the output electrode of said fourth transistor and to the respective input electrodes of said third and fifth transistors;
- means coupling the respective output electrodes of said fifth and sixth transistors to said first and second output terminals respectively;
- means connecting the respective common electrodes of said third and fifth transistor to said third terminal;
- means connecting the respective common electrode of said fourth and sixth transistors to said fourth terminal;
- a common terminal; and
- resistance means for completing respective first and second resistance connections between said third and fourth terminals, respectively, and said common terminal, said first and second resistance connections exhibiting respective resistances in a proportion substantially unaffected by temperature.

4,366,445

FLOATING NPN CURRENT MIRROR

David L. Cave, Tempe, Ariz., and Walter R. Davis, Sunnyvale, Calif., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 27, 1981, Ser. No. 238,800

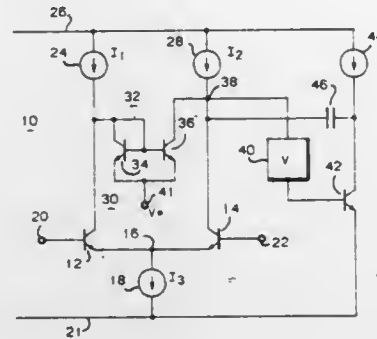
Int. Cl.³ H03F 3/45; G05F 3/20

U.S. Cl. 330—257

8 Claims

1. A current mirror circuit having a first voltage conductor, for providing an output current which varies in a predetermined manner to an input current, said current mirror circuit coupled to an operational amplifier having a differential pair of

transistors comprising a first NPN transistor and a second NPN transistor, said first and second NPN transistors having a collector, base, and emitter, said emitters both coupled together and to a second voltage conductor, the base of said first NPN transistor coupled to a first input signal conductor and the base of said second NPN transistor coupled to a second input signal conductor, the collector of said first NPN transistor coupled to a third voltage conductor and the collector of said second NPN transistor coupled to said third voltage conductor, said current mirror comprising:



- a third NPN transistor having a collector, base, and emitter, the collector coupled to both the collector of said first NPN transistor and the base of said third NPN transistor; and
- a fourth NPN transistor having a collector, base, and emitter, the collector coupled to the collector of said second NPN transistor, the base coupled to the base of said third NPN transistor, the emitter coupled to both the emitter of said third NPN transistor and said first voltage conductor, wherein said first voltage conductor is maintained at a voltage between the voltages of said second and said third voltage conductors.

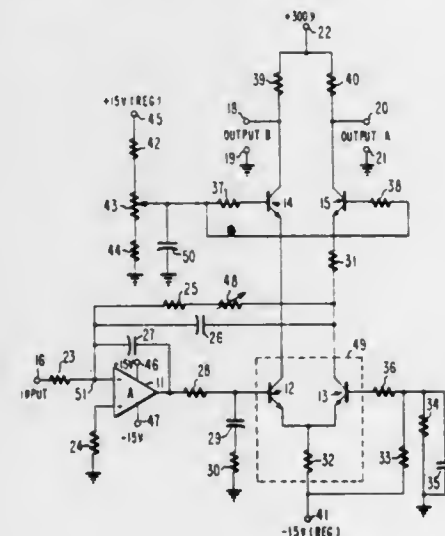
4,366,446 FEEDBACK LINEARIZATION OF CASCODE AMPLIFIER CONFIGURATIONS

Elmer L. Henderson, Philadelphia, Pa., and Henry F. Inacker, Cinnaminson, N.J., assignors to RCA Corporation, New York, N.Y.

Filed Oct. 22, 1980, Ser. No. 199,599
Int. Cl.³ H03F 3/45, 1/34

U.S. Cl. 330—260

5 Claims



1. A linearized high voltage amplifier for providing a linearly amplified high voltage output of an input signal when coupled to a first fixed potential, a second fixed potential, and a third fixed potential, with said second and third potentials having respective differences from said first potential that are relatively small and large respectively, said amplifier comprising:

a first impedance having first and second terminals and

means for coupling said third potential to the first terminal of said first impedance;

a second impedance that is a fraction of said first impedance having first and second terminals and means for coupling said second potential to the first terminal of said second impedance;

means including coupling means when coupled between said first and said second potentials for generating a constant current between said coupling means, said constant current generating means including input signal circuitry to which said input signal is applied and first and second output signal circuits for providing in response to signals applied to said input signal circuitry first and second output signals having currents which sum is said constant current, said first and second output signal currents having complementary variations at said first and second output signal circuits, respectively;

a first current conducting device having an input electrode coupled to one of said first and second output signal circuits of said constant current generating means and having an output electrode coupled to the second terminal of said first impedance

means for coupling the second terminal of said second impedance to said first output signal circuit for applying said first output signal of said constant current generating means to said second impedance to produce a voltage thereacross proportional to the current of said first output signal; and

degenerative feedback means coupled to said input signal circuitry and responsive to the voltage across said second impedance for providing a signal proportional to said voltage to said input signal circuitry to thereby linearize said first and second output signals.

4,366,447 PUSH-PULL AMPLIFIER CIRCUIT

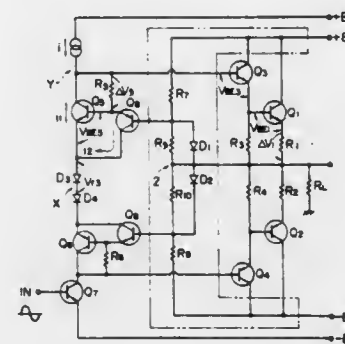
Yoshinobu Sugiyama, Tokyo, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Jan. 22, 1981, Ser. No. 227,560

Int. Cl.³ H03F 3/26

U.S. Cl. 330—267

4 Claims



1. A push-pull amplifier circuit comprising: at least one pair of output transistors operatively coupled for performing a push-pull operation, said output transistors receiving operating current from first power supply means via supply terminals thereof; variable bias generating circuit means for controlling bias voltages applied to the bases of said output transistors according to currents in said output transistors to cause said output transistors to operate in active regions, said variable bias generating circuit means receiving operating current from second power supply means electrically isolated from said first power supply means; and circuit means for sensing voltage variations at said supply terminals and for applying voltage variation components corresponding to the sensed voltage variations to said variable bias generating circuit means to cause said variable bias generating circuit means to control said bias voltages applied to said bases of said output transistors in such a manner as to compensate for shortages in bias of said amplifier circuit at times of high power output.

4,366,448 POWER-AMPLIFYING CIRCUIT

Hiromi Kusakabe, Yokohama, and Masahide Nagumo, Kawasaki, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

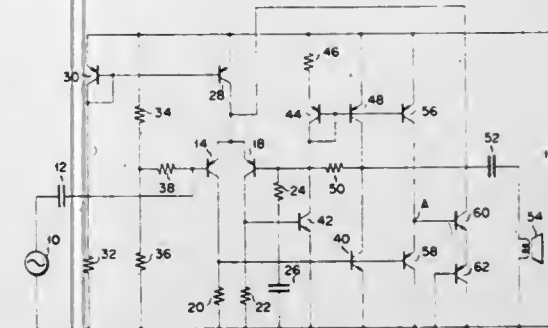
Filed Mar. 26, 1980, Ser. No. 134,303

Claims priority, application Japan, Mar. 31, 1979, 54-38616; Mar. 31, 1979, 54-38631

Int. Cl.³ H03F 3/26

U.S. Cl. 330—268

6 Claims



1. A power-amplifying circuit comprising: a pre-amplifier stage;

an output stage having first and second transistors in a push-pull arrangement and adapted to be driven by said pre-amplifier stage, said first transistor having its emitter grounded;

current detection means, having a third transistor with its base-to-emitter path connected in parallel with the base-to-emitter path of said second transistor, for detecting electric current flow through said second transistor;

converting means, having a fourth transistor having its base connected to the base of said first transistor and having its emitter connected to an output terminal of said current detection means, for converting an output current of said current detection means to a voltage;

a feedback path; and

operation means connected to said converting means, having fifth and sixth transistors connected such that the sum of the base-to-emitter voltage of said first transistor and an output voltage of said converting means is equal to the sum of the base-to-emitter voltages of said fifth and sixth transistors, for supplying an electric current corresponding to a product of operating currents flowing through said first and second transistors to said pre-amplifier stage through said feedback path.

4,366,449 INTEGRATED VOLTAGE CONTROL VARIABLE GAIN CIRCUIT AND A SIGNAL TRANSMISSION CIRCUIT USING THE SAME

Tetsuo Sato, Fussa, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed May 22, 1980, Ser. No. 152,295

Claims priority, application Japan, Jun. 11, 1979, 54-72290

Int. Cl.³ H03G 3/10; H03F 3/68

U.S. Cl. 330—278

10 Claims

1. A voltage control variable gain circuit constructed as a semiconductor integrated circuit comprising:

(a) a first operational amplifier circuit having an inverting input terminal, a non-inverting input terminal and an output terminal, said inverting input terminal leading out of said semiconductor integrated circuit to act as a first input terminal of said semiconductor integrated circuit, said non-inverting input terminal leading out of said semiconductor integrated circuit and connected to a reference potential;

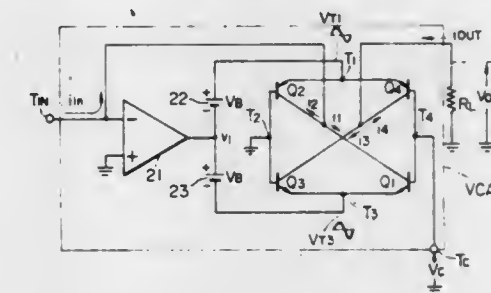
(b) a second operational amplifier circuit having an inverting input terminal, a non-inverting input terminal and an output terminal, said inverting input terminal leading out of said semiconductor integrated circuit to act as a second input terminal of said semiconductor integrated circuit,

said non-inverting input terminal leading to the outside of said semiconductor integrated circuit and connected to said reference potential;

(c) a first gain control section connected to said output terminal of said first operational amplifier circuit within said semiconductor integrated circuit and having an input terminal, a control input terminal and an output terminal, said input terminal being electrically connected to said inverting input terminal of said first operational amplifier circuit within said semiconductor integrated circuit, said control input terminal leading to the outside of said semiconductor integrated circuit to act as a first control input terminal of said semiconductor integrated circuit;

(d) a second gain control section connected to said output terminal of said second operational amplifier circuit within said semiconductor integrated circuit and having an input terminal, a control input terminal and an output terminal, said input terminal being electrically connected to said inverting input terminal of said second operational amplifier circuit within said semiconductor integrated circuit, said control input terminal leading to the outside of said semiconductor integrated circuit to act as a second control input terminal of said semiconductor integrated circuit;

(e) a third operational amplifier circuit having an inverting input terminal, a non-inverting input terminal and an output terminal, said inverting input terminal being electrically connected to said output terminal of said first gain control section within said semiconductor integrated circuit and leading to the outside of said semiconductor



integrated circuit, said non-inverting input terminal leading to the outside of said semiconductor integrated circuit and connected to said reference potential, and said output terminal leading to the outside of said semiconductor integrated circuit to act as a first output terminal of said semiconductor integrated circuit;

(f) a fourth operational amplifier circuit having an inverting input terminal, a non-inverting input terminal and an output terminal, said inverting input terminal being electrically connected to said output terminal of said second gain control section within said semiconductor integrated circuit and leading to the outside of said semiconductor integrated circuit, said non-inverting input terminal leading to the outside of said semiconductor integrated circuit and connected to said reference potential, and said output terminal leading to the outside of said semiconductor integrated circuit to act as a second output terminal of said semiconductor integrated circuit; and

(g) fifth operational amplifier circuit having an inverting input terminal, a non-inverting input terminal and an output terminal, said inverting input terminal leading to the outside of said semiconductor integrated circuit to serve as an optional input terminal for the semiconductor integrated circuit, said non-inverting input terminal leading to the outside of said semiconductor integrated circuit and connected to said reference potential, and said output terminal leading to the outside of said semiconductor integrated circuit to provide an external terminal to permit either the connection or disconnection of said fifth opera-

tional amplifier circuit to the inverting input terminal of the second operational amplifier circuit.

4,366,450

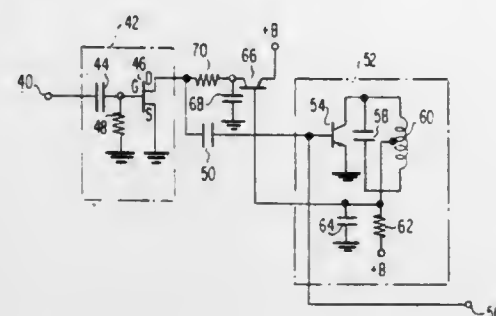
AUTOMATIC GAIN CONTROL CIRCUIT

Hisashi Suganuma, Saitama, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan
Continuation-in-part of Ser. No. 930,116, Aug. 1, 1978, Pat. No. 4,229,707. This application Feb. 20, 1980, Ser. No. 122,905
Claims priority, application Japan, Aug. 1, 1977, 52/81552; Aug. 10, 1977, 52/95814

Int. Cl.³ H03G 3/30; H03F 3/193

U.S. Cl. 330—285

5 Claims



1. An automatic gain control circuit comprising:
 - (a) a preamplifier means having a field effect transistor (FET) responsive to a high frequency input signal for amplifying said high frequency input signal and for providing said amplified high frequency input signal as an output signal, said field effect transistor having a gate, source and drain, said gate being responsive to said high frequency input signal, said source being coupled to electrical ground and said output signal being provided at said drain;
 - (b) an automatic gain control signal source;
 - (c) supply voltage means for providing to said drain from a voltage source a supply voltage controlled by said automatic gain control signal; and
 - (d) means for biasing said field effect transistor such that said gate and said source are at substantially the same d.c. potential for all values of said automatic gain control signal.

4,366,451

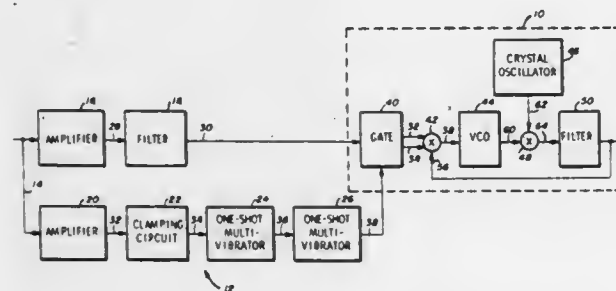
CHROMINANCE SUBCARRIER REGENERATION NETWORK

Leonard Kowal, 12647 Miller Ave., Saratoga, Calif. 95070
Continuation of Ser. No. 86,448, Oct. 19, 1979, abandoned. This application Nov. 12, 1981, Ser. No. 320,524

Int. Cl.³ H03L 7/08

U.S. Cl. 331—20

7 Claims



4. A phase-locked loop for generating at an output terminal an output signal which tracks in phase and frequency a coherent component of a gated input signal derived from a signal source in which the frequency stability has been degraded, the loop comprising in combination:
 - a phase detector connected to the output terminal for com-

paring the phase of the output signal with that of the input signal to develop an error signal;
a voltage-controlled oscillator having a stability of a first stability value and driven by the error signal for generating a correcting signal;
oscillator means for generating a reference signal having a stability of a second stability value which is higher than said first stability value and having a frequency greater than that of said correcting signal;
a mixer for combining said correcting signal with said reference signal to generate an output signal having a stability of a third stability value which is greater than said first stability value; and
means for coupling said output signal to said output terminal.

4,366,452

MULTI-POSITION WAVEGUIDE SWITCH

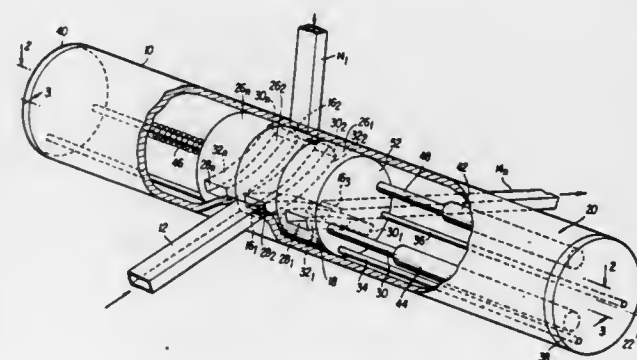
William J. Dittman, Marietta, and Calvin R. Jameson, Atlanta, both of Ga., assignors to Georgia Tech Research Institute, Atlanta, Ga.

Filed Jan. 12, 1981, Ser. No. 224,371

Int. Cl.³ H01P 1/10

U.S. Cl. 333—108

2 Claims



1. A multi-position waveguide switch comprising:
 - a housing defining a longitudinal axis and having plural ports and communication with waveguides extending from said housing;
 - a waveguide switching assembly disposed in said housing and including plural waveguide channels each having at least one input port and at least one output port, wherein at least two of said channels are displaced axially a predetermined distance, said input and output ports positioned relative to predetermined of said housing ports such that upon selected axial translation of said waveguide switching assembly, selected of said input and output ports are aligned and in communication with said predetermined housing ports;
 - means for selectively axially translating said waveguides switching assembly such that selected of said input and output ports are aligned and in communication with said predetermined housing ports; wherein said translating means comprising:
 - spring means coupling said housing and said waveguide switching assembly for biasing said assembly in a first direction;
 - displacement means coupled to said waveguide switching assembly for selectively translating said assembly in a second direction opposite said first direction against the bias of said spring means;
 - wherein said displacement comprises at least one air cylinder having a piston coupled to said waveguide switching assembly, said cylinder adapted to be connected to a source of pressurized air such that upon application of pressurized air thereto, said piston and said assembly undergoes a predetermined translation; and
 - plural air cylinders each having a piston coupled to said waveguide switching assembly, and each adapted to be connected to a source of pressurized air, each piston having a respective stroke, wherein selective application of pressurized air to a selected air cylinder produces a predetermined transla-

tion of the respective piston and said assembly in dependence on the stroke of said respective piston.

4,366,453

ORTHOGONAL MODE TRANSDUCER HAVING INTERFACE PLATES AT THE JUNCTION OF THE WAVEGUIDES

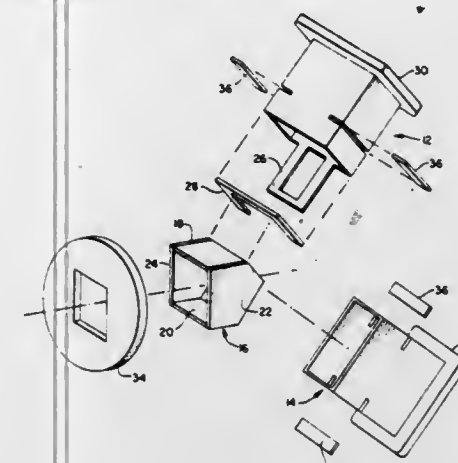
Helmut Schwarz, Satellite Beach, Fla., assignor to Harris Corporation, Melbourne, Fla.

Filed Jan. 19, 1981, Ser. No. 226,092

Int. Cl.³ H01P 5/16

U.S. Cl. 333—117

11 Claims



1. An orthogonal mode transducer comprising:
 - a central square waveguide capable of propagating signals having first and second orthogonal polarizations;
 - a first rectangular waveguide capable of propagating a signal having said first polarization but not a signal having said second polarization; and
 - a second rectangular waveguide capable of propagating a signal having said second polarization but not a signal having said first polarization,
 wherein said first and second rectangular waveguides are coupled to the central waveguide so that the longitudinal axes of the first and second rectangular waveguides are symmetrically arranged relative to the longitudinal axis of the central waveguide to form a symmetrical Y-configuration, and
 wherein substantially flat interface plates having length and width dimensions at least as great as lengths of respective sides of the rectangular waveguides are coupled between the rectangular waveguides and the square waveguide at the point where the respective waveguides are coupled together to match the size of the openings at the ends of the rectangular waveguides with the size of the opening at an end of the square waveguide, said interface plates including openings to permit passage of signals between the square and rectangular waveguides.

4,366,454

MICROWAVE HYBRID PHASE MODULATORS

Edward Salzberg, 19 Black Oak Rd., Wayland, Mass. 01778

Filed Dec. 9, 1980, Ser. No. 214,495

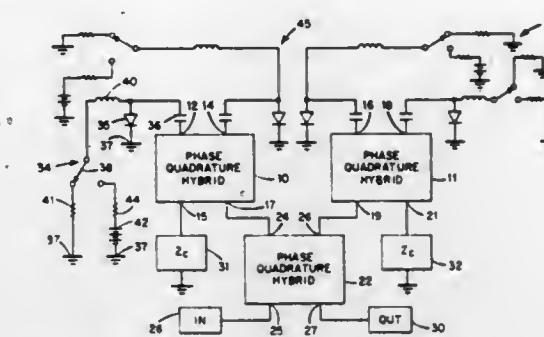
Int. Cl.³ H01P 1/18

U.S. Cl. 333—164

5 Claims

1. A microwave phase modulator having in combination at least three hybrid junctions comprising:
 - (a) first and second hybrid junctions of the phase quadrature type each having two pairs of conjugate ports;
 - (b) a switchable impedance terminating each port of one pair of conjugate ports of each of said first and second hybrid junctions;
 - (c) a third hybrid junction having a first port connected to one of the remaining ports of said first hybrid junction, a second port connected to one of the remaining ports of said second hybrid junction a third port and a fourth port;

(d) an input terminal connected to said third port of said third hybrid junction; and,



(e) an output terminal connected to said fourth port of said third hybrid junction.

4,366,455

SWITCHED-CAPACITY AMPLIFIER, SWITCHED-CAPACITY FILTER AND CHARGE-TRANSFER FILTER COMPRISING SUCH AN AMPLIFIER

Jean L. Berger, Paris, France, assignor to Thomson-CSF, Paris, France

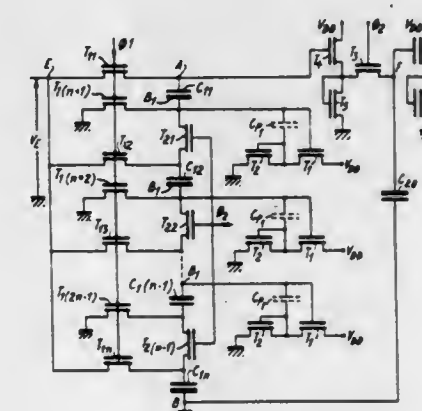
Filed Nov. 5, 1980, Ser. No. 204,177

Claims priority, application France, Nov. 9, 1979, 79 27713

Int. Cl.³ H03H 11/04, 17/06, 19/00

U.S. Cl. 333—165

8 Claims



1. A circuit having a plurality of integrated capacities comprising
 - (a) a semiconductor substrate of one conductivity type;
 - (b) a layer of silica on said substrate;
 - (c) each of said capacities comprising,
 - (i) an upper and a lower layer of polycrystalline silicon integrated in said silica and parallel to the substrate;
 - (ii) two layers of aluminum formed on the silica and insulated from each other, and each being connected to one of the polycrystalline layers respectively; and the plates of each integrated capacity being formed by an aluminum layer and its respective polycrystalline silicon layer; and a terminal, designated B1, being associated with the plate of the capacity comprising the lower layer of polycrystalline silicon;
 - (d) one of said integrated capacities having its B1 terminal connected to ground;
 - (e) a zone of opposite conductivity type at the semiconductor silica interface facing said polycrystalline silicon layers of at least another of said integrated capacities; and
 - (f) a voltage follower stage having one control terminal connected to said B1 terminal of said other integrated capacity and the other control terminal connected to said zone of said other integrated capacity; whereby said circuit is a switched capacity amplifier.

4,366,456

SWITCHED-CAPACITOR FILTER

Norio Ueno, Kawasaki; Seiji Kato, Yamato, and Atsushi Iwata, Tokorozawa, all of Japan, assignors to Fujitsu Limited, Kawasaki and Nippon Telegraph & Telephone Public Corporation, Tokyo, both of Japan

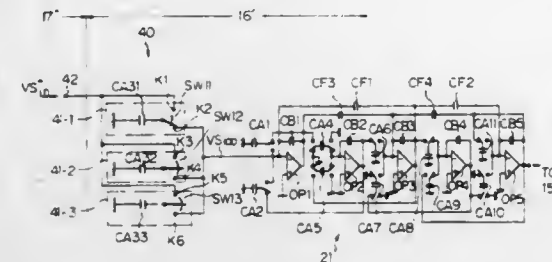
Filed Jun. 4, 1980, Ser. No. 156,389

Claims priority, application Japan, Jun. 14, 1979, 54/74861

Int. Cl.³ H03H 19/00; H03K 5/153

U.S. Cl. 333—173

13 Claims



1. A signal converter for receiving a succession of input signals and converting same for transfer to a switched capacitor filter, said converter being driven by constant frequency clock pulses and comprising:

a plurality of switched capacitors connected in parallel with each other, each said switched capacitor comprising a capacitor and associated switching means connected in series,

wherein each of the switched capacitors receives the same successive input signals to be transferred, each of said input signals comprising both a holding term for transferring the input signal and a non-holding term for not transferring the input signal,

wherein said switched capacitors store said input signals during the holding term in synchrony with said clock pulses,

and wherein the switched capacitors discharge respective stored input signals sequentially, during both said holding term and said non-holding term, in synchrony with said clock pulses.

4,366,457

RADIATING COAXIAL CABLE HAVING APERTURES SPACED AT A DISTANCE CONSIDERABLY LARGER THAN A WAVELENGTH

Udo Bode, Langenhagen; Paul Thiele, Laatzen; Günter Möhring, and Helmut Hildebrand, both of Langenhagen, all of Fed. Rep. of Germany, assignors to Kabel- u. Metallwerke Gutehoffnungshütte AG, Hanover, Fed. Rep. of Germany

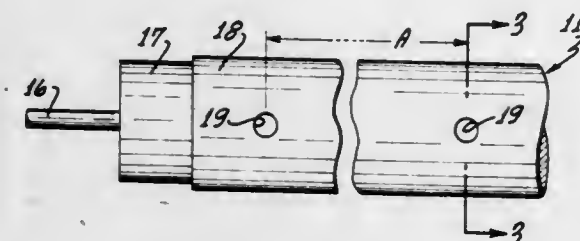
Filed Feb. 4, 1981, Ser. No. 231,313

Claims priority, application Fed. Rep. of Germany, Feb. 9, 1980, 3004882

Int. Cl.³ H01P 3/06

U.S. Cl. 333—237

5 Claims



1. A transmission system which includes a source of h-f signals and a coaxial cable, the h-f signals having a particular carrier frequency, the cable being comprised of an inner conductor, an outer conductor coaxial to the inner conductor, and a dielectric spacer means in between, the carrier frequency

signals as propagating through the cable having a particular wavelength, the improvement comprising:

a plurality of apertures in the outer conductor being spaced in axial direction at distances, each being considerably larger than the particular wavelength, for establishing spaced apart feed points for surface waves traveling along said outer conductor.

4,366,458

MERCURY DISPLACEMENT RELAY

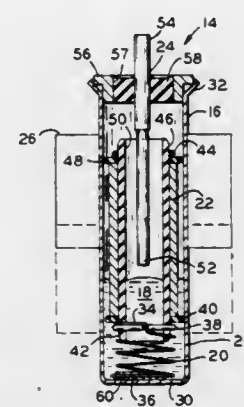
George H. Elenbaas, 25526 N. Shore Dr., Elkhart, Ind. 46514

Filed Dec. 3, 1981, Ser. No. 327,243

Int. Cl.³ H01H 29/16

U.S. Cl. 335—52

12 Claims



1. A mercury displacement relay comprising:

a first electrode member containing a body of mercury therein,

a second electrode member being received and secured within said first electrode member, said second electrode member having a portion thereof in contact with said mercury body, said electrodes being insulated one from the other,

a displacement plunger having a first position within said first electrode member wherein a first length of said displacement plunger is submerged in said mercury body, and being movable to a second position within said first electrode member higher than said first position wherein a second length shorter than said first length of said displacement plunger is submerged in said mercury body, said displacement plunger first and second lengths having a common submerged portion,

a spring having opposite ends and being submerged within said mercury body, a first one of said ends being attached to said displacement plunger common portion submerged in said mercury body,

means submerged in said mercury body for securing an opposite end of said spring to a portion of said first electrode member in contact with said mercury body so that said displacement plunger is movably suspended in said first position by said spring, and

coil means in proximity to said first electrode member for moving said displacement plunger from said first position to said second position upon being energized; whereby said mercury body is displaced downwardly upon said displacement plunger moving from said first to said second position, thereby disengaging said second electrode member portion from contact with said mercury body.

4,366,459

MINIATURE MAGNETIC LATCH RELAY

Jack J. Vitola, Simsbury, Conn., assignor to Hi-G Incorporated, Windsor Locks, Conn.

Filed Jul. 9, 1981, Ser. No. 281,652

Int. Cl.³ H01H 51/22

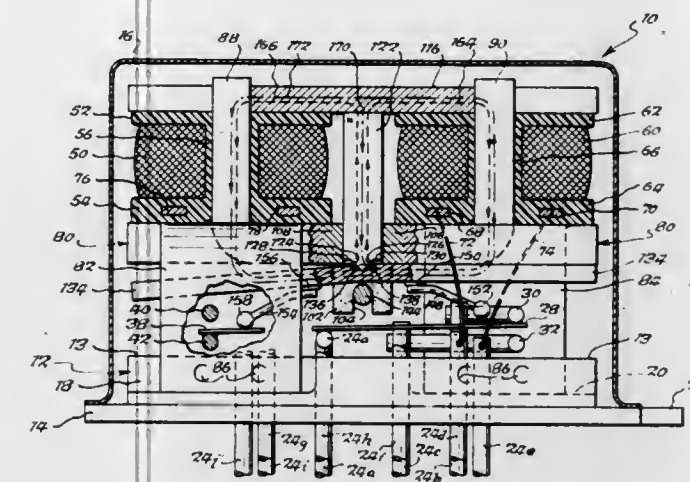
U.S. Cl. 335—79

26 Claims

1. In a miniature magnetic latch relay including a support header, a permanent magnet, and an armature in pivotal

contact with said magnet for movement between two stable positions in response to selective energization of two electromagnetic coils, the improvement comprising:

a frame having a main body portion spaced from said header and in close relation to said armature, a pair of spaced-apart pole piece sections of magnetic material in said main body portion and operatively associated with said armature, a pair of spaced-apart supporting legs extending from said main body portion toward said header and fixed to said header, a pair of core sections of magnetic material



extending from said main body portion in a direction away from said header through said coils and into magnetic and mechanical coupling relation with said permanent magnet, an opening in said main body portion through which a portion of said permanent magnet extends for said pivotal contact with said armature, and a barrier in said body portion between said opening and said core and pole piece sections of a material having sufficient reluctance to resist the flow of magnetic flux between said permanent magnet and said main body magnet and said armature.

4,366,460

SPRING ELEMENTS FOR SUPPORTING A SUPERCONDUCTIVE COIL

Siegfried Förster, Karlsruhe, and Günter Friesinger, Eggenstein-Leopoldshafen, both of Fed. Rep. of Germany, assignors to Kernforschungszentrum Karlsruhe GmbH, Karlsruhe, Fed. Rep. of Germany

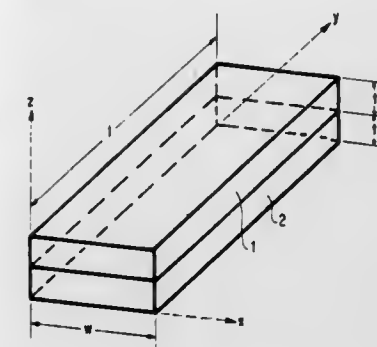
Filed Mar. 13, 1980, Ser. No. 130,121

Claims priority, application Fed. Rep. of Germany, Mar. 16, 1979, 2910354

Int. Cl.³ H01F 1/00

U.S. Cl. 335—216

3 Claims



1. In a superconductive coil assembly having a generally D-shaped housing formed of an inner shell and an outer shell surrounding said inner shell, a generally D-shaped superconductive coil situated in a space defined between said shells; the improvement comprising a plurality of spring elements arranged in a mosaic-like pattern on a surface area on a convex portion of said inner shell between said superconductive coil and said inner shell; said spring elements being in a face-to-face engagement with said inner shell and said superconductive

coil; each said spring elements having a first flat member being of a material having a relatively small dilatation and a second flat member being of a material having a relatively large dilatation, said first and second flat members being inseparably bonded to one another; said spring elements having an effective thickness that is greater at a relatively low temperature than at a relatively high temperature.

4,366,461

CYCLING RESISTANT FUSIBLE ELEMENT FOR ELECTRIC FUSES

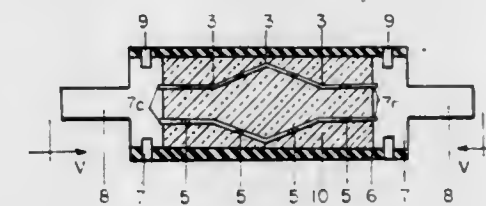
Randa Tawfik, Seabrook, N.H., assignor to Gould Inc., Rolling Meadows, Ill.

Filed Jun. 22, 1981, Ser. No. 276,392

Int. Cl.³ H01H 85/04

U.S. Cl. 337—159

3 Claims



1. A cycling resistant fusible element for electric fuses comprising

(a) a ribbon of copper from which any M-effect overlay is absent;

(b) said ribbon being zig-zag shaped to establish a plurality of contiguous planar sections enclosing obtuse angles with each other and forming straight edges at the loci of intersection of the planes defined by said sections;

(c) said straight edges being non-perforated to maximize the flexural strength thereof;

(d) said sections each having at least one point of reduced cross-section remote from said straight edges;

(e) said ribbon being electroplated with sulfamate of nickel to prevent its oxidation and providing a dull protective layer of high ductility; and

(f) the thickness of said layer being in the order of ten thousandths parts of an inch.

4,366,462

TEMPERATURE SAFETY SWITCH

Walter Hollweck, Nuremberg, Fed. Rep. of Germany, assignor to Inter Control Hermann Köhler Elektrik GmbH & Co. KG, Nuremberg, Fed. Rep. of Germany

Filed Oct. 20, 1980, Ser. No. 198,611

Claims priority, application Fed. Rep. of Germany, Oct. 20, 1979, 2942478

The portion of the term of this patent subsequent to Dec. 22, 1998, has been disclaimed.

Int. Cl.³ H01H 37/76

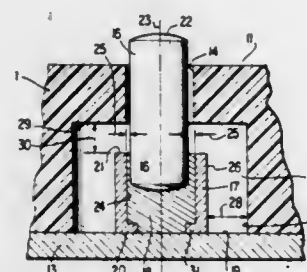
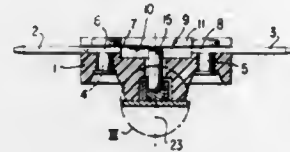
U.S. Cl. 337—409

4 Claims

1. In a temperature responsive safety switch including an insulating housing provided with a recess, a thermally conductive heat transfer plate mounted on the housing, a pair of electrically conductive contact elements mounted in the housing and defining an electric current path extending through the housing, one of the contact elements being a spring element which is internally stressed to tend to separate from the other contact element, a body of meltable material mounted on the heat transfer plate, and a force-transmitting plunger displaceably mounted in the housing and having one end in engagement with the body of meltable material and its other end in engagement with the spring element to maintain the contact elements in contact with one another when the body of meltable material has not melted, the improvement comprising:

a hollow cylindrical sleeve member in which said body of meltable material is enclosed and which is oriented with

its longitudinal axis extending in the displacement direction of said plunger, said sleeve member and plunger being so positioned and dimensioned relative to one another that the end of said plunger remote from said contact spring extends into said sleeve member with play in the direction perpendicular to the longitudinal axis of said sleeve mem-



ber, said sleeve member being mounted in said recess in said housing, and said housing recess being dimensioned to present a space around said sleeve member sufficient to receive the entire mass of said body when the material melts and is forced out of said sleeve member by displacement of said plunger.

4,366,463 KEYBOARD

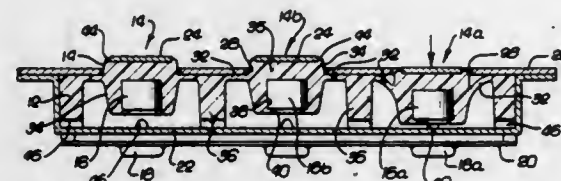
Stephen F. Barker, Huntington Beach, Calif., assignor to Cooper Industries, Inc., Houston, Tex.

Filed May 22, 1981, Ser. No. 266,288

Int. Cl.³ H01C 10/00

U.S. Cl. 338—69

12 Claims



1. A keyboard comprising:
 - a one piece elastomer matrix forming a plurality of independently depressible keys;
 - a magnet associated with and attached beneath each said depressible key;
 - a switching means associated with each said depressible key and magnet located beneath said magnet for activation by the associated magnet when said depressible key is pressed; and
 - a magnetically permeable means for segregating said matrix from said switching means.

4,366,464

IGNITION CABLES

Yoshimi Miyamoto, Aichi; Keiichi Kojima, and Yasuo Toriumi, both of Osaka, all of Japan, assignors to Sumitomo Electric Industries, Osaka and Nippondenso Co., Ltd., Aichi, both of, Japan

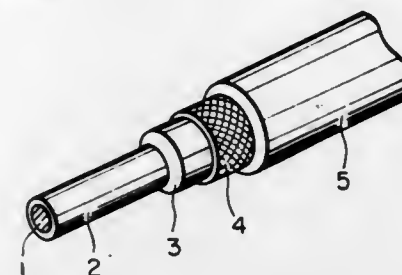
Filed Feb. 2, 1981, Ser. No. 230,929

Claims priority, application Japan, Jan. 31, 1980, 55-11443[U]

Int. Cl.³ H01C 3/06

U.S. Cl. 338—214

7 Claims



1. A high voltage ignition cable having a low electrostatic capacity comprising a resistive-conductor core, an insulator layer provided thereon, and a jacket, wherein said insulator layer comprises a cross-linked product of a blended composition consisting of crystalline polyethylene and a non-crystalline olefin polymer.

4,366,465

FALSE FAILURE DETECTION PREVENTION IN AN AIR BAG DIAGNOSTIC SYSTEM

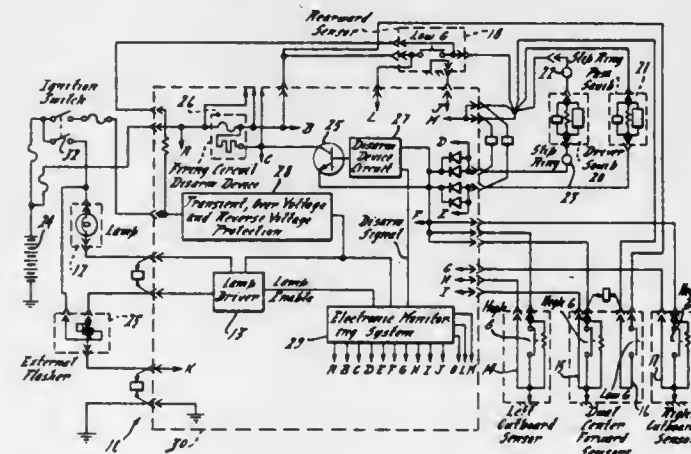
Marcello Veneziano, Novi, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Oct. 2, 1981, Ser. No. 307,836

Int. Cl.³ B60R 21/00

U.S. Cl. 340—52 R

5 Claims



1. In an air bag restraint deployment system for an automotive vehicle including:
 - a plurality of crash sensors mounted in the front of the vehicle, each having an electrical configuration of a normally open switch and being connected in parallel;
 - a deceleration sensor mounted towards the rear of the vehicle and having the electrical configuration of a normally open switch;
 - means connected in series between said crash sensors and said deceleration sensor for inflating said air bag in response to the concurrent closing of both said sensors;
 - circuit means for supplying a system voltage across said interconnected deceleration sensor, inflation means and crash sensor;
 - means for disarming said system by interrupting the circuit means and inhibiting said supply of system voltage across said deceleration sensor, inflation means and said crash sensor;
 - means connected to said deceleration sensor, said crash sen-

sors, said inflation means, and said disarming means, for monitoring their operating condition, for providing an indication when an operating condition is impaired, and for providing a disarmed signal to said disarming means when a short is detected across any of said crash sensors;

an improvement comprising:

means connected to a junction between said crash sensors and said inflation means, and to said disarming means to receive said disarm signal, and for responsively activating said disarming means only when a short is present across any of said crash sensors.

4,366,466

APPARATUS FOR PREVENTING UNAUTHORIZED STARTING OF A MOTOR VEHICLE

Horst Lutz, Ditzingen, Fed. Rep. of Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

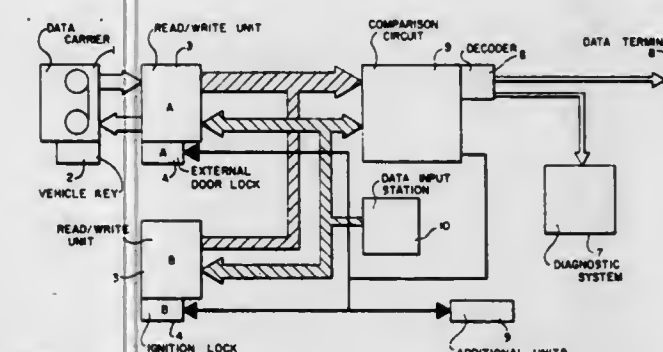
Filed Mar. 21, 1980, Ser. No. 132,411

Claims priority, application Fed. Rep. of Germany, Mar. 22, 1979, 2911160

Int. Cl.³ B60R 25/00; G07C 5/08

U.S. Cl. 340—64

26 Claims



1. An arrangement for preventing an unauthorized starting of a motor vehicle, the arrangement including a data carrier with a key adapted to operate at least one of mechanical locks and ignition switch means of the motor vehicle and an evaluating circuit means for providing an output signal if data on the data carrier contains predetermined information, characterized in that the data carrier includes at least one of an unerasure portion containing data reflecting vehicle-related information and an erasure portion containing arbitrary information, the evaluating circuit means includes at least one read/write means for reading the data on the data carrier and for enabling a changing of the information on the erasure portion of the data carrier, and a comparison means for comparing the data read by the read/write means with specific data and for providing an output signal upon a coincidence between the read data and the specific data in the comparator means and for forwarding at least a pair of the vehicle-related information to a vehicle diagnostic system.

4,366,467

TORQUER CURRENT READOUT SYSTEM FOR INERTIAL INSTRUMENT EMPLOYING CURRENT CONTROLLED OSCILLATOR

Glenn F. Cushman, Norfolk, Mass., assignor to Northrop Corporation, Los Angeles, Calif.

Filed Jan. 16, 1980, Ser. No. 112,417

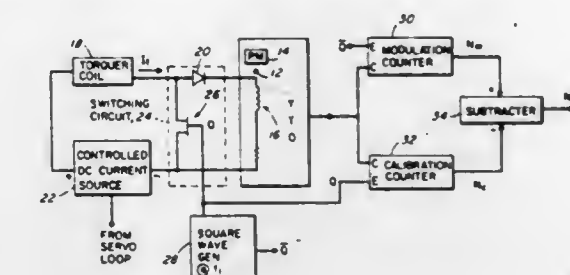
Int. Cl.³ H03K 13/02

U.S. Cl. 340—347 AD

20 Claims

1. In a readout system for an inertial instrument having a torquer coil for interacting magnetically with an inertial element when analog torquer current is passed through the coil, the improvement comprising means for measuring the current flowing through the torquer coil including:

a current-controlled oscillator having a tuning coil connected in series with said torquer coil, and



means responsive to the output of the oscillator for producing a digital output substantially proportional to torquer current.

4,366,468

CHARGE-BALANCED ANALOG-TO-DIGITAL CONVERTER

Toshikazu Yoneyama, Tsurugashima, Japan, assignor to Toko, Inc., Tokyo, Japan

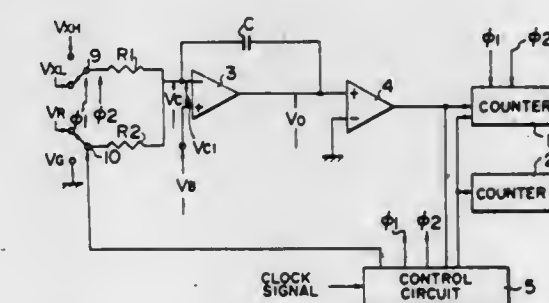
Filed Jul. 9, 1980, Ser. No. 166,809

Claims priority, application Japan, Jul. 16, 1979, 54-90123

Int. Cl.³ H03K 13/20

U.S. Cl. 340—347 NT

2 Claims



1. A charge-balanced analog-to-digital converter, comprising an integrator including a capacitor, two separate resistors, an operational amplifier, and first and second input terminals connected to the inverting input terminal of said operational amplifier through said two separate resistors respectively; a comparator; first and second counters; and, a control circuit, responsive to the output of said comparator for providing said first input terminal during a first cyclic period, with the lower potential version of an input voltage to be subjected to analog-to-digital conversion and during a second cyclic period, with the higher potential version of said input voltage, and for providing said second input terminal during both the first and second cyclic periods, alternately with a reference voltage for charging said capacitor and a ground potential for causing said capacitor to be discharged; said second counter being arranged to count clock signals occurring during said first and second cyclic periods, for making said first and second cyclic periods equal to each other; said first counter being arranged to count up, during said first cyclic period, those ones of said clock signals which occur when said capacitor is being charged and count down said those ones of said clock signals during said second cyclic periods; the values counted during the first and second periods are deducted so as to be converted to a digital signal in said first counter whereby said unknown input voltage is subjected to analog-to-digital conversion.

4,366,469

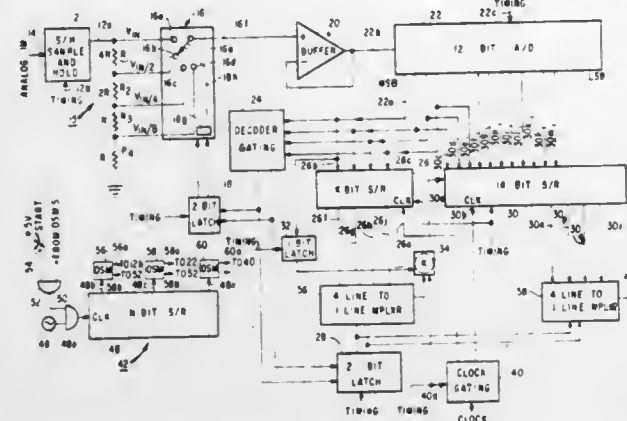
COMPANDING ANALOG TO DIGITAL CONVERTER
Stuart R. Michaels, Commack, and Stephen J. Sacks, Woodmere, both of N.Y., assignors to ILC Data Device Corporation, Bohemia, N.Y.

Filed Sep. 22, 1980, Ser. No. 189,648

Int. Cl.³ H03K 13/02

U.S. Cl. 340—347 AD

7 Claims



6. A method for converting an analog signal, whose magnitude lies within a predetermined range, into a variable length digital signal comprising the steps of:
temporarily storing said analog signal;
attenuating said analog signal a predetermined amount so that its magnitude is reduced to a value near the low end of said range;
converting the attenuated signal into a multi-bit binary word representing the magnitude of said attenuated signal;
storing a portion of said multi-bit binary word;
examining said stored portion and altering the amount of attenuation of said stored analog signal in accordance with the value of the stored portion of the multi-bit binary word;
converting the analog signal whose magnitude has been so altered into a second multi-bit binary word;
combining one or more of said bits initially stored with said second multi-bit binary word to form a multi-bit binary word whose resolution (i.e. word length) is a function of the magnitude of the stored analog signal wherein the smaller the magnitude of the stored analog signal, the greater the resolution, (i.e. length) of its multi-bit binary word.

4,366,470 CONVERTER

Akira Takanashi, and Yasuhiko Ishigami, both of Mitaka, Japan, assignors to Hitachi, Ltd. and Hitachi Microcomputer Engineering Ltd., both of Tokyo, Japan

Filed Feb. 6, 1981, Ser. No. 232,191

Claims priority, application Japan, Feb. 20, 1980, 55/19011

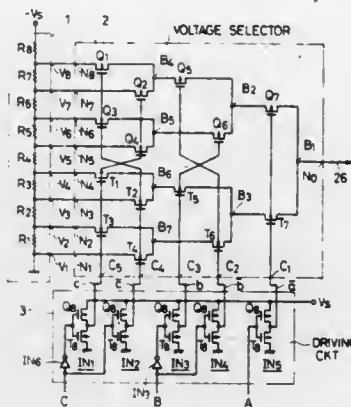
Int. Cl.³ H03K 13/02

U.S. Cl. 340—347 DA

15 Claims

1. An electronic sound generator comprising:
first and second converters, each comprising:
a plurality of input points supplied with voltages of levels different from one another, a single common output point, and a plurality of insulated-gate field effect transistors with their source-drain paths connected between said plurality of input points and said common output point; and
a driving circuit which provides binary signals of a plurality of bits for controlling "on" and "off" states of said plurality of insulated-gate field effect transistors, wherein each of said plurality of insulated-gate field effect transistors has its conductivity type determined to permit switching each said transistor into the "on" state by a level of a binary signal affording a greater level differ-

ence relative to the voltage to be switched by said each transistor;
a reference signal generator having an output terminal for providing a plurality of digital reference signals representative of different sounds;
means for coupling said digital reference signals from said output of said reference signal generator directly to the driving circuit of said first converter;
an inverter coupled between the output terminal of said reference signal generator and the driving circuit of said second converter to provide inverted digital reference



signals from the reference signal generator to said driving circuit of the second converter;
an oscillator for producing an audio frequency signal at an output terminal;
mixing means coupled to receive the outputs of said first and second converters and said oscillator to produce a single mixed output signal V_0 by mixing the respective outputs of said first and second converters and said oscillator; and
transducer means coupled to receive the output signal V_0 from said mixing means to produce a sound from said output signal V_0 .

4,366,471

VARIABLE SPEED DIGITAL REPRODUCTION SYSTEM USING A DIGITAL LOW-PASS FILTER

Masao Kasuga, Yokohama, Japan, assignor to Victor Company of Japan, Limited, Yokohama, Japan

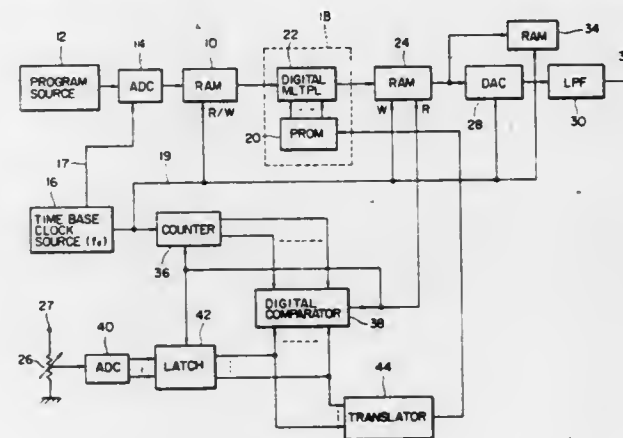
Filed Feb. 20, 1981, Ser. No. 236,633

Claims priority, application Japan, Feb. 22, 1980, 55-21178

Int. Cl.³ H03K 13/02

U.S. Cl. 340—347 DA

8 Claims



1. A system for reproducing an analog signal which is stored as sampled data in memory means at a variable speed which may differ from the speed at which the analog signal is sampled and recorded into said memory means, comprising:
a clock source for generating clock pulses occurring at a frequency substantially corresponding to the speed at which said sampled data is recorded into said memory means;

a binary counter for counting said clock pulses to generate a first binary output representing the count value of said clock pulses;
means for generating a second binary output representing said variable speed;
means for detecting a match between said first and second binary outputs to reset said binary counter to an initial count value and reading the stored data out of said memory means in response to the occurrence of the detected match;
a digital low-pass filter for eliminating a high frequency component of the analog equivalent of the sampled data, the cut-off frequency of said filter being variable in response to the value of said second binary output so that the cut-off frequency corresponds substantially to one-half of the frequency at which said detected match occurs; and
a digital-to-analog converter for converting a filtered signal from said digital low-pass filter at a constant frequency into a corresponding analog signal.

4,366,472

MOTOR ACTUATED BELL ASSEMBLY

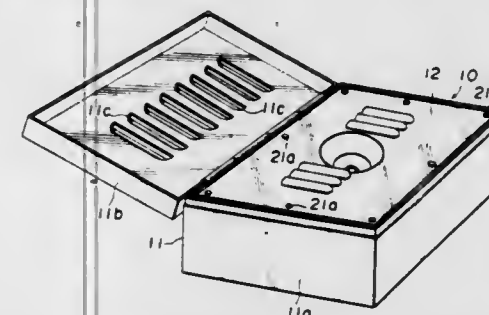
Tadashi Ishii, Kunitachi, Japan, assignor to Kobishi Electric Co., Ltd., Tokyo, Japan

Filed Nov. 12, 1980, Ser. No. 206,026

Int. Cl.³ G08B 3/10; G10K 1/26

U.S. Cl. 340—392

7 Claims



1. A motor actuated bell assembly comprising:
(a) a housing box having a body with an open top and a lid for closing said open top; and
(b) a motor actuated bell, said bell including a base formed with an integral support portion projecting from one surface thereof, a motor driven actuating mechanism mounted on said surface, and a cup-shaped gong mounted on the distal end of said support portion, said motor driven actuating mechanism including hammer means and being accommodated within said gong so that said hammer means is adapted to be brought into striking contact with the inner wall of said gong;
(c) said motor actuated bell being mounted within said housing box, said base being fastened to said box body adjacent to said open top thereof and said motor actuated bell being accommodated within said box body.

4,366,473

CAPACITIVELY COUPLED ELECTROMAGNETIC INTRUSION WARNING SYSTEM

Hiromitsu Inoue, Kyoto; Hiroshi Ohashi, Hirakata, and Yuji Takada, Neyagawa, all of Japan, assignors to Matsushita Electric Works, Ltd., Kadoma, Japan

Filed Dec. 31, 1980, Ser. No. 221,818

Claims priority, application Japan, Jan. 15, 1980, 55-3327; Jan. 15, 1980, 55-3328; Jan. 15, 1980, 55-3330; Jan. 15, 1980, 55-3331; Jul. 28, 1980, 55-102378

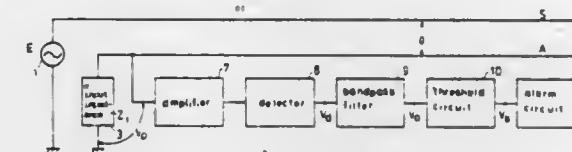
Int. Cl.³ G08B 13/26

U.S. Cl. 340—562

7 Claims

1. An intrusion warning system for indicating the presence of an intruder to a given area comprising:
an antenna provided around said area insulated from the ground;
an oscillator for feeding an alternating current signal to said

antenna, said oscillator including a frequency-switchable oscillation circuit which switches the frequency of said alternating current signal in response to a control signal impressed thereon and a beat detection circuit which detects a beat between said alternating current signal and the harmonics of an A.C. power signal adjacent said system, for producing said control signal in response to an



occurrence of a beat signal of an amplitude in excess of a predetermined level;
coupling impedance means connected between an output terminal of said oscillator and said antenna; and
signal processing means for producing an output signal responding to a change exceeding a predetermined level of the voltage of said alternate current signal on said antenna.

4,366,474

IDENTIFICATION OF ELECTRIC POWER NETWORK PHASES EXPERIENCING DISTURBANCES

Paul Loewenstein, Paris, France, assignor to Enertec, Montrouge, France

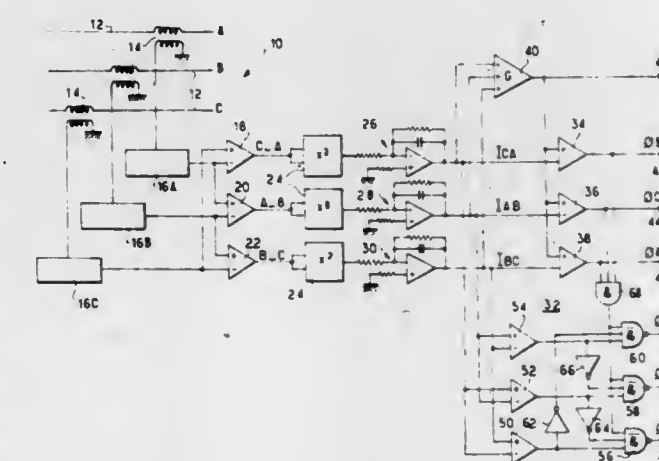
Filed Apr. 13, 1981, Ser. No. 253,969

Claims priority, application France, Apr. 15, 1980, 80 08428

Int. Cl.³ G08B 21/00

U.S. Cl. 340—658

5 Claims



1. A method for identifying which of the phases in a N-phase electric-power transmission network has experienced a fault, comprising the steps of

producing for each phase a first signal representative of the transient variations of an electrical parameter of the respective phase, or of a linear combination of at least two of said parameters;
generating a set of N second signals as the product of two linear combinations of at least N-1 signals selected among said first signals, the sum of all coefficients for each linear combination being nil, each of said second signals being related to a given phase;
integrating with respect to time each of said second signals to produce a set of N third signals associated with respective phases;
generating a fourth signal by combining all of the N first signals in a symmetrical manner with respect to all of said first signals, whereby said fourth signal is independent of the associated phases;
comparing said fourth signal with each of said third signals

to produce comparison signals related to respective phases; and
identifying the faulty phase in accordance with the comparison signals thus produced.

4,366,475

IMAGE DISPLAY SYSTEM

Hajimu Kishi, Hino, and Kunio Tanaka, Hachioji both of Japan, assignors to Fujitsu Fanuc Limited, Tokyo, Japan

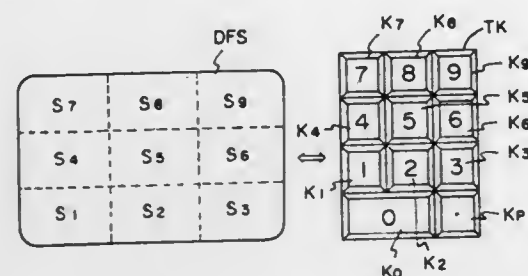
Filed Feb. 20, 1981, Ser. No. 236,552

Claims priority, application Japan, Feb. 23, 1980, 55-21816

Int. Cl.³ G09G 1/16

U.S. Cl. 340-731

15 Claims



1. An image display system comprising:
a display device having a picture surface on which an image to be enlarged or reduced is formed, said picture surface being divided into $m \times n$ sub-regions arranged in m lines and n columns where m and n are integers;
a plurality of numeral keys bearing different numerical values, said keys for appointing said sub-regions and for generating numerical values;
an operation unit, operatively connected to said plurality of numeral keys, for making the numerical values input through said plurality of numeral keys correspond to said sub-regions and for generating a corresponding output; and
a picture processing device, operatively connected to said operation unit and to said display device, for transmitting to said display device, upon receipt of the output from said operation unit, the image of the sub-region appointed by the numeral key input at an enlarged scale for display on said picture surface.

4,366,476

RASTER DISPLAY GENERATING SYSTEM

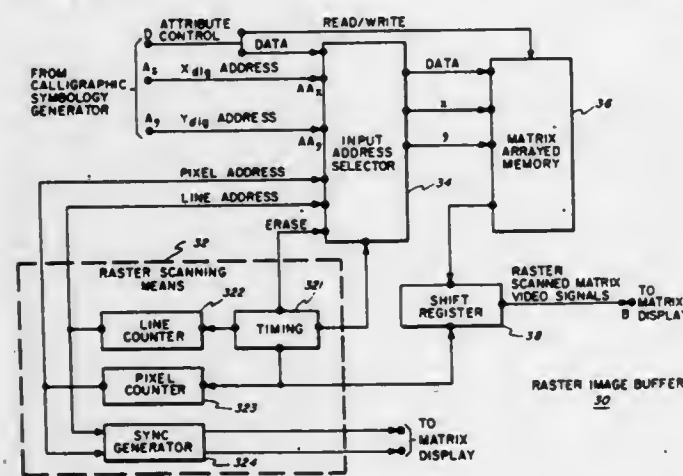
Charles W. R. Hickin, Binghamton, N.Y., assignor to General Electric Company, Binghamton, N.Y.

Filed Jul. 3, 1980, Ser. No. 165,804

Int. Cl.³ G09G 1/16

U.S. Cl. 340-747

43 Claims



34. A method for converting calligraphic symbology infor-

mation into raster scanned symbology for display on a raster scanned matrix display comprising the steps of:
generating a consecutive series of X and Y addresses corresponding to the line segments of the symbol being stroked; and
converting this consecutive series of addresses into corresponding pixel locations and storing the pixel locations for refreshing the display image at a later time.

4,366,477

DOT MATRIX TYPE RUNNING DISPLAY PANEL FOR USE IN ELECTRONIC CALCULATORS OR THE LIKE

Tetsuo Iwase, Nara, and Mitsuhiro Saiji, Kyoto, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

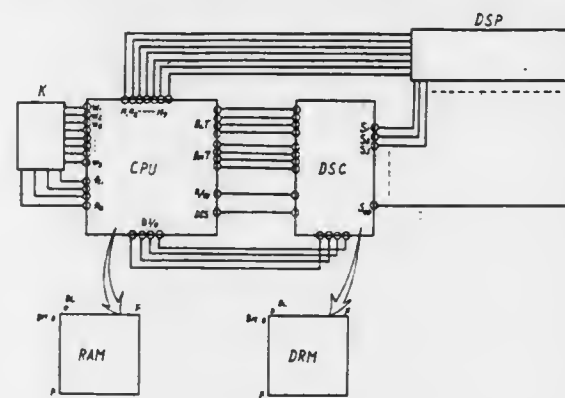
Filed Apr. 15, 1980, Ser. No. 140,657

Claims priority, application Japan, Apr. 17, 1979, 54-47777

Int. Cl.³ G09G 3/20

U.S. Cl. 340-792

2 Claims



1. An electronic calculator and display system comprising:
a central processing unit;
a dot matrix display arranged in a number of display segments;
display information memory means for storing information to be displayed at fixed locations therein;
display read and write control circuit for storing and reading information in said display information memory means;
display buffer means for reading and decoding the information stored in said display information memory means;
display address decoder means responsive to said central processing unit for selecting addresses within said display information memory from which information is read and decoded by said display buffer means;
segment driver means for converting the decoded information developed by said display buffer means into individual segment signals for application to the individual display segments of said dot matrix display;
information volume detection means for producing a display shift signal when the number of characters of said information to be displayed stored in said display information memory means exceeds the number of display segments;
said display address decoder means and said central processing unit sequentially shifting the addresses of said display information memory means to be read by said display buffer means in response to the production of said display shift signal by said information volume detection means to thereby shift said information across said display to form a running display pattern.

4,366,478

SIGNAL TRANSMITTING AND RECEIVING APPARATUS

Ikuro Masuda, Hitachi; Hisayoshi Shiraishi, Katsuta; Seichiro Ogawa, Ichikawa; Shigeo Shiono, Hitachi; Jinichi Sakurai, Mito, and Takeo Yuminaka, Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

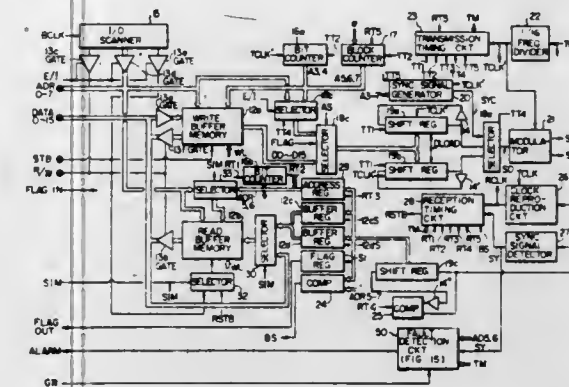
Filed Jan. 5, 1981, Ser. No. 222,708

Claims priority, application Japan, Jan. 7, 1980, 55-126

Int. Cl.³ G08C 25/00; H04L 7/00; H04O 9/00

U.S. Cl. 340-825

8 Claims



1. A signal transmitting and receiving apparatus for effecting signal transmission between control units or between a control unit and one or more I/O devices, comprising means for receiving parallel-by-word data and for converting said parallel-by-word data to serial-by-word data, means for transmitting said serial-by-word data, means for receiving transmitted serial-by-word data and for converting said serial-by-word data to parallel-by-word data, wherein said signal transmitting and receiving apparatus further comprises:
first buffer memory means for storing an incoming parallel-by-word data signal;
first signal transmitting means for reading out the parallel-by-word data signal stored in said first buffer memory means, and for converting said parallel-by-word data signal to a serial-by-word data signal, and for transmitting said converted signal-by-word data signal cyclically;
second buffer memory means for converting an incoming serial-by-word data signal to a parallel-by-word data signal, and for storing said converted parallel-by-word data signal;
second signal transmitting means for reading out the parallel-by-word data signal stored in said second buffer memory means, and for transmitting said read-out parallel-by-word data signal; and
access word length setting means for setting the access word length for the writing/reading operations of said first and second buffer memory means independent of the word length for the data transmission, including at least a bit counter for counting the number of bits which are determined by the access word length and a block counter indicating a block in each of said first and second buffer memory means.

4,366,479

CONTROL INFORMATION COMMUNICATION METHOD AND SYSTEM THROUGH A COMMON SIGNAL TRANSMISSION LINE

Kinji Mori, Sagami, and Hirokazu Ihara, Machida, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 6, 1981, Ser. No. 232,006

Claims priority, application Japan, Feb. 8, 1980, 55-13725

Int. Cl.³ H04Q 5/00

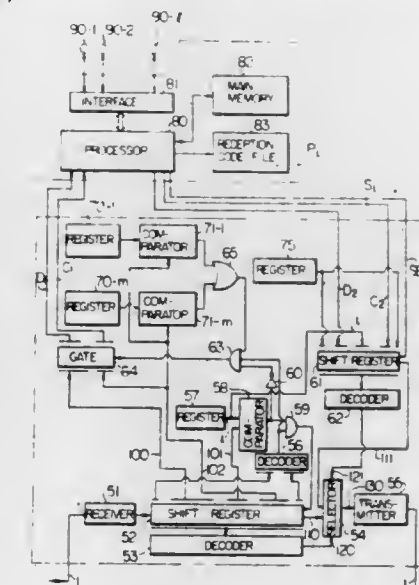
U.S. Cl. 340-825.05

23 Claims

1. A method of communicating control information through a common signal transmission line to which a plurality of stations are coupled, each of said stations having a unique station address and being in turn connected with a respective equipment for control of external terminals connected thereto

and for reception of external input signals therefrom, the method comprising:

- producing in one of said stations a control data signal containing no portion identifying the unique station address of any other station in response to an external input signal from one of said external terminals connected with the equipment connected to said one station, said control data signal including a content code signal portion representative of one of a plurality of different control operations and a sub-data signal portion made up of data associated with the control operation designated by the content code signal portion;
- sending said control data signal from said one station via said common transmission line to all other stations connected to said line;



- storing in each of said stations a plurality of content codes representative of selected control operations for which its associated equipment is responsible;
- receiving at each of said other stations said control data signal sent from said one station via said common transmission line;
- comparing in said other stations the content code signal portion of said received control data signal with each of said plurality of stored content codes to determine whether any one of said stored content codes is concurrent with said content code signal portion; and
- producing in the equipments connected to said other stations an instruction signal, only when a concurrence is determined by said comparison, for effecting control defined by the control data formed by the concurrent content code data signal portion and the sub-data signal portion of said received control data signal.

4,366,480

DEMAND DRIVEN ACCESS MECHANISM

David A. Van Hatten, New Brighton, Minn., assignor to Control Data Corporation, Minneapolis, Minn.

Filed Jun. 15, 1981, Ser. No. 273,897

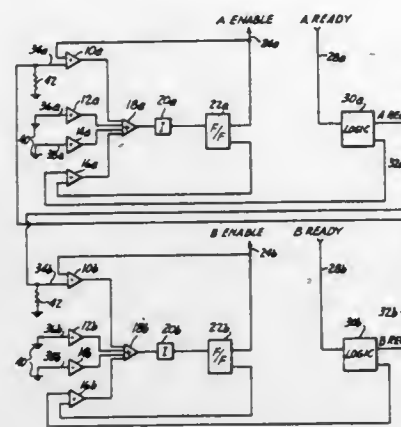
Int. Cl.³ H04Q 3/00

U.S. Cl. 340-825.51

12 Claims

1. A demand driven access mechanism for enabling a station to seize use of a communication channel shared with one or more other stations, said mechanism comprising: first logic means responsive to a signal from said station for producing a station request signal if the station is either ready to seize use of the channel or is using the channel and for producing a station not-request signal if the station is neither ready to seize use of the channel nor is using the channel; second logic means for producing either an enable signal to said station or a not-enable signal, said second logic means being responsive to the station's enable signal and a request signal from a second station or to the station's not-request signal and the station's not-enable signal to produce said enable signal whenever the station is enabled by its respective second logic means and no request

signal is present from the second station's first logic means or whenever the station's second logic means is not producing



said enable signal and the station is ready to seize use of the channel.

4,366,481

VENDING MACHINE ACQUISITION SYSTEM

David T. Main, Boulder Creek; John B. Riddle, Palo Alto, and Rod H. Allen, Mountain View, all of Calif., assignors to Micro Magnetic Industries, Inc., Palo Alto, Calif.

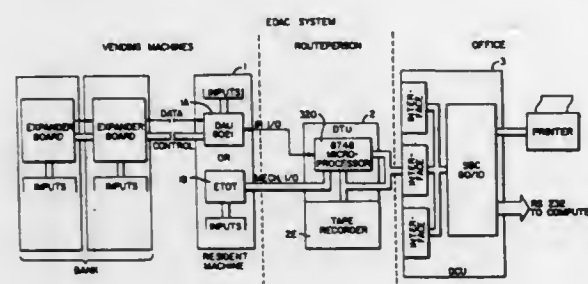
Continuation of Ser. No. 134,271, Mar. 26, 1980. This

application Jul. 10, 1981, Ser. No. 282,076

Int. Cl.³ G06K 5/02; G06F 7/00; H04Q 9/00

U.S. Cl. 340—825.54

7 Claims



1. A data collection system for use with one or more vending machines of the type which dispense either products or services for money received and which have an access door and a money box, the data collection system comprising separate data acquisition means resident in a plurality of vending machines for sensing and counting money received and the products or services dispensed for each vending machine and for summarizing said data, the data acquisition means including memory means for storing the summarized data; and

data transfer means for selectively interrogating a plurality of said data acquisition means to receive the summarized data from each of said data acquisition means, said data transfer means having means for supplying an identification code number signal, by which said data transfer means identifies itself, to each data acquisition means interrogated by said data transfer means, and wherein the data acquisition means stores the identification code number as part of the summarized data in the memory means.

4,366,482

TRANSMITTER WITH BUZZER

Paul A. Remes, Neenah, Wis., and Brian L. Jorgensen, Westminster, Calif., assignors to Overhead Door Corporation, Dallas, Tex.

Filed Jan. 23, 1981, Ser. No. 228,539

Int. Cl.³ G08C 19/00

U.S. Cl. 340—825.69

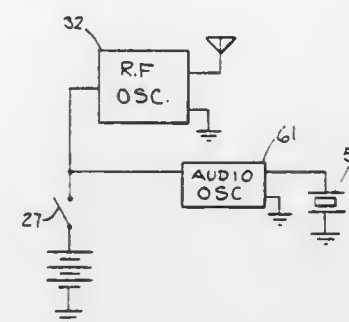
8 Claims

6. In a radio transmitter-receiver garage door opener system including:

a radio receiver responsive to reception of a preselected radio signal for moving a garage door between its opened and closed positions;

a portable hand-held transmitter manually actuatable for causing said receiver to move said door by radio transmission of said preselected radio signal, said transmitter incorporating

a radio frequency oscillator for transmitting a radio signal to said receiver;



modulating means manually actuatable to electrically energize said radio frequency oscillator to transmit said radio frequency signal; and

the improvement comprising an audio means connected in parallel with said radio frequency oscillator and responsive to actuation of said manually actuatable modulating means for simultaneously producing a corresponding audio signal audible to a person holding said portable transmitter.

4,366,483

RECEIVER AND METHOD FOR USE WITH A FOUR-ARM SPIRAL ANTENNA

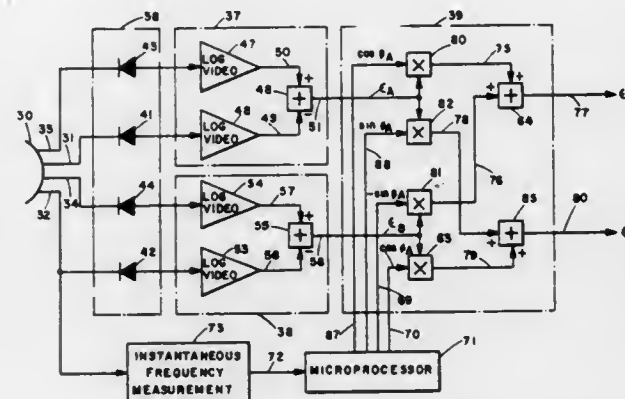
Gary L. Hagedorn, Alta Loma, and John T. Brustad, Claremont, both of Calif., assignors to General Dynamics, Pomona Division, Pomona, Calif.

Filed Nov. 3, 1980, Ser. No. 203,215

Int. Cl.³ G01S 3/32; H01Q 1/36

U.S. Cl. 343—113 R

4 Claims



1. A receiver for locating a source of RF radiation received by a four-arm spiral antenna having an angular measurement frame normal to the antenna axis, comprising detection means for detecting signals received from each of the spiral arms in response to receipt of RF radiation by the antenna;

first comparison means for comparing signals detected from a first opposite pair of said spiral arms to produce a first signal that is proportional to a first function of the frequency of the received RF radiation and the angular displacement of the radiation source in the measurement frame;

second comparison means for comparing signals detected from the remaining opposite pair of said spiral arms to

produce a second signal that is proportional to a second function of the frequency of the received RF radiation and the angular displacement of the radiation source in the measurement frame; and

processing means for processing the first and second signals to produce third and fourth signals that are proportional to said angular displacement and independent of the frequency of the received RF radiation;

wherein the first comparison means comprises means for comparing the logarithms of the amplitudes of said signals detected from the first opposite pair of spiral arms to produce a said first signal that is proportional to $\sin(\phi_T + \phi_A)$, wherein ϕ_T is the angle of said displacement of the radiation source and ϕ_A is an angle that is a function of the frequency of the received RF radiation;

wherein the second comparison means comprises means for comparing the logarithms of the amplitudes of said signals detected from the remaining opposite pair of spiral arms to produce a said second signal that is proportional to $\cos(\phi_T + \phi_A)$; and

wherein the processing means comprises

a first multiplier for multiplying the first signal by $\cos \phi_A$ to produce a fifth signal;

a second multiplier for multiplying the first signal by $\sin \phi_A$ to produce a sixth signal;

a third multiplier for multiplying the second signal by $-\sin \phi_A$ to produce a seventh signal;

a fourth multiplier for multiplying the second signal by $\cos \phi_A$ to produce an eighth signal;

a first summing means for adding the fifth and seventh signals to produce the third signal, wherein the third signal is proportional to $\sin \phi_T$; and

a second summing means for adding the sixth and eighth signals to produce the fourth signal, wherein the fourth signal is proportional to $\cos \phi_T$.

4,366,484

TEMPERATURE COMPENSATED RADIO FREQUENCY ANTENNA AND METHODS RELATED THERETO

Michael A. Weiss, Nederland, and Robert E. Munson, Boulder, both of Colo., assignors to Ball Corporation, Muncie, Ind.

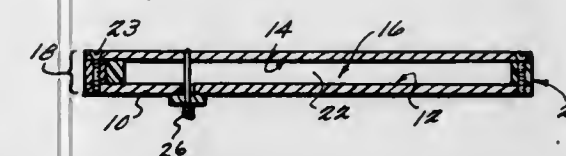
Continuation of Ser. No. 974,423, Dec. 29, 1978, abandoned.

This application Mar. 23, 1981, Ser. No. 246,325

Int. Cl.³ H01Q 1/38

U.S. Cl. 343—700 MS

27 Claims



1. A temperature compensated radio frequency microstrip antenna comprising:

a metallic resonant electrical microstrip radiation patch conductor disposed above a ground plane to define at least one radiating aperture between an edge of said patch and said ground plane, said patch conductor having a nominal resonant frequency and a nominal resonant dimension which changes with temperature changes so as to change said nominal resonant frequency in a first direction, and dielectric material partly filling the volume under said resonant patch conductor and above said ground plane and having an effective dielectric constant which changes with temperature changes so as to change said nominal resonant frequency in a second direction opposite to said first direction,

said dielectric material comprising solid material filling only a predetermined fractional portion of said volume so as to substantially reduce the net change in said nominal resonant frequency with respect to temperature.

4,366,485

CONCENTRIC TUBE ANTENNA ENCASED IN DIELECTRIC

Alec J. Hodgkinson, Johannesburg, South Africa, assignor to Z.S. Electroniques (Proprietary) Limited, Johannesburg, South Africa

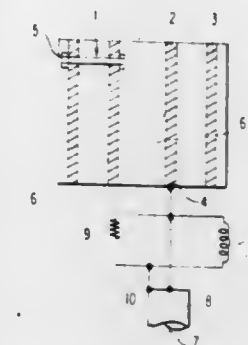
Filed Nov. 5, 1980, Ser. No. 204,673

Claims priority, application South Africa, Nov. 15, 1979; 79/6143

Int. Cl.³ H01Q 9/26, 1/40

U.S. Cl. 343—791

6 Claims



1. An antenna comprising: a conductor formed by two tubular sections, one of said tubular sections being of smaller diameter than the other and being located concentrically within the other, the ends of the two tubular sections being electrically connected at one pair of ends thereof remote from the feed point of the antenna, and there being a directional coupler connected to the feed point, the coupler being adapted to have a low attenuation in the direction of feed and a high attenuation of reflected waves in the reverse direction.

4,366,486

LOW PROFILE ANTENNA FOR DATA TRANSPONDERS

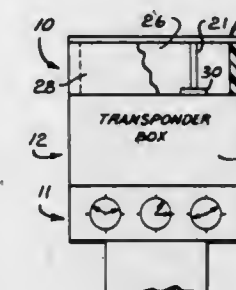
Peter P. Toullos, Oakbrook, Ill., assignor to Northern Illinois Gas Company, Aurora, Ill.

Filed Mar. 16, 1981, Ser. No. 244,017

Int. Cl.³ H01Q 1/36

U.S. Cl. 343—899

11 Claims



1. In a data readout system for transmitting data from a data collection source at a first location to a data receiving means at a second location, a data transmitting unit at the data collection source for generating data signals representing data to be transmitted for radiation to the receiving means, said data transmitting unit comprising: signal generating means for generating said data signals; an enclosure for housing said signal generating means and having a generally planar upper surface, at least a portion of said enclosure, including said planar surface, being of an electrically conducting material; and a low profile antenna mounted on said planar surface, said antenna and said enclosure effectively acting as first and second wings of an asymmetrical dipole antenna system with both said antenna and said enclosure contributing to radiation of said data signals to said receiving means, said antenna including a current carrying conductor of a length h, loading means including a generally rectangular load plate of an electrically conducting material, and support means for supporting said load plate in a plane extending horizontally at a height above said planar

surface, the length and width of said load plate corresponding to the length and width of said planar surface, said current conductor being supported in a vertical orientation between said planar surface and said load plate and having one end electrically connected to said load plate and its other end electrically connected to a signal output of said signal generating means, and the sum of the effective length L of the load plate and the length h of the conductor corresponding generally to a quarter wavelength of a signal at a resonance frequency for the antenna.

4,366,487

JET PRINTING APPARATUS AND METHOD

Allan R. Willett, Ipsden, England, assignor to Printos B.V. of N.L., Netherlands

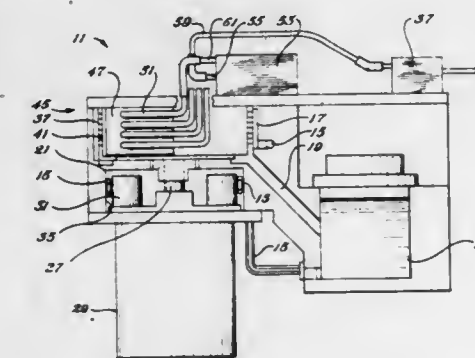
Filed Mar. 19, 1981, Ser. No. 245,525

Claims priority, application United Kingdom, Mar. 24, 1980, 8009864

Int. Cl.³ G01D 15/18

U.S. Cl. 346—1.1

12 Claims



12. A jet printing method for applying a printing medium to a moving substrate, comprising the steps of: providing a reservoir for storing printing medium; passing a perforate member having at least one surface with perforations through said medium in said reservoir so that said medium enters said perforations; effecting relative movement of said perforate member past a printing station; and employing a gas jet at said printing station to eject said medium contained in said perforations onto said substrate.

4,366,488

READ/WRITE ARRANGEMENT FOR A MAGNETIC TERMINAL

William D. Westwood, Nepean; Steven Kos, Kanata, and Herman W. Willemsen, Nepean, all of Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed Apr. 2, 1980, Ser. No. 136,533

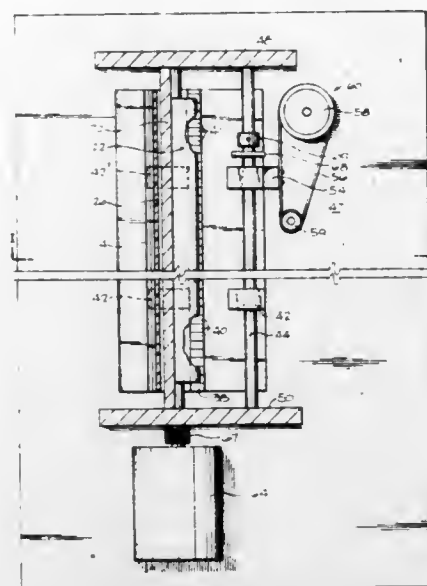
Int. Cl.³ G11B 5/02

U.S. Cl. 346—74.3

6 Claims

1. A terminal comprising: writing means for recording information on magnetic particle oriented paper; elongate erasing means for erasing information recorded on the paper; means for advancing a sheet of said magnetic particle oriented paper past the writing means and the erasing means; means for reciprocating said writing means in a direction perpendicular to the direction of advance of said sheet and parallel to the plane of the sheet at the writing means; and means for longitudinally reciprocating said erasing means in a direction perpendicular to the direction of advance of the sheet and parallel to the plane of the sheet at the erasing means; wherein said erasing means is spaced from the writing means and comprises a plurality of permanent magnets arranged to produce at a portion of the paper adjacent to the erasing means a magnetic field having a predominant component in a plane parallel to the paper, a flux pattern of the field being

such that on reciprocation of said erasing means, said portion of paper is subjected to a rotating magnetic field substantially in the plane of the paper, the field being sufficiently



intense to reorient magnetic particles contained within the paper so that north-south polar axes thereof are parallel to the plane of the paper.

4,366,489

THERMAL RECORDING APPARATUS

Shingo Yamaguchi, Atsugi, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

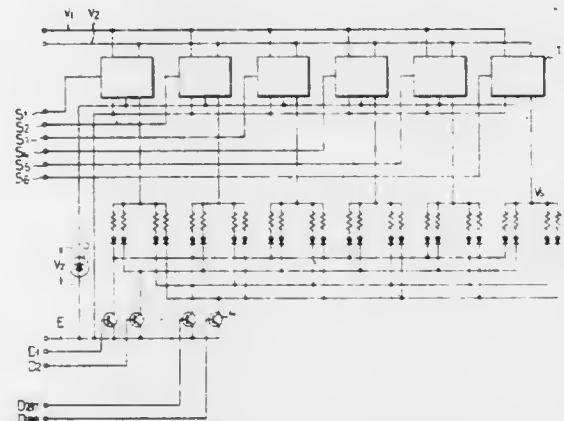
Filed Jan. 23, 1981, Ser. No. 227,963

Claims priority, application Japan, Feb. 6, 1980, 55-12383

Int. Cl.³ G01D 15/10; H05B 3/00

U.S. Cl. 346—76 PH

5 Claims



1. A thermal recording apparatus for forming images on a thermosensitive record paper by selectively applying electric power to a plurality of thermal resistors arranged in a recording head in accordance with image information to be recorded, comprising:

said plurality of thermal resistors divided into a predetermined number of groups; a predetermined number of transistor means each including at least one transistor for independently supplying power to respective groups of said thermal resistors; and a clamping circuit for maintaining the base voltage of said transistors at a predetermined constant voltage when said thermal transistors are controlled so as to be in an electrically conductive state; wherein said predetermined number of transistor means are actuated in a time-divisional manner so as to supply a predetermined, constant electric power from a non-regulated D.C. power source selected of said plurality of thermal resistors in accordance with the image information to be recorded.

4,366,490

METHOD AND APPARATUS FOR TUNING INK JETS

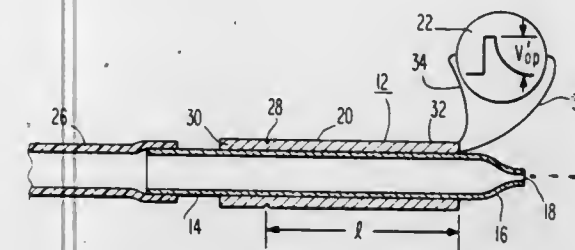
William J. DeBonte, Kent, and Karen Lynch, New Milford, both of Conn., assignors to Exxon Research and Engineering Co., Florham Park, N.J.

Continuation of Ser. No. 186,261, Sep. 11, 1980, abandoned. This application Feb. 19, 1982, Ser. No. 350,191

Int. Cl.³ G01D 15/18

U.S. Cl. 346—140 R

18 Claims



1. An ink jet apparatus comprising: transducer means of predetermined length; an ink chamber of fixed dimensions including a drop-emitting orifice in communication with said transducer; energizing means coupled to said transducer means for energizing said transducer means by applying an operating signal thereto, whereby said chamber expands and contracts in response to the state of energization of said transducer means, for causing an ink drop to be emitted from said orifice; and said transducer means including means for deactivating a portion of said transducer means, for effectively changing the length thereof, thereby permitting said transducer means to be matched to said operating signal for tuning said ink jet.

4,366,491

ELECTROGRAPHIC IMAGING SYSTEM

Masaru Ohnishi, and Syuji Iwata, both c/o Mitsubishi Denki Kabushiki Kaisha Ohyokiki Kenkyusho, No. 80, Aza-Nakano, Minamishimizu, Amagasaki-shi, Hyogo-ken, Japan

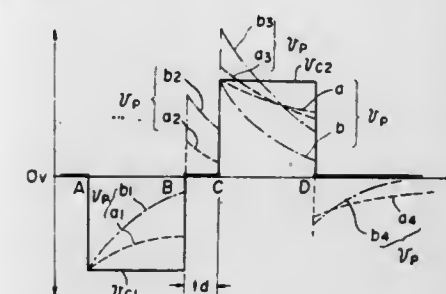
Filed Oct. 3, 1979, Ser. No. 81,488

Claims priority, application Japan, Nov. 21, 1978, 53-144495; Dec. 29, 1978, 53-161620

Int. Cl.³ G03G 15/44

U.S. Cl. 346—155

6 Claims



1. In an electrographic imaging system for driving a single surface control electrostatic recording head having recording stylus electrodes arranged in groups with respective stylus electrodes of each group connected in parallel and control electrodes arranged adjacent respective groups of stylus electrodes so as to form electrostatic latent images on a dielectric layer of a record medium contacting said recording head, an improvement characterized in that a first control pulse voltage is applied to selected control electrodes adjacent a selected respective group of stylus electrodes; and then a second control pulse voltage having a different polarity is applied to said selected control electrodes and simultaneously, a recording pulse voltage having the same polarity as the polarity of the

first control pulse voltage is applied to said selected respective group of stylus electrodes.

4,366,492

SEMICONDUCTOR LASER DEVICE

Takashi Kitamura, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

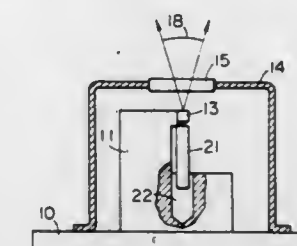
Filed May 6, 1980, Ser. No. 147,173

Claims priority, application Japan, May 8, 1979, 54-56793

Int. Cl.³ G01D 15/14; H01S 3/19

U.S. Cl. 346—160

19 Claims



1. A semiconductor laser device, comprising: (a) semiconductor laser means for generating a front laser beam and a rear laser beam; (b) a casing for covering said semiconductor laser means and provided with an optical window for transmitting the front laser beam generated by said semiconductor laser means therethrough; and (c) antireflecting means coated on at least a portion of the internal walls of said casing in order to prevent the rear laser beam generated by said semiconductor laser means from being reflected to and transmitted through said optical for emission from said casing window.

4,366,493

SEMICONDUCTOR BALLISTIC TRANSPORT DEVICE

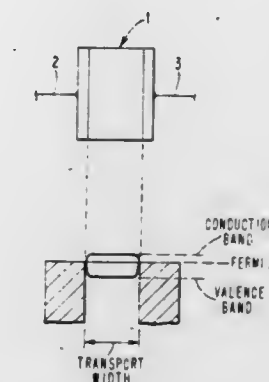
Norman Braslau, Katonah; John L. Freeouf, Cortlandt; George D. Pettit, Mahopac; Hans S. Rupprecht, Yorktown Heights, and Jerry M. Woodall, Bedford Hills, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 20, 1980, Ser. No. 161,611

Int. Cl.³ H01L 27/12

U.S. Cl. 357—4

14 Claims



1. Semiconductor signal translating apparatus comprising in combination: a semiconductor body having at least first and second essentially parallel electrode faces, said body having: a distance between said faces being more than a distance permitting quantum mechanical tunnelling and less than the mean-free carrier path length of the material of said body; a doping density less than that which provides a high probability of carrier collisions but sufficient for practical device current flow; a barrier free ohmic contact having a resistance of less

than 10^{-6} ohm cm^2 to each of said first and second electrode faces, and means providing an impressed voltage across said body of a magnitude sufficient for current flow but less than the magnitude sufficient to produce an intervalley carrier transition.

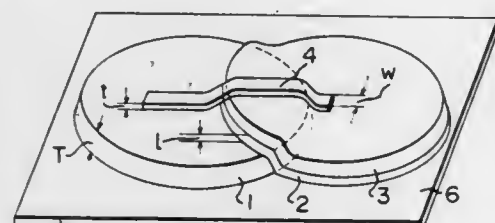
4,366,494

JOSEPHSON JUNCTION AND A METHOD OF MAKING THE SAME

Hiroshi Ohta, Wako, Japan, assignor to Rikagaku Kenkyusho and Science and Technology Agency, both of Tokyo, Japan
Filed May 20, 1980, Ser. No. 151,693
Int. Cl.³ H01L 39/22

U.S. Cl. 357-5

26 Claims



1. A superconducting device comprising a laminar body including first and second superconductor layers, an insulative spacer layer therebetween and a conductive junction extending between said first and second superconductor layers and across the thickness of the insulative spacer layer and said first and second superconductor layers being offset and superposed with respect to each other such that only a portion of each of said superconductor layers overly each other.

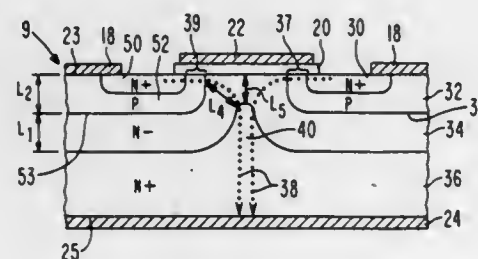
4,366,495

VERTICAL MOSFET WITH REDUCED TURN-ON RESISTANCE

Lawrence A. Goodman, Plainsboro, N.J., and Kenneth P. Smith, Aloha, Oreg., assignors to RCA Corporation, New York, N.Y.
Filed Aug. 6, 1979, Ser. No. 63,809
Int. Cl.³ H01L 29/78

U.S. Cl. 357-23

9 Claims



1. A VDMOS device comprising a semiconductor wafer having first and second major planar surfaces, and including therein:

- a source region of a first conductivity type adjacent to a body region of a second conductivity type, both regions intercepting the first major surface,
- a high conductivity drain region of the first conductivity type, intercepting the second major surface, and
- an extended drain region of the first conductivity type adjacently disposed between the high conductivity drain and body regions, and intercepting the first major surface so as to define a channel region in an area of the body region at the first surface, said extended drain region being of lower conductivity than the high conductivity drain region and providing substantially uniform spacing between the body and high conductivity drain regions, the high conductivity drain region comprising a projection extending toward

the first surface in an area where the extended drain intercepts the first surface.

4,366,496

OPTICALLY ACTIVATABLE SEMICONDUCTOR COMPONENT

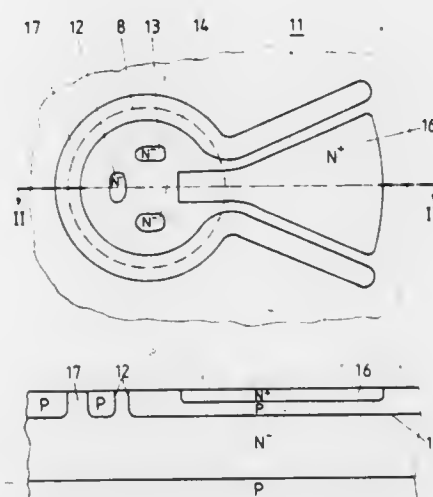
Andre Jaecklin, Ennetbaden, Switzerland, assignor to BBC Brown, Boveri & Company Limited, Baden, Switzerland
Continuation of Ser. No. 85,410, Oct. 16, 1979, abandoned. This application Mar. 10, 1981, Ser. No. 242,289

Claims priority, application Switzerland, Nov. 24, 1978, 12048/78

Int. Cl.³ H01L 29/74

U.S. Cl. 357-38

4 Claims



1. A light activatable thyristor formed of four zones of alternating conductivity types including a cathode emitter zone, a cathode base zone, an anode base zone and an anode zone, respectively, wherein said cathode and anode zones respectively face cathode side and anode side surfaces, wherein said cathode base zone and said anode base zone define a forward blocking PN-junction therebetween upon application of a biasing voltage from a biasing source, said forward blocking PN-junction emerging on said cathode side surface and being exposed to activating light from a light source, comprising:

said anode base zone penetrating said cathode base zone and emerging to said cathode side surface through said cathode base zone such that said forward blocking junction formed therebetween on said cathode side surface exhibits at least one closed geometric form, and said at least one closed geometric form circumscribing on said cathode side surface only said emerging anode base zone free of any other zone;

said light-sensitive forward blocking PN-junction defining at least one tube having a substantially smooth circumference and characterized by a length L and width B, wherein the ratio of the length L to the width B is less or equal to 5:1.

4,366,497

COOLING CAPSULE FOR DISC-SHAPED SEMICONDUCTOR COMPONENTS

Harry Block, and Rudolf Wiesenbacher, both of Erlangen, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Jun. 12, 1980, Ser. No. 158,713

Claims priority, application Fed. Rep. of Germany, Jun. 29, 1979, 2926342

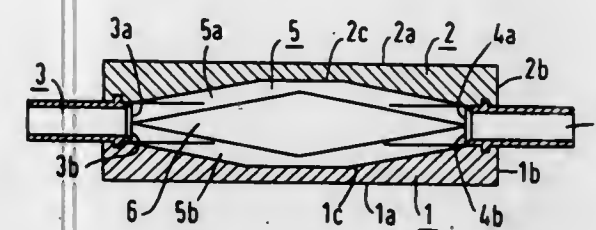
Int. Cl.³ H01L 3/00

U.S. Cl. 357-82

9 Claims

1. A cooling capsule for disc-shaped semiconductor components comprising: two heat conductive cover dishes, each cover dish having a substantially flat outer face for making generally conform-

ing, thermally conductive connection to at least on semiconductor component, each dish having a side wall and containing a single recess, the side wall of one cover dish joined to the side wall of the other cover dish in a liquid-tight manner to form a side wall of the capsule, joining the recesses to provide a cavity in the capsule; an inlet opening and an outlet opening in the side wall of the capsule to permit through flow of coolant; and



a solid core positioned in the cavity so as to divide each inlet and each outlet opening in the side wall into separate inlet and outlet openings associated with each recess, the maximum cross-sectional area of the cavity, taken on a connecting line between the inlet and the outlet openings, being substantially equal to the maximum cross-sectional area of the core.

4,366,498

I.F. RESPONSE CONTROL SYSTEM FOR A TELEVISION RECEIVER

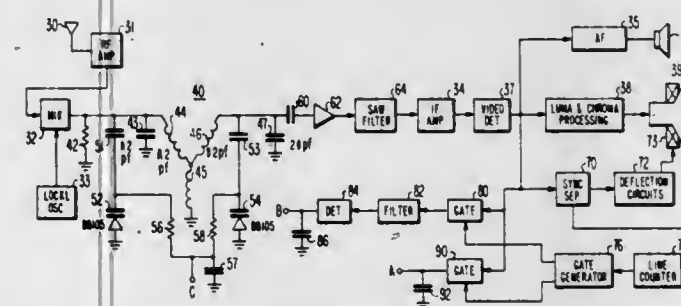
Gerald E. Theriault, Hopewell, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 30, 1981, Ser. No. 258,928

Int. Cl.³ H04N 9/535

U.S. Cl. 358-38

8 Claims



1. In a television receiver, including a source of intermediate frequency television signals containing a picture carrier and a chrominance subcarrier; means, responsive to said intermediate frequency signals, for processing said intermediate frequency signals; and a video detector responsive to said processed intermediate frequency signals for producing baseband video signals including a VIR signal having a chrominance reference bar and a luminance reference level; apparatus for controlling the intermediate frequency passband response of said television receiver in response to said VIR signal, including:

- means, operable during a first portion of said VIR signal, for detecting the amplitude of said chrominance reference bar of said VIR signal;
- means, operable during a second portion of said VIR signal, for detecting the amplitude of said luminance reference level of said VIR signal;
- means, responsive to said detected amplitudes of said chrominance reference bar and said luminance reference level, for producing a control signal indicative of the ratio of said detected signal amplitudes; and
- a passband shaping circuit, included within said intermediate frequency signal processing means, and responsive to said control signal for controlling the amplitude versus frequency response characteristic of said intermediate fre-

quency signal processing means as a function of said ratio of said detected signals.

4,366,499

ELECTRONIC COLOR IMAGING APPARATUS HAVING IMPROVED COLOR CONTROL DEVICE

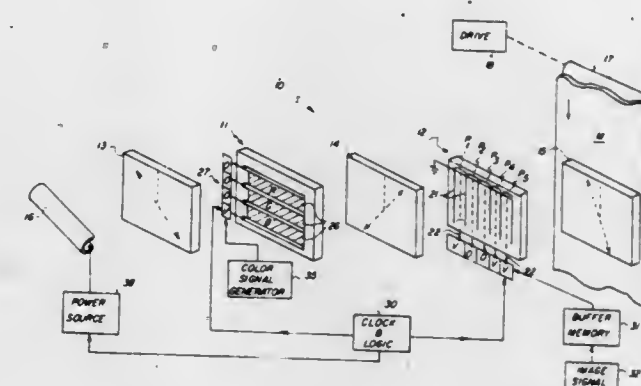
Jose M. Mir, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 29, 1981, Ser. No. 230,096

Int. Cl.³ H04N 1/46

U.S. Cl. 358-75

4 Claims



1. Apparatus adapted for electronic color imaging, said apparatus including:

- (a) means defining an imaging zone;
- (b) illumination means for directing uniform, multicolor light toward said imaging zone;
- (c) pixel exposing means including at least one pixel array located between said illumination means and said imaging zone and comprising a plurality of discreet light valves that are each aligned with a different pixel region across said imaging zone, each of said light valves being discretely activatable electrically to control the passage of light from said illumination means to its respective pixel region;
- (d) color control means including a plurality of electro-optic strip modulators located between said illumination means and said imaging zone in optical alignment with said pixel exposing means and being electrically-activatable between first and second states for selectively controlling the passage of light to said imaging zone between different ones of a plurality of different colors; and
- (e) addressing means for receiving a color image signal and for selectively activating said pixel exposing means and said color control means so that the imagewise passage of light through said pixel exposing means is controlled in accordance with the color image information that pertains to the light color then passing said color control means.

4,366,500

ELECTRONIC COLOR IMAGING APPARATUS HAVING INTEGRAL MULTICOLOR ARRAYS

Clark N. Kurtz; Jose M. Mir; both of Rochester, and Jerry R. Varner, Fairport, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 29, 1981, Ser. No. 230,098

Int. Cl.³ H04N 1/46

U.S. Cl. 358-75

11 Claims

1. For use in electronic color imaging apparatus of the type having a multicolor light source directed toward an imaging station in which color photosensitive imaging medium is disposed, an improved electro-optic modulator comprising:

- (a) a panel of electro-optic material of the type transformable from an isotropic state to a birefringent state in response to application of an electric field;
- (b) addressable electrode means disposed on said panel in a

duced in the first mode and to singly perform the recording operation in response to each issue of a signal produced by said timer circuit in the second mode.

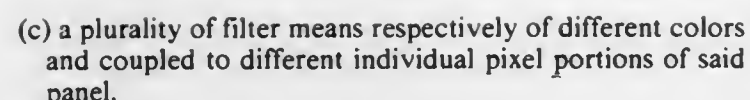


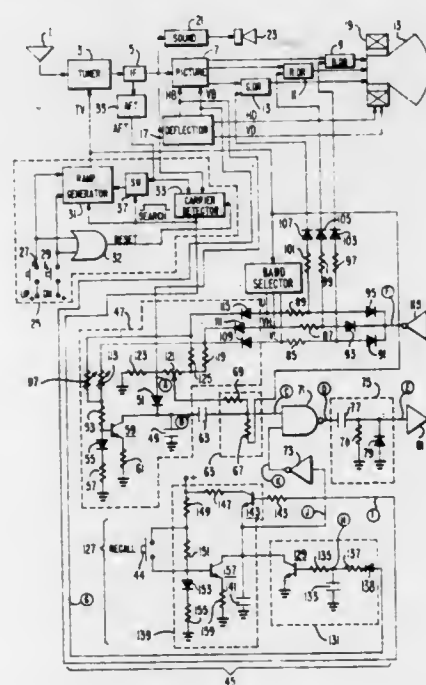
IMAGE RECORDING SYSTEM

U.S. Cl. 358-310

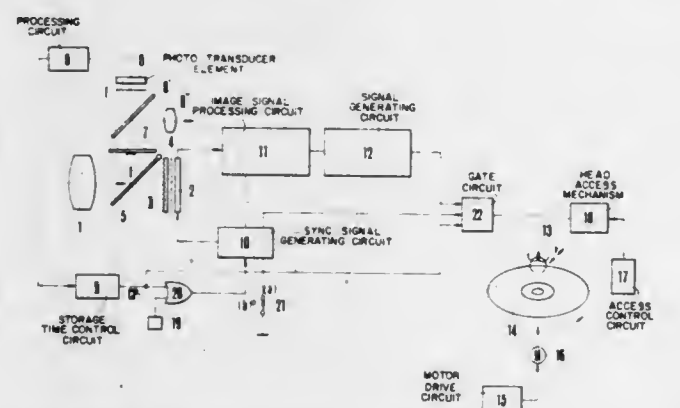
Int. Cl.³ H04N 5/50

U.S. Cl. 358-192.1

11 Claims



second means responsive to the other one of said deflection signals and to said search signal and coupled to said first means for selectively causing the length of said tuning bar to have a first predetermined value in response to the first level of said search signal and to change by increments at the rate of said other-deflection signal to a second predetermined value, different from said first predetermined value, in response to the second level of said search signal.

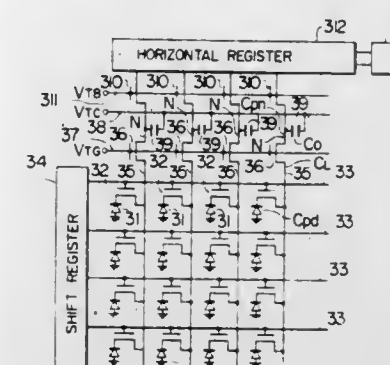


1. An image recording system comprising:
 - (a) an optical-electronic image transducer having storage capability for storing an optical image as an electrical signal;
 - (b) release means;
 - (c) a release signal forming circuit for producing a release signal when said release means is actuated;
 - (d) an exposure control timer circuit operative in response to said release signal, said timer circuit including a light-receiving element, said timer circuit being arranged for producing signals at time intervals based on the brightness of light received at said light receiving element;
 - (e) a control circuit coupled to said image transducer, said control circuit being arranged to cause said image transducer to begin a storing operation in response to said release signal, said control circuit being further arranged to have said storing operation stopped in response to a signal of said timer circuit and to have another storing operation commenced so that the storing operation can be carried out in a continuously repeating manner at time intervals defined by said timer circuit;
 - (f) a recording circuit for recording the optical image stored during a time regulated by said timer circuit; and
 - (g) a mode control circuit for switching between first and second modes, said recording circuit being arranged to perform a recording operation in a continuously repeating manner every time a signal of said timer circuit is produced.

Claims priority, application Japan, Oct. 19, 1979, 54-135590
Int. Cl.³ H04N 3/14

U.S. Cl. 358-213

10 Claims

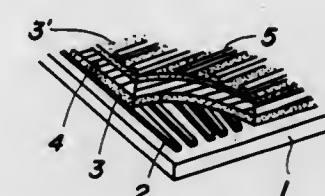


1. A solid-state image pick-up device comprising:
 - a plurality of photoelectric converting elements arranged in m-rows and n-columns;
 - first signal charge transfer means including a vertical MOS-type shift register and a plurality of switch elements for simultaneously transferring optical signal charges stored in a row of said photoelectric converting elements onto a plurality of vertical transfer lines respectively associated with predetermined columns of photoelectric converting elements;
 - a horizontal shift register for serially transferring there-through optical signal charges and outputting said optical signal charges, said horizontal shift register being a charge coupled device;
 - at least one second signal charge transfer means including transfer gates and storage capacitive elements for transferring the optical signal charges transferred to said vertical transfer lines to said horizontal shift register; and,
 - a signal output device for outputting said optical signal charges transferred to and through said horizontal shift register.

Int. Cl.³ H04N 3/14

U.S. Cl. 358-241

22 Claims



1. An electroluminescent video display means including an electroluminescent video display panel and means for driving said video display panel in response to a received video signal, said video display panel including a plurality of scanning side electrodes and a plurality of data side electrodes, said means for driving said video display panel comprising:
means associated with said data side electrodes for sampling

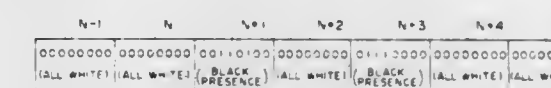
said received video signal thereby producing a plurality of sampled amplitude modulated video information pulses; means associated with said data side electrodes for storing each of said plurality sampled amplitude modulated video information pulses; pulse generating means associated with each of said plurality of data side electrodes for energizing each of said data side electrodes with a voltage pulse, each of said plurality of sampled amplitude modulated video information pulses stored in said means for storing amplitude modulating the voltage pulses to energize the data side electrodes each amplitude modulated voltage pulse energizing said corresponding one of the data side electrodes; write circuit means for supplying a write voltage pulse to a selected one of said scanning side electrodes, said write voltage pulse being supplied to each of said scanning side electrodes in a line sequential scanning manner; and refresh circuit means responsive to the completion of the scanning of said scanning side electrodes by said write circuit means for supplying refresh voltage pulses to each of said scanning side electrodes, said refresh voltage pulses having a polarity opposite to the polarity of said write voltage pulse.

Claims priority, application Japan, Sep. 20, 1978, 53-115652;
Sep. 21, 1978, 53-117243

Int. Cl.³ H04N 7/12

U.S. Cl. 358-260

8 Claims



1. An information forming apparatus comprising:
memory means for storing a series of picture element (pixel) signals, each pixel signal including a first signal representative of black information and/or a second signal representative of white information;
dividing means for dividing said pixel signals stored in said memory means into blocks each composed of plural pixel signals of a predetermined number; and
means for controlling the transmission of the pixel signals stored in said memory means in such a way that when the pixel signals in a block terminate with the first signal, all the pixel signals in a block are modulated and transmitted, and when the pixel signals in a block include the first signal or signals therein and terminate with the second signal, all the pixel signals or the pixel signal existing before the last first signal in the block, if existing, are modulated and transmitted including the last first signal and the second signals of the second signal existing after the last first signal in the block are not transmitted, but only a control signal capable of being distinguished from the second signal to identify the termination of the block is transmitted, and when the pixel signals in a block don't include any first signal in the block, all the second signals as the pixel signals are not transmitted, but only the control signal is transmitted.

4,366,518

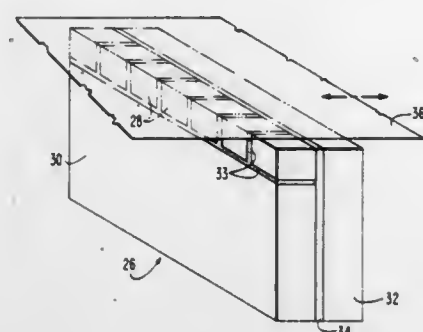
MULTI-TRACK HEAD ASSEMBLY

William W. Chow, and Davis S. Fields, Jr., both of Tucson, Ariz., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 2, 1980, Ser. No. 183,559
Int. Cl.³ G11B 5/27

U.S. Cl. 360—121

4 Claims



1. A multitrack magnetic head assembly comprising:
 - a nonmagnetic substrate;
 - at least three equal width, uniformly spaced magnetic blocks arranged in a row and joined at their respective first faces to one surface of said substrate for forming a closure section;
 - a magnetic wafer disposed a preselected distance from, and joined to, another surface of said substrate substantially perpendicular to said one surface and to respective second faces of said magnetic blocks that are substantially perpendicular to said first faces, said preselected distance defining a common transducing gap for respective magnetic head elements defined between each magnetic block and the common magnetic wafer, thereby to provide a composite head assembly capable of concurrently processing data from multiple tracks of a multiple track magnetic recording medium.

4,366,519

ROTARY HEAD ASSEMBLY FOR VIDEOTAPE RECORDER OR REPRODUCER

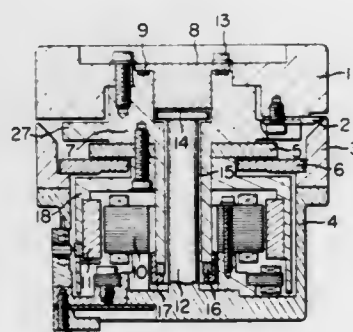
Teruo Maruyama, Neyagawa, and Masato Morimoto, Kadoma, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jul. 14, 1980, Ser. No. 168,475
Claims priority, application Japan, Jul. 18, 1979, 54-91312

Int. Cl.³ G11B 5/10, 15/60, 21/18

U.S. Cl. 360—129

6 Claims



1. A rotary head assembly for a video tape recorder or reproducer, comprising:
 - a stationary member;
 - a stationary shaft having a fixed end secured to said stationary member and a free end comprising a thrust bearing;
 - a rotating body comprising:
 - (a) a rotary sleeve surrounding and coaxial with said

stationary shaft, and disposed for rotation about the axis of said shaft;

- (b) an upper cylinder secured to said rotary sleeve;
 - (c) at least one transducer head secured to said upper cylinder; and
 - (d) drive means for rotating said rotary sleeve, upper cylinder and transducer head;
- said thrust bearing supporting said rotating body at a point substantially coinciding with the center of gravity of said rotating body.

4,366,520

DIFFERENTIAL TRANSFORMER CORE FOR PULSE CURRENTS

Gunter B. Finke, Cherry Hill, N.J., and Bao-Min Ma, Philadelphia, Pa., assignors to Magnetic Metals Corporation, Camden, N.J.

Filed Mar. 25, 1981, Ser. No. 247,439
Int. Cl.³ H02H 3/28

U.S. Cl. 361—45

10 Claims



5. A ground fault circuit interruptor comprising:
 - a transformer core having a plurality of coaxially wound interleaved strips of magnetically permeable material for producing a rounded hysteresis loop;
 - a primary winding having at least one pair of wires passing through the core and connectable at a first end thereof to a voltage source and at an opposite end thereof to a load;
 - a secondary winding wound on the core; and
 - means connected in circuit with the secondary winding for interrupting current flow through a load in response to a preselected differential current flow through the wires resulting from fault current flowing from one of the wires to ground.

4,366,521

SEQUENCE FILTERS FOR DETERMINING THE SYMMETRICAL COMPONENTS OF MULTIPHASE AC POWER SYSTEMS

Ralph D. Jessee, Shawnee Township, Allen County, Ohio, assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Feb. 29, 1980, Ser. No. 126,092
Int. Cl.³ H02H 3/26

U.S. Cl. 361—76

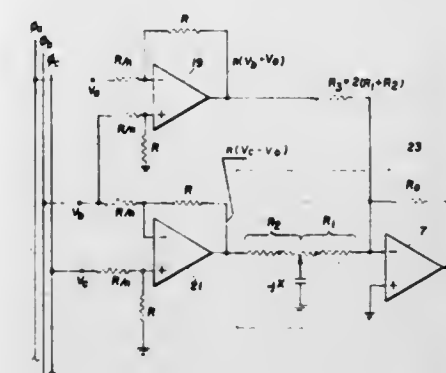
5 Claims

1. Apparatus for generating the positive or negative sequence voltage from a three phase AC source voltage, said apparatus comprising:
 - means for generating a first line-to-line voltage as the difference between a first two of the source voltages;
 - means for generating a second line-to-line voltage as the difference between one of said first two source voltages and the third source voltage;
 - means for phase shifting one of said line-to-line voltages 120° to bring it into phase with the other line-to-line voltage, said means including a potentiometer having a tap point, a capacitor connected between the tap point and ground, means for connecting said first line-to-line voltage to one end of the potentiometer, an operational amplifier and

means connecting the other end of the potentiometer to the inverting input of the operational amplifier;

means for summing said phase shifted line-to-line voltage and said other line-to-line voltage to produce said positive or negative sequence voltage; and

wherein said means for generating said first line-to-line voltage includes a second operational amplifier, means for applying one of said source voltages to the inverting input thereof, a non-reactive impedance connected in series with the output of said second operational amplifier and a junction and means for applying a second source voltage



to said junction, wherein said junction is connected to the first end of said potentiometer in said phase shifting means to shift said first line-to-line voltage 120° in phase, wherein said means for generating said second line-to-line voltage includes a third operational amplifier and means for applying the third source voltage and the output of said first operational amplifier to the inverting input of said third operational amplifier and wherein said means for summing said phase shifted line-to-line voltage with the second line-to-line voltage includes means for applying the output of the operational amplifier in the phase shifting means to the inverting input of the third operational amplifier.

4,366,522

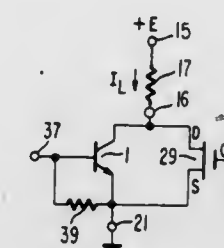
SELF-SNUBBING BIPOLAR/FIELD EFFECT (BIOFET) SWITCHING CIRCUITS AND METHOD

Richard H. Baker, Bedford, Mass., assignor to Reliance Electric Company, Cleveland, Ohio

Continuation-in-part of Ser. No. 101,465, Dec. 10, 1979, abandoned. This application May 2, 1980, Ser. No. 146,200
Int. Cl.³ H02H 7/20

U.S. Cl. 361—91

65 Claims



35. A transistorized switching device, comprising:
 - a bipolar transistor having a collector electrode for receiving an operating voltage, an emitter electrode for connection to a source of reference potential, and a base electrode for receiving a first control signal; and
 - a field-effect transistor having drain and source electrodes connected to said collector and emitter electrodes, respectively, and a gate electrode for receiving a second control signal;

said transistorized switching device being operable for turning on said field-effect transistor before said bipolar transistor for substantially reducing the voltage across the collector and emitter electrodes of the latter, which is then

turned on and off as desired at substantially reduced peak power dissipation via the snubbing effect of the field-effect transistor.

4,366,523

ARRESTER WITH SPARK GAP

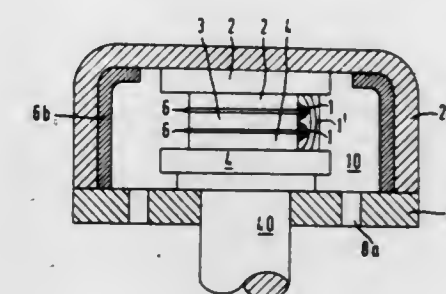
Peter Hasse, Neumarkt; Johannes Wiesinger, Puchheim, and Erich Pivit, Allmersbach, all of Fed. Rep. of Germany, assignors to AEG-Telefunken Aktiengesellschaft, Frankfurt and Berlin, Fed. Rep. of Germany

Filed Apr. 24, 1981, Ser. No. 257,423
Claims priority, application Fed. Rep. of Germany, Apr. 26, 1980, 3016265

Int. Cl.³ H02H 9/06

U.S. Cl. 361—120

13 Claims



1. In an overvoltage arrester composed of two electrodes each presenting a side wall and an end wall transverse to the side wall and whose perimeter is bordered by the side wall, the electrodes being spaced apart to define a spark gap and with their end walls facing one another, and an insulating member interposed between the end walls of the two electrodes, the improvement wherein said insulating member is dimensioned to protrude laterally beyond the entire perimeter of said end wall of at least one said electrode for causing the initiation of an arc to generate a sliding arc discharge following a curved path around the laterally protruding part of said insulating member, said insulating member is of a material which emits a quenching gas under the influence of heat, each said electrode exhibits an abrupt change in diameter at a location spaced from its associated end wall, said electrodes present at the location of their abrupt change of diameter respective opposing electrode end faces spaced from one another by a distance which is greater than the spacing defined by said insulating member interposed between said end walls of said electrodes, and the perimeter of said end faces protrudes laterally beyond the perimeter of said insulating member.

4,366,524

ELECTROMECHANICAL TRANSDUCER CONTROLLING DEVICE

Hiroshi Kuroiwa, and Takao Sasayama, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 891,003, Mar. 28, 1978, abandoned.
This application May 23, 1980, Ser. No. 152,666

Claims priority, application Japan, Mar. 31, 1977, 52/35253
Int. Cl.³ F16K 31/06

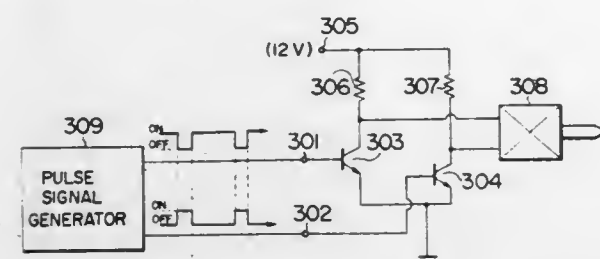
U.S. Cl. 361—154

12 Claims

1. A device for controlling an electromechanical transducer comprising:
 - an electromagnetic valve including an electromagnetic coil and a movable member displaced in proportional relation to an electrical input signal applied to said electromagnetic coil thereby driving a controlled element;
 - at least one switching means for chopping the electrical input signal applied to said electromagnetic coil; and
 - means for generating an electrical pulse signal for triggering said switching means,

wherein the electrical pulse signal generated by said pulse generating means and applied to said switching means has

a constant period shorter than the minimum response time required for said movable member to make its predetermined full stroke, and the duty cycle of the electrical pulse signal applied to said switching means is varied to cause displacement of said movable member in proportional relation to the variation of the duty cycle, and



wherein said switching means comprises two switching elements which are arranged so that said movable member is urged in a first direction when one of said switching elements is turned on, while said movable member is urged in a second direction opposite to said first direction when the other of said switching elements is turned on, and one of said switching elements is maintained in its off-state when the other is placed in its on-state.

4,366,525

AIR IONIZER FOR ROOMS

Carl Baumgartner, Hombrechtikon, Switzerland, assignor to Elcar Zürich AG, Rapperswil, Switzerland

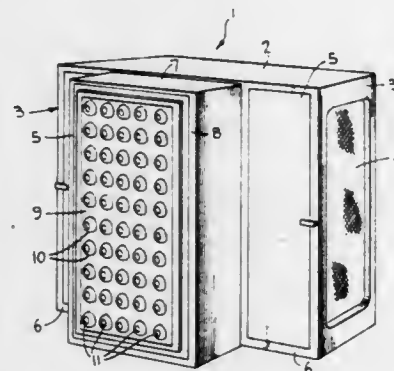
Filed Mar. 4, 1981, Ser. No. 240,399

Claims priority, application Switzerland, Mar. 13, 1980, 1967/80

Int. Cl.³ B03C 3/40; H01G 3/00

U.S. Cl. 361-231

7 Claims



1. In an air ionizer useful for distributing negative ions in enclosed spaces in buildings, the air ionizer including a housing which has an air inlet opening and an air outlet opening, a fan located within the housing to suck environmental air into the housing through the air inlet opening and thereafter blow the air out of the housing through the air outlet opening, a number of negative ion-producing electrodes positioned in the housing for producing negative ions in the air therein, and a high-voltage generator electrically connected to the negative ion-producing electrodes, the improvement wherein a mounting plate which includes a multiplicity of individually adjustable ball nozzles is positioned over the air outlet opening, each of the ball nozzles being rotatable to determine in what direction the air with negative ions passing therethrough will flow.

4,366,526

HEAT-PIPE COOLED ELECTRONIC CIRCUIT CARD

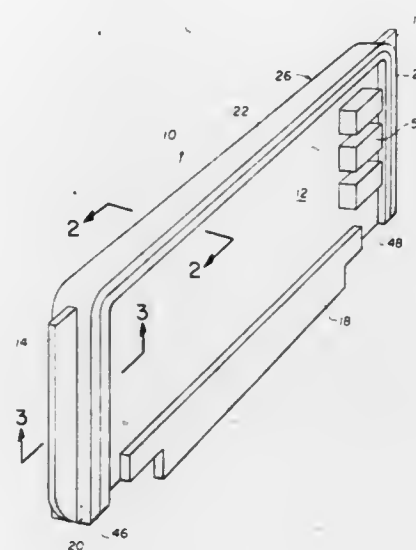
Bruno Lijoi, Farmingdale; Vincent Cirrito, Massapequa Park, and Fred Edelstein, Hauppauge, all of N.Y., assignors to Grumman Aerospace Corporation, Bethpage, N.Y.

Filed Oct. 3, 1980, Ser. No. 193,425

Int. Cl.³ H05K 7/20

U.S. Cl. 361-385

1 Claim



1. An electronic component mounting module for use in a rack associated with electronic systems, said rack having frame members provided with guide rails receiving said electronic module, said frame members having cooling means therein, the improvement comprising:

an elongated metallic circuit card having first and second longitudinal sides and first and second ends, said circuit card having a solid substantially planar thermally conductive body mounting a plurality of electronic components on the opposite surfaces thereof;

a heat pipe integral with and in thermal contact with said body and extending along the edge of said first longitudinal side and said first and second ends, said heat pipe having a hermetically sealed casing having an uninterrupted vapor flow passage extending the full extent of said heat pipe, said casing being evacuated of air, capillary pumping means in said casing, and in a working fluid contained in a liquid state in said capillary pumping means and a vapor state in said flow passage for the transfer of heat;

an electrical connector extending along said second longitudinal side of said card and establishing electrical communication with said electronic components mounted on said card; elongated coplanar upstanding tabs on said heat pipe and extending from said heat pipe at said ends of said card, said tabs fitting into said guide rails in said frame members in said rack such that said card is installed in said rack for operation therein, wherein the longitudinal section of said heat pipe serves as the evaporator region and the end sections serve as the condenser regions whereby the heat generated by the operation of said electronic components is conducted through said card body and passes into said heat pipe longitudinal section, evaporating said liquid in said capillary pumping means, the vapor therefrom transferring said heat to the condenser section of said heat pipe where said heat is conducted through said tabs for dissipation therefrom.

4,366,527

CIRCUIT ASSEMBLIES EACH WITH A CONNECTOR HAVING AN INSULATING BLOCK WITH TWO SEPARABLE STACKED PARTS

Melvyn R. Bell, Fife, Scotland, assignor to Ferranti Limited, Cheadle, England

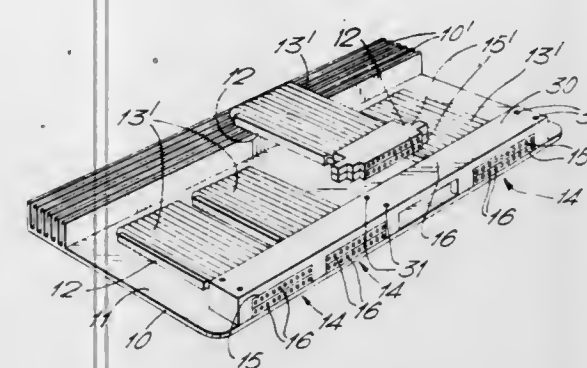
Filed Mar. 27, 1980, Ser. No. 134,463

Claims priority, application United Kingdom, Mar. 31, 1979, 7911360

Int. Cl.³ H05K 7/20

U.S. Cl. 361-386

7 Claims



1. A circuit assembly comprising an at least substantially planar substrate, on at least one major surface of which substrate is supported at least one component with leads extending therefrom, and there is also supported on at least one major surface of the substrate at least one connector connected to said at least one component, the connector having a plurality of electrically conducting connector pieces, each connector piece both co-operating with a lead of the component and providing a terminal of the circuit assembly, the leads extend from two opposing surfaces of the component, and the leads from one surface of the component exclusively extend at least substantially in one of two planes parallel to said one major surface of the substrate, in which planes the leads extend, and leads extending from different surfaces of the component extend in different planes parallel to said one major surface of the substrate, the connector pieces extend parallel to each other, and parallel to said one major surface of the substrate, the connector pieces are secured to a block of electrical insulating material of the connector, and extend at right angles to at least one surface of the insulating block, the connections between the connector pieces and the leads are at least partially protected by the insulating block, and the block of insulating material is in two separable parts, the two separable block parts being stacked one on the other, and are rigidly secured to the substrate, within the completed circuit assembly, and the leads extending from one surface of the component are connected exclusively to the connector pieces secured to one of the two separable block parts, the leads extending from different surfaces of the component being connected to the connector pieces secured to different separable block parts.

4,366,528

SWITCHBOARD HOUSING APPARATUS

David B. Cole, Ballwin, Mo., assignor to GTE Products Corporation, Stamford, Conn.

Filed Dec. 23, 1980, Ser. No. 219,551

Int. Cl.³ H02B 1/20

U.S. Cl. 361-429

1 Claim

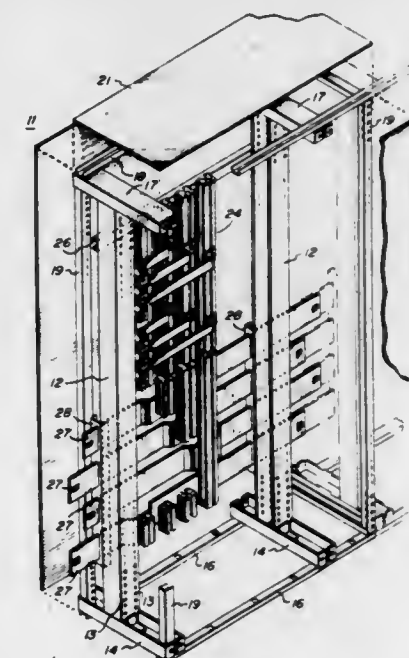
1. Switchboard housing apparatus comprising

- A. a pair of vertically oriented structural support columns, each adapted to support and carry a plurality of components thereon;
- B. a first pair of channel members respectively affixed to the lower extremities of said columns;
- C. a base frame coupled to said first pair of members so that said columns, said members, and said frame form a completely free standing assembly;

- D. a second pair of channel members respectively affixed to the upper extremities of said columns;
- E. a top frame coupled to said second pair of members; and
- F. corner posts coupled to said top frame and said bottom frame;

B. means, within said frames and corner posts, for supporting a bus bar comprising

- a. an elongated steel member having at least one bolt hole therethrough, said steel member being coated with an insulative material;
 - b. a first formed washer of insulative material adapted to seat within said hole at one side of said steel member;
 - c. a second formed washer of insulative material adapted to seat within said hole at a side opposite to said one side of said steel member;
 - d. a metal bolt adapted to fit within said washers and said hole;
 - e. a nut adapted to engage with said bolt; and
 - f. a flat washer adapted to fit between said nut and said second formed washer;
- C. a bus distribution arrangement for bus bars comprising
- a. a plurality of bus bars for carrying and distributing current of a particular voltage at a first phase;
 - b. a like plurality of bus bars for carrying and distributing current of said particular voltage at a second phase; and



- c. a like plurality of bus bars for carrying and distributing current at said particular voltage at a third phase, wherein all of said bus bars are oriented parallel to one another, and said bus bars are spaced in an interjacent manner: first phase, second phase, third phase, first phase, second phase, etc.; and

D. a distribution bus bar having a length substantially greater than its other two rectangular coordinates, said distribution bus bar having a uniform cross section in planes containing said other two rectangular coordinates, a. said distribution bus bar being formed with a first groove along one side thereof extending along its length;

b. said distribution bus bar being formed with a second groove along a second side, opposite to said first side, thereof extending along the length of said distribution bus bar;

each of said grooves being formed so that a carriage bolt, or a hexagon head bolt with a flat washer, can be retained by said bar while permitting said bolt to be slid along its retaining groove; and

c. the opposed sides of said distribution bus bar, interjacent said grooves, each being formed with a pair of longitudinally extending crevices and intermediate and side longitudinal ridges, whereby said formed crevices and formed ridges provide for

great rigidity of said distribution bus bar during a short circuit condition, while providing for a convenient shape to manufacture by way of extrusion, while further providing for an efficient heat sink.

4,366,529

OPTICAL SOURCE UNIT FOR AN ENDSCOPE

Nagashige Takahashi, Tokyo, and Shinichi Harada, Urawa, both of Japan, assignors to Kabushiki Kaisha Medos Kenkyusho, Tokyo, Japan

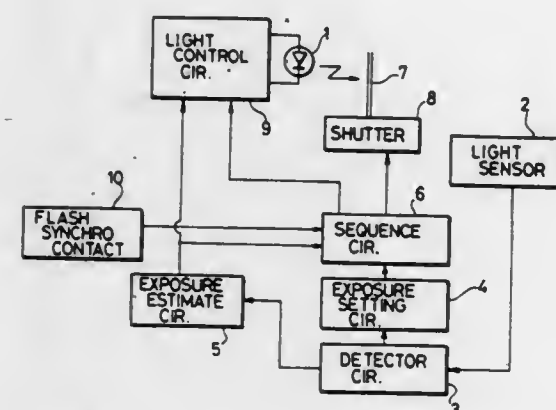
Filed Mar. 30, 1979, Ser. No. 25,621

Claims priority, application Japan, Apr. 1, 1978, 53/42876[U]; Apr. 5, 1978, 53/40651

Int. Cl.³ G03B 15/02

U.S. Cl. 362-4

9 Claims



1. In an illumination device for photographing a portion of the body cavity to be examined with an endoscope having a light source with a discharge tube for illuminating the portion to be examined and a mechanical shutter arranged in the optical path of illuminating light from said light source, and optical source unit comprising: a light quantity detecting circuit for detecting information on the brightness of illumination of said light source, a correct exposure time setting circuit, and a correct exposure time estimating circuit coupled to said light quantity detecting circuit; wherein, the closure of said mechanical shutter is controlled by the control operations of said correct exposure time setting circuit and said correct exposure time estimating circuit, a correct exposure time being estimated by said correct exposure time estimating circuit in the initial period of exposure detection to provide an estimation value, whereby said correct exposure time estimating circuit produces control signals for said light source and said mechanical shutter.

4,366,530

UNITARY FRONT LIGHT MOUNTING ASSEMBLY FOR A VEHICLE

Brian B. Milhous, San Jose, Calif., assignor to Paccar Inc., Bellevue, Wash.

Filed Nov. 7, 1980, Ser. No. 205,582

Int. Cl.³ B60Q 1/00

U.S. Cl. 362-80

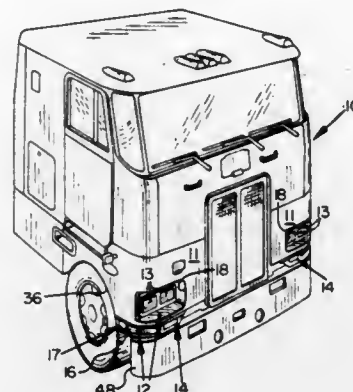
10 Claims

1. A unitary mounting device for a headlight and other lights at the front of a cab-over-engine type truck cab wherein openings are provided in the front skirt of the cab for the headlights, comprising:

an integral housing and means for mounting the housing on the front skirt of the cab, at one side at the front of the cab, generally above the position of the cab's bumper and generally at the back side of one of the openings in the cab's front skirt;

first mounting means associated with the housing for securing at least one headlight to the housing, aimed forwardly through said opening in the cab's front skirt; and

second mounting means in the housing for securing a turn signal light, below the headlight,



whereby the lights may be assembled to the housing, forming a completed unit, then the completed unit may be secured to the cab's front skirt.

4,366,531

PHASE CONTROL FOR A MULTIPLE PHASE SCR CHOPPER

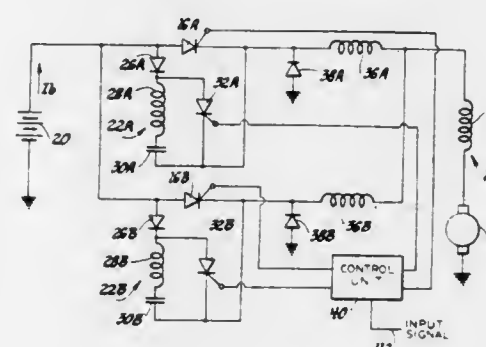
Sam M. Karadsheh, Troy, and Thomas A. Radomski, Utica, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 188,150, Sep. 17, 1980. This application Aug. 12, 1981, Ser. No. 292,250

Int. Cl.³ H02M 3/135

U.S. Cl. 363-57

8 Claims



1. A chopper drive mechanism for an electric motor of the type wherein current from a common source is applied through first and second paths in like duration pulses at a common repetition rate, wherein means is normally effective to initiate current flow in said second path in predetermined relation with respect to the initiation of current flow in said first path, and wherein the current turn-off in each path must be either after or more than a predetermined time before the current turn-on of the other path, the improvement comprising:

additional means responsive to the time spacing of said pulses and their duration effective to identify when said current flow would be initiated in the second path less than a predetermined time after the current turn-off in said first path; and

phase shift elements activated by said additional means to advance the initiation of current flow in the second path to a time prior to turn-off of the current flow in the first path.

4,366,532

AC/DC OR DC/AC CONVERTER SYSTEM WITH IMPROVED AC-LINE HARMONIC REDUCTION

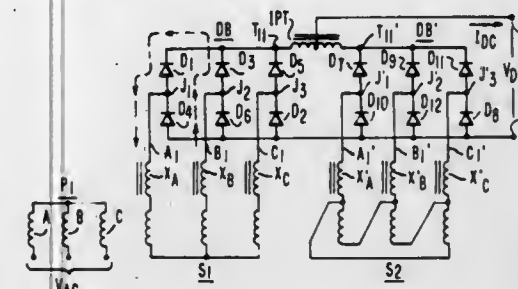
John Rosa, Pittsburgh, and Raymond J. Radus, Monroeville, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed May 11, 1981, Ser. No. 262,726

Int. Cl.³ H02M 7/08, 7/17

U.S. Cl. 363-69

9 Claims



1. In a converter system for interconnecting three-phase AC power lines with two direct current (DC) terminals including: three primary windings connected to said three-phase AC power lines;

two three-phase secondary windings forming two three-phase voltage systems at 30° phase shift to one another; six pairs of series-connected rectifying devices connected between said two DC terminals;

one set of three of said pairs of rectifying devices having respective middle points connected to one of said secondary windings and the other set of three of said pairs of rectifying devices having respective middle points connected to the other of said secondary windings;

one interphase reactor being connected between said two sets of rectifying devices;

said rectifying devices being equally distributed between the phases of said secondary windings and operatively conducting in sequential order between said two DC terminals;

said devices commutating one another in successive order from one secondary winding phase to the next; a plurality of inductances operatively coupled each between one secondary winding and a corresponding middle point between rectifying devices;

said inductances being operative in pairs with the commutating currents of two such successive commutating devices; one inductance of a pair associated with one of said two such successive commutating devices, the other inductance of a pair associated with the other of said two such successive commutating devices, to reduce the rate of change of the commutating current in both commutating devices, thereby to extend the duration of the attending commutation period, and to reduce the harmonics of the currents drawn from said AC power lines.

4,366,533

PWM INVERTER DEVICE

Masakazu Kohata, Kamakura; Hideki Hayashi, Sagami-hara, and Ichiro Miyashita, Yamato, all of Japan, assignors to Toyo Denki Seizo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 10, 1980, Ser. No. 167,235

Claims priority, application Japan, Jul. 13, 1979, 54-88164

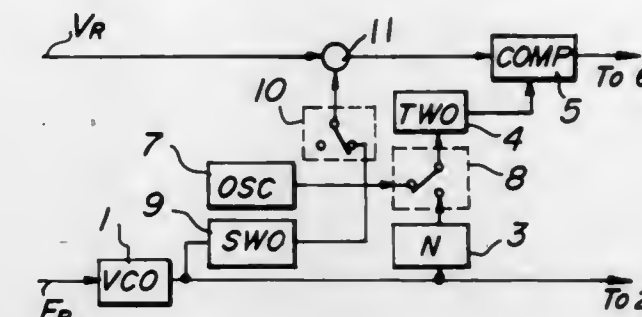
Int. Cl.³ H02P 7/36

U.S. Cl. 363-136

5 Claims

1. A PWM inverter device for energizing ac motor with variable voltage and variable frequency output obtained from a dc current source by pulse width adjustment, characterized in that the device comprises an oscillator for generating a series of output pulses synchronized with output frequency of the inverter and having frequency integral multiple of the output frequency, a function waveform generator for generating level signal having frequency of 2m times (m being an integer repre-

sending the number of phases of the inverter device) of the inverter output frequency in response to the output of said oscillator, a triangle waveform oscillator for generating triangle wave shaped carrier signal having a constant frequency at least 12 times with that of the inverter signal, a modulator for



comparing and mixing said level signal with said carrier signal, wherein said level signal is generated in a functional form in order that the pulse width of the inverter output voltage decreases monotonically and forms repeated waveforms by a chopping instruction of the modulator output.

4,366,534

ELECTRONIC CONDITION CONTROL SYSTEM USING DIGITAL ANTICIPATION

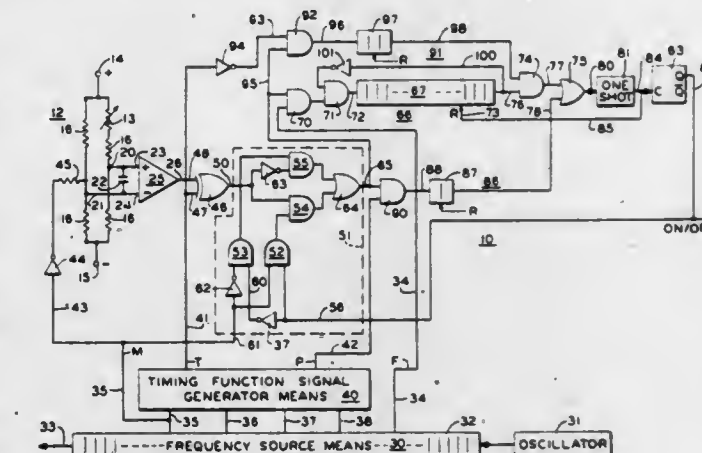
Arlon D. Kompelen, Richfield, Minn., assignor to Honeywell, Inc., Minneapolis, Minn.

Filed Jul. 30, 1980, Ser. No. 173,512

Int. Cl.³ G05B 11/16; G05D 23/20

U.S. Cl. 364-183

17 Claims



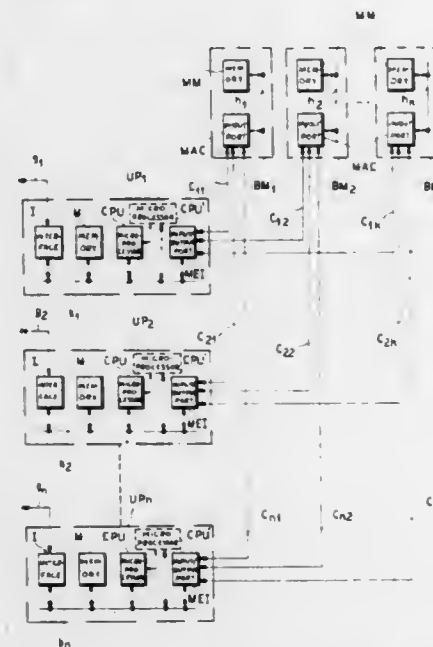
1. An electronic condition control system using digital anticipation circuit means, including: frequency source means supplying a plurality of different frequency signals; timing function signal generator means connected to said frequency source means and generating a plurality of timing signals; bridge means including condition responsive impedance means; said bridge means being connected to a first of said frequency signals so that said bridge means has a repetitively cycling output signal at an output means; comparator means having an input connected to said bridge output means; said bridge output signal controlling said comparator means to provide a comparator means output signal; digital logic means connected to said comparator means output and to a first of said timing signals to provide a first digital control signal; anticipation cycle counter means capable of counting a plurality of digital pulses to establish an anticipation time for said condition control system; said anticipation cycle counter means having input gate means and output gate means; said output gate means connected to control bistable output means which establishes "on" and "off" states for said condition control system; further digital logic means connected to receive said first digital control signal, said first signal frequency, and the state of said bistable output means as control inputs; said further digital logic means having an output connected to

said input gate means of said anticipation cycle counter means; and said frequency source means further having a relatively high frequency signal compared to said first frequency signal with said relatively high frequency signal connected to said anticipation cycle counter input gate means to cause said counter means to rapidly fill with counts when said counter input gate means is opened by the presence of a signal from said further digital logic means.

4,366,535

MODULAR SIGNAL-PROCESSING SYSTEM

Riccardo Cedolin; Wolmer Chiarottino; Giuseppe Giandonato; Silvano Giorelli; Giorgio Martinengo; Giorgio Sofi, and Sergio Villone, all of Turin, Italy, assignors to CSELT - Centro Studi e Laboratori Telecomunicazioni S.p.A., Turin, Italy. Continuation-in-part of Ser. No. 13,273, Feb. 21, 1979, abandoned. This application Jan. 14, 1980, Ser. No. 111,942. Claims priority, application Italy, Mar. 3, 1978, 67447 A/78. Int. Cl.³ G06F 11/00, 13/00, 15/16. U.S. Cl. 364-200. 7 Claims.



1. An electronic signal-processing system dialoguing with associated peripheral units, comprising:

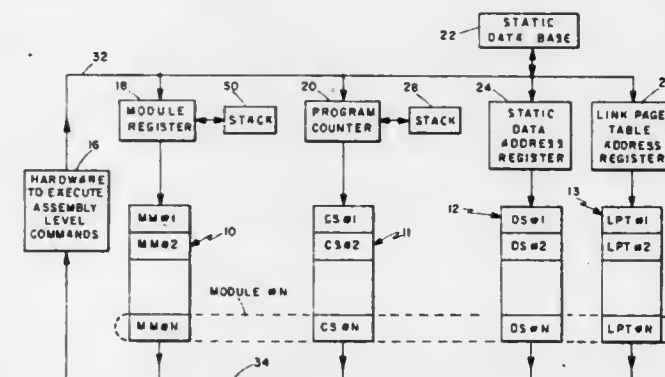
- a plurality of modular processing units each including a pair of substantially identical microprocessors interlinked by a correlating connection, each microprocessor being provided with parallel input connections for receiving incoming messages from an internal signal path, only one of said microprocessors having an active output connection for transmitting outgoing messages to said signal path, the other of said microprocessors being available as a standby, each processing unit further including interface means inserted between said signal path and an associated one of said peripheral units, an internal memory connected to said signal path for storing processing information individual to the associated peripheral unit, and coupling means for selectively connecting said signal path to any one of a plurality of external two-way buses forming extensions of said signal path;
- a plurality of external memory banks storing general processing information utilizable by any of said processing units; and
- access means individual to each of said memory banks for facilitating communication thereof with any of said processing units, in response to a request therefrom, via a corresponding one of said external two-way buses;
- each microprocessor of said pair including logical circuitry for performing processing operations, a microprogram memory connected to said logical circuitry for controlling said processing operations, a sequencer linked to said microprogram memory for advancing the microprogram thereof by the emission of addresses of microinstructions to be successively read out therefrom, a time base con-

nected to said logical circuitry and said sequencer for generating a control pulse to establish an operating cycle therefor, and monitoring means in each microprocessor operatively connected to the sequencers of both microprocessors of said pair via said correlating connection and being further connected to said time base for causing same to lengthen the control pulse thereof to double the normal duration of said operating cycle upon detecting an out-of-step condition of said sequencers, thereby enabling resynchronization of said microprocessors upon termination of said out-of-step condition after not more than one normal operating cycle, said one of said microprocessors having said logical circuitry linked with said signal path via said active output connection for sending out the results of said processing operations.

4,366,536

MODULAR DIGITAL COMPUTER SYSTEM FOR STORING AND SELECTING DATA PROCESSING PROCEDURES AND DATA

Leslie D. Kohn, San Mateo, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif. Filed Apr. 15, 1980, Ser. No. 140,590. Int. Cl.³ G06F 7/00, 7/06, 9/00. U.S. Cl. 364-200. 9 Claims.



1. A digital computer system for selecting and linking multiple separately stored data processing procedures consisting of assembly level commands and for selecting a variable data area from a plurality of variable data areas, comprising:

- a first memory for storing N absolute address trios, where N is any integer greater than one, each of said absolute address trios being selectable by a respective module address with each of said absolute address trios consisting of a link page table address, a code base address and a static data base address;
- a second memory for storing N code segments, each of said code segments being selectable by a respective one of said code base addresses and consisting of a plurality of said procedures, with each procedure beginning at an offset address relative to the code base address of the corresponding code segment;
- a third memory for storing N static data segments, each of said static data segments being selectable by a respective one of said static data base addresses and consisting of a plurality of said variable data areas with each variable data area having an absolute address;
- a fourth memory for storing N link page tables, each of said link page tables being selectable by a respective one of said link page table addresses and containing a number of first and second relative address pairs, each of the relative address pairs being selectable by a respective predetermined displacement address is an assembly level command, with the first relative address being a said module address thereby indicating one of said N code base addresses in the first memory and the second relative address indicating said offset address from the indicated code base address to a predetermined one of said procedures and/or

- containing a number of said absolute variable data area addresses, each of said absolute variable data area addresses being selectable by a respective given displacement address in an assembly level command;
- a module register for accessing the first memory to select an absolute address trio from the first memory in response to said module address;
- a link page table register for accessing the fourth memory to select a relative address pair from the fourth memory in response to the link page table address in the selected absolute address trio and in response to a said predetermined displacement address, and to select an absolute variable data area address from the fourth memory in response to the link page table address in the selected absolute address trio and in response to a said given displacement address;
- a program counter for accessing the second memory to select a procedure from the second memory in response to the code base address and the offset address indicated by the selected relative address pair;
- a data address register for accessing the third memory to select a variable data area from the third memory either in response to the static data base address in the selected absolute address trio and a fixed displacement address that is included in an assembly level command, or in response to the selected absolute variable data area address; and
- a hardware unit adapted to execute assembly level commands and coupled to the memories, the registers and the program counter for executing the procedures selected by the program counter from the second memory; for providing the module address in the relative address pair selected by the link page table register from the fourth memory to the module register for accessing the first memory to select a said absolute address trio; for providing the code base address selected by the module register from the first memory and the offset address selected by the link page table register from the fourth memory to the program counter for accessing the second memory to select a said data processing procedure; for providing the static data base address selected by the module register from the first memory and the displacement address included in an assembly level command of the executed procedure to the data address register for accessing the third memory to select a said variable data area; for providing the absolute variable data address selected by the link page table register from the fourth memory to the data address register for accessing the third memory to select a said variable data area; for providing the link page table address selected by the module register from the first memory and the predetermined displacement address included in an assembly level command of the executed procedure to the link page table register for accessing the fourth memory to select a said relative address pair; and for providing the link page table address selected by the module register from the first memory and the given displacement address included in an assembly level command of the executed procedure to the link page table register for accessing the fourth memory to select a said absolute variable data area address.

4,366,537

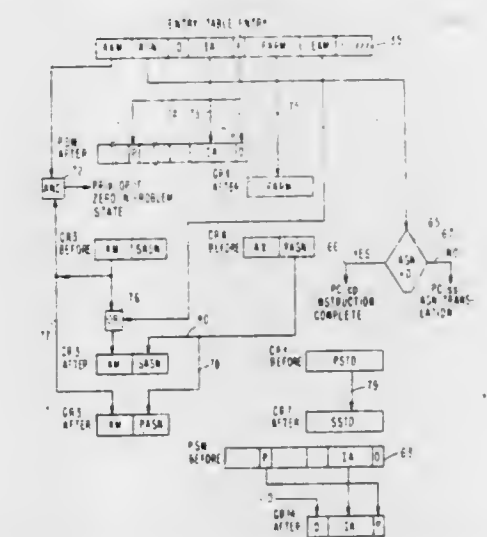
AUTHORIZATION MECHANISM FOR TRANSFER OF PROGRAM CONTROL OR DATA BETWEEN DIFFERENT ADDRESS SPACES HAVING DIFFERENT STORAGE PROTECT KEYS

Andrew R. Heller, Morgan Hill, Calif., and William S. Worley, Jr., Endicott, N.Y., assignors to International Business Machines Corp., Armonk, N.Y. Filed May 23, 1980, Ser. No. 152,919. Int. Cl.³ G06F 13/00. U.S. Cl. 364-200. 8 Claims.

1. In a multiprogramming data processing system including (1) a main memory comprised of an addressing mechanism providing access to physical, addressable blocks having associ-

ated addressable coded storage protect keys providing access control to the associated physical block, the main memory storing information including data, problem programs, supervisor programs, and system control tables, and (2) processor means for extracting and decoding series of program instructions from the main memory and for performing the operations required including the accessing of physical addressable blocks in the main memory for transfer of information between the processor and main memory, the processor including a program status word (PSW) register including a plurality of control bits including a problem program bit, the binary state of which signifies a problem or supervisor program state, control fields including a coded PSW protect key field connected to the access control of the main memory to be compared with the coded storage protect key of a physical block to be accessed in main memory, and an instruction address field connected to the addressing mechanism of the main memory for accessing the next program instruction to be executed, the improvement comprising:

key-mask storage comprised of a plurality of binary key-



mask bits, each corresponding to a different one of the permutations of the coded storage protect keys in the PSW protect key field and storage protect keys, and each having a first or second binary state,

program call signalling means, responsive to a program instruction, from a calling program, providing a called program identification,

entry access means responsive to said called program identification, including means for accessing a particular entry in an associated system control table for transferring said particular entry to the processor, and means for storing said particular entry which comprises entry control information including an initial called program instruction address, and an authorization key-mask having the same plurality of binary key-mask bits as said key-mask storage, and

key-mask checking means, connected to said key-mask storage and said authorization key-mask, including means for performing a bit-for-bit combinatorial function and providing an interrupt signal in response to a particular result of said combinatorial function.

4,366,538

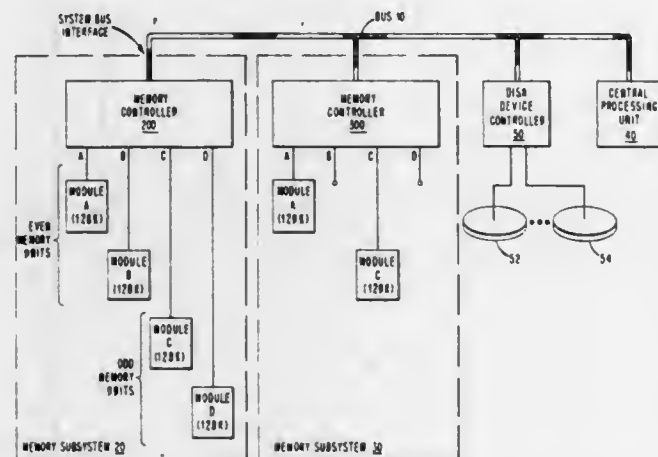
MEMORY CONTROLLER WITH QUEUE CONTROL APPARATUS

Robert B. Johnson, Billerica, and Chester M. Nibby, Jr., Peabody, both of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass. Filed Oct. 31, 1980, Ser. No. 202,560. Int. Cl.³ G06F 13/00. U.S. Cl. 364-200. 26 Claims.

1. A memory controller for use in a system including at least one request generating unit coupled to a bus in common with said controller, said controller being coupled to at least one

memory module for controlling the operation of said module in response to a number of different types of memory requests generated by said unit requiring one or more memory cycles of operation, said module including a plurality of word locations and said controller including control circuits for generating command signals requesting said controller to perform internal operations requiring memory cycles of operation, said controller comprising:

at least a pair of queue circuit means, each being coupled in common to said module and to said bus, for receiving a different one of said plurality of memory requests; queue control means coupled to each of said pair of queue circuit means and to said control circuits; and,



memory cycle control means coupled to said queue control means, to said control circuits and to said bus for receiving said command signals, signals from said queue control means indicative of the status of said pair of queue circuit means in processing said requests and signals from said bus indicating the receipt of a request from said unit, said memory cycle control means being operative in response to said signals to generate signals for producing succeeding memory cycles of operation as required for the processing of internal operations and said memory requests so as to minimize conflict therebetween.

4,366,539

MEMORY CONTROLLER WITH BURST MODE CAPABILITY

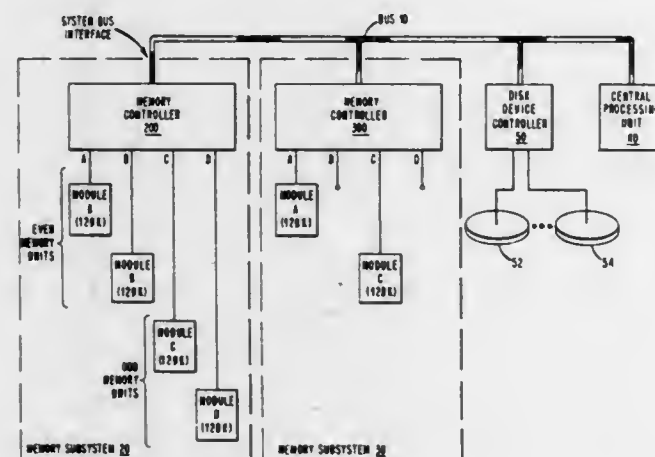
Robert B. Johnson, Billerica, and Chester M. Nibby, Jr., Peabody, both of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Oct. 31, 1980, Ser. No. 202,819

Int. Cl.³ G06F 13/00

U.S. Cl. 364—200

36 Claims



1. A memory controller for use in a system including at least one request generating unit coupled to a bus in common with said controller, said controller being coupled to a number of memory modules including a plurality of word locations in each module and said controller being operative to control the

operation of said number of modules in response to memory requests generated by said unit, said memory requests including predetermined types of memory requests coded to specify the read out of a number of data words over successive memory cycles of operation and each predetermined type of memory request including a memory address specifying where in said memory modules the read out of said words is to begin, said controller comprising:

address counter circuit means coupled to said bus for receiving a predetermined address portion of each said memory request address and said address counter circuit means being operatively coupled to apply address signals to said module for specifying the locations to be addressed within said number of modules during each of said successive memory cycles of operation; and, mode control means coupled to said address counter means and to said bus, said mode control means being operative in response to each predetermined type of request to switch from a first to a second state, conditioning said controller for operating in a predetermined mode of operation, said mode control means when in said second state generating signals for incrementing by one said predetermined address portion loaded into said address counter circuit means by said mode control means in response to said each predetermined type of request after each successive memory cycle of operation, enabling the read out of successive words from consecutive locations of said number of memory modules, and said address counter means, upon being incremented to a predetermined count, generating an output signal indicating the termination of said predetermined type of memory operation, said mode control means in response to said output signal being operative to switch from said second state to said first state, enabling said controller to accept another predetermined type of memory request.

4,366,540

CYCLE CONTROL FOR A MICROPROCESSOR WITH MULTI-SPEED CONTROL STORES

Neil C. Berglund, Kasson, and John R. Burchfiel, Jr., Rochester, both of Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

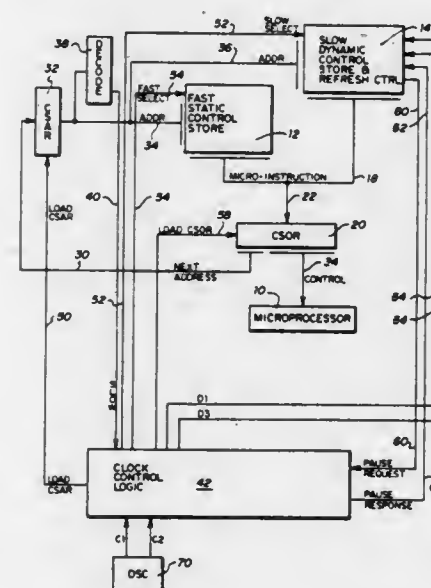
Continuation of Ser. No. 953,674, Oct. 23, 1978, abandoned.

This application Feb. 12, 1981, Ser. No. 234,004

Int. Cl.³ G06F 1/04

U.S. Cl. 364—200

7 Claims



1. Apparatus for controlling the cycle time of a microprocessor operable to execute instructions selectively fetched from a first control store memory unit operating in response to being addressed and receiving a select signal at a first predetermined speed and from a second control store memory unit operating

in response to being addressed and receiving a select signal at a second predetermined speed the improvement comprising addressing means for addressing said first and second control store memory units for accessing said microinstructions; and

logic means responsive to said addressing means for generating and applying select signals to said first and second control store memory units and for controlling the cycle time of the microprocessor at first and second rates by generating clocking signals synchronous with said first and second predetermined speeds, the cycle time of the microprocessor being at said first rate in response to said addressing means addressing said first control store and at said second rate in response to said addressing means addressing said second control store whereby the cycle time of said microprocessor automatically adjusts to the rate that instructions are available for execution.

4,366,541

METHOD AND SYSTEM FOR ENGINE CONTROL

Yasunori Mouri, Katsuta; Seiji Suda, Mito; Masami Shida, Katsuta, and Toshio Furuhashi, Mito, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

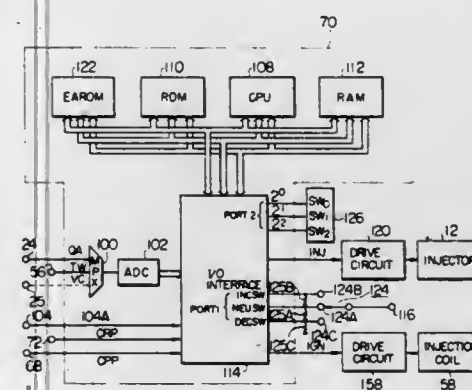
Filed Apr. 11, 1980, Ser. No. 139,264

Claims priority, application Japan, Apr. 13, 1979, 54-44364

Int. Cl.³ F02B 3/04; F02D 5/02; G06F 15/20

U.S. Cl. 364—431.05

33 Claims



10. An engine control system wherein an engine control signal is produced on the basis of data representative of a signal detected from at least one sensor for detecting an operating condition of an engine being operated said system comprising:

(a) means for adjusting data representative of a detection signal of said at least one sensor in a manner to attain the proper operating condition of the engine;

(b) a memory for storing correction data corresponding to a correction value of said data representative of the detection signal in response to said adjusting means;

(c) means for producing said engine control signal on the basis of data representative of a detection signal from said at least one sensor and said correction data stored in said memory; and

(d) means for controlling the operation of said engine on the basis of the control signal produced from said control signal generating means.

20. A method of operating a processor-controlled engine in which processor-derived control signals are produced in response to output signals from at least one sensor means for detecting at least one operation condition of the engine comprising the steps of:

(a) obtaining a reference value in response to an output signal of a sensor means for detecting a preselected operational condition of the engine for a prescribed state of operation of the engine, which reference value is representative of the amount by which the value of the output signal of said sensor means is to be modified in order to attain the proper operating condition of the engine;

(b) storing, in memory, a correction value corresponding to

said reference value, in dependence upon which processor-derived control signals are produced;

(c) for a predetermined operational state of said engine, modifying a value representative of an output signal of the sensor means for detecting said preselected operational condition of the engine using said correction value stored in memory; and

(d) producing an engine control signal on the basis of the modified output signal value obtained in step (c).

4,366,542

CONTROLLING THE OPERATION OF A PRINTING EQUIPMENT

Lodewijk Anselrode, St. Anthonis, Netherlands, assignor to Stork Brabant B.V., An Boxmeer, Netherlands

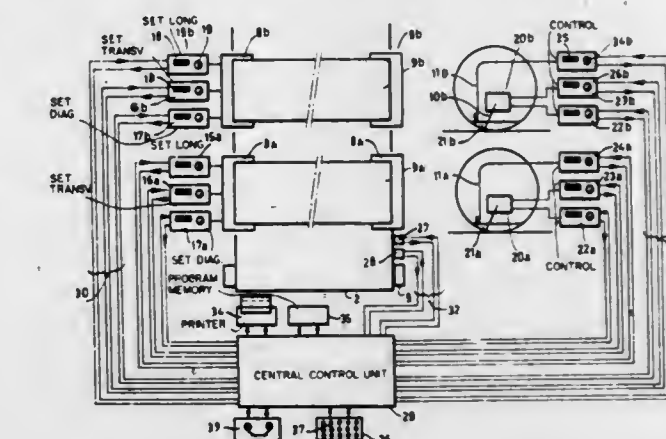
Filed Aug. 6, 1980, Ser. No. 175,774

Claims priority, application Netherlands, Aug. 10, 1979, 7906131

Int. Cl.³ G06F 15/46; B41F 31/04

U.S. Cl. 364—469

18 Claims



7. In a printing apparatus in which a substrate is passed through the apparatus and is printed upon by a series of consecutive printing elements, each of which is adjustable in accordance with a plurality of parameters, there being an individual control device arranged to adjust each respective parameter, the invention herein which comprises:

A. sensor means associated with said control devices and responsive to the condition of the respective control devices to provide a signal for each parameters;

B. an information carrier coupled with said sensor means, capable of recording in data form signals for said parameters representing the optimum parameter values for a particular printing pattern;

C. and means for reading out said data and driving said control devices automatically to adjust all of said parameters to correspond to those represented by said optimum data.

4,366,543

METHOD AND APPARATUS FOR THE OUT-OF-ROUND SHAPING OF WORKPIECES

Otto Feller, Leichlingen; Heinz Oepen, Hückeswagen, and Jochen Stechow, Leichlingen, all of Fed. Rep. of Germany, assignors to Goetze AG, Burscheld, Fed. Rep. of Germany

Filed Apr. 30, 1980, Ser. No. 145,763

Claims priority, application Fed. Rep. of Germany, May 5, 1979, 2918249

Int. Cl.³ G05B 19/18; G06F 15/46

U.S. Cl. 364—474

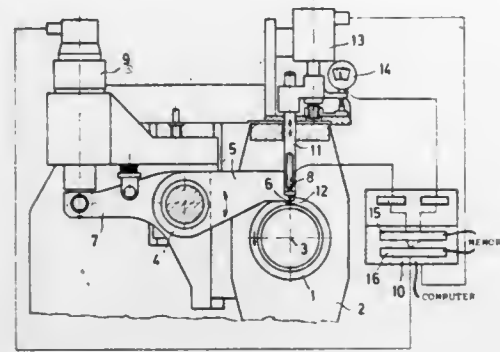
7 Claims

1. In a method for the out-of-round shaping of a circumferential surface of a workpiece; including the step of controlling the radial feed of a shaping tool numerically or electronically as a function of a desired out-of-round contour stored in a first memory; the improvement comprising the following steps:

(a) scanning the actual out-of-round contour of the workpiece at a location axially adjacent the location where said

shaping tool is providing the out-of-round contour on the workpiece as a function of said desired out-of-round contour;

- (b) comparing the actual out-of-round contour determined in step (a) with said desired out-of-round contour;



- (c) correcting said desired out-of-round contour based on deviational data obtained in step (b) for determining a machining contour;
- (d) storing said machining contour in a second memory; and
- (e) subsequent to step (d), shaping workpieces as a function of said machining contour stored in said second memory.

4,366,544

JUDGING SYSTEM FOR DETECTING FAILURE OF MACHINE

Ichiji Shima; Hiroshi Teshima, both of Kansai Electric Power Company Incorporated, Sohgo Gijyutsu Kenkyusho, No. 1, Nakohji Ichinotsubo, Amagasaki-shi, Hyogo-ken, Japan; Takayuki Koizumi, and Satoru Inoue, both of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo; Ichiji Shima and Hiroshi Teshima, both of Amagasaki, all of, Japan

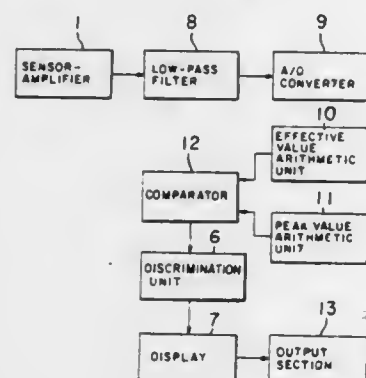
Filed Apr. 16, 1980, Ser. No. 140,832

Claims priority, application Japan, Apr. 16, 1979, 54-46426

Int. Cl.³ G08B 21/00; G01N 29/00

U.S. Cl. 364-550

5 Claims



1. A method for detecting a failure of a machine comprising the steps of;
- detecting output signals from said machine by the use of a detection unit;
- filtering said detected signals in a low-pass filter;
- converting the output of said filter to a digital output in a A/D converter;
- operating upon the digital output of said converter in an arithmetic unit and comparing in a comparing unit the output of said arithmetic unit with a set value to display the possibility of failure of said machine;
- performing plural operation of said detection unit, said A/D converter unit, said arithmetic unit and said comparator unit for detecting said signals and comparing the output given by said arithmetic unit with a set value to indicate the failure of said machine when said outputs of said

arithmetic unit exceed said set value a predetermined number of times.

4,366,545

RECORDING TYPE ELECTRONIC APPARATUS

Tsuyoshi Kawanabe, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

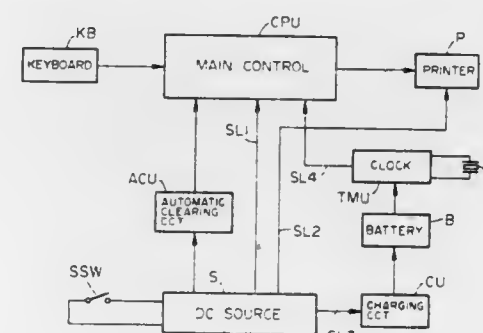
Filed Apr. 3, 1980, Ser. No. 136,772

Claims priority, application Japan, Apr. 10, 1979, 54-42499

Int. Cl.³ G06F 3/12, 15/02

U.S. Cl. 364-569

3 Claims



1. A recording-type electronic apparatus comprising:
- key input means for entering data;
- arithmetic means for processing the data entered by said key input means;
- printing means for printing out the result of processing by said arithmetic means;
- first electric power source means for supplying power to said arithmetic means, said power source means including voltage transformer means having a primary side connected to an alternating current source, a secondary side that produces an alternating current output having voltage lower than the voltage of alternating current input to said primary side, and means for rectifying the output voltage from said secondary side of said voltage transformer means to apply the rectified output to said arithmetic means;
- switching means provided at said primary side of said voltage transformer means for controlling the power supply to said secondary side of said transformer means;
- detecting means connected to an output of said rectifying means of said first electric power source means for detecting the initiation of power supply from said first electric power source means to said arithmetic means under control of said switching means;
- timer means for counting time;
- second electric power source means for supplying power to said timer means, having a battery which is charged by the rectified output from said rectifying means; and
- control means responsive to the detection by said detecting means of the supply of power from said first electric power source means under control of said switching means for applying the time counting information from said timer means to said printing means to instruct the printing of time counting information, said control means controlling said apparatus to take a standby state for accepting data entered by said key input means after termination of the printing operation of said printing means to print the time counting information.

4,366,546

SIGNAL PROCESSOR FOR SKID CONTROL DEVICE

Akira Tachibana, Yokosuka; Akira Endo, Katsuta, and Kenji Sekine, Tokyo, all of Japan, assignors to Hitachi, Ltd. and Nissan Motor Co., Ltd., both of Tokyo, Japan

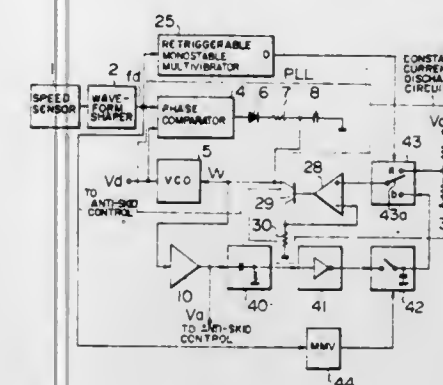
Filed Aug. 27, 1980, Ser. No. 181,762

Claims priority, application Japan, Sep. 7, 1979, 54-114076; Sep. 7, 1979, 54-114077

Int. Cl.³ B60T 8/02; G06G 7/48

U.S. Cl. 364-571

6 Claims



1. A vehicle-speed signal processing circuit for a skid control device comprising:

- (a) an input terminal supplied with a Doppler pulse signal detected by a Doppler radar vehicle speed sensor, and Doppler pulse signal indicating vehicle speed;
- (b) frequency-voltage converter means connected to receive said pulse signal from said input terminal for converting said pulse signal into an analog voltage, said frequency-voltage converter means including charge means for accumulating electric charges corresponding to a vehicle-speed signal;
- (c) signal dropout detecting means connected to receive the pulse signal from said input terminal for detecting the absence of an incoming pulse in a predetermined time to generate a signal;
- (d) sample-and-hold means for sampling and holding a rate of change in the output voltage of said frequency-voltage converter means;
- (e) discharge-time-constant setting means connected to receive the output of said sample-and-hold means in response to the output of said signal dropout detecting means, for determining a discharge time constant of said charge means in accordance with the output from said sample-and-hold means; and
- (f) output means coupled to the output of said frequency-voltage converter for providing a compensated output signal, said compensated output signal being formed in such a manner as to compensate a missing part in said Doppler pulse signal.

4,366,547

DIGITAL FILTER WITH SCALED TAP COEFFICIENTS

Charles K. Miller, Concord, Mass., assignor to Codex Corporation, Mansfield, Mass.

Filed Sep. 18, 1980, Ser. No. 188,536

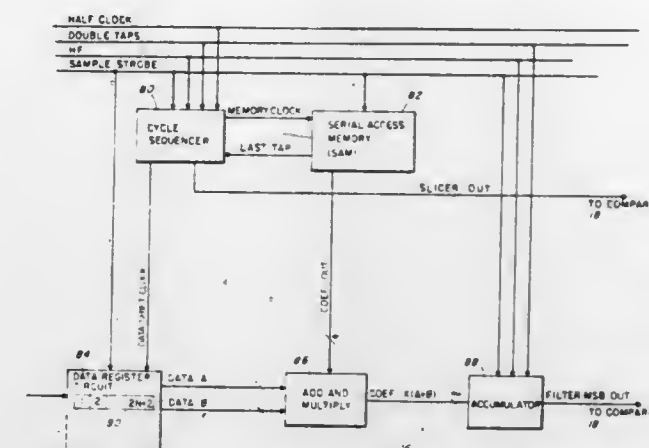
Int. Cl.³ G06F 15/31

U.S. Cl. 364-724

5 Claims

1. Modern circuitry for processing signals representing digital data, comprising
- sampling means for providing a stream of samples of said signals,
- storage means connected to receive from said sampling means and to store a set of said samples,
- arithmetic means responsive to said storage means and connected to multiply each said sample by a tap coefficient drawn from a set of scaled tap coefficients and to add the resulting products to form a multiple-bit value, and
- comparator means responsive to said arithmetic means and connected to compare a predetermined group of the bits

of said multiple-bit value with a threshold value to produce an output signal, said group being selected from a set



consisting of fewer than all the bits in said multiple-bit value.

4,366,548

ADDER FOR EXPONENT ARITHMETIC

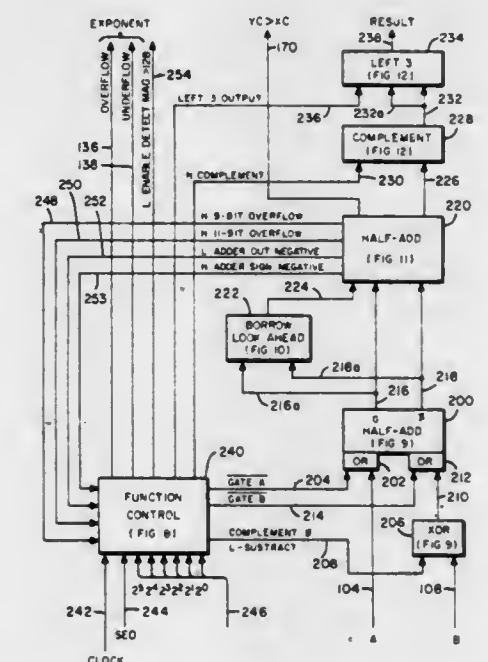
Glen R. Kregness, Minnetonka, and Peter B. Criswell, Bethel, both of Minn., assignors to Sperry Corporation, New York, N.Y.

Filed Jan. 2, 1981, Ser. No. 221,981

Int. Cl.³ G06F 7/48

U.S. Cl. 364-748

18 Claims



1. In a data processing system having an arithmetic system for performing floating-point arithmetic operations, a characteristic adder comprising:

- operand input means for receiving first and second operands, each comprised of a plurality of bits;
- adder means coupled to said operand input means for providing the sum of said first and second operands;
- output signaling means for providing output signals when said second operand is numerically greater than said first operand;
- overflow detecting means for selectively providing overflow indicating signals indicative of overflow error conditions;
- negative result detecting means for providing adder output negative signals when said sum is negative;
- function input means for receiving function signals indicative of selected operations to be performed by said adder means;
- function control means coupled to said function input means,

said negative result detecting means, and said overflow detecting means, and said adder means for selectively controlling operation of said adder means in response to said function signals;
 magnitude means for selectively providing the magnitude output of said sum;
 complement means for selectively providing the 1's complement of said sum.

4,366,549

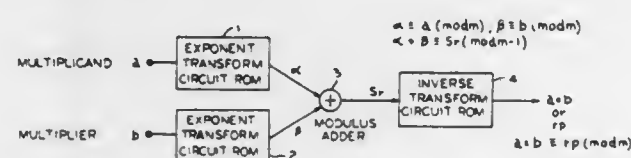
MULTIPLIER WITH INDEX TRANSFORMS MODULO A PRIME OR MODULO A FERMAT PRIME AND THE FERMAT PRIME LESS ONE

Aisuke Katayama, 2-47 Kawatomotsumicho, Akita-shi, Akita, Japan

Continuation-in-part of Ser. No. 34,145, Apr. 27, 1979, abandoned. This application Aug. 15, 1980, Ser. No. 178,676
 Claims priority, application Japan, May 1, 1978, 53-50747
 Int. Cl.³ G06F 7/52

U.S. Cl. 364—757

20 Claims



1. A multiplication system for calculating a product of two integers by a use of a prime number m modulus and a predetermined natural number raised to the power of consecutive whole numbers which are congruent with residues modulo of said prime number m , said predetermined natural number being a primitive root inherent in said prime number m , and when arranged in an ascending order, said residues form a set of consecutive integers, whereby a one-to-one correspondence is established between said whole numbers and said consecutive integers, said two integers being given as a first and a second of said consecutive integers, said multiplication system comprising:

first transforming means for transforming said first and said second integers into a first and a second index, respectively, with said first and said second indices being given by those two of said whole numbers which are in a one-to-one correspondence with said first and said second integers, respectively;

summing means for deriving a modulus sum responsive to said first and said second indices, said modulus sum being a sum of said first and said second indices which is congruent with said modulus sum modulo of said prime number m less one; and

second transforming means for transforming said modulus sum to said product with said product given by that one of said consecutive integers which is in a one-to-one correspondence with one of said whole numbers, said one whole number being given by said modulus sum.

4,366,550

MONOLITHIC SEQUENTIAL PROCESSOR FOR FOUR-QUADRANT MULTIPLIER ARRAYS

Donald R. Lampe, Ellicott City, Md., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation of Ser. No. 3,459, Jan. 15, 1979, abandoned. This application Jul. 28, 1980, Ser. No. 227,431

Int. Cl.³ G06G 7/16

U.S. Cl. 364—844

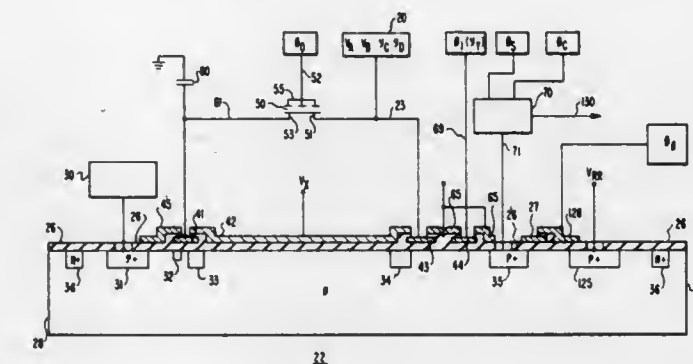
29 Claims

1. A charge-coupled circuit for metering electrical charge comprising:

(a) input means including first switching means for providing a sequence of voltage potentials;
 (b) charge-coupled means coupled to said input means for

providing charge indicative of said sequence of potentials; and

(c) circuit means coupled to said charge-coupled means including potential converting means for providing and storing a signal indicative of said charge provided by said charge-coupled means, output means coupled to said potential converting means including second switching means for providing in response to a switching signal, an output signal indicative of the signal provided by said



potential converting means, and discharge means for removing charge in said charge-coupled means at predetermined times;

said potential converting means including a capacitor, buffer means coupled between said charge-coupled means and said capacitor for providing a drive of appropriate impedance for charging said capacitor, and grounding means responsive to a control signal for coupling one side of said capacitor to ground.

4,366,551

ASSOCIATIVE MEMORY SEARCH SYSTEM

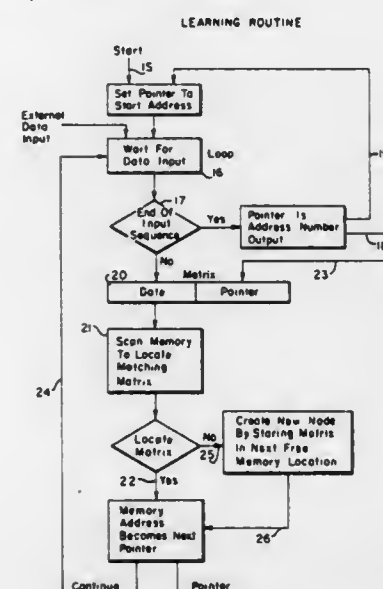
Klaus E. Holtz, 310 Guttenberg St., San Francisco, Calif. 94112

Continuation of Ser. No. 809,569, Jun. 24, 1977, abandoned, which is a continuation of Ser. No. 750,953, Dec. 16, 1976, abandoned, which is a continuation-in-part of Ser. No. 587,069, Jun. 16, 1975, abandoned. This application Oct. 22, 1979, Ser. No. 87,280

Int. Cl.³ G06F 7/22

U.S. Cl. 364—900

7 Claims



1. A machine implemented method of conversion of a data sequence into a single address number of an addressable storage location in a storage region, comprising the steps of:

(a) providing a storage region having a plurality of machine addressable storage locations for storing machine readable data characters;
 (b) directing the first data character of a data sequence and a starting number into respective first and second positions of a two-position, machine operable buffer region, the

data character and the starting number, when received in respective positions of the buffer region, defining a machine readable input character matrix;

(c) machine addressing the storage locations of the storage region and machine reading the content of each storage location to determine if the input character matrix in the buffer region is stored in the storage region;
 (d) if the input character matrix in the buffer region is not stored in said storage region, storing the input character matrix in a free storage location of said storage region and directing the address number of said free storage location into the second position of the buffer region;
 (e) if the input character matrix in the buffer region is stored in a storage location of said storage region, directing the address number of the storage location at which the input character matrix is stored into the second position of the buffer region;
 (f) directing the next data character of said data sequence into said first position of the buffer region to cause the next data character and the address number in respective positions of the buffer region to form another machine readable input character matrix;
 (g) repeating steps c through f for each of the next and remaining data characters of the data sequence; and
 (h) terminating the repeating step after the input character matrix corresponding to the last data character of the data sequence has been stored or found to be stored in said storage region, the address number of the storage location which identifies the last input character matrix being operable to represent the data sequence.

4,366,552

POSTAL CHARGE PROCESSING SYSTEM HAVING A COUNT OF SUCCESSIVE WEIGHT MEASURING OPERATIONS

Mitsuo Uchimura, 285-6, Nishi Kumando, Numazu-shi, Shizuoka-ken; Masao Oana, 42-1, Kamo, Mishima-shi, Shizuoka-ken, and Yoshiharu Nishimura, 3-36, Tomita-cho, Mishima-shi, Shizuoka-ken, all of Japan

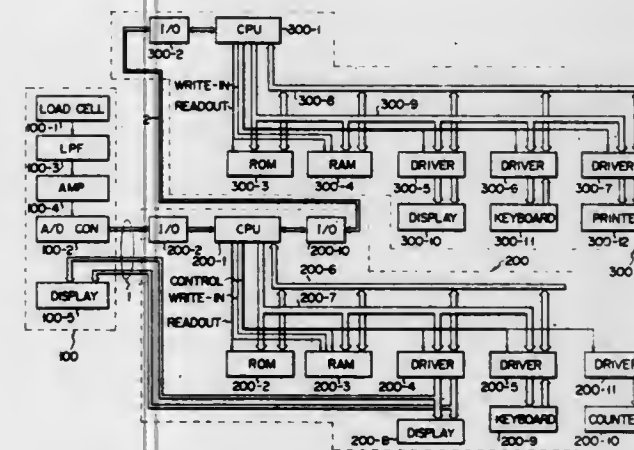
Filed Feb. 25, 1980, Ser. No. 124,612

Claims priority, application Japan, Mar. 7, 1979, 54-26462

Int. Cl.³ G06F 15/28

U.S. Cl. 364—900

2 Claims



1. A postal charge processing system comprising:
 measuring means for measuring the weight of a postal article and for producing weight data corresponding to the weight of said postal article;
 first memory means coupled to said measuring means and including a plurality of input memory sections for storing the weight data from said measuring means; and an output memory section;
 switching means for setting postal conditions;
 second memory means coupled to said switching means for storing postal condition data produced in accordance with the operation of said switching means;

4,366,553

ELECTRONIC COMPUTING APPARATUS EMPLOYING BASIC LANGUAGE

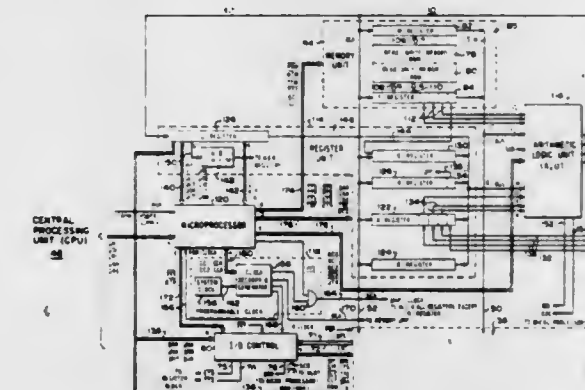
Richard M. Spangler; Eugene V. Burmeister; Frank E. Cada; Wayne F. Covington; Chris J. Christopher; Myles A. Judd; Freddie W. Weninger; Robert E. Watson, and Kent W. Simcoe, all of Loveland, Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 99,101, Nov. 30, 1979, abandoned, which is a continuation of Ser. No. 969,754, Dec. 15, 1978, abandoned, which is a continuation of Ser. No. 758,961, Jan. 13, 1977, abandoned, which is a division of Ser. No. 469,727, May 30, 1974, Pat. No. 4,012,725, which is a continuation of Ser. No. 269,899, Jul. 7, 1972, abandoned. This application Oct. 24, 1980, Ser. No. 200,281

Int. Cl.³ G06F 3/023

U.S. Cl. 364—900

9 Claims



1. Electronic computing apparatus comprising:
 keyboard input means having a plurality of alphanumeric keys for entering alphanumeric information, including BASIC language statements, into the computing apparatus, and having an execution control key for initiating immediate execution of a valid, individual, self-contained BASIC language statement entered into the computing apparatus;
 first storage means, coupled to the keyboard input means, for storing said BASIC language statement as it is being en-

tered into the computing apparatus from the keyboard input means;

second storage means, coupled to the first storage means, for storing alphanumeric information, including BASIC language statements, that has been entered into the computing apparatus from the keyboard input means;

third storage means for storing routines and subroutines of instructions to be executed in executing BASIC language statements;

processing means, coupled to the keyboard input means and to the first, second, and third storage means, for executing the routines and subroutines stored in the third storage means to execute BASIC language statements;

said processing means including recognition and selection means for syntactically recognizing a string of alphanumeric characters stored in the first storage means as being a valid, self-contained BASIC language statement and for selecting the routines and subroutines stored in the third storage means to be executed for immediately executing the recognized valid, self-contained BASIC language statement;

said processing means including means responsive to actuation of the execution control key following entry from the keyboard input means of said string of alphanumeric characters representing a valid, self-contained BASIC language statement for executing the routines and subroutines stored in the third storage means that have been selected by the recognition and selection means to execute the valid, self-contained BASIC language statement represented by said entered string of alphanumeric characters; and

output means, coupled to the processing means, for providing an output of results obtained from executing BASIC language statements.

4,366,554

I²L MEMORY DEVICE

Kiyoshi Aoki, and Kazuaki Ichinose, both of Yokohama, Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

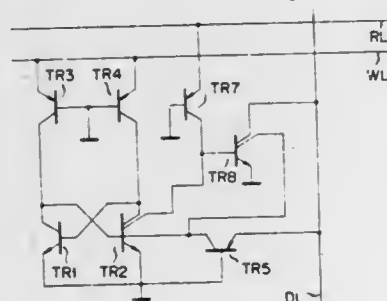
PCT No. PCT/JP79/00235, § 371 Date Jun. 3, 1980, § 102(e) Date Jun. 3, 1980, PCT Pub. No. WO80/00761, PCT Pub. Date Apr. 17, 1980

PCT Filed Sep. 4, 1979, Ser. No. 198,953

Int. Cl.³ G11C 11/40

U.S. Cl. 365—155

18 Claims



1. A semiconductor memory device comprising a first transistor (TR1) of a first conductive type, a second transistor (TR2) of the first conductivity type having its emitter, collector and base respectively connected to the emitter, base and collector of the first transistor (TR1), a third transistor (TR5) of a second conductivity type opposite to said first conductivity type which has its emitter, base and collector respectively connected to a data line (DL) and the emitter and base of the second transistor (TR2), and first and second impedance elements (TR3, TR4) having their first ends respectively connected to the collectors of the first and second transistors (TR1, TR2) and their second ends commonly connected to a first row select line (WL), a fourth transistor (TR6 or TR8) of the first conductivity type having its base and emitter respectively connected to the collector and emitter of one of the first and second transistors (TR1, TR2) and a third impedance

element (TR7) having its one end connected to the base of the fourth transistor (TR6 or TR8) and its other end connected to a second row select line (RL), said second row select line (RL) being selectively energized to supply a base current towards the base of the fourth transistor (TR6 or TR8), thus permitting the fourth transistor (TR6 or TR8) to be rendered conductive or nonconductive in accordance with the conduction state of the second transistor (TR2).

4,366,555

ELECTRICALLY ERASABLE PROGRAMMABLE READ ONLY MEMORY

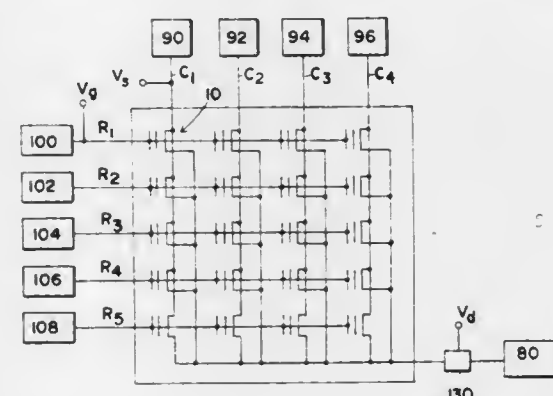
Chenming Hu, Hercules, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Aug. 1, 1980, Ser. No. 174,770

Int. Cl.³ G11C 11/40

U.S. Cl. 365—185

15 Claims



1. An EEPROM memory array of floating gate field effect semiconductor devices, each device having a floating gate and a control gate modulating conduction in a channel between source and drain regions, the devices organized in a matrix of columns and rows, the sources of devices on each column coupled to a common column conductor, the control gates of devices on each row coupled to a common row conductor, and the drains of all devices coupled to a common drain conductor, the array further comprising:

means for sensing conduction in the semiconductor devices; and

means for selectively floating common column conductors so as to program the array.

4,366,556

SEMICONDUCTOR MEMORY DEVICE

Mikio Kyomasu; Yoshiharu Nakao, and Mitsuo Nakayama, all of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

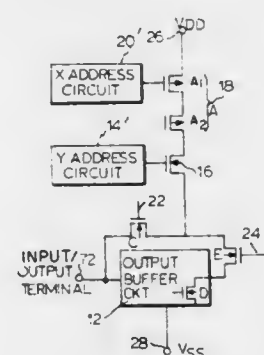
Continuation-in-part of Ser. No. 926,745, Jul. 21, 1978, abandoned. This application Mar. 31, 1980, Ser. No. 136,461

Claims priority, application Japan, Jul. 22, 1977, 52-88631

Int. Cl.³ G11C 7/00, 11/40

U.S. Cl. 365—189

6 Claims



1. A semiconductor memory device comprising: a memory

cell including a memory element formed of a MOS transistor for performing a storing operation by accumulating an electric charge on an electrically insulating film; a gate circuit including a MOS transistor serially connected to said memory cell; a readout selection circuit including a MOS transistor serially connected to said MOS transistor included in said gate circuit; an output buffer circuit including a MOS transistor connected to said MOS transistor included in said readout selection circuit; a writing selection circuit including a MOS transistor connected in a parallel circuit relationship with said MOS transistors included in said readout selection circuit and said output buffer circuit; and a voltage source system connected to said memory cell, said gate circuit, said writing selection circuit, said readout selection circuit and said output buffer circuit for applying voltages to each of said MOS transistors to satisfy the relationship $V_G - V_{TH} > V_D$ for each of said MOS transistors, wherein V_G designates the gate voltage, V_{TH} designates the threshold voltage and V_D designates the drain voltage; the conductivity type of said MOS transistors included in said gate circuit being different from the conductivity type of said MOS transistor forming said memory element.

4,366,557

CIRCUIT ARRANGEMENT FOR THE RECOGNITION OF PREDETERMINED BINARY VALUES OF A SPECIFIC MINIMUM DURATION

Gerhard Wilmers, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

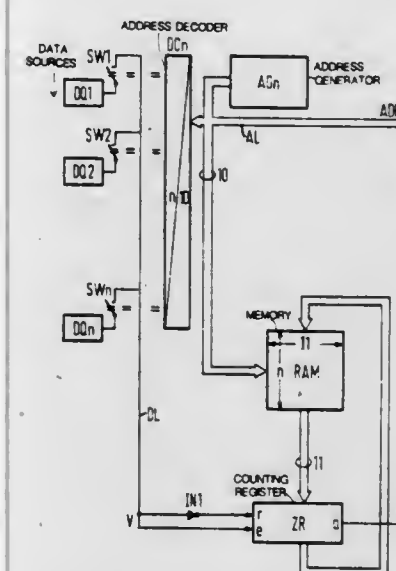
Filed Jun. 23, 1980, Ser. No. 162,159

Claims priority, application Fed. Rep. of Germany, Jul. 18, 1979, 2929079

Int. Cl.³ G11C 13/00

U.S. Cl. 365—189

7 Claims



1. In a data transmission system of the type in which a plurality of data sources emit data to a common data line via respective switches, the improvement therein comprising:

a circuit arrangement for recognizing predetermined binary values of a specific minimum duration, said circuit arrangement including

an address decoder for receiving and decoding addresses and responsive thereto to selectively operate the switches,

an address generator connected to said address decoder and operable to periodically generate addresses identifying the data sources, and

counting means connected to said address generator, said counting means operable to assign a counter reading to each of said data sources and including a forward-backward counter connected to the data line and operable to count in a respective direction in response to the presence or absence of the predetermined binary values and produce recognition signals in response to reaching predetermined counter readings.

4,366,558

MEMORY DEVICE WITH FAST WORD-LINE-DISCHARGING-CIRCUITS

Noriyuki Homma, Kokubunji, and Kunihiko Yamaguchi, Sayama, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

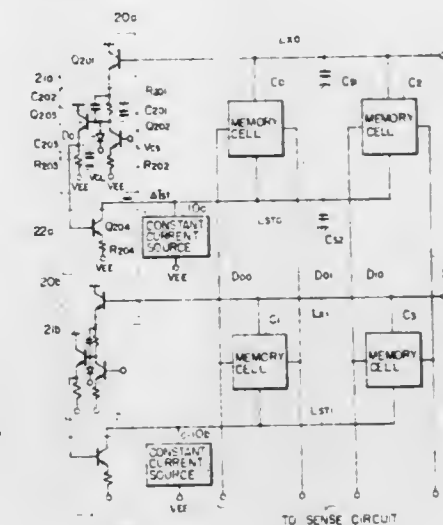
Filed Dec. 18, 1980, Ser. No. 217,834

Claims priority, application Japan, Dec. 19, 1979, 54-164043

Int. Cl.³ G11C 7/02, 11/40, 8/02

U.S. Cl. 365—189

10 Claims



1. A memory comprising:

a plurality of pairs of word lines, each pair of which comprises an upper word line and a lower word line,

a plurality of memory cells which are connected between the word lines of the respective pairs of word lines,

a plurality of voltage application means disposed in correspondence with said respective pairs of word lines for applying either a selection voltage or a non-selection voltage to the upper word lines of the corresponding pairs of word lines,

current sources which are disposed for said respective pairs of word lines and which are connected to the lower word lines in the corresponding pairs of word lines,

delay circuits which are connected to said voltage application means, and

switching means coupled to said delay circuits and said current sources for controlling magnitudes of currents to be supplied from said current sources to the corresponding lower word lines, depending upon levels of output signals of said delay circuits,

wherein said each delay circuit includes means for providing a first signal of a predetermined level while the output of the corresponding voltage application means exceeds a predetermined first voltage intermediate between said selection voltage and said non-selection voltage, and for providing a second signal obtained by delaying an output of said corresponding voltage application means, when said output of said voltage application means has changed in a direction from said predetermined first voltage towards said non-selection voltage.

4,366,559

MEMORY DEVICE

Tetsuo Misaizu, and Masumi Nakao, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 38,962, May 14, 1979, abandoned. This application Feb. 24, 1981, Ser. No. 237,815

Claims priority, application Japan, May 12, 1978, 53-56763; May 17, 1978, 53-58471

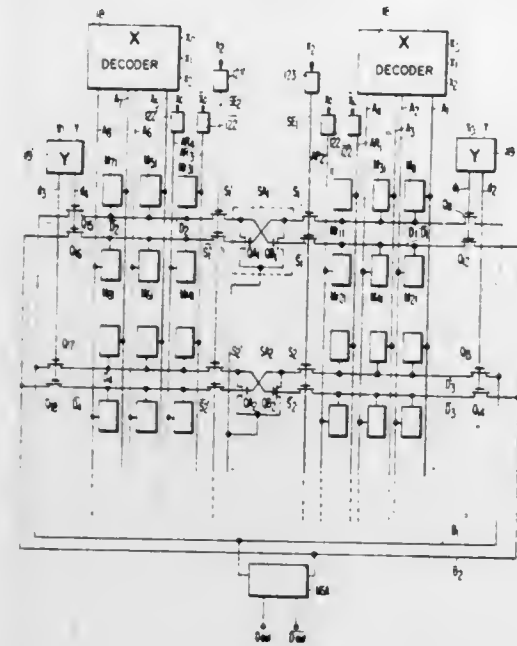
Int. Cl.³ G11C 7/06

U.S. Cl. 365—205

24 Claims

23. A semiconductor memory device comprising a sense amplifier having a first input terminal and a second input terminal, a first digit line arranged on a first side of said sense ampli-

fier, a second digit line arranged in parallel and adjacent to said first digit line, a third digit line arranged on a second and opposite side of said sense amplifier, a fourth digit line arranged in parallel and adjacent to said third digit line, a plurality of memory cells coupled to said digit lines, a first transfer gate arranged between said first digit line and said sense amplifier, a second transfer gate arranged between said second digit



line and said sense amplifier, a third transfer gate arranged between said third digit line and sense amplifier, a fourth transfer gate arranged between said fourth digit line and said sense amplifier, means for receiving address signal, and means responsive to said address signal for enabling two of said first to fourth transfer gates thereby to electrically connect two of said first to fourth digit lines to said first and second input terminals of said sense amplifier.

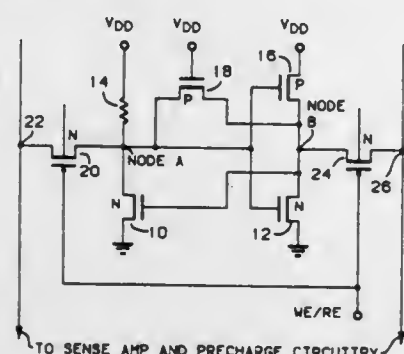
4,366,560

POWER DOWN DETECTOR

Mark W. McDermott, Austin, and Neil B. Feldman, Manchaca, both of Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 22, 1980, Ser. No. 189,974

Int. Cl.³ H02H 3/24; G08B 21/00; H03K 5/00, 3/26
U.S. Cl. 365-228 10 Claims



1. A circuit for detecting supply voltage variations thereto comprising,
 - (a) binary means for indicating the circuit to be in a first or second state,
 - (b) means associated with said binary means for causing said binary means to assume a first of said first or second states upon application of a source of power to said circuit,
 - (c) means coupled to said binary means for forcing said binary means to the second of said first or second states, and
 - (d) further means coupled to said binary means and to said source of power for causing said binary means to reassume

said first state in the event of reduction of voltage from said source of power to said circuit.

4,366,561

METHOD AND APPARATUS FOR TESTING A PLURALITY OF GEOPHONES

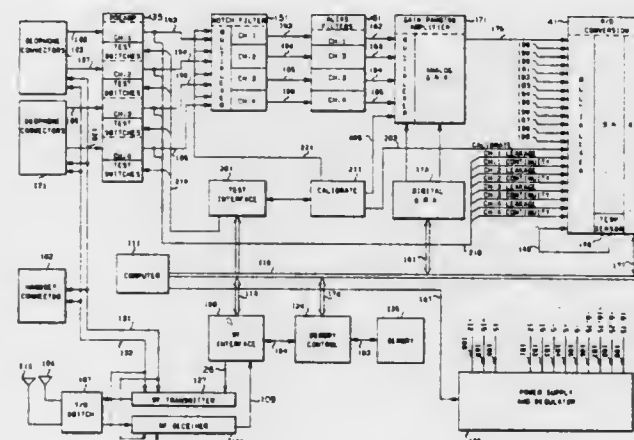
Fred T. Klein, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Oct. 30, 1978, Ser. No. 955,841

Int. Cl.³ G01V 1/22

U.S. Cl. 367-77

6 Claims



1. A seismic system for geophysical exploration comprising:
 - a plurality of remote geophone monitoring means, each of said remote geophone monitoring means being adapted to receive electrical signals from at least one geophone means; and
 - a central control means for generating electrical signals for initiating the operation of said plurality of remote geophone monitoring means;
 said central control means comprising:
 - means for generating a test command representative of a command to perform a geophone test;
 - means for transmitting said test command to at least one of said plurality of remote geophone monitoring means; and
 - means for receiving test data from at least one of said plurality of remote geophone monitoring means, said test data providing information as to the operational status of at least one geophone means;
 each of said plurality of remote geophone monitoring means comprising:
 - means for receiving said test command from said central control means;
 - means for supplying a reference voltage;
 - a first switching means;
 - means for closing said first switching means in response to said test command to thereby supply said reference voltage through said first switching means to said geophone means;
 - means for measuring any voltage present between said geophone means and ground, the difference between said reference voltage and any voltage present between said geophone means and ground being representative of the leakage resistance between said geophone means and ground; and
 - means for transmitting the leakage resistance between said geophone means and ground as said test data to said central control means.

4,366,562

RODENT REPELLING DEVICE

John J. McGinty, 37294 Camp Creek Rd., Springfield, Oreg. 97477

Filed Feb. 23, 1981, Ser. No. 236,683

Int. Cl.³ H04B 1/02

U.S. Cl. 367-139

4 Claims



1. A rodent deterring device for generating constant sonic waves over a period of several hours, said device/comprising,
 - a rod for inserted ground engagement,
 - a base including a cup-shaped member thereon,
 - a motor assembly including a motor housing loosely confined within said cup-shaped member, a motor in circuit with a power source/and having an output shaft, eccentric means on said shaft imparting erratic motion to the motor housing during motor operation, and
 - said motor housing forcefully contacting the cup-shaped member during motor operation to impart vibratory motion to the rod for generating sound waves in the ground.

4,366,563

VIDEO DISC STYLUS SUSPENSION APPARATUS

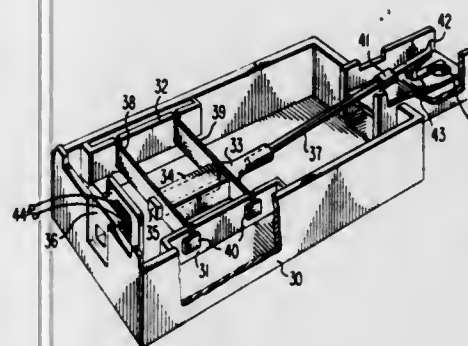
George H. N. Riddle, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Feb. 27, 1981, Ser. No. 238,983

Int. Cl.³ G11B 11/00, 3/10

U.S. Cl. 369-43

13 Claims



1. In a video disc playback apparatus of the type having a base for rotatably supporting a disc record from which recorded information is recovered by a track following signal pickup stylus when relative velocity is established therebetween, said relative velocity being subject to undesirable variations, the combination comprising:

a carriage mechanism for supporting and translating said signal pickup stylus radially across the disc record;
 a longitudinal stylus arm having said signal pickup stylus secured to a first end thereof and having a second end;
 a permanent magnet;
 a stylus arm suspension means having a first cavity for receiving and compliantly securing said second end of the longitudinal stylus arm thereto, having a second cavity for receiving said permanent magnet in a prescribed orientation relative to said stylus arm and having at least one elastic ribbon-like extension arranged substantially normal to the axis of said first cavity on each of opposite sides of said axis;
 means for securing said elastic ribbons in said carriage assembly so that said ribbons are in a prescribed condition of elastic tensile stress and arranged so the stylus will engage the disc record, said ribbons permitting limited motion of the stylus arm along its longitudinal axis;
 an electromagnetic coil having signal input terminals;
 means for securing said electromagnetic coil in the carriage mechanism aligned with the permanent magnet in a manner to produce forces on the permanent magnet directed along the longitudinal axis of the stylus arm when velocity correction signals are applied to said signal input terminals.

4,366,564

APPARATUS FOR WRITING DIGITAL INFORMATION IN A DISC-SHAPED OPTICALLY READABLE RECORD CARRIER

Maarten R. de Haan, and Marino G. Carasso, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

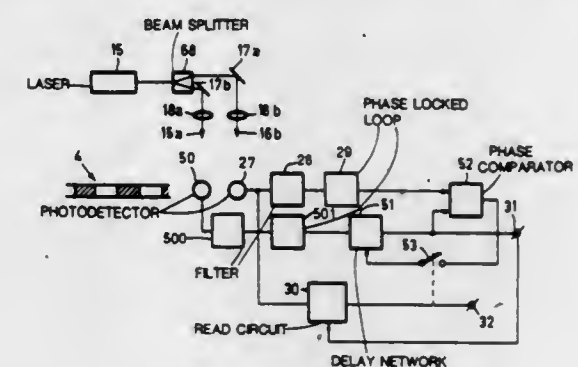
Filed Mar. 5, 1980, Ser. No. 127,349

Claims priority, application Netherlands, Jan. 9, 1980, 8000123

Int. Cl.³ G11B 7/00; H04N 5/76

U.S. Cl. 369-48

3 Claims



1. An apparatus for writing information in an optically detectable form on a recording medium having a substrate provided with a radiation-sensitive information layer and with information areas arranged in a spiral or circular track pattern and alternating with synchronization areas, said synchronization areas each containing an optically detectable address of an associated information area, said synchronization and information areas having an optically detectable periodic track modulation which is representative of a clock signal and which is of a frequency at which the power spectrum of the information to be recorded is at a substantially zero value, said apparatus comprising a light source, first means for directing a first light beam onto said information areas, means responsive to the clock signal for modulating said first light beam in order to record digitally coded information of fixed bit frequency in said information areas, first means for detecting radiation of said first beam which is reflected or transmitted by said medium, to produce a first electrical signal representative of the information recorded in said synchronization areas and of said clock signal, first means for extracting said clock signal from said first signal, second means for projecting a second light

beam onto said track pattern behind said first light beam, second means for detecting radiation of said second beam which is reflected from or transmitted by said recording medium to produce a second electrical signal representative of the information read by said second beam, second means for extracting said clock signal from said second signal, means for comparing the phase of said clock signals extracted from said first and second signals, respectively, to produce a control signal indicative of the phase difference therebetween, adjustable delay means responsive to said control signal for delaying the clock signal extracted by said second extracting means by an amount such that the clock signal extracted thereby is in phase with the clock signal extracted by said first extracting means when said first beam scans said synchronization areas and means for applying said clock signal to said modulating means.

4,366,565

LOCAL AREA NETWORK OPTICAL FIBER DATA COMMUNICATION

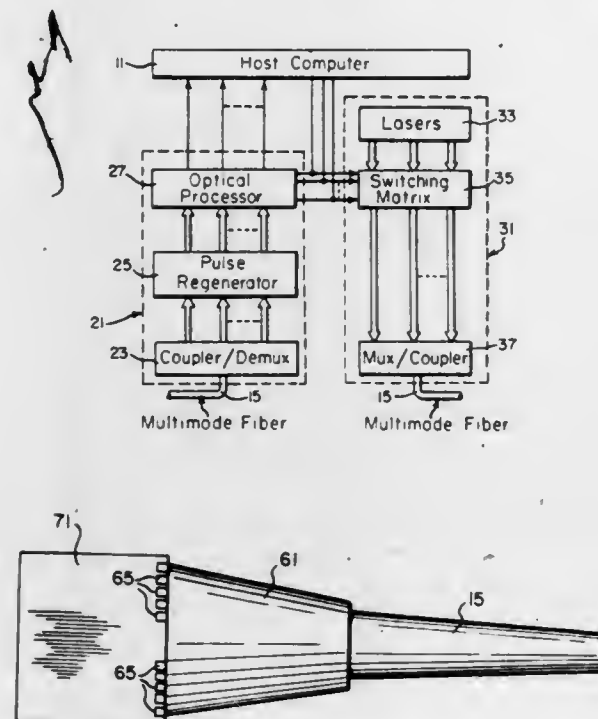
Gerald J. Herskowitz, 7 Clover St., Tenafly, N.J. 07670

Filed Jul. 29, 1980, Ser. No. 173,654

Int. Cl.³ H04J 15/00; H04B 9/00

U.S. Cl. 370—1

18 Claims



1. An optical data communication system comprising a plurality of stations linked together by a multimode optical waveguide to form an optical signal, each of said stations comprising:

- an array of lasers,
 - a switching matrix for controlling the propagation of radiation from said lasers into said optical waveguide,
 - a multiplexer/coupler for coupling radiation from said lasers to said waveguide, radiation from different lasers being coupled to different angular modes of propagation in said waveguide,
 - a coupler/demultiplexer for demultiplexing radiation received at said station from said waveguide,
 - an optical pulse regenerator coupled to said coupler/demultiplexer, said pulse regenerator having a threshold level above which the optical signal is optically amplified and reshaped and below which the signal is suppressed, and
 - an optical processor to which is applied the optical signal from the pulse regenerator, said optical processor including optical logic circuits for detecting the address of data packets contained in signals transmitted along said optical waveguide and for routing said signals either to a host computer at said station or to said switching matrix.
4. An optical multiplexer/coupler for coupling single mode

optical signals to a multimode optical waveguide said multiplexer/coupler comprising:

- a planar lens having a first major surface which abuts the end of said multimode optical waveguide, said planar lens having an index of refraction which decreases with the square of the radial distance from the optical axis of said waveguide, and
- a plurality of optical waveguides contacting a second major surface of said planar lens at different radial distances from said optical axis.

4,366,566

SYSTEM FOR INTERCONNECTING SUBSCRIBER LINES TO AN AUTOMATIC DIGITAL TELEPHONE SWITCHING SYSTEM

Jean-Yves Cochenec, Rue de Kervenez, 22560 Trebeurden, France

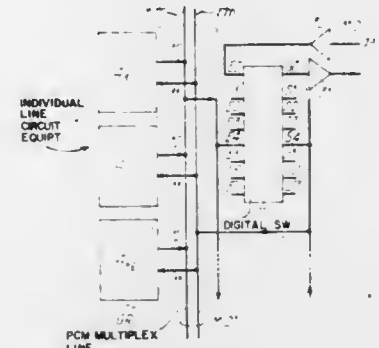
Filed Dec. 4, 1979, Ser. No. 100,008

Claims priority, application France, Aug. 12, 1978, 78 35483

Int. Cl.³ H04Q 11/00

U.S. Cl. 370—53

5 Claims



1. A system for cross connecting individual subscriber line circuits to their assigned positions in a digital switching system, said digital switching system comprising a plurality time division multiplex switches interconnected by incoming and outgoing time division highways, said switches being connected in multiple to said highways, each of said subscriber line circuits comprising means individually associated with each of said subscriber lines for performing interfacing functions, two-to-four wire differential coupling means having its four wire side coupled to analog-to-digital and digital-to-analog converter means, a digital output on said converter means being connected to an outgoing highway means, a digital input on said converter means being connected to an incoming highway, means for allocating to each of said line circuit means one incoming and one outgoing channel on said incoming and outgoing highways, and digital switch means for programming interconnections between said incoming and outgoing channels.

4,366,567

SEMICONDUCTOR LASER DEVICE

Tadashi Fukuzawa, Tokyo; Michiharu Nakamura, and Susumu Takahashi, both of Hinodemachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 5, 1980, Ser. No. 204,231

Claims priority, application Japan, Nov. 14, 1979, 54/146578

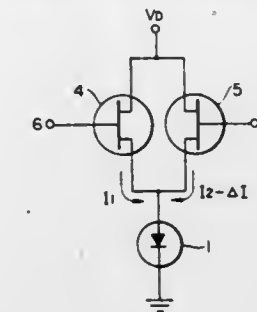
Int. Cl.³ H01S 3/19

U.S. Cl. 372—38

11 Claims

- 1. An integrated semiconductor laser device comprising:
 - (a) a layered semiconducting region comprising stacked semiconductor layers forming an optical confinement region which is capable of laser operation;
 - (b) means for injecting current into said optical confinement region;
 - (c) first switching means for supplying said means for injecting with a bias current having a value near a threshold current value for laser operation; and

(d) second switching means for supplying a current to said means for injecting, to be superimposed on said bias current



rent supplied by said first switching means, including an external input for controlling the amount of current fed by said second switching means.

4,366,568

SEMICONDUCTOR LASER

Hirokazu Shimizu, Toyonaka; Kunio Itoh, Uji; Takashi Sugino, and Masaru Wada, both of Takatsuki, all of Japan, assignors to Matsushita Electric Industrial Co. Ltd., Kadoma, Japan

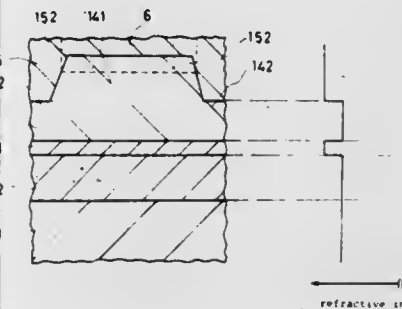
Filed Dec. 18, 1980, Ser. No. 217,652

Claims priority, application Japan, Dec. 20, 1979, 54-166508; May 19, 1980, 55-66774

Int. Cl.³ H01S 3/19

U.S. Cl. 372—45

7 Claims



- 1. In a semiconductor laser, a structure comprising a semiconductor substrate and a set of epitaxial layers formed on said semiconductor substrate, wherein said set of epitaxial layers includes a first layer formed on said substrate, an active layer formed on said first layer, a second layer, which is formed on said active layer and has a stripe-shaped thicker part and thinner parts on both sides of said thicker part, and a third layer formed on said second layer and having a stripe-shaped region of the same conductivity type as that of said second layer only at the part contacting said thicker part, and having other regions of the opposite conductivity type to that of said second layer at the parts contacting said thinner part.

4,366,569

SEMICONDUCTOR LASER DEVICE INCLUDING AN ARRANGEMENT FOR PREVENTING LASER DEGRADATION CAUSED BY EXCESSIVE CURRENT FLOW

Motohisa Hirao, Tokyo; Michiharu Nakamura, Hinodemachi; Atsutoshi Doi, Ohme; Shinji Tsuji, Kokubunji; Yutaka Takeda, Ohme, and Takao Mori, Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 26, 1980, Ser. No. 191,293

Claims priority, application Japan, Sep. 28, 1979, 54-124118

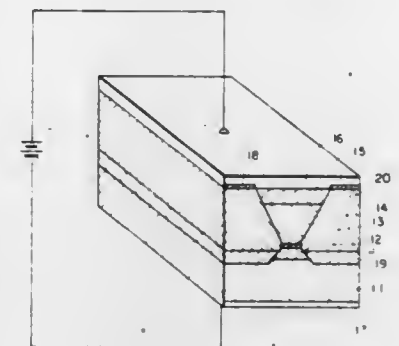
Int. Cl.³ H01S 3/19

U.S. Cl. 372—46

5 Claims

- 1. In a semiconductor laser device including at least an active region comprised of a semiconductor material and a

semiconductor region comprised of a material having a different composition from that of said active region and confining said active region, said semiconductor laser device characterized in that at least one p-n junction is formed inside said confining region in parallel to said active region, wherein the



impurity concentration of said region having said p-n junction is set to permit at least a portion of a current flowing to said active region to flow through regions other than said active region via said p-n junction when said current reaches a predetermined level which is less than a level at which said current flow causes degradation of said semiconductor laser device.

4,366,570

SERIES INVERTER FOR CAPACITOR CHARGING

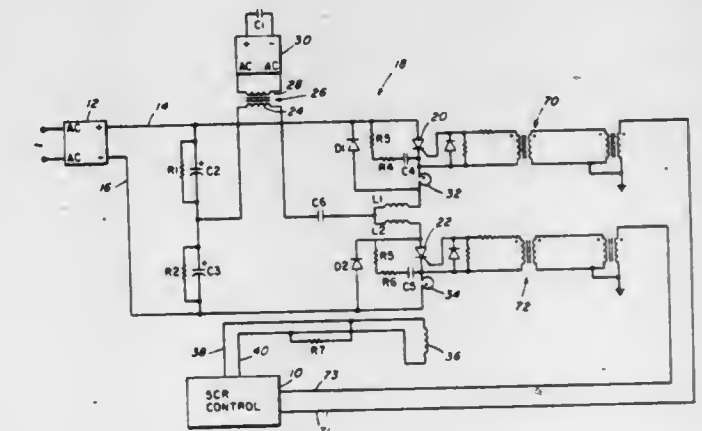
George L. Bees, Natick, Mass., assignor to Candela Corporation, Natick, Mass.

Filed Nov. 13, 1980, Ser. No. 206,389

Int. Cl.³ H02M 7/515

U.S. Cl. 372—70

14 Claims



1. A laser firing circuit having a series inverter, high voltage capacitor charging circuit comprising electronic switches connected in a push pull configuration between a dc supply and a reactance load characterized by:

- means for sensing an electrical parameter of each electronic switch circuit the timing of which provides a direct indication of the resonant frequency of the circuit and of the timing of current flow through the electronic switches;
- gate control means responsive to the sensed electrical parameters for gating each electronic switch only after the other has settled to a stable off condition and for varying the gating frequency to closely follow the resonant frequency of the charging circuit as that frequency varies with the charge on the capacitor; and
- means for disabling the gate control means when the charged capacitor voltage reaches a predetermined level.

4,366,571

ELECTRIC FURNACE CONSTRUCTION

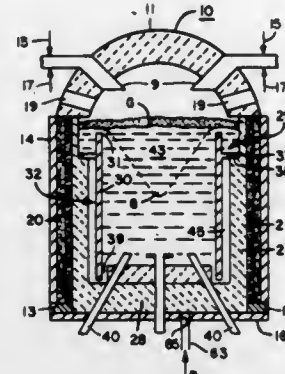
Ronald W. Palmquist, Horseheads, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Mar. 16, 1981, Ser. No. 243,811

Int. Cl.³ C03B 5/027

U.S. Cl. 373—30

96 Claims



1. A furnace for melting thermoplastic material comprising: a vessel having a bottom wall and a first upstanding peripheral sidewall, liner means concentrically disposed within said vessel having an upstanding sidewall, spaced apart from said first sidewall and extending continuously from a lower portion to near an upper portion of said first sidewall for containing convection flow of said thermoplastic material therewithin and for protecting said vessel from excessive corrosion by the molten thermoplastic material, and peripherally located means partly associated with at least one of said vessel and said liner means for providing a relatively cool peripheral zone wherein the temperature of the thermoplastic material within said zone is sufficiently low so that movement thereof is minimized and corrosion of the vessel is thereby inhibited.

4,366,572

DATA TRANSMISSION SYSTEM

Toshiharu Takatsuki, Tokyo; Ken-ichi Fujiwara, Amagasaki; Sinobu Yanagisawa, Amagasaki, and Shigeru Okamura, Amagasaki, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha and Nippon Telegraph & Telephone Public Corporation, both of Tokyo, Japan

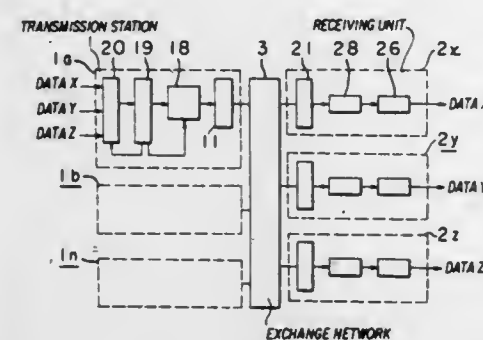
Continuation-in-part of Ser. No. 85,640, Oct. 17, 1979. This application Dec. 8, 1980, Ser. No. 214,282

Claims priority, application Japan, Oct. 20, 1978, 53-129080

Int. Cl.³ H04B 1/04

U.S. Cl. 375—37

5 Claims



1. In a data transmission system having a transmission station for modulating plural kinds of input data and for transmitting the modulated data; and a receiving station for receiving each kind of data transmitted from said transmission station, the improvement comprises:

said transmission system having an encoder for responding to a demand from said receiving station to provide said input data in a pulse series code, and a modulator for modulating the output of said encoder, in which each modulation central frequency corresponds to a respective kind of the data and wherein said modulation central

frequency is switched depending upon the kind of the data; and, said receiving station having a demodulator in which only one of the modulation central frequencies is used as the demodulation central frequency.

4,366,573

METHOD FOR SYNCHRONIZING CODE MACHINES WHICH ARE OPERATED WITHIN THE FRAMEWORK OF A BLOCK TRANSMISSION NETWORK

Walter Rauch, Neuried, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

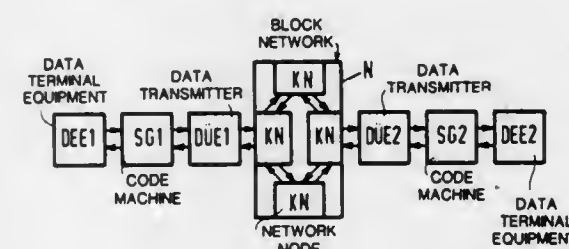
Filed Aug. 22, 1980, Ser. No. 180,328

Claims priority, application Fed. Rep. of Germany, Sep. 27, 1979, 2939159

Int. Cl.³ H04L 7/00

U.S. Cl. 375—106

4 Claims



1. In a method of synchronizing first and second code machines which are operated in a packet switching network, in which a set up block is transmitted to set up a connection between a first data terminal equipment and a second data terminal equipment, a connection confirmation block is transmitted between the second data terminal equipment and the first data terminal equipment, and then the data terminal equipments then transmit data blocks to one another, the improvement therein comprising the steps of:

storing the connection confirmation block in the first code machine of the first data terminal equipment; after receiving the connection confirmation block, transmitting a code machine synchronization block from one code machine to the other to synchronize code computers in the code machines; and after synchronization of the code computers, relaying the connection confirmation block to the first data terminal equipment.

4,366,574

SHADOWGRAPHIC SLIT SCANNER WITH VIDEO DISPLAY

Edwin R. Hill, Chardon, Ohio, assignor to Technicare Corporation, Solon, Ohio

Filed Oct. 31, 1980, Ser. No. 202,504

Int. Cl.³ G03B 41/16

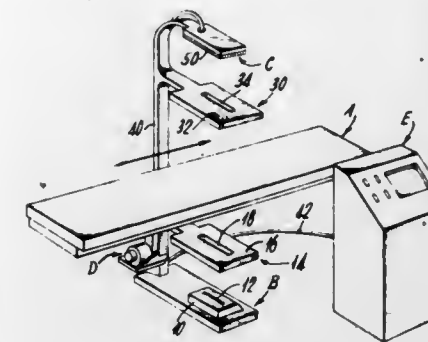
U.S. Cl. 378—99

9 Claims

7. A method of forming a representation of a shadowgraphic image comprising:

(a) irradiating an object with a beam of penetrating radiation that traverses the object; (b) detecting the intensity of the beam of radiation which has traversed the object with a plurality of columns of detectors, each detector producing an output signal that is proportional to the intensity of the detected radiation; (c) storing the output signals from each column of detectors in each of a plurality of columns or groups of storage units; (d) causing an incremental amount of relative movement between the object and the plurality of columns; and (e) during the irradiation, repeating steps (b), (c), and (d), the respective columns or groups of storage units during each

repetition storing output signals from a column of detectors other than the column of detectors the output signals



of which had been stored prior to the previous incremental amount of relative movement.

4,366,575

METHOD AND APPARATUS FOR CONTROLLING X-RAY TUBE EMISSIONS

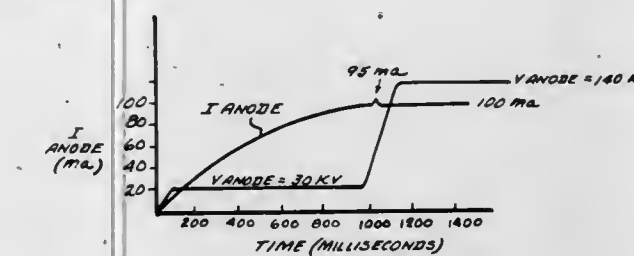
Ronald F. Bax, Columbia, Md., assignor to Pfizer Inc., New York, N.Y.

Continuation of Ser. No. 75,187, Sep. 13, 1979, abandoned. This application Sep. 25, 1981, Ser. No. 305,842

Int. Cl.³ A61B 6/00; H05G 1/26

U.S. Cl. 378—110

19 Claims



19. A method for stabilizing x-ray flux from an x-ray tube, said method comprising the steps of: initially establishing a relatively low voltage stabilized operating point for said x-ray tube with a controlled current approximately equal to the final desired full operating current level and never substantially in excess of the final desired full operating current level, and thereafter raising the x-ray tube stabilized operating point to its desired full operating voltage and current levels.

4,366,576

PENETRATING RADIANT ENERGY IMAGING SYSTEM WITH MULTIPLE RESOLUTION

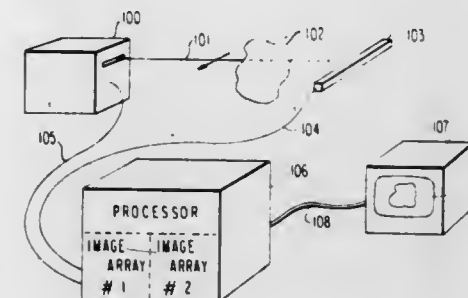
Martin Annis, Cambridge, Mass., assignor to American Science and Engineering, Inc., Cambridge, Mass.

Filed Nov. 17, 1980, Ser. No. 207,483

Int. Cl.³ G03B 41/16

U.S. Cl. 378—146

8 Claims



1. A penetrating radiant energy imaging system comprising: a source of penetrating radiant energy, sweeping means for forming a pencil beam of penetrating radiant energy for repeatedly sweeping said pencil beam

across a detector field; beam cross-section control means to control the cross-section of said pencil beam between at least a first smaller cross-section and a second larger cross-section, in a fixed pattern, as said beam illuminates an object,

detector means located at the detector field for generating signals related to the intensity of said beam impinging on said detector means,

processor means responsive to said signals from said detector means for separately identifying sets of signals produced by beams of different cross-section and for developing from said signals an image array corresponding to each of said pencil beams of different cross-section, whereby an image array is developed for each pencil beam cross-section, and

display means for developing an image in response to said processor means.

4,366,577

COMPUTED TOMOGRAPHY SYSTEM CABLE RETRACTOR

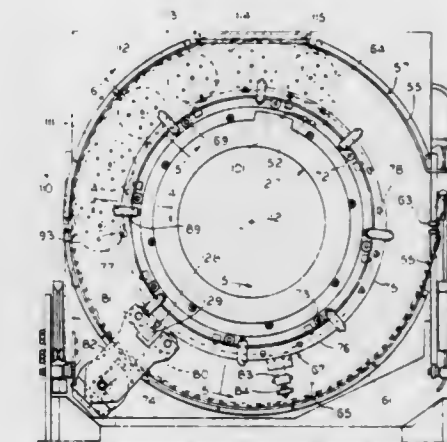
Richard T. Brandt, New Berlin, Wis., assignor to General Electric Company, Schenectady, N.Y.

Filed Jul. 13, 1981, Ser. No. 282,897

Int. Cl.³ H05G 1/02; A61B 6/00

U.S. Cl. 378—194

6 Claims



1. X-ray apparatus having improved means for guiding cables running between stationary parts and electrical devices on rotating parts, comprising:

support means,

a base having an opening and being mounted on the support means for rotation about a nominally horizontal axis extending through the opening,

said electrical devices including X-ray source means mounted to the base on one side of said axis and X-ray detector means mounted to the base on the other side of said axis for jointly rotating about a space for being occupied by an X-ray examination subject,

inner axially extending drum means fastened to said base for rotation therewith and having a radially outwardly presented peripheral surface concentric to and radially spaced from said axis, said drum means having an opening for cables to pass through,

outer axially extending fixedly mounted drum means having a radially inwardly presented peripheral surface radially spaced from and concentric to said surface on said inner drum means to define a circular channel therewith, said second drum means having an opening for cables to pass through,

a group of cables and means fastening said group near said opening in the fixedly mounted outer drum means and near said opening in the rotatable inner drum means, said cables in the group having sufficient length to form a loop

that moves angularly in said channel when said inner drum is being rotated,
 disk means presented toward said channel and means mounting said disk means for rotation independently of said inner drum means,
 a plurality of pulleys mounted to said disk means for rotation about parallel axes extending into said channel, the pulleys being angularly spaced and one of the pulleys being disposed in said cable loop and other of the pulleys being disposed between portions of the cable extending away from the loop,
 means for driving said base and said inner drum thereon rotationally and means for simultaneously driving said disk means rotationally for the angular motion of the disk to be the required fraction of the angular motion of the inner drum that results in said pulleys having an angular motion corresponding to the angular motion of the loop in the cables.

4,366,578

TRANSMIT/RECEIVE MODE PROTECTION ARRANGEMENT

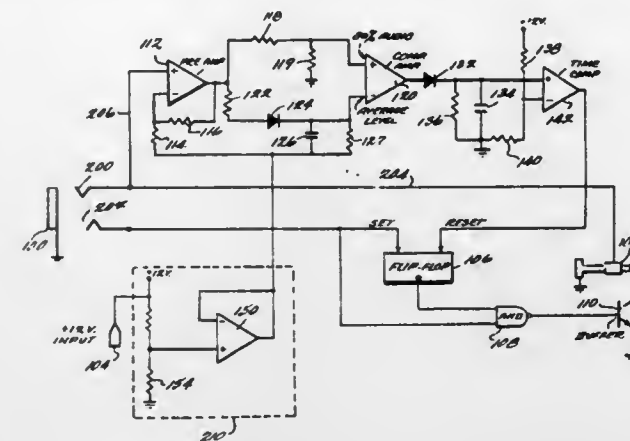
George B. Foster, and David E. Harris, both of Columbus, Ohio,
 assignors to Foster Airdata Systems Inc., Columbus, Ohio
 Filed Feb. 19, 1981, Ser. No. 235,990
 Int. Cl.³ H04B 1/46

U.S. Cl. 455—79

7 Claims

1. An apparatus for controlling the transmit/receive operation of a communications station having a microphone element for generating a modulating signal during transmission by said communications station and a transmit/receive mode switch for selecting transmit or receive mode operation, comprising:
 first means for activating transmit mode operation of said

communications station in response to the actuation of said transmit/receive mode switch to a transmit position thereof;
 second means for establishing an average background signal level from audio signals derived from said microphone element;
 third means connected to said first and second means, said



third means including means for (a) comparing an existing level of audio signal from said microphone element with the average background signal level established by said second means and (b) causing said first means of the communications station to operate in the receive mode even with the transmit/receive mode switch in the transmit position upon detecting a predetermined result of said comparison for a predetermined time interval.

DESIGN PATENTS

GRANTED DEC. 28, 1982

ERRATA

For CLASS	See PATENT NO.
D04-038	267,367
D04-038	267,368

DESIGNS

DECEMBER 28, 1982

267,362

PASTRY SHELL

Jean-Jacques P. R. Dupas, and Philippe D. R. Dupas, both of 3
Allee Charles Deloncle, 94300 Vincennes, France
Filed Sep. 10, 1980, Ser. No. 185,999
Claims priority, application France, Mar. 20, 1980, 80 0896
Term of patent 14 years
Int. Cl. D1-01

U.S. Cl. D1-2

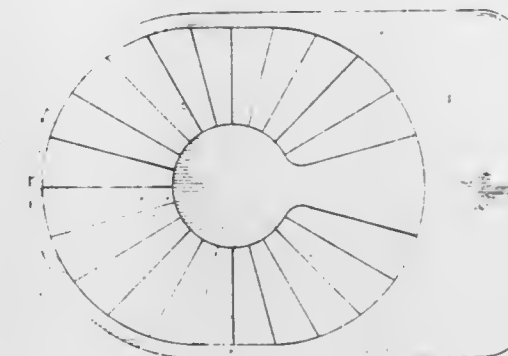


267,364

VISORED HAT

Rudy De Lozada, 84 Skyline Dr., Daly City, Calif. 94118
Filed Mar. 10, 1980, Ser. No. 128,605
Term of patent 14 years
Int. Cl. D2-03

U.S. Cl. D2-247



267,365

GALOSH

Nancy J. Hansen, 3321 Solitude Pl., Fort Wayne, Ind. 46802
Filed Sep. 10, 1980, Ser. No. 185,790
Term of patent 14 years
Int. Cl. D2-04

U.S. Cl. D2-275



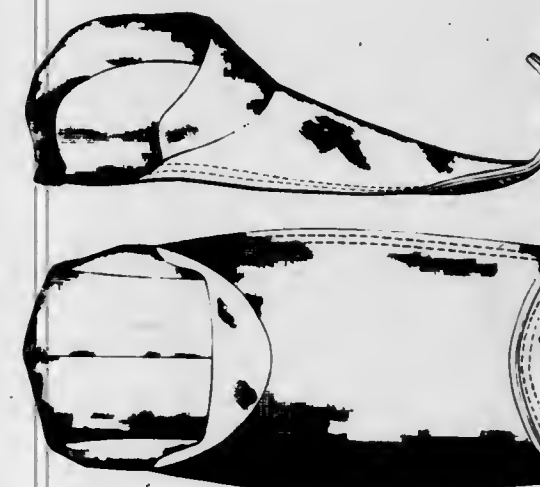
267,363

WEARING APPAREL CAP

Karen A. Wilson, c/o P.D.A., 85 Pike Pl., Apt. 223, Seattle,
Wash. 98101; Paul D. Huber, 240 SW. Francis, Issaquah,
Wash. 98027, and Leone C. Ewoldt, 1005 N. 36th St., Seattle,
Wash. 98103

Filed Sep. 29, 1980, Ser. No. 191,861
Term of patent 14 years
Int. Cl. D2-03

U.S. Cl. D2-244

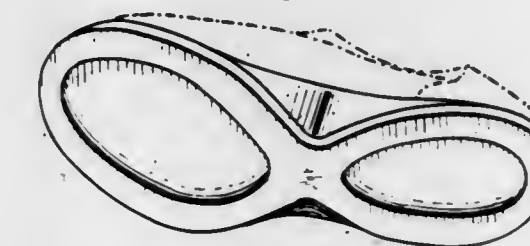


267,366

SHOE SOLE

Howard Davis, 45 W. 132nd St., New York, N.Y. 10037
Filed Aug. 27, 1980, Ser. No. 181,797
Term of patent 14 years
Int. Cl. D2-04

U.S. Cl. D2-320



267,367
PAINT ROLLER

Kiyoshi Hori, Osaka, Japan, assignor to Nippon Paint Co., Ltd.,
Osaka, Japan
Filed Jun. 19, 1981, Ser. No. 275,224
Claims priority, application Japan, Dec. 19, 1980, 55-53451
Term of patent 14 years
Int. Cl. D4-04; D8-05

U.S. Cl. D4-38.1



267,368
PAINT ROLLER

Kiyoshi Hori, Osaka, Japan, assignor to Nippon Paint Co., Ltd.,
Osaka, Japan
Filed Jun. 19, 1981, Ser. No. 275,226
Claims priority, application Japan, Dec. 19, 1980, 55-53453
Term of patent 14 years
Int. Cl. D4-04; D8-05

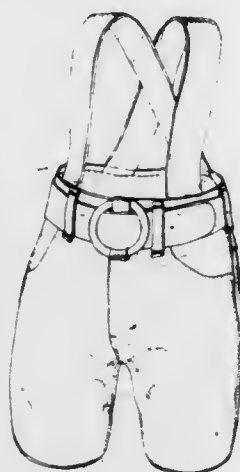
U.S. Cl. D4-38.1



267,369
HANDBAG

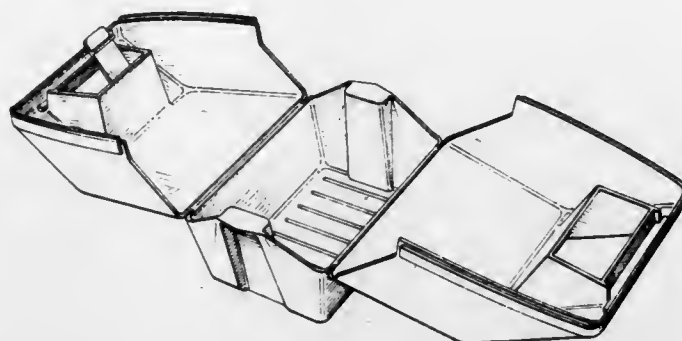
Wanda D. Blanchard, Lot 162, 10759 E. Admiral Pl., Tulsa,
Okla. 74116
Filed Jun. 3, 1980, Ser. No. 156,168
Term of patent 14 years
Int. Cl. D3-01

U.S. Cl. D3-44



267,370
CONTAINER FOR FILING CARDS AND THE LIKE
Merlin Cline, Etobicoke, Canada, assignor to Madison Market-
ing Limited, Toronto, Canada
Filed Jun. 17, 1980, Ser. No. 160,242
Term of patent 14 years
Int. Cl. D3-02

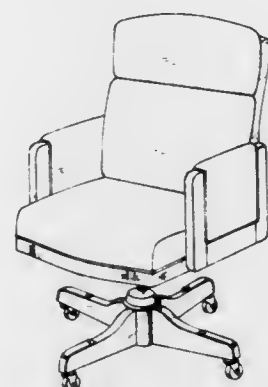
U.S. Cl. D3-73



267,371
SWIVEL CHAIR

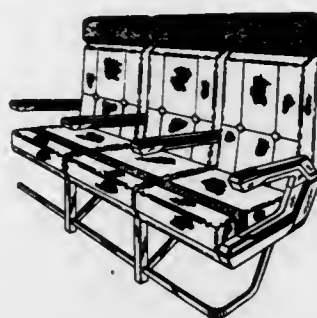
Carlos L. Lopez-Benitez, Jamestown, N.C., assignor to The
Boling Company, Siler City, N.C.
Filed Jun. 2, 1980, Ser. No. 155,852
Term of patent 14 years
Int. Cl. D6-01

U.S. Cl. D6-31



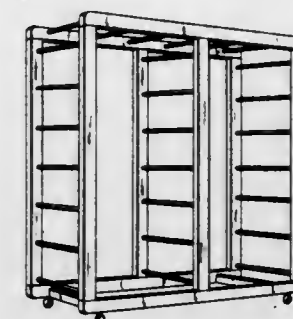
267,372
MULTI-PASSENGER AIRCRAFT SEAT
William A. Long, Harwinton; Ward E. Fischer, Torrington, and
Rene J. Brunelle, Wolcott, all of Conn., assignors to UOP
Inc., Des Plaines, Ill.
Filed Mar. 31, 1980, Ser. No. 135,846
Term of patent 14 years
Int. Cl. D6-01

U.S. Cl. D6-48



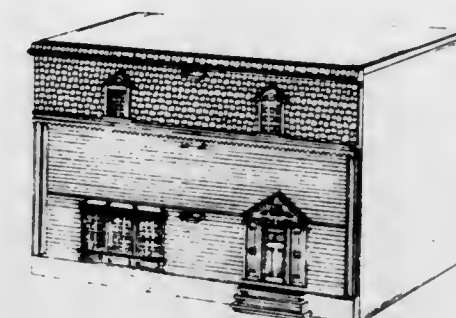
267,373
DISPLAY RACK FOR CLOTHING AND ACCESSORIES
Irene A. Behrens, 3151 Belden Dr., Hollywood, Calif. 90068
Filed Jun. 30, 1980, Ser. No. 164,911
Term of patent 14 years
Int. Cl. D06-06

U.S. Cl. D6-85



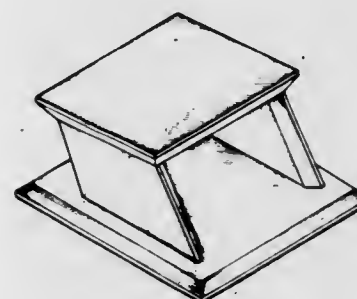
267,376
DRESSER OR SIMILAR ARTICLE
Sidney A. Lenger, Jr., Jamestown, N.C., assignor to The Singer
Company, Stamford, Conn.
Filed Sep. 12, 1980, Ser. No. 186,812
Term of patent 14 years
Int. Cl. D06-04

U.S. Cl. D6-154



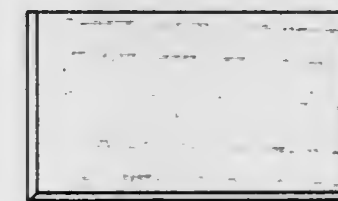
267,374
SPEAKER STAND OR SIMILAR ARTICLE
Theodore R. Karson, 6624 W. Irving Park Rd., Chicago, Ill.
60634
Filed Jul. 16, 1980, Ser. No. 169,498
Term of patent 14 years
Int. Cl. D06-06

U.S. Cl. D6-85



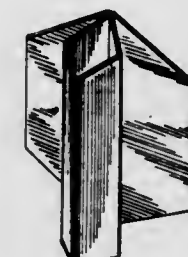
267,377
CHEST OF DRAWERS OR SIMILAR ARTICLE
Henry W. Mower, Stevens Point, Wis.; Allen Seymour, Clayton,
Ohio; Jerome P. Koziatsek, Hinckley, Ohio, and Joseph G.
Lendvay, Ravenna, Ohio, assignors to Questor Corporation,
Toledo, Ohio
Filed Oct. 16, 1980, Ser. No. 197,486
Term of patent 14 years
Int. Cl. D06-04

U.S. Cl. D6-154



267,375
HOLDER
Richard J. Lionetti, 128 Perry Ave., Norwalk, Conn. 06850
Filed Jun. 4, 1980, Ser. No. 156,325
Term of patent 14 years
Int. Cl. D6-06; D11-02; D7-06; D19-06

U.S. Cl. D6-130



267,378

CHEST OR SIMILAR ARTICLE

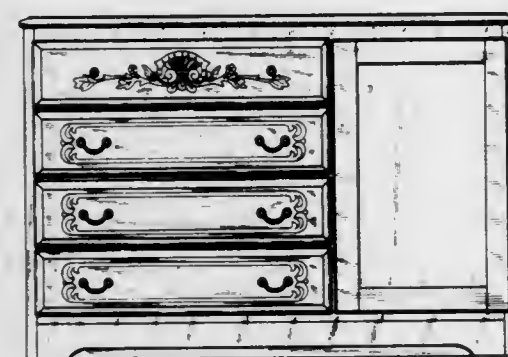
Henry W. Mower, Stevens Point, Wis.; Allen Seymour, Clayton, Ohio; Jerome P. Koziatsek, Hinckley, Ohio, and Joseph G. Lendvay, Ravenna, Ohio, assignors to Questor Corporation, Toledo, Ohio

Filed Oct. 16, 1980, Ser. No. 197,765

Term of patent 14 years

Int. Cl. D06-04

U.S. Cl. D6-154



267,380

TABLE

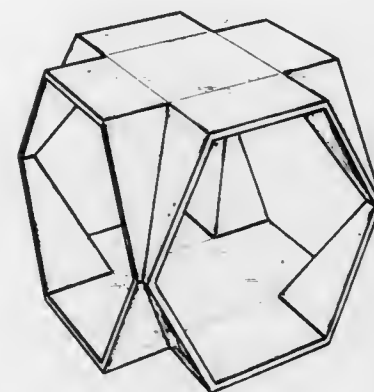
John W. Rozsnyai, 4272 Sheppard Dr., Las Vegas, Nev. 89121

Filed Apr. 22, 1980, Ser. No. 142,775

Term of patent 14 years

Int. Cl. D6-03

U.S. Cl. D6-179



267,379

COSMETIC DISPLAY UNIT

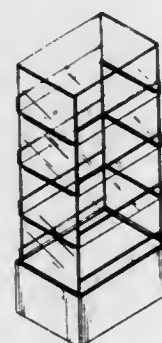
Russell K. Winter, Crownsville, Md., assignor to Russell William, Ltd., Columbia, Md.

Filed Nov. 21, 1980, Ser. No. 209,046

Term of patent 14 years

Int. Cl. D06-06

U.S. Cl. D6-175



267,381

INDUSTRIAL WORK TABLE

Charles P. Miller, 41 Richards Ave., North Attleboro, Mass.

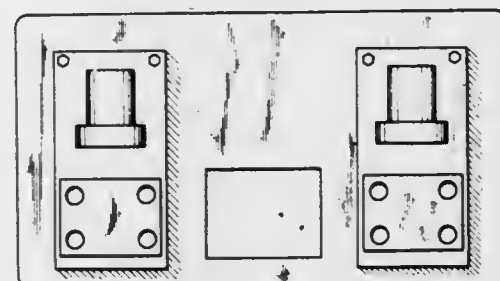
02760

Filed Nov. 3, 1980, Ser. No. 203,000

Term of patent 14 years

Int. Cl. D6-03

U.S. Cl. D6-179



267,382

COMBINED PACKAGE DISPLAY AND DISPENSING RACK

Wolff Heinrichsdorff, Hösel, Fed. Rep. of Germany, assignor to Nabisco Brands, Inc., New York, N.Y.

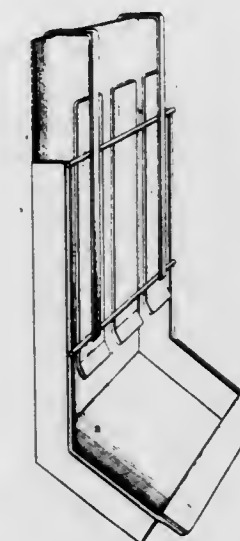
Filed Nov. 5, 1979, Ser. No. 91,669

The portion of the term of this patent subsequent to Apr. 20, 1996, has been disclaimed.

Term of patent 14 years

Int. Cl. D06-04

U.S. Cl. D6-181



267,384

CHAIR BASE

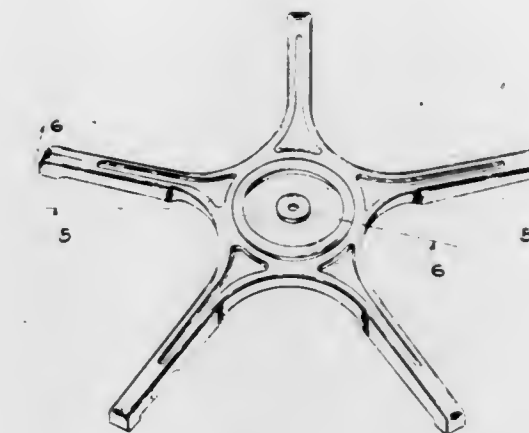
James K. Faull, Rte. #1, Box 156, Enon Valley, Pa. 16120

Filed Jan. 2, 1981, Ser. No. 222,519

Term of patent 14 years

Int. Cl. D6-06

U.S. Cl. D6-196



267,383

DISPLAY HOLDER FOR BROCHURES AND THE LIKE

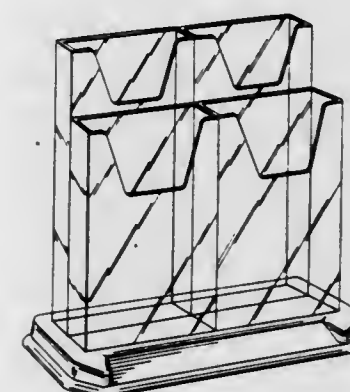
Richard M. Liptak, Parma Heights, and Robert S. Liptak, Brecksville, both of Ohio, assignors to Integral Design, Inc., Cleveland, Ohio

Filed Apr. 7, 1980, Ser. No. 137,767

Term of patent 14 years

Int. Cl. D20-02

U.S. Cl. D6-184



267,385

DOOR MAT OR SIMILAR ARTICLE

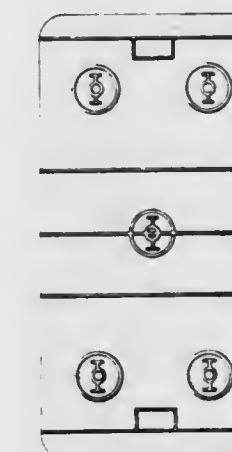
Victor T. Burt, 900 W. Georgia St., Vancouver, B.C. V6C 2W9, Canada

Filed Jul. 16, 1980, Ser. No. 169,271

Term of patent 14 years

Int. Cl. D6-11

U.S. Cl. D6-210

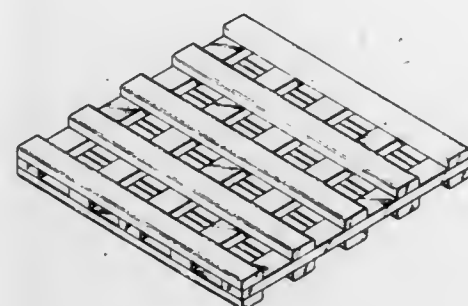


267,386
TRIVET

Edward H. Kneale, III, 335 Pleasant Pines Ave., Centerville, Mass. 02632, assignor to Edward H. Kneale, III, Hyannis, Mass.

Filed Feb. 5, 1981, Ser. No. 232,291
Term of patent 14 years
Int. Cl. D07-06

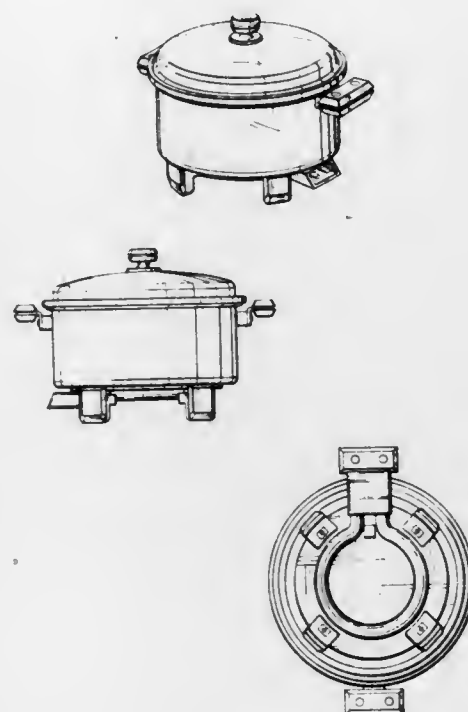
U.S. Cl. D7-45

267,388
MULTI-COOKER

Carl R. Spoeth, Jr., Kewaskum, and Russell D. Hiatt, West Bend, both of Wis., assignors to Dart Industries Inc., Northbrook, Ill.

Filed Dec. 15, 1980, Ser. No. 216,052
Term of patent 14 years
Int. Cl. D07-02

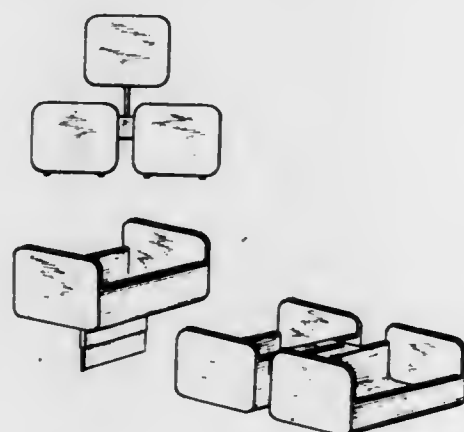
U.S. Cl. D7-360

267,387
PACKAGE CONDIMENT HOLDER

Mark Koch, Cincinnati, Ohio, assignor to Sweet 'N Natural Corp., New York, N.Y.

Filed Mar. 12, 1980, Ser. No. 129,621
Term of patent 14 years
Int. Cl. D07-99

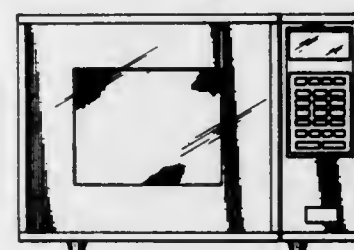
U.S. Cl. D7-52

267,389
MICROWAVE OVEN

Yoshio Suganoya, and Takao Miyake, both of Osaka, Japan, assignors to Sharp Kabushiki Kaisha (Sharp Corporation), Osaka, Japan

Filed Jan. 9, 1980, Ser. No. 110,642
Claims priority, application Japan, Jul. 26, 1979, 54-31582
Term of patent 14 years
Int. Cl. D7-02

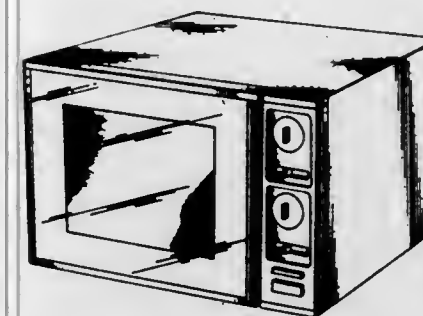
U.S. Cl. D7-351

267,390
MICROWAVE OVEN

Takao Miyake; Masayoshi Kawaishi, and Masafumi Numano, all of Osaka, Japan, assignors to Sharp Corporation, Osaka, Japan

Filed Jul. 21, 1980, Ser. No. 170,542
Claims priority, application Japan, Feb. 4, 1980, 55-3693
Term of patent 14 years
Int. Cl. D7-02

U.S. Cl. D7-351

267,393
CAN

Robert J. Gruodis, Oak Lawn; William T. Franz, Palos Park, and Edward J. Hayes, Elmhurst, all of Ill., assignors to The Continental Group, Inc., New York, N.Y.

Filed Dec. 8, 1980, Ser. No. 214,153
Term of patent 14 years
Int. Cl. D9-03

U.S. Cl. D9-370

267,391
PULL TAB OPENER

Daniel E. Kroeger, 511 Sycamore, Hayward, Calif. 94544, and Robert C. Anderson, 6215 Mantney Rd., French Camp, Calif. 95231

Filed Sep. 29, 1980, Ser. No. 191,554
Term of patent 14 years
Int. Cl. D07-99

U.S. Cl. D8-18

267,394
DISPLAY CONTAINER

Richard M. Liptak, Parma Heights, and Thomas P. Liptak, Independence, both of Ohio, assignors to Integral Design, Inc., Cleveland, Ohio

Filed Apr. 7, 1980, Ser. No. 137,562
Term of patent 14 years
Int. Cl. D9-03

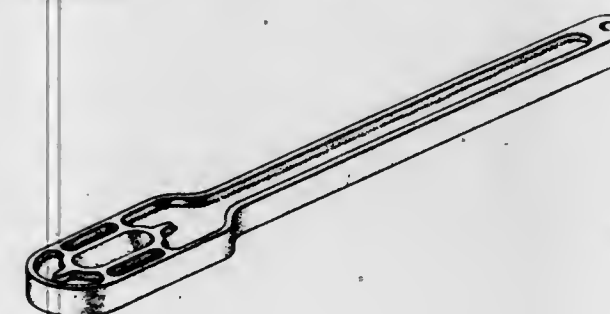
U.S. Cl. D9-415

267,392
GAS VALVE SHUTOFF WRENCH

Vernon M. Hildebrandt, 19102 Crossdale, Cerritos, Calif. 90701

Filed Dec. 8, 1980, Ser. No. 213,826
Term of patent 14 years
Int. Cl. D8-05

U.S. Cl. D8-28

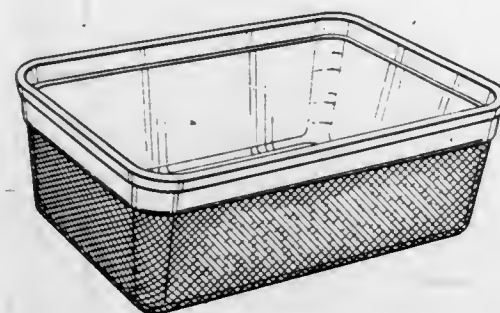


267,395
PACKAGING CONTAINER

Van D. Groenewold, 1143 W. Townley, Phoenix, Ariz. 85021; Hubert E. Christian, 4019 E. Fairmount, Phoenix, Ariz. 85018, and James P. Schwartz, 13435 N. Canterbury, Phoenix, Ariz. 85023

Filed Oct. 5, 1979, Ser. No. 82,380
Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—425



267,396
PACKAGING CONTAINER

Paul E. McDuffee, Sr., and Ronald J. McDuffee, both of Elgin, Ill., assignors to Pic-A-Pear Products Co., Elgin, Ill.

Filed Dec. 9, 1980, Ser. No. 214,483
Term of patent 14 years
Int. Cl. D9—01

U.S. Cl. D9—429



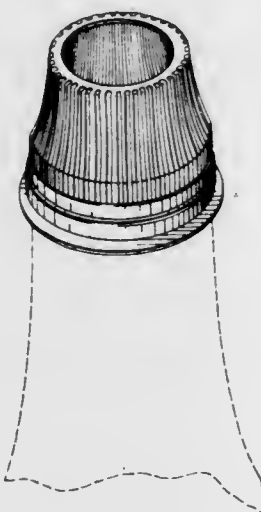
267,397

SANITARY SHIELD FOR A BOTTLE OR THE LIKE

Donald B. Mitchell, 515 W. Highland, Phoenix, Ariz. 85013

Filed Oct. 14, 1980, Ser. No. 196,185
Term of patent 14 years
Int. Cl. D9—07

U.S. Cl. D9—444

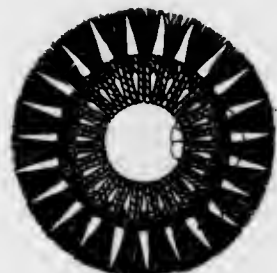


267,398
WREATH

Robert J. Wortock, 215 Meriburr La., Racine, Wis. 53402

Filed Feb. 7, 1980, Ser. No. 119,449
Term of patent 14 years
Int. Cl. D11—05

U.S. Cl. D11—120

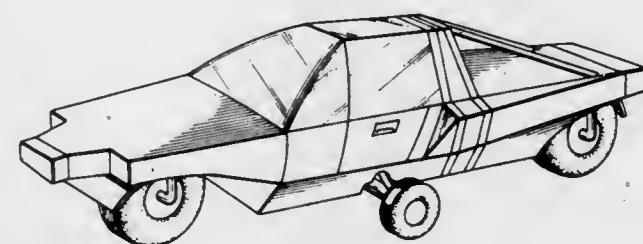


267,399
URBAN VEHICLE

Christopher R. Kuhns, and Anthony W. Kuhns, both of 132 Fremont Pl., Los Angeles, Calif. 90005

Filed Oct. 21, 1980, Ser. No. 199,319
Term of patent 14 years
Int. Cl. D12—08

U.S. Cl. D12—92

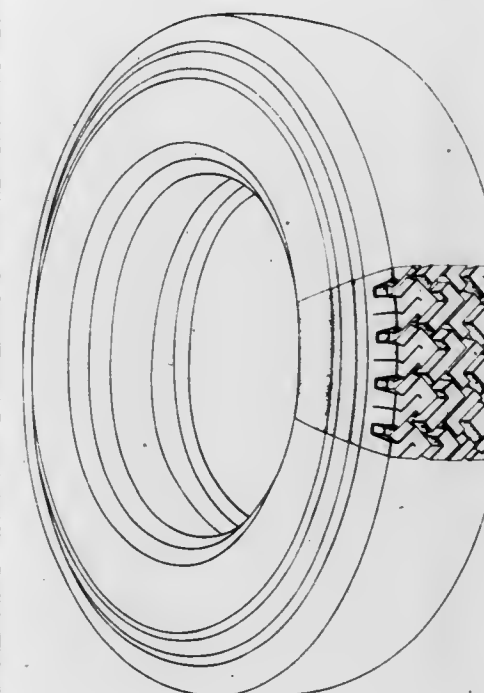


267,400
TIRE

Guy Amarger, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France

Filed Aug. 26, 1980, Ser. No. 181,645
Claims priority, application France, Feb. 26, 1980, 17
Term of patent 14 years
Int. Cl. D12—15

U.S. Cl. D12—147



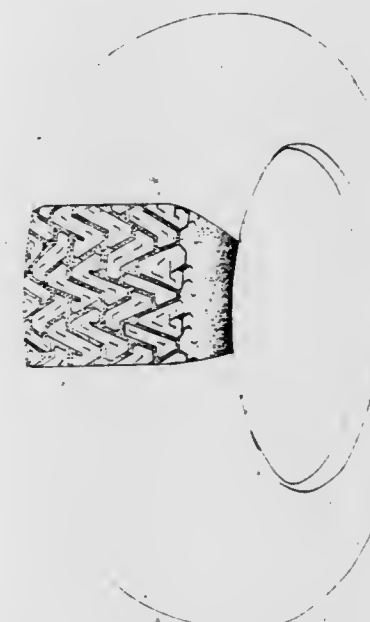
267,401
TIRE

Claude A. Hart, and Edward P. Davis, both of Sutton Coldfield, England, assignors to Dunlop Limited, London, England

Filed Sep. 23, 1980, Ser. No. 189,567
Claims priority, application United Kingdom, Apr. 11, 1980, 80/994444

Term of patent 14 years
Int. Cl. D12—15

U.S. Cl. D12—151

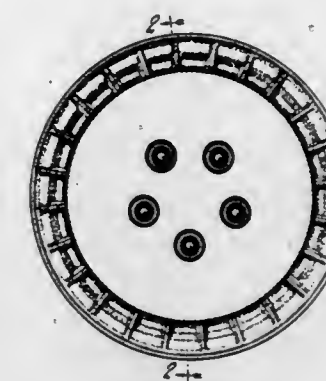


267,402
VEHICLE WHEEL

John R. Schinella, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 7, 1980, Ser. No. 137,738
Term of patent 7 years
Int. Cl. D12—16

U.S. Cl. D12—211

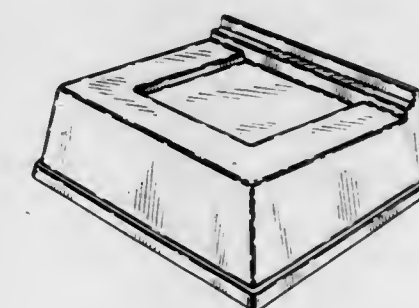


267,403
SPEAKER SUPPORT

Ripley W. Gage, 2646 SW. Summit Dr., Lake Oswego, Oreg. 97034

Filed Oct. 7, 1980, Ser. No. 194,821
Term of patent 14 years
Int. Cl. D14—99

U.S. Cl. D14—38

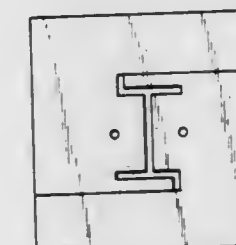


267,404
BEAM COUNTERWEIGHT FOR JACK PUMPS

Gregory D. Cook, Duncan, Okla., assignor to Cook Machine Company, Duncan, Okla.

Filed Oct. 14, 1980, Ser. No. 196,323

U.S. Cl. D15—7



267,405

VEGETATION SCALPING AND EARTH BORING TOOL

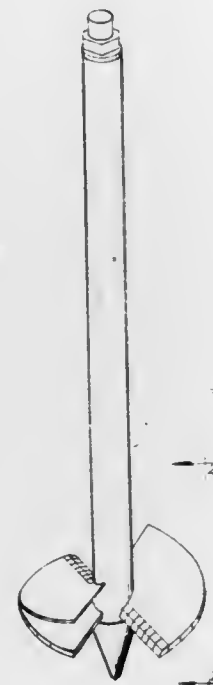
Alvin K. Wilson, P.O. Box 162, Elmira, Oreg. 97437

Filed Aug. 11, 1980, Ser. No. 177,051

Term of patent 14 years

Int. Cl. D15—04

U.S. Cl. D15—21



267,407

MOLD FOR BUILDING BLOCK UNITS

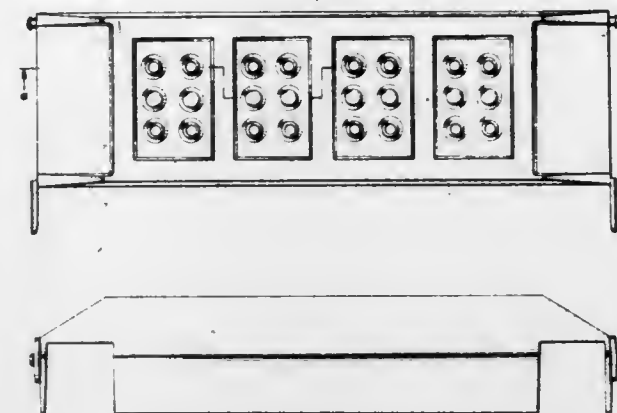
Walter Mitchko, 337 Elwood Rd., East Northport, N.Y. 11731

Filed Nov. 3, 1980, Ser. No. 203,734

Term of patent 14 years

Int. Cl. D15—09

U.S. Cl. D15—136



267,408

SIDE PANEL UNIT FOR A PNEUMATIC ARTICLE FEEDER ADAPTOR

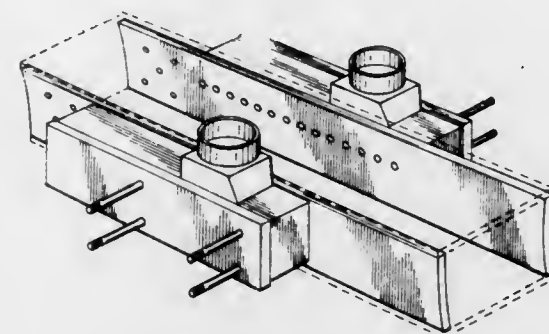
Richard D. Lenhart, Arvada, and Ronald A. Lenhart, Lakewood, both of Colo., assignors to Precision Metal Fabricators, Inc., Arvada, Colo.

Filed Dec. 3, 1979, Ser. No. 99,643

Term of patent 14 years

Int. Cl. D15—99

U.S. Cl. D15—199



267,406

COMBINED JOINTER AND PLANER

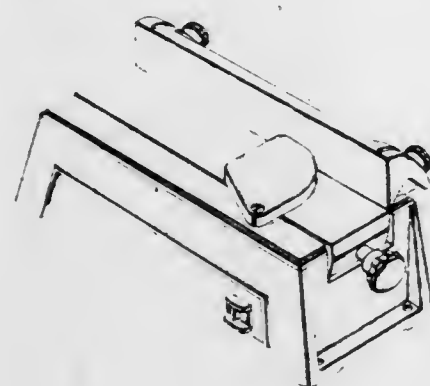
Thomas G. Gore, Easley, S.C., assignor to The Singer Company, Stamford, Conn.

Filed Nov. 24, 1980, Ser. No. 209,819

Term of patent 14 years

Int. Cl. D15—09

U.S. Cl. D15—127



267,409

RESEALABLE TONER CONTAINER

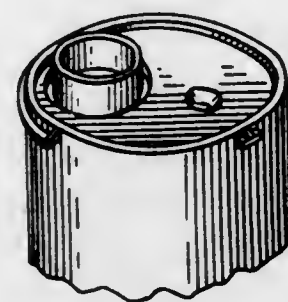
Maynard C. Gross, Skokie; Robert F. Porazinski, Norridge, and Raymond J. Precin, Des Plaines, all of Ill., assignors to Bell & Howell Company, Chicago, Ill.

Filed Feb. 9, 1981, Ser. No. 232,946

Term of patent 14 years

Int. Cl. D9—01

U.S. Cl. D16—32



267,410

GUITAR STRING TUNING DEVICE HOUSING

Robert J. Spercel, 3214 W. 139 St., Cleveland, Ohio 44111

Division of Ser. No. 838,115, Sep. 9, 1977, Pat. No. Des. 256,471. This application May 12, 1980, Ser. No. 182,867

Term of patent 14 years

Int. Cl. D17—03

U.S. Cl. D17—20



267,411

ELECTRONIC CALCULATOR

Takashi Hirata, and Kunio Hirase, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 31, 1980, Ser. No. 174,001

Claims priority, application Japan, Feb. 8, 1980, 55-3910

Term of patent 14 years

Int. Cl. D18—01

U.S. Cl. D18—7



267,413

PRINTER FOR AN ELECTRONIC CALCULATOR

Masahiko Mori, Shiojiri, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo and Shinshu Seiki Kabushiki Kaisha, Nagano, both of, Japan

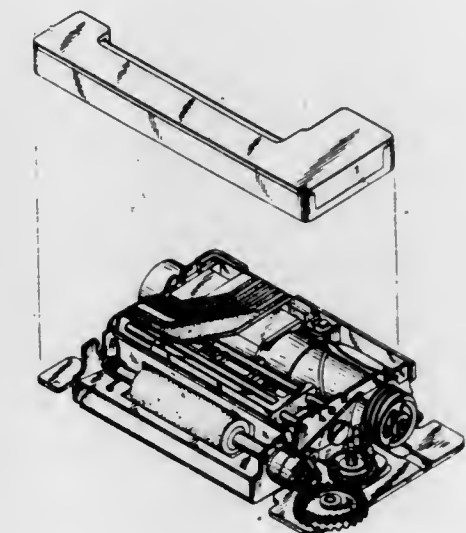
Filed Oct. 8, 1980, Ser. No. 195,040

Claims priority, application Japan, Apr. 18, 1980, 55-15287

Term of patent 14 years

Int. Cl. D18—02

U.S. Cl. D18—13



267,414

HORIZONTAL PAPER ORGANIZER

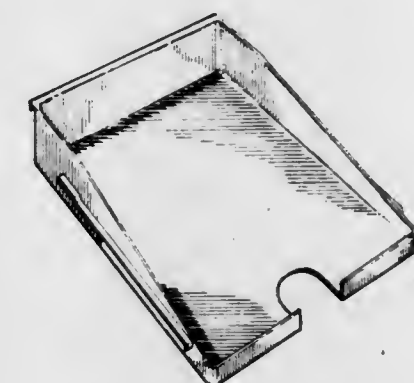
Charles R. Tyke, Ada, Mich., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 4, 1980, Ser. No. 213,697

Term of patent 14 years

Int. Cl. D19—02

U.S. Cl. D19—92



267,412

CALCULATING DEVICE FOR CONVERSIONS OR THE LIKE

Gerrit A. Van Exel, 2300 Camino Escondido, Fullerton, Calif. 92633

Filed Nov. 29, 1979, Ser. No. 98,709

Term of patent 14 years

Int. Cl. D19—99

U.S. Cl. D18—10



267,415

POINT OF PURCHASE SIGN

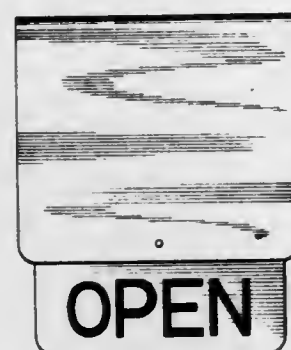
Richard P. Hornblad, Shorewood, Wis., assignor to Display Corporation International, Milwaukee, Wis.

Filed Nov. 12, 1980, Ser. No. 205,933

Term of patent 14 years

Int. Cl. D20—03

U.S. Cl. D20—10



267,417

GOLF GAME PUTTING CARPET

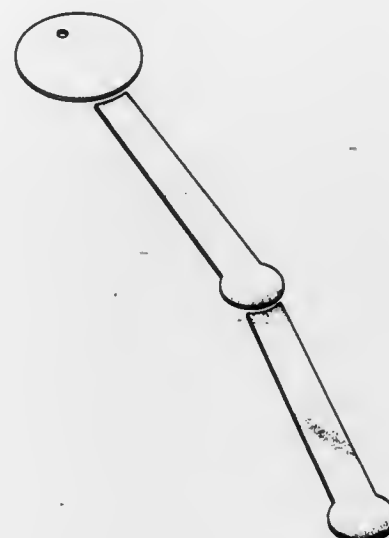
William C. Newton, 49 Church St., Middle Brighton, Victoria, 3186, Australia

Filed Jun. 3, 1980, Ser. No. 156,155

Term of patent 14 years

Int. Cl. D21—02

U.S. Cl. D21—11



267,416

DISPLAY SIGN HOLDER

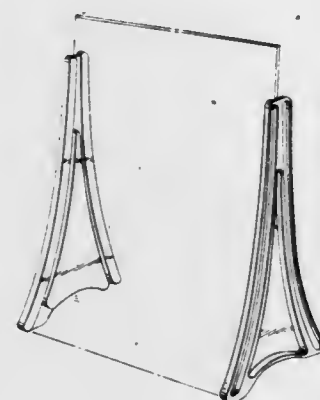
Richard M. Liptak, Parma Heights, and Robert S. Liptak, Brecksville, both of Ohio, assignors to Integral Design, Inc., Cleveland, Ohio

Filed Apr. 7, 1980, Ser. No. 137,795

Term of patent 14 years

Int. Cl. D20—03

U.S. Cl. D20—43



267,418

TOY PENDANT

Yoichi Abe, Tokyo, and Hajime Matsumoto, Chiba, both of Japan, assignors to Toybox Corporation, Tokyo, Japan

Filed Apr. 11, 1979, Ser. No. 29,036

Term of patent 14 years

Int. Cl. D21—01

U.S. Cl. D21—62



267,419

EXERCISE STAND

Gene Komarnicki, 2A Gertrude St., St. Albans, Victoria, 3021, Australia

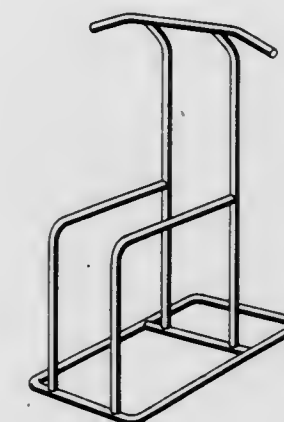
Filed May 1, 1980, Ser. No. 145,835

Claims priority, application Australia, May 11, 1979, 79473

Term of patent 14 years

Int. Cl. D21—02

U.S. Cl. D21—191



267,421

AMMUNITION CLIP

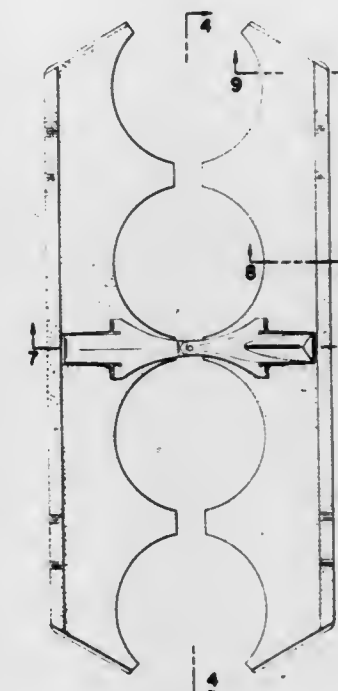
Richard T. Tweedie, 10230 Imperial Ave., Cupertino, Calif. 94015

Filed Aug. 5, 1980, Ser. No. 175,571

Term of patent 14 years

Int. Cl. D22—05

U.S. Cl. D22—7



267,422

SHOWERHEAD STEAMER ATTACHMENT

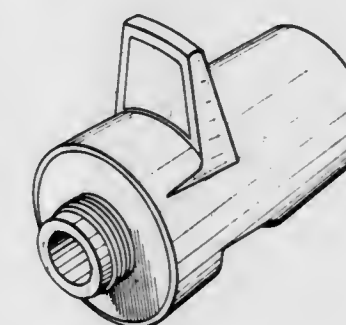
Spencer L. Mackay, Canoga Park; Frederick G. Mackay, and Allan B. Johnson, both of Tarzana, all of Calif., assignors to Teledyne Industries, Inc.

Filed Oct. 6, 1980, Ser. No. 193,959

Term of patent 14 years

Int. Cl. D23—01

U.S. Cl. D23—34



267,420

TRAINING BAR

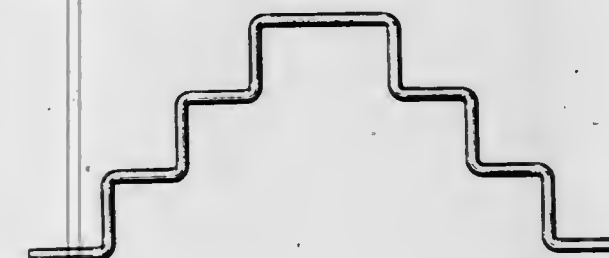
Ronald S. Malachowsky, 323 W. 82nd St., New York, N.Y. 10024

Filed Aug. 7, 1980, Ser. No. 176,127

Term of patent 14 years

Int. Cl. D21—02

U.S. Cl. D21—195

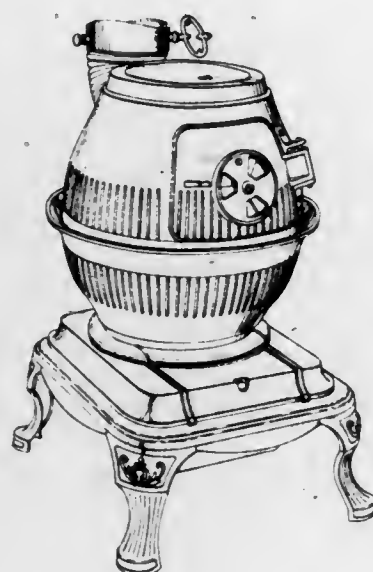


267,423
STOVE

Terence F. Porter, Auckland, New Zealand, assignor to Mason & Porter Limited, Auckland, New Zealand
 Filed Feb. 7, 1979, Ser. No. 10,155
 Claims priority, application New Zealand, Oct. 26, 1978, 15733

Term of patent 14 years
 Int. Cl. D23—03

U.S. Cl. D23—105

267,425
ORTHODONTIC HARNESS

Donald R. Therrien, Laconia, N.H., assignor to Masel Orthodontics, Inc., Philadelphia, Pa.

Filed Oct. 31, 1979, Ser. No. 89,971
 Term of patent 14 years
 Int. Cl. D24—03, 99

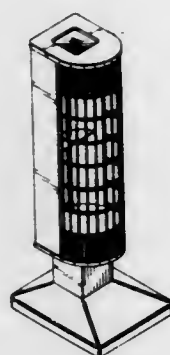
U.S. Cl. D24—16

267,424
PORTABLE RADIANT ELECTRIC HEATER

Melvin H. Boldt, Glenview; Thurber H. Morrison, Evanston; Robert W. Becker, Naperville, and Robert S. Huff, Oak Park, all of Ill., assignors to National Presto Industries, Inc., Eau Claire, Wis.

Filed Jul. 18, 1980, Ser. No. 169,999
 Term of patent 14 years
 Int. Cl. D23—03

U.S. Cl. D23—122

267,426
ORTHODONTIC HARNESS

Donald R. Therrien, Laconia, N.H., assignor to Masel Orthodontics, Inc., Philadelphia, Pa.

Filed Oct. 31, 1979, Ser. No. 89,973
 Term of patent 14 years
 Int. Cl. D24—03, 99

U.S. Cl. D24—16

267,427
BODY THERMAL BANDAGE

Harvey E. Christensen, 508 6th St., NE., Conover, N.C. 28613; Anne W. Lee, 1439 Farmington Rd., Birmingham, Ala. 35235
 Charles H. Moretz, and John M. Moretz, both of P.O. Box 551, Newton, N.C. 28658

Filed Aug. 18, 1980, Ser. No. 178,756
 Term of patent 14 years
 Int. Cl. D24—02

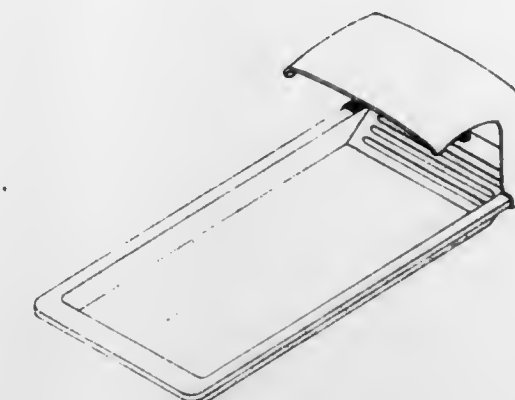
U.S. Cl. D24—34

267,430
TANNING TUB

Filed Sep. 8, 1980, Ser. No. 185,368

Term of patent 14 years
 Int. Cl. D24—99

U.S. Cl. D24—38

267,428
THERMAL BANDAGE

Harvey E. Christensen, 508 6th St., NE., Conover, N.C. 28613; Charles H. Moretz, and John M. Moretz, both of P.O. Box 551, Newton, N.C. 28658

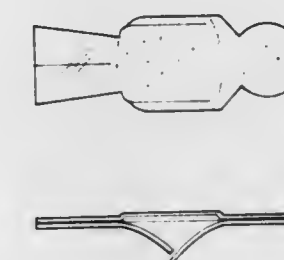
Filed Aug. 18, 1980, Ser. No. 178,757
 Term of patent 14 years
 Int. Cl. D24—02

U.S. Cl. D24—34



267,431
 DECORATED ADHESIVE BANDAGE
 Francis L. Santarelli, 58 St. James Ct., Daly City, Calif. 94015
 Filed Aug. 30, 1979, Ser. No. 71,070
 Term of patent 14 years
 Int. Cl. 24—04

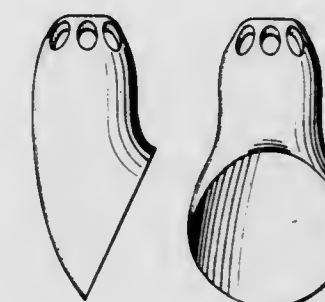
U.S. Cl. D24—49



267,429
 VENTED EAR TIP FOR HEARING AID
 Mas Harada, Minneapolis, Minn., assignor to Qualitone Hearing Aids, Inc., Minneapolis, Minn.

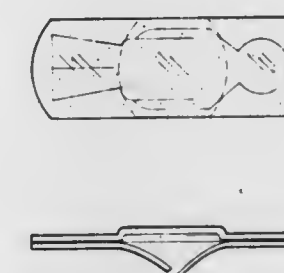
Filed Apr. 28, 1980, Ser. No. 144,539
 Term of patent 14 years
 Int. Cl. D24—99

U.S. Cl. D24—35



267,432
 DECORATED ADHESIVE BANDAGE
 Francis L. Santarelli, 58 St. James Ct., Daly City, Calif. 94015
 Filed Aug. 30, 1979, Ser. No. 71,071
 Term of patent 14 years
 Int. Cl. D24—04

U.S. Cl. D24—49



267,433

CHEST DRAINAGE BOTTLE

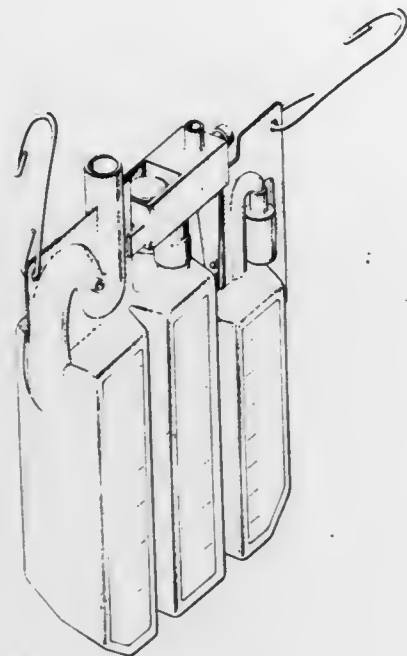
Gary M. Pageau, Arapahoe County, Colo., assignor to C. R. Vance M. Hubbard, Euless, and Welton K. Brunson, Bedford, Bard, Inc., Murray Hill, N.J.

Filed Sep. 26, 1980, Ser. No. 190,937

Term of patent 14 years

Int. Cl. D24—02

U.S. Cl. D24—59



267,435

STIRRUP STRAP

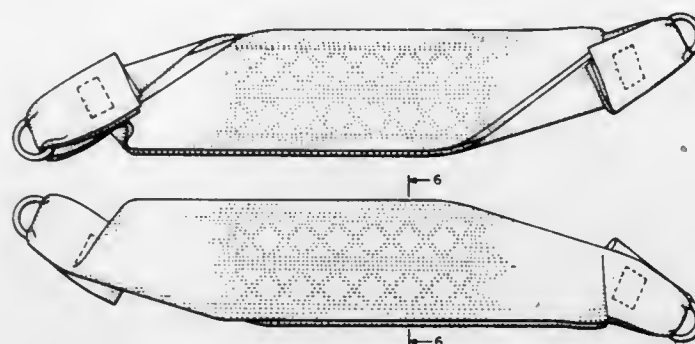
Vance M. Hubbard, Euless, and Welton K. Brunson, Bedford, both of Tex., assignors to Tecnol, Inc., Fort Worth, Tex.

Filed Sep. 5, 1980, Ser. No. 184,624

Term of patent 14 years

Int. Cl. D24—05

U.S. Cl. D24—64



267,436

PET ACCESS DOOR

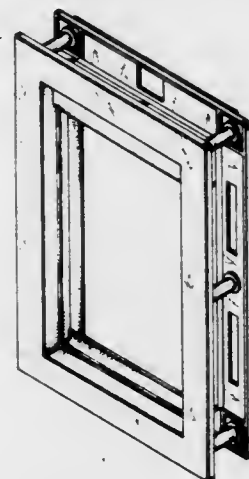
David Thorne, 6051 Corbin Ave., Tarzana, Calif. 91356

Filed Nov. 17, 1980, Ser. No. 207,277

Term of patent 14 years

Int. Cl. D25—02

U.S. Cl. D25—48



267,434

LIMB HOLDER

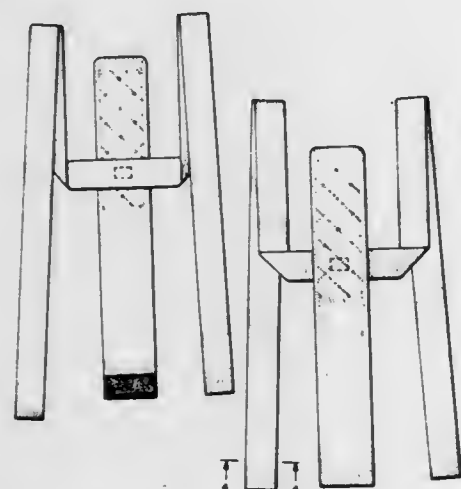
Vance M. Hubbard, Euless, and Welton K. Brunson, Bedford, both of Tex., assignors to Tecnol, Inc., Fort Worth, Tex.

Filed Sep. 5, 1980, Ser. No. 184,548

Term of patent 14 years

Int. Cl. D24—05

U.S. Cl. D24—64



267,437

DISPOSABLE ASHTRAY

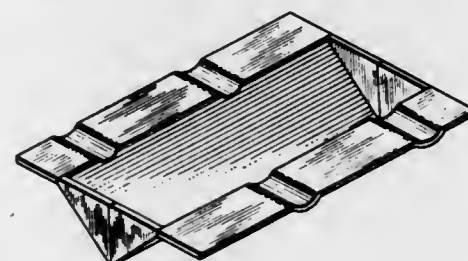
Francis K. Harvey, 413 Trippe Ave., Easton, Md. 21601; Larabee Franks, 515 Druid Hill Ave., Salisbury, Md. 21801, and David L. Ingraham, E. Walnut St., Delmar, Del. 19940

Filed Oct. 21, 1980, Ser. No. 199,370

Term of patent 14 years

Int. Cl. D27—03

U.S. Cl. D27—08



267,438

RAZOR

Chester F. Jacobson, Southboro, Mass., assignor to The Gillette Company, Boston, Mass.

Continuation-in-part of Ser. No. 22,052, Mar. 19, 1979, abandoned. This application Aug. 7, 1980, Ser. No. 176,259

Term of patent 14 years

Int. Cl. D28—03

U.S. Cl. D28—46



267,439

CERAMIC GREENWARE CLEANER

Thomas E. Gibson, 6709 Lyrewood Dr., Oklahoma City, Okla. 73132

Filed Aug. 20, 1980, Ser. No. 179,773

Term of patent 14 years

Int. Cl. D7—05

U.S. Cl. D32—52



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 28TH DAY OF DECEMBER, 1982

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- A. E. Staley Manufacturing Company: *See—*
Leiser, Roger S.; and Liaw, Gin C., 4,366,060, Cl. 210-635.000.
- A/S Finsam International, Inc.: *See—*
Samuelsen, Per, 4,365,485, Cl. 62-320.000.
- Aaron Ferer & Sons Co., Inc.: *See—*
Ferer, Harvey D.; and Sierralta, Luis F., 4,366,006, Cl. 134-38.000.
- AB Ferrosan: *See—*
Bjork, Anders K. K.; Abramo, Aina L.; and Kjellberg, Bengt E. S., 4,366,162, Cl. 424-267.000.
- AB Medline: *See—*
Brundin, Jan-Olof, 4,365,621, Cl. 128-1.00R.
- Abbott Laboratories: *See—*
Arbir, Francis W.; Raden, Daniel S.; and Narducy, Kenneth W., 4,366,084, Cl. 252-426.000.
- Abe, Mitsuo; Kamiya, Akira; Itoh, Junya; Mawatari, Masaaki; and Kurihara, Fumio, to Japan Synthetic Rubber Co., Ltd. Molding resin composition. 4,366,281, Cl. 524-297.000.
- Abendroth, Werner, to Carl Still GmbH & Co. K.G., Firma. Jamb brick support for coke oven doors. 4,366,028, Cl. 202-248.000.
- Abraham, Fayez; and Bowman, Edward, to Tyler Refrigeration Corporation. Energy saving refrigeration system. 4,365,983, Cl. 62-81.000.
- Abramo, Aina L.: *See—*
Bjork, Anders K. K.; Abramo, Aina L.; and Kjellberg, Bengt E. S., 4,366,162, Cl. 424-267.000.
- Abrams, Bernice, administratrix: *See—*
Abrams, Carl C.; deceased; Abrams, Bernice, administratrix; and Jones, James R., 4,366,096, Cl. 525-498.000.
- Abrams, Carl C.; deceased; Abrams, Bernice, administratrix; and Jones, James R. Cellulosic urea formaldehyde compositions. 4,366,096, Cl. 525-498.000.
- Abrioux, Andre H.: *See—*
Leveque, Jean-Luc M.; and Abrioux, Andre H., 4,365,638, Cl. 128-774.000.
- Abts, Leigh R., to Micro Pure Systems, Inc. Ultrasonic sensing. 4,365,515, Cl. 73-632.000.
- Acco Industries, Inc.: *See—*
Morgan, Wendell D., 4,365,920, Cl. 414-224.000.
- ACF Industries, Incorporated: *See—*
Treppler, Marc A., 4,365,832, Cl. 292-256.500.
- Acheson Industries, Inc.: *See—*
Levine, Walter E.; and Heath, Allan B., 4,365,754, Cl. 239-412.000.
- Adachi, Keiichi: *See—*
Ichijima, Seiji; Adachi, Keiichi; and Ogawa, Tadashi, 4,366,237, Cl. 430-505.000.
- Adachi, Kinichi: *See—*
Ohmukai, Yoshimi; Ogino, Toshiro; Adachi, Kinichi; and Nishiguchi, Hisanori, 4,365,952, Cl. 431-208.000.
- Adachi, Michio: *See—*
Toyama, Kouichi; Sugiura, Yasushi; and Adachi, Michio, 4,365,609, Cl. 123-635.000.
- Adachi, Takeshi: *See—*
Nakada, Akira; and Adachi, Takeshi, 4,365,532, Cl. 84-1.190.
- Adam, Werner: *See—*
Broemer, Heinz; Adam, Werner; and Hedrich, Friedhelm, 4,365,356, Cl. 3-1.900.
- Adams, Frederick J., to Cam Gears Limited. Power assisted vehicle steering system. 4,365,683, Cl. 180-132.000.
- Adams, Joseph S. Compression wave former. 4,365,471, Cl. 60-39.760.
- Adams, Kenneth D., to Singer Company, The. Feed regulator clamp. 4,365,569, Cl. 112-315.000.
- Adams, Tello D.: *See—*
Clendening, Steven J.; and Adams, Tello D., 4,366,394, Cl. 307-225.00R.
- Adell, Robert, to U.S. Product Development Co. Door edge guard. 4,365,450, Cl. 52-98.000.
- Adelman, Roger A. Generalized signal processing hearing aid. 4,366,349, Cl. 179-107.0FD.
- Adidas Fabrique de Chaussures de Sport: *See—*
Kreyenbuhl, Armand, 4,365,821, Cl. 280-615.000.
- AEG-Telefunken Aktiengesellschaft: *See—*
Hasse, Peter; Wiesinger, Johannes; and Pivitt, Erich, 4,366,523, Cl. 361-120.000.
- Aerpat A.G.: *See—*
Francis, Albert C., 4,365,495, Cl. 72-88.000.
- Affolder, Steven L.: *See—*
Zinck, Joseph W.; and Affolder, Steven L., 4,365,705, Cl. 198-424.000.
- Agfa-Gevaert Aktiengesellschaft: *See—*
Fischer, Gunter; Stemme, Otto; and Wagenonner, Eduard, 4,366,381, Cl. 250-316.100.
- Lassig, Wolfgang; Meier, Ernst; and Schleger, Siegfried, 4,366,240, Cl. 430-542.000.
- Mayer, Karl H.; deceased; Sasse, Klaus; and von Konig, Anita, 4,366,231, Cl. 430-375.000.
- Ohlschlager, Hans; and Langen, Hans, 4,366,221, Cl. 430-507.000.
- Aghnides, Elie P. Aerator with reduced noise. 4,365,755, Cl. 239-428.500.
- Agrober Mezogazdasagi es Elelmiszertipari Tervezo, Beruhazasi Vallalat: *See—*
Alajos, Dobos; Kiss, Gyula; Gaspar, Bela; Imre, Geza; Jony nee Acs, Julia; Forian, Istvan; Iijas, Istvan; Liptak, Ferenc; and Bisits nee Zsilinszky, Vilma, 4,365,757, Cl. 239-567.000.
- Agulnek, Martin A.: *See—*
Crean, Peter A.; and Agulnek, Martin A., 4,366,508, Cl. 358-287.000.
- Aharoni, Shaul M., to Allied Corporation. Polyester composition with mixed metal ion nucleating agents. 4,366,273, Cl. 523-400.000.
- AHI Operations Limited: *See—*
Phillips, Evan M.; and Millar, Thomas D., 4,365,589, Cl. 119-14.020.
- Ahne, Hellmut; Kuhn, Eberhard; and Rubner, Roland, to Siemens Aktiengesellschaft. Method for the preparation of highly heat-resistant relief structures and the use thereof. 4,366,230, Cl. 430-325.000.
- Aisin Seiki Company, Limited: *See—*
Iwasaki, Shinichiro, 4,365,513, Cl. 73-517.00R.
- Aisin Seiki Kabushiki Kaisha: *See—*
Andoh, Masamoto, 4,365,538, Cl. 91-1.000.
- Kawai, Taneichi; Nishida, Koji; Miyake, Osamu; and Hamajima, Shigemitsu, 4,365,565, Cl. 112-103.000.
- Aizawa, Hiroshi: *See—*
Tsunekawa, Tokuchii; Date, Nobuaki; Aizawa, Hiroshi; Hosoe, Kazuya; and Urushibara, Kazunori, 4,366,501, Cl. 358-310.000.
- Akai, Yoshimi; Hirose, Masahiko; and Sanpei, Hideo, to Tokyo Shibaura Denki Kabushiki Kaisha. Process for forming photoconductive organic film. 4,366,208, Cl. 428-421.000.
- Akai, Yoshimi: *See—*
Hirose, Masahiko; and Akai, Yoshimi, 4,365,587, Cl. 118-723.000.
- Aktiengesellschaft Adolph Saurer: *See—*
Viniczay, Gabriella F.; and Huber, Kurt, 4,365,654, Cl. 139-370.200.
- Alajos, Dobos; Kiss, Gyula; Gaspar, Bela; Imre, Geza; Jony nee Acs, Julia; Forian, Istvan; Iijas, Istvan; Liptak, Ferenc; and Bisits nee Zsilinszky, Vilma, to Agrober Mezogazdasagi es Elelmiszertipari Tervezo, Beruhazasi Vallalat. Water feeding head. 4,365,757, Cl. 239-567.000.
- Alberts, Heinrich: *See—*
Friemann, Hans; Moretto, Hans-Heinrich; Alberts, Heinrich; de Montigny, Armand; and Toepsch, Hans, 4,366,286, Cl. 524-588.000.
- Albright, David B.; Schubert, Keith E.; and Pollak, Philip, Jr., to Pitney Bowes Inc. Apparatus for interconnecting an actuator and a postage meter. 4,366,376, Cl. 235-101.000.
- Alekhn, Stanislav A.: *See—*
Bakhr, Vitold M.; Alekhn, Stanislav A.; Bakhr, Tatiana M.; Born, Raisa I.; and Alimdzhanov, Khamidulla A., 4,365,507, Cl. 73-153.000.
- Alessandrini, Paolo; De Angelis, Lucio; Galluzzi, Fabrizio; Losciale, Francesco; and Scafe, Ernesto, to E.N.I. Ente Nazionale Idrocarburi. p-Si/n-CdS Heterojunction photovoltaic cells. 4,366,337, Cl. 136-258.000.
- Alfa & Associates, Inc.: *See—*
Ekuan, Kenji, 4,365,713, Cl. 206-387.000.
- Alimdzhanov, Khamidulla A.: *See—*
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- Allen, Brian R., to Lucas Industries Limited. Method of producing an electrical component. 4,366,361, Cl. 219-78.010.
- Allen, Rod H.: *See—*
Main, David T.; Riddle, John B.; and Allen, Rod H., 4,366,481, Cl. 340-825.540.
- Allen, Wayne: *See—*
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- Allied Corporation: *See—*
Aharoni, Shaul M., 4,366,273, Cl. 523-400.000.
- Ray, Ranjan, 4,365,994, Cl. 75-123.00B.
- Alpkvist, Jan. Device for combustion of a volatile fuel with air. 4,365,951, Cl. 431-82.000.
- Alston, Julia M., to Moore Business Forms, Inc. Method of employing encapsulated material. 4,366,188, Cl. 427-150.000.

Altrock, Werner W. L.; and Ritums, Janis A., to Lever Brothers Company. Process for producing a low-fat oil-in-water-in-oil emulsion. 4,366,180, Cl. 426-602.000.

Amax Inc.: See—

Olin, Eric J.; Carson, Harry B.; and Ball, Brian, 4,366,050, Cl. 209-167.000.

Amchem Products, Inc.: See—

Carandang, Carmen M., 4,366,002, Cl. 134-2.000.

Hall, Wilbur S., 4,366,195, Cl. 427-435.000.

Amemiya, Akira; Kunii, Tadashi; Furusawa, Tomotaka; Takeda, Mutsumiko; Tanaka, Katsumasa; Umemura, Toshikazu; Ono, Yoshihiro; Masumoto, Isamu; Nakao, Noriyasu; and Furukawa, Masanori, to Mitsubishi Gas Chemical Company, Inc. Process for heat stabilizing oxymethylene copolymers. 4,366,305, Cl. 528-230.000.

American Casting and Manufacturing Company: See—

Burnett, Ralph G., 4,365,833, Cl. 292-318.000.

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Rauhut, Michael M.; and Mohan, Arthur G., 4,366,079, Cl. 252-188.3CL.

American Fletcher National Bank and Trust Company, Administrator: See—

Clinton, Albert J., deceased; and O'Doherty, George O. P., 4,366,168, Cl. 424-283.000.

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Hsieh, Shane, 4,366,224, Cl. 430-149.000.

American Home Products Corporation: See—

Bender, Reinhold H. W., 4,366,098, Cl. 260-239.100.

American Science and Engineering, Inc.: See—

Annis, Martin, 4,366,576, Cl. 378-146.000.

Amersham International Public Limited Company: See—

Midgley, John E.; and Wilkins, Terence A., 4,366,143, Cl. 436-501.000.

AMF Incorporated: See—

Ostreicher, Eugene A.; and Hou, Kenneth C., 4,366,068, Cl. 210-767.000.

Amigues, Pierre: See—

Convers, Alain; Torck, Bernard; Euzen, Jean-Paul; and Amigues, Pierre, 4,366,327, Cl. 368-697.000.

Amoresse, Franklyn J.; and Piarulli, Vincent J. Separable blade agitator with clip-on impellers. 4,365,897, Cl. 366-343.000.

Anders, Dietmar, to Hermann Berstorff Maschinenbau GmbH. Apparatus for continuously processing rubber, elastomers, plastics and like materials which can be vulcanized or cross-linked. 4,365,946, Cl. 425-144.000.

Anderson, David: See—

Robinson, Edward L., Jr.; Fardal, Randolph G.; and Anderson, David, 4,365,672, Cl. 172-2.000.

Anderson, George W.: See—

Reid, Cedric N.; and Anderson, George W., 4,365,806, Cl. 273-73.000.

Anderson, Gordon K.: See—

Carson, Ernest A.; and Anderson, Gordon K., 4,365,484, Cl. 62-239.000.

Anderson, Max F. Subatmospheric pressure distillation and/or cooling method and means. 4,366,030, Cl. 203-11.000.

Anderson, Max F. Alcohol-water mixture distillation. 4,366,031, Cl. 203-18.000.

Anderson, Richard B.; and Kalenda, Norman W., to Eastman Kodak Company. Photographic products and processes employing novel nondiffusible bridged azdaminophenol magenta dye-releasing compounds and precursors thereof. 4,366,218, Cl. 430-17.000.

Ando, Masao, to Chisso Corporation. Compact induced current heat-generating pipe. 4,366,356, Cl. 219-10.510.

Andoh, Masamoto, to Aisin Seiki Kabushiki Kaisha. Vacuum operable differential servo-motor. 4,365,538, Cl. 91-1.000.

Andres, Helmut; Fichtner, Karl-Heinz; and Fisher, Hans-Siegfried, to Anschütz & Co., GmbH. Lubricant recirculation system for the bearing of a rotating shaft. 4,365,851, Cl. 308-187.000.

Andresen, Bernhard H.: See—

Tokuda, Ryuji; and Andresen, Bernhard H., 4,365,878, Cl. 354-25.000.

Andrew, Barry E.; and Mak, Tak W., to John Lysaght (Australia) Limited. Temper rolling fluids. 4,366,077, Cl. 252-49.300.

Angeles, Marshall R.: See—

Engelhart, John E.; Angeles, Marshall R.; and D'Errico, Michael J., 4,366,170, Cl. 424-304.000.

Anglia Autoflow Limited: See—

Wills, David R.; Green, Ralph E.; and Landymore, Barry W., 4,365,591, Cl. 119-82.000.

Annis, Martin, to American Science and Engineering, Inc. Penetrating radiant energy imaging system with multiple resolution. 4,366,576, Cl. 378-146.000.

Anschutz & Co., GmbH: See—

Andres, Helmut; Fichtner, Karl-Heinz; and Fisher, Hans-Siegfried, 4,365,851, Cl. 308-187.000.

Anselrode, Lodewijk, to Stork Brabant B.V. Controlling the operation of a printing equipment. 4,366,542, Cl. 364-469.000.

Anthony, Blair T., to General Electric Company. Polycarbonate resins stabilized with nitriles containing a 2-OH benzophenone group. 4,366,207, Cl. 428-412.000.

Antos, George J., to UOP Inc. Hydrocarbon dehydrogenation with an attenuated superactive multimetallic catalytic composite for use therein. 4,366,091, Cl. 252-466.0PT.

Antunez, Bruce A. Flush valve and means for mounting the same. 4,365,365, Cl. 4-393.000.

Anvar: See—

Jallageas, Jean C.; Arnaud, Alain; and Galzy, Pierre, 4,366,250, Cl. 435-280.000.

Aoki, Kiyoshi; and Ichinose, Kazuaki, to Tokyo Shibaura Denki Kabushiki Kaisha. 1^2 L Memory device. 4,366,554, Cl. 365-155.000.

Aono, Masami, to Tokico Ltd. Hydraulic brake pressure control valve. 4,365,845, Cl. 303-6.00C.

Aoyagi, Edward I., to Chevron Research Company. 2-Thiocyanomethylthio-4,4-dialkyl-5-substituted-thiazoline fungicides. 4,365,989, Cl. 71-67.000.

Applied Cardiac Electrophysiology: See—

Goldreyer, Bruce N., 4,365,639, Cl. 128-786.000.

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Chukhanov, Zinoviy F.; Chukhanov, Zinoviy Z.; Tsuprov, Sergei A.; Lyashenko, Ivan V.; Apter, Danil M.; Nikolaev, Anatoly M.; and Karasev, Vadim A., 4,366,043, Cl. 208-8.00R.

Arai, Akira: See—

Hatada, Toshio; Senshu, Takao; Arai, Akira; Harada, Fumio; Matsuzaki, Atsushi; Futawataru, Hajime; Imaizumi, Yutaka; and Takeda, Sumiyoshi, 4,365,667, Cl. 165-152.000.

Arai, Toshio; Kanehira, Hidehiko; and Ikemoto, Kazuo, to Kobe Steel, Ltd. Flux-cored wire for use in gas-shielded arc welding. 4,366,364, Cl. 219-146.240.

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Tsukagoshi, Tsunehiro; Yokozeki, Shinichi; Hagiwara, Sumio; Uchidoi, Masataka; Yoshino, Toshikazu; and Arai, Yasuyuki, 4,366,205, Cl. 428-338.000.

Arai, Yoji: See—

Mayama, Shinji; and Arai, Yoji, 4,366,418, Cl. 315-326.000.

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Arbir, Francis W.; Raden, Daniel S.; and Narducy, Kenneth W., to Abbott Laboratories. Catalyst for making polyurethanes. 4,366,084, Cl. 252-426.000.

Arcamone, Federico: See—

Bargiotti, Alberto; Cassinelli, Giuseppe; Penco, Sergio; Arcamone, Federico; and Casazza, Annamaria, 4,366,149, Cl. 424-180.000.

Arimoto, Katsuhiko; and Fujimoto, Masahiro, to Omron Tateisi Electronics Co. Money receiving and dispensing system. 4,365,700, Cl. 194-2.000.

Armco Inc.: See—

Pellow, Donald L., 4,365,467, Cl. 57-214.000.

Armosig S.A.: See—

Chaplain, Jacques, 4,365,948, Cl. 425-417.000.

Armstrong, Currie; and Christophersen, Clarence E. Newspaper vending machine. 4,365,701, Cl. 194-22.000.

Arnaud, Alain: See—

Jallageas, Jean C.; Arnaud, Alain; and Galzy, Pierre, 4,366,250, Cl. 435-280.000.

Arnaudeau, Marcel, to Institut Francais du Pétrole. Pumping device for diphasic fluids. 4,365,932, Cl. 415-199.500.

Arnold, William: See—

Brouwer, Gerardus J.; and Arnold, William, 4,365,921, Cl. 414-347.000.

Arter, Thomas C.; and Barbee, Eugene H., to Eastman Kodak Company. Method and apparatus for drying coated sheet material. 4,365,423, Cl. 34-23.000.

Asahi-Dow Limited: See—

Sato, Eiya; and Yamagishi, Tsukasa, 4,366,263, Cl. 521-60.000.

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Takaoka, Yukio; Haraguchi, Keisuke; and Yamaka, Shiyouchi, 4,365,883, Cl. 354-152.000.

Asami, Fumitaka, to Fujitsu Limited. Amplifier circuit. 4,366,398, Cl. 307-451.000.

Asano, Hideki: See—

Ogata, Masatsugu; Asano, Hideki; Narusawa, Tsuneo; and Narahara, Toshikazu, 4,366,516, Cl. 360-84.000.

Asari, Akira, to Kobe Steel, Ltd. Intermediate frame type indirect extrusion press. 4,365,497, Cl. 72-255.000.

Ashland Oil, Inc.: See—

Daniel, Chelliah, 4,366,088, Cl. 252-435.000.

Linden, Gary L.; and Kathirya, Shiraz A., 4,366,193, Cl. 427-340.000.

Asmus, Kurt: See—

Gregor, Karl; and Asmus, Kurt, 4,366,004, Cl. 134-22.110.

Asselineau, Lionel: See—

Mikitenko, Paul; and Asselineau, Lionel, 4,366,032, Cl. 203-18.000.

Associated Engineering Limited: See—

Scott, Peter A. J., 4,365,815, Cl. 277-22.000.

Associated Equipment Corporation: See—

Wright, Bruce R., 4,366,430, Cl. 320-25.000.

Ast, Gerhard; Dietl, Josef; Helmreich, Dieter; Miller, Hans-Dieter; and Sirtl, Erhard, to Heliotronic Forschungs-und Entwicklungsgesellschaft für Solarzellen-Grundstoffe mbH. Process for making solar cell base material. 4,366,024, Cl. 156-607.000.

Astle, William H. Portable lathe. 4,365,528, Cl. 82-4.00C.

Atwell, Graham J.: See—

Cain, Bruce F., deceased; and Atwell, Graham J., 4,366,318, Cl. 546-106.000.

Auerbach, Robert A.; and Boenig, Herman V., to Lord Corporation. Method for bonding silicone elastomers to metal substrates. 4,366,184, Cl. 427-41.000.

Autoipari Kutato Intezet: See—

Ratsko, Istvan; Ivony, Jozsef; Madi, Jenő; and Karaszi, György, 4,365,685, Cl. 180-135.000.

Averdiek, Walter: See—

Stori, Heinrich; and Averdiek, Walter, 4,365,478, Cl. 62-45.000.

Awerbuch, Leon: See—

Rogers, Alfred N.; Awerbuch, Leon; and May, Sherman C., 4,366,066, Cl. 210-696.000.

Axen, Udo F., to Upjohn Company. The 2-Decarboxy-2-tetrazolyl-6-keto-PGE compounds. 4,366,313, Cl. 542-426.000.

Azuma, Kenkoku: See—

Takeyama, Tetsu; Azuma, Kenkoku; Ikeda, Akira; Yamamoto, Toshie; and Katsurada, Shigeho, 4,365,979, Cl. 55-181.000.

B.A.T. Cigaretten-Fabriken GmbH: See—

Lorenz, Hans-Walter; and Schumacher, Gerd, 4,365,640, Cl. 131-330.000.

B. F. Goodrich Company, The: See—

Jones, Robert F., 4,366,019, Cl. 156-360.000.

Baba, Masaharu; Honda, Kiyokazu; and Hashima, Akiyoshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Method for manufacturing a baseless incandescent lamp assembly. 4,365,396, Cl. 29-25.130.

Babcock, Warner K., to Construction Products Research, Inc. Surface treating method and composition for cement. 4,366,209, Cl. 428-446.000.

Bahder, George; Katz, Carlos; Dima, Attila F.; and Knott, Adolf S., to GK Technologies, Incorporated. General Cable Company Division. Apparatus for molding stress control cones insitu on the terminations of insulated high voltage power cables. 4,365,947, Cl. 425-384.000.

Bai, Roland D.; Brodovsky, Vladimir N.; Ivanov, Evgeny S.; Kanep, Alexandr A.; Feldman, Alexandr V.; and Chabanov, Alim I. Asynchronous motor drive. 4,366,428, Cl. 318-809.000.

Bailey, Henry J.: See—

Van Blokland, Gerardus J.; and Bailey, Henry J., 4,365,793, Cl. 271-31.000.

Bailey, Ronald L., to Young Dental Manufacturing Company. Cleaning cup. 4,365,956, Cl. 433-115.000.

Baily, Oliver L., to Cincinnati Milacron Inc. Fluid power connector system for manipulator. 4,365,928, Cl. 414-735.000.

Baker International Corporation: See—

McCombs, Russell L.; and Motsinger, James V., 4,365,402, Cl. 29-407.000.

Baker, Maurice R. Lining system for chimneys and ducts. 4,365,543, Cl. 98-58.000.

Baker, Richard H., to Reliance Electric Company. Self-snubbing bipolar/field effect (biofet) switching circuits and method. 4,366,522, Cl. 361-91.000.

Bakhr, Tatiana M.: See—

Bakhr, Vitold M.; Alekhin, Stanislav A.; Bakhr, Tatiana M.; Born, Raisa I.; and Alimdzhanov, Khamidulla A., 4,365,507, Cl. 73-153.000.

Bakhr, Vitold M.; Alekhin, Stanislav A.; Bakhr, Tatiana M.; Born, Raisa I.; and Alimdzhanov, Khamidulla A. Method of determining the depth of occurrence of a chemically aggressive bed. 4,365,507, Cl. 73-153.000.

Balke, Roy L.: See—

Zdaniowski, Joseph J.; Penn, William B.; and Balke, Roy L., 4,365,407, Cl. 29-598.000.

Ball, Brian: See—

Olin, Eric J.; Carson, Harry B.; and Ball, Brian, 4,366,050, Cl. 209-167.000.

Ball Corporation: See—

Weiss, Michael A.; and Munson, Robert E., 4,366,484, Cl. 343-700.0MS.

Baltz, Richard H.; and Seno, Eugene T., to Eli Lilly and Company. Process for preparing tyactone. 4,366,247, Cl. 435-124.000.

Bandag Incorporated: See—

Ho, Morris D., 4,365,514, Cl. 73-592.000.

Bankers Box Company: See—

Klaus, Gerald R.; Williams, Thomas E.; and Nizzere, Paul D., 4,365,431, Cl. 40-352.000.

Bantien, Jürgen: See—

Tolasch, Gerhard; Base, Horst; and Bantien, Jürgen, 4,365,702, Cl. 198-347.000.

Barbee, Eugene H.: See—

Arter, Thomas C.; and Barbee, Eugene H., 4,365,423, Cl. 34-23.000.

Barchetti, Giuseppe: See—

Grilli, Walter; Crotti, Aldo; and Barchetti, Giuseppe, 4,365,848, Cl. 305-54.000.

Bare, Rex O.; and Robinson, Earl F., to C. R. Bard, Inc. Medical electrode construction. 4,365,634, Cl. 128-640.000.

Bargiotti, Alberto; Cassinelli, Giuseppe; Penco, Sergio; Arcamone, Federico; and Casazza, Annamaria. Antitumor anthracene glycosides, their preparation, intermediates thereof, and compositions and use thereof. 4,366,149, Cl. 424-180.000.

Barker, Kent R., to Medicon, Inc. Method of monitoring patient respiration and predicting apnea therefrom. 4,365,636, Cl. 128-716.000.

Barker, Stephen F., to Cooper Industries, Inc. Keyboard. 4,366,463, Cl. 338-69.000.

Barnes, George A.; and Sirois, Walter J., to Victory Games, Inc. Game table. 4,365,803, Cl. 273-5.00R.

Barnes Group Inc.: See—

Zavatkay, Robert J.; Kurasz, George W.; and Devaux, Robert R., 4,365,690, Cl. 185-45.000.

Baron, Kenneth; and McArthur, Dennis P., to Union Oil Company of California. Process for reducing CO and SO_x emissions from catalytic cracking units. 4,366,083, Cl. 252-416.000.

Barry, Dixie B. Three-figure dissection puzzle. 4,365,809, Cl. 273-157.00R.

Bart, Philip D. Merry-go-round stroller. 4,365,819, Cl. 280-47.410.

Barten, Piet G. J., to U.S. Philips Corporation. Astigmatic electron lens for a cathode-ray tube. 4,366,419, Cl. 315-382.000.

Bartlett, John M., to Elan Pressure Clean Limited. Cleaning apparatus for components. 4,365,383, Cl. 15-302.000.

Bartlett, Norman L. Apparatus for making a copy in one of three sizes of X-ray film. 4,365,892, Cl. 355-63.000.

Base, Horst: See—

Tolasch, Gerhard; Base, Horst; and Bantien, Jürgen, 4,365,702, Cl. 198-347.000.

BASF Aktiengesellschaft: See—

Hagen, Karl; Scholl, Karl H.; and Schmelzer, Gerhard, 4,366,369, Cl. 219-388.000.

Oppenlaender, Knut; Krapf, Heinz; and Lang, Siegfried, 4,366,151, Cl. 424-238.000.

Vodrazka, Wolfgang; Klahr, Erhard; Oppenlaender, Knut; Trielselt, Wolfgang; Stoeckigt, Dieter; and Neumann, Werner, 4,366,326, Cl. 568-613.000.

Basilis, Algerd, to Hughes Aircraft Company. Osmotically pumped heat pipe with passive mixing. 4,365,664, Cl. 165-40.000.

Bates, Bobbie D.; and Haus, Ralph A., to International Business Machines Corp. Tilt and rotate apparatus for a display monitor. 4,365,779, Cl. 248-371.000.

Bauer, James J., to Clark Equipment Company. Controller for electric traction motor. 4,365,687, Cl. 180-315.000.

Baumgartner, Carl, to Elcar Zurich AG. Air ionizer for rooms. 4,366,525, Cl. 361-231.000.

Bawks, James R.: See—

Dissett, Walter L.; and Bawks, James R., 4,365,524, Cl. 74-715.000.

Bax, Ronald F., to Pfizer Inc. Method and apparatus for controlling x-ray tube emissions. 4,366,575, Cl. 378-110.000.

Bayer Aktiengesellschaft: See—

Beecken, Hermann, 4,366,314, Cl. 542-455.000.

Freitag, Dieter; Nouvettne, Werner; Reinking, Klaus; Tacke, Peter; Kleiner, Frank; and Schmidt, Manfred, 4,366,276, Cl. 524-94.000.

Friemann, Hans; Moretto, Hans-Heinrich; Alberts, Heinrich; de Montigny, Armand; and Toepsch, Hans, 4,366,286, Cl. 524-588.000.

Kramer, Wolfgang; Timmler, Helmut; Buchel, Karl H.; Brandes, Wilhelm; Froberger, Paul-Ernst; and Scheinplugg, Hans, 4,366,152, Cl. 424-245.000.

Rauchschwalbe, Gunter; Blank, Heinz U.; Mannes, Karl; and Mayer, Dietmar, 4,366,102, Cl. 260-463.000.

Resz, Raoul; Schaer, Walter; and El Sayed, Aziz, 4,366,288, Cl. 525-60.000.

Wedemeyer, Karlfried; and Fiege, Helmut, 4,366,325, Cl. 568-432.000.

Bayusik, John G.: See—

Fuzesi, Stephen; and Bayusik, John G., 4,366,265, Cl. 521-167.000.

Bazin, Lucas J.: See—

Olson, Charles L.; and Bazin, Lucas J., 4,366,440, Cl. 330-11.000.

BBC Brown, Boveri & Company Limited: See—

Jaeklin, Andre, 4,366,496, Cl. 357-38.000.

Melton, Keith; Mercier, Olivier; and Riegger, Helmut, 4,365,996, Cl. 419-28.000.

Ziegler, Herwin G., 4,366,404, Cl. 310-239.000.

BCH Chemicals Limited: See—

Gray, George W.; Lacey, David; Jenner, John A.; and Pellatt, Martin G., 4,366,330, Cl. 568-775.000.

Beach, David L.; and Zambelli, Adolfo, to Gulf Research & Development Company. Composition containing chlorine, bromine and magnesium. 4,366,086, Cl. 252-431.00R.

Beach, Shirley, to Phillips Cables Limited. Composition for filling cables. 4,366,075, Cl. 252-28.000.

Beale, Alvin F., Jr., to Dow Chemical Company. The Chromium oxide in ion exchange resin. 4,366,261, Cl. 521-25.000.

Bechtel International Corporation: See—

Rogers, Alfred N.; Awerbuch, Leon; and May, Sherman C., 4,366,066, Cl. 210-696.000.

Beck, Louis. Diaphragm pump. 4,365,745, Cl. 239-124.000.

Beck, Martin H.: See—

Harry, Iuan L.; Krihsnakumar, Suppayan M.; Jolly, Walter R.; and Beck, Martin H., 4,365,950, Cl. 425-534.000.

Beecham Group Limited: See—

Corbett, David F., 4,366,167, Cl. 424-274.000.

Evans, John M.; Showell, Graham A.; and Fake, Charles S., 4,366,163, Cl. 424-267.000.

Beecken, Hermann, to Bayer Aktiengesellschaft. Dimethine dyestuffs, their preparation and their use for dyeing synthetic and natural materials. 4,366,314, Cl. 542-455.000.

Beery, Jack, to Xerox Corporation. Scanning optics copier with variable pitch copy capability. 4,366,219, Cl. 430-31.000.

Bees, George L., to Candela Corporation. Series inverter for capacitor charging. 4,366,570, Cl. 372-70.000.

Bell & Howell Company: See—

Bowman, Ronald, 4,365,635, Cl. 128-675.000.

Bell, Melvyn R., to Ferranti Limited. Circuit assemblies each with a connector having an insulating block with two separable stacked parts. 4,366,527, Cl. 361-386.000.

Bell Telephone Laboratories, Incorporated: See—

Keramidas, Vassilis G.; McCoy, Robert J.; and Temkin, Henryk, 4,366,186, Cl. 427-89.000.

Kirsch, Howard C., 4,366,400, Cl. 307-594.000.

Beloit Corporation: See—

Fitzpatrick, Donald C.; Gerard, Peter A.; and Davison, John F., 4,365,797, Cl. 271-303.000.

- Gordon, Ambrose L., Jr.; and Busker, Leroy H., 4,366,025, Cl. 162-358.000.
- Bender, Reinhold H. W., to American Home Products Corporation. Process for preparing aminopenicillins. 4,366,098, Cl. 260-239.100.
- Bendix Corporation, The: See—
Karol, James J., 4,365,858, Cl. 339-36.000.
Marsh, Edward K., 4,365,412, Cl. 29-863.000.
- Beneke, Wolfgang; and Leifeld, Ferdinand, to Trutzschler GmbH & Co. KG. Apparatus for cleaning textile fiber tufts. 4,365,389, Cl. 19-200.000.
- Bennett, David E., to Kelley Company Inc. Hydraulically operated dockboard. 4,365,374, Cl. 14-71.700.
- Bennett, M. C., Sr. Engine starting device. 4,365,596, Cl. 123-179.05E.
- Bennett, Richard C.: See—
Korfmann, Robert G.; and Bennett, Richard C., 4,365,382, Cl. 15-249.000.
- Benson, Henry E.: See—
Wagner, Walter R.; and Benson, Henry E., 4,365,669, Cl. 166-231.000.
- Benthimere, Floyd D. Apparatus for laminating and coiling insulation blankets. 4,365,767, Cl. 242-67.10R.
- Benyak, Istvan; Dudas, Lajos; and Pohl, Oskar, to Hutotechnika Ipari Szervezet; and Villamosenergiaipari Kutató Intézet. Heat exchanger. 4,366,106, Cl. 261-156.000.
- BERFI S.p.A.: See—
Galluzzi, Giovanni; and Fiocchi, Giulio, 4,365,555, Cl. 102-204.000.
- Berg, Alan D., to General Motors Corporation. Inertia seat back lock. 4,365,838, Cl. 297-379.000.
- Berger, Jean L., to Thomson-CSF. Switched-capacity amplifier, switched-capacity filter and charge-transfer filter comprising such an amplifier. 4,366,455, Cl. 332 165.000.
- Berger, Michael; and Magenheimer, John J., to Polaroid Corporation. Diffusion transfer film unit. 4,366,227, Cl. 430-215.000.
- Berglund, Neil C.; and Burchfiel, John R., Jr., to International Business Machines Corporation. Cycle control for a microprocessor with multi-speed control stores. 4,366,540, Cl. 364-200.000.
- Berndt, Wilhelm: See—
Kuhner, Gerhard; Berndt, Wilhelm; Rothbuhr, Lothar; and Wagner, Hans, 4,366,139, Cl. 423-449.000.
- Berry, George A., to International Computers Limited. Fastening devices. 4,365,907, Cl. 403-12.000.
- Bertelsen, Corey A.; and Handel, Gene M., to Chevron Research Company. Size separation of oil shale particles for efficient retorting. 4,366,046, Cl. 208-11.00R.
- Bertin & Cie: See—
Raymond, Bernard P. M., 4,366,322, Cl. 549-489.000.
- Bethlehem Steel Corporation: See—
Gee, Kenneth H., 4,365,984, Cl. 65-2.000.
Mihalow, Frederick A., 4,365,896, Cl. 356-446.000.
- Bettencourt, Thomas S.; and Freeman, Daniel L., to University of California, The Regents of The. Harvesting tomatoes. 4,365,463, Cl. 56-327.00R.
- Bevilaqua, Ernest M.; McCroskery, Allan L.; and Knerr, Theodore N., to Otis Elevator Company. Integrated elevator cab fixture. 4,365,691, Cl. 187-1.00R.
- Biedermann, Horst H.; Hermann, Ferdinand; Pechinger, Ernst; and Sereinigg, Emil L. F., to NCR Corporation. Wire matrix print head. 4,365,902, Cl. 400-124.000.
- Bigall, Klaus D.: See—
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- Binger, Larry W. Vertical convection heat dissipation tower. 4,365,483, Cl. 62-183.000.
- Binz, Jorg: See—
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- Bivar, Inc.: See—
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- Bjork, Anders K. K.; Abramo, Aina L.; and Kjellberg, Bengt E. S., to AB Ferrosan. Aryl ethers of N-alkyl-piperidines and acid addition salts thereof. 4,366,162, Cl. 424-267.000.
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Overbury, Douglas G., 4,365,416, Cl. 30-382.000.
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- Blanchard, Eugene J.: See—
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- Blank, Heinz U.: See—
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- Block, Franz-Rudolf, to Didier-Werke AG. Process and apparatus for determining the level of molten metal in a metallurgical vessel, the

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- Block, Jacob, to W. R. Grace & Co. Viscosifier & fluid loss control system. 4,366,070, Cl. 252-8.50A.
- Blöse, William G. Speaker cabinet. 4,365,688, Cl. 181-145.000.
- Blount, Luther H. Hull construction. 4,365,580, Cl. 114-356.000.
- Boaggio, Richard J.: See—
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- Bode, Udo; Thiele, Paul; Mohring, Gunter; and Hildebrand, Helmut, to Kabel- u. Metallwerke Gutehoffnungshütte AG. Radiating coaxial cable having apertures spaced at a distance considerably larger than a wavelength. 4,366,457, Cl. 333-237.000.
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- Boehringer Mannheim GmbH: See—
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- Boenig, Herman V.: See—
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- Boettner, George B., to Corning Glass Works. Apparatus and method of conditioning and conveying thermoplastic material. 4,365,987, Cl. 65-137.000.
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- Boing, Wulf: See—
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- Bolin, Philip C.: See—
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- Bopp, Warren G., to Eaton Corporation. Fan drive actuator. 4,365,592, Cl. 123-41.120.
- Borders, Ernest D., to Rubbermaid Applied Products Inc. Side-loading dump unit. 4,365,922, Cl. 414-406.000.
- Borghans, Joseph H., to U.S. Philips Corporation. Magnetic erasing head. 4,366,517, Cl. 360-118.000.
- Born, Raisa I.: See—
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- Borovsky, Joseph, to Kimberly-Clark Corporation. Ceramic/organic web. 4,366,202, Cl. 428-283.000.
- Bostelmann, Jurgen, to Claudius Peters AG. Cooler for combustible material. 4,365,953, Cl. 432-78.000.
- Bourne, William R., to Hartwell Corporation. Channel latch. 4,365,831, Cl. 292-229.000.
- Boussaroque, Bertrand J. Mattresses with stiffeners. 4,365,371, Cl. 5-462.000.
- Bowden, Wade R., Jr.: See—
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- Bowden, William L.: See—
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- Bowen, Franklin D. Center-pivot irrigator. 4,365,749, Cl. 239-177.000.
- Bowles Fluidics Corporation: See—
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- Bowman, Edward: See—
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- Bowman, Ronald, to Bell & Howell Company. Pressure transducing methods and apparatus. 4,365,635, Cl. 128-675.000.
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- Boyer, David C.; and Ruehl, William E., to Illinois Tool Works Inc. Differential pressure signal device. 4,365,582, Cl. 116-70.000.
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- Bradshaw, John: See—
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- Braine, William G. Method of building construction. 4,365,455, Cl. 52-741.000.

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- Brandt, Richard T., to General Electric Company. Computed tomography system cable retractor. 4,366,577, Cl. 378-194.000.
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- Breedlove, James G., to Minnesota Mining and Manufacturing Company. Conductively coated embossed articles. 4,366,342, Cl. 174-52.0FP.
- Brettschneider, Johannes: See—
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- Bright, Gary R., to Standard Oil Company (Indiana). Side wall clamp for downhole tools. 4,365,668, Cl. 166-214.000.
- Brightwell, Alan, to British Gas Corporation. Fuel burner control system circuits. 4,366,391, Cl. 307-129.000.
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- British Nuclear Fuels Limited: See—
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- Brodovsky, Vladimir N.: See—
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- Campbell, Rouel R.: Motion picture camera, 4,365,876, Cl. 352-84.000.
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- Carlomagno, William D., to Raychem Corporation: Apparatus for installing sleeves on substrates, 4,365,400, Cl. 29-235.000.
- Carlqvist, Stig G., to CMC Aktiebolag: Module for constructing a double-acting four-cylinder Stirling engine, 4,365,474, Cl. 60-525.000.
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- Ciba-Geigy Corporation: See—
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- Covington, Wayne F.: See—
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- Cowley, Gerald, to Erco Industries Limited. Small scale chlorine dioxide plant, 4,366,120, Cl. 422-106.000.
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- Faulkner, Arnold T. Tiller head with shiftable blades. 4,365,673, Cl. 172-95.000.
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- Fowler, Dwight W. Sewer tapping apparatus. 4,365,829, Cl. 285-162.000.
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- Frabotta, Dante: See—
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- Francis, Leonard J.: See—
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- Franssen, Nico V., deceased: See—
Dijkmans, Eise C.; Franssen, Nico V., deceased; and De Haan, Friedrich J., administrator, 4,366,346, Cl. 179-1.00J.
- Franz Plasser Bahnbaumschienen Industriellgesellschaft m.b.H.: See—
Theurer, Josef, 4,365,918, Cl. 409-296.000.
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- Freeman, Daniel L.: See—
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- Freeman, Wallace L., to United States of America, Army. Method of making cold shield for infrared detector array. 4,366,229, Cl. 430-312.000.
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- Freitag, Dieter; Nouvettne, Werner; Reinking, Klaus; Tacke, Peter; Kleiner, Frank; and Schmidt, Manfred, to Bayer Aktiengesellschaft. Flame-resistant moulding materials based on thermoplastic aromatic polyesters and polyesters carbonates, a process for their production and their use in the production of moulded bodies. 4,366,276, Cl. 524-94.000.
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- Frick, Nikolaus: See—
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- Fried. Krupp Gesellschaft mit beschränkter Haftung: See—
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- Friedrich, Jan B.: See—
Wainwright, Mark S.; Marsden, Warwick L.; and Friedrich, Jan B., 4,366,260, Cl. 518-713.000.
- Friemann, Hans; Moretto, Hans-Heinrich; Alberts, Heinrich; de Montigny, Armand; and Toepsch, Hans, to Bayer Aktiengesellschaft. Coating agent for non-stick coatings. 4,366,286, Cl. 524-588.000.
- Friesinger, Gunter: See—
Forster, Siegfried; and Friesinger, Gunter, 4,366,460, Cl. 335-216.000.
- Frohberger, Paul-Ernst: See—
Kramer, Wolfgang; Timmler, Helmut; Buchel, Karl H.; Brandes, Wilhelm; Frohberger, Paul-Ernst; and Scheinplugg, Hans, 4,366,152, Cl. 424-245.000.
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- Frostig, Amos, to Etablissement Salgad. Fin-stabilized projectile. 4,365,560, Cl. 102-477.000.
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Iwanami, Masao; and Ogawa, Yusuke, 4,365,486, Cl. 62-392.000.
- Fuji Jukogyo Kabushiki Kaisha: See—
Shikata, Makoto; Osano, Hisashi; and Morozumi, Takuro, 4,365,603, Cl. 123-440.000.
- Fuji Kiko Company, Limited: See—
Mochida, Haruo; Tanaka, Yoshiyuki; Yamamoto, Yoshio; and Kataoka, Minoru, 4,365,488, Cl. 464-132.000.
- Fuji Photo Film Co., Ltd.: See—
Fukushima, Osamu; and Koizumi, Takashi, 4,365,795, Cl. 271-236.000.
- Hamaoka, Tsutomu; Takahashi, Osamu; Harada, Tooru; Sakai, Minoru; and Ohki, Nobutaka, 4,366,226, Cl. 430-214.000.
- Ichijima, Seiji; Adachi, Keiichi; and Ogawa, Tadashi, 4,366,237, Cl. 430-505.000.
- Mori, Sumio, 4,366,507, Cl. 358-283.000.
- Nakamura, Kotaro, 4,366,233, Cl. 430-393.000.
- Oishi, Kengo; and Suzuki, Osamu, 4,365,712, Cl. 206-387.000.
- Shinagawa, Yukio; Ohtani, Sumio; Suematsu, Koichi; and Kawaguchi, Hideo, 4,366,239, Cl. 430-533.000.
- Sugiyama, Masatoshi; Odawara, Hideo; and Takeda, Nagao, 4,365,998, Cl. 106-22.000.
- Takahashi, Osamu, 4,366,236, Cl. 430-505.000.
- Yagi, Motohiko, 4,366,253, Cl. 501-63.000.
- Yokoyama, Shigeki; and Ohga, Kunihiro, 4,366,238, Cl. 430-529.000.
- Fujii, Shin: See—
Ohkawa, Koue; Fujii, Shin; and Seino, Takashi, 4,366,269, Cl. 523-148.000.

Fujimoto, Masahiro: See—
Arimoto, Katsuhiko; and Fujimoto, Masahiro, 4,365,700, Cl. 194-2.000.

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Takaya, Takao; Masugi, Takashi; Takasugi, Hisashi; and Kochi, Hiromu, 4,366,153, Cl. 424-246.000.

Fujita, Toshio; and Kashima, Toru, to Kiresuto Kagaku Kabushiki Kaisha; and Osaka Semento Kabushiki Kaisha. Corrosion-inhibiting method for steel materials in concrete. 4,365,999, Cl. 106-90.000.

Fujitsu Fanuc Limited: See—
Imazeki, Ryoji; and Hattori, Masayuki, 4,366,433, Cl. 323-281.000.

Inaba, Hajimu; and Sakakibara, Shinsuke, 4,366,423, Cl. 318-563.000.

Kishi, Hajimu; and Tanaka, Kunio, 4,366,475, Cl. 340-731.000.

Fujitsu Limited: See—
Asami, Fumitaka, 4,366,398, Cl. 307-451.000.

Ueno, Norio; Kato, Seiji; and Iwata, Atsushi, 4,366,456, Cl. 333-173.000.

Watanabe, Kouji; and Tokudome, Hiroshi, 4,365,857, Cl. 339-17.000.

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Takatsuki, Toshiharu; Fujiwara, Ken-ichi; Nomura, Jutaru; and Okamura, Shigeru, 4,366,347, Cl. 179-2.0DP.

Takatsuki, Toshiharu; Fujiwara, Ken-ichi; Yanagisawa, Sinobu; and Okamura, Shigeru, 4,366,572, Cl. 375-37.000.

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Sato, Masaaki; Miyaji, Kazumi; Yoshida, Masahide; Fukuoka, Norio; Nakasho, Kazuo; and Furuta, Kenji, 4,366,514, Cl. 360-74.400.

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Funk, Erwin D.: See—
Elmore, Carl L.; Funk, Erwin D.; and Poulin, Ted M., 4,365,974, Cl. 48-111.000.

Furuhashi, Toshio: See—
Mouri, Yasunori; Suda, Seiji; Shida, Masami; and Furuhashi, Toshio, 4,366,541, Cl. 364-431.050.

Furuhata, Takashi, to Hitachi, Ltd. Frequency discrimination circuit. 4,366,399, Cl. 307-519.000.

Furukawa, Masanori: See—
Amemiya, Akira; Kunii, Tadashi; Furusawa, Tomotaka; Takeda, Mutsuhiko; Tanaka, Katsumasa; Umemura, Toshikazu; Ono, Yoshihiro; Masumoto, Isamu; Nakao, Noriyasu; and Furukawa, Masanori, 4,366,305, Cl. 528-230.000.

Furusawa, Tomotaka: See—
Amemiya, Akira; Kunii, Tadashi; Furusawa, Tomotaka; Takeda, Mutsuhiko; Tanaka, Katsumasa; Umemura, Toshikazu; Ono, Yoshihiro; Masumoto, Isamu; Nakao, Noriyasu; and Furukawa, Masanori, 4,366,305, Cl. 528-230.000.

Furuta, Kenji: See—
Sato, Masaaki; Miyaji, Kazumi; Yoshida, Masahide; Fukuoka, Norio; Nakasho, Kazuo; and Furuta, Kenji, 4,366,514, Cl. 360-74.400.

Futawata, Hajime: See—
Hatada, Toshio; Senshu, Takao; Arai, Akira; Harada, Fumio; Matsuzaki, Atsushi; Futawata, Hajime; Imaizumi, Yutaka; and Takeda, Sumiyoshi, 4,365,667, Cl. 165-152.000.

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Gabriel, William, to Western Electric Company, Inc. Immersion curing of encapsulating material. 4,366,187, Cl. 427-96.000.

Gaetani, Quintino; and Papantoniou, Christos, to Societe Anonyme dite: L'Oreal. Process for treating cosmetic oils so as to modify their properties and cosmetic compositions containing these oils. 4,366,099, Cl. 260-407.000.

GAF Corporation: See—
Resnick, Bruce M., 4,366,171, Cl. 424-313.000.

Williams, Earl P.; and Lorenz, Donald H., 4,366,294, Cl. 525-327.600.

Gallien, Shelby W.: See—
Graham, J. Clifford; Gallien, Shelby W.; and Gill, Maurice P., 4,365,988, Cl. 71-34.000.

Galluzzi, Fabrizio: See—
Alessandrini, Paolo; De Angelis, Lucio; Galluzzi, Fabrizio; Losciale, Francesco; and Scafe, Ernesto, 4,366,337, Cl. 136-258.000.

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Galzy, Pierre: See—
Jallageas, Jean C.; Arnaud, Alain; and Galzy, Pierre, 4,366,250, Cl. 435-280.000.

Gang-Nail Systems, Inc.: See—
Harris, Roderick E., 4,365,734, Cl. 227-152.000.

Ganguly, Ashit K.; Liu, Yi-Tsung; Sarre, Olga; Jaret, Robert; and Schumacher, Doris P., to Schering Corporation. Derivatives of antibiotic AR-5 components. 4,366,309, Cl. 536-7.100.

Gardner Bender, Inc.: See—
Kruse, Robert W., 4,365,527, Cl. 81-431.000.

Gardner, Harry E., to Union Carbide Corporation. Removal of molybdenum from uranium solutions. 4,366,126, Cl. 423-7.000.

Gaspar, Bela: See—
Alajos, Dobos; Kiss, Gyula; Gaspar, Bela; Imre, Geza; Jony nee Acs, Julia; Forian, Istvan; Iijas, Istvan; Liptak, Ferenc; and Bisits nee Zsilinsky, Vilma, 4,365,757, Cl. 239-567.000.

Gates Rubber Company, The: See—
Russ, Paul E., Sr., 4,365,965, Cl. 474-244.000.

Gaughan, Edmund J., to Stauffer Chemical Company. Sulfonylurea herbicidal antidotes. 4,365,990, Cl. 71-100.000.

Gaylord, John A.; and Marks, Kenneth A., to H. Koch & Sons, Div. of Gulf & Western Mfg. Co. Double safety manually releasable strap connector. 4,365,776, Cl. 244-151.00A.

Geary, John T.: See—
Gounder, Raj N.; and Geary, John T., 4,366,302, Cl. 528-99.000.

Gebhardt, Ulrich: See—
Richter, Gerhard; Luft, Gunter; and Gebhardt, Ulrich, 4,366,033, Cl. 204-1.00T.

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Kuhnel, Roland; Bokelmann, Rainer; Scholz, Magnus; Gebke, Klaus; and Schuler, Mariana, 4,366,114, Cl. 376-272.000.

Gee, Kenneth H., to Bethlehem Steel Corporation. Mineral wool and process for producing same. 4,365,984, Cl. 65-2.000.

Geiger, Willard L., to Modern Industries Signal Equipment, Inc. Train approach detector. 4,365,777, Cl. 246-130.000.

Genentech, Inc.: See—
Riggs, Arthur D., 4,366,246, Cl. 435-68.000.

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Hagedorn, Gary L.; and Brustad, John T., 4,366,483, Cl. 343-113.00R.

General Electric Company: See—
Anthony, Blair T., 4,366,207, Cl. 428-412.000.

Brandt, Richard T., 4,366,577, Cl. 378-194.000.

Hickin, Charles W. R., 4,366,476, Cl. 340-747.000.

Krabbenhoft, Herman O., 4,366,089, Cl. 252-437.000.

Smith, Lowell S.; and Briskin, Axel F., 4,366,406, Cl. 310-334.000.

Walker, Loren H.; and Cutler, John H., 4,366,427, Cl. 318-798.000.

Webb, William M., 4,365,562, Cl. 108-108.000.

Zdaniwski, Joseph J.; Penn, William B.; and Balke, Roy L., 4,365,407, Cl. 29-598.000.

General Foods, Inc.: See—
Cameron, Jacquelyn J.; and Myers, Chester D., 4,366,097, Cl. 260-123.500.

General Motors Corporation: See—
Berg, Alan D., 4,365,838, Cl. 297-379.000.

Dickman, John E.; and Donley, William B., 4,365,405, Cl. 29-571.000.

Karadsheh, Sam M.; and Radomski, Thomas A., 4,366,531, Cl. 363-57.000.

Singh, Harmahendar, 4,365,681, Cl. 180-68.500.

Genoni, Fausto: See—
Le Van Mao, Raymond; Pilati, Orlando; Moretti, Enrico; Covini, Romano; and Genoni, Fausto, 4,366,135, Cl. 423-329.000.

Georgia Tech Research Institute: See—
Dittman, William J.; and Jameson, Calvin R., 4,366,452, Cl. 333-108.000.

Gerard, Peter A.: See—
Fitzpatrick, Donald C.; Gerard, Peter A.; and Davison, John F., 4,365,797, Cl. 271-303.000.

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Gregor, Karl; and Asmus, Kurt, 4,366,004, Cl. 134-22.110.

Ghommidh, Josette; Buttazzoni, Bernard; Constant, Georges; Dilo, Etienne; and Morancho, Roland, to Societe Europeene de Propulsion. Process for making bioactive coatings on osseous prostheses, and prostheses thus obtained. 4,366,183, Cl. 427-2.000.

Ghosh, Amal K.: See—
Feng, Tom; and Ghosh, Amal K., 4,366,335, Cl. 136-255.000.

Giandonato, Giuseppe: See—
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Gibson, Ronald F.: See—
Greer, Raymond T.; and Gibson, Ronald F., 4,365,741, Cl. 494-37.000.

Gibson, Thomas W., to Procter & Gamble Company. The. Synthesis of long-chain alkanes having terminal functionality. 4,366,101, Cl. 260-429.300.

Gigou, Roger, to Framatome. Installation for a nuclear power station with staggered swimming pools. 4,366,113, Cl. 376-264.000.

Giguere, R. James, to Cereal Enterprises, Inc. Apparatus for degerminating a kernel by compressing the edges of the kernel. 4,365,546, Cl. 99-567.000.

Gilbertson, Terry J., to Upjohn Company. The. 4-Substituted phenyl-1,2,4-triazoline-3,5-diones and their dihydro analogs as analytical reagents. 4,366,320, Cl. 548-264.000.

Gill, Maurice P.: See—
Graham, J. Clifford; Gallien, Shelby W.; and Gill, Maurice P., 4,365,988, Cl. 71-34.000.

Gillard, Richard G.; and Oliver, Colin C., to EMI Limited. Circuit for controlling the grid potential of a pulsed X-ray tube. 4,366,395, Cl. 307-246.000.

Ginsberg, Martin: See—
Janak, Miloslav; Schonwald, Helmut; Tercic, Eduard; and Ginsberg, Martin, 4,366,512, Cl. 360-48.000.

Ginsburg, Arthur P. Spatial frequency and contrast sensitivity test chart. 4,365,873, Cl. 351-239.000.

Giorelli, Silvano: See—
Cedolin, Riccardo; Chiarottino, Wolmer; Giandonato, Giuseppe; Giorelli, Silvano; Martinengo, Giorgio; Sofi, Giorgio; and Villone, Sergio, 4,366,535, Cl. 364-200.000.

Girtz, Sylvester A. Manhole cover lifter. 4,365,925, Cl. 414-684.300.

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Bruynes, Cornelis A.; and Jurriens, Theodorus K., 4,366,315, Cl. 544-16.000.

Gisting, Guido; and Schmid, Manfred, to Sigr Elektrographit GmbH. Method of increasing the strength of carbon and graphite members. 4,366,191, Cl. 427-228.000.

GK Technologies, Incorporated, General Cable Company Division: See—
Bahder, George; Katz, Carlos; Dima, Attila F.; and Knott, Adolf S., 4,365,947, Cl. 425-384.000.

Glaenger Spicer: See—
Orain, Michel A., 4,365,686, Cl. 180-256.000.

Orain, Michel A.; and Thiault, Roger P., 4,365,791, Cl. 267-166.000.

Glancy, Jerry L., to Boeing Company. The. Cowl structure alignment and shear device. 4,365,775, Cl. 244-53.00R.

Glavin, German G.: See—
Karpov, Jury A.; Burylev, Boris P.; Glavin, German G.; Kvin, Valeria E.; Kovalev, Vasily V.; Natanson, Konstantin J.; Orlov, Vladimir V.; Kuznetsov, Lev B.; Zaitsev, Anatoly M.; Kartsev, Valentin E.; Morozov, Vladimir M.; and Kovalev, Gennady G., 4,365,969, Cl. 436-75.000.

Glaxo Group Limited: See—
Clitherow, John W.; Price, Barry; Bradshaw, John; and Martin-Smith, Michael, 4,366,164, Cl. 424-267.000.

Godwin, Jerry L., to Kennecott Corporation. Multiple discharge chute. 4,365,698, Cl. 193-2.00B.

Goetze AG: See—
Feller, Otto; Oepen, Heinz; and Stechow, Jochen, 4,366,543, Cl. 364-474.000.

Golden, Leonard W., Jr., to Owens-Illinois, Inc. Method and apparatus for producing a plastic sleeve. 4,366,016, Cl. 156-218.000.

Golding, Gordon R.; and Boaggio, Richard J. Method and apparatus for removal and recovery of oil. 4,366,067, Cl. 210-671.000.

Goldreyer, Bruce N., to Applied Cardiac Electrophysiology. Catheter, cardiac pacemaker and method of pacing. 4,365,639, Cl. 128-786.000.

Golemo, Stanley M., Jr.; and Izicki, Anthony J., to Hood and Co., Inc. Corrosion resistant thermostat metal compositions. 4,366,210, Cl. 428-617.000.

Golman, Lev D.: See—
Kurovich, Arkady N.; Krasnokutsky, Jury B.; Sysoev, Vyacheslav N.; Golman, Lev D.; Zuev, Vladimir T.; Nesterov, Viktor I.; and Laboda, Viktor A., 4,365,494, Cl. 72-63.000.

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Goodman, Lawrence A.; and Smith, Kenneth P., to RCA Corporation. Vertical MOSFET with reduced turn-on resistance. 4,366,495, Cl. 357-23.000.

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Parker, Dane K., 4,366,331, Cl. 568-785.000.

Gordon, Ambrose L., Jr.; and Busker, Leroy H., to Beloit Corporation. Suction press roll. 4,366,025, Cl. 162-358.000.

Gore, William C., to Illinois Tool Works Inc. Wire terminal. 4,365,861, Cl. 339-202.000.

Gotchel, Joel P., to Scott Paper Company. Controlled curing of air-permeable bonded webs. 4,365,425, Cl. 34-54.000.

Goto, Koichi: See—
Watanabe, Kenichi; Kinoshita, Hiroshi; Tatsumi, Akira; and Goto, Koichi, 4,365,542, Cl. 98-40.00V.

Gotoh, Akio, to Katoh Electrical Machinery Co. Ltd. Hinge clamp. 4,365,385, Cl. 16-382.000.

Gottsmann, Helmut; and Theilen, Rolf, to Triumph Adler, A.G. Printing plane adjusting mechanism. 4,365,900, Cl. 400-57.000.

Gottstein, Dietrich; and Nitschke, Christian. Force measuring device. 4,365,680, Cl. 177-212.000.

Gould Inc.: See—
Tawfik, Randa, 4,366,461, Cl. 337-159.000.

Zaghi, Hooshmand, 4,365,520, Cl. 73-862.630.

Gounder, Raj N.; and Geary, John T., to Lord Corporation. Imide-anhydrides and epoxy resin systems containing such compounds. 4,366,302, Cl. 528-99.000.

Graham, Clarence O., Jr.; Shepard, Charles L.; and Kullman, Russell M. H., to United States of America, Agriculture. Apparatus to uniformly control wrapping a filament around the surface of a spun core yarn during ring spinning. 4,365,464, Cl. 57-12.000.

Graham, J. Clifford; Gallien, Shelby W.; and Gill, Maurice P., to 3G Corporation. Fluid-mixing apparatus and method. 4,365,988, Cl. 71-34.000.

Grant, Valbory: See—
Hall, Bradley G.; Hall, Gwendolyn L.; and Grant, Valbory, 4,365,828, Cl. 280-825.000.

Grasse, Palmer. Lubricant pumping eccentric in floor stripping machine. 4,365,842, Cl. 299-37.000.

Grasse, Palmer. Blade holder in oscillated head for floor stripping machine. 4,365,843, Cl. 299-37.000.

Gray, George W.; Lacey, David; Jenner, John A.; and Pellatt, Martin G., to BCH Chemicals Limited; and United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Majesty's Government of the. Intermediates useful in the production of liquid crystal compounds. 4,366,330, Cl. 568-775.000.

Green, Ralph E.: See—
Wills, David R.; Green, Ralph E.; and Landymore, Barry W., 4,365,591, Cl. 119-82.000.

Greer, Raymond T.; and Gibson, Ronald F., to Iowa State University Research Foundation, Inc. Continuous centrifugal separation of coal from sulfur compounds and mineral impurities. 4,365,741, Cl. 494-37.000.

Gregor, Karl; and Asmus, Kurt, to Gewerkschaft Schalker Eisenhutte. Method of internally cleaning coke chamber risers. 4,366,004, Cl. 134-22.110.

Gregorian, Razmic S.; Nambodri, Chettoor G.; and Johnson, John D., to United Merchants & Manufacturers, Inc. Method of treating textile materials. 4,365,968, Cl. 8-477.000.

Greier, Josef: See—
Obermayer, Bertram; Skatsche, Othmar; and Greier, Josef, 4,365,594, Cl. 123-41.82R.

Gresch, Heinz: See—
Holter, Heinz; Gresch, Heinz; Igelbuscher, Heinrich; Dewert, Heribert; Dzikowski, Berthold; and Twiehaus, Hans-Jurgen, 4,366,132, Cl. 423-242.000.

Grilli, Walter; Crotti, Aldo; and Barchetti, Giuseppe, to Italtractor I.T.M. S.p.A. Connection link for endless chains of tracked equipment. 4,365,848, Cl. 305-54.000.

Grodin, Bessie: See—
Grodin, Jack; and Grodin, Bessie, 4,365,375, Cl. 15-1.700.

Grodin, Jack; and Grodin, Bessie. Vacuum nozzle for pool cleaning. 4,365,375, Cl. 15-1.700.

Grosjean, Pierre, to Rhone-Poulenc-Textile. Decorative textile element. 4,366,199, Cl. 428-114.000.

Gross, Ralph C., to Hunterdon Occupational Training Center. Method and apparatus for producing intramural wax seals between the compartments of multimedia tubes. 4,366,018, Cl. 156-273.900.

Grothe, Wolfgang. Check valve. 4,365,648, Cl. 137-539.000.

Grover, Robert R. Friction space heater. 4,365,614, Cl. 126-247.000.

Gruaz, Eric. Munition round for firearms. 4,365,559, Cl. 102-439.000.

Grumman Aerospace Corporation: See—
Lijoi, Bruno; Cirrito, Vincent; and Edelstein, Fred, 4,366,526, Cl. 361-385.000.

Grunberg, Wolf-Diethard: See—
Imhof, Rainer; Grunberg, Wolf-Diethard; and Unkelbach, Karl-Heinz, 4,365,510, Cl. 73-313.000.

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GTE Laboratories Incorporated: See—
Buhner, Carl F., 4,366,410, Cl. 313-221.000.

GTE Products Corporation: See—
Cole, David B., 4,366,528, Cl. 361-429.000.

Martin, Brice E.; and Schwartz, Alan R., 4,366,141, Cl. 423-561.00B.

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- Honemann, Rudolf, to Luk Lamellen und Kupplungsbau GmbH. Friction clutch. 4,365,697, Cl. 192-89.00B.
- Honeywell, Inc.: See—
Kompelien, Arlon D., 4,366,534, Cl. 364-183.000.
- Honeywell Information Systems Inc.: See—
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- Honig, Helmut: See—
Pampouchidis, Georg; and Honig, Helmut, 4,366,274, Cl. 523-415.000.
- Honrado, Juanito, to Bowles Fluidics Corporation. Underdash air sweep system for automobiles. 4,365,540, Cl. 98-2.000.
- Hood and Co., Inc.: See—
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- Hoover Universal, Inc.: See—
Mizelle, Ned W., 4,365,837, Cl. 297-216.000.
- Horie, Katuo: See—
Kojima, Sadao; Shimada, Masaaki; Sakai, Kunio; and Horie, Katuo, 4,366,142, Cl. 423-640.000.
- Horii, Kenju: See—
Terakawa, Sumio; Takamura, Tohru; Horii, Kenju; and Yamada, Takahiro, 4,366,503, Cl. 358-213.000.
- Horio, Noriyasu: See—
Ogura, Masato; Horio, Noriyasu; and Suzuki, Kinzo, 4,365,930, Cl. 415-61.000.
- Horiuchi, Takumi; Kuroda, Yoji; and Hukatsu, Kenji, to Teijin Limited. Polyester spun-like textured yarn and method for manufacturing the same. 4,365,466, Cl. 57-205.000.
- Horton, David, to Letraset Limited. Screen printing apparatus. 4,365,551, Cl. 101-124.000.
- Horvath, Miklos; and Pichler, Hans-Peter, to Mag Maschinen und Apparatebau Gesellschaft mbH. Plant for producing enameled wire using an inline process. 4,365,790, Cl. 266-103.000.
- Hosaka, Masao; Ogino, Yoshiaki; and Yanagawa, Nobuyuki, to Ricoh Company, Ltd. Electrostatic copying apparatus. 4,365,888, Cl. 355-14.00R.
- Hoshall, Tom C. Material moving apparatus. 4,365,762, Cl. 241-60.000.
- Hoshino, Masaru: See—
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- Hosoda, Taisei: See—
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- Hosoe, Kazuya: See—
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- Hosoi, Sadao: See—
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- Hosokawa, Toshio. Rotary piston pump of axial type. 4,365,940, Cl. 417-269.000.
- Hosono, Nagao; Miyake, Nobuyuki; Kanbe, Junichiro; Tsukada, Shusei; and Arao, Kozo, to Canon Kabushiki Kaisha. Developing device. 4,365,586, Cl. 118-652.000.
- Hou, Kenneth C.: See—
Ostreicher, Eugene A.; and Hou, Kenneth C., 4,366,068, Cl. 210-767.000.
- Houle, Conrad G.: See—
Specht, Donald P.; Houle, Conrad G.; and Farid, Samir Y., 4,366,228, Cl. 430-281.000.
- Houle, Raymond T.; Redwine, Michael A.; Kilbourn, Fredrick A.; Reed, Stewart D.; Sills, Arthur A.; and Kraft, John H., to Silchor. Bathing units with door controller. 4,365,367, Cl. 4-555.000.
- House, Hugh A. Universal syringe. 4,365,626, Cl. 128-218.00A.
- Houston, Herbert J.; and Dinsmore, Edward S., to Slater Steel Industries Limited. Conductor transfer device. 4,365,410, Cl. 29-762.000.
- Houzeaux, Jean-Pierre: See—
Bujadoux, Karel; Neyer, Jean-Marie; and Houzeaux, Jean-Pierre, 4,366,140, Cl. 423-498.000.
- Howerton, Darrell V., to Cubic Western Data. Ticket metering and throat barrier module. 4,365,718, Cl. 209-586.000.
- Howitt, George. Preparation of beverages. 4,365,544, Cl. 99-297.000.
- Hoyss, Franz; and Popp, Franz, to Hilti Aktiengesellschaft. Drill stand with marking element. 4,365,418, Cl. 33-185.00R.
- HPS, Inc.: See—
Jackson, Robert D., 4,366,429, Cl. 318-811.000.
- Hsieh, Shane, to American Hoechst Corporation. Inorganic lithium developer composition. 4,366,224, Cl. 430-149.000.
- Hu, Chenming, to National Semiconductor Corporation. Electrically erasable programmable read only memory. 4,366,555, Cl. 365-185.000.
- Huber, Kurt: See—
Viniczay, Gabriella F.; and Huber, Kurt, 4,365,654, Cl. 139-370.200.
- Hughes Aircraft Company: See—
Basilis, Algerd, 4,365,664, Cl. 165-40.000.
- Huibers, Derk T. A.: See—
Chao, James C.; and Huibers, Derk T. A., 4,366,332, Cl. 568-863.000.
- Huizinga, Hendrik: See—
Dijkshoorn, Willem; Huizinga, Hendrik; and Pronk, Jacobus N., 4,366,181, Cl. 426-603.000.
- Hukatsu, Kenji: See—
Horiuchi, Takumi; Kuroda, Yoji; and Hukatsu, Kenji, 4,365,466, Cl. 57-205.000.
- Hull, Donald A. Mixing apparatus for foam generation. 4,366,081, Cl. 252-359.00E.
- Humphrey, William J.: See—
Witt, Enrique R.; Humphrey, William J.; and Cave, James P., 4,366,059, Cl. 210-615.000.
- Hunt, Christopher J.: See—
Everett, Geoffrey J.; and Hunt, Christopher J., 4,366,436, Cl. 324-379.000.
- Hunterdon Occupational Training Center: See—
Gross, Ralph C., 4,366,018, Cl. 156-273.900.
- Hussey, Sam W., to Reliance Electric Company. Continuously operating standby A-C power system. 4,366,389, Cl. 307-66.000.
- Hutoteknika Ipari Szovetkezet: See—
Benyak, Istvan; Dudas, Lajos; and Pohl, Oszkar, 4,366,106, Cl. 261-156.000.
- Hutt, Jack W.: See—
Singh, Hakam; Hutt, Jack W.; and Williams, Morris E., 4,366,307, Cl. 528-373.000.
- Hutter, Harold G.; and Francis, Leonard J., to Bunker Ramo Corporation. Coaxial tap connector. 4,365,859, Cl. 339-97.00P.
- Hyakutome, Kimiaki: See—
Kodera, Tokio; Hoshino, Masaru; and Hyakutome, Kimiaki, 4,366,125, Cl. 422-295.000.
- Hyde, Robert L., to TRW Inc. Remotely operated downhole test disconnect switching apparatus. 4,365,506, Cl. 73-151.000.
- Hydrocarbon Research, Inc.: See—
Chao, James C.; and Huibers, Derk T. A., 4,366,332, Cl. 568-863.000.
- Hyodo, Kouichi, to Tokyo Shibaura Denki Kabushiki Kaisha. Power supply utilizing a thyristor. 4,366,435, Cl. 324-158.00C.
- Ibe, Hidefumi; and Yamada, Izumi, to Hitachi, Ltd. Sodium ionization detector. 4,366,438, Cl. 324-468.000.
- Ichijima, Seiji; Adachi, Keiichi; and Ogawa, Tadashi, to Fuji Photo Film Co., Ltd. Silver halide color photographic light-sensitive material. 4,366,237, Cl. 430-505.000.
- Ichikawa, Kesazi: See—
Habata, Kiichi; Ichikawa, Kesazi; and Shimizu, Mutsuo, 4,366,324, Cl. 556-460.000.
- Ichikin, Ltd., The: See—
Kawaguchi, Bunshiro, 4,365,422, Cl. 34-1.000.
- Ichinose, Kazuaki: See—
Aoki, Kiyoshi; and Ichinose, Kazuaki, 4,366,554, Cl. 365-155.000.
- Idemitsu Kosan Company Limited: See—
Tomioka, Tatsuya; and Ogata, Norio, 4,366,279, Cl. 524-289.000.
- Igelbuscher, Heinrich: See—
Holter, Heinz; Gresch, Heinz; Igelbuscher, Heinrich; Dewert, Heribert; Dzikowski, Berthold; and Twiehaus, Hans-Jurgen, 4,366,132, Cl. 423-242.000.
- Igisheva, Tamara A.: See—
Brounshtein, Viktor B.; Petrov, Vladimir I.; Otsup, Rudolf R.; Ignatieva, Galina P.; Kozlovsky, Vladlen V.; Lipshits, Leonard Y.; Zhuravlev, Oleg V.; Koba, Mikhail G.; Seliverstov, Konstantin B.; Igisheva, Tamara A.; Drobyazko, Petr A.; Motin, Anatoly I.; Fot, Viktor D.; Yakimov, Lev T.; and Kuznetsov, Boris G., 4,366,124, Cl. 422-278.000.
- Ignatieva, Galina P.: See—
Brounshtein, Viktor B.; Petrov, Vladimir I.; Otsup, Rudolf R.; Ignatieva, Galina P.; Kozlovsky, Vladlen V.; Lipshits, Leonard Y.; Zhuravlev, Oleg V.; Koba, Mikhail G.; Seliverstov, Konstantin B.; Igisheva, Tamara A.; Drobyazko, Petr A.; Motin, Anatoly I.; Fot, Viktor D.; Yakimov, Lev T.; and Kuznetsov, Boris G., 4,366,124, Cl. 422-278.000.
- Ihara, Hirokazu: See—
Mori, Kinji; and Ihara, Hirokazu, 4,366,479, Cl. 340-825.050.
- IHC Holland N.V.: See—
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- Iizuka, Haruhiko; and Sugawara, Fukashi, to Nissan Motor Company, Limited. Split type internal combustion engine. 4,365,597, Cl. 123-198.00F.
- Iijas, Istvan: See—
Alajos, Dobos; Kiss, Gyula; Gaspar, Bela; Imre, Geza; Jony nee Acs, Julia; Forian, Istvan; Iijas, Istvan; Liptak, Ferenc; and Bisits nee Zsilinszky, Vilma, 4,365,757, Cl. 239-567.000.

- Ikarus Karosszeria es Jarmugyar: See—
Ratsko, Istvan; Ivony, Jozsef; Madi, Jenő; and Karaszi, Gyorgy, 4,365,685, Cl. 180-135.000.
- Ikeda, Akira: See—
Takeyama, Tetsu; Azuma, Kenkoku; Ikeda, Akira; Yamamoto, Toshie; and Katsurada, Shigeho, 4,365,979, Cl. 55-181.000.
- Ikeda, Mamoru: See—
Hatayama, Shigeharu; Yamauchi, Masaaki; and Ikeda, Mamoru, 4,366,414, Cl. 313-409.000.
- Ikeda, Sunao: See—
Kakitani, Yohtaro; Kaneko, Tamaki; Ikeda, Sunao; Okuzawa, Tugio; Kikuchi, Hideo; and Hibi, Kunio, 4,365,887, Cl. 355-14.00R.
- Ikegami, Shigeru; Kawakatsu, Yoshihumi; Hirai, Minoru; and Izumi, Kazuo, to Toho Beslon Co., Ltd. Fibrous activated carbon with metal chelate compound supported thereon, process for producing the same. 4,366,085, Cl. 252-431.00C.
- Ikegawa, Masato: See—
Tojo, Kenji; Hosoda, Taisei; Ikegawa, Masato; and Shiibayashi, Masao, 4,365,941, Cl. 417-372.000.
- Ikemoto, Kazuhito: See—
Numazawa, Akio; Katayama, Nobuaki; Ikemoto, Kazuhito; Sasaki, Kan; and Terakura, Yukio, 4,365,523, Cl. 74-606.00R.
- Ikemoto, Kazuo: See—
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- Ikeura, Kenji, to Nissan Motor Company, Limited. Open and closed loop engine idling speed control method and system for an automotive internal combustion engine. 4,365,599, Cl. 123-339.000.
- ILC Data Device Corporation: See—
Michaels, Stuart R.; and Sacks, Stephen J., 4,366,469, Cl. 340-347.00A.
- Illinois Tool Works Inc.: See—
Boyer, David C.; and Ruehl, William E., 4,365,582, Cl. 116-70.000.
Gore, William C., 4,365,861, Cl. 339-202.000.
- Imaeda, Kozo: See—
Matsumoto, Tadayuki; Imaeda, Kozo; Mineo, Masatoshi; and Nakagawa, Kiyoshi, 4,365,394, Cl. 28-258.000.
- Imai, Isao: See—
Shiozaki, Hiroyuki; Mikami, Masao; Imai, Isao; and Iwanami, Toshio, 4,365,496, Cl. 72-249.000.
- Imaizumi, Yutaka: See—
Hatada, Toshio; Senuh, Takao; Arai, Akira; Harada, Fumio; Matsuzaki, Atsushi; Futawata, Hajime; Imaizumi, Yutaka; and Takeda, Sumiyoshi, 4,365,667, Cl. 165-152.000.
- IMAX Systems Corporation: See—
Shaw, William C., 4,365,877, Cl. 352-184.000.
- Imazaki, Yasutaka. Damper. 4,365,525, Cl. 74-768.000.
- Imazeki, Ryoji; and Hattori, Masayuki, to Fujitsu Fanuc Limited. Output voltage-drop detecting apparatus technical field. 4,366,433, Cl. 323-281.000.
- Imhof, Rainer; Grunberg, Wolf-Diethard; and Unkelbach, Karl-Heinz, to Klockner-Humboldt-Deutz AG. Method and device for measuring the height of at least one separation layer in the material bed of a density sorting machine. 4,365,510, Cl. 73-313.000.
- Imperial Chemical Industries Limited: See—
Briggs, Peter J., 4,366,203, Cl. 428-304.400.
Briggs, Peter J., 4,366,204, Cl. 428-304.400.
Thorpe, David, 4,366,287, Cl. 524-871.000.
- Imre, Geza: See—
Alajos, Dobos; Kiss, Gyula; Gaspar, Bela; Imre, Geza; Jony nee Acs, Julia; Forian, Istvan; Iijas, Istvan; Liptak, Ferenc; and Bisits nee Zsilinszky, Vilma, 4,365,757, Cl. 239-567.000.
- Inaba, Hajimu; and Sakakibara, Shinsuke, to Fujitsu Fanuc Limited. Industrial robot system. 4,366,423, Cl. 318-563.000.
- Inacker, Henry F.: See—
Henderson, Elmer L.; and Inacker, Henry F., 4,366,446, Cl. 330-260.000.
- Ingels, Luis. Alignment device for machine head. 4,365,419, Cl. 33-185.00R.
- Inglis Limited: See—
Paulson, Philip D., 4,365,830, Cl. 292-89.000.
- Innovative Design, Inc.: See—
Sargent, Jack, 4,366,372, Cl. 235-92.00P.
- Inoue, Hiromitsu; Ohashi, Hiroshi; and Takada, Yuji, to Matsushita Electric Works, Ltd. Capacitively coupled electromagnetic intrusion warning system. 4,366,473, Cl. 340-562.000.
- Inoue-Japax Research Incorporated: See—
Inoue, Kiyoshi, 4,366,007, Cl. 148-102.000.
Inoue, Kiyoshi, 4,366,358, Cl. 219-69.00M.
Inoue, Kiyoshi, 4,366,360, Cl. 219-69.00M.
- Inoue, Kanji: See—
Ohno, Akira; Sato, Toshiaki; and Inoue, Kanji, 4,365,824, Cl. 280-689.000.
- Inoue, Kiyoshi, to Inoue-Japax Research Incorporated. Permanent magnet and process for making same. 4,366,007, Cl. 148-102.000.
- Inoue, Kiyoshi, to Inoue-Japax Research Incorporated. EDM Method and apparatus utilizing successively displaced magnetic field. 4,366,358, Cl. 219-69.00M.
- Inoue, Kiyoshi, to Inoue-Japax Research Incorporated. Method of and apparatus for determining relative position of a tool member to a workpiece in a machine tool. 4,366,360, Cl. 219-69.00M.
- Inoue, Satoru: See—
Shima, Ichiji; Teshima, Hiroshi; Koizumi, Takayuki; and Inoue, Satoru, 4,366,544, Cl. 364-550.000.
- Inoue, Tetsuo: See—
Kurihara, Masaru; Watanabe, Tetsuo; and Inoue, Tetsuo, 4,366,062, Cl. 210-651.000.
- Inoue, Yozo; Hara, Kiyoshi; and Ito, Yoji, to Nippondenso Co., Ltd.; and Toyota Jidosha Kogyo Kabushiki Kaisha. Method and system for controlling a vehicle-mounted air conditioner. 4,365,663, Cl. 165-12.000.
- Insituform International Inc.: See—
Wood, Eric, 4,366,012, Cl. 156-93.000.
- Institut Francais du Petrole: See—
Arnaudeau, Marcel, 4,365,932, Cl. 415-199.500.
Convers, Alain; Torck, Bernard; Euzen, Jean-Paul; and Amigues, Pierre, 4,366,327, Cl. 568-697.000.
Le Penne, Dominique; Commereuc, Dominique; and Chauvin, Yves, 4,366,087, Cl. 252-431.00C.
Mikitenko, Paul; and Asselineau, Lionel, 4,366,032, Cl. 203-18.000.
- Instituto Venezolano de Investigaciones Cientificas (IVIC): See—
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- Instrumentation Laboratory Inc.: See—
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- Inter Control Hermann Kohler Elektrik GmbH & Co. KG: See—
Hollweck, Walter, 4,366,462, Cl. 337-409.000.
- Intercole Bolling Corp.: See—
Kortan, William A.; and Nebrig, Donald A., 4,365,492, Cl. 72-10.000.
- Intercollection Development SA: See—
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- International Business Machines Corp.: See—
Bates, Bobbie D.; and Haus, Ralph A., 4,365,779, Cl. 248-371.000.
Berglund, Neil C.; and Burchfiel, John R., Jr., 4,366,540, Cl. 364-200.000.
Braslaw, Norman; Freeouf, John L.; Pettit, George D.; Rupprecht, Hans S.; and Woodall, Jerry M., 4,366,493, Cl. 357-4.000.
Chow, William W.; and Fields, Davis S., Jr., 4,366,518, Cl. 360-121.000.
Heller, Andrew R.; and Worley, William S., Jr., 4,366,537, Cl. 364-200.000.
- International Computers Limited: See—
Berry, George A., 4,365,907, Cl. 403-12.000.
- International Flavors & Fragrances Inc.: See—
Boden, Richard M.; Dekker, Lambert; Schmitt, Frederick L.; and Van Loveren, Augustinus G., 4,366,078, Cl. 252-174.110.
- International Harvester Co.: See—
Robinson, Edward L., Jr.; Fardal, Randolph G.; and Anderson, David, 4,365,672, Cl. 172-2.000.
- International Minerals & Chemical Luxembourg Societe Anonyme: See—
Lask, Gert-Wilhelm, 4,366,137, Cl. 423-350.000.
- Internationale Octrooi Maatschappij "Octropa" B.V.: See—
Norman, Frederick A., 4,365,372, Cl. 6-1.000.
- Intichar, Lutz: See—
Weghaupt, Erich; Intichar, Lutz; and Schnapper, Christoph, 4,365,479, Cl. 62-55.000.
- Invisible Optics Inc.: See—
Softly, Peter, 4,365,866, Cl. 350-276.00R.
- Iowa State University Research Foundation, Inc.: See—
Greer, Raymond T.; and Gibson, Ronald F., 4,365,741, Cl. 494-37.000.
- Iqbal, Abul, to Ciba-Geigy Corporation. Metal complexes of isoindolinazones, process for their preparation and use. 4,366,312, Cl. 542-417.000.
- IREQ - Institut de Recherche de l'Hydro-Quebec: See—
Trinh, Ngoc-Giao, 4,366,340, Cl. 174-28.000.
- Irie, Yoichiro: See—
Kimura, Hiroshi; Hisajima, Masahiko; Shigemura, Yutaka; and Irie, Yoichiro, 4,365,893, Cl. 355-75.000.
- Irish, Glenn E., to Union Oil Company of California. Middle distillate fuel additive. 4,365,973, Cl. 44-56.000.
- Iriyama, Toru, to Toyo Kogyo Co., Ltd. Steering column supporting structure for motor vehicle. 4,365,826, Cl. 280-779.000.
- Ishido, Yoshinobu; and Tanaka, Hideo, to Hayakawa Rubber Company Limited. Aqueously-swelling water stopper and a process of stopping water thereby. 4,366,284, Cl. 524-447.000.
- Ishigami, Yasuhiko: See—
Takanashi, Akira; and Ishigami, Yasuhiko, 4,366,470, Cl. 340-347.00A.
- Ishiguro, Yasuo, to Copal Company Limited. Exposure controlling device adapted to cameras using interchangeable lenses. 4,365,879, Cl. 354-38.000.
- Ishihara, Takao: See—
Takeuchi, Jun; Yamazumi, Kaishu; and Ishihara, Takao, 4,366,008, Cl. 148-143.000.
- Ishii, Tadashi, to Kobishi Electric Co., Ltd. Motor actuated bell assembly. 4,366,472, Cl. 340-392.000.
- Ishikawa, Yoshikazu, to Nissan Motor Co., Ltd. Hot-air intake system of an internal combustion engine. 4,365,607, Cl. 123-556.000.
- Ishikawajima-Harima Jukogyo Kabushiki Kaisha: See—
Ohta, Ichiro; Teijima, Akio; Watano, Masayuki; Yamaoka, Akira; Ishiwata, Kouzi; and Yamada, Minoru, 4,366,362, Cl. 219-123.000.
- Shiozaki, Hiroyuki; Mikami, Masao; Imai, Isao; and Iwanami, Toshio, 4,365,496, Cl. 72-249.000.
- Ishimaru, Hitoshi: See—
Masuda, Toyohiko; Ueno, Takeshi; Nagai, Yoji; Ishimaru, Hitoshi; and Nakamura, Shozo, 4,365,476, Cl. 60-686.000.

- Ishitani, Shigeo: *See*—
Uchida, Masaaki; Kanegae, Hidetoshi; and Ishitani, Shigeo, 4,366,039, Cl. 204-195.00S.
- Ishiwata, Kouzi: *See*—
Ohta, Ichiro; Tejima, Akio; Watando, Masayuki; Yamaoka, Akira; Ishiwata, Kouzi; and Yamada, Minoru, 4,366,362, Cl. 219-123.000.
- Ishkin, Vyacheslav K. Aerial power transmission line with lightning protection wires designed also to transmit rf signals, 4,366,392, Cl. 307-147.000.
- Isuzu Motors, Limited: *See*—
Nakada, Teruo; and Iwahara, Mitsuo, 4,365,600, Cl. 123-339.000.
- Italtractor I.T.M. S.p.A.: *See*—
Grilli, Walter; Crotti, Aldo; and Barchetti, Giuseppe, 4,365,848, Cl. 305-54.000.
- Itek Corporation: *See*—
Simons, Brent S., 4,366,378, Cl. 250-214.0AG.
- Ito, Etsuo: *See*—
Soma, Eichii; Kobayashi, Kohei; Karakawa, Takuro; Kato, Shigeyoshi; and Uchida, Kiichi, 4,366,308, Cl. 536-128.000.
- Ito, Yoji: *See*—
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- Itoh, Junya: *See*—
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- Itoh, Kunio: *See*—
Shimizu, Hirokazu; Itoh, Kunio; Sugino, Takashi; and Wada, Masaru, 4,366,568, Cl. 372-45.000.
- ITT Industries, Inc.: *See*—
Schopper, Bernd; Tandler, Peter; Hartmann, Herbert; and Reuter, Manfred, 4,365,846, Cl. 303-56.000.
- Ivanov, Evgeny S.: *See*—
Bai, Roland D.; Brodovsky, Vladimir N.; Ivanov, Evgeny S.; Kanep, Alexandr A.; Feldman, Alexandr V.; and Chabanov, Alim I., 4,366,428, Cl. 318-809.000.
- Ivony, Jozsef: *See*—
Ratsko, Istvan; Ivony, Jozsef; Madi, Jenő; and Karaszi, Gyorgy, 4,365,685, Cl. 180-135.000.
- Iwahara, Mitsuo: *See*—
Nakada, Teruo; and Iwahara, Mitsuo, 4,365,600, Cl. 123-339.000.
- Iwanami, Masao; and Ogawa, Yusuke, to Fuji Electric Co., Ltd. Water-cooled heat-accumulating type drink cooling system, 4,365,486, Cl. 62-392.000.
- Iwanami, Toshio: *See*—
Shiozaki, Hiroyuki; Mikami, Masao; Imai, Isao; and Iwanami, Toshio, 4,365,496, Cl. 72-249.000.
- Iwasaki, Shinichiro, to Aisin Seiki Company, Limited. Deceleration sensor, 4,365,513, Cl. 73-517.00R.
- Iwase, Tetsuo; and Saiji, Mituhiko, to Sharp Kabushiki Kaisha. Dot matrix type running display panel for use in electronic calculators or the like, 4,366,477, Cl. 340-792.000.
- Iwata, Atsushi: *See*—
Ueno, Norio; Kato, Seiji; and Iwata, Atsushi, 4,366,456, Cl. 333-173.000.
- Iwata, Syuji: *See*—
Ohnishi, Masaru; and Iwata, Syuji, 4,366,491, Cl. 346-155.000.
- Izbicki, Anthony J.: *See*—
Golemo, Stanley M., Jr.; and Izbicki, Anthony J., 4,366,210, Cl. 428-617.000.
- Izumi, Kazuo: *See*—
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- J. I. Case Company: *See*—
Shumaker, John F., 4,365,428, Cl. 37-103.000.
- J. J. Mauget Co.: *See*—
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- Jachowski, Johannes; and Mohs, Rudolf, to Fried. Krupp Gesellschaft mit beschränkter Haftung. Wear resistant compound material, method for manufacturing it and use of such compound material, 4,365,997, Cl. 148-31.000.
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Andrew, Barry E.; and Mak, Tak W., 4,366,077, Cl. 252-49.300.
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Johns, Roy W., 4,365,792, Cl. 269-24.000.
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Simpson, Frank F.; Johnson, John W.; and Oatham, Robert J., 4,366,403, Cl. 310-239.000.
- Johnson, Nilton C., Jr.; and Rein, David A., to Mid Oregon Iron, Inc. Orbit saw, 4,365,530, Cl. 83-490.000.
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- Jones, Robert F., to B. F. Goodrich Company. The Belt application roller, 4,366,019, Cl. 156-360.000.
- Jones, Thomas E. Sewer pipe plug, 4,365,649, Cl. 138-93.000.
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- Jorg, Gunther W.: *See*—
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- Jorgensen, Brian L.: *See*—
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- Joussemet, Pierre. Rod-type support for suspension systems for shelves and similar objects, 4,365,778, Cl. 248-229.000.
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- Halloran, John D., 4,365,849, Cl. 308-9.000.
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- Jung, Werner, to Teletype Corporation. Clamping device for form feed mechanisms, 4,365,905, Cl. 400-616.200.
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- Kabel-u. Metallwerke Gutehoffnungshutte AG: *See*—
Bode, Udo; Thiele, Paul; Mohring, Gunter; and Hildebrand, Helmut, 4,366,457, Cl. 333-237.000.
- Voigt, Hermann U.; and Patzke, Frank, 4,366,107, Cl. 264-25.000.
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- K.K. Musashino Kagaku Kenkyusho: *See*—
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- Kageyama, Hidechi; and Suzuki, Takahiko, to Kotobuki & Co., Ltd. Clip for writing utensil, 4,365,390, Cl. 24-11.00R.
- Kakitani, Yohtarō; Kaneko, Tamaki; Ikeda, Sunao; Okuzawa, Tugio; Kikuchi, Hideo; and Hibi, Kunio, to Ricoh Company, Ltd. Sheet distribution method and apparatus, 4,365,887, Cl. 355-14.00R.
- Kakuta, Yoshiyuki: *See*—
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- Kalenda, Norman W.: *See*—
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- Kamohara, Eiji: *See*—
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- Kamy, Inc.: *See*—
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- Kanatani, Yoshiharu, to Sharp Kabushiki Kaisha. Thin-film EL image display panel, 4,366,504, Cl. 358-241.000.
- Kanbe, Junichiro: *See*—
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- Kanda, Katsumi: *See*—
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- Kanegae, Hidetoshi: *See*—
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- Kanegafuchi Kagaku Kogyo Kabushiki Kaisha: *See*—
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- Kanehira, Hidehiko: *See*—
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- Kaneko, Tamaki: *See*—
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- Kanep, Alexandr A.: *See*—
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- Kaneshige, Nobuhiko: *See*—
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- Kaneshiro, Edward S. Tool holder, 4,365,720, Cl. 211-60.00T.
- Kang, Jung W.: *See*—
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- Karasev, Vadim A.: *See*—
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- Karol, James J., to Bendix Corporation. The. Molded protection cap, 4,365,858, Cl. 339-36.000.
- Karpov, Jury A.; Burylev, Boris P.; Glavin, German G.; Kvin, Valeria E.; Kovalev, Vasily V.; Natanson, Konstantin J.; Orlov, Vladimir V.; Kuznetsov, Lev B.; Zaitsev, Anatoly M.; Kartsev, Valentin E.; Morozov, Vladimir M.; and Kovalev, Gennady G. Method for quantitative analysis of chemical composition of inorganic material, 4,365,969, Cl. 436-75.000.
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- Kashima, Toru: *See*—
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- Kaslick, Ralph S.: *See*—
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- Kasuga, Masao, to Victor Company of Japan, Limited. Variable speed digital reproduction system using a digital low-pass filter, 4,366,471, Cl. 340-347.00DA.
- Kasuya, Yoshihiro, to Nippon Electric Co., Ltd. Integrated logic circuit adapted to performance tests, 4,366,393, Cl. 307-221.00R.
- Kataoka, Minoru: *See*—
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- Kataoka, Shigeyuki: *See*—
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- Katayama, Nobuaki: *See*—
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- Kato, Akifumi; Kaneshige, Nobuhiko; and Yamamoto, Ryoichi, to Mitsui Petrochemical Industries Ltd. Anchor agitator for gaseous phase polymerization vessel, 4,366,123, Cl. 422-135.000.
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- Kato, Toshiro: *See*—
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- Katoh Electrical Machinery Co. Ltd.: *See*—
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- Katsube, Junki: *See*—
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- Katsuyoshi, Yoshida: *See*—
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- Katz, Carlos: See—
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- Kaufman, Benjamin J.: See—
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- Kawakatsu, Yoshihumi: See—
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- Kawamoto, Masahiro: See—
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- Kawamura, Kiyomi: See—
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- Kawamura, Masaharu: See—
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- Kawamura, Sukeyoshi; Shimizu, Koichi; and Shikimori, Yasuhiro, to Japan Acrylic Chemical Co. Ltd. Method for recovering synthetic resin emulsion, 4,366,272, Cl. 523-335.000.
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- Kelly, Leonard. Radiometric ore sorting method and apparatus, 4,365,719, Cl. 209-589.000.
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Neill, Daniel L.; and Tribe, Leonard T., 4,365,406, Cl. 29-593.000.
- Kelson, Arthur F.: See—
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- Kemp, Dennis E., Jr. Dead shaft bearing for conveyors, 4,365,707, Cl. 198-672.000.
- Kennecott Corporation: See—
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- Kennedy, John H.: See—
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- Kikkawa, Ikuo: See—
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- Kilbourn, Fredrick A.: See—
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- Dinius, James H.; and Chung, Raymond, 4,366,111, Cl. 264-518.000.
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- King, Kenneth L. Rigging terminal assembly, 4,365,906, Cl. 403-2.000.
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- Kiresuto Kagaku Kabushiki Kaisha: See—
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- Kishi, Takao: See—
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- Kiss, Gyula: See—
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- Kitagawa, Sadao; and Okada, Isao, to Mitsubishi Petrochemical Company Limited. Unsaturated copolymers, 4,366,296, Cl. 526-77.000.
- Kitamura, Nobuaki; Masuda, Kouji; and Mizukami, Masao, to Hitachi, Ltd.; and Hitachi Ome Electronic Co., Ltd. Level conversion circuit, 4,366,397, Cl. 307-264.000.
- Kitamura, Takashi, to Canon Kabushiki Kaisha. Semiconductor laser device, 4,366,492, Cl. 346-160.000.
- Kiuchi, Masayoshi; Kawamura, Masaharu; and Murakami, Hiroyasu, to Canon Kabushiki Kaisha. Indicator for camera, 4,365,880, Cl. 354-60.000.
- Kiwi Coders Corporation: See—
Siegal, Burton L.; and Waxman, Jay S., 4,365,554, Cl. 101-333.000.
- Kjellberg, Bengt E. S.: See—
Bjork, Anders K. K.; Abramo, Aina L.; and Kjellberg, Bengt E. S., 4,366,162, Cl. 424-267.000.
- Klahr, Erhard: See—
Vodrazka, Wolfgang; Klahr, Erhard; Oppenlaender, Knut; Trielselt, Wolfgang; Stoeckigt, Dieter; and Neumann, Werner, 4,366,326, Cl. 568-613.000.
- Klaus, Gerald R.; Williams, Thomas E.; and Nizzere, Paul D., to Bankers Box Company. Copy holder, 4,365,431, Cl. 40-352.000.
- Klein, Fred T., to Phillips Petroleum Company. Method and apparatus for testing a plurality of geophones, 4,366,561, Cl. 367-77.000.
- Kleiner, Frank: See—
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- Kline, Larry H. Flowable substance applicator, 4,365,631, Cl. 128-235.000.
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Imhof, Rainer; Grunberg, Wolf-Diethard; and Unkelbach, Karl-Heinz, 4,365,510, Cl. 73-313.000.
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Stori, Heinrich; and Averdick, Walter, 4,365,478, Cl. 62-45.000.
- Klukow, Roger, to Chesley F. Carlson Company. Web bending fixture, 4,365,500, Cl. 72-387.000.
- Klumpp, Rosalie J.: See—
Haines, Donald A.; Frost, John S.; and Klumpp, Rosalie J., 4,365,504, Cl. 73-3.000.
- Knapp, Heinrich; Sauer, Rudolf; Hans, Waldemar; Linssen, Mathias; Peczkowski, Jurgen; and Krauss, Rudolf, to Robert Bosch GmbH. Electromagnetically actuable fuel injection valve, 4,365,747, Cl. 239-125.000.
- Knapp, Helmut, to MINOX GmbH. Still camera with retracting objective, 4,365,884, Cl. 354-187.000.
- Knerr, Theodore N.: See—
Bevilaqua, Ernest M.; McCroskery, Allan L.; and Knerr, Theodore N., 4,365,691, Cl. 187-1.00R.
- Kneubuehl, Arnold S.; and Kneubuehl, Stephen A. Low fat cheese product similar to swiss cheese, 4,366,174, Cl. 426-36.000.
- Kneubuehl, Stephen A.: See—
Kneubuehl, Arnold S.; and Kneubuehl, Stephen A., 4,366,174, Cl. 426-36.000.
- Knifton, John F.; and Lin, Jiang-Jen, to Texaco, Inc. Production of acetic acid and propionic acid and their esters, 4,366,259, Cl. 518-700.000.
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- Knorre, Helmut; Langer, Manfred; Fauser, Friedrich; and Fischer, Willi, to Leybold-Heraeus GmbH; and Degussa Aktiengesellschaft. Process for recycling of used lubricating oils, 4,366,049, Cl. 208-179.000.
- Knott, Adolf S.: See—
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- Koba, Mikhail G.: See—
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- Y.; Zhuravlev, Oleg V.; Koba, Mikhail G.; Seliverstov, Konstantin B.; Igisheva, Tamara A.; Drobyazko, Petr A.; Motin, Anatoly I.; Fot, Viktor D.; Yakimov, Lev T.; and Kuznetsov, Boris G., 4,366,124, Cl. 422-278.000.
- Kobayashi, Kohei: See—
Soma, Eiichi; Kobayashi, Kohei; Karakawa, Takuro; Kato, Shigeyoshi; and Uchida, Kiichi, 4,366,308, Cl. 536-128.000.
- Kobayashi, Morio: See—
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- Kobayashi, Waichi: See—
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- Kobe Steel, Ltd.: See—
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- Asari, Akira, 4,365,497, Cl. 72-255.000.
- Kobishi Electric Co., Ltd.: See—
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- Koch, Bernhard R.; and Vogelbacher, Erich, to Sulzer Brothers Limited. Crossing thread supply system for a weaving machine, 4,365,652, Cl. 139-50.000.
- Kochi, Hiromu: See—
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- Kodera, Tokio; Hoshino, Masaru; and Hyakutome, Kimiaki, to Dai Nippon Insatsu Kabushiki Kaisha. Sterilization apparatus and process utilizing synergistic effect of combining hydrogen peroxide and ultra-violet-ray sterilization, 4,366,125, Cl. 422-295.000.
- Koepke, Donald B.; and Reed, Martin C., to Whirlpool Corporation. Sliding actuator membrane switch for organ keyboard, 4,365,536, Cl. 84-433.000.
- Kohata, Masakazu; Hayashi, Hideki; and Miyashita, Ichiro, to Toyo Denki Seizo Kabushiki Kaisha. PWM Inverter device, 4,366,533, Cl. 363-136.000.
- Kohler, Karl-Axel; Collin, Rolf; and Larsson, Ralf. Method and installation for roasting and grilling skin-covered meat product, such as poultry and particularly chicken, 4,366,182, Cl. 426-644.000.
- Kohler, Kurt, to Carl Zeiss-Stiftung. Device for the fine adjustment in all three directions of space of an instrument arranged on a base, 4,365,521, Cl. 74-471.00X.
- Kohn, Leslie D., to National Semiconductor Corporation. Modular digital computer system for storing and selecting data processing procedures and data, 4,366,536, Cl. 364-200.000.
- Koizumi, Takashi: See—
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- Koizumi, Takayuki: See—
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- Kojima, Keiichi: See—
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- Kojima, Sadao; Shimada, Masaaki; Sakai, Kunio; and Horie, Katuo. Method and apparatus for the preparation of slaked lime solution, 4,366,142, Cl. 423-640.000.
- Komatsu, Toshio: See—
Nawata, Takanari; Komatsu, Toshio; and Ohtsuka, Masayuki, 4,366,179, Cl. 426-395.000.
- Kompelien, Arlon D., to Honeywell, Inc. Electronic condition control system using digital anticipation, 4,366,534, Cl. 364-183.000.
- Kondo, Yoshikazu: See—
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- Konishiroku Photo Industry Co., Ltd.: See—
Hazama, Kiyoaki; Shiozawa, Kazuo; and Matsumoto, Koichi, 4,365,881, Cl. 354-76.000.
- Nakamura, Hiroya, 4,365,894, Cl. 355-77.000.
- Kopf, Peter W., to Union Carbide Corporation. Particulate resoles with improved cure rate and sinter resistance, 4,366,303, Cl. 528-129.000.
- Koppers Company, Inc.: See—
Bixby, Robert P.; and Ziegler, Eugene, 4,366,029, Cl. 202-262.000.
- Korach, Malcolm; and Chamberlin, Ronald D., to PPG Industries, Inc. Method of preparing a cathode-diaphragm unit, 4,366,041, Cl. 204-252.000.
- Korfmann, Robert G.; and Bennett, Richard C. Chimney cleaning system, 4,365,382, Cl. 15-249.000.
- Kornblum, Saul S.: See—
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- Korossy, Louis B.; and Senatore, Peter J., to Pfizer Inc. Flue gas desulfurization process, 4,366,134, Cl. 423-243.000.
- Kortan, William A.; and Nebrig, Donald A., to Intercole Bolling Corp. Ring former and cutoff, 4,365,492, Cl. 72-10.000.
- Korte, Hans D.; and Muck, Gustav, to Degussa Aktiengesellschaft. Apparatus and process for the periodic cleaning-out of solids deposits from heat exchanger pipes, 4,366,003, Cl. 134-18.000.
- Kortum, William M. Method and apparatus for inducing immunological and resistant response in mammary glands, 4,365,632, Cl. 128-303.00R.
- Kos, Steven: See—
Westwood, William D.; Kos, Steven; and Willemsen, Herman W., 4,366,488, Cl. 346-74.300.
- Kosinski, James J., to Eastman Kodak Company. Monitoring device with processing solution reservoirs, 4,366,225, Cl. 430-207.000.
- Kotobuki & Co., Ltd.: See—
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- Kotowski, Andreas F., to Scanray Corporation. X-Ray line scan system for use in baggage inspection, 4,366,382, Cl. 378-57.000.
- Kovacs, Joseph. Vegetable slicer, 4,365,414, Cl. 30-310.000.
- Kovalev, Gennady G.: See—
Karpov, Jury A.; Burylev, Boris P.; Glavin, German G.; Kvin, Valeria E.; Kovalev, Vasily V.; Natanson, Konstantin J.; Orlov, Vladimir V.; Kuznetsov, Lev B.; Zaitsev, Anatoly M.; Kartsev, Valentin E.; Morozov, Vladimir M.; and Kovalev, Gennady G., 4,365,969, Cl. 436-75.000.
- Kovalev, Vasily V.: See—
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- Kowal, Leonard. Chrominance subcarrier regeneration network, 4,366,451, Cl. 331-20.000.
- Koyama, Yoshihiro: See—
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- Kozlovsky, Vladlen V.: See—
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- Krabbenhoft, Herman O., to General Electric Company. Calcium-nickel phosphate catalyst, 4,366,089, Cl. 252-437.000.
- Kraft, John H.: See—
Houle, Raymond T.; Redwine, Michael A.; Kilbourn, Fredrick A.; Reed, Stewart D.; Sills, Arthur A.; and Kraft, John H., 4,365,367, Cl. 4-555.000.
- Kraftwerk Union AG: See—
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- Kramer, Steven G. Reminder closure, 4,365,722, Cl. 215-220.000.
- Kramer, Wolfgang; Timmler, Helmut; Buchel, Karl H.; Brandes, Wilhelm; Frohberger, Paul-Ernst; and Scheinplugg, Hans, to Bayer Aktiengesellschaft. Combatting fungi with metal salt complexes of 1-phenyl-2-(1,2,4-triazol-1-yl)-ethanes, 4,366,152, Cl. 424-245.000.
- Krapf, Heinz: See—
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- Krasnokutsky, Jury B.: See—
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- Kraus, Albert J.: See—
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- Krauss-Maffei Aktiengesellschaft: See—
Holzl, Emil, 4,365,505, Cl. 73-19.000.
- Wohlrab, Walter, 4,365,645, Cl. 137-117.000.
- Krauss, Rudolf: See—
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- Kregness, Glen R.; and Criswell, Peter B., to Sperry Corporation. Adder for exponent arithmetic, 4,366,548, Cl. 364-748.000.
- Kreikenbohm, Robert: See—
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- Kreyenbuhl, Armand, to Adidas Fabrique de Chaussures de Sport. Ski binding, 4,365,821, Cl. 280-615.000.
- Kricka, Larry J.: See—
Bunce, Roger A.; Carter, Timothy J. N.; Kennedy, John H.; Kricka, Larry J.; and Whitehead, Thomas P., 4,366,118, Cl. 422-57.000.
- Krihsnakumar, Suppayan M.: See—
Harry, Ieuan L.; Krihsnakumar, Suppayan M.; Jolly, Walter R.; and Beck, Martin H., 4,365,950, Cl. 425-534.000.
- Krijgsman, Pieter, to Warrior Insulation Company B. V. System for forming a reaction product such as calcium silicate, 4,366,121, Cl. 422-110.000.
- Krohn, Manfred: See—
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- Krome, Edward F., Jr., to Reliance Electric Company. Combination coupling and sheave, 4,365,964, Cl. 474-28.000.
- Kronsbein, Dirk G. Filter, 4,366,054, Cl. 210-266.000.
- Kruse, Robert W., to Gardner Bender, Inc. Automatic wire connector attaching apparatus, 4,365,527, Cl. 81-431.000.
- Krywicznanin, Wladyslaw H.: See—
Naylor, Donald B.; and Krywicznanin, Wladyslaw H., 4,365,585, Cl. 118-302.000.
- Krzes, Casey S. Battle type game and kit for construction thereof, 4,365,811, Cl. 273-238.000.
- Kubert, Vincent T., to Harris Corporation. Automatic cylinder skewing apparatus, 4,365,552, Cl. 101-218.000.
- Kubina, George: See—
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- Kubota, Shikibu; and Uriya, Yuichi, to Nissan Motor Co., Ltd. Shift lever mechanism of an automatic transmission, 4,365,522, Cl. 74-475.000.

- Kuhar, Ludwig J., to Singer Company, The. Modified thread control lever for a bobbin case. 4,365,567, Cl. 112-184.000.
- Kuhn, Eberhard: See—
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- Kuhn S.A.: See—
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- Kuhnel, Roland; Bokelmann, Rainer; Scholz, Magnus; Gebke, Klaus; and Schuler, Mariana, to Kraftwerk Union AG. Dry storage for spent fuel assemblies. 4,366,114, Cl. 376-272.000.
- Kuhner, Gerhard; Berndt, Wilhelm; Rothbuhr, Lothar; and Wagner, Hans, to Degussa Aktiengesellschaft. Process for the production of water containing carbon black preparations. 4,366,139, Cl. 423-449.000.
- Kuhner, Gerhard: See—
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- Kullman, Russell M. H.: See—
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- Kunii, Tadashi: See—
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- Kunz, Raymond W.; and Walter, Henry J., to Clairol Incorporated. Telescoping electric hair curling iron with an integrally molded hair clip actuator. 4,366,365, Cl. 219-225.000.
- Kurabayashi, Sadasuke: See—
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- Kurasz, George W.: See—
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- Kurihara, Fumio: See—
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- Kurihara, Masaru; Watanabe, Tetsuo; and Inoue, Tetsuo, to Toray Industries, Inc. Reverse osmosis using a composite isocyanurate membrane. 4,366,062, Cl. 210-651.000.
- Kurihara, Toshio; and Mizutani, Nagao, to Citizen Watch Co., Ltd. Printing mechanism for dot matrix printers. 4,365,550, Cl. 101-93.040.
- Kurii, Masaaki: See—
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- Kuroda, Yoji: See—
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- Kuroiwa, Hiroshi; and Sasayama, Takao, to Hitachi, Ltd. Electromechanical transducer controlling device. 4,366,524, Cl. 361-154.000.
- Kurose, Morisumi: See—
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- Kurovich, Arkady N.; Krasnokutsky, Jury B.; Sysoev, Vyacheslav N.; Golman, Lev D.; Zuev, Vladimir T.; Nesterov, Viktor I.; and Laboda, Viktor A. Hydraulic press elastic stamping tool. 4,365,494, Cl. 72-63.000.
- Kurtz, Clark N.; Mir, Jose M.; and Varner, Jerry R., to Eastman Kodak Company. Electronic color imaging apparatus having integral multi-color arrays. 4,366,500, Cl. 358-75.000.
- Kurz, Dieter, to Wacker-Chemie GmbH. Process and heavy metal catalyst for the polymerization of α -olefins, particularly polyethylene. 4,366,298, Cl. 266-125.000.
- Kusakabe, Hiromi; and Nagumo, Masahide, to Tokyo Shibaura Denki Kabushiki Kaisha. Power-amplifying circuit. 4,366,448, Cl. 330-268.000.
- Kuznetsov, Boris G.: See—
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- Kvin, Valeria E.: See—
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- Kyomasa, Mikio; Nakao, Yoshiharu; and Nakayama, Mitsuo, to Mitsubishi Denki Kabushiki Kaisha. Semiconductor memory device. 4,366,556, Cl. 365-189.000.
- L. D. Schreiber Cheese Co., Inc.: See—
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- Lab Products, Inc.: See—
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- Laboda, Viktor A.: See—
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- Laboratoires Goella: See—
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- Lacey, David: See—
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- Lagoven, S.A.: See—
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- Laidig, Manfred R., to Singer Company, The. Switch pattern selection and informational display arrangement for a multiple pattern sewing machine. 4,365,566, Cl. 112-158.00F.
- Lalonde, Maurice. Method for the isolation of symbiotic microorganisms from host plants using an osmium tetroxide fixative. 4,366,245, Cl. 435-30.000.
- Lampe, Donald R., to Westinghouse Electric Corp. Monolithic sequential processor for four-quadrant multiplier arrays. 4,366,550, Cl. 364-844.000.
- Lamprell, Trevor: See—
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- Land, Edwin H., to Polaroid Corporation. Photosensitive element and method of preparing same. 4,366,235, Cl. 430-496.000.
- Landau, Julian I.: See—
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- Landymore, Barry W.: See—
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- Lang, Gunter: See—
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- Lang, Siegfried: See—
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- Lange, Gerhard; Sippekamp, Oskar; and Schwenda, Gerhard, to Siemens Aktiengesellschaft. Surge arrester with parallel-connected improved spark gap structure. 4,366,412, Cl. 313-325.000.
- Langen, Hans: See—
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- Langer, Manfred; Burfeindt, Heinz; and Stuart, Patrick, to Volkswagenwerk Aktienbesellschaft. Axial vane ring consisting of ceramic materials for gas turbines. 4,365,933, Cl. 415-217.000.
- Langer, Manfred: See—
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- Langgard, Sixten; and Larsson, Lennart. Device at heating or-cooling unit. 4,365,482, Cl. 62-149.000.
- Langston, Jack W.: See—
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- Lankard, David R., to Wahl Refractory Products, Company. Highly reinforced refractory concrete with 4-20 volume % steel fibers. 4,366,255, Cl. 501-95.000.
- Larson, Gerald W. Process of forming permanent optical lamination of color proofs. 4,366,223, Cl. 430-143.000.
- Larson, Lynn D. Water bed mattress. 4,365,370, Cl. 5-451.000.
- Larsson, Lennart: See—
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- Larsson, Ralf: See—
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- Lash, Ronald J.; and Herr, Roy W., to Occidental Chemical Corporation. Additive and alkaline zinc electroplating bath and process using same. 4,366,036, Cl. 204-55.00R.
- Lask, Gert-Wilhelm, to International Minerals & Chemical Luxembourg Societe Anonyme. Process for producing silicon. 4,366,137, Cl. 423-350.000.
- Lassig, Wolfgang; Meier, Ernst; and Schleger, Siegfried, to Agfa-Gevaert Aktiengesellschaft. Color photographic recording material containing non-diffusing electron donor precursor compounds. 4,366,240, Cl. 430-542.000.
- Latimer, John P., to Deepsea Ventures, Inc. Pipe string lift system. 4,365,787, Cl. 254-106.000.
- Lauro, Fernand, to Commissariat a l'Energie Atomique. Device for distillation or concentration of a solution and more particularly for desalination of a saline solution such as sea water. 4,366,027, Cl. 202-174.000.
- Lawrence, Paul J.; and Townsley, Charles W., to SmithKline Instruments, Inc. Specimen test slide and method for testing occult blood. 4,365,970, Cl. 436-66.000.
- Le Materiel Telephonique Thomson-CSF: See—
Broussaud, Georges J. G., 4,365,863, Cl. 350-96.150.
- Le Berre, Serge: See—
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- Lednicer, Daniel, to Upjohn Company, The. 4-Amino-cyclohexanols, their pharmaceutical compositions and methods of use. 4,366,172, Cl. 424-330.000.
- Leduc, Alain: See—
Caurant, Robert; and Leduc, Alain, 4,365,959, Cl. 434-24.000.
- Lee, Ernest O.; Smith, Wayne G.; and Hanson, George C., to Stromberg-Carlson Corporation. Control system for telephone switching system. 4,366,350, Cl. 179-175.20C.
- Lee, Jeffrey A.: See—
Todd, Mike J.; and Lee, Jeffrey A., 4,365,377, Cl. 15-98.000.

- Leifeld, Ferdinand: See—
Bencke, Wolfgang; and Leifeld, Ferdinand, 4,365,389, Cl. 19-200.000.
- Leiser, Roger S.; and Liaw, Gin C., to A. E. Staley Manufacturing Company. Process and equipment for chromatographic separation of fructose/dextrose solutions. 4,366,060, Cl. 210-635.000.
- Lenardou, Donald D., to J. J. Mauget Co. Leakage resistant container for plant injection apparatus. 4,365,440, Cl. 47-57.500.
- Lened, Inc.: See—
Palmer, Leonard; and Palmer, Jack A., 4,365,458, Cl. 53-449.000.
- Le Pennec, Dominique; Commereuc, Dominique; and Chauvin, Yves, to Institut Francais du Petrole. Oligomerization catalyst and process. 4,366,087, Cl. 252-431.00C.
- Lerdon, Wesley E.: See—
Jackson, William R.; Chambers, Edwin G.; Kraus, Albert J.; and Lerdon, Wesley E., 4,365,836, Cl. 297-85.000.
- Le Roy, Patrice M.; and Pattein, Jacky P., to Societe Nationale des Poudres et Explosifs. Crosslinkable thermoplastic polyurethane resins containing ethylenic side groups. 4,366,301, Cl. 528-66.000.
- Les Entreprises Rotot Ltee: See—
Thiboutot, Robert, 4,365,908, Cl. 403-102.000.
- Leshner, George Y.; and Singh, Baldev, to Sterling Drug Inc. Process for preparing 5-(pyridinyl)benzoxazol-2(3H)-ones. 4,366,319, Cl. 546-270.000.
- Leslie, Colin M.; Watson, James H. P.; and Williams, John A., to British Nuclear Fuels Limited. Separating particles from a liquid. 4,366,065, Cl. 210-695.000.
- Leslie, Stewart T., to Euroceltique, S.A. Controlled release compositions. 4,366,310, Cl. 536-56.000.
- Lester, Thomas R. Combination gauze package and gauze sponge dispenser. 4,365,709, Cl. 206-362.000.
- Letrasel Limited: See—
Horton, David, 4,365,551, Cl. 101-124.000.
- Le Van Mao, Raymond; Pilati, Orlando; Moretti, Enrico; Covini, Romano; and Genoni, Fausto, to Montedison S.p.A. Method for preparing zeolites. 4,366,135, Cl. 423-329.000.
- Leveque, Jean-Luc M.; and Abrioux, Andre H., to L'Oreal. Apparatus for ascertaining the firmness of tissue. 4,365,638, Cl. 128-774.000.
- Lever Brothers Company: See—
Altrock, Werner W. L.; and Ritums, Janis A., 4,366,180, Cl. 426-602.000.
- Dijkshoorn, Willem; Huizinga, Hendrik; and Pronk, Jacobus N., 4,366,181, Cl. 426-603.000.
- Levine, Carl. System for monitoring tennis court boundary lines. 4,365,805, Cl. 273-31.000.
- Levine, Walter E.; and Heath, Allan B., to Acheson Industries, Inc. Spray assembly construction. 4,365,754, Cl. 239-412.000.
- Leybold-Heraeus GmbH: See—
Knorre, Helmut; Langer, Manfred; Fauser, Friedrich; and Fischer, Willi, 4,366,049, Cl. 208-179.000.
- Pajonk, Heinz; Hohne, Franz; and Ruthardt, Rolf, 4,365,944, Cl. 425-7.000.
- Leyendecker, Gustave, to Hoilleres du Bassin de Lorraine. Process for the production of coke or semicoke. 4,366,026, Cl. 201-1.000.
- Liautaud, James P., to Liautaud, James P. Honeycomb framework system for drop ceilings. 4,365,449, Cl. 52-28.000.
- Liaw, Gin C.: See—
Leiser, Roger S.; and Liaw, Gin C., 4,366,060, Cl. 210-635.000.
- Lifting Gear Hire Limited: See—
Parkinson, William B.; and Lamprell, Trevor, 4,365,834, Cl. 294-85.000.
- Lijoi, Bruno; Cirrito, Vincent; and Edelstein, Fred, to Grumman Aerospace Corporation. Heat-pipe cooled electronic circuit card. 4,366,526, Cl. 361-385.000.
- Lin, Jiang-Jen: See—
Knifton, John F.; and Lin, Jiang-Jen, 4,366,259, Cl. 518-700.000.
- Lindauer Dornier Gesellschaft mbH.: See—
Dornier, Peter; and Windischbauer, Florian, 4,365,650, Cl. 139-1.00R.
- Linden, Gary L.; and Kathirya, Shiraz A., to Ashland Oil, Inc. Catechol-based vapor permeation curable coating compositions. 4,366,193, Cl. 427-340.000.
- Lindholm, Alfons S. M., to Magnusson, Rolf, a part interest. Sealing device. 4,366,214, Cl. 429-140.000.
- Lindler, Carl, to Descal-A-Matic Corporation. Magnetic liquid treating device. 4,366,053, Cl. 210-222.000.
- Linssen, Mathias: See—
Knapp, Heinrich; Sauer, Rudolf; Hans, Waldemar; Linssen, Mathias; Peczkowski, Jurgen; and Krauss, Rudolf, 4,365,747, Cl. 239-125.000.
- Lippler, Remy R.; Mengelle, Andre J.; and Plazanet, Jacques, to Societe Nationale des Poudres et Explosifs. Combustible objects, in particular combustible cartridge cases, which are heat-resistant. 4,365,558, Cl. 102-431.000.
- Lipshits, Leonard Y.: See—
Brounshtein, Viktor B.; Petrov, Vladimir I.; Otsup, Rudolf R.; Ignatieva, Galina P.; Kozlovsky, Vladlen V.; Lipshits, Leonard Y.; Zhuravlev, Oleg V.; Koba, Mikhail G.; Seliverstov, Konstantin B.; Igisheva, Tamara A.; Drobyazko, Petr A.; Motin, Anatoly I.; Fot, Viktor D.; Yakimov, Lev T.; and Kuznetsov, Boris G., 4,366,124, Cl. 422-278.000.
- Liptak, Ferenc: See—
Alajos, Dobos; Kiss, Gyula; Gaspar, Bela; Imre, Geza; Jony nee Acs, Julia; Forian, Istvan; Ijas, Istvan; Liptak, Ferenc; and Bisits nee Zsilinszky, Vilma, 4,365,757, Cl. 239-567.000.
- Liptak, Laszlo: See—
Takats, Ferenc; Lorand, Ferenc; Pajer, Imre; and Liptak, Laszlo, 4,366,095, Cl. 252-633.000.
- Liquid Carbonic Corporation: See—
Reynolds, Martin M.; and Young-Bandala, Linda, 4,366,178, Cl. 426-393.000.
- List, Hans: See—
Marsoner, Hermann; and Ritter, Christoph, 4,366,040, Cl. 204-195.00R.
- Obermayer, Bertram; Skatsche, Othmar; and Greier, Josef, 4,365,594, Cl. 123-41.82R.
- Pomfret, Colin T., 4,365,593, Cl. 123-41.320.
- Litynski, Zbigniew. Toy laser-type gun. 4,365,439, Cl. 46-227.000.
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- Lockey, David J.: See—
d'Alayer de Costemore d'Arc, Stephane M.; and Lockey, David J., 4,366,371, Cl. 235-92.0MP.
- Loewenstein, Paul, to Enertec. Identification of electric power network phases experiencing disturbances. 4,366,474, Cl. 340-658.000.
- Loffland Brothers Company: See—
Craig, Gary W.; and Langston, Jack W., 4,365,692, Cl. 187-8.720.
- Loftus, Peter J.; to Brandt, Inc. Limpness detector for documents and the like. 4,365,508, Cl. 73-159.000.
- Lombard, Claude, to Regie Nationale des Usines Renault. Device for measuring the amount of oxygen in combustion gases. 4,366,437, Cl. 324-464.000.
- Long, Jerry M.; and Womack, James A. Video cassette storage and shipping container apparatus. 4,365,711, Cl. 206-387.000.
- Long, Olen R., to Otis Engineering Corporation. Well system. 4,365,671, Cl. 166-318.000.
- Lorand, Ferenc: See—
Takats, Ferenc; Lorand, Ferenc; Pajer, Imre; and Liptak, Laszlo, 4,366,095, Cl. 252-633.000.
- Lord Corporation: See—
Auerbach, Robert A.; and Boenig, Herman V., 4,366,184, Cl. 427-41.000.
- Gounder, Raj N.; and Geary, John T., 4,366,302, Cl. 528-99.000.
- L'Oreal: See—
Leveque, Jean-Luc M.; and Abrioux, Andre H., 4,365,638, Cl. 128-774.000.
- Lorenz, Donald H.: See—
Williams, Earl P.; and Lorenz, Donald H., 4,366,294, Cl. 525-327.600.
- Lorenz, Hans-Walter; and Schumacher, Gerd, to B.A.T. Cigaretten-Fabriken GmbH. Equipment for smoking smokable objects. 4,365,640, Cl. 131-330.000.
- Losciale, Francesco: See—
Alessandrini, Paolo; De Angelis, Lucio; Galluzzi, Fabrizio; Losciale, Francesco; and Scafe, Ernesto, 4,366,337, Cl. 136-258.000.
- Loughman, James; Daly, Christopher N.; and Washington, Ronald A. C., to Teletronics Pty. Ltd. Patient-operated pacemaker programmer. 4,365,633, Cl. 128-419.0PG.
- Lowe, Colin F. Frameless metal building and building components. 4,365,453, Cl. 52-478.000.
- Lowery, John L. Hinge door assembly. 4,365,386, Cl. 16-382.000.
- Lubbers, Benso, to Colu Industriez, Inc. Combination trailer/launcher for boats and other vehicles, and methods of constructing and utilizing same. 4,365,923, Cl. 414-483.000.
- Lucas Industries Limited: See—
Allen, Brian R., 4,366,361, Cl. 219-78.010.
- Rath, Heinrich B., 4,365,695, Cl. 188-73.390.
- Seilly, Alec H., 4,366,401, Cl. 310-12.000.
- Skinner, Robert T. J., 4,365,939, Cl. 417-221.000.
- Luce, David A.: See—
Clark, Melville, Jr.; and Luce, David A., 4,365,533, Cl. 84-1.240.
- Luddington, Eric A.: See—
Hinchcliffe, Dennis; and Luddington, Eric A., 4,365,703, Cl. 198-347.000.
- Ludwig Riedhammer GmbH & Co. KG: See—
Petzi, Fritz, 4,365,954, Cl. 432-198.000.
- Luft, Gunter: See—
Richter, Gerhard; Luft, Gunter; and Gebhardt, Ulrich, 4,366,033, Cl. 204-1.00T.
- Lui, Charles: See—
Mitsopoulos, Tom; Jhaveri, Satish; and Lui, Charles, 4,366,266, Cl. 523-143.000.
- Luk Lamellen und Kupplungsbau GmbH: See—
Honemann, Rudolf, 4,365,697, Cl. 192-89.00B.
- Lukaschek, Wolfgang; and Marx, Wolfgang, to Chemische Werke Huls, A.G. Process for the production of an elastomer-filler mixture optionally containing extender oils. 4,366,285, Cl. 524-521.000.
- Luke Limited: See—
Dobney, William E., 4,365,487, Cl. 62-498.000.
- Lutz, Horst, to Daimler-Benz Aktiengesellschaft. Apparatus for preventing unauthorized starting of a motor vehicle. 4,366,466, Cl. 340-64.000.
- Lyashenko, Ivan V.: See—
Chukhanov, Zinoviy F.; Chukhanov, Zinoviy Z.; Tsuprov, Sergei A.; Lyashenko, Ivan V.; Apter, Danil M.; Nikolaev, Anatoly M.; and Karasev, Vadim A., 4,366,043, Cl. 208-8.00R.
- Lynch, Karen: See—
DeBonte, William J.; and Lynch, Karen, 4,366,490, Cl. 346-140.00R.

M. A. Industries, Inc.: See—
Williams, Craig B., 4,365,780, Cl. 249-11.000.
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Fischer, Hermann; and Schubert, Johannes M., 4,365,553, Cl. 101-232.000.
Ma, Bao-Min: See—
Finke, Guenter B.; and Ma, Bao-Min, 4,366,520, Cl. 361-45.000.
Maass, Donald A.: See—
Keskula, Henno; Maass, Donald A.; and McCreedy, Kathleen M., 4,366,289, Cl. 525-78.000.
MacKinnon, Alan G., to Foundation Equipment Company. Pile driving assembly, 4,365,675, Cl. 173-105.000.
Madi, Jeno: See—
Ratsko, Istvan; Ivony, Jozsef; Madi, Jeno; and Karaszi, Gyorgy, 4,365,685, Cl. 180-135.000.
Maeda, Mamoru: See—
Ejiri, Koichi; Kurose, Morisumi; and Maeda, Mamoru, 4,366,506, Cl. 358-260.000.
Maekawa, Tadashi; and Watanabe, Yutaka. Plastic molding strip, 4,366,196, Cl. 428-31.000.
Maestrelli, Gino, to Maestrelli S.p.A. Cleaning liquid level regulator for dry cleaning machines, 4,365,489, Cl. 68-212.000.
Maestrelli S.p.A.: See—
Maestrelli, Gino, 4,365,489, Cl. 68-212.000.
Mag Maschinen und Apparatebau Gesellschaft mbH: See—
Horvath, Miklos; and Pichler, Hans-Peter, 4,365,790, Cl. 266-103.000.
Magenheimer, John J.: See—
Berger, Michael; and Magenheimer, John J., 4,366,227, Cl. 430-215.000.
Maggioni, Virginio, to Centro Ricerche Fiat S.p.A. Automatic timer valve for controlling the output of irrigation plant, 4,365,644, Cl. 137-102.000.
Magnetic Metals Corporation: See—
Finke, Guenter B.; and Ma, Bao-Min, 4,366,520, Cl. 361-45.000.
Magnuson, Richard C.: See—
Kehl, Norman J.; and Magnuson, Richard C., 4,365,840, Cl. 297-443.000.
Magnusson, Rolf: See—
Lindholm, Alfons S. M., 4,366,214, Cl. 429-140.000.
Magruder, Michael R., to Magruder, Michael Richard. Nalbuphine-narcotic analgesic composition and method of producing analgesia, 4,366,159, Cl. 424-260.000.
Magruder, Michael Richard: See—
Magruder, Michael R., 4,366,159, Cl. 424-260.000.
Mahrus, Duraid, to Metal Leve S.A. Industria e Comercio. Manufacture of light weight pistons, 4,365,399, Cl. 29-156.50R.
Main, David T.; Riddle, John B.; and Allen, Rod H., to Micro Magnetic Industries, Inc. Vending machine acquisition system, 4,366,481, Cl. 340-825.540.
Mak, Tak W.: See—
Andrew, Barry E.; and Mak, Tak W., 4,366,077, Cl. 252-49.300.
Makino, Kenya; Sakurai, Hideo; Watanabe, Masaru; and Nishimura, Toshiyuki, to Japan EP Rubber Co., Ltd. Process for producing olefinic copolymer rubber with improved titanium compound containing catalyst system, 4,366,297, Cl. 526-119.000.
Malatesta, Paul F.: See—
Ruggieri, Albert P.; Marinaccio, Frank J.; Campbell, Neil E.; Allen, Wayne; Mout, Stanley; Malatesta, Paul F.; Pietrowski, Joseph J.; and Schwartz, Leonard H., 4,365,590, Cl. 119-15.000.
Mank, James F.: See—
Doerschuk, David C.; and Mank, James F., 4,365,351, Cl. 2-2.10R.
Mannes, Karl: See—
Rauchschwalbe, Gunter; Blank, Heinz U.; Mannes, Karl; and Mayer, Dietmar, 4,366,102, Cl. 260-463.000.
Manzoni, Stephane. Locking device for use on suitcases, 4,365,490, Cl. 70-70.000.
Mapco, Inc.: See—
Zacharias, Ellis M., Jr., 4,365,518, Cl. 73-861.310.
Mard, Kenneth C.; and Washburn, S. John, to United Technologies Corp. Fixed position variable frequency pendular-type vibration absorber, 4,365,770, Cl. 244-17.110.
Margiloff, Henry. Traffic signaling attachment device for bicycles, 4,365,581, Cl. 116-52.000.
Marinaccio, Frank J.: See—
Ruggieri, Albert P.; Marinaccio, Frank J.; Campbell, Neil E.; Allen, Wayne; Mout, Stanley; Malatesta, Paul F.; Pietrowski, Joseph J.; and Schwartz, Leonard H., 4,365,590, Cl. 119-15.000.
Mark, Edward H. Storage facility such as a file having a flexible rotatable cover, 4,365,855, Cl. 312-297.000.
Marks, Kenneth A.: See—
Gaylord, John A.; and Marks, Kenneth A., 4,365,776, Cl. 244-151.00A.
Marques, Jerry G.; and Cruthis, Robert D., to Caterpillar Tractor Co. Filter arrangement for an air circulatory system, 4,365,541, Cl. 98-2.110.
Marsden, Warwick L.: See—
Wainwright, Mark S.; Marsden, Warwick L.; and Friedrich, Jan B., 4,366,260, Cl. 518-713.000.
Marsh, Edward K., to Bendix Corporation. The Method of making an electrical connector assembly, 4,365,412, Cl. 29-863.000.
Marsoner, Gunter, to U.S. Philips Corporation. Cylindrical capacitive tachogenerator, 4,366,402, Cl. 310-68.00B.
Marsoner, Hermann; and Ritter, Christoph, to List, Hans. Capillary-reference electrode, 4,366,040, Cl. 204-195.00R.
Martin, Brice E.; and Schwartz, Alan R., to GTE Products Corporation. Treatment of coarse particle size zinc sulfide to improve visual

and infrared transmission on hot-pressed articles, 4,366,141, Cl. 423-561.00B.
Martin, Eugene J.; and Rollins, Thomas, to Pneumo Corporation. Fluid pressure actuator with stroke end lock mechanism, 4,365,539, Cl. 92-17.000.
Martin, Henri, to Societe Nationale Industrielle Aerospatiale. Process and device for braking a wheel by integrated pressure pulses, 4,365,847, Cl. 303-93.000.
Martin-Smith, Michael: See—
Clitherow, John W.; Price, Barry; Bradshaw, John; and Martin-Smith, Michael, 4,366,164, Cl. 424-267.000.
Martinengo, Giorgio: See—
Cedolin, Riccardo; Chiarottino, Wolmer; Giandonato, Giuseppe; Giorcelli, Silvano; Martinengo, Giorgio; Sofi, Giorgio; and Villone, Sergio, 4,366,535, Cl. 364-200.000.
Martini, Leonard J. Game board and apparatus, 4,365,812, Cl. 273-243.000.
Marumoto, Katsuji: See—
Omae, Tsutomu; Marumoto, Katsuji; and Naito, Shotaro, 4,366,420, Cl. 318-338.000.
Maruyama, Teruo; and Morimoto, Masato, to Matsushita Electric Industrial Co., Ltd. Rotary head assembly for videotape recorder or reproducer, 4,366,519, Cl. 360-129.000.
Marvia, Kaarlo, to Suomen Sokeri Osakeyhtio. Container for loose material, 4,365,737, Cl. 229-17.00R.
Marx, Hans-Jurgen, to Trutzschler GmbH & Co. KG. Suction apparatus for removing fiber material, 4,365,764, Cl. 241-101.00A.
Marx, Wolfgang: See—
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Maryland Cup Corporation: See—
Cress, Allan K.; and Busse, Charles E., 4,365,460, Cl. 53-563.000.
Masclat, Jean; and Papay, Roger, to Messier-Hispano-Bugatti. Fuse device for a wheel equipped with a pneumatic tire, 4,365,643, Cl. 137-70.000.
Mason, H. Carl. Wind machine, 4,365,934, Cl. 416-17.000.
Mason, James L.: See—
Palermo, Michael A.; and Mason, James L., 4,365,723, Cl. 220-3.800.
Masonite Corporation: See—
Hanlon, Charles M.; Mein, James H.; and Schultz, William J., 4,366,197, Cl. 428-43.000.
Massachusetts Institute of Technology: See—
Turner, George W.; Fan, John C. C.; and Salerno, Jack P., 4,366,338, Cl. 136-258.000.
Masters, Ian M.: See—
Weir, Donald R.; and Masters, Ian M., 4,366,128, Cl. 423-87.000.
Masuda, Ikuro; Shiraishi, Hisayoshi; Ogawa, Seiichiro; Shiono, Shigeo; Sakurai, Jinichi; and Yuminaka, Takeo, to Hitachi, Ltd. Signal transmitting and receiving apparatus, 4,366,478, Cl. 340-825.000.
Masuda, Kouji: See—
Kitamura, Nobuaki; Masuda, Kouji; and Mizukami, Masao, 4,366,397, Cl. 307-264.000.
Masuda, Toyohiko; Ueno, Takeshi; Nagai, Yoji; Ishimaru, Hitoshi; and Nakamura, Shozo, to Hitachi Ltd.; and Hitachi Engineering Co. Ltd. Condensation system for power plant, 4,365,476, Cl. 60-686.000.
Masugi, Takashi: See—
Takaya, Takao; Masugi, Takashi; Takasugi, Hisashi; and Kochi, Hiromu, 4,366,153, Cl. 424-246.000.
Masumoto, Isamu: See—
Amemiya, Akira; Kunii, Tadashi; Furusawa, Tomotaka; Takeda, Mutsuhiko; Tanaka, Katsumasa; Uemura, Toshikazu; Ono, Yoshihiro; Masumoto, Isamu; Nakao, Noriyasu; and Furukawa, Masanori, 4,366,305, Cl. 528-230.000.
Matsumoto, Koichi: See—
Hazama, Kiyooki; Shiozawa, Kazuo; and Matsumoto, Koichi, 4,365,881, Cl. 354-76.000.
Matsumoto, Shoichi: See—
Mizunoya, Kiyoshi; Matsumoto, Shoichi; Tomii, Hitoshi; Kawamoto, Masahiro; and Wada, Yuusuke, 4,366,080, Cl. 252-299.300.
Matsumoto, Tadayuki; Imaeda, Kozo; Mineo, Masatoshi; and Nakagawa, Kiyoshi, to Toray Industries, Inc. Method for producing an interlaced multifilament yarn, 4,365,394, Cl. 28-258.000.
Matsuno, Takashi: See—
Mori, Takashi; Takaku, Sakae; Matsuura, Fumiaki; Murakami, Yasushi; Noda, Yukifumi; Yamazaki, Tamotsu; Neichi, Tomohiro; Nakakimura, Hiroshi; Kataoka, Shigeyuki; Matsuno, Takashi; Hata, Shun-ichi; and Takanashi, Shigeru, 4,366,161, Cl. 424-266.000.
Matsuoka, Kikuo: See—
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Hirota, Kazumi; and Matsuoka, Kikuo, 4,365,499, Cl. 72-351.000.
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Ohmukai, Yoshimi; Ogino, Toshiro; Adachi, Kinichi; and Nishiguchi, Hisanori, 4,365,952, Cl. 431-208.000.
Shimizu, Hirokazu; Itoh, Kunio; Sugino, Takashi; and Wada, Masaru, 4,366,568, Cl. 372-45.000.
Terakawa, Sumio; Takamura, Tohru; Horii, Kenju; and Yamada, Takahiro, 4,366,503, Cl. 358-213.000.
Matsushita Electric Works, Ltd.: See—
Inoue, Hiromitsu; Ohashi, Hiroshi; and Takada, Yuji, 4,366,473, Cl. 340-562.000.

Oda, Takeshi; Tanabe, Toshio; and Tanaka, Yoshimasa, 4,365,376, Cl. 15-22.00R.
Matsushita Electronics Corp.: See—
Terakawa, Sumio; Takamura, Tohru; Horii, Kenju; and Yamada, Takahiro, 4,366,503, Cl. 358-213.000.
Matsushita, Yuichi: See—
Takano, Masayuki; Hosoi, Sadao; and Matsushita, Yuichi, 4,366,515, Cl. 360-77.000.
Matsuura, Fumiaki: See—
Mori, Takashi; Takaku, Sakae; Matsuura, Fumiaki; Murakami, Yasushi; Noda, Yukifumi; Yamazaki, Tamotsu; Neichi, Tomohiro; Nakakimura, Hiroshi; Kataoka, Shigeyuki; Matsuno, Takashi; Hata, Shun-ichi; and Takanashi, Shigeru, 4,366,161, Cl. 424-266.000.
Matsuzaki, Atsushi: See—
Hatada, Toshio; Senshu, Takao; Arai, Akira; Harada, Fumio; Matsuzaki, Atsushi; Futawatari, Hajime; Imaizumi, Yutaka; and Takeda, Sumiyoshi, 4,365,667, Cl. 165-152.000.
Matthews, John A.; Washburn, David A.; and Sarli, Vito J., to United Technologies Corporation. Fuel nozzle guide and seal for a gas turbine engine, 4,365,470, Cl. 60-39.320.
Mauri Brothers & Thomson (Aust) Pty. Limited: See—
Parker, Bernard J., 4,366,173, Cl. 426-20.000.
Mawatari, Masaaki: See—
Abe, Mitsuo; Kamiya, Akira; Itoh, Junya; Mawatari, Masaaki; and Kurihara, Fumio, 4,366,281, Cl. 524-297.000.
Max Sandherr AG: See—
Schellenberg, Walter, 4,365,457, Cl. 53-412.000.
May, Sherman C.: See—
Rogers, Alfred N.; Awerbuch, Leon; and May, Sherman C., 4,366,066, Cl. 210-696.000.
Mayama, Shinji; and Arai, Yoji, to Hitachi, Ltd. Spectral source, particularly for atomic absorption spectrometry, 4,366,418, Cl. 315-326.000.
Mayer, Dietmar: See—
Rauchschwalbe, Gunter; Blank, Heinz U.; Mannes, Karl; and Mayer, Dietmar, 4,366,102, Cl. 260-463.000.
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Mayer, Karl H., deceased; Sasse, Klaus; and von Konig, Anita, 4,366,231, Cl. 430-375.000.
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Melvin, Stephen R. Keeper for a game missile and a game implement, 4,365,804, Cl. 273-25.000.
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- Mirkin, George. Method and apparatus for structural analysis. 4,366,380, Cl. 250-306.000.
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Kimura, Hiroshi; Hisajima, Masahiko; Shigemura, Yutaka; and Irie, Yoichiro, 4,365,893, Cl. 355-75.000.
- Mita Wood Products Inc.: *See—*
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- Yatomi, Takeshi; Tanaka, Yutaka; and Ozaki, Yoshio, 4,366,359, Cl. 219-69.00M.
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Amemiya, Akira; Kunii, Tadashi; Furusawa, Tomotaka; Takeda, Mutsuhiko; Tanaka, Katsumasa; Umemura, Toshikazu; Ono, Yoshihiro; Masumoto, Isamu; Nakao, Noriyasu; and Furukawa, Masanori, 4,366,305, Cl. 528-230.000.
- Nawata, Takanari; Komatsu, Toshio; and Ohtsuka, Masayuki, 4,366,179, Cl. 426-395.000.
- Mitsubishi Petrochemical Company Limited: *See—*
Kitagawa, Sadao; and Okada, Isao, 4,366,296, Cl. 526-77.000.
- Mitsui Petrochemical Industries Ltd.: *See—*
Kato, Akifumi; Kaneshige, Nobuhiko; and Yamamoto, Ryoichi, 4,366,123, Cl. 422-135.000.
- Mitsui Toatsu Chemicals, Inc.: *See—*
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- Miura, Eiichi, to Nissan Motor Company, Limited. Door for an automotive vehicle. 4,365,443, Cl. 49-502.000.
- Miyai, Keiko: *See—*
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Miyakawa, Eiji, 4,365,916, Cl. 408-46.000.
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- Miyake, Osamu: *See—*
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- Miyamoto, Yoshimi; Kojima, Keiichi; and Toriumi, Yasuo, to Sumitomo Electric Industries; and Nippondenso Co., Ltd. Ignition cables. 4,366,464, Cl. 338-214.000.
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- Mizelle, Ned W., to Hoover Universal, Inc. Inertial lock. 4,365,837, Cl. 297-216.000.
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- Moehren, Hans-Heiner. Anchor lock fastening assembly. 4,365,744, Cl. 238-323.000.
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- Molins Limited: *See—*
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- Molt, Kenneth R., to Carstab Corporation. Compounds having two bis (2,2,6,6-tetramethyl-4-piperidyl)-substituted heterocyclic rings and polymers containing same. 4,366,277, Cl. 524-102.000.
- Monick, John A., to Colgate-Palmolive Company. Pressure dispensable gelled alcohol fuel. 4,365,971, Cl. 44-7.00C.
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- Montgomery, Gary V., to Sunbeam Plastics Corporation. Child resistant closure and container assembly. 4,365,721, Cl. 215-217.000.
- Moore Business Forms, Inc.: *See—*
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- Moore, James L. Motor/generator armature portable baking oven. 4,366,370, Cl. 219-535.000.
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- Morgan, Wendell D., to Acco Industries, Inc. Loader-unloader system for workpieces. 4,365,920, Cl. 414-224.000.
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- Mori, Sanae, to Daido Metal Company Ltd. Method of producing multi-layer sliding material. 4,365,995, Cl. 419-6.000.
- Mori, Sumio, to Fuji Photo Film Co., Ltd. Shaded picture signal processing system and method. 4,366,507, Cl. 358-283.000.
- Mori, Takao: *See—*
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- Mori, Takashi; Takaku, Sakae; Matsuura, Fumiaki; Murakami, Yasushi; Noda, Yukifumi; Yamazaki, Tamotsu; Neichi, Tomohiro; Nakakimura, Hiroshi; Kataoka, Shigeyuki; Matsuno, Takashi; Hata, Shun-ichi; and Takanashi, Shigeru, 4,366,161, Cl. 424-266.000.
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- Murray, Myles N. Rubber driving band, artillery shell employing same, and method of making the band and assembling same in the shell. 4,366,015, Cl. 156-185.000.
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- Myerly, James W. Snow removal accessory for snow throwing devices. 4,365,430, Cl. 37-244.000.
- Myers, Chester D.: *See—*
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- Nadkarni, Ramachandra A.: *See—*
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- Nagai, Yoji: *See—*
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- Naito, Shotaro: *See—*
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- Nakada, Teruo; and Iwahara, Mitsuo, to Isuzu Motors, Limited. Diesel throttle valve control system. 4,365,600, Cl. 123-339.000.
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- Nakamura, Kotaro, to Fuji Photo Film Co., Ltd. Blix process for silver halide color photographic materials. 4,366,233, Cl. 430-393.000.
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- Nakano, Yasuo, to Kabushiki Kaisha Bon'ni. Method and apparatus for setting markings in a fabric. 4,365,732, Cl. 223-57.000.
- Nakao, Masumi: *See—*
Misaizu, Tetsuo; and Nakao, Masumi, 4,366,559, Cl. 365-205.000.

- Nakao, Noriyasu: See—
Amemiya, Akira; Kunii, Tadashi; Furusawa, Tomotaka; Takeda, Mutsuhiko; Tanaka, Katsumasa; Uemura, Toshikazu; Ono, Yoshihiro; Masumoto, Isamu; Nakao, Noriyasu; and Furukawa, Masanori, 4,366,305, Cl. 528-230.000.
- Nakao, Yoshiharu: See—
Kyomasu, Mikio; Nakao, Yoshiharu; and Nakayama, Mitsuo, 4,366,556, Cl. 365-189.000.
- Nakasho, Kazuo: See—
Sato, Masaaki; Miyaji, Kazumi; Yoshida, Masahide; Fukuoka, Norio; Nakasho, Kazuo; and Furuta, Kenji, 4,366,514, Cl. 360-74.400.
- Nakatani, Kiyoshi: See—
Numata, Satoshi; Nakatani, Kiyoshi; Yamazaki, Noboru; and Yuasa, Teruo, 4,366,328, Cl. 568-734.000.
- Nakayama, Masaharu: See—
Ujikawa, Norihisa; and Nakayama, Masaharu, 4,366,290, Cl. 525-169.000.
- Nakayama, Mitsuo: See—
Kyomasu, Mikio; Nakao, Yoshiharu; and Nakayama, Mitsuo, 4,366,556, Cl. 365-189.000.
- Nambodri, Chettoor G.: See—
Gregorian, Razmic S.; Nambodri, Chettoor G.; and Johnson, John D., 4,365,968, Cl. 8-477.000.
- Narahara, Toshikazu: See—
Ogata, Masatsugu; Asano, Hideki; Narusawa, Tsuneo; and Narahara, Toshikazu, 4,366,516, Cl. 360-84.000.
- Narducy, Kenneth W.: See—
Arbir, Francis W.; Raden, Daniel S.; and Narducy, Kenneth W., 4,366,084, Cl. 252-426.000.
- Narusawa, Tsuneo: See—
Ogata, Masatsugu; Asano, Hideki; Narusawa, Tsuneo; and Narahara, Toshikazu, 4,366,516, Cl. 360-84.000.
- Nash, David D.: See—
Durapipe Limited, Co-extrusion die apparatus for co-extruding plastics materials, 4,365,949, Cl. 425-463.000.
- Naskar, Sasanka S.; and Pass, Reinhard, to Dynamit Nobel AG. Biodegradable, oxidation-resistant liquid ester mixtures with low turbidity points, 4,366,100, Cl. 260-410.700.
- Natanson, Konstantin J.: See—
Karpov, Jury A.; Burylev, Boris P.; Glavin, German G.; Kvin, Valeria E.; Kovalev, Vasily V.; Natanson, Konstantin J.; Orlov, Vladimir V.; Kuznetsov, Lev B.; Zaitsev, Anatoly M.; Kartsev, Valentin E.; Morozov, Vladimir M.; and Kovalev, Gennady G., 4,365,969, Cl. 436-75.000.
- National Research Development Corporation: See—
Cowley, Andrew G.; Payne, David N.; and Watson, Paul M., 4,365,864, Cl. 350-96.160.
- National Semiconductor Corporation: See—
Hu, Chenming, 4,366,555, Cl. 365-185.000.
- Kohn, Leslie D., 4,366,536, Cl. 364-200.000.
- National Starch and Chemical Corporation: See—
Silano, Michael A.; and Featherston, Robert D., 4,366,275, Cl. 524-47.000.
- Nawata, Takanari; Komatsu, Toshio; and Ohtsuka, Masayuki, to Mitsubishi Gas Chemical Company, Inc. Oxygen and carbon dioxide absorbent and process for storing coffee by using the same, 4,366,179, Cl. 426-395.000.
- Nayak, Ashok L., to Corning Glass Works. Furnace delivery system, 4,365,986, Cl. 65-136.000.
- Naylor, Donald B.; and Krywicznan, Wladyslaw H., to British-American Tobacco Company Limited. Spraying devices, 4,365,585, Cl. 118-302.000.
- NCR Corporation: See—
Biedermann, Horst H.; Hermann, Ferdinand; Pechinger, Ernst; and Sereinigg, Emil L. F., 4,365,902, Cl. 400-124.000.
- Nebrig, Donald A.: See—
Kortan, William A.; and Nebrig, Donald A., 4,365,492, Cl. 72-10.000.
- Neff, Larry M., to S.U.N. Engineering, Inc. Pipeline pig having improved end plate retention, 4,365,379, Cl. 15-104.06R.
- Neichi, Tomohiro: See—
Mori, Takashi; Takaku, Sakae; Matsuura, Fumiaki; Murakami, Yasushi; Noda, Yukifumi; Yamazaki, Tamotsu; Neichi, Tomohiro; Nakakimura, Hiroshi; Kataoka, Shigeyuki; Matsuno, Takashi; Hata, Shun-ichi; and Takanashi, Shigeru, 4,366,161, Cl. 424-266.000.
- Neill, Daniel L.; and Tribe, Leonard T., to Kelsey Hayes Company. Pressure transducer and method of making same, 4,365,406, Cl. 29-593.000.
- Nelson, Herman E. Combination toy and book, 4,365,438, Cl. 46-202.000.
- Nelson, John L.: See—
Mueller, Hans W.; Shattuck, Richard E.; Cryder, Albert H.; and Nelson, John L., 4,365,904, Cl. 400-568.000.
- Nelson, Lynn S. Poured adobe building construction and method of forming same, 4,365,451, Cl. 52-169.900.
- Nesterov, Viktor I.: See—
Kurovich, Arkady N.; Krasnokutsky, Jury B.; Sysoev, Vyacheslav N.; Golman, Lev D.; Zuev, Vladimir T.; Nesterov, Viktor I.; and Laboda, Viktor A., 4,365,494, Cl. 72-63.000.
- Neuerburg, Horst: See—
Werner, Anton; and Neuerburg, Horst, 4,365,462, Cl. 56-255.000.
- Neuhierl, Hermann. Lap counter for radio controlled vehicles, 4,366,374, Cl. 235-93.000.
- Neukomm, Marguerite, heiress: See—
Neukomm, Walter, deceased, 4,365,529, Cl. 82-38.00A.
- Neukomm, Walter, deceased (by Neukomm, Marguerite, heiress), to Societe de Vente et de Fabrication pour le Decolletage LNS S.A. Hydrodynamic injection device for machine tools, 4,365,529, Cl. 82-38.00A.
- Neuman Chimney Cleaners, Inc.: See—
Neuman, Orin E., 4,365,381, Cl. 15-243.000.
- Neuman, Orin E., to Neuman Chimney Cleaners, Inc. Chimney cleaner, 4,365,381, Cl. 15-243.000.
- Neumann, John W., to Occidental Chemical Corporation. Fluid rail conveying apparatus, 4,365,915, Cl. 406-88.000.
- Neumann, Siegfried; Hennrich, Norbert; Orth, Hans-Dieter; Pfeiderer, Gerhard; Jockers-Wretou, Evangelista; and Pauly, Hans, to Merck Patent Gesellschaft mit beschränkter Haftung. Method and agent for the immunological determination of enzymes, 4,366,242, Cl. 435-7.000.
- Neumann, Werner: See—
Vodrazka, Wolfgang; Klahr, Erhard; Oppenlaender, Knut; Trielselt, Wolfgang; Stoekigt, Dieter; and Neumann, Werner, 4,366,326, Cl. 568-613.000.
- Neyer, Jean-Marie: See—
Bujadoux, Karel; Neyer, Jean-Marie; and Houzeaux, Jean-Pierre, 4,366,140, Cl. 423-498.000.
- NHK Spring Co., Ltd.: See—
Ohno, Akira; Sato, Toshiaki; and Inoue, Kanji, 4,365,824, Cl. 280-689.000.
- Nibby, Chester M., Jr.: See—
Johnson, Robert B.; and Nibby, Chester M., Jr., 4,366,538, Cl. 364-200.000.
- Johnson, Robert B.; and Nibby, Chester M., Jr., 4,366,539, Cl. 364-200.000.
- Nieda, Yasuhiro; Honda, Kiyokazu; and Shinada, Hidehiro, to Tokyo Shibaura Denki Kabushiki Kaisha. Halogen incandescent lamp, 4,366,409, Cl. 313-221.000.
- Nikolaev, Anatoly M.: See—
Chukhanov, Zinoviy F.; Chukhanov, Zinoviy Z.; Tsuprov, Sergei A.; Lyashenko, Ivan V.; Apter, Danil M.; Nikolaev, Anatoly M.; and Karasev, Vadim A., 4,366,043, Cl. 208-8.00R.
- Nikon Kogyo Kabushiki Kaisha: See—
Tsuiji, Masahiro, 4,366,117, Cl. 420-481.000.
- Nimry, Tayseer S.; and Fields, Ellis K., to Standard Oil Company (Indiana). Copolyimides from aliphatic and aromatic anhydrides and diamines, 4,366,304, Cl. 528-189.000.
- Nippon Electric Co., Ltd.: See—
Kasuya, Yoshihiro, 4,366,393, Cl. 307-221.00R.
- Misaizu, Tetsuo; and Nakao, Masumi, 4,366,559, Cl. 365-205.000.
- Nippon Gakki Seizo Kabushiki Kaisha: See—
Nakada, Akira; and Adachi, Takeshi, 4,365,532, Cl. 84-1.190.
- Nippon Oil and Fats Co., Ltd.: See—
Ujikawa, Norihisa; and Nakayama, Masaharu, 4,366,290, Cl. 525-169.000.
- Nippon Steel Corporation: See—
Hisashi, Takahashi; Satoshi, Hanai; and Katsuyoshi, Yoshida, 4,365,583, Cl. 118-65.000.
- Nippon Telegraph and Telephone Public Corp.: See—
Takatsuki, Toshiharu; Fujiwara, Ken-ichi; Nomura, Jutaro; and Okamura, Shigeru, 4,366,347, Cl. 179-2.0DP.
- Terui, Hiroshi; and Kobayashi, Morio, 4,365,862, Cl. 350-96.130.
- Ueno, Norio; Kato, Seiji; and Iwata, Atsushi, 4,366,456, Cl. 333-173.000.
- Nippon Telegraph & Telephone Public Corporation: See—
Takatsuki, Toshiharu; Fujiwara, Ken-ichi; Yanagisawa, Sinobu; and Okamura, Shigeru, 4,366,572, Cl. 375-37.000.
- Nippondenso Co., Ltd.: See—
Inoue, Yozo; Hara, Kiyoshi; and Ito, Yoji, 4,365,663, Cl. 165-12.000.
- Miyamoto, Yoshimi; Kojima, Keiichi; and Toriumi, Yasuo, 4,366,464, Cl. 338-214.000.
- Toyama, Kouichi; Sugiura, Yasushi; and Adachi, Michio, 4,365,609, Cl. 123-635.000.
- Yamazoe, Hisamitsu; Kinugawa, Masumi; and Kurii, Masaaki, 4,365,601, Cl. 123-339.000.
- Nishida, Koji: See—
Kawai, Taneichi; Nishida, Koji; Miyake, Osamu; and Hamajima, Shigemitsu, 4,365,565, Cl. 112-103.000.
- Nishiguchi, Hisanori: See—
Ohmukai, Yoshimi; Ogino, Toshiro; Adachi, Kinichi; and Nishiguchi, Hisanori, 4,365,952, Cl. 431-208.000.
- Nishikawa, Masaji, to Olympus Optical Company Limited. Apparatus for removing unnecessary charges on a photosensitive member in an electrophotographic system, 4,365,885, Cl. 355-3.00R.
- Nishimura, Kiyomitsu, to Mitsubishi Denki Kabushiki Kaisha. Signaling circuit for bridge amplifier, 4,366,441, Cl. 330-51.000.
- Nishimura, Toshiyuki: See—
Makino, Kenya; Sakurai, Hideo; Watanabe, Masaru; and Nishimura, Toshiyuki, 4,366,297, Cl. 526-119.000.
- Nishimura, Yoshiharu: See—
Uchimura, Mitsuo; Oana, Masao; and Nishimura, Yoshiharu, 4,366,552, Cl. 364-900.000.
- Nishioka, Jim Z. Compound bow with unequally flexing arms, 4,365,611, Cl. 124-24.00R.
- Nissan Motor Co., Ltd.: See—
Endo, Takuya, 4,365,606, Cl. 123-556.000.
- Iizuka, Haruhiko; and Sugawara, Fukashi, 4,365,597, Cl. 123-198.00F.
- Ikeura, Kenji, 4,365,599, Cl. 123-339.000.
- Ishikawa, Yoshikazu, 4,365,607, Cl. 123-556.000.

- Kubota, Shikibu; and Uriya, Yuichi, 4,365,522, Cl. 74-475.000.
- Miura, Eiichi, 4,365,443, Cl. 49-502.000.
- Mochida, Haruo; Tanaka, Yoshiyuki; Yamamoto, Yoshio; and Kataoka, Minoru, 4,365,488, Cl. 464-132.000.
- Ohkawa, Koue; Fujii, Shin; and Seino, Takashi, 4,366,269, Cl. 523-148.000.
- Shikata, Makoto; Osano, Hisashi; and Morozumi, Takuro, 4,365,603, Cl. 123-440.000.
- Sone, Kohki, 4,365,604, Cl. 123-440.000.
- Suga, Masaaki; and Hamada, Hideo, 4,365,526, Cl. 74-866.000.
- Sugawara, Fukashi, 4,365,598, Cl. 123-198.00F.
- Tachibana, Akira; Endo, Akira; and Sekine, Kenji, 4,366,546, Cl. 364-571.000.
- Uchida, Masaaki; Kanegae, Hidetoshi; and Ishitani, Shigeo, 4,366,039, Cl. 204-195.00S.
- Nitschke, Christian: See—
Gottstein, Dietrich; and Nitschke, Christian, 4,365,680, Cl. 177-212.000.
- Nitschko, Theodor; and Edinger, Franz K., to TMC Corporation. Front or rear jaw, 4,365,822, Cl. 280-625.000.
- Niwa, Kuniyuki: See—
Eto, Kunihiro; Yamakage, Tetsuro; and Niwa, Kuniyuki, 4,366,421, Cl. 318-466.000.
- Nixdorf Computer Corporation: See—
Ranalli, Charles, 4,366,511, Cl. 360-39.000.
- Nixon, John M., to Edo-Aire Mitchell. Data rate generator, 4,365,511, Cl. 73-384.000.
- Nizzere, Paul D.: See—
Klaus, Gerald R.; Williams, Thomas E.; and Nizzere, Paul D., 4,365,431, Cl. 40-352.000.
- NJM, Inc.: See—
Vollmer, Helmut, 4,366,023, Cl. 156-542.000.
- NL Industries, Inc.: See—
Egbert, Gary L., 4,365,977, Cl. 55-41.000.
- Noda, Yukifumi: See—
Mori, Takashi; Takaku, Sakae; Matsuura, Fumiaki; Murakami, Yasushi; Noda, Yukifumi; Yamazaki, Tamotsu; Neichi, Tomohiro; Nakakimura, Hiroshi; Kataoka, Shigeyuki; Matsuno, Takashi; Hata, Shun-ichi; and Takanashi, Shigeru, 4,366,161, Cl. 424-266.000.
- Nolf, Jean-Marie E., to N.V. Raychem S.A. Heat-recoverable reinforced enclosure, 4,366,011, Cl. 156-86.000.
- Nomura, Jutaro: See—
Takatsuki, Toshiharu; Fujiwara, Ken-ichi; Nomura, Jutaro; and Okamura, Shigeru, 4,366,347, Cl. 179-2.0DP.
- Norden, Alexander R., to Federal Pacific Electric Company. Circuit breaker with improved contact push-off spring, 4,366,354, Cl. 200-154.000.
- Nordischer Maschinenbau Rud. Baader: See—
Hartmann, Franz; and Krohn, Manfred, 4,365,387, Cl. 17-52.000.
- Norman, Frederick A., to Internationale Octrooi Maatschappij "Octropa". B.V. Materials and methods for culture of nesting insects, 4,365,372, Cl. 6-1.000.
- Norminton, Robert S., to Fleet Industries. One-piece snap-on foil-shaped low-drag fairing for long underwater cables, 4,365,574, Cl. 114-243.000.
- Noro, Masao, to Stax Industries Limited. Highly stable constant-voltage power source device, 4,366,432, Cl. 323-224.000.
- Norrell, Donald L.; Petersen, Kurt H.; and Schmid, Ronald F., to Minnesota Mining and Manufacturing Co. Facsimile apparatus with multiple scanning and printing elements, 4,366,509, Cl. 358-289.000.
- Northern Illinois Gas Company: See—
Toulios, Peter P., 4,366,486, Cl. 343-899.000.
- Northern Telecom Limited: See—
Westwood, William D.; Kos, Steven; and Willemsen, Herman W., 4,366,488, Cl. 346-74.300.
- Northrop Corporation: See—
Cushman, Glenn F., 4,366,467, Cl. 340-347.0AD.
- Norwood Industries, Inc.: See—
McCartney, John, 4,366,192, Cl. 427-246.000.
- Notthoff, Johannes K.; and Zuleeg, Rainer, to McDonnell Douglas Corporation. Dual sensitivity optical sensor, 4,366,377, Cl. 250-211.00J.
- Nourse, Howard: See—
Bridges, Thomas K.; and Nourse, Howard, 4,366,057, Cl. 210-437.000.
- Nouvretne, Werner: See—
Freitag, Dieter; Nouvretne, Werner; Reinking, Klaus; Tacke, Peter; Kleiner, Frank; and Schmidt, Manfred, 4,366,276, Cl. 524-94.000.
- Nowacki, Christopher A., to Respiratory Care, Inc. High volume humidifier-nebulizer, 4,366,105, Cl. 261-35.000.
- Nu-Co Industries Inc.: See—
Springer, John R., 4,365,378, Cl. 15-98.000.
- Numata, Satoshi; Nakatani, Kiyoshi; Yamazaki, Noboru; and Yuasa, Teruo, to Mitsui Toatsu Chemicals, Inc. Indene compound and novel process for producing indene compounds, 4,366,328, Cl. 568-734.000.
- Numazawa, Akio; Katayama, Nobuaki; Ikemoto, Kazuhito; Sasaki, Kan; and Terakura, Yukio, to Toyota Jidosha Kogyo Kabushiki Kaisha. Die-cast extension housing of automotive transmission, 4,365,523, Cl. 74-606.00R.
- Nunokawa, Kazuo, to Tokyo Kogaku Kikai Kabushiki Kaisha. Eye fundus camera having working distance detecting device, 4,365,872, Cl. 351-208.000.
- N.V. Raychem S.A.: See—
Nolf, Jean-Marie E., 4,366,011, Cl. 156-86.000.
- Nyberg, Jens R.: See—
Rastas, Jussi K.; and Nyberg, Jens R., 4,366,127, Cl. 423-26.000.
- Oana, Masao: See—
Uchimura, Mitsuo; Oana, Masao; and Nishimura, Yoshiharu, 4,366,552, Cl. 364-900.000.
- Oatham, Robert J.: See—
Simpson, Frank F.; Johnson, John W.; and Oatham, Robert J., 4,366,403, Cl. 310-239.000.
- Obermann, George, to Singer Company. The Two-speed continuous drive timer, 4,366,352, Cl. 200-35.00R.
- Obermayer, Bertram; Skatsche, Othmar; and Greier, Josef, to List, Hans. Water-cooled, multi-cylinder internal combustion engine, 4,365,594, Cl. 123-41.82R.
- O'Brian, Edward D.; and Plachy, William M. Folding slide and platform structure, 4,365,799, Cl. 272-56.50R.
- Occidental Chemical Corporation: See—
Lash, Ronald J.; and Herr, Roy W., 4,366,036, Cl. 204-55.00R.
- Neumann, John W., 4,365,915, Cl. 406-88.000.
- Schulz, Arthur C.; Cook, Edward H., Jr.; and Viswanathan, Krishnan, 4,366,037, Cl. 204-98.000.
- O'Connor, Rodney J., to Romec Environmental Research & Development, Inc. Process and apparatus for recovering usable water and other materials from oil field mud/waste pits, 4,366,063, Cl. 210-652.000.
- Oda, Takeshi; Tanabe, Toshio; and Tanaka, Yoshimasa, to Matsushita Electric Works, Ltd. Mouth cleaning device, 4,365,376, Cl. 15-22.00R.
- Odawara, Hideo: See—
Sugiyama, Masatoshi; Odawara, Hideo; and Takeda, Nagao, 4,365,998, Cl. 106-22.000.
- Odenberg Investments Limited: See—
Broderick, Michael, 4,365,726, Cl. 220-211.000.
- O'Doherty, George O. P.: See—
Clinton, Albert J., deceased; and O'Doherty, George O. P., 4,366,168, Cl. 424-283.000.
- Oelsch, Jürgen, to Preh Elektrofeinmechanische Werke Jakob Preh Nachf. GmbH & Co. Keyboard, 4,366,355, Cl. 200-159.00B.
- Oepen, Heinz: See—
Feller, Otto; Oepen, Heinz; and Stechow, Jochen, 4,366,543, Cl. 364-474.000.
- Off, Joseph W. A.; and Early, Judson H., to Haggard Company. Patch pocket and flap constructions, 4,365,353, Cl. 2-247.000.
- Ogata, Masatsugu; Asano, Hideki; Narusawa, Tsuneo; and Narahara, Toshikazu, to Hitachi, Ltd. Precision machinery component, 4,366,516, Cl. 360-84.000.
- Ogata, Minoru: See—
Tsuda, Shin; Kurabayashi, Sadasuke; and Ogata, Minoru, 4,366,505, Cl. 358-260.000.
- Ogata, Norio: See—
Tomioka, Tatsuya; and Ogata, Norio, 4,366,279, Cl. 524-289.000.
- Ogata, Saburo. Turbine-type internal-combustion engine, 4,365,472, Cl. 60-39.760.
- Ogawa, Seiichiro: See—
Masuda, Ikuro; Shiraiishi, Hisayoshi; Ogawa, Seiichiro; Shiono, Shigeo; Sakurai, Jinichi; and Yuminaka, Takeo, 4,366,478, Cl. 340-825.000.
- Ogawa, Tadashi: See—
Ichijima, Seiji; Adachi, Keiichi; and Ogawa, Tadashi, 4,366,237, Cl. 430-505.000.
- Ogawa, Yusuke: See—
Iwanami, Masao; and Ogawa, Yusuke, 4,365,486, Cl. 62-392.000.
- Ogino, Toshiro: See—
Ohmukai, Yoshimi; Ogino, Toshiro; Adachi, Kinichi; and Nishiguchi, Hisanori, 4,365,952, Cl. 431-208.000.
- Ogino, Yoshitaka: See—
Hosaka, Masao; Ogino, Yoshitaka; and Yanagawa, Nobuyuki, 4,365,888, Cl. 355-14.00R.
- Ogren, Robert S., to Owatonna Tool Company. Rivet removal and fastening tool, 4,365,401, Cl. 29-243.530.
- Ogura, Masato; Horio, Noriyasu; and Suzuki, Kinzo, to Mitsubishi Denki Kabushiki Kaisha. Electric fan, 4,365,930, Cl. 415-61.000.
- Oguri, Ichiro; and Koyama, Yoshihiro, to Sharp Kabushiki Kaisha. Steam washing in a dishwasher, 4,366,005, Cl. 134-25.200.
- Ohashi, Hiroshi: See—
Inoue, Hiromitsu; Ohashi, Hiroshi; and Takada, Yuji, 4,366,473, Cl. 340-562.000.
- Ohga, Kunihiro: See—
Yokoyama, Shigeki; and Ohga, Kunihiro, 4,366,238, Cl. 430-529.000.
- Ohkawa, Koue; Fujii, Shin; and Seino, Takashi, to Nissan Motor Co., Ltd. Resin coated foundry sand using crystalline unsaturated polyester as binder, 4,366,269, Cl. 523-148.000.
- Ohki, Nobutaka: See—
Hamaoka, Tsutomu; Takahashi, Osamu; Harada, Tooru; Sakai, Minoru; and Ohki, Nobutaka, 4,366,226, Cl. 430-214.000.
- Ohlschlager, Hans; and Langen, Hans, to Agfa-Gevaert Aktiengesellschaft. Photographic recording material and new merocyanines, 4,366,221, Cl. 430-507.000.
- Ohmukai, Yoshimi; Ogino, Toshiro; Adachi, Kinichi; and Nishiguchi, Hisanori, to Matsushita Electric Industrial Co., Ltd. Liquid gas burner, 4,365,952, Cl. 431-208.000.
- Ohnishi, Akira: See—
Shiozaki, Ken; Tsuge, Kazunori; and Ohnishi, Akira, 4,366,093, Cl. 252-477.00R.
- Ohnishi, Masaru; and Iwata, Syuji. Electrographic imaging system, 4,366,491, Cl. 346-155.000.

Ohta, Akira; Sato, Toshiaki; and Inoue, Kanji, to NHK Spring Co., Ltd. Stabilizer for vehicle. 4,365,824, Cl. 280-689,000.

Ohta, Hiroshi, to Rikagaku Kenkyusho; and Science and Technology Agency. Josephson junction and a method of making the same. 4,366,494, Cl. 357-5,000.

Ohta, Ichiro; Teijima, Akio; Watando, Masayuki; Yamaoka, Akira; Ishiwata, Kouzi; and Yamada, Minoru, to Ishikawajima-Harima Jukogyo Kabushiki Kaisha. All position TIG welding process. 4,366,362, Cl. 219-123,000.

Ohta, Norio: See—
Munekata, Kenichi; Suzuki, Yasuo; and Ohta, Norio. 4,365,446, Cl. 51-268,000.

Ohtaka, Satoshi: See—
Suzukawa, Yuichi; Kobayashi, Waichi; and Ohtaka, Satoshi. 4,366,257, Cl. 501-123,000.

Ohtani, Sumio: See—
Shinagawa, Yukio; Ohtani, Sumio; Suematsu, Koichi; and Kawaguchi, Hideo. 4,366,239, Cl. 430-533,000.

Ohtsuka, Masayuki: See—
Nawata, Takanari; Komatsu, Toshio; and Ohtsuka, Masayuki. 4,366,179, Cl. 426-395,000.

Oishi, Kengo; and Suzuki, Osamu, to Fuji Photo Film Co., Ltd. Magnetic tape cassette receiving casing. 4,365,712, Cl. 206-387,000.

Okada, Isao: See—
Kitagawa, Sadao; and Okada, Isao. 4,366,296, Cl. 526-77,000.

Okamura, Shigeru: See—
Takatsuki, Toshiharu; Fujiwara, Ken-ichi; Nomura, Jutaru; and Okamura, Shigeru. 4,366,347, Cl. 179-2,0DP.

Takatsuki, Toshiharu; Fujiwara, Ken-ichi; Yanagisawa, Sinobu; and Okamura, Shigeru. 4,366,572, Cl. 375-37,000.

Okamura, Takaaki: See—
Tanaka, Atsuo; Okamura, Takaaki; Kanda, Katsumi; and Kondo, Yoshikazu. 4,366,185, Cl. 427-386,000.

Okuzawa, Tugio: See—
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Oldelft Corporation of America: See—
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Olin Corporation: See—
Fuzesi, Stephen; and Bayusik, John G., 4,366,265, Cl. 521-167,000.

Olin, Eric J.; Carson, Harry B.; and Ball, Brian, to Amax Inc. Scheelite flotation. 4,366,050, Cl. 209-167,000.

Oliver, Colin C.: See—
Gillard, Richard G.; and Oliver, Colin C., 4,366,395, Cl. 307-246,000.

Olson, Charles L.; and Bazin, Lucas J., to RCA Corporation. Adjustable contrast compressor. 4,366,440, Cl. 330-11,000.

Olympus Optical Company Limited: See—
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Sato, Masaaki; Miyaji, Kazumi; Yoshida, Masahide; Fukuoka, Norio; Nakasho, Kazuo; and Furuta, Kenji. 4,366,514, Cl. 360-74,400.

Satoh, Ken; and Orita, Shunichi. 4,366,513, Cl. 360-66,000.

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Arimoto, Katsuhiko; and Fujimoto, Masahiro. 4,365,700, Cl. 194-2,000.

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Ong, Tiong S. Lens designed for implantation into a lens capsule of a human eye. 4,365,360, Cl. 3-13,000.

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Ono, Yoshihiro: See—
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Karpov, Jury A.; Burylev, Boris P.; Glavin, German G.; Kvin, Valeria E.; Kovalev, Vasily V.; Natanson, Konstantin J.; Orlov, Vladimir V.; Kuznetsov, Lev B.; Zaitsev, Anatoly M.; Kartsev, Valentin E.; Morozov, Vladimir M.; and Kovalev, Gennady G., 4,365,969, Cl. 436-75,000.

Ortega, Robert, to Purex Corporation. Three port valve with drain passage. 4,365,366, Cl. 4-493,000.

Orth, Hans-Dieter: See—
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Orthman, Henry K., to Orthman Manufacturing Co., Inc. Tandem disc row marker. 4,365,674, Cl. 172-126,000.

Orthman Manufacturing Co., Inc.: See—
Orthman, Henry K., 4,365,674, Cl. 172-126,000.

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Fujita, Toshio; and Kashima, Toru. 4,365,999, Cl. 106-90,000.

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Mortl, Gunther L., 4,366,256, Cl. 501-115,000.

Ostreicher, Eugene A.; and Hou, Kenneth C., to AMF Incorporated. Filter and method of making same. 4,366,068, Cl. 210-767,000.

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Bevilaqua, Ernest M.; McCroskery, Allan L.; and Knerr, Theodore N., 4,365,691, Cl. 187-1,00R.

Bittar, Joseph. 4,365,694, Cl. 187-29,00R.

Otis Engineering Corporation: See—
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Otsup, Rudolf R.: See—
Brounshtein, Viktor B.; Petrov, Vladimir I.; Otsup, Rudolf R.; Ignatieva, Galina P.; Kozlovsky, Vladlen V.; Lipshits, Leonard Y.; Zhuravlev, Oleg V.; Koba, Mikhail G.; Seliverstov, Konstantin B.; Igisheva, Tamara A.; Drobyazko, Petr A.; Motin, Anatoly I.; Fot, Viktor D.; Yakimov, Lev T.; and Kuznetsov, Boris G., 4,366,124, Cl. 422-278,000.

Outokumpu Oy: See—
Rastas, Jussi K.; and Nyberg, Jens R., 4,366,127, Cl. 423-26,000.

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Overhead Door Corporation: See—
Remes, Paul A.; and Jorgensen, Brian L., 4,366,482, Cl. 340-825,690.

Overlack, Claus, to Casimir Kast GmbH & Co. KG. Apparatus for bonding wood girders. 4,366,020, Cl. 156-380,200.

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Ogren, Robert S., 4,365,401, Cl. 29-243,530.

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Weaver, Edward A., 4,366,252, Cl. 501-60,000.

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P C U K Produits Chimiques Ugine Kuhlmann: See—
Dessaint, Andre L., 4,366,299, Cl. 526-243,000.

Paccar Inc.: See—
Milhous, Brian B., 4,366,530, Cl. 362-80,000.

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Takats, Ferenc; Lorand, Ferenc; Pajer, Imre; and Liptak, Laszlo. 4,366,095, Cl. 252-633,000.

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Palmer, Jack A.: See—
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Pankoke, Werner, to Theodor Hymmen KG, Firma. Pressure application apparatus. 4,365,548, Cl. 100-154,000.

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ling negative pressure hemodialysis treatment. 4,366,061, Cl. 210-647,000.

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Gaetani, Quintino; and Papantoniou, Christos. 4,366,099, Cl. 260-407,000.

Papay, Roger: See—
Mascler, Jean; and Papay, Roger. 4,365,643, Cl. 137-70,000.

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Schmider, Fritz. 4,366,405, Cl. 310-268,000.

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Harding, Curtis F.; and Simmons, Harold C., 4,365,753, Cl. 239-404,000.

Parkinson, William B.; and Lamprell, Trevor, to Lifting Gear Hire Limited. Lifting tackle. 4,365,834, Cl. 294-85,000.

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Naskar, Sasanka S.; and Pass, Reinhard. 4,366,100, Cl. 260-410,700.

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Le Roy, Patrice M.; and Pattein, Jacky P., 4,366,301, Cl. 528-66,000.

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Pauly, Hans: See—
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Biedermann, Horst H.; Hermann, Ferdinand; Pechinger, Ernst; and Sereinigg, Emil L. F., 4,365,902, Cl. 400-124,000.

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Pellatt, Martin G.: See—
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Pellow, Donald L., to Armco Inc. Rotation resistant wire rope. 4,365,467, Cl. 57-214,000.

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Penn, William B.: See—
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Sieckman, Walter. 4,365,992, Cl. 75-60,000.

Perez, Lorenzo, Jr. Survival capsule module and methods of constructing and utilizing. 4,365,579, Cl. 114-349,000.

Perez, Sergio J. Policeman's night-stick. 4,365,808, Cl. 273-84,00R.

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Perrine, Eugene B.: See—
Ho, William W.; Hall, William F.; Fisher, Harry W.; and Perrine, Eugene B., 4,365,503, Cl. 73-3,000.

Persson, Bengt, to Br. Perssons Cementvarufabrik AB. Moulding tool. 4,365,782, Cl. 249-91,000.

Pert, James C.: See—
Pert, James H.; Unger, Peter; Harris, Hervie L.; and Pert, James C., 4,365,629, Cl. 128-214,00D.

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Petrella, Ronald V.: See—
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Pfender, Georg, to MBK Maschinenbau GmbH. Machine for the manufacture of reinforcing bodies for concrete pipes. 4,365,657, Cl. 140-112,000.

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Piatti, Sanzio P. V. Actuation of valves of internal combustion engines. 4,365,595, Cl. 123-90,530.

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 Potvin, Alfred M., to Mita Wood Products Inc. Miter box construction. 4,365,531, Cl. 83-767.000.
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 Cooper, Geoffrey A.; and Ward, Donald W., 4,366,408, Cl. 313-193.000.
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 Quelch, Albert G. B. Contour bottle carrier. 4,365,835, Cl. 294-87.200.
 Quick, Thomas R. Faucet stem nut splitter. 4,365,413, Cl. 30-272.00R.
 Raab, Simon. PMMA Coated bone connective prostheses and method of forming same. 4,365,359, Cl. 3-1.912.
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 Ramco Steel, Inc.: See—
 Rossberg, Shelton R., 4,365,911, Cl. 405-43.000.
 Ramel, Francois; and Rousseau, Alain, to Effa Etudes. Linear differential focault current detector serving for measuring small displacements of a metallic element. 4,365,517, Cl. 73-722.000.

Rampacher, Robert J., Jr., to RCA Corporation. Sheet material separation construction. 4,366,198, Cl. 428-43.000.
 Ramuz, Henri, to Hoffmann-La Roche Inc. Imidazole derivatives. 4,366,160, Cl. 424-263.000.
 Ranalli, Charles, to Nixdorf Computer Corporation. Method and apparatus for formatting a memory disk. 4,366,511, Cl. 360-39.000.
 Rapp, Charles F., to Owens-Corning Fiberglas Corporation. Glass compositions and their fibers. 4,366,251, Cl. 501-36.000.
 Rastas, Jussi K.; and Nyberg, Jens R., to Outokumpu Oy. Hydrometallurgical process for the recovery of lead, silver and gold, as well as zinc, from impure jarosite residues of an electrolytic zinc process. 4,366,127, Cl. 423-26.000.
 Rath, Heinrich B., to Lucas Industries Limited. Disc brake and friction pad assembly therefor. 4,365,695, Cl. 188-73.390.
 Rathmann, Soren H. Emergency power unit. 4,366,390, Cl. 307-66.000.
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 Retz, Philip. Vertical wind turbine power generating tower. 4,365,929, Cl. 415-2.00R.
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 Rosa, John; and Radus, Raymond J., to Westinghouse Electric Corp. AC/DC or DC/AC Converter system with improved AC-line harmonic reduction. 4,366,532, Cl. 363-69.000.
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 Rosler, Helmut; Muhlbauer, Otto; and Bigall, Klaus D., to Siemens Aktiengesellschaft. Semiconductor circuit for transforming sequences of periodic a-c signals. 4,366,396, Cl. 307-261.000.
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Satoh, Ken; and Orita, Shunichi, to Olympus Optical Company Limited. Tape recorder with noise blanking circuit. 4,366,513, Cl. 360-66.000.

Satoh, Seiichi, to Tokyo Shibaura Denki Kabushiki Kaisha. High frequency heating apparatus. 4,366,357, Cl. 219-10.55B.

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Schellenberg, Walter, to Max Sandherr AG. Container closure. 4,365,457, Cl. 53-412.000.

Schellhaas, Rolf, to Jorg, Gunther W. Surface-effect aerofoil boat. 4,365,578, Cl. 114-272.000.

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Schmid, Ronald F.: *See—*
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Schmider, Fritz, to Papst Motoren KG. Tachogenerator having stray flux cancelling output coils. 4,366,405, Cl. 310-268.000.

Schmidt, Curt, to Kernforschungszentrum Karlsruhe GmbH. Liquid helium pump. 4,365,942, Cl. 417-412.000.

Schmidt, Manfred: *See—*
Freitag, Dieter; Nouvretne, Werner; Reinking, Klaus; Tacke, Peter; Kleiner, Frank; and Schmidt, Manfred, 4,366,276, Cl. 524-94.000.

Schmitt, Frederick L.: *See—*
Boden, Richard M.; Dekker, Lambert; Schmitt, Frederick L.; and Van Loveren, Augustinus G., 4,366,078, Cl. 252-174.110.

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Scholl, Karl H.: *See—*
Hagen, Karl; Scholl, Karl H.; and Schmelzer, Gerhard, 4,366,369, Cl. 219-388.000.

Scholz, Magnus: *See—*
Kuhnel, Roland; Bokelmann, Rainer; Scholz, Magnus; Gebke, Klaus; and Schuler, Mariana, 4,366,114, Cl. 376-272.000.

Schonwald, Helmut: *See—*
Janak, Miloslav; Schonwald, Helmut; Tereic, Eduard; and Ginsberg, Martin, 4,366,512, Cl. 360-48.000.

Schopper, Bernd; Tandler, Peter; Hartmann, Herbert; and Reuter, Manfred, to IIT Industries, Inc. Dual-circuit pressure control valve for hydraulic brake systems. 4,365,846, Cl. 303-56.000.

Schubert, Johannes M.: *See—*
Fischer, Hermann; and Schubert, Johannes M., 4,365,553, Cl. 101-232.000.

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Albright, David B.; Schubert, Keith E.; and Pollak, Philip, Jr., 4,366,376, Cl. 235-101.000.

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Schultz, William J.: *See—*
Hanlon, Charles M.; Mein, James H.; and Schultz, William J., 4,366,197, Cl. 428-43.000.

Schulz, Arthur C.; Cook, Edward H., Jr.; and Viswanathan, Krishnan, to Occidental Chemical Corporation. Method of increasing useful life expectancy of microporous separators. 4,366,037, Cl. 204-98.000.

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Gunesin, Binnur; Hamed, Gary R.; Kang, Jung W.; and Schulz, Donald N., 4,366,291, Cl. 525-218.000.

Schumacher, Doris P.: *See—*
Ganguly, Ashit K.; Liu, Yi-Tsung; Sarre, Olga; Jaret, Robert; and Schumacher, Doris P., 4,366,309, Cl. 536-7.100.

Schumacher, Gerd: *See—*
Lorenz, Hans-Walther; and Schumacher, Gerd, 4,365,640, Cl. 131-330.000.

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Schwander, Andreas: *See—*
Schellenberg, Hans; Schenkel, Eduard; Schwander, Andreas; and Thalmann, Dieter, 4,365,468, Cl. 57-291.000.

Schneeberger, Ruedi; and Schwander, Andreas, 4,365,765, Cl. 242-43.00R.

Schwartz, Alan R.: *See—*
Martin, Bruce E.; and Schwartz, Alan R., 4,366,141, Cl. 423-561.00B.

Schwartz, Leonard H.: *See—*
Ruggieri, Albert P.; Marinaccio, Frank J.; Campbell, Neil E.; Allen, Wayne; Moum, Stanley; Malatesta, Paul F.; Pietrowski, Joseph J.; and Schwartz, Leonard H., 4,365,590, Cl. 119-15.000.

Schwarz, Helmut, to Harris Corporation. Orthogonal mode transducer having interface plates at the junction of the waveguides. 4,366,453, Cl. 333-117.000.

Schwenda, Gerhard: *See—*
Lange, Gerhard; Sippekamp, Oskar; and Schwenda, Gerhard, 4,366,412, Cl. 313-325.000.

Science and Technology Agency: *See—*
Ohta, Hiroshi, 4,366,494, Cl. 357-5.000.

SCM Corporation: *See—*
Mueller, Hans W.; Shattuck, Richard E.; Cryder, Albert H.; and Nelson, John L., 4,365,904, Cl. 400-568.000.

Scott Paper Company: *See—*
Gotchel, Joel P., 4,365,425, Cl. 34-54.000.

Scott, Paul R., to Shell Oil Company. Storage of liquid hydrocarbons in salt dome caverns. 4,365,978, Cl. 55-47.000.

Scott, Peter A. J., to Associated Engineering Limited. Means providing coolant between elements of radial face seals. 4,365,815, Cl. 277-22.000.

Scranton Manufacturing Co., Inc.: *See—*
McLaughlin, Bruce L., 4,365,841, Cl. 298-27.000.

Sea-Log Corporation: *See—*
Stiles, Kenneth M., 4,365,865, Cl. 350-96.230.

Sedat, Georges A. Smoke-producing pyrotechnic composition and its application. 4,366,010, Cl. 149-19.600.

Seifert, Rolf. Heat exchanger. 4,365,666, Cl. 165-104.290.

Seilly, Alec H., to Lucas Industries Limited. Electromagnetic devices. 4,366,401, Cl. 310-12.000.

Seino, Takashi: *See—*
Ohkawa, Koue; Fujii, Shin; and Seino, Takashi, 4,366,269, Cl. 523-148.000.

Seki, James; and Chung, Damon J. Hydraulic-lift-barbecue cooking apparatus. 4,365,613, Cl. 126-25.00A.

Sekine, Kenji: *See—*
Tachibana, Akira; Endo, Akira; and Sekine, Kenji, 4,366,546, Cl. 364-571.000.

Selectro-Vision, Ltd.: *See—*
Richardson, John, 4,365,810, Cl. 273-237.000.

Seliverstov, Konstantin B.: *See—*
Bronshtein, Viktor B.; Petrov, Vladimir I.; Otsup, Rudolf R.; Ignatieva, Galina P.; Kozlovsky, Vladlen V.; Lipshits, Leonard Y.; Zhuravlev, Oleg V.; Koba, Mikhail G.; Seliverstov, Konstantin B.; Igisheva, Tamara A.; Drobyazko, Petr A.; Motin, Anatoly I.; Fot, Viktor D.; Yakimov, Lev T.; and Kuznetsov, Boris G., 4,366,124, Cl. 422-278.000.

Senatore, Peter J.: *See—*
Korosz, Louis B.; and Senatore, Peter J., 4,366,134, Cl. 423-243.000.

Seno, Eugene T.: *See—*
Baltz, Richard H.; and Seno, Eugene T., 4,366,247, Cl. 435-124.000.

Senshu, Takao: *See—*
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Sereinig, Emil L. F.: *See—*
Biedermann, Horst H.; Hermann, Ferdinand; Pechinger, Ernst; and Sereinig, Emil L. F., 4,365,902, Cl. 400-124.000.

Seto, Haruo: *See—*
Mizutani, Taku; Yamagishi, Michio; Mizoue, Kazutoshi; Kawashima, Akira; Omura, Sadafumi; Otake, Noboru; and Seto, Haruo, 4,366,311, Cl. 536-123.000.

Shaber, Gary S.; and Buenzli, Charles W., Jr., to Probex, Inc. Method, apparatus and film strip of particular design for rapid test of a film processor. 4,365,895, Cl. 356-444.000.

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Iwase, Tetsuo; and Saiji, Mitsuhiro, 4,366,477, Cl. 340-792.000.

Kanatan, Yoshiharu, 4,366,504, Cl. 358-241.000.

Oguri, Ichiro; and Koyama, Yoshihiro, 4,366,005, Cl. 134-25.200.

Shattuck, Richard E.: *See—*
Mueller, Hans W.; Shattuck, Richard E.; Cryder, Albert H.; and Nelson, John L., 4,365,904, Cl. 400-568.000.

Shaw, William C., to IMAX Systems Corporation. Field flattener lens element assembly. 4,365,877, Cl. 352-184.000.

Sheehan, Robert K. Connector for a helically grooved electrical conductor. 4,366,344, Cl. 174-65.00R.

Shell Oil Company: *See—*
Scott, Paul R., 4,365,978, Cl. 55-47.000.

Wu, Hsi L., 4,365,563, Cl. 110-186.000.

Shen, Chou-Ming. Timer-controlled speed changing device for electric fans. 4,366,425, Cl. 318-779.000.

Shepard, Charles L.: *See—*
Graham, Clarence O., Jr.; Shepard, Charles L.; and Kullman, Russell M. H., 4,365,464, Cl. 57-12.000.

Sherritt Gordon Mines Limited: *See—*
Weir, Donald R.; and Masters, Ian M., 4,366,128, Cl. 423-87.000.

Shida, Masami: *See—*
Mouri, Yasunori; Suda, Seiji; Shida, Masami; and Furuhashi, Toshio, 4,366,541, Cl. 364-431.050.

Shields, Robert M.; and Shields, Ted A. Novelty mirror. 4,365,798, Cl. 272-8.00M.

Shields, Ted A.: *See—*
Shields, Robert M.; and Shields, Ted A., 4,365,798, Cl. 272-8.00M.

Shigemura, Yutaka: *See—*
Kimura, Hiroshi; Hisajima, Masahiko; Shigemura, Yutaka; and Irie, Yoichiro, 4,365,893, Cl. 355-75.000.

Shibayashi, Masao: *See—*
Tojo, Kenji; Hosoda, Taisai; Ikegawa, Masato; and Shibayashi, Masao, 4,365,941, Cl. 417-372.000.

Shikata, Makoto; Osano, Hisashi; and Morozumi, Takuro, to Fuji Jukogyo Kabushiki Kaisha; and Nissan Motor Co., Ltd. System for controlling air-fuel ratio. 4,365,603, Cl. 123-440.000.

Shikimori, Yasuhiro: *See—*
Kawamura, Sukeyoshi; Shimizu, Koichi; and Shikimori, Yasuhiro, 4,366,272, Cl. 523-335.000.

Shima, Ichiji; Teshima, Hiroshi; Koizumi, Takayuki; and Inoue, Satoru, to Mitsubishi Denki Kabushiki Kaisha; Shima, Ichiji; and Teshima, Hiroshi. Judging system for detecting failure of machine. 4,366,544, Cl. 364-550.000.

Shimada, Masaaki: *See—*
Kojima, Sadao; Shimada, Masaaki; Sakai, Kunio; and Horie, Katuo, 4,366,142, Cl. 423-640.000.

Shimizu, Hirokazu; Itoh, Kunio; Sugino, Takashi; and Wada, Masaru, to Matsushita Electric Industrial Co. Ltd. Semiconductor laser. 4,366,568, Cl. 372-45.000.

Shimizu, Koichi: *See—*
Kawamura, Sukeyoshi; Shimizu, Koichi; and Shikimori, Yasuhiro, 4,366,272, Cl. 523-335.000.

Shimizu, Mutsuo: *See—*
Habata, Kiichi; Ichikawa, Kesazi; and Shimizu, Mutsuo, 4,366,324, Cl. 556-460.000.

Shimizu, Toyoji: *See—*
Tokorozawa, Sadao; and Shimizu, Toyoji, 4,365,728, Cl. 222-209.000.

Shin-Etsu Chemical Co. Ltd.: *See—*
Habata, Kiichi; Ichikawa, Kesazi; and Shimizu, Mutsuo, 4,366,324, Cl. 556-460.000.

- Shinada, Hidehiro: See—
Nieda, Yasuhiro; Honda, Kiyokazu; and Shinada, Hidehiro, 4,366,409, Cl. 313-221.000.
- Shinagawa, Yukio; Ohtani, Sumio; Suematsu, Koichi; and Kawaguchi, Hideo, to Fuji Photo Film Co., Ltd. Polyester base drafting film with nitrocellulose and polymethylmethacrylate layer. 4,366,239, Cl. 430-533.000.
- Shinozaki, Toshiaki: See—
Sano, Shunichi; Shinozaki, Toshiaki; and Mori, Ichiro, 4,366,383, Cl. 250-492.300.
- Shiono, Shigeo: See—
Masuda, Ikuro; Shiraishi, Hisayoshi; Ogawa, Seiichiro; Shiono, Shigeo; Sakurai, Jinichi; and Yuminaka, Takeo, 4,366,478, Cl. 340-825.000.
- Shionogi & Co., Ltd.: See—
Yoshioka, Mitsuru; Ueyo, Shoichiro; Hamashima, Yoshio; Kikawa, Ikuo; Tsuji, Teruji; and Nagata, Wataru, 4,366,316, Cl. 544-90.000.
- Shiozaki, Hiroyuki; Mikami, Masao; Imai, Isao; and Iwanami, Toshio, to Ishikawajima-Harima Iukogyo Kabushiki Kaisha. Rolling process. 4,365,496, Cl. 72-249.000.
- Shiozaki, Ken; Tsuge, Kazunori; and Ohnishi, Akira, to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha. Cylindrical molded catalyst. 4,366,093, Cl. 252-477.00R.
- Shiozawa, Kazuo: See—
Hazama, Kiyooki; Shiozawa, Kazuo; and Matsumoto, Koichi, 4,365,881, Cl. 354-76.000.
- Shiraishi, Hisayoshi: See—
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- Shiu, Tony L., to RCA Corporation. Bar type channel identification apparatus for a television receiver. 4,366,502, Cl. 358-192.100.
- Shmelkin, Mark. Device for squeezing-out viscous materials from tubes made of plastics. 4,365,727, Cl. 222-97.000.
- Shoji, Shigemasa, to TDK Electronic Co., Ltd. Magnetic tape cassette. 4,365,769, Cl. 242-199.000.
- Showell, Graham A.: See—
Evans, John M.; Showell, Graham A.; and Fake, Charles S., 4,366,163, Cl. 424-267.000.
- Shumaker, John F., to J. I. Case Company. Bucket mounted footing tool. 4,365,428, Cl. 37-103.000.
- Shuttleworth, Leslie; and Mullen, David, to Eastman Kodak Company. Preparation of 2-halo-3-nitro-5-acyl thiophenes and intermediate compounds. 4,366,321, Cl. 549-68.000.
- Sieckman, Walter, to Pennsylvania Engineering Corporation. Method of treating ferrous metal. 4,365,992, Cl. 75-60.000.
- Siefert, Roland. Electrically adjustable apparatus for motor vehicle rear view mirror. 4,365,867, Cl. 350-289.000.
- Siegal, Burton L.; and Waxman, Jay S., to Kiwi Coders Corporation. Article imprinting apparatus. 4,365,554, Cl. 101-333.000.
- Siemens Aktiengesellschaft: See—
Ahne, Hellmut; Kuhn, Eberhard; and Rubner, Roland, 4,366,230, Cl. 430-325.000.
- Block, Harry; and Wiesenbacher, Rudolf, 4,366,497, Cl. 357-82.000.
- Jagle, Bruno, 4,366,345, Cl. 174-52.00S.
- Lange, Gerhard; Sippekamp, Oskar; and Schwenda, Gerhard, 4,366,412, Cl. 313-325.000.
- Rauch, Walter, 4,366,573, Cl. 375-106.000.
- Richter, Gerhard; Luft, Gunter; and Gebhardt, Ulrich, 4,366,033, Cl. 204-1.00T.
- Rosler, Helmut; Muhlauer, Otto; and Bigall, Klaus D., 4,366,396, Cl. 307-261.000.
- Vogelsberg, Dieter, 4,365,469, Cl. 57-293.000.
- Weghaupt, Erich; Intichar, Lutz; and Schnapper, Christoph, 4,365,479, Cl. 62-55.000.
- Wilmers, Gerhard, 4,366,557, Cl. 365-189.000.
- Zeller, Karl S.; and Thormann, Heinz, 4,365,903, Cl. 400-490.000.
- Sierralta, Luis F.: See—
Ferrer, Harvey D.; and Sierralta, Luis F., 4,366,006, Cl. 134-38.000.
- SIG-Schweizerische Industrie-Gesellschaft: See—
Egli, Alwin, 4,365,715, Cl. 206-524.800.
- Grundler, Bruno, 4,365,459, Cl. 53-552.000.
- Sigri Elektrographit GmbH: See—
Gisting, Guido; and Schmid, Manfred, 4,366,191, Cl. 427-228.000.
- Sikes, Edward C.: See—
Brigman, Maurice C.; and Sikes, Edward C., 4,365,924, Cl. 414-549.000.
- Silano, Michael A.; and Featherston, Robert D., to National Starch and Chemical Corporation. Water-resistant alkaline corrugating adhesive composition. 4,366,275, Cl. 524-47.000.
- Silchor: See—
Houle, Raymond T.; Redwine, Michael A.; Kilbourn, Fredrick A.; Reed, Stewart D.; Sills, Arthur A.; and Kraft, John H., 4,365,367, Cl. 4-555.000.
- Sills, Arthur A.: See—
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- Silverberg, Morton, to Xerox Corporation. Document handling unit. 4,365,889, Cl. 355-14.05H.
- Simcoe, Kent W.: See—
Spangler, Richard M.; Burmeister, Eugene V.; Cada, Frank E.; Covington, Wayne F.; Christopher, Chris J.; Judd, Myles A.; Wenninger, Freddie W.; Watson, Robert E.; and Simcoe, Kent W., 4,366,553, Cl. 364-900.000.
- Simmons, Harold C.: See—
Harding, Curtis F.; and Simmons, Harold C., 4,365,753, Cl. 239-404.000.
- Simons, Brent S., to Itek Corporation. Laser light detection system. 4,366,378, Cl. 250-214.0AG.
- Simpson, Frank F.; Johnson, John W.; and Oatham, Robert J., to Black & Decker Inc. Brush assembly and mounting arrangement for a portable tool. 4,366,403, Cl. 310-239.000.
- Singer Company, The: See—
Adams, Kenneth D., 4,365,569, Cl. 112-315.000.
- Kuhar, Ludwig J., 4,365,567, Cl. 112-184.000.
- Laidig, Manfred R., 4,365,566, Cl. 112-158.00F.
- Obermann, George, 4,366,352, Cl. 200-35.00R.
- Reed, John T.; and Stubbart, John C., 4,365,960, Cl. 434-38.000.
- Ross, Roger J., 4,365,568, Cl. 112-291.000.
- Singh, Baldev: See—
Leshner, George Y.; and Singh, Baldev, 4,366,319, Cl. 546-270.000.
- Singh, Hakam; Hutt, Jack W.; and Williams, Morris E., to Products Research & Chemical Corp. Liquid polythioethers. 4,366,307, Cl. 528-373.000.
- Singh, Harmahendar, to General Motors Corporation. Battery support structure. 4,365,681, Cl. 180-68.500.
- Sippekkamp, Oskar: See—
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- Siri, Bruno G. Process and apparatus for continuously applying reinforcing tapes from synthetic resin, on the longitudinal sides of plastic sheets. 4,366,017, Cl. 156-244.110.
- Sirois, Walter J.: See—
Barnes, George A.; and Sirois, Walter J., 4,365,803, Cl. 273-5.00R.
- Sirtl, Erhard: See—
Ast, Gerhard; Dietl, Josef; Helmreich, Dieter; Miller, Hans-Dieter; and Sirtl, Erhard, 4,366,024, Cl. 156-607.000.
- Skatsche, Othmar: See—
Obermayer, Bertram; Skatsche, Othmar; and Greier, Josef, 4,365,594, Cl. 123-41.82R.
- SKF Compagnie d'Applications Mecaniques: See—
Perrichot, Daniel; and Faurie, Maurice, 4,365,850, Cl. 308-26.000.
- SKF Engineering and Research Centre, B.V.: See—
van Nederveen, Hans B.; and Verburgh, Martin B., 4,365,679, Cl. 175-371.000.
- SKF Kugellagerfabriken GmbH: See—
Fingerle, Rudolf, 4,365,852, Cl. 308-201.000.
- Skinner, Robert T. J., to Lucas Industries Limited. Fuel injection pumping apparatus. 4,365,939, Cl. 417-221.000.
- Slabach, John C., Jr., to PPG Industries, Inc. Method of press bending a painted glass sheet. 4,365,985, Cl. 65-106.000.
- Slater Electric Inc.: See—
Slater, Thomas S.; and Bowden, Wade R., Jr., 4,366,343, Cl. 174-65.00R.
- Slater Steel Industries Limited: See—
Houston, Herbert J.; and Dinsmore, Edward S., 4,365,410, Cl. 29-762.000.
- Slater, Thomas S.; and Bowden, Wade R., Jr., to Slater Electric Inc. Cable clamp means and cable entry port closure means for electrical outlet boxes and the like. 4,366,343, Cl. 174-65.00R.
- Sluys, Wesley W., to Builders Concrete, Inc. Transverse post-tensioned tendon interconnecting system for marine floats. 4,365,914, Cl. 405-221.000.
- Smith, Bob G.: See—
Christiansen, David W.; and Smith, Bob G., 4,366,116, Cl. 376-446.000.
- Smith, Frank J.: See—
Werner, Raymond J.; Jennings, William J.; Crowley, Daniel L.; and Smith, Frank J., 4,366,292, Cl. 525-240.000.
- Smith, Harry A., to Dow Chemical Company. The Melt polymerization of ϵ -caprolactam. 4,366,306, Cl. 528-315.000.
- Smith, Kenneth P.: See—
Goodman, Lawrence A.; and Smith, Kenneth P., 4,366,495, Cl. 357-23.000.
- Smith, Lowell S.; and Briskin, Axel F., to General Electric Company. Ultrasonic transducer for single frequency applications. 4,366,406, Cl. 310-334.000.
- Smith, Wayne G.: See—
Lee, Ernest O.; Smith, Wayne G.; and Hanson, George C., 4,366,350, Cl. 179-175.20C.
- SmithKline Instruments, Inc.: See—
Lawrence, Paul J.; and Townsley, Charles W., 4,365,970, Cl. 436-66.000.
- Snyder, H. Kent, Jr., to Chicago Display Company. Portable sign. 4,365,435, Cl. 40-608.000.
- Societa' Pneumatici Pirelli S.p.A.: See—
Salvadori, Bruno, 4,365,945, Cl. 425-43.000.
- S.A. Armstrong Limited: See—
Turlej, Zbigniew W., 4,366,426, Cl. 318-786.000.
- Societe Anonyme D.B.A.: See—
Carre, Jean J.; and Riquart, Christian, 4,365,844, Cl. 303-6.00C.
- Societe Anonyme dite: L'Oreal: See—
Gaetani, Quintino; and Papantonio, Christos, 4,366,099, Cl. 260-407.000.
- Societe Anonyme Francaise du Ferodo: See—
Thirion de Briel, Jacques J. M., 4,365,963, Cl. 474-13.000.
- Societe Chimique des Charbonnages-CdF Chimie: See—
Bujadoux, Karel; Neyer, Jean-Marie; and Houzeaux, Jean-Pierre, 4,366,140, Cl. 423-498.000.

- Societe D'Assistance Technique Pour Produits Nestle S.A.: See—
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- Societe de Vente et de Fabrication pour le Decolletage LNS S.A.: See—
Neukomm, Walter, deceased, 4,365,529, Cl. 82-38.00A.
- Societe Europeenne de Propulsion: See—
Ghommidji, Josette; Buttazzoni, Bernard; Constant, Georges; Dilo, Etienne; and Moranchio, Roland, 4,366,183, Cl. 427-2.000.
- Societe Nationale des Poudres et Explosifs: See—
Le Roy, Patrice M.; and Pattein, Jacky P., 4,366,301, Cl. 528-66.000.
- Lippler, Remy R.; Mengelle, Andre J.; and Plazanet, Jacques, 4,365,558, Cl. 102-431.000.
- Societe Nationale Industrielle Aerospatiale: See—
Martin, Henri, 4,365,847, Cl. 303-93.000.
- Sofi, Giorgio: See—
Cedolin, Riccardo; Chiarottino, Wolmer; Giandonato, Giuseppe; Giorcelli, Silvano; Martignoni, Giorgio; Sofi, Giorgio; and Villone, Sergio, 4,366,535, Cl. 364-200.000.
- Softly, Peter, to Invisible Optics Inc. Light masking device. 4,365,866, Cl. 350-276.00R.
- Sol, Nicole: See—
de Cremoux, Baudouin; Poulain, Pierre; and Sol, Nicole, 4,366,334, Cl. 136-255.000.
- Soma, Eiichi; Kobayashi, Kohei; Karakawa, Takuro; Kato, Shigeyoshi; and Uchida, Kiichi, to Sapporo Breweries Limited; Ito, Etsuo; and Daicel Chemical Industries, Ltd. Process for the production of polysaccharide RBS substance. 4,366,308, Cl. 536-128.000.
- Sone, Kohki, to Nissan Motor Co., Ltd. System for feedback control of air/fuel ratio in IC engine with means to control current supply to oxygen sensor. 4,365,604, Cl. 123-440.000.
- Sony Corporation: See—
Takano, Masayuki; Hosoi, Sadao; and Matsushita, Yuichi, 4,366,515, Cl. 360-77.000.
- Watanabe, Yuji; and Hayashi, Hiroyuki, 4,366,510, Cl. 360-10.200.
- South African Inventions Development Corp.: See—
Coetzer, Johan; and Thackeray, Michael M., 4,366,215, Cl. 429-199.000.
- Sovia, Frederick C.: See—
Castro, German O.; and Sovia, Frederick C., 4,365,404, Cl. 29-455.00R.
- Spangler, Richard M.; Burmeister, Eugene V.; Cada, Frank E.; Covington, Wayne F.; Christopher, Chris J.; Judd, Myles A.; Wenninger, Freddie W.; Watson, Robert E.; and Simcoe, Kent W., to Hewlett-Packard Company. Electronic computing apparatus employing basic language. 4,366,553, Cl. 364-900.000.
- Specht, Donald P.; Houle, Conrad G.; and Farid, Samir Y., to Eastman Kodak Company. Photopolymerizable compositions featuring novel co-initiators. 4,366,228, Cl. 430-281.000.
- Speer, Harold A. Automatic door control system. 4,365,442, Cl. 49-346.000.
- Sperry Corporation: See—
Kregness, Glen R.; and Criswell, Peter B., 4,366,548, Cl. 364-748.000.
- Taylor, Henry D.; and Breeden, Robert H., 4,365,647, Cl. 137-489.000.
- Sphere Investments Limited: See—
Stone, Alan M., 4,365,717, Cl. 209-539.000.
- Spivey, William J., Jr.: See—
Schexnayder, Lawrence F.; and Spivey, William J., Jr., 4,365,473, Cl. 60-447.000.
- Springer, John R., to Nu-Co Industries Inc. Carpet and fabric cleaning machine. 4,365,378, Cl. 15-98.000.
- Standard Oil Company (Indiana): See—
Bright, Gary R., 4,365,668, Cl. 166-214.000.
- Nimry, Tayseer S.; and Fields, Ellis K., 4,366,304, Cl. 528-189.000.
- Stark, W. Max: See—
Hamill, Robert L.; and Stark, W. Max, 4,366,147, Cl. 424-117.000.
- Stauffer Chemical Company: See—
Gaughan, Edmund J., 4,365,990, Cl. 71-100.000.
- Staveley Chemicals Limited: See—
Wheatcroft, John B.; and Wall, Edward N., 4,366,234, Cl. 430-485.000.
- Stax Industries Limited: See—
Noro, Masao, 4,366,432, Cl. 323-224.000.
- Stechow, Jochen: See—
Feller, Otto; Oepen, Heinz; and Stechow, Jochen, 4,366,543, Cl. 364-474.000.
- Steelcraft Corporation: See—
Ford, R. Gary, 4,365,910, Cl. 403-172.000.
- Stemme, Otto: See—
Fischer, Gunter; Stemme, Otto; and Wagensohnner, Eduard, 4,366,381, Cl. 250-316.100.
- Stenvall, Carl-Johan. Log alignment apparatus. 4,365,704, Cl. 198-395.000.
- Stephan, Gerard, to Nadella. Coupling clamp and a method of manufacture therefor. 4,365,909, Cl. 403-157.000.
- Stephens, William S., III. Electric heater-blower apparatus for removing frost and snow from vehicle windows. 4,366,368, Cl. 219-367.000.
- Sterling Drug Inc.: See—
Corey, Garland G., 4,365,362, Cl. 4-228.000.
- Leshner, George Y.; and Singh, Baldev, 4,366,319, Cl. 546-270.000.
- Sterlingworth Music, Inc.: See—
Rendell, Stanley E., 4,365,534, Cl. 84-297.00S.
- Steuere, Klaus: See—
Frohnert, Heinz; and Steude, Klaus, 4,365,976, Cl. 55-4.000.
- Stevens, S. Marie. Woven cloth basket. 4,365,658, Cl. 150-48.000.
- Stevenson, William H., IV. Working sails and methods for furling them while aloft. 4,365,572, Cl. 114-104.000.
- Stiebel Eltron GmbH & Co. KG: See—
Reusch, Heinz; and Kreikenbohm, Robert, 4,365,662, Cl. 165-10.000.
- Stiles, Kenneth M., to Sea-Log Corporation. Hybrid cable construction. 4,365,865, Cl. 350-96.230.
- Stiller, Armin; and Knoke, Manfred, to Volkswagenwerk Aktiengesellschaft. Timing signal generator for ignition and fuel injection systems in a 4-stroke internal combustion engine. 4,365,602, Cl. 123-414.000.
- Stoeckigt, Dieter: See—
Vodrazka, Wolfgang; Klahr, Erhard; Oppenlaender, Knut; Trietsch, Wolfgang; Stoeckigt, Dieter; and Neumann, Werner, 4,366,326, Cl. 568-613.000.
- Stohler, Harro: See—
Hofheinz, Werner; and Stohler, Harro, 4,366,166, Cl. 424-273.00R.
- Stone, Alan M., to Sphere Investments Limited. Feed apparatus and method. 4,365,717, Cl. 209-539.000.
- Stoopak, Samuel B.; Kornblum, Saul S.; and Jacobs, Allen L., to Sandoz, Inc. Soft gelatin capsule with a liquid ergot alkaloid center fill solution and method of preparation. 4,366,145, Cl. 424-37.000.
- Stori, Heinrich; and Averdiek, Walter, to Sulzer Brothers Limited; and Klockner-Werke AG. Support for a spherical tank. 4,365,478, Cl. 62-45.000.
- Stork Brabant B.V.: See—
Anselrode, Lodewijk, 4,366,542, Cl. 364-469.000.
- Strassle, Alex, to Intercollecion Development SA. Chair construction with protective cushioning for exposed structural projections. 4,365,839, Cl. 297-411.000.
- Streker, Lajos: See—
Czegledi, Bela; Csosvari, Mihaly; Erdelyi, Miklos; Streker, Lajos; Toth, Istvan; Szabo nee Mogyorosi, Katalin; Riederauer, Szilard; and Szentgyorgyi, Geza, 4,366,129, Cl. 423-112.000.
- Stromberg-Carlson Corporation: See—
Lee, Ernest O.; Smith, Wayne G.; and Hanson, George C., 4,366,350, Cl. 179-175.20C.
- Stuart, Patrick: See—
Langer, Manfred; Burfeindt, Heinz; and Stuart, Patrick, 4,365,933, Cl. 415-217.000.
- Stubbart, John C.: See—
Reed, John T.; and Stubbart, John C., 4,365,960, Cl. 434-38.000.
- Stultz, William H.: See—
Trickel, Lorn L.; and Stultz, William H., 4,365,743, Cl. 238-8.000.
- Stumm, James E. Method of manufacturing high stability joint. 4,365,736, Cl. 228-121.000.
- Suda, Seiji: See—
Mouri, Yasunori; Suda, Seiji; Shida, Masami; and Furuhashi, Toshio, 4,366,541, Cl. 364-431.050.
- Suetsugu, Koichi: See—
Shinagawa, Yukio; Ohtani, Sumio; Suematsu, Koichi; and Kawaguchi, Hideo, 4,366,239, Cl. 430-533.000.
- Suga, Masaaki; and Hamada, Hideo, to Nissan Motor Co., Ltd. Apparatus for controlling line pressure of automatic transmission. 4,365,526, Cl. 74-866.000.
- Suganuma, Hisashi, to Pioneer Electronic Corporation. Automatic gain control circuit. 4,366,450, Cl. 330-285.000.
- Sugasawa, Fukashi, to Nissan Motor Company, Limited. Internal combustion engine. 4,365,598, Cl. 123-198.00F.
- Sugasawa, Fukashi: See—
Iizuka, Haruhiko; and Sugawara, Fukashi, 4,365,597, Cl. 123-198.00F.
- Sugino, Takashi: See—
Shimizu, Hirokazu; Itoh, Kunio; Sugino, Takashi; and Wada, Masaru, 4,366,568, Cl. 372-45.000.
- Sugiura, Yasushi: See—
Toyama, Kouichi; Sugiura, Yasushi; and Adachi, Michio, 4,365,609, Cl. 123-635.000.
- Sugiyama, Jin, to Unitech Engineering Ltd. Driving apparatus for retaining frame of object to be sewed in automatic sewing machine. 4,365,564, Cl. 112-121.120.
- Sugiyama, Masatoshi; Odawara, Hideo; and Takeda, Nagao, to Fuji Photo Film Co., Ltd. Aqueous inks for ink jet printing. 4,365,998, Cl. 106-22.000.
- Sugiyama, Matsuyoshi; Morishita, Teru; and Suzuki, Toshikazu, to Toyota Jidosha Kogyo Kabushiki Kaisha. Rotary type electrostatic spray painting device. 4,365,760, Cl. 239-703.000.
- Sugiyama, Matsuyoshi: See—
Morishita, Teru; Sugiyama, Matsuyoshi; and Suzuki, Toshikazu, 4,365,759, Cl. 239-703.000.
- Sugiyama, Yoshinobu, to Pioneer Electronic Corporation. Push-pull amplifier circuit. 4,366,447, Cl. 330-267.000.
- Sullivan, Edith. Retroreflective strip with pocket. 4,365,354, Cl. 2-247.000.
- Sulzer Brothers Limited: See—
Koch, Bernhard R.; and Vogelbacher, Erich, 4,365,652, Cl. 139-50.000.
- Stori, Heinrich; and Averdiek, Walter, 4,365,478, Cl. 62-45.000.
- Sumitomo Chemical Company, Limited: See—
Ono, Keiichi; Kawakami, Hajime; and Katsube, Junki, 4,366,157, Cl. 424-256.000.
- Yamada, Yoshimi; Oishi, Tadashi; Kato, Toshiro; and Mukai, Kunio, 4,366,150, Cl. 424-199.000.
- Sumitomo Electric Industries: See—
Miyamoto, Yoshimi; Kojima, Keiichi; and Toriumi, Yasuo, 4,366,464, Cl. 338-214.000.

Sumitomo Precision Products Company, Ltd.: See—
Nakamura, Masakazu, 4,365,665, Cl. 165-80.00B.
Sun Tech, Inc.: See—
White, David C., 4,366,169, Cl. 424-285.000.
Sunbeam Plastics Corporation: See—
Montgomery, Gary V., 4,365,721, Cl. 215-217.000.
Suncor Inc.: See—
Morgan, George W., 4,365,571, Cl. 114-42.000.
Sung, Rodney L.; Sweeney, William M.; and Kaufman, Benjamin J., to Texaco Inc. Fuel composition, 4,365,972, Cl. 44-53.000.
Suomen Sokeri Osakeyhtio: See—
Marvia, Kaarlo, 4,365,737, Cl. 229-17.00R.
Suzukawa, Yuichi; Kobayashi, Waichi; and Ohtaka, Satoshi, to Ube Industries, Ltd. Process for producing a calcia clinker, 4,366,257, Cl. 501-123.000.
Suzuki, Kinzo: See—
Ogura, Masato; Horio, Noriyasu; and Suzuki, Kinzo, 4,365,930, Cl. 415-61.000.
Suzuki, Kunio; and Takahashi, Minoru, to Hitachi, Ltd. Hair dryer, 4,365,426, Cl. 34-101.000.
Suzuki, Osamu: See—
Oishi, Kengo; and Suzuki, Osamu, 4,365,712, Cl. 206-387.000.
Suzuki, Takahiko: See—
Kageyama, Hidehei; and Suzuki, Takahiko, 4,365,390, Cl. 24-11.00R.
Suzuki, Toshikazu: See—
Morishita, Teru; Sugiyama, Matsuyoshi; and Suzuki, Toshikazu, 4,365,759, Cl. 239-703.000.
Sugiyama, Matsuyoshi; Morishita, Teru; and Suzuki, Toshikazu, 4,365,760, Cl. 239-703.000.
Suzuki, Yasuo: See—
Munekata, Kenichi; Suzuki, Yasuo; and Ohta, Norio, 4,365,446, Cl. 51-268.000.
Suzuki, Yoshihisa: See—
Mori, Mitsuo; and Suzuki, Yoshihisa, 4,365,388, Cl. 19-159.00A.
Sverdrup, Edward F.: See—
Ricks, Herbert E.; and Sverdrup, Edward F., 4,366,034, Cl. 204-32.00R.
Svoboda, Glenn R., to Freeman Chemical Corporation. Method for making coated molded articles, 4,366,109, Cl. 264-255.000.
Swanson, Elmer G., to Champion International Corporation. Unitized pallets, 4,365,710, Cl. 206-386.000.
Swanson, Rollan. Process for conversion of coal to hydrocarbon and other values, 4,366,044, Cl. 208-10.000.
Swanson, Rollan. Process for conversion of coal to gaseous hydrocarbons, 4,366,045, Cl. 208-10.000.
Sweeney, William M.: See—
Sung, Rodney L.; Sweeney, William M.; and Kaufman, Benjamin J., 4,365,972, Cl. 44-53.000.
Sysoev, Vyacheslav N.: See—
Kurovich, Arkady N.; Krasnokutsky, Jury B.; Sysoev, Vyacheslav N.; Golman, Lev D.; Zuev, Vladimir T.; Nesterov, Viktor I.; and Laboda, Viktor A., 4,365,494, Cl. 72-63.000.
Syston-Donner Corporation: See—
Woodruff, James R., 4,365,512, Cl. 73-503.000.
Syva Company: See—
Tom, Henry K.; and Rowley, Gerald L., 4,366,241, Cl. 435-7.000.
Szabo nee Mogyrosi, Katalin: See—
Czegledi, Bela; Csovari, Mihaly; Erdelyi, Miklos; Streker, Lajos; Toth, Istvan; Szabo nee Mogyrosi, Katalin; Riederauer, Szilard; and Szentgyorgyi, Geza, 4,366,129, Cl. 423-112.000.
Szabo, Sandor; and Usadel, Klaus H., to Brigham and Women's Hospital. Use of somatostatin in the prevention and cure of vascular, membrane, or organ lesions, 4,366,148, Cl. 424-177.000.
Szentgyorgyi, Geza: See—
Czegledi, Bela; Csovari, Mihaly; Erdelyi, Miklos; Streker, Lajos; Toth, Istvan; Szabo nee Mogyrosi, Katalin; Riederauer, Szilard; and Szentgyorgyi, Geza, 4,366,129, Cl. 423-112.000.
Tachibana, Akira; Endo, Akira; and Sekine, Kenji, to Hitachi, Ltd.; and Nissan Motor Co., Ltd. Signal processor for skid control device, 4,366,546, Cl. 364-571.000.
Tacke, Peter: See—
Freitag, Dieter; Nouvertne, Werner; Reinking, Klaus; Tacke, Peter; Kleiner, Frank; and Schmidt, Manfred, 4,366,276, Cl. 524-94.000.
Taisho Pharmaceutical Co., Ltd.: See—
Mizutani, Taku; Yamagishi, Michio; Mizoue, Kazutoshi; Kawashima, Akira; Omura, Sadafumi; Otake, Noboru; and Seto, Haruo, 4,366,311, Cl. 536-123.000.
Takada, Juichiro. Drive wire for passive restraint systems, 4,365,827, Cl. 280-804.000.
Takada, Yuji: See—
Inoue, Hiromitsu; Ohashi, Hiroshi; and Takada, Yuji, 4,366,473, Cl. 340-562.000.
Takahashi, Minoru: See—
Suzuki, Kunio; and Takahashi, Minoru, 4,365,426, Cl. 34-101.000.
Takahashi, Nagashige; and Harada, Shinichi, to Kabushiki Kaisha Medos Kenkyusho. Optical source unit for an endoscope, 4,366,529, Cl. 362-4.000.
Takahashi, Osamu, to Fuji Photo Film Co., Ltd. Photographic materials, 4,366,236, Cl. 430-505.000.
Takahashi, Osamu: See—
Hamaoka, Tsutomu; Takahashi, Osamu; Harada, Tooru; Sakai, Minoru; and Ohki, Nobutaka, 4,366,226, Cl. 430-214.000.

Takahashi, Susumu: See—
Fukuzawa, Tadashi; Nakamura, Michiharu; and Takahashi, Susumu, 4,366,567, Cl. 372-38.000.
Takahashi, Yuji. Ironless rotor winding for electric motor, method and machine for making the same, 4,365,656, Cl. 140-92.100.
Takaku, Sakae: See—
Mori, Takashi; Takaku, Sakae; Matsuura, Fumiaki; Murakami, Yasushi; Noda, Yukifumi; Yamazaki, Tamotsu; Neichi, Tomohiro; Nakakimura, Hiroshi; Kataoka, Shigeyuki; Matsuno, Takashi; Hata, Shun-ichi; and Takanashi, Shigeru, 4,366,161, Cl. 424-266.000.
Takamura, Tohru: See—
Terakawa, Sumio; Takamura, Tohru; Horii, Kenju; and Yamada, Takahiro, 4,366,503, Cl. 358-213.000.
Takanashi, Akira; and Ishigami, Yasuhiko, to Hitachi, Ltd.; and Hitachi Microcomputer Engineering Ltd. Converter, 4,366,470, Cl. 340-347.00DA.
Takanashi, Shigeru: See—
Mori, Takashi; Takaku, Sakae; Matsuura, Fumiaki; Murakami, Yasushi; Noda, Yukifumi; Yamazaki, Tamotsu; Neichi, Tomohiro; Nakakimura, Hiroshi; Kataoka, Shigeyuki; Matsuno, Takashi; Hata, Shun-ichi; and Takanashi, Shigeru, 4,366,161, Cl. 424-266.000.
Takano, Masayuki; Hosoi, Sadao; and Matsushita, Yuichi, to Sony Corporation. Automatic head height control apparatus, 4,366,515, Cl. 360-77.000.
Takaoka, Yukio; Haraguchi, Keisuke; and Yamaka, Shiyouchi, to Asahi Kogaku Kogyo Kabushiki Kaisha. Focusing screen holding device, 4,365,883, Cl. 354-152.000.
Takasugi, Hisashi: See—
Takaya, Takao; Masugi, Takashi; Takasugi, Hisashi; and Kochi, Hiromu, 4,366,153, Cl. 424-246.000.
Takats, Ferenc; Lorand, Ferenc; Pajer, Imre; and Liptak, Laszlo, to Erotev Erom es Halozattervezo Vallalat. Process and equipment for the transportation and storage of radioactive and/or other dangerous materials, 4,366,095, Cl. 252-633.000.
Takatsuki, Toshiharu; Fujiwara, Ken-ichi; Nomura, Jutaru; and Okamura, Shigeru, to Mitsubishi Denki Kabushiki Kaisha; and Nippon Telegraph and Telephone Public Corp. Apparatus for selecting terminal equipment in telephone lines, 4,366,347, Cl. 179-2.00DP.
Takatsuki, Toshiharu; Fujiwara, Ken-ichi; Yanagisawa, Sinobu; and Okamura, Shigeru, to Mitsubishi Denki Kabushiki Kaisha; and Nippon Telegraph & Telephone Public Corporation. Data transmission system, 4,366,572, Cl. 375-37.000.
Takaya, Takao; Masugi, Takashi; Takasugi, Hisashi; and Kochi, Hiromu, to Fujisawa Pharmaceutical Co., Ltd. Cephem compounds, 4,366,153, Cl. 424-246.000.
Takeda, Mutsuhiko: See—
Amemiya, Akira; Kunii, Tadashi; Furusawa, Tomotaka; Takeda, Mutsuhiko; Tanaka, Katsumasa; Umemura, Toshikazu; Ono, Yoshihiro; Masumoto, Isamu; Nakao, Noriyasu; and Furukawa, Masanori, 4,366,305, Cl. 528-230.000.
Takeda, Nagao: See—
Sugiyama, Masatoshi; Odawara, Hideo; and Takeda, Nagao, 4,365,998, Cl. 106-22.000.
Takeda, Sumiyoshi: See—
Hatada, Toshio; Senshu, Takao; Arai, Akira; Harada, Fumio; Matsuzaki, Atsushi; Futawatari, Hajime; Imaizumi, Yutaka; and Takeda, Sumiyoshi, 4,365,667, Cl. 165-152.000.
Takeda, Yutaka: See—
Hirao, Motohisa; Nakamura, Michiharu; Doi, Atsutoshi; Tsuji, Shinji; Takeda, Yutaka; and Mori, Takao, 4,366,569, Cl. 372-46.000.
Takenaka, Shigeo; and Kamohara, Eiji, to Tokyo Shibaura Denki Kabushiki Kaisha. Picture tube with an electron gun having an improved potential supplying means, 4,366,415, Cl. 313-457.000.
Takeuchi, Jun; Yamazumi, Kaishu; and Ishihara, Takao, to Kabushiki Kaisha Fujikoshi. Method for hardening steel, 4,366,008, Cl. 148-143.000.
Takeuchi, Masaki, to Tokyo Shibaura Denki Kabushiki Kaisha. Discrete type automated chemical analytic apparatus, 4,366,119, Cl. 422-65.000.
Takeyama, Tetsu; Azuma, Kenkoku; Ikeda, Akira; Yamamoto, Toshie; and Katsurada, Shigeo, to Mitsubishi Denki Kabushiki Kaisha. Water producing apparatus, 4,365,979, Cl. 55-181.000.
Takimoto, Hiroyuki: See—
Hirata, Noritsugu; and Takimoto, Hiroyuki, 4,365,875, Cl. 352-25.000.
Tamminen, Pentti J. Battery and contact combination, 4,366,213, Cl. 429-110.000.
Tanabe, Toshio: See—
Oda, Takeshi; Tanabe, Toshio; and Tanaka, Yoshimasa, 4,365,376, Cl. 15-22.00R.
Tanaka, Atsuo; Okamura, Takaaki; Kanda, Katsumi; and Kondo, Yoshikazu, to Toyo Kohan Co., Ltd. Metal-resin composite and process for its production, 4,366,185, Cl. 427-386.000.
Tanaka, Hideo: See—
Ishido, Yoshinobu; and Tanaka, Hideo, 4,366,284, Cl. 524-447.000.
Tanaka, Katsumasa: See—
Amemiya, Akira; Kunii, Tadashi; Furusawa, Tomotaka; Takeda, Mutsuhiko; Tanaka, Katsumasa; Umemura, Toshikazu; Ono, Yoshihiro; Masumoto, Isamu; Nakao, Noriyasu; and Furukawa, Masanori, 4,366,305, Cl. 528-230.000.
Tanaka, Koji, to Japan Exlan Co., Ltd. Novel water-swellaible fibers having a high degree of water-swellaibility and excellent physical

properties and process for producing the same, 4,366,206, Cl. 428-373.000.
Tanaka, Kunio: See—
Kishi, Hajimu; and Tanaka, Kunio, 4,366,475, Cl. 340-731.000.
Tanaka, Yoshimasa: See—
Oda, Takeshi; Tanabe, Toshio; and Tanaka, Yoshimasa, 4,365,376, Cl. 15-22.00R.
Tanaka, Yoshiyuki: See—
Mochida, Haruo; Tanaka, Yoshiyuki; Yamamoto, Yoshio; and Kataoka, Minoru, 4,365,488, Cl. 464-132.000.
Tanaka, Yutaka: See—
Yatani, Takeshi; Tanaka, Yutaka; and Ozaki, Yoshio, 4,366,359, Cl. 219-69.00M.
Tanasawa, Yasusi; Muto, Norio; Saito, Akinori; and Kawamura, Kiyomi, to Kabushiki Kaisha Toyota Chuo Kenkyusho. Swirl injection valve, 4,365,746, Cl. 239-125.000.
Tandler, Peter: See—
Schopper, Bernd; Tandler, Peter; Hartmann, Herbert; and Reuter, Manfred, 4,365,846, Cl. 303-56.000.
Tasaki, Takaharu: See—
Saito, Tadao; and Tasaki, Takaharu, 4,365,751, Cl. 239-333.000.
Tatabanyai Szenbanyak: See—
Czegledi, Bela; Csovari, Mihaly; Erdelyi, Miklos; Streker, Lajos; Toth, Istvan; Szabo nee Mogyrosi, Katalin; Riederauer, Szilard; and Szentgyorgyi, Geza, 4,366,129, Cl. 423-112.000.
Tatsumi, Akira: See—
Watanabe, Kenichi; Kinoshita, Hiroshi; Tatsumi, Akira; and Goto, Koichi, 4,365,542, Cl. 98-40.00V.
Tawfik, Randa, to Gould Inc. Cycling resistant fusible element for electric fuses, 4,366,461, Cl. 337-159.000.
Taylor, Henry D.; and Breeden, Robert H., to Sperry Corporation. Power transmission, 4,365,647, Cl. 137-489.000.
TDK Electronic Co., Ltd.: See—
Shoji, Shigemasa, 4,365,769, Cl. 242-199.000.
Technicare Corporation: See—
Hill, Edwin R., 4,366,574, Cl. 378-99.000.
Teijin Limited: See—
Horiuchi, Takumi; Kuroda, Yoji; and Hukatsu, Kenji, 4,365,466, Cl. 57-205.000.
Tejima, Akio: See—
Ohta, Ichiro; Tejima, Akio; Watando, Masayuki; Yamaoka, Akira; Ishiwata, Kouji; and Yamada, Minoru, 4,366,362, Cl. 219-123.000.
Teletronics Pty. Ltd.: See—
Loughman, James; Daly, Christopher N.; and Washington, Ronald A. C., 4,365,633, Cl. 128-419.00PG.
Teletype Corporation: See—
Jung, Werner, 4,365,905, Cl. 400-616.200.
Telford, Thomas M., to Warn Industries, Inc. One-piece locking clutch, 4,365,696, Cl. 192-67.00R.
Tellier, Pierre; Demaille, Jean-Pierre; and Doillon, Jean, to Compagnie du Roneo. Computer terminal station for data input and output, 4,365,561, Cl. 108-7.000.
Temkin, Henryk: See—
Keramidas, Vassilis G.; McCoy, Robert J.; and Temkin, Henryk, 4,366,186, Cl. 427-89.000.
Temple, Davis L., Jr., to Mead Johnson & Company. Antiallergic methods using diazaheterocyclopurines, 4,366,156, Cl. 424-251.000.
Terakawa, Sumio; Takamura, Tohru; Horii, Kenju; and Yamada, Takahiro, to Matsushita Electronics Corp.; and Matsushita Electric Industrial Co., Ltd. Solid state image pick-up device and its charge transfer method, 4,366,503, Cl. 358-213.000.
Terakura, Yukio: See—
Numazawa, Akio; Katayama, Nobuaki; Ikemoto, Kazuhito; Sasaki, Kan; and Terakura, Yukio, 4,365,523, Cl. 74-606.00R.
Tercic, Eduard: See—
Janak, Miloslav; Schonwald, Helmut; Tercic, Eduard; and Ginsberg, Martin, 4,366,512, Cl. 360-48.000.
Terrailon, Marc: See—
Mazzucco, Daniel, 4,366,367, Cl. 219-272.000.
Terrailon, Terson: See—
Mazzucco, Daniel, 4,366,367, Cl. 219-272.000.
Terui, Hiroshi; and Kobayashi, Morio, to Nippon Telegraph & Telephone Public Corporation. Optical switch, 4,365,862, Cl. 350-96.130.
Teshima, Hiroshi: See—
Shima, Ichiji; Teshima, Hiroshi; Koizumi, Takayuki; and Inoue, Satoru, 4,366,544, Cl. 364-550.000.
Texaco Development Corporation: See—
Burns, Robert B., 4,365,912, Cl. 405-60.000.
Texaco, Inc.: See—
Knifton, John F.; and Lin, Jiang-Jen, 4,366,259, Cl. 518-700.000.
Sung, Rodney L.; Sweeney, William M.; and Kaufman, Benjamin J., 4,365,972, Cl. 44-53.000.
Texas Instruments Incorporated: See—
Tokuda, Ryuji; and Andresen, Bernhard H., 4,365,878, Cl. 354-25.000.
Textron, Inc.: See—
Halwes, Dennis R., 4,365,771, Cl. 244-17.270.
Thackeray, Michael M.: See—
Coetzer, Johan; and Thackeray, Michael M., 4,366,215, Cl. 429-199.000.
Thalmann, Dieter: See—
Schellenberg, Hans; Schenkel, Eduard; Schwander, Andreas; and Thalmann, Dieter, 4,365,468, Cl. 57-291.000.
Theilen, Rolf: See—
Gottsmann, Helmut; and Theilen, Rolf, 4,365,900, Cl. 400-57.000.

Theodor Hymmen KG, Firma: See—
Pankoke, Werner, 4,365,548, Cl. 100-154.000.
Therault, Gerald E., to RCA Corporation. I.F. Response control system for a television receiver, 4,366,498, Cl. 358-38.000.
Theurer, Josef, to Franz Plasser Bahnbaumschienen Industriellgesellschaft m.b.H. Mobile rail contouring machine, 4,365,918, Cl. 409-296.000.
Thiault, Roger P.: See—
Orain, Michel A.; and Thiault, Roger P., 4,365,791, Cl. 267-166.000.
Thiboutot, Robert, to Les Entreprises Rotot Ltee. Folding joint for interconnecting elongate members, 4,365,908, Cl. 403-102.000.
Thiele, Paul: See—
Bode, Udo; Thiele, Paul; Mohring, Gunter; and Hildebrand, Helmut, 4,366,457, Cl. 333-237.000.
Thirion de Briel, Jacques J. M., to Societe Anonyme Francaise du Ferodo. Speed change pulley, 4,365,963, Cl. 474-13.000.
Thomas & Betts Corporation: See—
Sadigh-Bezhadi, Amir-Akbar, 4,365,860, Cl. 339-97.00P.
Thomas, Lowell S.; and Petrella, Ronald V., to Dow Chemical Company. The Polycarbonate containing a metal salt of a perhalometalate as an ignition depressant, 4,366,283, Cl. 524-413.000.
Thomson-CSF: See—
Berger, Jean L., 4,366,455, Cl. 333-165.000.
Caurant, Robert; and Leduc, Alain, 4,365,959, Cl. 434-24.000.
de Cremoux, Baudouin; Poulain, Pierre; and Sol, Nicole, 4,366,334, Cl. 136-255.000.
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Thorn Electrical Industries Limited: See—
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Thum, Waldemar; Lang, Gunter; Vetter, Hellmuth; and Naher, Gotthilf, to Boehringer Mannheim GmbH. Storage stable cholesterol oxidase compositions, 4,366,249, Cl. 435-188.000.
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Tobias, Michael A., to Mobil Oil Corporation. Acrylic modified anionic water dispersible polystyrene, 4,366,293, Cl. 525-301.000.
Todd, Mike J.; and Lee, Jeffrey A., to H. B. Fuller Company. Floor polishing machine, 4,365,377, Cl. 15-98.000.
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Tojo, Kenji; Hosoda, Taisei; Ikegawa, Masao; and Shiibayashi, Masao, to Hitachi, Ltd. Scroll compressor provided with means for pressing an orbiting scroll member against a stationary scroll member and self-cooling means, 4,365,941, Cl. 417-372.000.
Tokico Ltd.: See—
Aono, Masami, 4,365,845, Cl. 303-6.00C.
Toko, Inc.: See—
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Tokorozawa, Sadao; and Shimizu, Toyoyi, to Pilot Man-Nen-Hitsu Kabushiki Kaisha. Liquid discharge apparatus, 4,365,728, Cl. 222-209.000.
Tokuda, Ryuji; and Andresen, Bernhard H., to Canon, Inc.; and Texas Instruments Incorporated. Signal processing circuitry for a distance measuring system, 4,365,878, Cl. 354-25.000.
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Tokyo Shibaura Denki Kabushiki Kaisha: See—
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Aoki, Kiyoshi; and Ichinose, Kazuaki, 4,366,554, Cl. 365-155.000.
Baba, Masaharu; Honda, Kiyokazu; and Hashima, Akiyoshi, 4,365,396, Cl. 29-25.130.
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Nieda, Yasuhiro; Honda, Kiyokazu; and Shinada, Hidehiro, 4,366,409, Cl. 313-221.000.

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 Tolasch, Gerhard; Base, Horst; and Bantien, Jurgen, to Hauni-Werke Korber & Co. KG. Apparatus for transport and temporary storage of cigarettes or the like between producing and processing machine. 4,365,702, Cl. 198-347.000.
 Tolliver, Wilbur E. Self-lubricating pipe joint seal with rupturable membrane. 4,365,818, Cl. 277-237.00R.
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 Hirota, Kazumi; and Matsuoka, Kikuo, 4,365,499, Cl. 72-351.000.
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 Trutzschler GmbH & Co. KG: See—
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 Turner, George W.; Fan, John C. C.; and Salerno, Jack P., to Massachusetts Institute of Technology. Compensating semiconductor materials. 4,366,338, Cl. 136-258.000.
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 Urech, Karl; Habermeyer, Jurgen; and Moser, Roland, to Ciba-Geigy Corporation. Liquid matrix system based on a mixture of epoxide resin and an amine curing agent for producing fibre-reinforced plastics components. 4,366,108, Cl. 264-137.000.
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 Vandenberg, Leonard B. Self-aligning solar collector. 4,365,616, Cl. 126-424.000.
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Yamazoe, Hisamitsu; Kinugawa, Masumi; and Kurii, Masaaki, to Nippondenso Co., Ltd. Method and apparatus for controlling rotation speed of engine. 4,365,601, Cl. 123-339.000.

Yamazumi, Kaishu: See—

Takeuchi, Jun; Yamazumi, Kaishu; and Ishihara, Takao, 4,366,008, Cl. 148-143.000.

Yanagawa, Nobuyuki: See—

Hosaka, Masao; Ogino, Yoshitaka; and Yanagawa, Nobuyuki, 4,365,888, Cl. 355-14.00R.

Yanagisawa, Sinobu: See—

Takatsuki, Toshiharu; Fujiwara, Ken-ichi; Yanagisawa, Sinobu; and Okamura, Shigeru, 4,366,572, Cl. 375-37.000.

Yano, Kensaku: See—

Washida, Hiroshi; Yano, Kensaku; and Yamaoka, Yoshio, 4,366,413, Cl. 313-377.000.

Yasuda, Sadami: See—

Hamada, Mitsuo; and Yasuda, Sadami, 4,366,278, Cl. 524-210.000.

Yatomi, Takeshi; Tanaka, Yutaka; and Ozaki, Yoshio, to Mitsubishi Denki Kabushiki Kaisha. Wire cut electric discharge machining control method. 4,366,359, Cl. 219-69.00M.

Yokoyama, Nobuo, to Tokyo Shibaura Denki Kabushiki Kaisha. Fluorescent lamp device. 4,366,416, Cl. 315-58.000.

Yokoyama, Shigeki; and Ohga, Kunihiko, to Fuji Photo Film Co., Ltd. Silver halide photographic materials. 4,366,238, Cl. 430-529.000.

Yokozeki, Shinichi: See—

Tsukagoshi, Tsunehiro; Yokozeki, Shinichi; Hagiwara, Sumio; Uchidoi, Masataka; Yoshino, Toshiyazu; and Arai, Yasuyuki, 4,366,205, Cl. 428-338.000.

Yoneyama, Toshiyazu, to Toko, Inc. Charge-balanced analog-to-digital converter. 4,366,468, Cl. 340-347.0NT.

Yoon, Young Z.: See—

Fillman, Russell L.; and Yoon, Young Z., 4,365,452, Cl. 52-173.0DS.

Yoshida, Akira; and Kan, Masanori, to Toyo Rubber Industry Co., Ltd. The. Pneumatic safety tire. 4,365,659, Cl. 152-354.00R.

Yoshida Kogyo K.K.: See—

Ooura, Yasumasa, 4,365,403, Cl. 29-408.000.

Yoshida, Masahide: See—

Sato, Masaaki; Miyaji, Kazumi; Yoshida, Masahide; Fukuoka, Norio; Nakasho, Kazuo; and Furuta, Kenji, 4,366,514, Cl. 360-74.400.

Yoshino Kogyosho Co., Ltd.: See—

Saito, Tadao; Kishi, Takao; and Kakuta, Yoshiyuki, 4,365,729, Cl. 222-321.000.

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Yoshioka, Mitsuru; Uyeo, Shoichiro; Hamashima, Yoshio; Kikkawa, Ikuo; Tsuji, Teruji; and Nagata, Wataru, to Shionogi & Co., Ltd. 1-Oxadethiapham compounds and process for producing said compounds. 4,366,316, Cl. 544-90.000.

Young-Bandala, Linda: See—

Reynolds, Martin M.; and Young-Bandala, Linda, 4,366,178, Cl. 426-393.000.

Young Dental Manufacturing Company: See—

Bailey, Ronald L., 4,365,956, Cl. 433-115.000.

Yuasa, Teruo: See—

Numata, Satoshi; Nakatani, Kiyoshi; Yamazaki, Noboru; and Yuasa, Teruo, 4,366,328, Cl. 568-734.000.

Yukawa, Muneaki, to K.K. Musashino Kagaku Kenkyusho; and Ciba-Geigy AG. Organic polymeric materials stabilized with acylated hydroxy acid type compounds. 4,366,280, Cl. 524-291.000.

Yuminaka, Takeo: See—

Masuda, Ikuro; Shiraishi, Hisayoshi; Ogawa, Seiichiro; Shiono, Shigeo; Sakurai, Jinichi; and Yuminaka, Takeo, 4,366,478, Cl. 340-825.000.

Z-L Limited Partnership: See—

Zilliken, Fritz W., 4,366,082, Cl. 252-404.000.

Zilliken, Fritz W., 4,366,248, Cl. 435-125.000.

Z.S. Electronics (Proprietary) Limited: See—

Hodgkinson, Alec J., 4,366,485, Cl. 343-791.000.

Zacharias, Ellis M., Jr., to Mapco, Inc. Flow straighteners in axial flowmeters. 4,365,518, Cl. 73-861.310.

Zaghi, Hooshmand, to Gould Inc. Strain gage transducers. 4,365,520, Cl. 73-862.630.

Zaitsev, Anatoly M.: See—

Karpov, Jury A.; Burylev, Boris P.; Glavin, German G.; Kvin, Valeria E.; Kovalev, Vasily V.; Natanson, Konstantin J.; Orlov, Vladimir V.; Kuznetsov, Lev B.; Zaitsev, Anatoly M.; Kartsev, Valentin E.; Morozov, Vladimir M.; and Kovalev, Gennady G., 4,365,969, Cl. 436-75.000.

Zambelli, Adolfo: See—

Beach, David L.; and Zambelli, Adolfo, 4,366,086, Cl. 252-431.00R.

Zavarkay, Robert J.; Kurasz, George W.; and Devaux, Robert R., to Barnes Group Inc. Spring cartridge for spring operated re-wind mechanism. 4,365,690, Cl. 185-45.000.

Zdaniewski, Joseph J.; Penn, William B.; and Balke, Roy L., to General Electric Company. Method of making an insulated pole and coil assembly. 4,365,407, Cl. 29-598.000.

Zeller, Karl S.; and Thormann, Heinz, to Siemens Aktiengesellschaft. Lockable key with luminescent display for office typewriters and teleprinters. 4,365,903, Cl. 400-490.000.

Zelman, Chaim: See—

Buttner, Ronald; Dolowich, Herbert; and Zelman, Chaim, 4,365,535, Cl. 84-421.000.

Zhuravlev, Oleg V.: See—

Brounshtein, Viktor B.; Petrov, Vladimir I.; Otsup, Rudolf R.; Ignatieva, Galina P.; Kozlovsky, Vladlen V.; Lipshits, Leonard Y.; Zhuravlev, Oleg V.; Koba, Mikhail G.; Seliverstov, Konstantin B.; Igisheva, Tamara A.; Drobyazko, Petr A.; Motin, Anatoly I.; Fot, Viktor D.; Yakimov, Lev T.; and Kuznetsov, Boris G., 4,366,124, Cl. 422-278.000.

Zidele, Israel. Reversible baseball glove. 4,365,352, Cl. 2-19.000.

Ziegler, Eugene: See—

Bixby, Robert P.; and Ziegler, Eugene, 4,366,029, Cl. 202-262.000.

Ziegler, Herwin G., to BBC, Brown, Boveri & Company, Limited. Brush assembly for dynamoelectric machines. 4,366,404, Cl. 310-239.000.

Zilliken, Fritz W., to Z-L Limited Partnership. Isoflavones and related compounds, methods of preparing and using and antioxidant compositions containing same. 4,366,082, Cl. 252-404.000.

Zilliken, Fritz W., to Z-L Limited Partnership. Fermentation method of preparing antioxidants. 4,366,248, Cl. 435-125.000.

Zima, Herbert; and Tulacs, Laszlo, to Vianova Kunstharz, A.G. Aqueous coating compositions for wood surfaces. 4,366,282, Cl. 524-317.000.

Zinck, Joseph W.; and Affolder, Steven L., to CTS Corporation. Process and apparatus for continuously loading pallets with ceramic articles. 4,365,705, Cl. 198-424.000.

Zuev, Vladimir T.: See—

Kurovich, Arkady N.; Krasnokutsky, Jury B.; Sysoev, Vyacheslav N.; Golman, Lev D.; Zuev, Vladimir T.; Nesterov, Viktor I.; and Laboda, Viktor A., 4,365,494, Cl. 72-63.000.

Zukeran, Chousei. Wind-driven prime mover. 4,365,935, Cl. 416-117.000.

Zuleeg, Rainer: See—

Notthoff, Johannes K.; and Zuleeg, Rainer, 4,366,377, Cl. 250-211.00J.

3G Corporation: See—

Graham, J. Clifford; Gallien, Shelby W.; and Gill, Maurice P., 4,365,988, Cl. 71-34.000.

LIST OF REISSUE PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 28TH DAY OF DECEMBER, 1982

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Berg, William E., to Tektronix, Inc. Electrical connector. Re. 31,114. Cl. 339-17.0CF.
Black, John W., to Pemco-Kalamazoo, Inc. Solid axle wheel support and sealed bearing construction. Re. 31,110. Cl. 16-46.000.
Coker, Charles M.; and Kling, Gary M. Variable resistance lifting mechanism. Re. 31,113. Cl. 272-118.000.
Hagen, Glenn E., to Williams, Inc. Wave driven generator. Re. 31,111. Cl. 60-500.000.
Kling, Gary M.: See—
Coker, Charles M.; and Kling, Gary M., Re. 31,113. Cl. 272-118.000.
Pemco-Kalamazoo, Inc.: See—
Black, John W., Re. 31,110. Cl. 16-46.000.
Prikkel, John, III. Automatic flue damper. Re. 31,112. Cl. 236-1.00G.
Tektronix, Inc.: See—
Berg, William E.; Re. 31,114. Cl. 339-17.0CF.
Williams, Inc.: See—
Hagen, Glenn E., Re. 31,111. Cl. 60-500.000.

LIST OF REEXAMINATION PATENTEEES

TO WHOM

CERTIFICATES WERE ISSUED

Carlson, Edgar; Henke, Alfred M.; Lehrian, William R.; McKinney, Joel D.; and Metzger, Kirk J., to Gulf Research & Development. Asphaltene hydrosulfurization with small catalyst particles utilizing a hydrogen quench for the reaction. B1 Re. 29,315. Cl. 208—216.
Gulf Research & Development: See—
Carlson, Edgar; Henke, Alfred M.; Lehrian, William R.; McKinney, Joel D.; and Metzger, Kirk J. B1 Re. 29,315.
Carlson, Edgar; Henke, Alfred M.; Lehrian, William R.; McKinney, Joel D.; and Metzger, Kirk J., to Gulf Research & Development. Asphaltene hydrosulfurization with small catalyst particles in a parallel reactor system. B1 Re. 29,314. Cl. 208—216.
Gulf Research & Development: See—
Carlson, Edgar; Henke, Alfred M.; Lehrian, William R.; McKinney, Joel D.; and Metzger, Kirk J. B1 Re. 29,314.

LIST OF DESIGN PATENTEEES

Abe, Yoichi; and Matsumoto, Hajime, to Toybox Corporation. Toy pendant. 267,418, 12-28-82, Cl. D21-62.000.
Amarger, Guy, to Compagnie Generale des Etablissements Michelin. Tire. 267,400, 12-28-82, Cl. D12-147.000.
Anderson, Robert C.: See—
Kroeger, Daniel E.; and Anderson, Robert C., 267,391. Cl. D8-18.000.
Becker, Robert W.: See—
Boldt, Melvin H.; Morrison, Thurber H.; Becker, Robert W.; and Huff, Robert S., 267,424. Cl. D23-122.000.
Behrens, Irene A. Display rack for clothing and accessories. 267,373, 12-28-82, Cl. D6-85.000.
Bell & Howell Company: See—
Gross, Maynard C.; Porazinski, Robert F.; and Precin, Raymond J., 267,409. Cl. D16-32.000.
Blanchard, Wanda D. Handbag. 267,369, 12-28-82, Cl. D3-44.000.
Boldt, Melvin H.; Morrison, Thurber H.; Becker, Robert W.; and Huff, Robert S., to National Presto Industries, Inc. Portable radiant electric heater. 267,424, 12-28-82, Cl. D23-122.000.
Boling Company, The: See—
Lopez-Benitez, Carlos L., 267,371. Cl. D6-31.000.
Brunelle, Rene J.: See—
Long, William A.; Fischer, Ward E.; and Brunelle, Rene J., 267,372. Cl. D6-48.000.
Brunson, Welton K.: See—
Hubbard, Vance M.; and Brunson, Welton K., 267,434. Cl. D24-64.000.
Hubbard, Vance M.; and Brunson, Welton K., 267,435. Cl. D24-64.000.
Burt, Victor T. Door mat or similar article. 267,385, 12-28-82, Cl. D6-210.000.
C. R. Bard, Inc.: See—
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Canon Kabushiki Kaisha: See—
Hirata, Takashi; and Hirase, Kunio, 267,411. Cl. D18-7.000.
Christensen, Harvey E.; Moretz, Charles H.; and Moretz, John M. Body thermal bandage. 267,427, 12-28-82, Cl. D24-34.000.
Christensen, Harvey E.; Moretz, Charles H.; and Moretz, John M. Thermal bandage. 267,428, 12-28-82, Cl. D24-34.000.
Christian, Hubert E.: See—
Groenewold, Van D.; Christian, Hubert E.; and Schwartz, James P., 267,395. Cl. D9-425.000.
Cline, Merlin, to Madison Marketing Limited. Container for filing cards and the like. 267,370, 12-28-82, Cl. D3-73.000.
Compagnie Generale des Etablissements Michelin: See—
Amarger, Guy, 267,400. Cl. D12-147.000.
Continental Group, Inc., The: See—
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Cook, Gregory D., to Cook Machine Company. Beam counterweight for jack pumps. 267,404, 12-28-82, Cl. D15-7.000.
Cook Machine Company: See—
Cook, Gregory D., 267,404. Cl. D15-7.000.
Dart Industries Inc.: See—
Spoeth, Carl R., Jr.; and Hiatt, Russell D., 267,388. Cl. D7-360.000.
Davis, Edward P.: See—
Hart, Claude A.; and Davis, Edward P., 267,401. Cl. D12-151.000.
Davis, Howard. Shoe sole. 267,366, 12-28-82, Cl. D2-320.000.
De Lozada, Rudy. Visored hat. 267,364, 12-28-82, Cl. D2-247.000.
Display Corporation International: See—
Hornblad, Richard P., 267,415. Cl. D20-10.000.
Dunlop Limited: See—
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Dupas, Jean-Jacques P. R.; and Dupas, Philippe D. R. Pastry shell. 267,362, 12-28-82, Cl. D1-2.000.
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Franz, William T.: See—
Guodis, Robert J.; Franz, William T.; and Hayes, Edward J., 267,393. Cl. D9-370.000.
Gage, Ripley W. Speaker support. 267,403, 12-28-82, Cl. D14-38.000.
General Motors Corporation: See—
Schinella, John R., 267,402. Cl. D12-211.000.
Gibson, Thomas E. Ceramic greenware cleaner. 267,439, 12-28-82, Cl. D32-52.000.
Gillette Company, The: See—
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Glore, Thomas G., to Singer Company, The. Combined jointer and planer. 267,406, 12-28-82, Cl. D15-127.000.
Groenewold, Van D.; Christian, Hubert E.; and Schwartz, James P. Packaging container. 267,395, 12-28-82, Cl. D9-425.000.
Gross, Maynard C.; Porazinski, Robert F.; and Precin, Raymond J., to Bell & Howell Company. Resealable toner container. 267,409, 12-28-82, Cl. D16-32.000.
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Harvey, Francis K.; Franks, Larrabee; and Ingraham, David L. Disposable ashtray. 267,437, 12-28-82, Cl. D27-08.000.
Hayes, Edward J.: See—
Guodis, Robert J.; Franz, William T.; and Hayes, Edward J., 267,393. Cl. D9-370.000.
Heinrichsdorff, Wolff, to Nabisco Brands, Inc. Combined package display and dispensing rack. 267,382, 12-28-82, Cl. D6-181.000.
Hiatt, Russell D.: See—
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Hirata, Takashi; and Hirase, Kunio, to Canon Kabushiki Kaisha. Electronic calculator. 267,411, 12-28-82, Cl. D18-7.000.
Hori, Kiyoshi, to Nippon Paint Co., Ltd. Paint roller. 267,367, 12-28-82, Cl. D4-38.100.
Hori, Kiyoshi, to Nippon Paint Co., Ltd. Paint roller. 267,368, 12-28-82, Cl. D4-38.100.
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Hubbard, Vance M.; and Brunson, Welton K., to Tecnol, Inc. Limb holder. 267,434, 12-28-82, Cl. D24-64.000.
Hubbard, Vance M.; and Brunson, Welton K., to Tecnol, Inc. Stirrup strap. 267,435, 12-28-82, Cl. D24-64.000.
Huber, Paul D.: See—
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Kuhns, Christopher R.; and Kuhns, Anthony W. Urban vehicle. 267,399, 12-28-82, Cl. D12-92.000.
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Liptak, Richard M.; and Liptak, Thomas P., to Integral Design, Inc. Display container. 267,394, 12-28-82, Cl. D9-415.000.
Liptak, Richard M.; and Liptak, Robert S., to Integral Design, Inc. Display sign holder. 267,416, 12-28-82, Cl. D20-43.000.
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 Numano, Masafumi: See—
 Miyake, Takao; Kawaishi, Masayoshi; and Numano, Masafumi, 267,390, Cl. D7-351.000.
 Pageau, Gary M., to C. R. Bard, Inc. Chest drainage bottle. 267,433, 12-28-82, Cl. D24-59.000.
 Pic-A-Pear Products Co.: See—
 McDuffee, Paul E., Sr.; and McDuffee, Ronald J., 267,396, Cl. D9-429.000.
 Porazinski, Robert F.: See—
 Gross, Maynard C.; Porazinski, Robert F.; and Precin, Raymond J., 267,409, Cl. D16-32.000.
 Porter, Terence F., to Mason & Porter Limited. Stove. 267,423, 12-28-82, Cl. D23-105.000.
 Precin, Raymond J.: See—
 Gross, Maynard C.; Porazinski, Robert F.; and Precin, Raymond J., 267,409, Cl. D16-32.000.
 Precision Metal Fabricators, Inc.: See—
 Lenhart, Richard D.; and Lenhart, Ronald A., 267,408, Cl. D15-199.000.
 Qualitone Hearing Aids, Inc.: See—
 Harada, Mas, 267,429, Cl. D24-35.000.
 Questor Corporation: See—
 Mower, Henry W.; Seymour, Allen; Koziatck, Jerome P.; and Lendvay, Joseph G., 267,377, Cl. D6-154.000.
 Mower, Henry W.; Seymour, Allen; Koziatck, Jerome P.; and Lendvay, Joseph G., 267,378, Cl. D6-154.000.
 Rozsnyai, John W. Table. 267,380, 12-28-82, Cl. D6-179.000.
 Russell William, Ltd.: See—
 Winter, Russell K., 267,379, Cl. D6-175.000.
 Santarelli, Francis L. Decorated adhesive bandage. 267,431, 12-28-82, Cl. D24-49.000.
 Santarelli, Francis L. Decorated adhesive bandage. 267,432, 12-28-82, Cl. D24-49.000.
 Schinella, John R., to General Motors Corporation. Vehicle wheel. 267,402, 12-28-82, Cl. D12-211.000.
 Schwartz, James P.: See—
 Groenewold, Van D.; Christian, Hubert E.; and Schwartz, James P., 267,395, Cl. D9-425.000.
 Seymour, Allen: See—
 Mower, Henry W.; Seymour, Allen; Koziatck, Jerome P.; and Lendvay, Joseph G., 267,377, Cl. D6-154.000.
 Mower, Henry W.; Seymour, Allen; Koziatck, Jerome P.; and Lendvay, Joseph G., 267,378, Cl. D6-154.000.

Sharp Corporation: See—
 Miyake, Takao; Kawaishi, Masayoshi; and Numano, Masafumi, 267,390, Cl. D7-351.000.
 Sharp Kabushiki Kaisha (Sharp Corporation): See—
 Suganoya, Yoshio; and Miyake, Takao, 267,389, Cl. D7-351.000.
 Shinshu Seiki Kabushiki Kaisha: See—
 Mori, Masahiko, 267,413, Cl. D18-13.000.
 Singer Company, The: See—
 Glore, Thomas G., 267,406, Cl. D15-127.000.
 Lenger, Sidney A., Jr., 267,376, Cl. D6-154.000.
 Spercel, Robert J. Guitar string tuning device housing. 267,410, 12-28-82, Cl. D17-20.000.
 Spoeth, Carl R., Jr.; and Hiatt, Russell D., to Dart Industries Inc. Multi-cooker. 267,388, 12-28-82, Cl. D7-360.000.
 Suganoya, Yoshio; and Miyake, Takao, to Sharp Kabushiki Kaisha (Sharp Corporation). Microwave oven. 267,389, 12-28-82, Cl. D7-351.000.
 Sweet 'N Natural Corp.: See—
 Koch, Mark, 267,387, Cl. D7-52.000.
 Tecnol, Inc.: See—
 Hubbard, Vance M.; and Brunson, Welton K., 267,434, Cl. D24-64.000.
 Hubbard, Vance M.; and Brunson, Welton K., 267,435, Cl. D24-64.000.
 Teledyne Industries, Inc.: See—
 Mackay, Spencer L.; Mackay, Frederick G.; and Johnson, Allan B., 267,422, Cl. D23-34.000.
 Therrien, Donald R., to Masel Orthodontics, Inc. Orthodontic harness. 267,425, 12-28-82, Cl. D24-16.000.
 Therrien, Donald R., to Masel Orthodontics, Inc. Orthodontic harness. 267,426, 12-28-82, Cl. D24-16.000.
 Thorne, David. Pet access door. 267,436, 12-28-82, Cl. D25-48.000.
 Toybox Corporation: See—
 Abe, Yoichi; and Matsumoto, Hajime, 267,418, Cl. D21-62.000.
 Tweedie, Richard T. Ammunition clip. 267,421, 12-28-82, Cl. D22-7.000.
 Tyke, Charles R., to Westinghouse Electric Corp. Horizontal paper organizer. 267,414, 12-28-82, Cl. D19-92.000.
 UOP Inc.: See—
 Long, William A.; Fischer, Ward E.; and Brunelle, Rene J., 267,372, Cl. D6-48.000.
 Van Exel, Gerrit A. Calculating device for conversions or the like. 267,412, 12-28-82, Cl. D18-10.000.
 Westinghouse Electric Corp.: See—
 Tyke, Charles R., 267,414, Cl. D19-92.000.
 Wilson, Alvin K. Vegetation scalping and earth boring tool. 267,405, 12-28-82, Cl. D15-21.000.
 Wilson, Karen A.; Huber, Paul D.; and Ewoldt, Leone C. Wearing apparel cap. 267,363, 12-28-82, Cl. D2-244.000.
 Winter, Russell K., to Russell William, Ltd. Cosmetic display unit. 267,379, 12-28-82, Cl. D6-175.000.
 Wortock, Robert J. Wreath. 267,398, 12-28-82, Cl. D11-120.000.

LIST OF PLANT PATENTEES

Beineke, Walter F., to Purdue Research Foundation. Black walnut tree. 4,968, 12-28-82, Cl. 32.000.
 McRae, Edward A., to Melridge, Inc. Lily plant: Lilium Golddigger. 4,969, 12-28-82, Cl. 68.000.

Melridge, Inc.: See—
 McRae, Edward A., 4,969, Cl. 68.000.
 Purdue Research Foundation: See—
 Beineke, Walter F., 4,968, Cl. 32.000.

CLASSIFICATION OF PATENTS

ISSUED DECEMBER 28, 1982

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2		CLASS 30		CLASS 60		CLASS 81		CLASS 118		CLASS 138	
2.1 R	4,365,351	272 R	4,365,413	205	4,365,466	123 B	4,365,994	65	4,365,583	375	4,365,646
19	4,365,352	310	4,365,414	214	4,365,467	431	4,365,527	300	4,365,584	489	4,365,647
115	4,365,353	314	4,365,415	291	4,365,468			302	4,365,585	539	4,365,648
247	4,365,354	382	4,365,416		4,365,469	CLASS 82		652	4,365,586	CLASS 139	
	4,365,355	422	4,365,417	39.32	4,365,470	4 C	4,365,528	723	4,365,587	93	4,365,649
CLASS 3		CLASS 33		39.76	4,365,471	38 A	4,365,529	732	4,365,588	CLASS 140	
1.9	4,365,356	185 R	4,365,418		4,365,472	CLASS 83		CLASS 119		1 R	4,365,650
1.91	4,365,357		4,365,419	447	4,365,473	490	4,365,530	14.02	4,365,589	13 A	4,365,651
1.912	4,365,358	202	4,365,420	500	Re.31.1111	767	4,365,531	15	4,365,590	50	4,365,652
	4,365,359	366	4,365,421	525	4,365,474			82	4,365,591	88	4,365,653
13	4,365,360	CLASS 34		673	4,365,475	CLASS 84		CLASS 123		370.2	4,365,654
		1	4,365,422	686	4,365,476	1.19	4,365,532	41.12	4,365,592	426 R	4,365,655
213	4,365,361	23	4,365,423	737	4,365,477	1.24	4,365,533	41.32	4,365,593	CLASS 148	
228	4,365,362		4,365,424	CLASS 62		297 S	4,365,534	41.82 R	4,365,594	31	4,365,997
301	4,365,363	54	4,365,425	6	4,365,982	421	4,365,535	90.53	4,365,595	92.1	4,365,656
378	4,365,364	101	4,365,426	45	4,365,478	433	4,365,536	179 SE	4,365,596	112	4,365,657
393	4,365,365	CLASS 37		55	4,365,479	454	4,365,537	198 F	4,365,597	CLASS 149	
493	4,365,366	57	4,365,427	81	4,365,983	CLASS 91		339	4,365,598	31	4,365,997
555	4,365,367	103	4,365,428	82	4,365,480	1	4,365,538	4365,599	4,365,599	102	4,366,007
596	4,365,368	244	4,365,429	123	4,365,481	CLASS 92		414	4,365,600	143	4,366,008
			4,365,430	149	4,365,482	17	4,365,539	4365,601	4,365,601	171	4,366,009
CLASS 5		CLASS 40		183	4,365,483	CLASS 98		4365,602	4,365,602	CLASS 150	
38	4,365,369	352	4,365,431	239	4,365,484	2	4,365,540	4365,603	4,365,603	48	4,365,658
451	4,365,370	365	4,365,432	320	4,365,485	2.11	4,365,541	4365,604	4,365,604	CLASS 152	
462	4,365,371	391	4,365,433	392	4,365,486	40 V	4,365,542	556	4,365,606	354 R	4,365,659
CLASS 6		530	4,365,434	498	4,365,487	58	4,365,543	568	4,365,608	CLASS 156	
1	4,365,372	608	4,365,435	CLASS 65		CLASS 99		635	4,365,609	86	4,366,011
CLASS 8		615	4,365,436	2	4,365,984	297	4,365,544	5	4,365,610	93	4,366,012
150	4,365,373	CLASS 44		106	4,365,985	459	4,365,545	24 R	4,365,611	102	4,366,013
471	4,365,966	7 C	4,365,971	136	4,365,986	567	4,365,546	54	4,365,612	157	4,366,014
477	4,365,967	53	4,365,972	137	4,365,987	CLASS 100		CLASS 126		185	4,366,015
	4,365,968	56	4,365,973	CLASS 68		38	4,365,547	25 A	4,365,613	218	4,366,016
CLASS 14		CLASS 46		212	4,365,489	154	4,365,548	247	4,365,614	419	4,366,017
71.7	4,365,374	150	4,365,437	CLASS 70		1	4,365,549	424	4,365,616	244.11	4,366,018
CLASS 15		202	4,365,438	70	4,365,490	93.04	4,365,550	425	4,365,617	273.9	4,366,019
1.7	4,365,375	227	4,365,439	425	4,365,491	1	4,365,551	428	4,365,618	380.2	4,366,020
22 R	4,365,376	CLASS 47		34	4,365,988	124	4,365,552	429	4,365,619	548	4,366,021
98	4,365,377	57.5	4,365,440	67	4,365,989	218	4,365,553	439	4,365,620	638	4,366,022
	4,365,378	CLASS 48		100	4,365,990	232	4,365,554	CLASS 128		542	4,366,023
104.06 R	4,365,379	111	4,365,974	121	4,365,991	333	4,365,554	1 R	4,365,621	607	4,366,024
111	4,365,380	197 R	4,365,975	CLASS 72		CLASS 102		1.3	4,365,622	CLASS 160	
243	4,365,381	CLASS 49		10	4,365,492	204	4,365,555	75	4,365,623	133	4,365,660
249	4,365,382	63	4,365,441	53	4,365,493	307	4,365,556	92 A	4,365,624	CLASS 162	
302	4,365,383	346	4,365,442	63	4,365,494	341	4,365,557	202.22	4,365,627	358	4,366,025
CLASS 16		502	4,365,443	88	4,365,495	431	4,365,558	205.12	4,365,628	CLASS 165	
46	Re.31.1110	CLASS 51		249	4,365,496	439	4,365,559	207.14	4,365,625	1	4,365,661
333	4,365,384	94 R	4,365,444	255	4,365,497	477	4,365,560	214 D	4,365,629	10	4,365,662
382	4,365,385	103 WH	4,365,445	351	4,365,498	CLASS 106		214.4	4,365,630	12	4,365,663
	4,365,386	268	4,365,446	387	4,365,500	22	4,365,998	218 DA	4,365,626	40	4,365,664
CLASS 17		277	4,365,447	416	4,365,501	90	4,365,999	235	4,365,631	80 B	4,365,665
52	4,365,387	334	4,365,448	467	4,365,502	100	4,366,000	303 R	4,365,632	104.29	4,365,666
CLASS 19		CLASS 52		CLASS 73		287.11	4,366,001	419 PG	4,365,633	152	4,365,667
159 A	4,365,388	28	4,365,449	3	4,365,503	CLASS 108		640	4,365,634	CLASS 166	
200	4,365,389	98	4,365,450	19	4,365,505	7	4,365,561	675	4,365,635	214	4,365,668
CLASS 24		169.9	4,365,451	151	4,365,506	108	4,365,562	716	4,365,636	231	4,365,669
11 R	4,365,390	173 DS	4,365,452	153	4,365,507	186	4,365,563	734	4,365,637	295	4,365,670
197	4,365,391	478	4,365,453	159	4,365,508	CLASS 110		774	4,365,638	318	4,365,671
256	4,365,392	586	4,365,454	290 V	4,365,509	103	4,365,565	786	4,365,639	CLASS 172	
279	4,365,393	741	4,365,455	313	4,365,510	121.12	4,365,564	330	4,365,640	2	4,365,672
CLASS 28		CLASS 53		384	4,365,511	158 F	4,365,566	336	4,365,641	95	4,365,673
258	4,365,394	69	4,365,456	503	4,365,512	184	4,365,567			126	4,365,674
281	4,365,395	412	4,365,457	517 R	4,365,513	291	4,365,568	CLASS 134		CLASS 173	
CLASS 29		449	4,365,458	592	4,365,514	315	4,365,569	2	4,366,002	105	4,365,675
		552	4,365,459	632	4,365,515	CLASS 114		18	4,366,003	21 JS	4,366,339
		563	4,365,460	644	4,365,516	39	4,365,570	22.11	4,366,004	28	4,366,340
25.13	4,365,396	CLASS 55		722	4,365,517	42	4,365,571	25.2	4,366,005	48	4,366,341
76 R	4,365,397	4	4,365,976	861.31	4,365,518	104	4,365,572	38	4,366,006	52 FP	4,366,342
156.5 R	4,365,399	41	4,365,977	862.52	4,365,519	150	4,365,573	255	4,366,334	52 S	4,366,343
235	4,365,400	47	4,365,978	862.63	4,365,520	243	4,365,574	256	4,366,335	65 R	4,366,344
243.53	4,365,401	181	4,365,979	CLASS 74		255	4,365,575	258	4,366,336	CLASS 175	
407	4,365,402	315	4,365,980	471 XY	4,365,521	265	4,365,576			61	4,365,676
408	4,365,403	497	4,365,981	606 R	4,365,523	267	4,365,577	70	4,365,643	173	4,365,677
455 R	4,365,404	CLASS 56		715	4,365,524	272	4,365,578	102	4,365,644	323	4,365,678
571	4,365,405	14.3	4,365,461	768	4,365,525	349	4,365,579	117	4,365,645	371	4,365,679
593	4,365,406	255	4,365,462	866	4,365,526	356	4,365,580				
598	4,365,407	327 R	4,365,463	CLASS 75		CLASS 116		CLASS 136		CLASS 174	
622	4,365,408	12	4,365,464	60	4,365,992	52	4,365,581	255	4,366,334	28	4,366,340
623.2	4,365,409	84	4,365,465	68 R	4,365,993	70	4,365,582	256	4,366,335	48	4,366,341
762	4,365,410							258	4,366,337	52 FP	4,366,342
845	4,365,398								4,366,338	52 S	4,366,343
	4,365,411									65 R	4,366,344
	4,365,412									CLASS 175	

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212	CLASS 177	167	CLASS 209	276	4,365,749	137	4,366,108	147	4,366,392	409	4,366,462
	4,365,680		4,366,050	333	4,365,750	255	4,366,109	221 R	4,366,393		
	CLASS 179	539	4,365,717	381	4,365,751	328.13	4,366,110	225 R	4,366,394	69	4,366,463
1 J	4,366,346	586	4,365,718	404	4,365,752	518	4,366,111	246	4,366,395	214	4,366,464
2 DP	4,366,347	589	4,365,719	412	4,365,753			261	4,366,396		
84 VF	4,366,348			428.5	4,365,755	44	4,365,788	264	4,366,397		
107 FD	4,366,349	96.2	4,366,051	533.2	4,365,756	87	4,365,789	451	4,366,398	14 R	4,365,856
175.2 C	4,366,350	199	4,366,052	567	4,365,757	103	4,365,790	519	4,366,399	17 C	4,365,857
		222	4,366,053	590	4,365,758			594	4,366,400	17 CF	Re.31.114
	CLASS 180	266	4,366,054	703	4,365,759			36	4,365,858	97 P	4,365,859
68.5	4,365,681	350	4,366,055		4,365,760	166	4,365,791	9	4,365,849		
89.13	4,365,682	435	4,366,056					26	4,365,850		
132	4,365,683	437	4,366,057	21	4,365,761	24	4,365,792	187	4,365,851	202	4,365,861
133	4,365,684	519	4,366,058	60	4,365,762			201	4,365,852		
135	4,365,685	615	4,366,059	70	4,365,763						
256	4,365,686	635	4,366,060	101 A	4,365,764	3.1	4,365,793	12	4,366,401	52 R	4,366,465
315	4,365,687	647	4,366,061			186	4,365,794	64	4,366,466	64	4,366,466
	CLASS 181	651	4,366,062	43 R	4,365,765	236	4,365,795	347 AD	4,366,467	347 AD	4,366,467
145	4,365,688	652	4,366,063	46.2	4,365,766	274	4,365,796	347 DA	4,366,470	347 DA	4,366,470
	CLASS 182	668	4,366,064	67.1 R	4,365,767	303	4,365,797	347 NT	4,366,471	347 NT	4,366,471
97	4,365,689	671	4,366,065	86.7	4,365,768			392	4,366,472	392	4,366,472
	CLASS 185	695	4,366,066	199	4,365,769	8 M	4,365,798	562	4,366,473	562	4,366,473
	4,365,690	767	4,366,068			56.5 R	4,365,799	658	4,366,474	658	4,366,474
45		788	4,366,069	17.11	4,365,770	76	4,365,800	731	4,366,475	731	4,366,475
	CLASS 187			17.27	4,365,771	111	4,365,801	747	4,366,476	747	4,366,476
1 R	4,365,691	60 T	4,365,720	33	4,365,772	118	Re.31.113	792	4,366,477	792	4,366,477
8.72	4,365,692			45 R	4,365,773			825	4,366,478	825	4,366,478
9 E	4,365,693			46	4,365,774	1.5 R	4,365,802	825.05	4,366,479	825.05	4,366,479
29 R	4,365,694	217	4,365,721	53 R	4,365,775	5 R	4,365,803	825.51	4,366,480	825.51	4,366,480
		220	4,365,722	151 A	4,365,776	25	4,365,804	825.54	4,366,481	825.54	4,366,481
	CLASS 188					31	4,365,805	825.69	4,366,482	825.69	4,366,482
73.39	4,365,695			CLASS 246	4,365,777	73 C	4,365,806				
	CLASS 192	10.51	4,366,356			81 C	4,365,807				
67 R	4,365,696	10.55 B	4,366,357	CLASS 248	4,365,778	84 R	4,365,808	113 R	4,366,483	113 R	4,366,483
89 B	4,365,697	69 M	4,366,358	229	4,365,779	157 R	4,365,809	700 MS	4,366,484	700 MS	4,366,484
	CLASS 193		4,366,359	371	4,365,779	237	4,365,810	791	4,366,485	791	4,366,485
2 B	4,365,698		4,366,360			238	4,365,811	899	4,366,486	899	4,366,486
35 SS	4,365,699	78.01	4,366,361	CLASS 249	4,365,780	243	4,365,812				
	CLASS 194	123	4,366,362	11	4,365,781	272	4,365,813	1.1	4,366,487	1.1	4,366,487
2	4,365,700	125.11	4,366,363	91	4,365,782	317	4,365,814	74.3	4,366,488	74.3	4,366,488
22	4,365,701	146.24	4,366,364	124	4,365,783			76 PH	4,366,489	76 PH	4,366,489
	CLASS 198	225	4,366,365	139	4,365,784	22	4,365,815	140 R	4,366,490	140 R	4,366,490
347	4,365,702	247	4,366,366			88	4,365,816	155	4,366,491	155	4,366,491
	4,365,703	272	4,366,367	CLASS 250	4,365,785	188 R	4,365,817	160	4,366,492	160	4,366,492
395	4,365,704	367	4,366,368	211 J	4,366,377	237 R	4,365,818				
424	4,365,705	388	4,366,369	214 AG	4,366,378			96.13	4,365,862	96.13	4,365,862
499	4,365,706	535	4,366,370	251	4,366,379	47.41	4,365,819	96.15	4,365,863	96.15	4,365,863
672	4,365,707			306	4,366,380	411 C	4,365,820	96.16	4,365,864	96.16	4,365,864
	CLASS 200	3.8	4,365,723	316.1	4,366,381	615	4,365,821	96.23	4,365,865	96.23	4,365,865
16 R	4,366,351	67	4,365,724	492.3	4,366,382	625	4,365,822	276 R	4,365,866	276 R	4,365,866
35 R	4,366,352	96	4,365,725	575	4,366,384	689	4,365,824	289	4,365,867	289	4,365,867
48 R	4,366,353	211	4,365,726			777	4,365,825	334	4,365,868	334	4,365,868
154	4,366,354			CLASS 251	4,365,785	804	4,365,826	345	4,365,869	345	4,365,869
159 B	4,366,355	321	4,365,727	231	4,365,785	825	4,365,827	357	4,365,870	357	4,365,870
	CLASS 201	547	4,365,730	8.5 A	4,366,070			414	4,365,871	414	4,365,871
1	4,366,026	600	4,365,731	8.55 R	4,366,071						
	CLASS 202				4,366,072	CLASS 285	4,365,829	CLASS 351	4,365,872	CLASS 351	4,365,872
174	4,366,027			CLASS 223	4,366,073	162	4,365,829	208	4,365,873	208	4,365,873
248	4,366,028	57	4,365,732		4,366,074	224	4,366,432	239	4,365,874	239	4,365,874
262	4,366,029			CLASS 226	4,366,075	281	4,366,433	243	4,365,874	243	4,365,874
	CLASS 203	109	4,365,733	38 R	4,366,076	CLASS 324	4,366,434	CLASS 352	4,365,875	CLASS 352	4,365,875
11	4,366,030			49.3	4,366,077	51	4,366,435	84	4,365,876	84	4,365,876
18	4,366,031	152	4,365,734	174.11	4,366,078	158 SC	4,366,436	184	4,365,877	184	4,365,877
	4,366,032			188.3 CL	4,366,079	379	4,366,437				
	CLASS 204			299.3	4,366,080	464	4,366,438	CLASS 354	4,365,878	CLASS 354	4,365,878
1 T	4,366,033			359 E	4,366,081	468	4,366,438	25	4,365,878	25	4,365,878
32 R	4,366,034			404	4,366,082	89	4,365,830	38	4,365,879	38	4,365,879
44	4,366,035			416	4,366,083	229	4,365,831	60 L	4,365,880	60 L	4,365,880
55 R	4,366,036			426	4,366,084	256.5	4,365,832	76	4,365,881	76	4,365,881
98	4,366,037			431 C	4,366,085	318	4,365,833	106	4,365,882	106	4,365,882
195 M	4,366,038				4,366,086			152	4,365,883	152	4,365,883
195 R	4,366,040			CLASS 229	4,366,087	CLASS 294	4,365,834	187	4,365,884	187	4,365,884
195 S	4,366,039			431 R	4,366,088	85	4,365,834				
252	4,366,041			435	4,366,088	87.2	4,365,835	CLASS 323	4,365,873	CLASS 323	4,365,873
290 F	4,366,042			437	4,366,089	51	4,366,441	25	4,365,875	25	4,365,875
	CLASS 206			459	4,366,090	158	4,366,442	84	4,365,876	84	4,365,876
309	4,365,708	92 DM	4,366,373	466 PT	4,366,091	379	4,366,443	184	4,365,877	184	4,365,877
362	4,365,709	92 MP	4,366,371	477 R	4,366,092	468	4,366,438	25	4,365,878	25	4,365,878
386	4,365,710	92 PL	4,366,372	512	4,366,093	104	4,366,439	38	4,365,879	38	4,365,879
387	4,365,711			633	4,366,095			60	4,365,880	60	4,365,880
	4,365,712					CLASS 297	4,365,836	106	4,365,881	106	4,365,881
461	4,365,713			CLASS 236	4,366,097	254	4,366,443	128	4,365,882	128	4,365,882
524.8	4,365,714			123.5	4,366,098	256	4,366,444	152	4,365,883	152	4,365,883
632	4,365,715			239.1	4,366,099	257	4,366,445	187	4,365,884	187	4,365,884
	4,365,716			407	4,366,099	260	4,366,446	208	4,365,885	208	4,365,885
	CLASS 208			410.7	4,366,100	267	4,366,447	254	4,366,443	254	4,366,443
216	4,366,043			429.3	4,366,101	268	4,366,448	256	4,366,444	256	4,366,444
216	4,366,043			463	4,366,102	278	4,366,449	257	4,366,445	257	4,366,445
8 R	4,366,044			967	4,366,103	285	4,366,450	260	4,366,446	260	4,366,446
10	4,366,045					CLASS 331	4,366,451	267	4,366,447	267	4,366,447
11 R	4,366,046			CLASS 261	4,366,104	CLASS 333	4,366,452	268	4,366,448	268	4,366,448
89	4,366,047			18 A	4,366,105	444	4,366,453	278	4,366,449	278	4,366,449
127	4,366,048			35	4,366,106	446	4,366,454	285	4,366,450	285	4,366,450
179	4,366,049			156	4,366,107	446	4,366,455	285	4,366,451	285	4,366,451
				25	4,366,107	446	4,366,456	285	4,366,452	285	4,366,452
						446	4,366,457	285	4,366,453	285	4,366,453
						446	4,366,458	285	4,366,454	285	4,366,454
						446	4,366,459	285	4,366,455	285	4,366,455
						446	4,366,460	285	4,366,456	285	4,366,456
						446	4,366,461	285	4,366,457	285	4,366,457
						446	4,366,462				

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PATENTS

01 : 4,366,133	4,365,805	4,365,661	4,365,926	4,365,966	4,365,579
04 : 4,365,363	4,365,809	4,365,690	4,365,936	4,366,047	4,365,592
4,366,445	4,365,810	4,365,691	4,366,025	4,366,048	4,365,608
4,366,518	4,365,812	4,365,694	4,366,030	4,366,052	4,365,627
06 : Re.31,113	4,365,813	4,365,770	4,366,031	4,365,421	4,365,647
4,365,353	4,365,820	4,365,859	4,366,060	4,365,460	4,365,673
4,365,365	4,365,831	4,366,068	4,366,084	4,365,540	4,365,681
4,365,366	4,365,842	4,366,209	4,366,091	4,365,572	4,365,687
4,365,400	4,365,843	4,366,265	4,366,105	4,365,754	4,365,754
4,365,411	4,365,860	4,366,365	4,366,112	4,365,817	4,365,817
4,365,419	4,365,865	4,366,376	4,366,174	4,365,818	4,365,818
4,365,432	4,365,943	4,366,459	4,366,178	4,365,838	4,365,838
4,365,437	4,365,970	4,366,490	4,366,197	4,365,855	4,365,855
4,365,440	4,365,973	11 : 4,365,929	4,366,267	4,365,874	4,365,874
4,365,442	4,365,980	12 : 4,365,364	4,366,304	4,365,915	4,365,915
4,365,445	4,365,989	4,365,581	4,366,351	4,365,919	4,365,919
4,365,448	4,365,990	4,365,709	4,366,352	4,365,924	4,365,924
4,365,451	4,366,046	4,365,734	4,366,486	4,365,983	4,365,983
4,365,463	4,366,051	4,365,819	4,366,620	4,366,036	4,366,036
4,365,484	4,366,057	4,365,923	4,365,502	4,366,092	4,366,092
4,365,493	4,366,061	4,366,034	4,365,705	4,366,194	4,366,194
4,365,503	4,366,066	4,366,350	4,365,721	4,366,254	4,366,254
4,365,512	4,366,081	4,366,353	4,365,783	4,366,283	4,366,283
4,365,514	4,366,083	4,366,366	4,365,964	4,366,289	4,366,289
4,365,516	4,366,222	4,366,368	4,365,988	4,366,306	4,366,306
4,365,520	4,366,241	4,366,373	4,366,147	4,366,313	4,366,313
4,365,528	4,366,246	4,366,453	4,366,155	4,366,320	4,366,320
4,365,570	4,366,307	13 : 4,365,780	4,366,156	4,366,363	4,366,363
4,365,571	4,366,333	4,366,429	4,366,168	4,366,465	4,366,465
4,365,575	4,366,336	4,366,452	4,366,172	4,366,531	4,366,531
4,365,613	4,366,377	4,365,628	4,366,198	4,366,454	4,366,454
4,365,622	4,366,378	4,365,774	4,366,243	4,366,467	4,366,467
4,365,623	4,366,382	4,365,393	4,366,247	4,366,511	4,366,511
4,365,632	4,366,386	4,365,408	4,366,458	4,366,522	4,366,522
4,365,635	4,366,451	4,365,431	4,365,428	4,366,538	4,366,538
4,365,639	4,366,463	4,365,435	4,365,438	4,366,539	4,366,539
4,365,664	4,366,481	4,365,439	4,365,741	4,366,547	4,366,547
4,365,676	4,366,483	4,365,449	4,365,807	4,366,570	4,366,570
4,365,701	4,366,512	4,365,473	4,365,841	4,366,576	4,366,576
4,365,708	4,366,530	4,365,527	4,366,264	Re.31,110	4,365,739
4,365,710	4,366,536	4,365,536	4,366,422	4,365,367	4,365,854
4,365,711	4,366,537	4,365,541	4,365,378	4,365,369	4,365,925
4,365,718	4,366,551	4,365,554	4,365,610	4,365,404	4,366,058
4,365,722	4,366,555	4,365,582	4,365,634	4,365,406	4,366,069
4,365,736	08 : 4,365,436	4,365,630	4,365,775	4,365,433	4,366,146
4,365,750	4,365,452	4,365,672	4,366,130	4,365,441	4,366,200
4,365,752	4,365,965	4,365,720	4,365,562	4,365,450	4,366,223
4,365,768	4,366,050	4,365,785	4,365,641	4,365,504	4,366,342
4,365,776	4,366,126	4,365,802	4,365,837	4,365,513	4,366,480
4,365,796	4,366,484	4,365,840	Re.31,111	4,365,524	4,366,509
4,365,798	4,366,553	4,365,861	4,365,386	4,365,534	4,366,534
4,365,799	09 : 4,365,470	4,365,905	4,365,464	4,365,539	4,366,540
4,365,801	4,365,501	4,365,920	4,365,938	4,365,577	4,366,548

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4,365,546	4,366,302	4,366,207	4,366,277	4,365,960	4,365,786
4,365,832	4,366,303	4,366,218	4,366,291	4,365,981	4,365,835
4,365,956	4,366,309	4,366,219	4,366,323	4,365,984	4,365,911
4,366,131	4,366,335	4,366,225	4,366,331	4,365,992	4,365,975
4,366,177	4,366,375	4,366,228	4,366,344	4,366,002	4,365,977
4,366,430	4,366,407	4,366,319	4,366,349	4,366,013	4,365,978
4,366,528	4,366,440	4,366,332	4,366,389	4,366,029	4,366,042
4,365,370	4,366,443	4,366,343	4,366,521	4,366,041	4,366,059
4,365,674	4,366,444	4,366,354	4,366,574	4,366,064	4,366,063
4,365,748	4,366,495	4,366,385	4,366,578	4,366,086	4,366,122
4,366,006	4,366,498	4,366,406	4,366,579	4,366,098	4,366,175
4,365,375	4,366,520	4,366,431	4,365,413	4,366,141	4,366,216
4,366,044	4,366,563	4,366,469	4,365,506	4,366,165	4,366,259
4,365,614	4,366,565	4,366,476	4,365,518	4,366,169	4,366,261
35 : 4,365,950	4,366,379	4,366,493	4,365,668	4,366,192	4,366,295
4,366,461	4,365,352	4,366,499	4,365,670	4,366,192	4,366,348
36 : 4,365,362	4,365,380	4,366,500	4,365,692	4,366,192	4,366,380
4,365,447	4,365,412	4,366,508	4,365,733	4,366,210	4,366,387
4,365,458	4,365,415	4,366,526	4,365,762	4,366,211	4,366,394
4,365,537	4,365,423	4,366,571	4,365,876	4,366,294	4,366,560
4,365,556	4,365,434	4,365,615	4,365,892	4,366,339	4,365,658
4,365,566	4,365,491	4,365,766	4,366,071	4,366,400	4,366,384
4,365,567	4,365,535	4,365,814	4,366,072	4,366,446	4,365,398
4,365,569	4,365,584	4,365,922	4,366,073	4,366,475	4,365,619
4,365,626	4,365,616	4,366,158	4,366,074	4,366,532	4,365,740
4,365,689	4,365,629	Re.31,112	4,366,561	4,365,515	4,365,787
4,365,707	4,365,642	4,365,351	4,365,480	4,365,580	4,365,793
4,365,723	4,365,655	4,365,368	4,365,530	4,365,816	4,365,982
4,365,714	4,365,714	4,365,402	4,365,576	4,365,611	4,366,229
4,365,784	4,365,730	4,365,547	4,365,617	4,365,631	4,366,317
4,365,804	4,365,742	4,365,617	4,365,696	4,365,968	4,366,370
4,365,853	4,365,755	4,365,618	4,365,743	4,366,053	4,366,427
4,365,891	4,365,794	4,365,675	4,365,829	4,365,934	4,365,361
4,365,947	4,365,797	4,365,693	4,365,625	4,366,022	4,365,392
4,365,971	4,365,808	4,365,745	4,365,753	4,366,104	4,365,677
4,365,994	4,365,811	4,365,753	4,365,767	4,366,104	4,365,882
4,366,018	4,365,849	4,365,767	4,365,777	4,366,382	4,365,914
4,366,023	4,365,858	4,365,789	4,365,789	4,366,329	4,365,927
4,366,067	4,365,889	4,365,868	4,365,868	4,365,425	4,365,937
4,366,078	4,365,897	4,365,873	4,365,873	4,365,456	4,366,116
4,366,079	4,365,904	4,365,928	4,365,928	4,365,481	4,365,374
4,366,096	4,365,912	4,365,955	4,365,955	4,365,508	4,365,381
4,366,103	4,365,957	4,365,985	4,365,985	4,365,588	4,365,429
4,366,145	4,365,958	4,366,015	4,366,015	4,365,590	4,365,444
4,366,154	4,365,972	4,366,016	4,366,016	4,365,682	4,365,545
4,366,170	4,365,974	4,366,019	4,366,019	4,365,688	4,365,833
4,366,171	4,365,986	4,366,088	4,366,088	4,365,716	4,366,109
4,366,186	4,365,987	4,366,101	4,366,101	4,365,725	4,366,111
4,366,217	4,366,037	4,366,193	4,366,193	4,365,735	4,366,202
4,366,224	4,366,045	4,366,251	4,366,251	4,365,744	4,366,388
4,366,273	4,366,089	4,366,252	4,366,252	4,365,758	4,366,482
4,366,275	4,366,094	4,366,255	4,366,255	4,365,895	4,366,577
4,366,292	4,366,134				

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01 : 267,430	267,431	267,424	32 : 267,380	39 : 267,383	42 : 267,384
04 : 267,395	267,432	267,365	33 : 267,425	267,387	45 : 267,406
267,397	267,436	267,379	267,426	267,394	48 : 267,434
06 : 267,364	08 : 267,408	267,437	36 : 267,366	267,410	267,435
267,373	267,433	267,381	267,407	267,416	53 : 267,363
267,391	267,372	267,386	267,420	267,369	55 : 267,377
267,392	267,375	267,438	37 : 267,371	267,404	267,378
267,399	267,374	267,402	267,376	267,439	267,388
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267,421	267,396	267,429	267,428	267,405	267,415
267,422	267,409				

PLANT PATENTS

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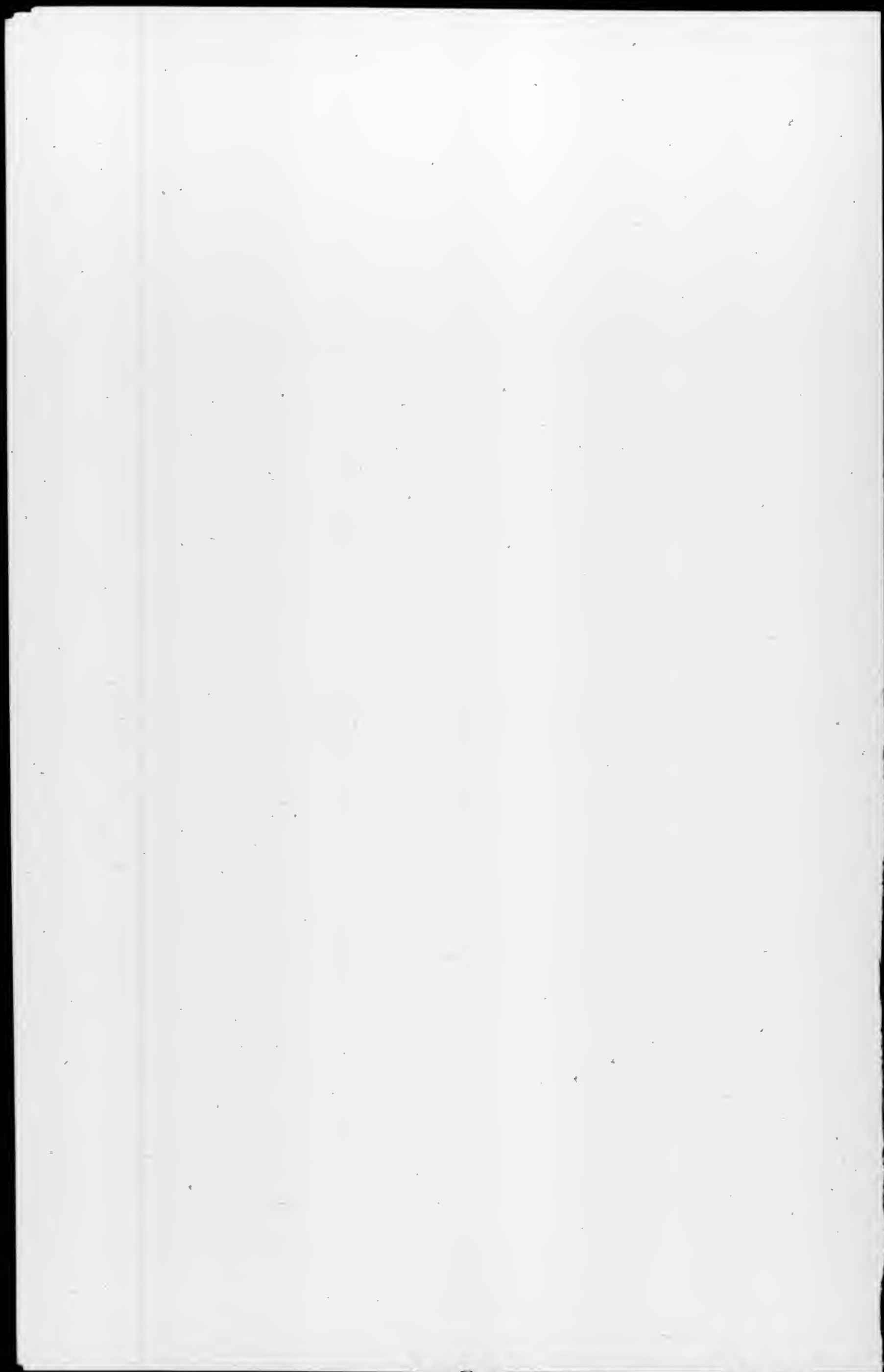
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